

## Restoring Steinbeck's Carmel River: The Removal of San Clemente Dam

by Craig A. Hall, PE, GE, Principal Geotechnical Engineer, GEI Consultants, Inc. Oakland, CA and Stephen G. Brown, PE, Program Manager of Dam Design Services, Kleinfelder, Inc., Denver, CO.

### Introduction

If you've read John Steinbeck's 1945 classic *Cannery Row*, then you're already familiar with the Carmel River, which he described as "...a lovely little river. It isn't very long, but in its course it has everything a river should have..." Today, the river has one less—but very significant—landmark on it: the San Clemente Dam. Removal of the dam structure (Figure 1), which was located in Monterey County, CA, about 18.5 miles from the Pacific Ocean, was the largest dam removal and stream restoration project in California, and was completed in the summer of 2015.

Leaders of the Carmel River Reroute and Dam Removal Project (CRRDR) were tasked with removing the dam in its entirety to meet several important objectives:

- To eliminate the potential for a dam failure during major seismic and flood events
- To remove the potential for release of the 2.5-million cy of sediment behind the dam
- To provide a passageway for fish to access an additional 6.5 miles of river, including the threatened South-Central California Coast steelhead



Figure 1: Removal of the dam structure.

- To create wetlands and an aquatic breeding habitat for the threatened California red-legged frog

Clearly, this is one project that can be considered a "win-win" for all, including the public, state/federal agencies, stakeholders, the dam owner, and possibly most importantly, the environment itself.

*continued on page 2*

## President's Report

by Brian A. Morgan, Esq., Legal Counsel, CDM Smith Inc.



It's a new year! BSCES has a great program lined up for the first half of the year so that you can fulfill your New Year's resolution to be more engaged in BSCES.

I am excited to report that BSCES continues to set the bar high within ASCE! BSCES was recently awarded the 2016 Outstanding Section and Branch Award for very large Sections and Branches. BSCES Vice President and Award Committee Chair Christopher (Topher) Smith, HNTB Corporation, worked hard at developing the submittal for this award which detailed the many technical group, institute chapter and committee activities and the achievements of our members.

This award was presented at the 2017 Regions 1, 2, 4, and 5 Multi-Region Leadership Conference on Saturday, January 21. Alyson Stuer (Younger Member Group), Malek Al-Khatib (President-Elect) and Rich Maher (Senior Vice President) attended the Conference in Newark, New Jersey. BSCES has achieved this award six out of the last seven years! Congratulations to our Section and a thank you Topher.

Among the many reasons that BSCES is able to achieve this great award year after year is due in part from donations received over the years that created "special funds" for our Section. BSCES has twenty special funds, which allow the technical groups and institute chapters to finance specific events, provide scholarships, grants, awards and other activities that support the mission of BSCES.

## UPCOMING EVENTS

16th Arthur Casagrande Memorial Lecture February 2, 2017

T&DI Boston Chapter Ice Skating February 9, 2017

Younger Member Group Billiards Tournament February 15, 2017

BSCES Professional Engineer Refresher Course February 28 – April 21, 2017

ASCE and BSCES Sponsored Seminar March 9 – 10, 2017

BSCES Program Committee Sponsored NHI Training April 24 – 28, 2017

Further Details Inside



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I would like to highlight a few of the special funds that are mentioned in this newsletter. First, the Arthur Casagrande Fund was established in 1983 in memory of Arthur Casagrande who made or contributed to making the fundamental developments of Soil Mechanics and later became a Professor of Soil Mechanics. The fund was started with a \$5,000 from the Geotechnical Group Lecture Series Reserve Fund and was later funded from contributions from various Boston engineering firms. The fund was established to be used to support a lecture given every other year by an eminent engineer with longstanding achievements in practice, teaching, and/or research in geotechnical engineering. This year

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**The Removal of San Clemente Dam**

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**Historical Background**

San Clemente Dam was a 106 feet tall, concrete-arched dam built between 1919 and 1921 to retain water for the residence and industry of Monterey, including drinking, luxury hotels, golf course irrigation, and sardine cannery operations. By 2008, the original storage capacity of 1,430 acre-ft was reduced by 90 percent due to sediments filling the reservoir. When California Division of Safety of Dams (DSOD) determined the dam could not withstand either a maximum credible (MCE) earthquake (estimated at Mw 7.3 and peak ground acceleration of 0.45g) or a Probable Maximum Flood (PMF), the owner of the dam, California American Water (CAL-AM), worked with DSOD to evaluate mitigation options.

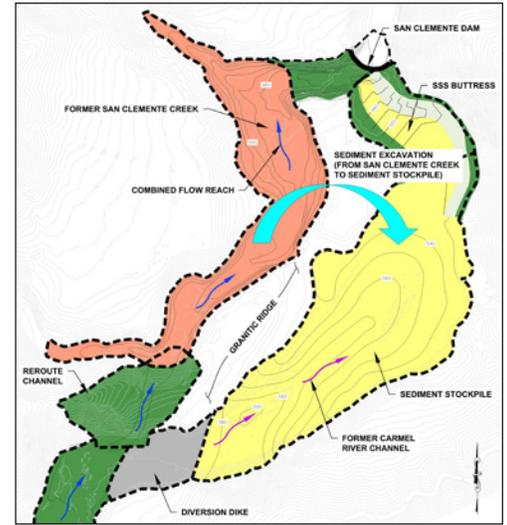
The owner’s preferred mitigation solution was to buttress the dam to increase its seismic stability. However, the California Coastal Conservancy and the National Marine Fisheries Service (NMFS) convinced CAL-AM to change its plan from repair to complete dam removal to allow for successful fish passage. Prior to removal, the fish ladder at San Clemente Dam was one of the steepest ladders in the nation, with very little fish passage success.

**Dam Removal Plan**

A major challenge with the dam removal concept was how to manage the massive amount of sediment retained behind the dam. Allowing large quantities of sediment to be carried downstream by river flow would have posed a flood threat to the downstream home and property owners. Further, excavating and off-hauling the sediment off site would have been prohibitively expensive and environmentally challenging with adverse impact to the local community from a large fleet of noisy and roadway-damaging truck traffic. The solution for this concern was to retain the sediment onsite and prevent downstream release of the sediments during either major seismic or PMF events.

Another challenge was managing project risks and associated costs during the engineering and construction. Technical and regulatory challenges for the construction included flood risk, unknown depths to bedrock, excavation risk due to difficult ground conditions, the potential for landslides onsite, and potential/unknown impacts to both design and construction due to DSOD regulatory approval process.

With this in mind, CAL-AM procured the contract using a Design/Build (D/B) project delivery approach. Now, design could occur in-tandem with the construction, and changes



**Figure 2: Designed Project Elements**

encountered onsite during construction could be addressed more rapidly between the design engineers and contractor, thus expediting the schedule. The overall project was estimated at \$83M, which included \$63M for the D/B team.

**Pre-Construction Conditions**

San Clemente Dam was located slightly downstream of the confluence of the Carmel River and the San Clemente Creek. Within the reservoir area, a granitic ridge separates the Carmel River and San Clemente Creek watersheds. Approximately 2.5 million cubic yards of sediments was retained upstream of the dam. The bulk of the reservoir sediments are located within the Carmel River portion of the reservoir; however, approximately 380,000 cubic yards of sediment were located within the San Clemente Creek portion of the reservoir.

**Designed Project Elements**

As shown in Figure 2, the project design includes routing the Carmel River into the San Clemente Creek, via a channel (Reroute Channel) excavated through the granitic ridge approximately 3,000 ft upstream of the dam. The design also re-purposes the abandoned Carmel River reach as a sediment storage area. The sediment storage area (aka “sediment stockpile”) is retained between two designed embankments (the downstream “Stabilized Sediment Slope” and upstream “Diversion Dike”). Both embankments are designed to retain the sediment during the MCE earthquake event. The Diversion Dike, which features a seepage cutoff wall constructed through the underlying river sediment, prevents surface and subsurface flow from entering the upstream end of the sediment stockpile.

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## The Removal of San Clemente Dam

*continued from page 2*

A major feature of the project is transforming San Clemente Creek into a channel that can handle the much larger combined flows of both Carmel River and San Clemente Creek. This “Combined Flow Reach” is also designed to provide fish passage and terrestrial habitat through the project site. Finally, the project design included the removal of San Clemente Dam.

### Combined Flow Reach

A new channel, referred to as the Combined Flow Reach (CFR), was constructed to convey the redirected Carmel River flowing through the Reroute Channel into San Clemente Creek (see Figure 3). The CFR is an approximately 2,500-foot-long step-pool channel with an average grade of 2.7 percent extending from the excavated Reroute Channel to a point immediately downstream of the removed dam where the CFR flows into the original Carmel River. The CFR design is based on the requirements for steelhead passage and consists of a series of eight step-pool sequences separated by larger resting pools. The step-pool reaches range from 125 feet to 200 feet in length, and have average slopes ranging from 2 to 5 percent. The lengths of the resting pools range from 75 to 105 feet. Boulders collected during site excavation were used for resting pool construction.

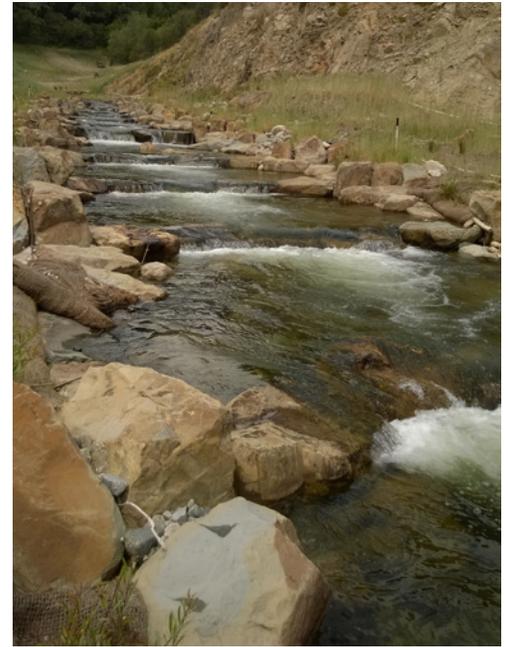
The San Clemente Creek Valley is quite narrow and created significant challenges for designing

the CFR in a manner that maintains desirable hydraulic conditions and channel stability over the range of flows that can occur along this reach. Previous to this project, the 100 year event flow of the San Clemente Creek was estimated at about 1,100 cfs. However, the CFR designed for both the Carmel River and San Clemente Creek flows is anticipated to experience 11,900 cfs during the 100 year flood event. The previous San Clemente Creek channel had likely never experienced flows of this magnitude.

With such an increase in flows, the designers understood the importance of using durable natural materials to build a lasting substrate for the fish passage features installed along the CFR. The substrate of the CFR had to have specific sand and gravel gradations. The boulders that stabilized and protected the step pools and resting pools were checked and evaluated for size, shape and soundness. The designers ingeniously used tree trunks and other large woody debris along the outer banks of the channel to reduce overflow velocities.

### Dam Removal

Compared to the various design elements on this project, the physical removal of the San Clemente Dam, from the perspective of the design team, was relatively straightforward. The contractor used a pneumatic hammer and breaking bar to



**Figure 3:** Carmel River flowing through the Reroute Channel into San Clemente Creek.

reduce the dam to rubble within 3 weeks. But although anticlimactic in design and implementation, its removal provided a significant visual symbol that the river had been re-opened. This accomplishment was celebrated by everyone who had contributed to development of the project during the many years prior to the D/B arriving onsite. Observing the various stakeholders watching the dismantling of the dam was momentous on its own.

## President's Report

*continued from page 1*

the lecture will be held on February 2nd and will feature Suzanne Lacasse, ScD of the Norwegian Geotechnical Institute who will present on the Hazard, Risk and Reliability in Geotechnical Practice. For more information, please see the event notice in this newsletter.

Second, the Joseph C. Lawler Engineering Management Lecture Fund was established in March 1986 in memory of ASCE Civil Engineering Management Award winner Joseph C. Lawler, former president and CEO of CDM Smith Inc., to provide a forum to discuss important aspects of engineering management. These include the management of projects, the general management of engineering organizations, and the management of engineering education and professional development. This year's Lawler Lecture will occur in June 2017 and will include two speakers, Rick Dimino, president and CEO of A Better City, as well as Barry Bluestone, senior research associate for the Dukakis Center for Urban and Regional

Policy and key contributor to A Better City's State of the Built Environment report.

For all of the students reading this newsletter that are enrolled in an environmental engineering program, I would like to highlight the opportunity to apply for the 2017 Jonathan B. Golden Scholarship, which is offered through the Environmental & Water Resources Institute Boston Chapter. The Jonathan B. Golden Scholarship Fund was established by BSCES in 2002 in memory of Jon Golden, former Boston office manager for MWH Global, and to recognize his many contributions to the environmental engineering profession, particularly his genuine commitment to the mentoring and training of young engineers. The scholarship award amount is \$5,000. Please refer to page 7 and the insert included at the end of this newsletter for the full details on how to apply before April 4th.

Also, the Transportation & Development Institute Boston Chapter is seeking nominations for the 2017 Bertram Berger Young Engineer Award, which recognizes an outstanding BSCES

younger member for his or her professional achievements and service to the community. This \$2,500 award is made possible from the proceeds of the Bertram Berger Memorial Fund, which was established in 1982 by the BSCES Board of Government in recognition of former Fay Spofford & Thorndike vice president Bertram Berger's contributions to ASCE and to BSCES. Nominations for this award are due by April 14th. Please refer to page 7 and the insert included at the end of this newsletter for additional details.

The featured group of this month's newsletter is the BSCES Engineering Management Group and I urge you learn more about this group, which is chaired by Michaela Bogosh of CDM Smith Inc. This issue of *BSCESNews* contains a page 6 article that was written by Michaela.

In closing, I would like to thank all of our Society and Program Sponsors, whose financial support helps enable BSCES and its committees, institute chapter and technical groups to host the numerous networking and professional development events that are planned for this year.

## Dukakis and Nitsch Named 2016 BSCES Honorary Members

by Rakaia L. El-Kasaby, Membership Associate, BSCES

At the 168th BSCES Annual Awards Dinner on November 14th, 2016, the BSCES Board of Government was pleased to present the Section's highest award, BSCES Honorary Membership, to Former Massachusetts Governor Michael S. Dukakis and Founding Principal of Nitsch Engineering, Judith Nitsch, PE. Brief biographies of these two exceptional individuals who have made significant contributions to the civil engineering profession as well as the public good are presented below.

Former Governor Michael S. Dukakis received BSCES Honorary Membership because of his esteemed legacy of leadership in Massachusetts. As Governor and a legislator, Michael Dukakis always recognized that the Commonwealth's infrastructure is the backbone of our economy and advocated tirelessly for appropriate levels of investment. As a leader in health policy, he also recognized the important role that our infrastructure plays in protecting the health and safety of the public and our environment. He continues to be a strong advocate for the North-South Rail Link. Mike Dukakis became Governor in 1974 and is credited with digging Massachusetts out of one of its worst financial and economic crises in history. Dukakis lost the 1978 Democratic Primary to Edward King, but came back to defeat King in 1982 and was re-elected to an unprecedented third four-year term in 1986. That same year, his colleagues in the National Governors Association voted him the most effective governor in the nation.

After graduating from Brookline High School, Mike Dukakis attended Swarthmore College and Harvard Law School. He served for two years in the United States Army, sixteen months



Left: Former Massachusetts Governor Michael S. Dukakis  
Right: Judith Nitsch, PE, Founding Principal of Nitsch Engineering

of which he spent with the Support Group to the UN Delegation to the Military Armistice commission in Munsan, Korea. He served four terms as a state legislator before he was elected as Governor. Mike Dukakis won the Democratic nomination for the Presidency in 1988. After leaving office in 1991, Governor Dukakis served as a Professor at the University of Hawaii, Northeastern University, the John F. Kennedy School of Government at Harvard University and Florida Atlantic University. He also served on the board of directors for Amtrak. He has authored articles in the Journal of American Health Policy, the Yale Law and Policy Review, and the New England Journal of Medicine.

Judith Nitsch received BSCES Honorary Membership because of her distinguished career as a civil engineer, her longstanding commitment to the civil engineering profession, and for being a strong role model for young women who are considering a career in civil engineering. Judy is the founding principal of Nitsch Engineering. Her work over the past 40 years in the civil

engineering field has focused on the design and management of site development and infrastructure-related projects.

A graduate of Worcester Polytechnic Institute (WPI), Judy is a Registered Professional Engineer in 11 states. She received an Honorary Doctor of Engineering Degree from WPI in 2015, and an Honorary Doctor of Science Degree from the Massachusetts Maritime Academy in 2010.

Judy served on the Board of Directors of CREW Network (Commercial Real Estate Women) for five years and was the 2014 President of this national organization. She has also served as President of the American Council of Engineering Companies of Massachusetts and President of the Boston Society of Civil Engineers Section/ASCE. In 1989, Judy was elected the first alumna member to WPI's Board of Trustees; she served as Chair of the Facilities and Campus Infrastructure Committee for 16 years. Judy serves on the board of the Greater Boston Chamber of Commerce and is co-chair of its Real Estate Development Committee. She is a Trustee of Eastern Bank, a member of the ULI Boston Advisory Board, and a Fellow of ACEC, ASCE, SWE, and SMPS.

After an exhaustive search for suitable candidates, each year the Nominating Committee selects two individuals to receive Honorary Membership, pending approval by the BSCES Board of Government. In being awarded this distinction, Former Massachusetts Governor Michael S. Dukakis and Judith Nitsch, PE have joined a legacy of 67 other notable individuals who have been designated BSCES Honorary Members.

aerial mapping - online imagery

## EASTERN TOPOGRAPHICS

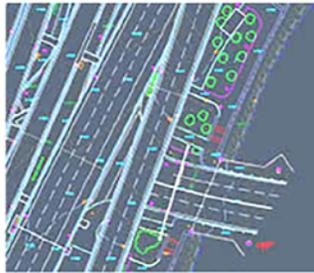
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## Civil Engineering Impressions

by James Piccirilli, Watertown High School class of 2017

Last summer, between my junior and senior year of high school, I worked at the Watertown Department of Public Works with the Engineering Division. Going into my internship, I had a rough idea of what a civil engineer does: designing and approving plans, managing projects, managing contractors, and generally caring for, maintaining, and improving the town. Doing all of that as a career struck me as interesting, so I wanted to get some experience in it to see if it is something I wanted to study in college. On my first day, I went around meeting everyone, and when I told the people at the office why I was there, I got a pretty unanimous response from the engineers: "Are you sure you want to do this? It's awful!" As I learned, this comment wasn't intentionally rude, more just evocative of the self-deprecating personality it seems most engineers have. This really didn't deter me from my goal of learning about being a civil engineer, and it almost made me more determined to learn about the job and what made it so tough.

I won't lie—when I first started my internship at the DPW, I thought there would be a lot of

standing around and doing nothing, since that seems to be what nearly everyone thinks working at a DPW is like. Granted, there was a lot of standing around, but that standing around turned out to be the furthest thing from doing nothing. The time that I spent standing with the town engineer, watching him talk to contractors and town workers and solving all of the unexpected problems was the best part of my job. It seemed like every time we went out, there would be another problem to solve, another issue with a resident to talk about, or another contractor who had their own ideas for a project.

After just the first few days of my job, I was surprised to learn a big part of civil engineering is talking to people and on the spot problem solving. I knew that engineers would visit project sites to check in on the happenings, but I never thought that there would be so many problems and issues that would require on-the-spot critical thinking and problem solving. Sometimes they would be small things, like deciding where to put a new six-inch reveal curb to stop people from illegally

parking. Sometimes they were a lot bigger, like the contractors not planning ahead with the placement of water pipes. But every single time that we would get together to talk the problems out, I would just listen and be amazed by the number of decisions that got made through standing around and talking. The skill that impressed me the most was the ability to make on-the-spot decisions about projects that not only took into account practical feasibility, but also took into account cost and what would be best for the residents and for the town at large.

I came out of my internship with a new respect for what civil engineers do, because the job has a lot more to it than I thought at first. All of the problem solving and on the spot discussions that took place on construction sites or out in back of the DPW office surprised me. It seemed to me that there was an equal amount of time spent in the office looking at plans as there was outside in the heat talking and solving problems.

I want to give a special thanks to everyone at the Watertown DPW.

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## Featured Group

### BSCES Engineering Management Group

by *Michaela Bogosh, PE, Project Engineer, CDM Smith and BSCES Engineering Management Group Chair*

The Engineering Management Group’s mission is to host two to three events each year. Historically, topics have ranged considerably from transportation planning, an engineer from National Aeronautics and Space Administration (NASA) and the history of water and wastewater infrastructure in Boston and surrounding communities. The aim of these events is to cast a wide net to draw as many different types of professionals as possible.

Our first event, titled “The Flint Water Crisis: Keeping the Citizens of Flint Safe,” was held Thursday, October 20, 2016 at the Snell Library at Northeastern University. Emily Garner, a PhD student from Virginia Tech (VT) University led off the event with a presentation on the timeline of the water quality issues within the city of Flint, Michigan and what VT researchers did to uncover the problem. The Flint Water Crisis is one of the most significant public health issues that our country has faced in recent history. The uncovering of elevated levels of lead in the Flint’s drinking water shook the city and the nation’s confidence in their public water supply and led to regulatory action from water utilities and environmental agencies across the country. Following Ms.

Garner’s presentation, Ms. Yvette DePeiza, director division of water supply with the Massachusetts Department of Environmental Protection (MassDEP), spoke about the impact that Flint had at a local level, what MassDEP has been doing to address the Lead and Copper Rule (LCR) and what will be done going forward. Following both presenters, a lively discussion about these public health and regulatory topics ensued.

The final event of the season will be the highly acclaimed annual Joseph C. Lawler Lecture, which is tentatively scheduled for mid-June. Each year, EMG is given the responsibility of selecting a keynote speaker or speakers to discuss significant engineering management topics for the Lecture. This year’s Lawler Lecture will include two speakers, Rick Dimino, president and CEO of A Better City, as well as Barry Bluestone, senior research associate for the Dukakis Center for Urban and Regional Policy and key contributor to A Better City’s State of the Built Environment report. The event will focus around the summer 2016 report, which includes such topics as the region’s transportation, energy, water, sewer and waste management systems, as well as the consequences of forecasted

climate change on the region’s seaports over the next 15 years. The presentation will also provide information for regional leaders and stakeholders to plan to address Boston’s and surrounding community’s infrastructure needs up to 2030 all the while taking into consideration projected pollution and economic growth. Look for an announcement of the event in early 2017!

It is the Engineering Management Group’s hope that those who have attended past events found them worthwhile and that this year’s Lawler Lecture peaks your interest. If you have any interest in engineering management, or engineering leadership, I encourage you to participate and become involved with EMG. In 2017, we’ll convene in downtown Boston on the second Wednesday of each month to coordinate and plan our event calendar. We’ll also be planning a recruitment event sometime in early 2017, so be on the lookout! Please contact me if you would like to become involved, have any questions, or would like to register for an upcoming EMG event. I can be contacted via e-mail at [bogoshml@cdmsmith.com](mailto:bogoshml@cdmsmith.com) or by phone at 617/452-6694.

### 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 300 to 700 words, *BSCESNews* featured articles are about technical topics or professional matters of interest to civil engineers. The March 2017 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 Mike Cunningham at [mcunningham@kleinfelder.com](mailto:mcunningham@kleinfelder.com) or BSCES Association Manager Rich Keenan at [rkeenan@engineers.org](mailto:rkeenan@engineers.org).



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## Recent News and Updates

### Jonathan B. Golden Fund Scholarship Award

The BSCES Environmental & Water Resources Institute is accepting applications for the 2017 Jonathan B. Golden Scholarship. The Jonathan B. Golden Fund was established by BSCES in 2002 in honor of Jon Golden to recognize his many contributions to the environmental engineering profession, particularly his genuine commitment to the mentoring and training of young engineers. The purpose of the fund is to provide financial assistance to a graduate environmental engineering student at an accredited college or university. Applicants must be enrolled in a graduate Environmental Engineering program (or related field) during the fall 2016 semester and be committed to continuing in full-time graduate study through at least the spring 2017 semester. The scholarship award amount is \$5,000. Scholarship applications are due by Tuesday, April 4, 2017. Please [click here](#) or see the insert at the end of this newsletter for more information.

### 2017 Bertram Berger Young Engineer Award

This is a reminder that the BSCES Transportation & Development Institute Boston Chapter is accepting nominations for the 2017 Bertram Berger Young Engineer Award through Friday, April 14, 2017. This \$2,500 award recognizes an outstanding BSCES younger member for his or her professional achievements and service to the community. Please [click here](#) or see the insert at the end of this month's newsletter for award eligibility guidelines and nomination submission instructions.

### BSCES Welcomes its New Members

The BSCES Board of Government is pleased to welcome the following new members who joined BSCES during the month of December, 2016:

#### Associates

Evan Benson, EIT, CDM Smith  
James Chabinec, EIT, McKenzie Engineering Group, Inc.  
Raeanna Hughes, EIT, Lynn Water & Sewer Commission  
Kevin Ross, Nitsch Engineering

#### Members

Jeffrey W. Bellino, PE, West Yarmouth, MA  
Matthew Laplante, PE, WSP | Parsons Brinckerhoff

#### Students

Dante M. Abate, University of Massachusetts Lowell  
Garrett F. Barry, Jr., University of Massachusetts Dartmouth  
Anthony Digiantommaso, Virginia Tech

Christopher Dill, University of Massachusetts Dartmouth  
Darla Earl, Boston, MA  
Andrew Fiore, Boxford, MA  
Lentini Goncalves Tavares, University of Massachusetts Dartmouth  
Ashrith Goud Gurram, Merrimack College  
Patrick C. Hackett, University of New Hampshire  
Tyler Jacob, University of Massachusetts Dartmouth  
Samantha Jardin, University of Massachusetts Dartmouth  
Caitlin Kelley, University of Massachusetts Lowell  
Marvey Mathurin, University of Massachusetts Dartmouth  
Robert M. Naidoo, University of Massachusetts Dartmouth  
Nicholas Picardo, Tufts University  
Benjamin Poirier, University of Massachusetts Dartmouth  
Deniz Ranjpour, Tufts University  
Marco A. Rocha, University of Massachusetts Dartmouth  
Heather Shanks, University of Massachusetts Dartmouth  
Courtney E. Simard, University of Massachusetts Lowell  
Kyle Taylor, University of Massachusetts Dartmouth  
Neil P. Thisse, University of Vermont  
Lichen Wang, Tufts University

### BSCES Thanks New 2016–2017 Program Sponsors

The BSCES Board of Government would also like to thank BSC Group and the Massachusetts Department of Transportation for their support as our newest 2016–2017 Program Sponsors. This addition brings our total number of Program Sponsors to 21. A full listing of the 2016–2017 BSCES Program Sponsors can be found at the bottom of the events page in this newsletter.

### Board of Registration Seeks Civil Engineer Member for 2018

The Massachusetts Board of Registration of Professional Engineers and Professional Land Surveyors is looking for potential candidates for the Professional Engineer-Civil position on the Board. This appointment would be made by the Governor for a term that would start in January 2018. Position responsibilities include preparing for and attending monthly Board of Registration and separate committee meetings. You must be a Massachusetts resident currently licensed as a Professional Engineer in the Commonwealth of Massachusetts as a Civil Engineer. The deadline to apply is March 1, 2017. Please [click here](#) for more information.

### Wastewater Advisory Committee Seeks Professional Engineer

The Wastewater Advisory Committee (WAC) to the MWRA is seeking a Professional Engineer licensed in

Massachusetts and living in Massachusetts for membership on the WAC. WAC is an independent forum for discussion of wastewater issues that affect MWRA and its member communities. Preference for Professional Engineers with a background in water (civil) or energy technology, but will consider resumes of Professional Engineers in other disciplines such as electrical or mechanical. The application deadline is Tuesday, January 31, 2017. Please [click here](#) for more information.

### City of Boston Seeks Conservation Commissioner

The City of Boston is seeking a Boston resident to serve on the board of the Boston Conservation Commission. The Boston Conservation Commission protects open space and natural areas in Boston, with a special emphasis on the city's wetlands. It reviews projects in or near wetlands and owns a number of natural, open-space properties known as Urban Wilds. Conservation Commissioners administer the Massachusetts Wetlands Protection Act, hold conservation restrictions on numerous properties, and manage several natural resource areas. The ideal candidate would have little to no involvement in projects that are likely to require the Commission's consideration. For more information about the Boston Conservation Commission, [click here](#). If you are interested in applying to become a Conservation Commissioner, [click here](#).

### Tufts University Engineers Without Borders Seeks Mentors

The [Tufts University Engineers Without Borders](#) chapter is seeking professionals with experience in hydrogeology and/or water filtration and distribution to serve as mentors for their sustainable engineering projects in developing countries. Each student chapter is required to have a Responsible Engineer in Charge (REIC) and international development lead for their projects abroad. The Tufts University chapter of Engineers Without Borders is also recruiting mentors to advise their members on a variety of other topics such as report writing, project design and management, and working in developing countries. There are also opportunities to travel to Malawi and/or Nicaragua to work directly with students and community members. If you would like to learn more about these openings, please [click here](#) or contact Tom DePalma at [Thomas.DePalma@tufts.edu](mailto:Thomas.DePalma@tufts.edu).

*continued on page 8*

**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 Newsletter Editorial Board Chair Michael R. Cunningham, PE, Kleinfelder, at [mcunningham@kleinfelder.com](mailto:mcunningham@kleinfelder.com).

## Recent News and Updates *(continued from page 7)*

### Newton Engineers Sought for Design Review Committee

Newton seeks a civil engineer to serve on their Design Review Committee. Applicants must be Newton residents. This opportunity requires a time commitment of one evening per month. If you are interested in applying, please [click here](#) for additional details.

### Bob Brustlin Appointed to ISI Board of Directors

Bob Brustlin, PE, LEED AP, ENV SP, VHB co-founder and chairman of the board, was recently appointed to the Institute for Sustainable Infrastructure (ISI) Board of Directors. His three-year term began on January 1, 2017. Founded by the American Society of Civil

Engineers, the American Public Works Association, and the American Council of Engineering Companies, ISI is comprised of a community of organizations and individuals involved in the planning, design, construction, and maintenance of infrastructure. The organization was created to develop and maintain Envision<sup>®</sup> — a sustainability rating system for all civil infrastructure.

### MALSCE Education Trust Scholarship Memorial Scholarship

The Massachusetts Association of Land Surveyors and Civil Engineers (MALSCE) Education Trust was founded to enhance the profession of land surveying and civil engineering in Massachusetts by

providing scholarship and education grants for the students of land surveying and civil engineering who are Massachusetts residents. The Trust is currently accepting applications for three scholarships including its Memorial Scholarships, which are awarded to students presently enrolled full time (days) as an undergraduate in an accredited college, university, junior college, technical institute or community college and majoring in land surveying, civil engineering or environmental engineering. Applications for these scholarships are due February 15, 2017. [Click here](#) to learn more about the Memorial Scholarship requirements and application process.

## Branch & Committee Reports

### SEMAC Holds 5th Successful Workshop

by John C. Cavanaro, PE, Managing Principal, Cavanaro Consulting

Following four successful technical events since its inception, the Southeastern Massachusetts Committee (SEMAC) held their 5th successful event on November 18, 2016 at the Abington Ale House in Abington, MA, which attracted a group of civil, traffic and transportation professionals.

Gary R. McNaughton, PE, PTOE, vice president and New England regional manager of McMahon Associates, Transportation Engineers and Planners, navigated his captivated audience through the never-ending challenge confronting engineers and planners of keeping us all out of “Traffic Jams!” Gary did a terrific job of enlightening the attendees interested in learning more about the impact that a sound professionally prepared Traffic Management Plan can have on the successful completion of land development, public transportation and

municipal management projects throughout the region. Gary walked through the typical scenarios that face engineers and planners when identifying the various challenges that exist when balancing land development with safe and efficient traffic management.

Some of the highlights of Gary’s presentation included MEPA and MassDOT requirements to assist clients and project engineers with navigating through the various studies, assessments and analyses including: traffic/transportation impact studies; traffic operational analyses; environmental impact studies; parking demand studies; access management; site planning & due diligence studies; safety analysis; peer reviews; expert testimony; community involvement and public participation; and the trending use of “Big Data” to assist with traffic prediction and planning.

SEMAC extends its gratitude for Gary’s thoughtful, well-prepared and informative discussion on the most current trends in traffic management.

SEMAC has been holding monthly lunch meetings on the 3rd Friday of the month on the South Shore, and extends an open invitation to all interested parties.

Please contact any of the folks below for additional information on becoming active in the SEMAC.

Azu Etoniru, SE, PE, PLS, committee chair  
[aetoniru@etengineering.com](mailto:aetoniru@etengineering.com)

Charles Gross, PE, committee vice chair  
[chgpellc@me.com](mailto:chgpellc@me.com)

John Cavanaro PE, committee clerk/secretary  
[jcavanaro@cavanaroconsulting.com](mailto:jcavanaro@cavanaroconsulting.com)



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Northeast Branch Manager  
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Southborough, MA 01772  
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### The Aldrich Center—where history and technology meet on Beacon Hill...



Two blocks from the State House and overlooking Boston Common, the Aldrich Center is the perfect venue for your next event. This historic building accommodates private functions and business meetings. BSCES members receive a 20% discount off our room rental rates.

Visit [www.aldrichcenter.org](http://www.aldrichcenter.org) for more information.

**Aldrich Center**  
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Beacon Hill Boston, MA

## Upcoming Events

For more information and to register for events, please visit [www.bsces.org](http://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.

### 16th Arthur Casagrande Memorial Lecture

**Thursday, February 2, 2017**

Hyatt Regency Cambridge  
575 Memorial Drive, Cambridge, MA

5:30 PM – 6:30 PM Social/Registration

6:30 PM – 7:30 PM Dinner

7:30 PM – 7:45 PM Welcome & Introduction

7:45 PM – 8:45 PM Lecture

8:45 PM – 9:15 PM Discussion

### Hazard, Risk, and Reliability in Geotechnical Practice

*Suzanne Lacasse, ScD, Technical Director, Norwegian Geotechnical Institute*

More and more, society requires to know the risk which people, property and the environment are exposed to. The role of the geotechnical engineering profession should increasingly be reducing exposure to threats, reducing risk and protecting people. The objective of the 16th Arthur Casagrande Memorial Lecture is to convince you that it is beneficial to implement the concepts of hazard, risk and reliability in design, decision-making and engineering recommendations. After an overview of basic concepts, the lecture discusses the advances of hazard, risk and reliability in geotechnical engineering, and explains several “real life” case studies. In these examples, specific engineering questions had to be answered, and risk and reliability applications provided insight for informed decision-making.

*Please see the Insert at the end of this month's newsletter for further details about this Geotechnical Institute Boston Chapter event.*

### T&DI Boston Chapter Ice Skating

**Thursday, February 9, 2017**

Community Ice Skate at Kendall Square,  
300 Athenaeum Street, Cambridge, MA

6:00 PM – 7:00 PM Ice Skating

7:00 PM – 8:00 PM Social at the

Commonwealth Market and Restaurant

### T&DI Boston Chapter Ice Skating

Join the Transportation & Development Institute Boston Chapter for a night on the ice! We will skate for about an hour and then we will warm up at The Commonwealth Market and Restaurant located at 11 Broad Canal Way, Cambridge, MA.

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

### Younger Member Group Billiards Tournament

**Wednesday, February 15, 2017**

Scholars Boston Bistro

25 School Street, Boston, MA

6:00 – 6:30 PM Registration

### Younger Member Group Annual Networking & Billiards Tournament

Join YMG for our annual billiards tournament at Scholars Boston Bistro. Participants will compete in teams for a grand prize of Red Sox tickets for the winning team, plus prizes for 2nd and 3rd place winners.

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

### BSCES Program Committee Sponsored Training

**Tuesdays & Thursdays, February 28 – April 21, 2017**

Tufts University

200 College Street, Medford, MA

7:30 – 9:30 PM, except for the initial session which runs from 7:30 – 10:00 PM

### Spring 2017 BSCES Professional Engineer Refresher Course

Are you or is someone you know taking the PE exam? This course will feature 12 sessions covering all aspects of the Professional Engineer State Exam. Taught by leading authorities in their fields, session topics include exam review, geotechnical, hydraulics, hydrology, engineering economics, wastewater, highway design, water supply, construction management, structures and transportation.

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

*continued on page 10*

### Mark Your Calendar!

**Tuesday, March 28, 2017**

#### Student Night

Wentworth Institute of Technology  
550 Huntington Avenue, Boston, MA

*See future BSCES emails for more information on this event sponsored by the Younger Member Group.*

### Need Bridge Inspection Refresher Training?

The BSCES Program Committee-Sponsored FHWA-NHI-130053 Bridge Inspection Refresher Training that is being offered February 14–16, 2017 at the Hilton Garden Inn in Worcester is sold out. Committee members are trying to determine whether there is enough member need to host an additional Bridge Inspection Refresher Training course this year. If you need to take this training, please contact Rakaia El-Kasaby [relkasaby@engineers.org](mailto:relkasaby@engineers.org) as soon as possible so that another course may be scheduled.

### 2016–2017 BSCES Program Sponsors

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## Upcoming Events *(continued from page 9)*

### ASCE and BSCES Sponsored Seminar

**Thursday – Friday, March 9 – 10, 2017**

Hyatt Place Boston Braintree  
50 Forbes Road, Braintree, MA 02184-2602  
8:00 AM – 5:00 PM

#### Project Management for Civil Engineers: Planning, Scheduling and Control

*Nghi M. Nguyen, PhD, PE, PMP, President,  
NDV Project Management Services Inc*

In today's competitive global economy, virtually all organizations are project-based. Whether they are governmental, industrial or commercial ones, these organizations supply products or services intended to satisfy the needs and requirements of their clients by applying the principles and methodologies of project management to implement their projects. Consequently, this seminar is designed to provide participants with the project management knowledge and skills associated with the planning, scheduling and controlling of all activities that must be done to meet project objectives and their benefits in effectively and efficiently managing projects that they can apply immediately in their project environment.

*[Click here to register for this event online.](#)*

### BSCES Program Committee Sponsored NHI Training

**Monday – Friday, April 24 – 28, 2017**

Hilton Garden Inn Worcester  
35 Major Taylor Boulevard, Worcester, MA  
8:00 AM – 4:30 PM

#### FHWA-NHI-130110 Tunnel Safety Inspection

This five-day course is highly interactive and builds upon participants' prior knowledge of tunnel and/or bridge inspection. The course covers the entire breadth of knowledge necessary to manage or execute a successful tunnel inspection based on the National Tunnel Inspection Standards (NTIS), Tunnel Operations, Maintenance, Inspection and Evaluation (TOMIE) Manual and Specifications for the National Tunnel Inventory (SNTI). During the course, the instructor will lead participants through a series of case studies and a virtual tunnel inspection. Please note that to take this course, participants must show that they have passed one of the following pre-requisite courses: FHWA-NHI-130054, Engineering Concepts for Bridge Inspectors; FHWA-NHI-130101, Introduction to Safety Inspection of In-Service Bridges; or FHWA-NHI-130101A, Prerequisite Assessment for Safety Inspection of In-Service Bridges.

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

### Plan to Attend!

**Wednesday, May 24, 2017**

#### 2017 Bertram Berger Seminar Multimodal Transportation in Today's Modern Society

Omni Parker House, 60 School Street, Boston, MA

1:30 PM Registration

1:50 PM Opening Remarks

2:00 PM Panel Discussion

5:00 PM Social

6:00 PM Dinner, Bertram Berger Tribute,  
Keynote Address, and Awards

*Please see the Insert at the end of this month's newsletter and future emails for further details about this Transportation & Development Institute Boston Chapter event.*

### Register Today!

**Thursday, February 9, 2017**

#### 2017 TECET Engineers Week Career Fair

Wyndham Boston Beacon Hill, 5 Blossom Street, Boston, MA. 4:00 PM – 7:00 PM

The Career Fair will attract over 20 employers offering jobs and internships as well as colleges and universities offering graduate programs of interest to juniors, seniors and recent graduates with engineering and land surveying degrees. The Career Fair is free of charge for all attendees. To register for the Career Fair, [click here](#).

### ASCE Webinars

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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](#).

## Classifieds

### LGCI

LGCI has an immediate opening in its office in Billerica, MA for a geotechnical engineer with 2 to 7 years of experience. Master's Degree with PE registration preferred. Please send resumes to [lgci@lgcinc.net](mailto:lgci@lgcinc.net).

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## 16th Arthur Casagrande Memorial Lecture *Hazard, Risk and Reliability in Geotechnical Practice*



**Suzanne Lacasse, ScD**

*Norwegian Geotechnical Institute*

**Thursday, February 2, 2017**

**Hyatt Regency Hotel  
575 Memorial Drive  
Cambridge, MA**

### Event Schedule

**5:30 PM – 6:30 PM Cocktail Reception**

**6:30 PM – 7:30 PM Dinner**

**7:30 PM – 7:45 PM Welcome & Introduction**

**7:45 PM – 8:45 PM 16th Arthur Casagrande Memorial Lecture**

**8:45 PM – 9:15 PM Question & Answer/Discussion**

More and more, society requires to know the risk which people, property and the environment are exposed to. The role of the geotechnical engineering profession should increasingly be reducing exposure to threats, reducing risk and protecting people. The objective of the 16th ACML is to convince you that it is beneficial to implement the concepts of hazard, risk and reliability in design, decision-making and engineering recommendations. After an overview of basic concepts, the lecture discusses the advances of hazard, risk and reliability in geotechnical engineering, and explains several "real life" case studies. In these examples, specific engineering questions had to be answered, and risk and reliability applications provided insight for informed decision-making.

The factor of safety remains the main indicator of safety in practice, and its significance and that of key parameters used for design, e.g. the characteristic strength, are discussed. The examples presented are taken from a wide realm of geotechnical problems, including the selection of soil properties, the mapping of hazard and risk, as well as hazard and risk assessment associated with slope stability, dams, offshore installations and code calibration.

The contributions of risk assessment and management to geotechnical engineering, the strengths and drawbacks of the approach and issues such as tolerable and acceptable risk cascading hazards are discussed. The geotechnical engineer's role is not solely to provide judgment on selection of parameters, methods of calculations and resulting safety, but also to take an active part in the evaluation of hazard, vulnerability and risk.



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- Weston & Sampson Engineers, Inc.

## Speaker

Dr. Lacasse was born in the small mining town of Noranda in northern Québec, Canada. She completed first her Bachelor of Arts (1965), and in 1971, her studies in Civil Engineering at Ecole Polytechnique of Montréal. Graduate studies followed at the Massachusetts Institute of Technology in the USA and Ecole Polytechnique. She obtained her Ph.D. in 1976. She was Lecturer at Ecole Polytechnique (1973-1975), and then became faculty member of the Civil Engineering Department at MIT (1975-1983), where she also was Head of the Geotechnical Laboratory. Dr. Lacasse went to the Norwegian Geotechnical Institute (NGI) in 1978, as a post-doctoral fellow for one year. She became permanent employee in 1980, sharing her time between MIT and NGI. At NGI, she worked on research and consulting assignments, both in Norway and abroad, with secondments in several countries. She became NGI's Managing Director in 1991, a position she held until December 2011. Since 2012, she acts as Technical Director at NGI.

She gave the 37th Terzaghi Lecture of the American Society of Civil Engineers on "Offshore geotechnical engineering" in 2001, the 8th Terzaghi Oration of the ISSMGE on "Slope stability" in 2013 and the 55th Rankine Lecture of the Institution of Civil Engineers, British Geotechnical Society in London in 2015.

## Registration Deadline: Tuesday, January 31, 2017 at 12:00 PM

### Information/Registration:

**Registration Fees: \$120 Members, \$150 Non-Members, \$100 Public Sector Members**  
**\$120 Public Sector Non-Members, \$40 Student Members & Senior Members (65+)**  
**\$1,200 Table of 10 (Regardless of Membership)**

Registration will be limited to the first 150 registrations that are received. Register to attend this meeting and pay by credit card online at <http://bit.ly/Casagrande2017>. 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 completing the registration form below and mailing, emailing or faxing it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, [bscesreg@engineers.org](mailto:bscesreg@engineers.org) or 617/227-6783, respectively. Cancellations received after January 20, 2017 and no-shows will be billed.

## Registration Form 16th Arthur Casagrande Memorial Lecture – Thursday, February 2, 2017

### Registrant Information

Name: \_\_\_\_\_  
 Company (if applicable): \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
 Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_  
 Dietary Restrictions: \_\_\_\_\_

### Registration Fees

\$120 BSCES Member     \$150 Non-Member     \$100 Public Sector Member  
 \$120 Public Sector Non-Member     \$40 Senior Member (65+)     \$40 Student Member

### Total Amount Enclosed

\$ \_\_\_\_\_

Make checks payable to "BSCES" and mail with completed form to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616

Or Pay with (Check one):     Visa     Master Card     American Express

Cardholder Name: \_\_\_\_\_  
 Card Number: \_\_\_\_\_ Expiration Date: \_\_\_\_\_  
 Billing Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
 Signature: \_\_\_\_\_

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## Arthur Casagrande (1902 – 1981)

Arthur Casagrande was born on August 28, 1902 in Austria and came to the United States in 1926. He worked at the Bureau of Public Roads and as a Research Assistant under Karl Terzaghi at MIT. He made or contributed to making the fundamental developments of Soil Mechanics and later became a Professor of Soil Mechanics. He also served the profession as the President of the ISSMFE in 1960s.

Prof. Casagrande started the Soil Mechanics program at Harvard University in 1932. Many of his students were inspired by his teachings and entered the field of Soil Mechanics; these men later became the creators of the Geotechnical Engineering field as we know it today. As a pioneer, Prof. Casagrande worked on the fundamental problems of Soil Mechanics, such as soil classification, seepage through earth and shear strength.

Casagrande's contributions to the profession were recognized by giving him the honors of *Rankine Lecturer* by the Institution of Civil Engineers (UK), and *Terzaghi Lecturer* by American Society of Civil Engineers. He was also the first recipient of the Terzaghi Award from ASCE. He authored more than 100 research papers and reports on a great many subjects, from frost heave to dynamic loading and everything in between.

### Arthur Casagrande Fund

Established in 1848, BSCES is the oldest engineering society in the United States and currently supports over 3,400 members throughout Massachusetts. BSCES formally became a Section of ASCE in 1974 after the merger with ASCE's Massachusetts Section.

In 1983, the [Arthur Casagrande Fund](#) was established to support a lecture given every other year by an eminent engineer with longstanding achievement in practice, teaching and/or research in geotechnical engineering.

### Previous Arthur Casagrande Memorial Lecture Speakers

1983 - Leo Casagrande

1985 - Alfred Hendron

1987 - Ralph Peck

1991 - James Gould

1993 - James Mitchell

1996 - Fred Kulhawy

1998 - Michael Duncan

2000 - Charles Ladd

2002 - Harry Poulos

2004 - Lymon C. Reese

2006 - John Schmertmann

2008 - T. William Lambe

2010 - Izzat M. Idriss

2013 - Edward J. Cording

2014 - Robert J. Mair



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Tufts University

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Engineers, Inc.

# Ice Skating with T&DI Boston Chapter

## Thursday, February 9, 2017

### Community Ice Skate at Kendall Square

### 300 Athenaeum Street, Cambridge MA 02142

### 6:00 PM – 7:00 PM Ice Skating

### 7:00 PM – 8:00 PM Social at the Commonwealth Market and Restaurant

Join us for a night on the ice! We will skate for about an hour and then we will warm up at The Commonwealth Market and Restaurant located at 11 Broad Canal Way, Cambridge, MA.

For additional information, go to <http://bit.ly/TDI-Ice-Skating>.

## Registration Deadline: Monday, February 6, 2017

### Admission: \$5

### Admission with Skate Rental: \$13

### Please RSVP to [TDI.BSCES@gmail.com](mailto:TDI.BSCES@gmail.com).



*Boston Society of Civil Engineers Section*

# Annual Networking & Billiards Tournament

Wednesday, February 15, 2017 at 6:00 PM

Registration: 6:00 PM – 6:30 PM

### ***Registration Fees:***

\$20 Student Members, \$25 Members, \$30 Non-Members

Registration includes tournament entry and appetizers.

### ***Online Registration Deadline:***

Wednesday, February 8, 2017

***Grand Prize: Red Sox Tickets for 1st place team***

***Plus prizes for 2nd and 3rd place winners!***

**Scholars Boston Bistro**

**25 School Street, Boston, MA 02108**

***Register online:*** <http://bit.ly/YMGBilliards2017>

*For more information, please contact [bscesymg@gmail.com](mailto:bscesymg@gmail.com).*

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## Professional Engineer Refresher Course Spring 2017 Schedule

The BSCES Professional Engineer Refresher Course consists of twelve classes covering both the breadth and depth portions of the five Civil Professional Engineer Exams. Course lectures will be held at Tufts University in Medford, MA (tentative). All lectures are presently 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 it may be necessary to schedule make-up sessions on prearranged "Open" dates, which include Tuesday, March 14 & April 18, and Thursday, March 30 & April 20.

Class	Day	Date	Time	Subject	Instructor	Email
1	Tuesday	02-28	7:30–10:00 PM	Geotechnical & Exam Review	Jim Lambrechts	<a href="mailto:lambrechtsj@wit.edu">lambrechtsj@wit.edu</a>
2	Thursday	03-02	7:30–9:30 PM	Geotechnical	Jim Lambrechts	<a href="mailto:lambrechtsj@wit.edu">lambrechtsj@wit.edu</a>
3	Tuesday	03-07	7:30–9:30 PM	Hydraulics	R. Edward Beighley	<a href="mailto:r.beighly@neu.edu">r.beighly@neu.edu</a>
4	Thursday	03-09	7:30–9:30 PM	Hydrology	R. Edward Beighley	<a href="mailto:r.beighly@neu.edu">r.beighly@neu.edu</a>
5	Tuesday	03-14	7:30–9:30 PM	Engineering Economics	Cristina Cosma	<a href="mailto:cosmac@wit.edu">cosmac@wit.edu</a>
6	Thursday	03-16	7:30–9:30 PM	Open		
7	Tuesday	03-21	7:30–9:30 PM	Wastewater	Annalisa Onnis-Hayden	<a href="mailto:aonnis@coe.neu.edu">aonnis@coe.neu.edu</a>
8	Thursday	03-23	7:30–9:30 PM	Highway Design	Peter Reed	<a href="mailto:preed@bscgroup.com">preed@bscgroup.com</a>
9	Tuesday	03-28	7:30–9:30 PM	Water Supply	Bruce Jacobs	<a href="mailto:bjacobs@enviroinsite.com">bjacobs@enviroinsite.com</a>
10	Thursday	03-30	7:30–9:30 PM	Construction Management	Cristina Cosma	<a href="mailto:cosmac@wit.edu">cosmac@wit.edu</a>
11	Tuesday	04-04	7:30–9:30 PM	Open		
12	Thursday	04-06	7:30–9:30 PM	Structures	Brian Brenner	<a href="mailto:brian.brenner@stantec.com">brian.brenner@stantec.com</a>
13	Tuesday	04-11	7:30–9:30 PM	Transportation	Rick Bryant	<a href="mailto:richard.bryant@stantec.com">richard.bryant@stantec.com</a>
14	Thursday	04-13	7:30–9:30 PM	Structures	Brian Brenner	<a href="mailto:brian.brenner@stantec.com">brian.brenner@stantec.com</a>
15	Tuesday	04-18	7:30–9:30 PM	Open		
16	Thursday	04-20	7:30–9:30 PM	Open		
17	Friday	04-21	8:00 AM–5:00 PM	<b>State Exam</b>		

**Registration deadline is Thursday, February 3, 2017.** [Click here](#) to register for this program and pay by credit card online. BSCES members have been assigned a username and password which they must use to register online at the member rate. 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, The Engineering Center, One Walnut Street, Boston, MA 02108-3616. Email or fax your registration to [bscesreg@engineers.org](mailto: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 Thursday, February 3, 2017 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 list below 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.

Course 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 to [bsces@engineers.org](mailto:bsces@engineers.org) requesting the promotional code that will enable you to receive a 15% discount on the cost of these and other PPI-published materials.



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## 2017 Jonathan B. Golden Scholarship Application

**2017 Scholarship Amount: \$5,000**

### To Prospective Applicants:

The Jonathan B. Golden Scholarship Fund was established in 2002 through donations to honor the memory of Jon Golden, a dedicated wastewater engineer who significantly contributed to the environmental engineering profession. The scholarship is for a graduate student who is pursuing a career in environmental engineering.

### Who May Apply?

Full-time Graduate Students enrolled in an accredited Environmental Engineering degree program or related field with a graduation date of Spring 2017 or later.

### How To Apply:

Submit the following:

- Introduction letter.
- Official copy of college transcript.
- Enrollment verification letter from the registrar.
- One page biography/resume including GPA and class standing from undergraduate study and graduate study (if available).
- Two letters of recommendation - at least one from a college professor.
- One page essay (500 words maximum) discussing why you are pursuing a career related to environmental engineering and who or what most influenced your decision to pursue a career in environmental engineering.

### Transmit Applications To:

Jonathan B. Golden Scholarship  
BSCES Environmental & Water Resources Institute  
One Walnut Street, Boston, MA 02108-3616

Electronic applications may be submitted to [rburns@arcadia-tec.com](mailto:rburns@arcadia-tec.com).

**Application Deadline: Tuesday, April 4, 2017**

### Review of Applications:

Applications will be reviewed by volunteer members of the Environmental & Water Resources Institute Boston Chapter and Mr. Golden's widow, Ms. Carol Fusaro. The award recipient will be announced in early June of 2017.



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Engineers, Inc.

## Save the Date!

# 2017 Bertram Berger Seminar

## Multimodal Transportation in Today's Modern Society

Wednesday, May 24, 2017

Omni Parker House, 60 School Street, Boston, MA

1:30 PM – 7:30 PM

1:30 PM Registration; 1:50 PM Opening Remarks; 2:00 PM Panel Discussion; 5:00 PM Social  
6:00 PM Dinner, Bertram Berger Tribute, Keynote Address, and Awards.

More information will follow as the event date approaches.

## Young Engineer of the Year Award

### Call for Nominations

The BSCES Transportation and Development Institute Boston Chapter is now accepting nominations for the **2017 Bertram Berger Young Engineer Award**. The annual Bertram Berger Young Engineer Award serves to recognize an outstanding younger member of the Boston Society of Civil Engineers for his or her professional achievements and service to the community. The successful candidate should (1) be less than 35 years old on May 1, 2017, (2) have attained exemplary professional achievements as a young engineer, (3) demonstrate leadership in the practice of civil engineering with emphasis on transportation, (4) enhance the stature of civil engineers within the community, (5) be active with professional organizations such as BSCES or similar, and (6) be a registered, or soon-to-be registered, professional engineer.

In addition to recognition within the engineering community, the award winner will receive a **\$2,500 stipend** to be used for continuing education and/or professional development. The award winner will be notified by the end of April, 2017 and will be presented with the award at the upcoming annual BSCES Bertram Berger Seminar and Dinner.

To nominate an individual for the 2017 Bertram Berger Young Engineer Award, please submit an up to two (2) page narrative statement describing how the nominee meets the above described criteria. Nominations will be accepted until 5:00 p.m. on **Friday, April 14, 2017** and should be submitted via mail or email to:

Mr. Kurt Jelinek, P.E., Nobis Engineering, Inc., 585 Middlesex Street, Lowell, MA 01851  
Email: [kjlinek@nobiseng.com](mailto:kjlinek@nobiseng.com), Phone: 978/683-0891.



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