



# ARMY ENGINEER

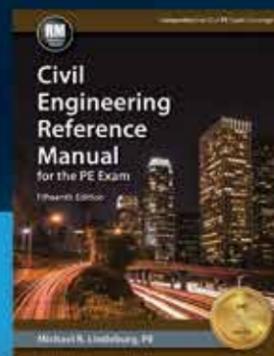
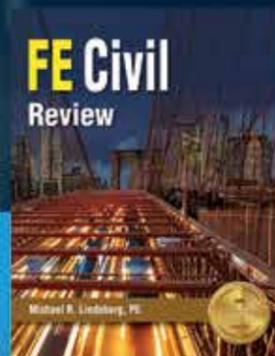
SEPTEMBER / OCTOBER 2017



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FORT LEONARD WOOD, MO**

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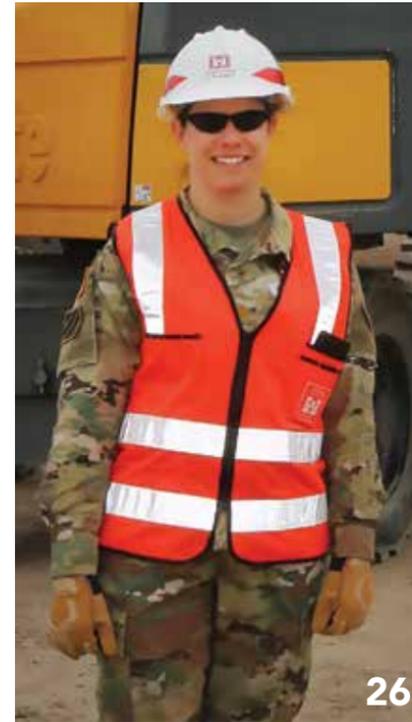
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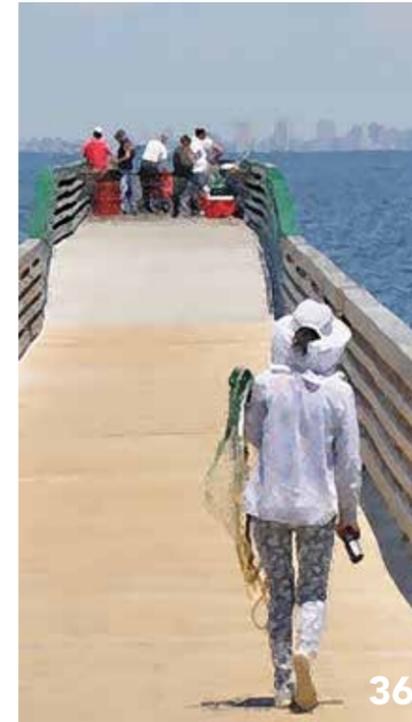
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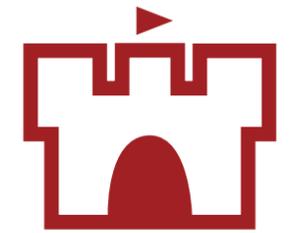
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The Army Engineer Association (AEA) is a member-based, nonprofit corporation specifically organized to facilitate cohesion, interaction, and networking within the United States Army Corps of Engineers' total family of soldiers, civilians, family members, and alumni. As such, AEA serves as both the "Honor Fraternity" and "Alumni Association" for the U.S. Army Engineer Regiment.

AEA provides its members with an Army Engineer Network for Life. Why is this important? Army Engineers excel at completing complex and demanding missions in war and peace, always performed with uncommon dedication, ingenuity, and unsurpassed standards of excellence. All members of this network are thus inseparably linked for life by their service.

**Benefits include:**

- 1. Affordable rates.

A 12-month regular membership is only \$25, a 24-month regular term is \$45, and a 36-month regular membership is a \$60 value.

There are even lower junior rates for currently serving soldiers and DA civilians in the following grades: PVT-SFC, 2LT-1LT, W1-W2, GS1-GS9. These lower rates are as follows: 15 months at \$15, 27 months at \$25, and 36 months at \$35. First-time, 36-month members, and lifetime members receive a complimentary Engineer regimental coin.

Lifetime membership for \$300 is available with a one-time payment.

- 2. Subscription to *Army Engineer*.
- 3. Opportunities for professional development.
- 4. Participate in award and recognition programs.
- 5. Discounts at the Engineer Regimental Store.
- 6. Eligibility for the award of academic scholarships.

Visit [www.armyengineer.com](http://www.armyengineer.com) to join!

I would like to thank all who have participated in the AEA events this year. On 4 August, we hosted the 149th Annual Engineer Castle Ball for the National Capital Region and had more than 500 attendees as LTG Semonite and CSM Houston recognized the Gold de Fleury recipients for 2017. Congressman Rodney P. Frelinghuysen and CSM (Ret) Robert Winzenried were recognized for their contributions to the nation and the Engineer Regiment. Save the date for the 150th Annual Engineer Castle Ball which will be on 3 August 2018.

This year was the first time AEA had coordinated multiple events to allow greater participation. On 3 August, we hosted the 1st of our Annual Industry Seminars. The aligning of this event with the Engineer Castle Ball for the NCR will become an annual pairing because it allows an economy of effort in aligning travel plans to accommodate both events. Next year's Industry Seminar will be 2 August 2018. To keep abreast of current topics, we will solicit recommendations for topics to cover. Interested parties should provide a one-page paper outlining the topic and a list of suitable agencies/persons that are experts in the topic to [xd@armyengineer.com](mailto:xd@armyengineer.com). This will generate some of the items covered in the next August Industry Seminar.

Engineer Regimental Week for 2018 will be the week of 16-20 April at Fort Leonard Wood, MO. This will be the first Regimental Week for the new CMDT at USAES, BG Robert Whittle. There will be the traditional Best Sapper competition, a two-day Industry Exhibition, Regimental Run, and other standard Regimental Week events. We hope to see you there.

We are soliciting feedback for all stakeholders in the Engineer Regiment. We have emailed a survey link to many of the members of AEA and posted it on Facebook. If you have not had a chance to complete the survey, please go to this link and give us feedback on several topics at:

<https://www.surveymonkey.com/r/AEAFEEDBACKSURVEY>

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David Theisen  
Executive Director  
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## KipperTool Corded Power Tool Kit

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**H**ello, gentle reader. It's the end of August as I write this, and summer has been a beast in the midwest. I never wish time away, but I could stand a cool, crisp night on the front porch rather than this string of 100° days.

I took the opportunity to travel to Seattle to see my Matthew in mid-July, and I am in awe of the strength of character it took for him to move out there on his own and to conquer the insane traffic and new environment. It's that military brat in him, I suppose.

I saw Matthew again last week—and also my older boy Sean and his fiancée Liz—at a family reunion in my hometown of Blair, WI. I reunited with my siblings, too, after too long apart. We joined with relatives on my father's side of the family, but we were missing my oldest brother, Bruce, who died suddenly and unexpectedly on



3 August. Please, hug your loved ones while you can.

Go, Cardinals! Go, Packers!

NO SURRENDER!

*Beth*

Beth O'Hara, Editor

### EDITOR'S CORRECTION

The article "Securing your investments in connectivity and automation: Cybersmart buildings" in the last issue [ July/August 2017, pp. 28-31 ] listed only Sedar Labarre and Matt Doan of Booz Allen Hamilton as its authors. Johnson Controls and Booz Allen Hamilton collaborated on a white paper on the topic of cybersmart buildings, and this shortened summary was penned by Jason Rosselot and Alex Runner of Johnson Controls.

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12C30 ALC, Class 002-17  
PVT MICHAEL E. SHISHIDO  
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Class 18/17  
PFC MICHELLE D. COOPER  
C Co, 169th EN BN, 12W10,  
Class 17460  
SPC ARTHUR L. STONE  
1st BDE (EN), 102nd DIV (MS),  
12W10 PH 3, Class 004  
SPC ZACHARY E. WEAVER  
1st BDE (EN), 102nd Division  
(MS), 12R10, Class 003  
CE2 AMBERLEIGH T. CANTRELL  
US Army Prime Power School,  
12P, NEC 5633, Class 002-16  
SGT ELLIOTT PACKER  
SLC, 2E-SIS4/030-ASIS4,  
Class 002-17  
1LT JOHANNA C. JOOSTE  
CESD 35th EN BN, 1st EN BDE  
12A, Class UMBC 702-17  
SPC KAYLA L. THOMAS  
A Co, 554th EN BN, 12N,  
Class 28N  
PFC TRISTIAN W. HANNA  
D Co, 169th EN BN, 12K10,  
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SSG THOMAS D. GAMBREL  
1st BDE (EN), 102nd DIV (MS),  
12H30, Class 004-17  
SFC BRITTNEY R. BAILEY  
B Co, 31st EN BN,  
Drill Sergeant of Cycle,  
Class 17-12/08

PV2 AUSTIN M. SMITH  
B Co, 31st EN BN, 12B OSUT,  
Class 17-12/08  
PV2 ADAM N. KRAMER  
B Co, 169th EN BN, 12T10,  
Class 10  
PV2 ANTHONY J. HERNANDEZ  
A Co, 554th EN BN, 12N,  
Class 29N  
PFC AMAYA J. FIELDS  
C Co, 169th EN BN, 12W10,  
Class 1747  
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GONZALEZ  
80 TTC, Fort Dix 12K10,  
Class 005  
PFC CHRISTOPHER J. ENGEL  
B Co, 169th EN BN, 12R10,  
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PV2 JUVENTINO T. BELLA  
B Co, 169th EN BN, 12Y10,  
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TORRES  
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**2017 Reunions**

Submit your reunion notice to BETH O'HARA at army.engineer.magazine@gmail.com.

**589th EN BN Association (Vietnam) 6–10 September**  
Stone Castle Hotel & Conference Center  
Branson, MO  
www.589thengineers.com  
BSpencer@589thengineers.com  
Bob Spencer • 701.303.0282

**46th Engineer Battalion 6–10 September**  
Frankfort, KY  
Contact Vern Nelson • 715.886.3290 •  
jvnels2@solarus.net

**19th Combat EN BN Vietnam and Attached Units 7–9 September**  
Baymont Inn  
139 Carmel Valley Way  
St. Robert, MO  
Call 573.336.5050 for reservations;  
mention the 19th Group.  
www.19engrvm.org/  
POCs: Tom Ebrite • 765.286-4906 •  
s2snoopy@comcast.net  
John Hack • 219.947.2363 •  
silverjon3@yahoo.com

**577th EN BN Vietnam 7–10 September**  
San Antonio, TX  
POC: Jim Stevens • jrs562@aol.com •  
704.363.5358

**84th and 62nd ECB / Korean War 28th Annual Reunion / All guests welcome. 11–14 September**  
Radisson Hotel  
Branson, MO  
Monday: registration; Tuesday and Wednesday: tours and shows; Thursday, business meeting and final dinner. Activity package of \$277 includes most meals, shows, transportation, etc. Contact Carol Nelson at cen21255@verizon.net for registration and added information.

**14th Combat EN BN Association 12–14 September**  
Las Vegas, NV  
POC: Douglas Fowler • 716.675.6680  
webmaster@14thcombatengineers.org

**97th EN BN (Const) (formerly 97th EN REGT) Proposed Reunion 14–17 September**  
Fort Wainwright, AK, or Las Vegas, NE  
POC: J Neil Jednoralski  
2216 Brookwood Lane  
Salina, KS 67401-3714  
785.825.6847

**547th EN BN (Combat) Association with the 567th Engineer Company ADM (Darmstadt and Hanau, Germany) 14–17 September**  
Reunion Cruise on the Carnival Cruise Ship *Fantasy* sailing out of Mobile, AL, to Cozumel, Mexico  
Most members will start the reunion at The Holiday Inn Hotel Downtown Mobile. For further info/details, contact Fred Webb • 251.680.5901 • fred.webb.547@att.net

**44th EN BN [Brokenheart] Association 20–23 September**  
Grand Plaza Hotel  
Branson, MO  
Make reservations with Branson Tourism Center, 220 Branson Hills Parkway, Branson, MO 65616  
800.268.4014  
Room rate of \$78.62 includes breakfast buffet; tour activities: Showboat Dinner & Cruise \$75/person; Banquet Dinner & Show \$70/person.  
POC: Dave Clasby • 314.837.0996 • dnclasby@att.net OR Ken Jobe • 757.428.0328 • kejo425@aol.com

**31st EN BN Combat Association Veterans from all eras are invited. 5–8 October**  
Hotel Elegante Conference and Event Center  
2886 South Circle Drive  
Colorado Springs, CO  
For further info/details, contact LTC (Ret) Leo Farias • 361.815.7749 • leofar41@gmail.com

**864th EN BN (PACEMAKERS) 18–22 October**  
Seattle, WA  
POC: Ralph Willing • 860.977.9937 • willingrww@gmail.com  
To register, go to <https://reunionpro.com/sponsors/864th-ebaa>

**249th EN BN Association All veterans of the 249th from 1944 to present welcome. 26–29 October**  
Nashville, TN  
Activities include Nashville tour, Grand Ole Opry Show, and General Jackson Showboat Dinner Cruise. Contact Robin Wandell • 660.815.1166 • firewoodfriends@hotmail.com



## New program proposed to protect endangered salmon

by **JESS LEVENSON**  
NEW ENGLAND DISTRICT

**THE MAINE DEPARTMENT** of Marine Resources is proposing to establish and sponsor a new program mitigating harmful impacts to endangered Atlantic salmon and their habitat.

The U.S. Fish and Wildlife Service (FWS) listed the Atlantic salmon population in the Gulf of Maine as endangered on 17 December 2000 and further inland on 19 June 2009.

Predation, starvation, disease, environmental degradation, and poaching led to the FWS designation. Historic and recent activities such as road and bridge maintenance and construction have further damaged the population.

The proposed Atlantic Salmon Restoration and Conservation Program can protect Maine Atlantic salmon by increasing the flexibility of permit applicants to meet requirements for compensatory mitigation.

Compensatory mitigation is the restoration, creation, enhancement, or preservation of wetlands, streams, and other aquatic resources to offset unavoidable adverse impacts, and its goal under the Endangered Species Act is no net loss of species and their

habitats. USACE requires mitigation to counter unavoidable adverse impacts under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899.

Section 404 provide three mechanisms for compensatory mitigation: mitigation banks, permittee-responsible mitigation, and in-lieu fee programs. The proposed Atlantic Salmon Program is an in-lieu fee program. Federal regulations recognize in-lieu fee as an option to correct shortcomings in existing mitigation techniques.

"It's very hard to mitigate project to project, especially for small projects, because the permittee may have difficulty finding an acceptable mitigation project that is financially feasible considering the amount of impact," said Ruth Ladd, Third-Party Mitigation Program Manager.

In-lieu fee allows permit applicants to pay a governmental or non-profit entity to satisfy compensatory mitigation requirements.

The program's sponsor sells credits to the permit applicant, and the applicant's mitigation obligation is then transferred to the sponsor. In-lieu fee unifies compensatory mitigation projects and resources to target more ecologically significant activities.

"In other words, there will be an opportunity to pool the limited funds together so we can actually do a decent project," Ladd explained.

Ladd and the New England District's Regulatory Division are currently reviewing public comments and ensuring the proposal conforms with Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 7 of the Endangered Species Act.

"If the program is approved, Regulatory and an interagency review team will approve funding for projects and then review all project documents including deeds and easements, mitigation plans, and monitoring reports, plus make site inspections. It's absolutely a lot of fun and very rewarding, but it's also a lot of work," added Ladd.

The decision to authorize the sponsor to develop a draft in-lieu fee instrument will be based on the District Engineer's determination of the agreement's potential to provide compensatory mitigation for activities authorized by Department of the Army permits and on the FWS's determination that impacts to Atlantic salmon can be adequately compensated by the Atlantic Salmon Restoration and Conservation Program. 🏠

## Muddy River Restoration Project Phase 1 complete

by **ANN MARIE R. HARVIE**  
NEW ENGLAND DISTRICT

**ON 21 APRIL**, COL Christopher Barron, New England District Commander, traveled to Emmanuel College to join state and local officials for a ribbon-cutting ceremony for the Justine Mee Liff Park, part of the Phase 1 completion of the Muddy River Flood Risk Management Project. The park is dedicated to Justine Mee Liff, Boston's first female Parks Commissioner, who was a strong advocate

for the restoration project. Christopher Cook, Commissioner, Boston Parks and Recreation, served as narrator for the event.

Cook revealed a plaque dedicated to the late Mike Keegan, Project Manager, Muddy River Project. The plaque will be placed on a bench in the new park. The bench's significance and location is that it was where Keegan used to begin his tours for those who were interested in the progress of the construction project.

Keegan's family, including his wife,

Donna, and two children, Briana and Christopher; his Mom, Barbara; his sisters, Kathy, Barbara, and Jackie; and other family members were at the ceremony celebrating Keegan's achievement.

Massachusetts Governor Charlie Baker praised partnership for the successful completion of Phase 1. "This is a real collaboration between local organizations, local municipalities, the Commonwealth of Massachusetts, the federal government, and a whole series of interested parties," he said.



Officials cut the ribbon, marking the completion of Phase 1 of the Muddy River Restoration Project.

COL Barron explained the New England District's role in the project. "As most of you know, the underpinning of this project was in response, at least from the federal perspective, to some pretty severe flooding and damage that occurred in past years along and adjacent to the Muddy River and some of the tributaries of the area," he said. "Our overall project objectives when we started out with this was to reduce the flood risk and enhance the aquatic habitats along the Muddy River. To do that, the team had to engage in some pretty imaginative engineering along the way."

Boston Mayor Martin Walsh said that the timing for the project was just right. "We're in a special time right now where there really is an investment and a feel for open space and parks, not just here in Boston but throughout the Commonwealth of Massachusetts."

Other speakers included Secretary Matthew Beaton, Massachusetts Executive Office of Energy and Environmental Affairs; Neil Wishinsky, Chairman, Brookline Board of Selectmen; Former Massachusetts Governor Michael Dukakis; Frances Gershwin, Chair of the Muddy River Restoration Project Maintenance and Management Oversight Committee; and members of the Liff family.

After the remarks, COL Barron, Governor Baker, Mayor Walsh, and other dignitaries cut the ribbon. A brief reception followed featuring photographs of the project before and after the construction. During the reception, Scott Acone, Deputy District Engineer for Programs and Project Management, presented to the Keegan family a piece of granite with an engraved plaque, honoring Keegan's long-time service to the Corps. The granite came from the façade of the new Riverway Culvert headwall.

The Muddy River is a small waterway located in the Boston metropolitan area. Most of the 5.6-square-mile watershed is located in the city of Boston and the town of Brookline, with a small portion located in the city of Newton.

The 3.5-mile-long Muddy River flows through the heart of Frederick Law Olmsted's famed "Emerald Necklace," one of the most carefully crafted park systems in America and the oldest remaining linear urban park system in the United States.

The project will be completed in two phases. Phase 1 is located from Riverway to Avenue Louis Pasteur. The work consisted of removal of undersized culverts with new Riverway and Brookline Avenue Culverts, daylight-

ing of the former Sears parking lot and area upstream of Avenue Louis Pasteur to construct the FRM channel, removal of two feet of accumulated sediment from Upper Fens Pond, and the construction of the Avenue Louis Pasteur culvert extension. Construction of Phase 1 of the Muddy River project began in January 2013 and was completed in June 2016 at a cost of \$35.2 million.

Phase 2 is scheduled to begin in the summer of 2018 and is expected to take approximately three years to complete. 🏠

**ANN MARIE R. HARVIE** is the editor of the *New England District's newsletter*, the *Yankee Engineer*. She holds an associate's degree

in liberal arts and sciences from Middlesex Community College. She also has certificates in children's literature, short-story writing, advanced short-story writing, and journalism.

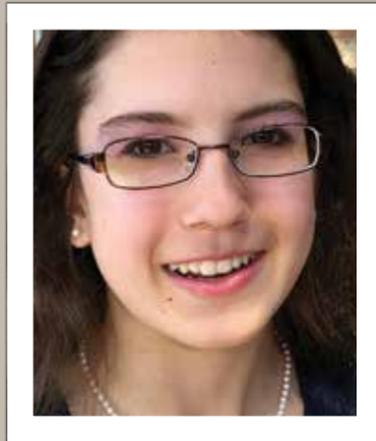


## Congressman David E. Hobson STEM Scholarship awardees

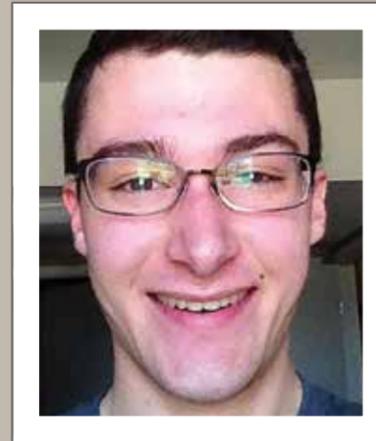
**THE CONGRESSMAN DAVID E. HOBSON** Science, Technology, Engineering, and Math (STEM) Scholarship program is proudly sponsored by Trimble Inc. for members of all ranks and components of Army Engineers and their family members who are also members of the Army Engineer Association. This is a \$3,000-per-year scholarship that is awarded once per student in his or her collegiate education.

Trimble is a world leader in technology that integrates a wide range of positioning technologies including GPS, laser, optical, and inertial technologies with application software for commercial applications. Much of this commercial technology is used in supporting engineering missions in the Army and DoD. In previous years, the Hobson scholarship has been narrowly defined as being for students pursuing civil engineering degrees. However, it has now been expanded to cover STEM degrees and covers more than 300 bachelor of science degrees in a wide variety of disciplines.

This year's recipients of the Congressman David E. Hobson STEM Scholarship are:



**ANNETTE MINEAR** is the daughter of COL (Ret) Steve Minear, who is a lifetime member of AEA in Lewisville, TX. Annette has been homeschooled and is currently taking dual-credit courses at Collins College. She is studying to be a registered nurse. She wants to pursue an Army career in nursing.

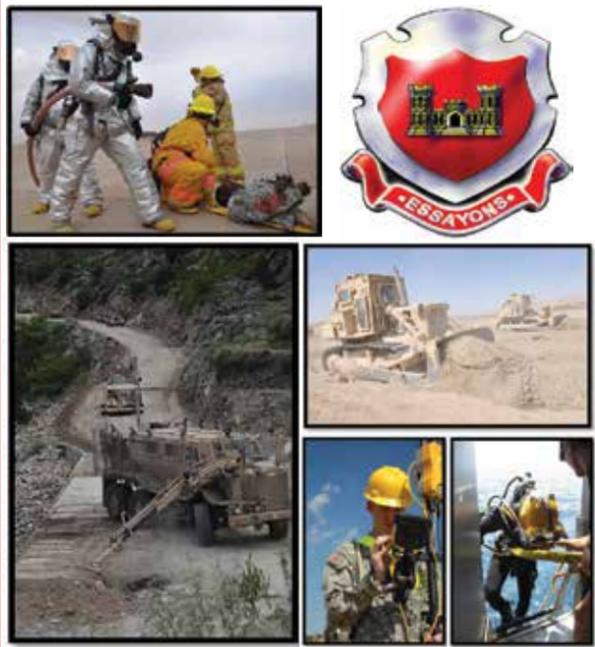


**CALEB KOTTER** is the grandson of BG (Ret) Jack Kotter, who is a lifetime member of AEA having served in the USAR. Caleb comes from a family of Engineers that include his grandfather, father, and brother. He will be starting his sophomore year as a mechanical engineering student at the Colorado School of Mines in Golden, CO. He has been on the Dean's List for two semesters and would like to work for the Ford Automotive Company as an engineer.



**NATHAN DINKEL** is the son of LTC (Ret) Paul Dinkel, who is a regular member of AEA. Nathan is a second-semester freshman in a BS computer science program at Landmark University in Putney, VT. Nathan always has enjoyed Java programming and script writing for computer code. He has a 4.0 GPA so far in his studies. He looks forward to pursuing a career in writing and designing software.

AEA has had a program of offering scholarships for its members and their family members of all ranks and all components. COL (Ret) Carl Baswell founded an endowment for scholarships for Engineer soldiers wounded in OEF/OIF or the surviving members of Engineer soldiers who have fallen in OIF/OEF. The Congressman David E. Hobson STEM Scholarship is offered to members and family members of AEA who are pursuing degrees in 300 STEM programs. Details can be found at [www.armyengineer.com/scholarships.htm](http://www.armyengineer.com/scholarships.htm). 





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## New England District has blast at paintball tournament

by  
**JESS LEVENSON**  
NEW ENGLAND DISTRICT

**THE ALPHA DOGS** lay still on the paintball field. Unlike all the other Dogs, Peter Hugh was still alive. He waited in the shadows for a sign of the last Zeta Warrior. A sudden thump came from above. His eyes darted to the watchtower and there was the Zeta. He knew her—they had worked together for decades and their sons were close friends. Peter lowered his weapon ... then raised it again. A ball of paint smacked the rival warrior, ending the game. "Oh, great! My jeans are ruined!" cried the Zeta Warrior. Peter grinned and shrugged, "War is war."

Peter Hugh is a veteran of an uncommon regard. He has been a civil engineer at the New England District for 37 years and has been whittling items off his bucket list for the last seven. He joined a WWII Airborne Parachute Team, led skydiving crews, and survived a martial arts tournament. But one of Hughes' biggest thrills is leading the New England District's annual paintball wars.

This year's battle between the Alpha Dogs and Zeta Warriors took place at Action Games Paintball in Tewksbury, MA, on 28 April. The Zeta Warriors defeated the Alpha Dogs in a heated series, 5-4.

Mike Tuttle, Project Manager, Military Branch, PPMD, is one of the many troops Hugh has recruited to play paintball since the first event in 2011. Tuttle advanced from paintball newbie to captain of the Zeta Warriors and was this year's event organizer. "The reason I got into paintball was because of Peter's enthusiasm for the sport. It's infectious," Tuttle said. "He's like the cruise director from *The Love Boat*."

"I was the first player out on my first match," recalled Hugh. "I lasted

about a minute on the second. But I had such a blast."

Newbies Steve Jones, Jess Levenson, and Oliver Hugh had just arrived and already felt like they had a target on their backs—as well as arms, legs, torso, and face. They saw veterans sporting camouflage uniforms, custom rifles, fresh accessories, and confidence. Levenson rubbed his shoulder, soothing the coming welt; Jones scowled at his tee-shirt and muttered, "Why didn't I bring any cool gear?" Instead, the newbies were issued routine equipment and encouraging words. All the troops then hurried off to battle.

The Alpha Dogs took the first two games. Game 1 was a hotly contested shootout, though the diehards made mincemeat of the newbies. After the paint cleared, Kristine Blanchette was the last Dog standing. In Game 2, half of Tuttle's mask dripped with yellow paint as he coached teammate Bill Walker. When reminded he had been "killed," Tuttle explained, "I'm an angel." "Yeah, a fallen angel!" countered Hugh.

In the race to five wins, the Dogs already had two. The Zetas then ripped off a three-game winning streak despite Alpha Dog Mike Looney's marksmanship. "I saw fear in their eyes," he said. Looney earned the moniker "The Leviathan" for his monster performance, yet Zeta newbies Jones and Levenson survived longer and contributed to the team's success.

Both squads took a break after Game 5 and rested in the lobby. Troops reloaded, rehydrated, and discussed strategy. The newbies regaled their heroism while resembling Jackson Pollock paintings. Everyone brandished their gear once more and returned to the field as songs like "Hit Me With Your Best Shot" and "Another One Bites The Dust" played over the lobby speakers.

The Dogs pulled out the next two games to go ahead 4-3. In the tie-breaking match, Oliver Hugh sealed the win by stealing the Zeta flag and dodging sniper fire all the way back to Alpha base. "I'm really proud of him," Hugh said.

The Zetas faced elimination, but both teams felt the grog of war. Sweat poured down faces; troops were haggard and hungry. Tuttle hauled everyone together and addressed the group: "Thank you for coming!" he rallied. "This couldn't be done without all of you. Remember to have each other's backs and finish strong!"

The Zetas did just that, clinching the series with two resounding victories. Warriors shrieked and raised their weapons to the sky as the referees announced the final tally, 5-4. Captains Hugh and Tuttle surprised their teams with a barbecue lunch in the lobby to end the day.

Jones laughed about his experience. "I was anxious about paintball, but you learn quickly to get over any nerves," he admitted. "Everyone made it super fun—giving me pointers, pumping me up, everything full throttle. Real talk, though—winning the series makes me look forward to the next time even more."

Tuttle is happy a new set of troops is ready to take on the tradition. "Behind the scenes, Peter is always putting together fun events like this where the main goal is team-building and bringing folks together," he said. "The newbies found out firsthand and can't wait to get back out there."

The Alpha Dogs included Peter Hugh, his son Oliver, Kristine and Herm Blanchette, Mike Looney, his cousin Sebastian Martinez, Bob Garahan, and Patty Bolton's son Mike. The rival Zeta Warriors featured Mike Tuttle, his son Connor, Bill Walker, Steve Jones, Todd Randall, his son Ethan, Brendan Sprague, and the author. 🇺🇸

## MAJ Christopher Splinter Memorial Award: A Dad's Story

by  
**1SG LON MARK DAVIS**  
AEA, FLW

*IT WAS ONE OF THOSE exciting days where everything was going right. It was 24 December 2003, and it was just one of those days. I lived in Missouri and had come to Wisconsin to see our family for Christmas. My dad had just been sent to Iraq in July, and we kept in touch by emails and the telephone. I had just got the word that he would be back for my birthday and that day would be perfect.*

*We had been Christmas shopping and we were staying overnight at my uncle's house. Well, we woke on Christmas Eve and we went to Wal-Mart. Again, this was just one of those days where nothing could go wrong; Christmas Eve, one of the most exciting days of the year. Well, we were coming back from Wal-Mart and I called my grandma to see if she needed anything. Grandma told us to come to her house right away and it sounded like something was wrong, but I wasn't sure so we went to her house. When we got there I saw a dark green van with U.S. Government plates; then I knew for sure that something was wrong ...*

What you just read is an excerpt from Mitchell Splinter's writings a few years after his father's death.

I worked at the middle school in Waynesville, MO, 13 years ago when a student's father was killed by a

roadside bomb in Iraq on Christmas Eve. As I got to know Mitchell Splinter and his family, I recognized the strong character they all displayed. I learned about MAJ Splinter who served proudly and was doing what he loved doing, protecting all of us, the day his life was taken.

With permission of Chris Splinter's widow, Penny, I started sponsoring and presenting the MAJ Christopher J. Splinter Memorial Character Award at Waynesville Middle School to recognize one student each year who displays unique character while overcoming seemingly overwhelming circumstances and remaining a solid student and great citizen. Interestingly, there has never been a shortage of outstanding young people.

Over the last 13 years, my adult children Michael and Annalisa have also presented the Splinter Award (my daughter is pictured below). It seems to me that the Splinter family character continues to persist through others.

I've kept in contact with Penny Splinter over these years and continue to be honored to present this award annually. While I did not know MAJ Splinter, I have been impacted by him and his legacy. 🇺🇸

**LON MARK DAVIS** is the Assistant for Regimental Operations for the Army Engineer Association at Fort Leonard Wood, MO. He retired as a combat engineer first sergeant in 2001. He also is known as "Angry Mark."



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## District completes Bird Island Restoration project

by **ANN MARIE R. HARVIE**  
NEW ENGLAND DISTRICT

### THE NEW ENGLAND DISTRICT

team recently completed a restoration project on an island in Buzzards Bay, MA, that not only saved a valuable habitat for an endangered bird but also restored a tidal marsh and reopened a tidal creek at a nearby location.

The Bird Island Restoration Project completion ceremony took place at the Marion Natural History Museum in Marion, MA, on 21 June. Larry Oliver, Chief, Evaluation Branch; Adam Burnett, Project Manager; and team member Judi Johnson represented the District. They joined the town of Marion, the Massachusetts Executive Office of Environmental Affairs, and the Massachusetts Department of Fish and Game at the event. Oliver praised the partnership between the agencies in getting the project done. "This is truly a collaborative effort and this vital restoration project would not be possible without the talents and dedication of all the individuals, agencies, and groups who supported this effort, especially the local sponsor, the Massachusetts Department of Fish and Game, Division of Fisheries and Wildlife," he said.

Bird Island is a small island, owned by the town of Marion, in Buzzard's Bay at the mouth of Sippican Harbor. It is less than a mile off the coast of Marion and is one of three significant breeding sites that support a majority of the population of federally protected and endangered roseate tern. "Bird Island alone supports 30% of the endangered north-eastern population of roseate terns breeding and nesting each year," said Johnson.

According to Burnett, the roseate tern habitat on Bird Island has been deteriorating significantly due to wave action and submergence during storm events. Also in danger is a still-operating historic lighthouse. A 1,100-foot revetment construction in the mid-1800s has deteriorated from storm damage over the years with a 625-foot-long section reduced to piles of rubble.

"The centuries-old rock wall built to help protect the island and lighthouse was in poor condition, and coastal storms had been eroding away the vegetation and sand that roseate terns need for nesting," said Burnett.

Work to restore Bird Island consisted of constructing a new 1,100-foot boulder revetment extending 9.5 feet above mean lower low water using approximately 14,000 tons of armor stone. Work also included using 9,000 tons of specially formulated bird habitat fill (composed of sand, gravel, and cobbles), and revegetating the island with more than 12,000 native plants

to restore nesting grounds. Restoration of the island also will protect the historic lighthouse.

Because wetlands were filled on Bird Island as part of the restoration process, the project required mitigation work. There was not sufficient space to replace the salt marsh on the island, so the project team selected a nearby alternative location. The project at the Apponagansett Bay in Dartmouth, MA, involved restoring a tidal marsh and reopening a tidal channel. "This restoration work was completed in 2016 by the Corps, involving the excavation and removal of old roadbed fill across tidal marsh and planting of native marsh grass," said Burnett.

"The project involved reopening the historic tidal channel, returning tidal flushing to the marsh, and then restoring the salt marsh resource area," said Johnson.

According to Burnett, the tidal channel opening will restore both the intertidal and sub-tidal channel habitats in the upper portion of the basin.

The Bird Island Restoration Project took about a decade to complete. According to Oliver, the Corps joined in the study in 2002 at the request of the Massachusetts Executive Office of Environmental Affairs. In 2006, the District completed a feasibility study under the Corps Section 206 Aquatic Ecosystem Restoration Program that recommended a plan to restore and protect roseate tern nesting habitat. Through a detailed project report and environmental assessment, the agency recommended reconstructing the revetment around the island and restoring substrates over the island surface for tern nesting. "The Corps and the Massachusetts Department of Fish and Game executed a project partnership agreement on 30 June 2011 to complete the design and construction," he said.

In 2015, the District completed the project designs and then awarded a construction contract in September. Construction on the island started in December 2015. Cashman Dredging and Marine Contracting Co., LLC, of Quincy, MA, received the award for the \$3.6 million construction contract.

The entire project cost is \$5.1 million, which was cost-shared between the District and the sponsor. The

federal government contributed 65% of the project costs and oversaw the contract. The Commonwealth of Massachusetts contributed 35% of total project costs.

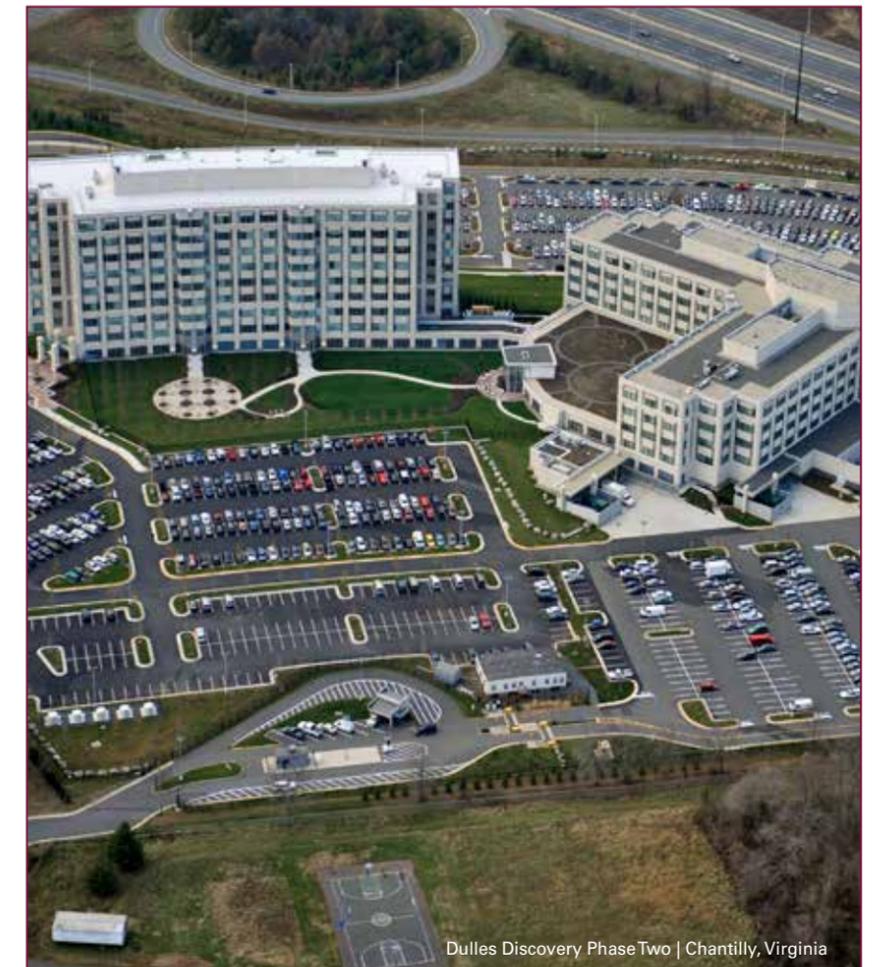
The work on Bird Island is already seeing results. "Now in June 2017, after two construction seasons, we accomplished the goal of a restored and protected island habitat for both roseate terns and common terns," said Burnett. "As of this spring, we are seeing thousands of terns re-establishing the breeding and nesting habitat on Bird Island, with chicks already emerging," he said.

"It's not often that we are able to see the benefits of a project so quickly after completing construction," said Burnett. "The habitat restoration should continue to benefit this endangered species long into the future." 

**ANN MARIE R. HARVIE** is the editor of the *New England District's* newsletter, the *Yankee Engineer*. She holds an associate's degree in liberal arts and sciences from Middlesex Community College. She also has certificates in children's literature, short-story writing, advanced short-story writing, and journalism.



Aerial view of the restoration work at Bird Island. PHOTO COURTESY USACE



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## New barracks at USMA stands in honor of one of its own, Air Force GEN Benjamin Oliver Davis, Jr.

by  
**JoANNE CASTAGNA**, Ed.D.  
NEW YORK DISTRICT

**DOUGLAS MELVILLE** of New York City was very close with his late uncle, AF GEN Benjamin Oliver Davis, Jr.

He smiles as he remembers the lessons he learned from West Point's first African-American graduate of the 20th century. Davis was a military pioneer during his time—a time of racial segregation that inspired Melville to take on a career as a chief diversity officer.

"My uncle said the wheels of justice turn slowly. Things are going to take time, take generations, and take lives to get changed and implemented, but you need to stay determined and dedicated toward those goals."

Melville is witnessing this change in action this century as the military academy names a new cadet barracks after Benjamin Davis.

Davis was selected because of what he stood for. Melville said, "My uncle

made sure to instill in me that as I go through my professional career it was important for me to take what I learn and make the path easier for those who come after me."

Davis lived his words. He had a life-long love of flying and became the commander of the WWII Tuskegee Airmen and soon after became one of the first African-Americans to receive military aviation wings. He also helped create policies that opened doors for other African-Americans in the military.

Davis Barracks was designed and constructed by USACE, New York District's contractor Walsh Construction Company of Chicago, IL, and its subcontractor, Clark Nexsen.

The sprawling, six-floor structure contains enough floor space to house five football fields and sits in the Central Area of the main campus, a National Historic Landmark.

When Melville was informed about the building dedication he was invited

to the Academy. "A historian showed me around. At one point, I turned around and there were gentlemen wearing hard hats and yellow vests and they said, 'We are from the U.S. Army Corps of Engineers,' and they wanted to show me the building," said Melville.

"They put a hard hat on me and told me that they wanted me to see, touch, and feel the Davis Barracks."

Melville was shown every aspect of the structure from where rock was blasted to make room for the barracks to the interior of the cadet rooms.

Mathew Ludwig, New York District's Military Program Chief at the time, walked Melville around. "He was impressed with the detail and stated on numerous occasions that he was honored to be part of the event and thanked everyone who had a hand in the facility," said Ludwig.

Melville first observed where solid rock was cut for two years to make

space for the building. Catherine Scott, New York District's Team leader said, "The barracks stands where there used to be a large rock hill. To make way for the building, we blasted and removed 60 feet of solid rock from the top of the hill. This is enough material to fill a football field 71 feet high."

"We then hauled approximately 150,000 cubic yards of this rock to off-site locations, all done from a restricted project site surrounded by historic structures occupied by more than 4,000 cadets."

The first floor of the barracks consists of mechanical rooms and space for a chiller plant that will provide air-conditioning to neighboring existing barracks. Above this floor there is a West-side mezzanine level for cadet storage and trunk rooms.

Above this, floors two through six are dedicated to the dormitories. Each dorm will house two to three cadets who will have access to restrooms and laundry rooms.

An architectural highlight is its central light well. Scott said, "There is a large 17-foot square skylight on the roof and a large open area on each of the floors below; this central 'well' space allows natural sunlight to illuminate the common area.

"This aesthetic design will provide an open feeling for cadets when they gather in the study rooms or collaboration rooms on each floor. A similar skylight is located above each of the two main stairs at each end of the building to provide similar lighting."

Melville said, "The Army Corps showed me each of the barracks and explained how the heat and air-conditioned floors work. It is the first barracks to have air-conditioning."

Scott said, "We are using an innovative method to control the climate in the cadet rooms through plastic tubing that was installed in the concrete floor slabs. This tubing will provide radiant heating during the winter months as well as radiant cooling during the summer season. While radiant heating has become more widespread

and popular in recent years, using the same tubing to cool the ambient space is a relatively newer technique."

She added, "It works by circulating heated water through tubing in the floor, while during the cooling season the radiant system works very much the same way, except the water is chilled and circulated through the same tubing."

This is one of several ways the building is energy efficient. She said that 30 percent of the building's hot water is being delivered through a solar hot-water system that was built on the barrack's roof.

All of this is being done in order that the Army Corps can achieve the U.S. Army's requirement of Leadership in Energy and Environmental Design (LEED) Silver certification. These energy-saving features will save taxpayers approximately \$44K annually.

The structure is modern, but you wouldn't know it by looking at the exterior. The building was designed to maintain the look of the rest of the historic 200-year-old campus.

Scott said, "The building was designed in the military gothic revival architectural style to blend in with the adjacent historical structures located in the Central Area." The design includes granite surface covering on the exterior walls and gothic arches.

There also are secured entryways that extend the width of the structure and allow a way out to egress from the north formation area to the south side of the building.

In addition, there are parapets, where the roof meets the walls along the roof perimeter that were designed in a defensive battlement style and include concrete crenels, open space, and cast stone lintels and cap stones.

Scott said a significant volume of granite was required for the façade and a pedestal structure below the building—121,000,000 lbs., to be exact. This is equivalent to 10,083 elephants, each weighing 12,000 lbs.

Maintaining the historic look of the barracks is important. If a piece of



Cadet Benjamin Oliver Davis, Jr. PHOTO COURTESY USACE

granite breaks off, it's fixed. Melville said, "They showed me the computer program they have that tells them what type of piece broke off so that it can be replaced and reset."

Melville is amazed at what was created in his uncle's name. "He has a monument in his name that stands taller than the others, in the center of the campus, and that is the last barracks to be built in our lifetime and maybe in our children's and grandchildren's lifetimes at the U.S. Military Academy, West Point."

Ludwig said, "It isn't very often that someone will ever get the opportunity to work on such a magnificent project that will help define the future leaders of this great country. The extreme gratitude and excitement that Doug Melville showed to the Army Corps during the tour helped reinforce the importance of this project."

Melville said, "This is a man's life work. It's not just granite; it's not just wiring; it's not just glass and steel. It's actually a real person who lived his entire life putting it on the line and making it out in the end." 🇺🇸

**DR. JOANNE CASTAGNA** is a Public Affairs Specialist and Writer for New York District, USACE. She can be reached at [joanne.castagna@usace.army.mil](mailto:joanne.castagna@usace.army.mil).

Front exterior of Davis Barracks under construction, U.S. Military Academy West Point. PHOTO BY DANIEL DESMET, PUBLIC AFFAIRS, NEW YORK DISTRICT



INSET: New York District Commander COL David A. Caldwell and Douglas Melville at the Davis Barracks' dedication ceremony. PHOTO BY USACE, NEW YORK DISTRICT, PUBLIC AFFAIRS

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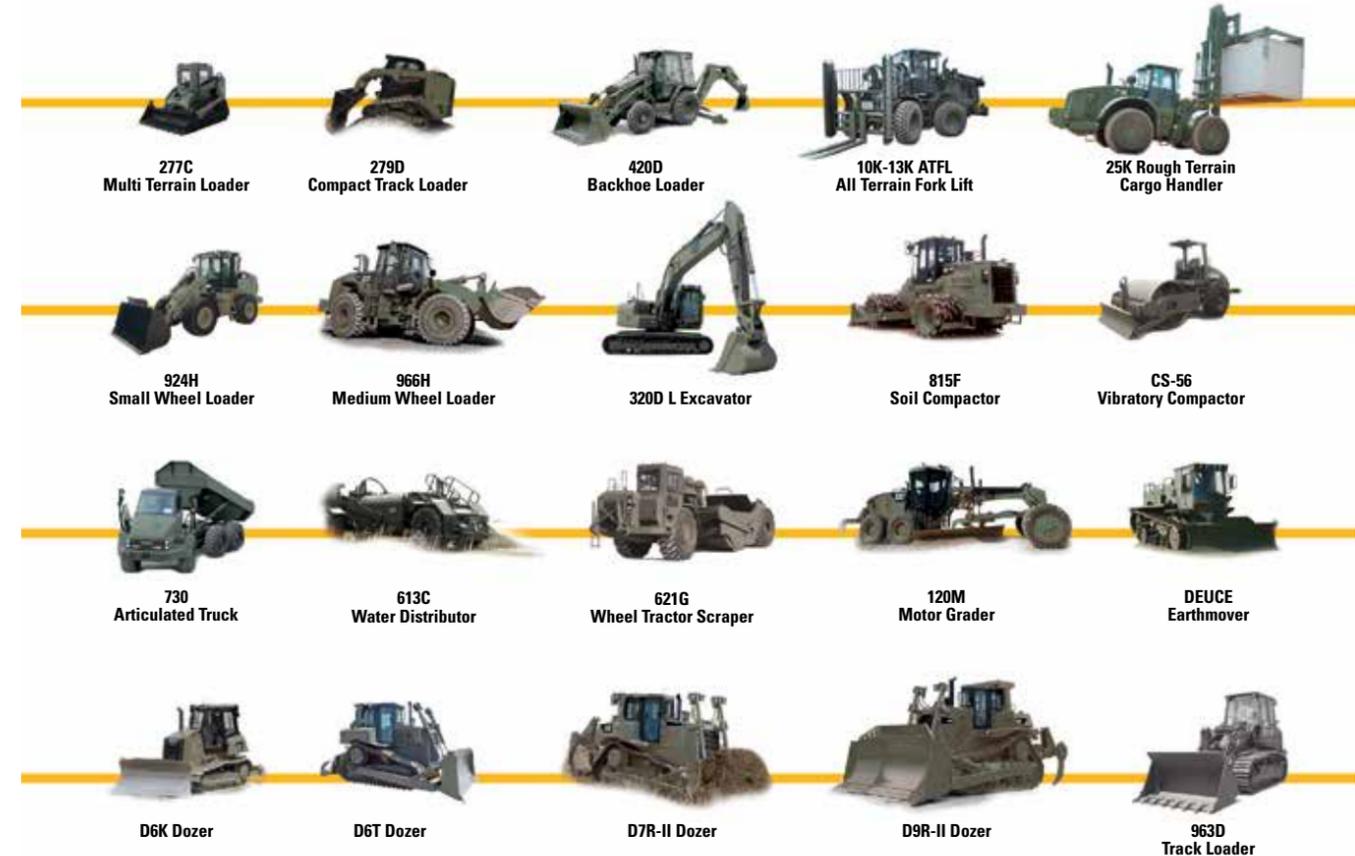
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COMPETITION

# BEST <sup>2017</sup> SAPPER

by **CPT ROBERT ZIMMERMAN**

**"IT PAYS** to be a winner!" This mentality is instilled in Sapper students while attending the Sapper Leader Course, and it held true for the 2017 Best Sapper Competition.

On 23 April, 48 teams from across the Engineer Regiment gathered at Fort Leonard Wood, MO, to compete for the title of Best Sapper. Each two-man team represented its sponsoring unit and the standards to which it trains for combat. Active duty teams hailed from 17 installations, while National Guard and Army Reserve teams represented three states. The seven-phase competition lasted more than 54 hours, evaluating the technical expertise, mental agility, and physical toughness of participants ranking from specialist to lieutenant colonel through 35 events covering mobility, counter-mobility, and survivability tasks.

**PHASE I**

The Non-Standard Physical Fitness Test initiated Phase I early on the morning of 25 April. Competitors completed a two-mile soldier carry, 200-meter swim, and a multitude of rope climbs followed by transport and grouping into boat teams

for Phase II. Teams were rewarded for their Phase I performance by earning an advantageous starting position for Phase II.

**PHASE II**

For the first time in Best Sapper Competition history, competitors relived one of their favorite moments from Sapper School: Boat PT. Each squad maneuvered its ten-man Zodiac along a three-mile route alternating between carrying and paddling as necessary.

After completion of the boat movement, each boat team constructed an eleven-row wire obstacle in the shortest time possible, demonstrating the ability to successfully work with fellow combat engineers to accomplish the mission.

**PHASE III**

The physical toll of the competition became apparent as the field began to thin during Phase III: the ruck march and land navigation. Teams trekked over the arduous terrain with their 65-pound rucksacks and a five-gallon water jug until they reached the start of the Sapper School land navigation course.

Through the first three phases, competitors quickly realized their technical skills were useful only if their physical abilities allowed them to reach the objec-

tive. For the 22 teams that successfully completed the first twelve hours of the competition, it was time to put those technical skills on display.

**PHASES IV AND V**

These two phases lasted for 24 hours and highlighted the practical application of technical combat engineer capabilities. With no sleep, minimal food, and (at times) limited visibility, teams breached complex obstacles, solved challenging equations, and conquered some of Fort Leonard Wood's worst terrain.

Enduring some of the worst weather conditions in the competition's history, teams showcased their knowledge of demolitions, breaching fundamentals, mountaineering, air assault operations, field-expedient communications, and MEDEVAC procedures.

**PHASE VI**

At the conclusion of Day 2, facing mind-numbing fatigue, the 20 remaining teams executed their final technical evaluation.

Within a limited period, enduring an abundant number of external distractions, teams inspected a complex demolition system and identified deficiencies.

They also completed a one-hour written demolition exam.

**PHASE VII**

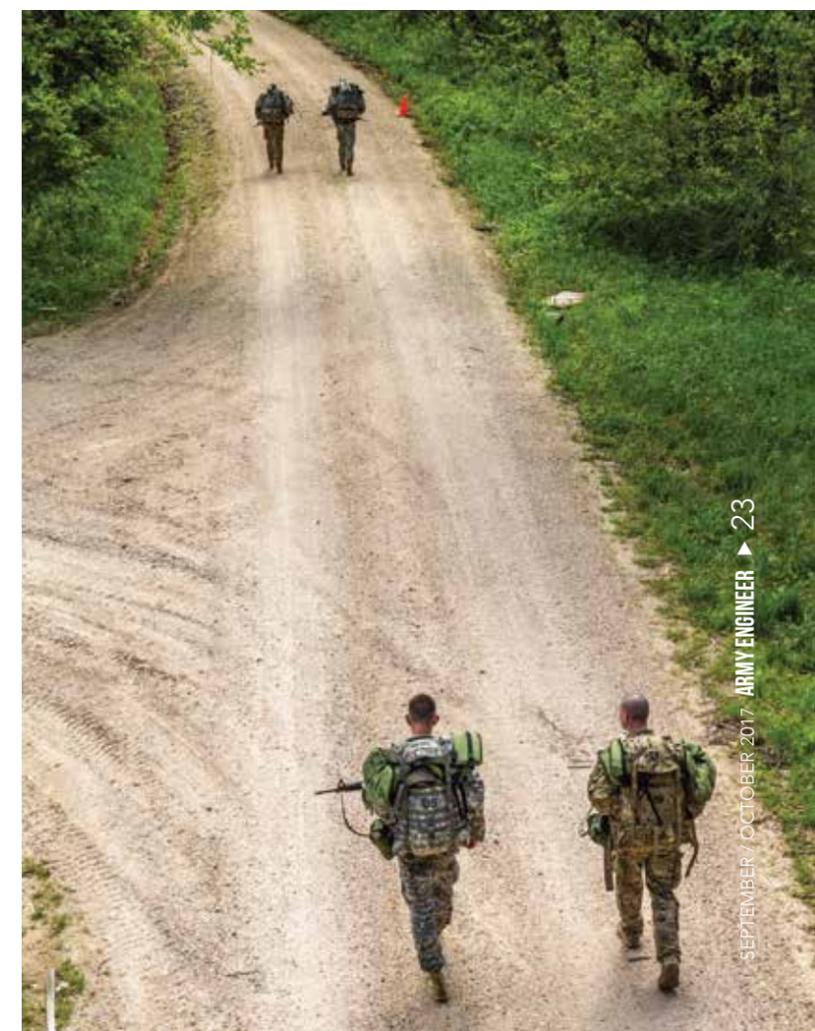
The final phase held true to tradition with the seven-mile run ending on Gammon Field. As the sun peaked over the horizon, 20 teams helocasted into TA-250 to start the journey to the finish line. Along the way, competitors raced to pound pickets, carry Bangalore boxes and cratering charges, drag duffel bags, saw and flip logs, and conquer numerous obstacles before finally making their victorious way through the engineer castle.

After 54 hours and more than 60 miles through the worst identified terrain Fort Leonard Wood has to offer, each team earned some rest and well-deserved congratulations; completing this year's competition was an accomplishment in itself. While 20 teams finished the competition, only one team earned the title of U.S. Army Best Sapper.

1LT Luke Groom and SSG Carlos Jimenez from the 307th BEB at Fort Bragg, NC, earned the title and traveling trophy.

**CPT ROBERT ZIMMERMAN**

*is currently the Chief of Training at the Sapper Leader Course. He graduated from Cornell University with an undergraduate degree in mechanical engineering.*





# ENGINEER SOLDIER MAKES WAVES ON NAVY BASE

by **JENNIFER ALDRIDGE**, EUROPE DISTRICT

## MAJ KATIE WERBACK

held her breath. She was seconds from jumping into 39° water, for fun.

Like most Sundays, she led a reluctant but excited group into the frigid Baltic Sea. As a soldier assigned to a U.S. Navy base in Redzikowo, Poland, approximately 15 miles from the water, she couldn't resist the chance to join a local polar plunge club during her time here.

Despite her enthusiasm for the water, it's more common to find Werback in construction boots than a swimsuit. She's part of the USACE Europe District team managing the second Aegis Ashore ballistic missile defense project in Europe. The land-based system will include a radar site and missile battery designed to protect U.S. and NATO forces and assets in the region. In partnership with the Navy, Missile Defense Agency, and Polish

officials, the district oversees construction of the missile defense complex and naval support facilities totaling approximately \$224 million. The project is expected to be complete in 2018.

Werback's official title is logistics cell executive officer, but when Navy Commander Rafi Miranda arrived on base, he quickly realized she was doing much more than her title implied.

"She was the post master, the real estate agent, the Polish military liaison—she was a jack-of-all trades. She was the go-to person," he said.

This major military construction project was Werback's first USACE assignment.

"Since my days as a second lieutenant, I've wanted to work with the U.S. Army Corps of Engineers," she said. "When the opportunity finally came along,

it was on one of the most complex projects in Europe District's portfolio."

Werback, a California native, joined the Army after attending University of California, Davis.

"My family is still surprised that I went into the Army," she said. "It sounded like fun, and it still is; plus it uses all of my Girl Scouts skills. And it's a different way of doing life. We have a community that is always there even though the people change. And they let me build stuff everywhere."

Werback, a degreed and licensed engineer, arrived on the project site in March 2016. She was the first USACE employee introduced to Sebastian Tarchala, the Missile Defense Agency site manager.

"In the initial stage, we were maybe about 20–30 people total," he said. "Werback and I were in the same building and would

meet daily—it was all about figuring out how we would approach this project from the logistical standpoint."

She also helped develop the standard operating procedure for base access, Tarchala said.

"It was a tedious process that had to be coordinated through our Polish counterparts," he added.

Werback did so many things to lay the groundwork at the onset of this project, Miranda said.

"The success we're having right now as a team is due in part to what she did from the very beginning. Give it to her if you want it to get done," he said.

Naval Support Facility Redzikowo is under the command of Capt. Rick Gilbert, who is responsible for the safety and security of people and assets here. When he took command, Gilbert thought his biggest challenge was going to be getting people to cooper-

ate. But that hasn't been the case, he said.

"We have a lot of different people working together for one mission. Katie can get everyone to go after that mission. She has that skill set. That's why she's so valuable here," he said. Werback has positively impacted the quality of life for sailors and civilians alike with her stint as postmaster. She set up the Fleet Post Office, Tarchala said.

"She took training to qualify," he said. "It seemed like a small thing, but it became a pretty big project. And for morale on base, it was huge."

"Anything from Amazon boxes to letters from family to bills arrive directly on base through regular U.S. mail. It took a few months because of the regulations and storage requirements that had to be met—such as special screens, windows, and locks on doors—but Katie made it happen. Once it was up and running, she was in charge of receiving and distributing

mail, on top of her regular duties."

Outside of work, Werback is a very social person. In addition to plunging into the Baltic, she enjoys CrossFit and geocaching. Plus she's very involved in the local community, Gilbert said.

"We go out for dinners and community events; we're in the schools teaching English and swimming; and she's supporting all of that," he said.

At the office, Werback is focused on overcoming challenges inherent to a complex military construction project. Utilities, for example, are running behind schedule. This may jeopardize the on-time commissioning of naval facilities, Gilbert said.

"Katie is working on nonconventional ways to finish this piece of the project and still meet the mission in the end. She's coming up with ideas that are not schedule driven but which can get us back on schedule," he said.

In the world of construction, schedules slip and change all the time. On any government project one agency cannot do it alone, Tarchala said.

"There are so many organizations that work together. Relationships are really important, and Katie brings cohesion and leadership to the team," he said.

When Werback looks to her left and right she sees hard-working people who want to be there.

"Teamwork is the only way it's going to get done," she said.

"From the military perspective, it's a joint project with the Army Corps and the Navy.

"You also have the relationship with MDA and, by the way, there is not one contractor but two, and one is Turkish while the other is American with Polish subcontractors.

"We have to consider what that means for things like labor laws and permitting. That's why we have experts from each team

coming together to find the answer to every possible question on building this Aegis Ashore complex," she said.

As Werback departs the project and USACE for Fort Leavenworth, KS, she will carry with her the importance of people.

"The missions are so important that you sometimes forget, but that time spent developing the individual pays dividends in the future," she said.

It's hard to see her go; the community here will miss her; and the Navy will miss the strong, female officer presence she's provided, Gilbert said.

"If you look at this base, it is probably about 97 percent male—having her here has been critical for my junior female sailors. These young sailors look at her and think, that's me. It matters, and it's significant," he said.

"I'm proud, like a father proud, of all she's been able to do," Miranda added. 



MAJ Katie Werback, second from left, walks the project site with Peter Debski, right, a district construction representative, and other stakeholders from Naval Facilities Engineering Command and the contractor. PHOTO BY JENNIFER ALDRIDGE, USACE

# ROAD TO WAR:

## 21ST ENGINEER BATTALION

**THE 21ST EN BN** returned from a deployment to Afghanistan and Kuwait in October 2015. By November 2016, the majority of the battalion was back in Afghanistan, Kuwait, and Kosovo supporting 3rd Brigade's new mission. The training schedule leading up to the 2016 deployment was extremely demanding. Soldiers spent dozens of nights in the field, working hard and preparing for two JRTC rotations and ultimately the deployment. The battalion conducted individual and squad-level training from January to the first JRTC rotation in May. The companies conducted similar training from June until the second JRTC rotation in September. Following the second JRTC rotation, soldiers got a couple weeks of refit and pre-deployment leave; by the second week in November, the battalion was deployed again. Although demanding, the train-up was successful and the unit was very prepared when it came time to deploy.

### COMPANY AND BATTALION FTXs AT FORT KNOX, KY

After spending the first couple weeks of the new year focusing on individual

tasks and skills, such as driver's training and weapons ranges, the unit went to Fort Knox, KY, to conduct company FTXs. The Sapper platoons from Alpha and Bravo companies conducted squad live-fire exercises, while the Route Clearance Platoons, Headquarters and Headquarters Company (HHC), and Forward Support Company (FSC) conducted convoy live-fire exercises. The sapper platoons also conducted an inert Mine Clearing Line Charge (MICLIC) shoot.

At the end of February, the unit went back to Fort Knox, this time for a battalion FTX. During this training, the sapper platoons from Alpha and Bravo companies conducted platoon live-fire exercises, while the RCPs and distro platoon from the FSC conducted convoy live-fires. HHC's focus remained relatively unchanged throughout each field problem. In order of priority, the company's focus was establishment of the battalion tactical operations center (TOC), establishment of the battalion aid station (BAS), establishment of the HHC command post (CP), receiving enablers attached to the battalion, and conducting terrain man-

agement throughout the battalion tactical assembly area (TAA).

### BRIGADE FTX

In March, 3BCT went to the field for a very rainy brigade FTX. During this training, Alpha and Bravo companies broke down to platoon and squad levels in order to support the other battalions in the brigade. The sapper squads supported the infantry companies during their dismounted missions while the RCPs ran route clearance missions throughout the area. Charlie Co. stayed busy providing connectivity and the communications architecture for all of 3BCT. Delta Co.'s Tactical Unmanned Aerial Surveillance (TUAS) platoon provided shadow unmanned aerial vehicle support throughout the entirety of operations. Echo Co. busily supported the battalion with maintenance, refueling, and LOG-PACs. Following the week in the field, 21st EN BN soldiers began a short week of recovery before beginning preparation for the brigade live-fire exercises in April.

### BRIGADE CALFX AND FCX

The 21st EN BN combined all the previous training

by **1LT JENNA VERCOLLONE**

from the company- and battalion-level FTXs in order to conduct final task force-level training validations before going to JRTC in May. April was an incredibly busy month for the Rakkasans as the battalion supported the validation of twelve infantry companies during company combined-arms live-fire exercise and fire-coordination exercise. During these training events, the sapper platoons supported their respective infantry battalions, while Charlie and Delta companies supported the entire brigade by providing communications and TUAS support.

### JRTC ROTATION 16-07

While many 21st EN BN soldiers were supporting these brigade training exercises, some also were helping the BCT conduct a Sealift Emergency Deployment Readiness Exercise (SEDRE) in order to move all the necessary equipment to Fort Polk, LA, for JRTC. 3rd Brigade's SEDRE

was the biggest sealift exercise the Military Surface Deployment and Distribution Command (SDDC) had participated in since before 9/11. The SEDRE took a lot of manpower from the battalion in planning and execution. The battalion's vehicles went by rail from Fort Campbell to Jacksonville, FL. In Jacksonville, the battalion had a detail of soldiers to drive the vehicles from the railhead to the ship at the seaport and load the vehicles on the ship. From there, the vehicles were taken by ship to Port Arthur, TX. At Port Arthur, another detail of soldiers unloaded the vehicles from the ship and drove the vehicles to Fort Polk. The entire SEDRE operation took almost a whole month to complete.

JRTC 16-07 in May was a decisive action, force-on-force rotation. The battalion TOC was located at Geronimo DZ and most of HHC ran operations. However, much of the organic battalion was task orga-

nized across the BCT supporting brigade operations and other battalion's missions. Our battalion was augmented with companies from outside the BCT including Explosive Ordnance Disposal (EOD), Military Police (MP), Engineer Support Company (ESC), and a Mobility Augmentation Company (MAC) along with a detachment of Civil Affairs, a Tactical PSYOPS Team, and a Q50 radar section. Additionally, the battalion was assigned an Armor company and a couple of Infantry companies organic to the BCT during the rotation. The battalion was assigned an engagement area during the defensive phase integrating tanks into the defense, and the battalion continued to secure the airfield throughout the rota-



Light equipment operators from A Co. construct berms during JRTC rotation 16-07. The LE section constructed more than 2,000 meters of berm in support of the brigade's survivability and defensive plan.



tion as the base of the BCT operations while continuing to provide route clearance and other critical enablers across the BCT.

During the defense, the battalion oversaw the MAC's successful employment of their Volcano to emplace a short duration minefield as part of the BCT's defense in depth. Prior to deployment to the field, HHC often deployed its CBRN Reconnaissance Platoon to provide security for the quartering party and to ensure that there were no CBRN hazards at the site planned for the battalion TAA.

During the decisive action rotation at the JRTC, the CBRN Reconnaissance Platoon also established a brigade-level decontamination site and was detached to the brigade's Cavalry Squadron to support the reconnaissance of the brigade's Area of Operation. Delta and

Charlie companies supported the Brigade signal and intelligence needs as usual, while the engineer companies broke down into platoons, and squads in some cases, to support their respective infantry and field artillery battalions. Echo Co. used the rotation to test a combat trains and company main construct with a forward element with the battalion main and their company main plugged into the Brigade Support Area, and it worked fairly well.

This was a challenging JRTC rotation, with more than two weeks spent in the box, and much of the battalion participating in multiple, progressive live-fire exercises prior to entering the box.

#### COMPANY AND BATTALION FTXs WITH MICLIC SHOOT

In June, following the notification of an upcoming JRTC rotation in Septem-

ber, the battalion went back to the basics, as it had in January, continuing to develop individual skills. Companies ran 40-hour driver's training courses and the battalion held qualification ranges on every weapon and demolition. With the deployment on the horizon, it was time to validate individual- through battalion-level operations again. Soldiers trained at various specialty schools such as the Route Reconnaissance and Clearance Course (R2C2) for leaders and operators, Explosive Ordinance Clearance Agent Course, SIGINT Foundry, WIN-T training, and the MRAP Recovery Vehicle H8 course. After some much-needed opportunity leave in July, the training focus switched back to team-, squad-, and platoon-level validations in advance of the Mission Readiness Exercise (MRX) at Fort Polk in September. The engi-

neer companies conducted sapper and route clearance squad live-fire exercises as well as gunnery tables III-VI in July. August began with company-level FTXs. The battalion FTX consisted of platoon live-fire exercises for Alpha and Bravo companies, as well as a live MICLIC shoot.

According to many longtime division staff and range control personnel, this was the first time that a live MICLIC had been fired at Fort Campbell.

Throughout the exercise, the BN TOC operated from Sukchon Drop Zone, after a CBRN Site Decontamination by HHC's RECCE platoon. Charlie Co. provided FM retransmission, and Delta Co. provided UAS support throughout the week as well as some excellent teamwork in closing down roads with manned checkpoints in support of the live MICLIC shots.

#### JRTC ROTATION 16-09.1

Unlike the JRTC rotation 16-07, which involved Joint Force Entry and Force-on-Force operations, the September MRX at JRTC was tailored to the type of mission the battalion would be conducting on the upcoming deployment. The brigade and 21st EN BN headquarters were run out of FOB Warrior.

The battalion was augmented with Beast Troop from 1/33 CAV, Battlehard Co. from 3/187 IN BN, an M777 platoon from C/3/320 FA BN along with some organic elements to the battalion including an RCP from Alpha Co. to replicate the task organization

that was developed for the battalion during the PDSS in August for the coming deployment.

The battalion also was assigned additional infantry companies from 1/187 IN BN for parts of the rotation, including Bulldog, Crusher, and Dragon companies. HHC and parts of Alpha Co. were co-located with the brigade at FOB Warrior. Bravo Co. and a platoon of Alpha worked out of other FOBs, however, replicating their task organization expected during the deployment.

Although this JRTC rotation was very different from the first JRTC rotation in May, it was helpful in properly preparing the battalion for the way that it would be conducting operations in Afghanistan in a few short months. The unit had trained hard over the course of eight months and was prepared for the deployment.

#### DEPLOYMENT

At the end of October and into the first week of November, more than half the battalion deployed to several locations in support of different missions. There are 21st EN BN soldiers serving in Bagram, Kandahar, and Helmand, Afghanistan, as well as some soldiers supporting missions in Kosovo and Kuwait.

The deployed soldiers are working hard to complete their mission and, in the rear, the unit has continued to push soldiers through driver's training courses, weapons ranges, and a whole array of MOS-

specific schools in order to maintain a ready force.

In November, the battalion conducted a transfer of authority (TOA) assuming responsibility for security of Kandahar with additional security missions throughout the TAAC-S area of operations enabling Train, Advise and Assist (TAA) operations in an enduring effort to show our resolute support to the people and government of Afghanistan and increase their capacity for self-governance. The combined task force (CTF) is named the Rak Solid Sharks; the name represents its diversity. The task force is comprised of soldiers from five different battalion elements within the Rakkasans, led by the Solid Battalion, and augmented with several attached units, most significant of which is the 341st Romanian Infantry Battalion "White Sharks."

Of the ten companies in the CTF, seven are Infantry, one Cavalry, one MP, and one EOD with combat engineers, artillerymen, and several other critical specialties throughout. This—combined with the representation of Romanians, Bulgarians, Ugandans, contractors, and U.S. soldiers—makes the more than 1,200 personnel in CTF Rak Solid Sharks a highly diverse, highly capable maneuver task force.

January through November 2016 brought lots of challenging missions and hard, realistic training to the soldiers of the 21st EN BN, and they were ready for it. The battalion was prepared and ready to go when it came time to deploy! 

Sappers from 1st PLT, Alpha Co., execute the blank iteration of their daytime live fire in August 2016 prior to completing a night live fire before returning to JRTC for rotation 16-09.



# COMMUNICATING IN TUNNELS AND THE SUBTERRANEAN ENVIRONMENT

by **ANDY STEIN**  
VITAL ALERT COMMUNICATION

**THE SCENARIO:**

Your team has to execute a mission that involves entering a complex remote tunnel system, entering an urban subterranean environment or perhaps a collapsed infrastructure. You're confident that your team members who are in relative proximity will be able to maintain communi-

cations with your existing radio equipment, though you need to maintain communications connectivity between the team and the above-surface, mission command area.

You establish communications at the entrance to the objective and proceed into the mission area. As you progress, there are multiple turns, switchbacks, and chokepoints that are stable and unstable. Your team proceeds and your last man drops relay points for your communications system to ensure you are connected back to the surface. You know that each relay point you place is a possible point of failure and you're not sure you have enough relays.

Let's imagine in this scenario one of two things might happen:

1 – Your last man runs out of repeaters. Your mission is called off because you can't maintain connec-

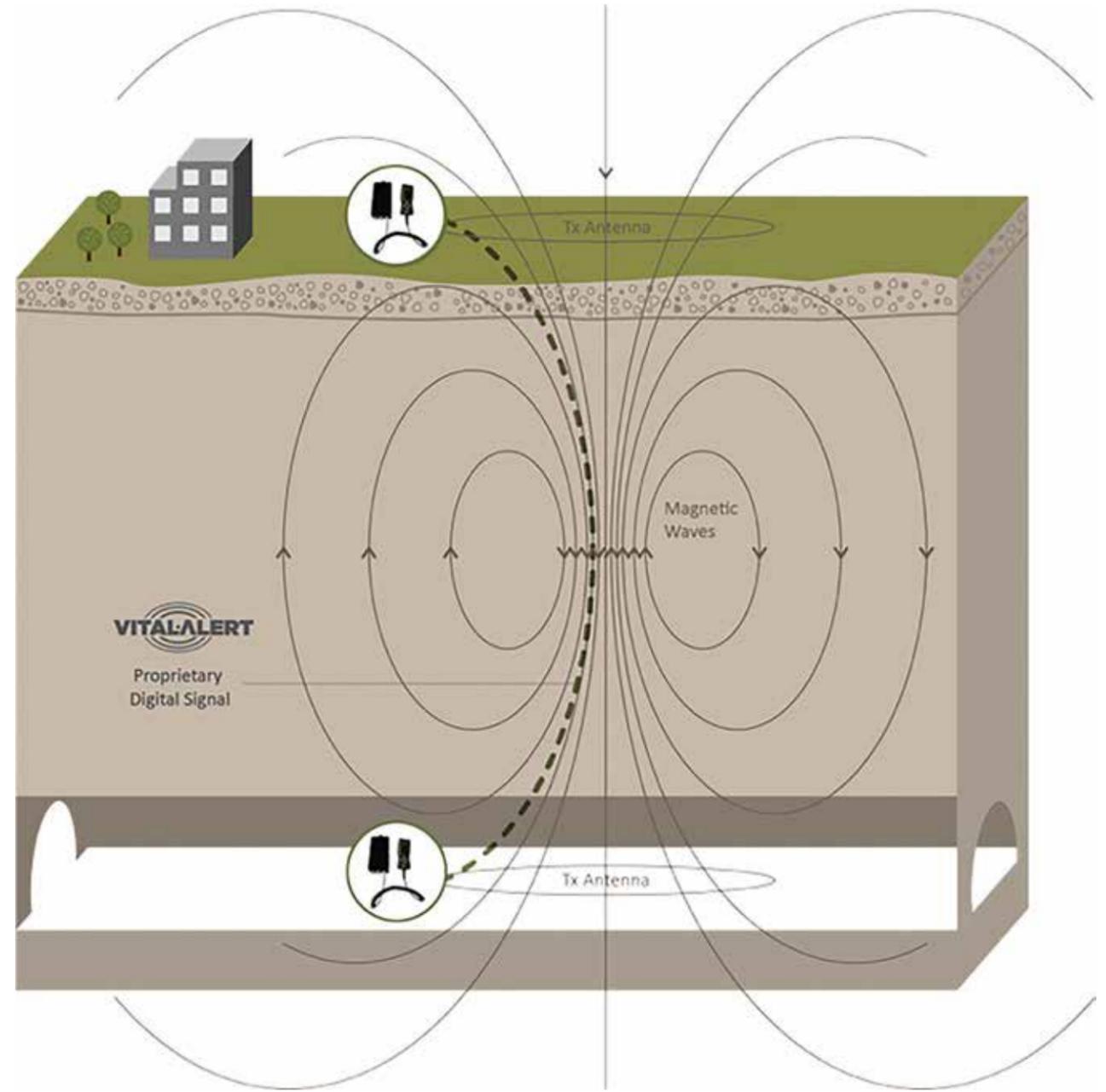
tivity to the surface in this high-risk environment.

2 – One of your repeaters malfunctions or you incur an infrastructure collapse along your relay chain where a barrier now exists blocking your communications or destroying your equipment.

There is a solution you should be significantly considering.

Radio technology available today has a great array of capabilities. Connectivity, high data rates, encryption, and video streaming are all common features.

Unfortunately, as per the scenario, all this goes away when we enter tunnels, collapsed buildings, or any other environment in which line of sight is blocked or severely restricted. Traditional Radio Frequency (RF) signaling cannot get through solid objects or even around significant obstacles like curves and elevation changes.



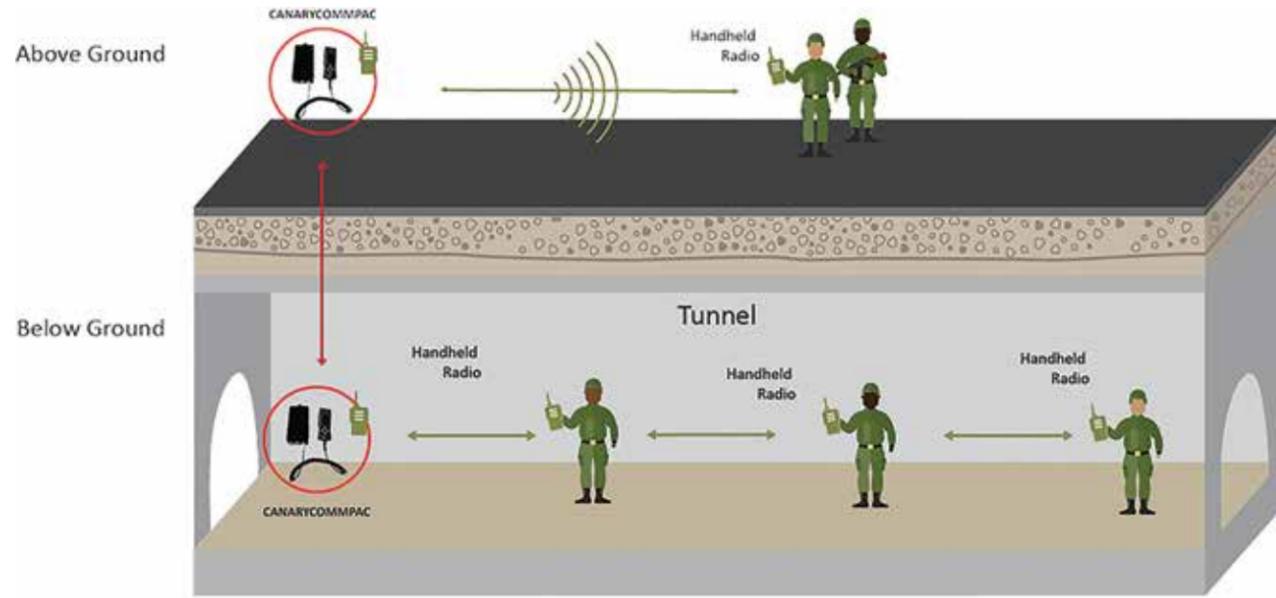
**ILLUSTRATION 1.** Magnetic induction communication.

We do have technology that is really good at switching frequencies to maximize penetration and persistence; however, the laws of physics do not allow for traditional open-air communications to function in these environments.

This type of environment requires assistance and alternatives.

Instead we have to look at a different approach making use of what physics gives us. By using Magnetic Induction (MI), communicating Through-The-Earth

(TTE) and through barriers is possible. MI works by creating a magnetic field and using that as a carrier for a signal. The magnetic field penetrates earth, concrete, and solid rock. ILLUSTRATION 1 shows this.



**ILLUSTRATION 2.** Communication between CanaryCommPac and multiple personnel vertically and horizontally below ground.

In the illustration, two TTE devices—in this case Vital Alert Communication’s “CanaryCommPacs”—are used. As long as they are within each other’s magnetic field (using regular communications terminology, “within range”), communication can be established and maintained.

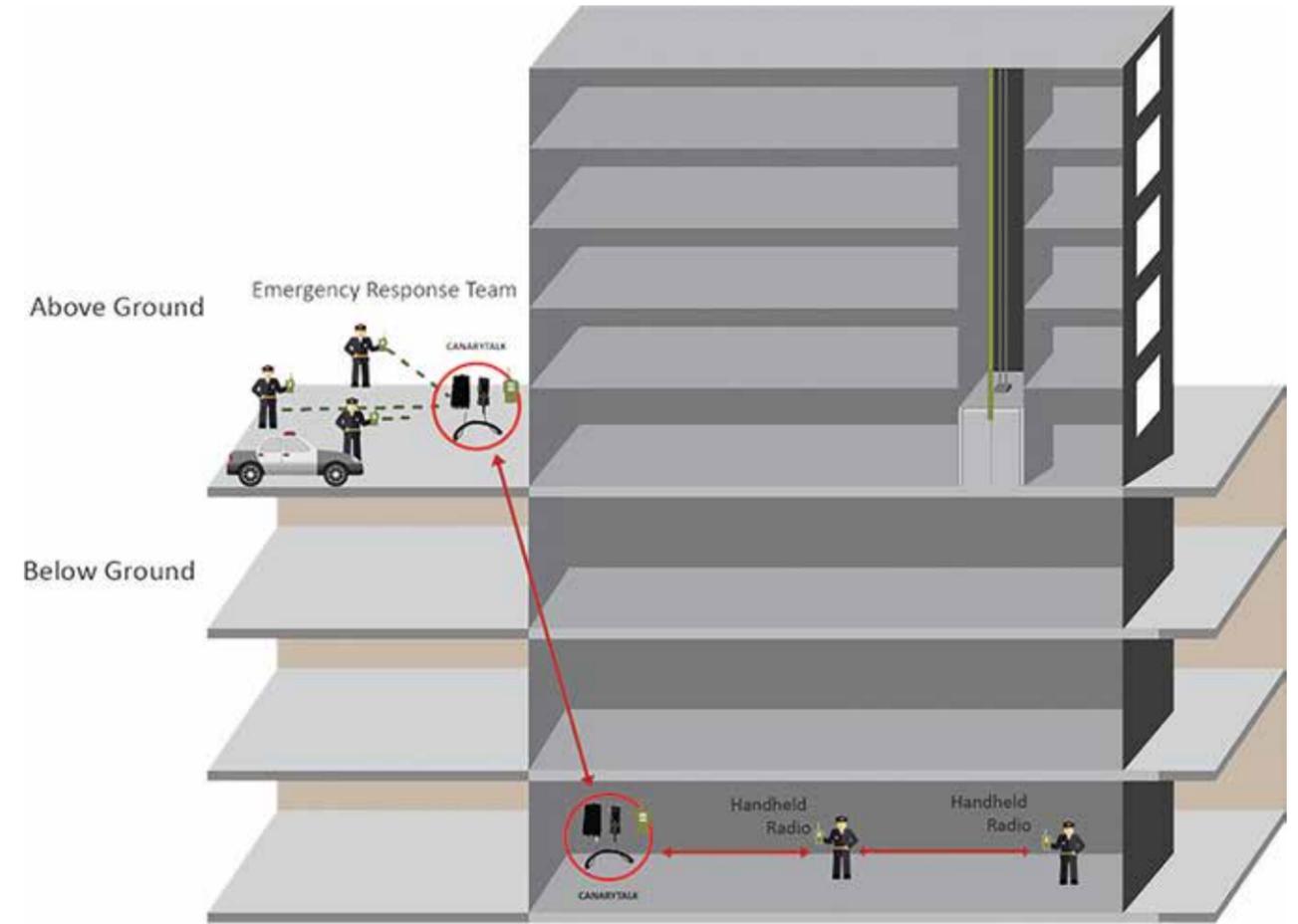
This technology has limitations compared to traditional systems with which you might be familiar. Distance is about 1,000’ for voice and 2,000’ for text or data. This is due to the size of the field that can be generated by the equipment easily. It is Very Low Frequency (VLF); consequently, it has a very low bandwidth. In other words, it cannot support things like streaming video. There is work being done to potentially allow video, but it is not quite there

yet. As mentioned above, it requires antennas for sending, “transmitting,” and receiving. The receive antenna can be quite small; however, the transmit antenna is a loop of wire. The larger the loop, the further the distance. At a certain size, making the loop bigger doesn’t get you more distance because the resistance in the antenna limits the field size. The wire gauge can be thin, 18–24, so it’s easy to carry and deploy from a small reel. The loop does not have to be perfect. As long as there is some separation and the magnetic field can be established, it will work. A perfect loop may get you longer distance.

The technology itself is not new to the Army. Any operator familiar with the Army’s Magneto Inductive Remote Activation Munition

System (MI-RAMS) has used it. This equipment is utilized to remotely initiate demolition charges, munitions, and other defense systems in RF-denied areas and in underground environments such as tunnels and into infrastructures. The only difference is that the technology also can be utilized for voice and data communications.

The TTE transmitters/receivers have been designed to work with existing communications technology. Whatever handset used now can be used too with the TTE link. This is very useful because only one member of the underground team needs to carry the TTE unit. Once deployed, it links to the closest handset. The local group can freely communicate and the TTE link sends those communica-



**ILLUSTRATION 3.** Communication between above-ground team and below-ground team through two CanaryTalk terminals.

tions to the surface. The line of sight/RF rules will still apply to the handhelds; however, by moving the TTE device along with you, local communications can be maintained.

Another feature of the technology is the ability to send data. This means that sensors can be deployed along the route. Sensors also can be buried along with the TTE unit allowing covert information to be relayed after the team has left. Sensors of any type can be deployed includ-

ing vibration for intrusion alerting or geo-fencing, gases, temperature, etc. These sensors and the TTE device can be designed to run on very low power and send information only when there is something new to report.

TTE technology can be instrumental in support of military operations in dense urban and subterranean environments. The U.S. Army Maneuver Center of Excellence (MCoE), Capabilities Development and Integration Directorate,

Concepts Development Division (CDD), has looked at the functional areas required for subterranean operations. Sustaining communications between elements above and below ground and through barriers during subterranean operation will be essential. TTE technology clearly will need to be in the operator’s equipment set for effective task execution.

*More information on TTE and its various applications can be found at [www.vitalalert.com](http://www.vitalalert.com)*

# USACE builds foundation for resiliency

by **JoANNE CASTAGNA**, Ed.D.  
NEW YORK DISTRICT

**NESTLED IN THE** Sandy Hook Bay, the community of Port Monmouth, NJ, has experienced flooding, blizzards, and major storms that have swept through the area throughout the years.

It is Atlantic hurricane season once again, and life-long Port Monmouth resident Charles Rogers reminisces about past storms that have battered the area and his experiences.

"My father placed me on his shoulders and walked through four feet of water to take me to my grandmother's house during the hurricane of 1944," said Rogers.

The "1944 Great Atlantic Hurricane" was a destructive and powerful tropical cyclone that swept across a large portion of the East Coast in September of that year.

During Hurricane Donna in 1960, the area was evacuated, and Rogers and his entire family were transported by the U.S. Coast Guard via an amphibious vehicle to the firehouse to safety.

"In 2012, Hurricane Sandy placed almost four feet of water in my house and six feet in my cellar and we lost our heating, electric, food, and personal items," said Rogers.

The outlook on future storms is much brighter for Rogers because of the Port Monmouth Flood Risk Management Project being performed by the U.S. Army Corps of Engineers, New York District. "It's an important project to protect Port Monmouth residents," said Rogers.

USACE, in partnership with the New Jersey Department of Environmental Protection Bureau of Coastal Engineering, is working on this project that will make the community more resilient during future storm flooding and surge.

To help with this resiliency, USACE decided to include an environmentally friendly soil stabilization process that has never been used by USACE before on a flood risk management project. The process makes the project stronger, improves the community's quality of life, and saves tax dollars.

The project area is made up of low-lying salt and freshwater marsh and there are many residential and commercial structures sitting right on or near this marshland. Erosion over the years has removed much of the natural beachfront and dune complexes that provided coastal protection to the community from storm surge.

Hurricane Sandy further exacerbated the problem by causing millions

of dollars in damages, destroying 750 homes and businesses in Port Monmouth alone.

The project includes two phases of work that together will reduce the risk of flooding throughout the entire community.

The first phase was completed in 2015 and provides storm risk reduction from the Sandy Hook Bay.

This work included building up and widening the shoreline, constructing a 15-foot-high protective dune—spanning a mile and half long, and constructing a new stone groin perpendicular to the shoreline. A groin structure extends out from the shore into the water and interrupts water flow and limits the movement of sand, to prevent beach erosion and increase resiliency.

In addition, a fishing pier was extended 195 feet and walking paths were built to provide the public access to the beach area.

The second phase is in progress and will provide a line of defense surrounding Port Monmouth.

The work includes constructing a concrete floodwall—the length of almost 22 football fields—to reduce flooding from the Pews Creek to the west and the Compton Creek to the east.

A floodwall is a vertical barrier designed to temporarily contain the waters of a river or other waterway which may rise to unusual levels during seasonal or extreme weather events.

Additionally, pump stations, road closure gates, and a tide gate at Pews Creek will be constructed.

A pump station pumps or drains water from low lying land and tide gates allow water to flow freely under normal conditions and close automatically to prevent flood waters from flooding a community.

In addition, a system of levees will be constructed. A levee is an embankment designed to prevent flooding.

The levees that are being constructed need a strong foundation. The land is made up of low-lying salt and freshwater marsh that is not strong and very saturated, so this soil needs to be removed and replaced with better soil to construct upon.

"Typically, it's cost-effective to remove and replace the unsuitable soil, but in the New York and New Jersey region, it's a different story," said David Gentile, project manager, New York District, USACE.

"In urban areas it's hard to find disposal sites, so the soil would have to be picked up by trucks and transported to a location that can accept it and new more suitable soil trucked in, which is expensive, especially since we

are moving a mountain of material," said Gentile.

Gentile decided to move forward with a cost-effective solution for the soil that has never been accomplished before by USACE on a flood risk management project.

This solution is a process called in situ soil stabilization. Instead of removing and replacing the marsh soil, this process allows engineers to leave the soil where it is. A material, such as common Portland cement and water, is mixed with the existing soil to strengthen the porous marsh soil, creating an impermeable foundation for a levee.

There are numerous benefits to this process, but the biggest benefactor is the surrounding community that sits just a few hundred feet from the project area.

This process eliminates the need for more than 1,750 tri-axle truck trips, carrying wet, mucky, and odorous material through residential streets.

Rogers, an active member of the Port Monmouth community, agrees, "When this process was put on the table it sounded good then. Anytime you can use what is there and not have large truckloads of materials running up and down the roads you save money. It's a big plus for the project, the residents, and the environment."

Ken Johnson, engineer with the New York District, added, "Fewer

trucks means the local roads and bridges are spared from possible damage, there is less air pollution, noise complaints are greatly reduced, and there is an overall savings of landfill space along with financial savings."

Gentile added, "The public is very supportive of the project and taxpayers will save an estimated \$700 thousand."

This project is expected to be completed by 2020 and designed to provide flood protection that can withstand another Hurricane Sandy.

Rogers added, "I personally believe this project is a big plus for the residents of Port Monmouth. Over the years this area has suffered large dollar losses in property, homes, and vehicles due to floods from hurricanes and storms. This project should cut those losses by at least 95 percent, and our residents can sleep better at night." 

**DR. JOANNE CASTAGNA** is a Public Affairs Specialist and Writer for New York District, USACE. She can be reached at [joanne.castagna@usace.army.mil](mailto:joanne.castagna@usace.army.mil).

The Port Monmouth, NJ, shoreline was built up and widened and a fishing pier extended as part of the Port Monmouth Flood Risk Management Project. PHOTO BY JOANNE CASTAGNA

# District encourages future engineers and scientists with Earth Day and STEM events

by **ANN MARIE R. HARVIE**, NEW ENGLAND DISTRICT

## NEW ENGLAND DISTRICT RECREATION AREAS CELEBRATE EARTH DAY

The 47th annual worldwide celebration of Earth Day to commemorate the beginning of the environmental movement was held on 22 April at three New England District projects where volunteers worked to clean up the recreation areas and improve the environment.

The Cape Cod Canal in Massachusetts, in partnership with AmeriCorps, Cape Cod, the town of Barnstable, and the Massachusetts Service Alliance, held their annual event. Although overcast and raining, more than 149 pairs of hands performed trash cleanup along the canal and expanded the pollinator garden. At the end of the event, volunteers were able to fill 164 fifty-pound trash bags, making the canal a much cleaner place. Mashpee National Junior Honor Society members created a marine debris Biodegradation Time Line for one of our recreation area display cases.

In addition, several local environmental groups took advantage of the event and its theme. Groups had displays and activities for cleanup volunteers as well as the public. Exhibitors who braved the bad weather to spread their environmental messages

were the International Fund for Animal Welfare; the National Marine Life Center; Waquoit Bay National Estuarine Research Reserve; Sustainable Cape; AmeriCorps, Cape Cod; Red Cross; the Barnstable Country Bee Keepers Association and the Mashpee National Junior Honor Society. Cape Cod Canal team members who ran the District portion of the event were Samantha Gray, Michele Breen, and Kyle Henderson.

West Hill Dam in Uxbridge, MA, in partnership with the Bay State Trail Riders, Inc., organized a cleanup event of their own. West Hill and the Bay State Trail Riders have been partnering on the project's Earth Day events for the last 26 years.

An estimated 22 volunteers donned gloves and other cleanup equipment to clear five miles of brush, pick up debris caused by wind and rain storm damage, clean and clear more than 15 water bars, and picked up about 25 pounds of litter from the project. Viola Bramel served as the District's coordinator for this year's event.

The team at West Thompson Lake in Connecticut held three small events during April and May. Approximately 25 volunteers came out to help. During those events, local Boy Scouts picked up

litter and performed trail maintenance; local group The Yankee Flyers split wood for the campground; and the Connecticut Outboard Association, a local hydroplane boat group, used their boats to pick up litter and debris along the shoreline of West Thompson Lake. Team members who hosted the events were Catherine St. Andre, Michelle Cucchi, and Mark D'Amato.

*The first Earth Day on 22 April 1970 activated 20 million Americans from all walks of life and is widely credited with launching the modern environmental movement. The passage of the landmark Clean Air Act, Clean Water Act, Endangered Species Act, and many other groundbreaking environmental laws soon followed. Twenty years later, Earth Day went global, mobilizing 200 million people in 141 countries and lifting environmental issues onto the world stage.* 🏠

## SCHOOL TO CAREERS BIOENGINEERING SYMPOSIUM

The New England District once again collaborated with the Schools to Careers Partnership to sponsor a day-long event as part of the Program's three-day Bioengineering Symposium on 19 April.

"This is the second year the District has done a full site tour—last year we toured Muddy River—but this is the fourth year we have participated in the overall event," said Mark Anderson, STEM Coordinator for the New England District. "The first two years were just a USACE 101 discussion with the students."

Twenty-two 10th and 11th grade students gave up some of their April vacation to attend the symposium. The students came from a variety of schools to include Holbrook, Blue Hills Regional Technical, Avon, Canton, Dedham, Milton, Norwood, and Randolph.

New England District team members started the day by meeting the students at the Blue Hill Regional Technical High School for a USACE 101 discussion. "Following the briefing, students traveled to New Bedford, MA, and received a tour of the entire New Bedford Harbor Superfund site before returning home," said Anderson.

According to Anderson, the School to Careers Partnership event organizer, Katherine Touafek, said the students enjoyed their experience with the New England District team. "She said the students were buzzing on the bus ride back to Canton," he reported. "It was obvious the New Bedford Harbor Superfund story and the

education and career path discussion at the end of the day struck a chord with them."

Anderson praised the New England District, Environmental Protection Agency team, including Project Manager Ellen Iorio and Resident Engineer Kevin Coleman, for the positive experience they created for the students. "They took time out of their day to impact the lives and future decisions of the students," he said. "They made the day a rousing success."

The educational partnership agreement between the District and the School to Careers Partnership has been in place since 28 July 2014. The agreement is one of several the District has with local educational institutions. The partnership is in keeping with the USACE objectives to shape the workforce of the future and to increase STEM and Wounded Warrior initiatives. 🏠

## NEW ENGLAND DISTRICT HOLDS ANNUAL STEM EVENT

Take Your Daughters and Sons to Work Day took place on 21 April at the Concord Park Headquarters in Concord, MA.

Twenty-nine children ages 8–12 visited the District to take part in the all-day event sponsored by the Federal Women's Program and the Equal Employment Opportunity Office. Scott Acone, Deputy District Engineer for Programs/Project Management, began the day by greeting the children.

The children separated into three groups following an ice-breaker led by Tina Chaisson. There were six activities, three in the morning and three after lunch; each session lasted 45 minutes. The groups rotated through the activities so no one missed an opportunity to see and learn something.

Mike Riccio and Doug Fransioli led the "Friction is Everywhere" session and explained what friction is, how we measure it, and why it's important to engineers. The children learned about slip forces and angles related to friction by stacking different materials and by loading materials on different surfaces to see how friction changes with the change in angle.

During the hands-on portion of the activity, the children got a chance to plot the friction angle of their own shoes.

Lisa Winter, Megan Burke, and Patrick Blumeris hosted the Coastal Erosion Activity. They explained how waves can change the shape of the beach and what engineers can do to protect the beach and buildings along the coast. The trio demonstrated this point using a model. The children also learned about barrier islands, breakwaters and jetties, and other ways to protect the coast.

The Egg Drop Experiment, operated by Taylor Bell, Dan Vasconcelos, and Christine Jacek, challenged kids to design a protective container to prevent an egg from breaking upon impact.

The team encouraged the students to be creative with their containers,

building only with materials provided to them. Once the children finished their creations, the activity moved from a conference room to a stairwell. The containers were tested by dropping them 10, 20, and 30 feet.

Jahmar Reeves was one of the few whose egg survived the 30-foot drop. "I was so excited to be able to drop the egg myself at 30 feet and win!" he said.

The "Underwater Sampling and Surveying" activity explained that scientists and engineers sometimes need to know what is at the bottom of the ocean and how they get the information.

Hosts Marie Esten, Aaron Hopkins, and Mike Narcissi came up with some fun activities for the children to get an idea of how District engineers and scientists collect information at the sea bottom floor. These included having the children perform core samples on cupcakes and guiding their teammates to find "underwater treasure" using special cameras and walkie-talkies.

Viola Bramel and Christine Jacek hosted the high-energy Water Safety activity which included life-jacket races "in the rain," a cold-water challenge, and scenario games based on real-life, recent safety events. "This was an activity that encouraged teamwork, got the kids moving, and taught skills that could save lives," said Bramel.

"I really liked Water Safety," said Hanna Rausch when asked about her day at the District.

"The games were fun." Her sister Cecilia agreed. "I liked that we were actually participating instead of just listening to someone talk to us."

Paul Young, Jessica Rudd, and Tracy Dorgan assembled an impressive display of rocks, minerals, and fossils and talked about how they form and that we are surrounded by them.

All the children touched and held samples of the display to include gold, silver, copper, diamonds, clams, whalebone, wood, a dinosaur footprint, and fossilized animal droppings.

Dorgan told the children that many of the items they were touching came from New England.

At the end of the day, as a special treat, Young gave away mounted samples of rocks, minerals, and fossils by picking children's names from the day's participants. Children whose names were not called still got a chance to bring home as many unmounted rocks, minerals, and fossils they could carry away from Young's collection.

"My favorite activity was the geology," said Hayden Bargerhuff. "It had lots of fossils. I have my own rock collection at home."

Harmoni Rodrigues enjoyed handling the samples during the geology activity. "I liked all of the diamonds!" she said.

In addition to EEO Officer Jackie DiDomenico and FWP Manager Denise Kammerer-Cody, Jerry Nunziato, Brian Murphy, Marilyn Ortiz, and the author worked behind the scenes throughout the day. 🏠

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## I PLEDGE:

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- TO PARTICIPATE IN NONE BUT HONEST ENTERPRISE;
- TO LIVE AND WORK ACCORDING TO THE LAWS OF MAN AND THE HIGHEST STANDARDS OF PROFESSIONAL CONDUCT;
- TO PLACE SERVICE BEFORE PROFIT, THE HONOR AND STANDING OF THE PROFESSION BEFORE PERSONAL ADVANTAGE, AND THE PUBLIC WELFARE ABOVE ALL OTHER CONSIDERATIONS.

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ADOPTED BY NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS, JUNE 1954



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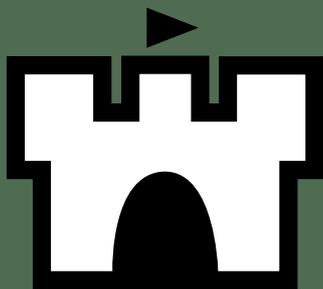


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