

Spring 2024

Army Engineer

Magazine



SGT Corine Barrera
207th Engineer Utilities Detachment
Joint Base Elmendorf-Richardson, AK
Field Demonstration



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ARMY ENGINEER MAGAZINE SPRING 2024











EXECUTIVE DIRECTOR



Fellow Engineers,

As Spring is upon us and the colder weather at our back, I hope everyone is able to take some time to enjoy the beautiful Springtime colors and warmer weather with family and friends. Springtime also means an increase in activities throughout the Army. Thus we, the AEA, are busy supporting several activities and events throughout Spring and Summer. Below are those activities and events as we know them currently:

-  The AEA educational support program is open for applications. We welcome applications that support college education that leads towards a degree (for example traditional AS, BA, BS, etc) and also applications that lead towards a certification or training in a technical skill or credentials. Applications will be reviewed by AEA committee on an annual basis each year to decide on which applications will be supported with a \$1000 award to be used only for tuition and/or book fees associated with courses taken at an accredited college, university, institution, or certification program. Applications for this program must be received NLT 30 June 2024.
-  The AEA Congressman David L. Hobson STEM Scholarship in the amount of \$3,000 each is awarded to up to two individuals annually. The scholarship is sponsored by Trimble, a leading provider of advanced positioning solutions that maximize productivity and enhance profitability. The scholarship is to honor Mr. Hobson's lifetime achievements in the advancement of military civil engineering. This annual competition is open to qualified AEA members or family members of AEA members who are full-time undergraduate students pursuing a baccalaureate degree in Science, Technology, Engineering, and Math (STEM). The application deadline is 30 April 2024
-  We are in the final stages of development of a Chapter Kit which will give a step-by-step process on establishing new AEA chapters. I have seven current volunteers to start new chapters throughout several states. If you would be interested in establishing a new chapter or reinvigorating one that has closed, please let me know and I'll add you to the list. I truly believe the best way to get information out to everyone is through the AEA local chapters.
-  The AEA Career Bridge is working effectively supporting transitioning Soldiers. This is an online tool that links transitioning engineers with Industry. Any Engineer Soldier (Specialist through Colonel) seeking civilian employment can access job posting by a wide array of businesses inside and outside the engineer profession to see what jobs are available. If you would like to participate in the Career Bridge Program please go to: <https://jobs.armyengineer.com/>.
-  Engineer Regimental Week is scheduled for **22 -26 April 2023 at Fort Leonard Wood, MO**. The Regimental week will include Best Sapper competition, Fallen Sapper Memorial, Regimental Awards, Regimental Ball. Additionally, there will be senior leader events such as FFE, EBOD, and Home on Home followed by ENTAPE.
-  The inaugural MSCoE Protection & Regimental (EN, CBRN, MP) Senior Leader Forum will be held **22-26 JUL 24 at Fort Leonard Wood, MO**. This event looks to promote senior leader discussion on how the Army synchronizes maneuver support assets to operationalize Protection for the Army of 2030, while posturing for 2040. The intent is to promote the synchronization and operationalization of Protection and maneuver support assets through discussions, demonstrations, and vendor displays.
-  The **Castle Ball is currently scheduled for 9 August 2024**. The event will be held at the Renaissance Arlington Capital View, Arlington VA. Registration should be open NLT 01 May 2024.
-  Finally, I would like to ask all AEA members to log into your respective accounts and verify all information is correct, especially if you've moved or changed e-mail addresses and haven't updated the data. This helps get information out quicker and limits the issues with using our systems.

I thank all of you for what you do for the Engineer Regiment. Please reach out to me with any questions or feedback at xd@armyengineer.com. ESSAYONS!

Sincerely,

Jim Rector

James "Jim" V. Rector
Colonel, U.S. Army, Retired
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EXECUTIVE OFFICE

Army Engineer Association
P.O. Box 30260
Alexandria, VA 22310-8260

REGIMENTAL OPERATIONS

Army Engineer Association
P.O. Box 634
Fort Leonard Wood, MO 65473-0634

EXECUTIVE DIRECTOR

COL JAMES V. RECTOR, USA (Ret)
573.329.6678
xd@armyengineer.com

FINANCIAL MANAGER

COL DAVE THEISEN, USA (Ret)
573.329.6678
finance@armyengineer.com

PROJECT MANAGER

MRS. LINDA S. MITCHELL
703.428.7084
execasst@armyengineer.com

AEA REGIMENTAL OPERATIONS DIRECTOR

CSM JOHN H. RATHER, USA (Ret)
573.329.6678
flw@armyengineer.com

AEA REGIMENTAL OPERATIONS MANAGER

MRS. ALICE MALASIG
573.329.3203
flwadmin@armyengineer.com

REGIMENTAL STORE MANAGER

SFC ROBERT S. YBARRA, USA (Ret)
573.329.3203
aeastore@armyengineer.com

WEBSITE & IT MANAGER

MRS. SARA C. VAUGHN
573.329.3203
it@armyengineer.com

ARMY ENGINEER MAGAZINE EDITOR, DESIGN, AND LAYOUT

MRS. LINDA S. MITCHELL
703-428-7084
editor@armyengineer.com



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**Linda S. Mitchell, Editor
Army Engineer Magazine**

Hello! As the days lengthen and the air warms, it is an invitation from nature to break out and relieve our restlessness from winter as we welcome the arrival of spring. In this issue we embrace the spirit of possibility and invite you to explore the stories of Soldiers. Everyone should know the magnitude of the contributions of Army Engineers to the nation, so the readers of the Army Engineer Magazine benefit the most by having their stories at their fingertips.

Special Thanks to Ms. Vibeli Galindo-Baird, Manager, MWR Marketing at Fort Belvoir, Mr. Jason P. Shepherd, Deputy Director Fort Belvoir Public Affairs, and Ryan Thompson, FLW Public Affairs Office for their assistance with the Spring issue.

Best,

Linda

Cover photo

SGT Corine Barrera, a horizontal construction sergeant with the 207th Engineer Utilities Detachment, participates in a field demonstration using the new Hydraulic, Electric, Pneumatic, Petroleum Operated Equipment system at the Engineer Training Facility at Camp Carroll on Joint Base Elmendorf-Richardson, AK, September 27, 2017. The HEPPOE system contains hydraulic pneumatic tools to saw, bend, cut, and destroy concrete, rebar, trees, and other debris. The new equipment will help the engineers accomplish construction projects both downrange and in garrison, and is an added response capability when tasked with defense support to civil authorities' missions. Photo by U.S. Army National Guard SSG Balinda O'Neal Dresel.

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U.S. ARMY CORPS OF ENGINEERS LEADING EFFORT TO CLEAR FORT MCHENRY CHANNEL FOLLOWING KEY BRIDGE COLLAPSE

U.S. Army Corps of Engineers (USACE), Baltimore District activated its Emergency Operations Center March 26, clearing the way for engineering, construction, contracting and operations specialists to begin the complex process of clearing the damage and debris along the Fort McHenry Channel following the collapse of the Francis Scott Key Bridge, to restore safe navigation in and out of the Port of Baltimore.

Together, through the efforts of the Unified Command, USACE is working to determine the actions required to remove the fallen debris. Preliminary underwater analysis and assessment is currently underway, providing critical data that will assist in future operations. The data collected during this process will help determine the operational plan moving forward needed to reopen the federal channel. “We continue to provide our best talent and technology in support of the Coast Guard and our local, state and federal partners,” said USACE Commanding General LTG Scott Spellmon. “The U.S. Army Corps of Engineers is responsible for engineering solutions to our nation’s toughest challenges, and this disaster constitutes one of those top challenges. It requires a deliberate, diligent engineering strategy, based on careful assessments of the disaster site, and with safety as our top priority.”

As of March 30, USACE is providing:

- Certified underwater assessment capabilities by Structural Professional Engineers, Remotely Operated Vehicle and sonar
- Structural Engineering support, including certified bridge safety inspectors and urban search and rescue structural technical specialists
- Waterway debris management, led by USACE debris removal vessel REYNOLDS, which patrols the waters of the Baltimore Harbor and Patapsco River for drift and debris that could be hazardous to navigation; Hydrographic and topographic surveying via the CATLETT, a 61-foot survey vessel that actively supports the Baltimore District’s Navigation Branch. Two survey vessels from USACE, Philadelphia District, H.R. SPIES and the DAUNTLESS, are also providing support.

USACE is also poised to provide the following support to the joint response:

- Additional USACE vessels are prepared to join efforts as needed for waterway debris management, led by USACE debris removal vessel REYNOLDS;
- USACE dive safety experts from the Philadelphia, Buffalo, and New England Districts are preparing to join the response effort.
- Baltimore District operates and maintains more than 290 miles of federal navigable channels within the Susquehanna River watershed, including the Fort McHenry Channel.

“We have marshalled incredible skills and the best equipment available. I am fully confident that we have the right team and partners in place to tackle this project and do what we do best – serve and strengthen this great Nation,” said USACE Baltimore District Commander Col. Estee Pinchasin. “Many of our USACE Baltimore teammates were born and raised locally. We are deeply invested and fully committed. We are ready to get to work.”

The Baltimore District delivers vital engineering solutions in collaboration with its partners to serve and strengthen the Nation, energize the economy, and reduce disaster risks. Headquartered near Baltimore’s Inner Harbor, Baltimore District provides design, engineering, construction, environmental, and real estate expertise to various important projects and customers. This support spans five states, the District of Columbia, overseas, and the Susquehanna, Potomac, and Chesapeake Bay watersheds. These civil and military missions and diverse engineering services support communities and warfighters while addressing the ever-growing list of emerging national security requirements and ultimately protecting the Nation.

Article and photo courtesy of Baltimore District, USACE.

Chief of Engineers LTG Scott Spellmon views damage of the fallen Frances Scott Key Bridge that collapsed in Baltimore, March 26, 2024. In accordance with USACE's federal authorities, USACE will lead the effort to clear the channel as part of the larger interagency recovery effort to restore operations at the Port of Baltimore.

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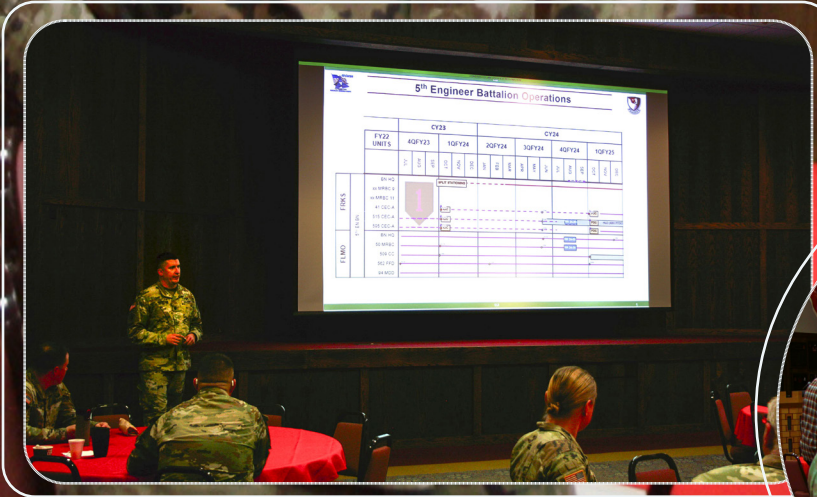
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EN
BN

LTC Terry Riesel, Commander of 5th Engineer Battalion at Fort Leonard Wood, MO provided an update on the Fighting Fifth's recent missions and an outlook for the battalion in the coming years to the audience of Engineer senior leaders at the quarterly Army Engineer Association (AEA) breakfast. The breakfast is sponsored by the AEA and hosted by the MG Leif J Sverdrup Chapter. LTC Riesel stated that the battalion continues to push forward in upgrading and transforming to become more lethal and proficient in their missions for our country. Their continued efforts of route clearance and security along our southern border is imperative to the success of other units to complete their missions. The future of the 5th EN BN is bright as they will be standing up two companies at Fort Reilly, KS over the next year and transitioning its current companies to become Combat Engineer Companies-Armor (CEC-A). They will also be standing up a new MRBC (Multi-Role Bridging Company) at Fort Reilly, KS over the next three years. The CEC-A companies will become key assets to III Corps and 1st Infantry Division. Fort Reilly Soldiers have been working tirelessly to prepare for these new companies, making adjustments to personnel, equipment, and Motor Pools to accommodate the new vehicles. Rugged Brigade and Fighting Fifth never let up and never let down, Sappers Clear the way!

By 1LT Bob Wilkins



The writer and photographer is 1LT Bob Wilkins, 26A Network Information Engineer, Public Affairs Officer for 36th Engineer Brigade based out of Fort Cavazos, TX.

The U.S. Army Engineer School (USAES) Supporting the Army Credentialing Program

BY SFC CLASS SETH CHILDERS

I've served as the USAES Engineer Credentialing Manager for almost 3 years now and have learned a significant amount about programs that will benefit U.S. Army Engineers. Some common issues I've noticed after briefing thousands of Engineers is the lack of knowledge on the Army Credentialing Program and how each piece of it can significantly improve not only your promotion potential, but also prepare us for transitioning from service. There are 3 parts of to the Army Credentialing Program: (1) Army Proponent Funded (Institutionally Delivered Credentials), (2) United States Military Apprenticeship Program (USMAP), (3) the Army Credentialing Assistance Program. These programs can also be found on all Engineer Professional Develop Model's on Army Career Tracker <https://actnow.army.mil/wps/myportal/act> under Civilian Education, and Proponent Recommended. When we counsel Soldiers, we need to not only recommend using Tuition Assistance, but also recommend these programs so Soldiers are a step ahead before they go to Transition Assistance Program (TAP).



01

Army Proponent Funded, Institutionally Delivered Credentials

The Engineer Credentialing, Education, Certification and Licensing (CECL) program <https://www.milsuite.mil/book/groups/engineer-credentialing-forum> is USAES Institutionally Delivered Credential Program providing over a thousand Engineers reimbursement since its inception. Every year the USAES Commandant signs a Regimental Approved Credentialing Memo which generates separate funding outside of Tuition Assistance and Credentialing Assistance benefits to reimburse Soldiers that enroll and pass a credential. We reimburse study materials, practice exams, and exams for credentials that are approved by the Commandant. The Project Management Professional (PMP) certification continues to be the top certification we reimburse every fiscal year with Institutionally Delivered Credentialing funds for the Engineer proponent. This certification awards Engineers the W5 Army Skill Identifier (ASI) for Officers, and a J5B Personal Development Skill Identifier (PDSI) for Enlisted and Warrant Officers.

02

United States Military Apprenticeship Program (USMAP)

USAES began piloting USMAP in July of 2023. This program is free and only for enlisted Soldiers with a minimum of 12 months to complete. As I discussed in the Engineer Blast this program is an easy win that is managed by an Engineer Company that provides Soldiers the opportunity to earn certifications from the Department of Labor by performing their MOS. Every trade on USMAP has an O*NET number to show possible value of trade towards a civilian occupation. O*NET Online is sponsored by the U.S. Department of Labor and is a great starting point for transitioning servicemembers to see their MOS crosswalk towards civilian occupations. According to Apprenticeship USA (<https://www.apprenticeship.gov/>), USMAP is the number 1 active apprenticeship program in the U.S. with 112,233 active participants. When you breakdown apprenticeships by Industry, Construction Apprenticeships are in the top 3 for every state not including territories.

03

Army Credentialing Assistance Program

The Army Credentialing Assistance Program is subject to the same funding ceiling as TA. A Soldier may use both TA and CA; however, the combined use by any Soldier will not exceed the fiscal year TA limit (\$4000). Soldiers identify which credentials they have an interest and meet the prerequisite for on Army COOL, Credentialing Opportunities On-Line <https://www.cool.osd.mil/army/index.html>. The Soldier gets an invoice from authorized vendor and submits it through Army Ignited for funding.

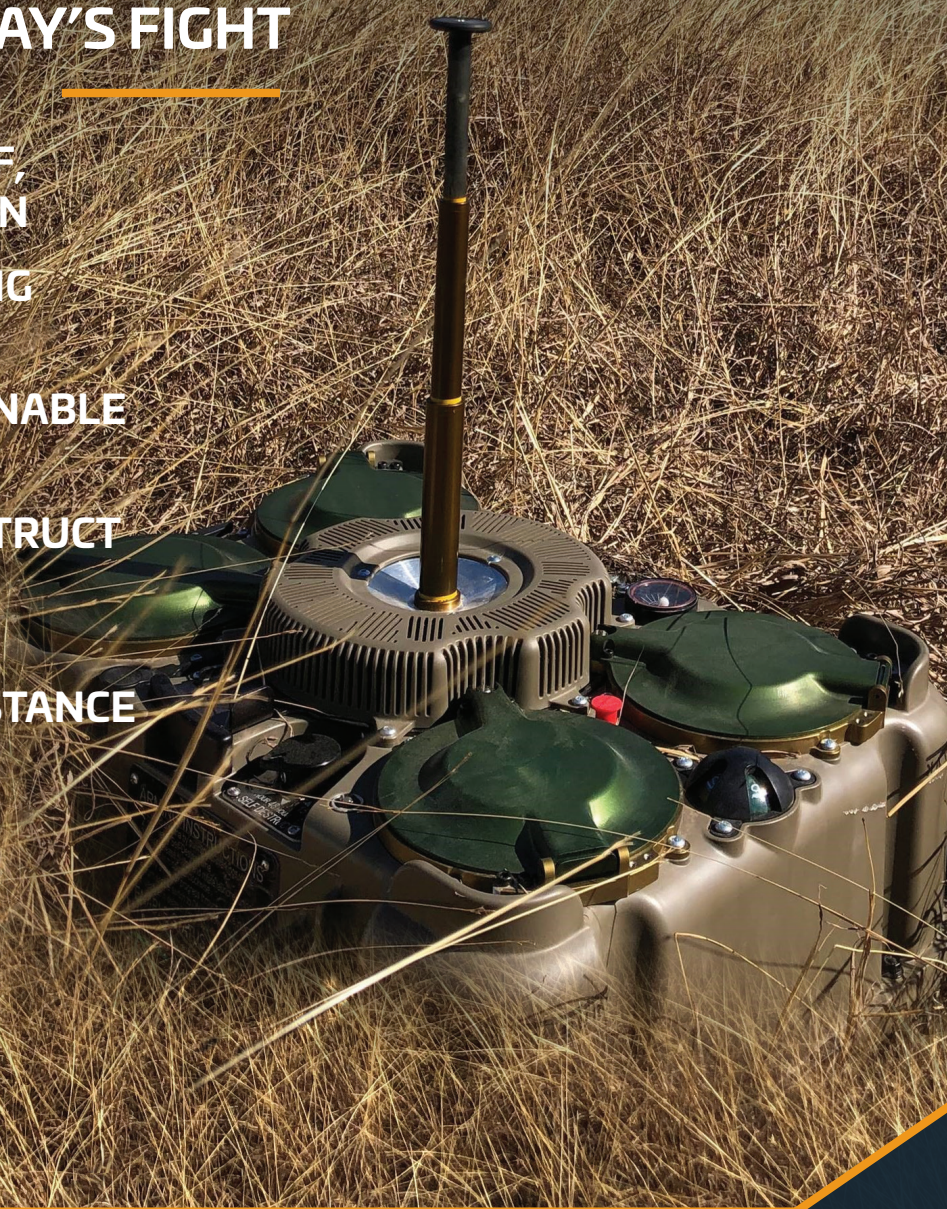
SFC Seth Childers has served the Engineer Regiment for 17 years as an 12N – Horizontal Construction Engineer . He assigned at HHC, 1st En Bde Fort Leonard Wood, MO as the USAES Institutionally Delivered Credentialing Manager and as the United Services Military Apprenticeship Program Command Coordinator for the Engineer School. Primary duties include managing Engineer enrollments, reimbursing Soldiers costs associated with earning certifications and licenses, facilitate professional development briefings on our program to Engineers serving in Active, Guard, and Reserve status.

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- ▶ **HIGH WEATHER AND ENVIRONMENTAL RESISTANCE**





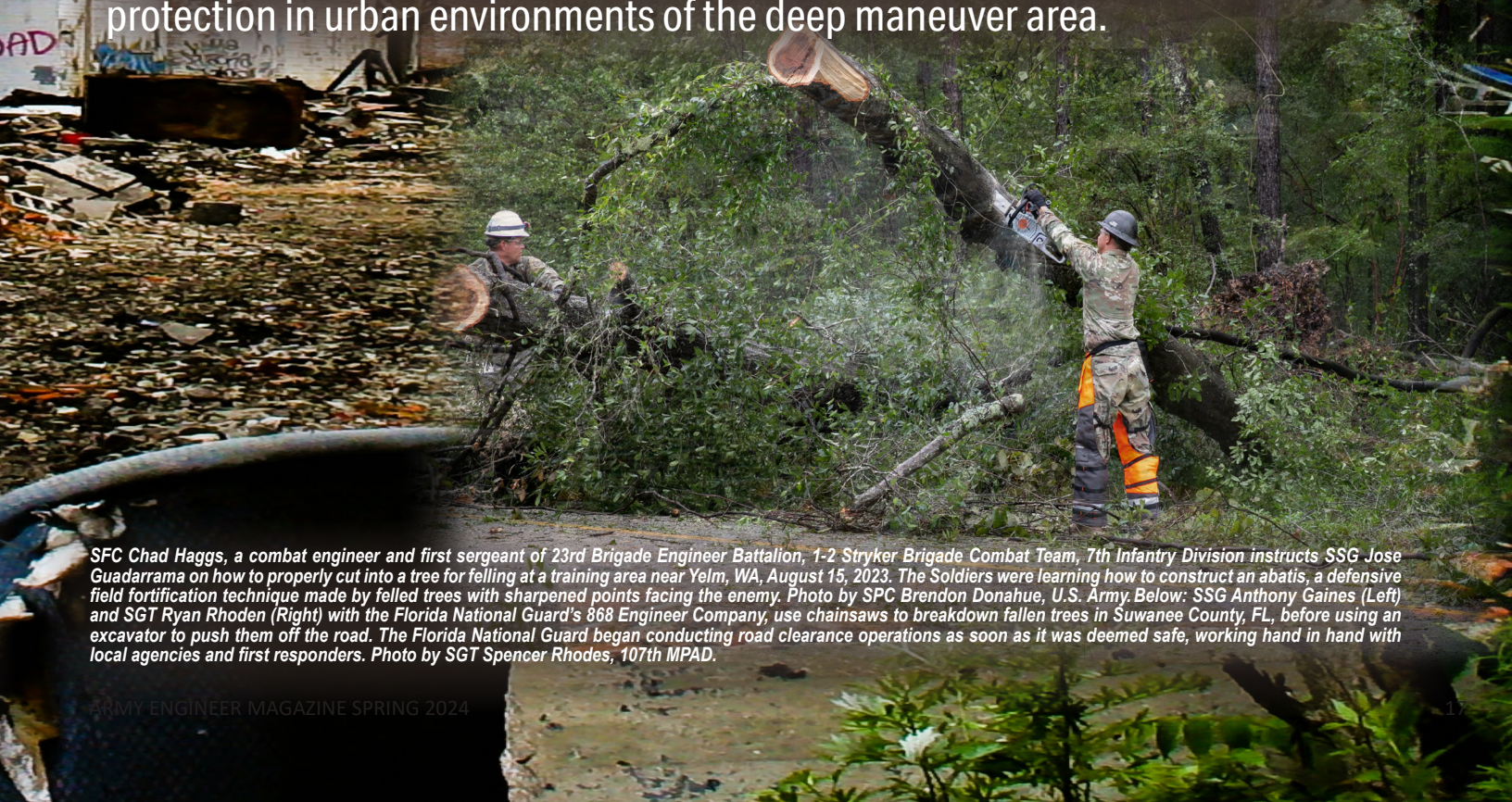
Providing Mobility in Large Scale Combat Operations with Organic SKOs

By CPT Cam Houk

Left: Eight Alaska Army Guardsmen from the 207th Engineer Utility Detachment conducted a field demonstration on their new Hydraulic, Electric, Pneumatic, Petroleum Operated Equipment system at the Engineer Training Facility at Camp Carroll on Joint Base Elmendorf-Richardson, AK, September 27, 2017. The HEPPOE system contains hydraulic pneumatic tools to saw, bend, cut, and destroy concrete, rebar, trees, and other debris. The new equipment will help the engineers accomplish construction projects both downrange and in garrison, and is an added response capability when tasked with defense support to civil authorities' missions. Photo by SSG Balinda O'Neal Dresel, U.S. Army National Guard. Top: SPC Jacob Henson, 161st Engineer Support Company, 27th Engineer Battalion (Combat) (Airborne), uses a concrete saw to repair a washed out road at Military Ocean Terminal Sunny Point, N.C., Sept. 22. The unit, along with personnel for five districts from the USACE, is assisting in the installation's recovery efforts following Hurricane Florence. Photo by Jeremy S. Buddemeier, USACE, Savannah District. Right: SGT Corine Barrera, a horizontal construction sergeant with the 207th Engineer Utilities Detachment, participates in a field demonstration using the new Hydraulic, Electric, Pneumatic, Petroleum Operated Equipment system at the Engineer Training Facility at Camp Carroll on Joint Base Elmendorf-Richardson, AK, Sept. 27, 2017. The HEPPOE system contains hydraulic pneumatic tools to saw, bend, cut, and destroy concrete, rebar, trees, and other debris. The new equipment will help the engineers accomplish construction projects both downrange and in garrison, and is an added response capability when tasked with defense support to civil authorities' missions. Photo by SSG Balinda O'Neal Dresel, U.S. Army National Guard.



Key terrain in urban environments is essential in a large-scale combat operation. The ability to rapidly secure and improve various strong points in an urban environment is critical to maintaining control of the battlefield. How will Engineers organic to the Brigade assure mobility when facing complex problems accompanying urban destruction, collapsed structures, and scattered debris? Earthmoving equipment and explosive reduction are a common solution and, while useful and powerful, are only part of the solution. A crucial and readily available option units can leverage is one of the often-underutilized Sets, Kits, and Outfits (SKOs). They are suited to enhance Engineers' ability to assure horizontal and vertical mobility and provide rapid protection in urban environments of the deep maneuver area.



SFC Chad Haggs, a combat engineer and first sergeant of 23rd Brigade Engineer Battalion, 1-2 Stryker Brigade Combat Team, 7th Infantry Division instructs SSG Jose Guadarrama on how to properly cut into a tree for felling at a training area near Yelm, WA, August 15, 2023. The Soldiers were learning how to construct an abatis, a defensive field fortification technique made by felled trees with sharpened points facing the enemy. Photo by SPC Brendon Donahue, U.S. Army. Below: SSG Anthony Gaines (Left) and SGT Ryan Rhoden (Right) with the Florida National Guard's 868 Engineer Company, use chainsaws to breakdown fallen trees in Suwanee County, FL, before using an excavator to push them off the road. The Florida National Guard began conducting road clearance operations as soon as it was deemed safe, working hand in hand with local agencies and first responders. Photo by SGT Spencer Rhodes, 107th MPAD.

Army engineers from the 15th Engineer Company inventory tool kits at Base Camp Donna in Donna, TX. U.S. Northern Command is providing military support to the Department of Homeland Security and U.S. Customs and Border Protection to secure the southern border of the U.S. Photo by TSgt Nick Kibbey, USAF.



Available SKOs give the commander additional assets to assure mobility they would not have had should the kits be neglected. The Engineers of the near future must find ways to ensure mobility and maneuver against a near peer enemy that is also seeking to capitalize on the urban battlespace by exploiting the terrain. They will control and restrict the movements of friendly forces and seek to create operational standoff. Closing this standoff rapidly is critical in destroying the enemy with minimal friendly losses. Available SKOs allow Engineers to provide maneuver units with rapid forward momentum. If a canalizing route to a key strongpoint through a badly damaged city is blocked by debris, available SKOs can help reduce the debris to a manageable size before clearing with other equipment, should a bypass not be found.

In urban environments, Engineers must be able to switch rapidly between the offense and the defense. Available SKOs allow friendly forces to manipulate urban environments to create or enhance defensible positions. Engineers are able to use organic SKOs to create obstacles in the same manner they can use the kit to reduce obstacles. An open route for the enemy can be blocked by reducing urban debris into workable pieces. The workable pieces can be moved with additional Engineer equipment.

The enemy will seek to isolate friendly forces from ground and air the lines of supply. It is crucial that friendly forces keep lines of supply open. Available SKOs can be employed to assist in improving damaged lines of supply and open new options for resupply in urban environments. A well-trained Engineer squad



can reduce urban debris in roads, and clear urban debris out of areas for landing zones in the close area. Organic SKOs are often comprised of durable items, allowing Engineer squads to reduce obstacles by nonexplosive means without needing resupply, further lessening the strain on lines of supply.

SKOs on hand can provide Engineers with assured mobility through an urban environment. The kits are mobile enough to be incorporated into load plans and carried into the deep maneuver area. Units must maintain and emphasize the use of SKOs the same way they would any critical piece of their obstacle reduction pace plan. The SKOs available are wide in their application. In a near peer conflict where speed through urban environments is crucial and isolation from lines of supply is expected, Engineers should be prepared to utilize every

possible organic tool they have to assure mobility and offer protection. Organic SKOs should be incorporated into training often to enhance the mobility of a unit in an urban environment. Engineers must train on and maintain their SKOs to maximize their effectiveness should we need to implement them.

Available SKOs are highly mobile, consisting of items that can be moved by hand, pieced out into rucks, or made up of cargo boxes easily integrated into vehicle load plans. Many units already train on available SKOs, using them in construction and deconstructions tasks like road, airfield, and existing structure repair. It is the deconstruction tasks in the deep maneuver areas of the near future that are critical. When utilizing available SKOs, a well-trained Engineer squad can access a variety of mechanical reduction tools. The following SKOs are readily available for leader to incorporate.

SKOs

Hydraulic, Electric, Pneumatic, Petroleum Operated Equipment (HEPPOE) Kit

The HEPPOE kit consists of two 4k Mobile Hydraulic Power Pack Generators and thirteen cases containing combustion, electric, pneumatic, and hydraulic powered tools such as pavement breakers, various sizes and types of saws, drills, impact drivers, water pumps and extraction equipment. Mobile Hydraulic HIPPO Power Pack provides hydraulic, pneumatic, and electrical power in a skid-mounted and self-contained unit. The kit is capable of manipulating asphalt, concrete, metal, and wood and should be emphasized for its broad application.

Platoon and Squad Carpenter Kits

The Platoon Carpenter kit provides Platoons with a variety of 18V battery powered wood cutting and measuring tools to assist in accomplishing simple construction tasks. Tool Set includes two hammer/drill/drivers, two 2-1/2" circular saws, a reciprocating saw, a variable speed jig saw, two flashlights/spotlights, extension cords, blades and bits for cutting through almost all material, and selected hand tools and tool points.

The Squad Carpenter Kits provide Squads with a variety of hand powered wood cutting and measuring tools to assist in accomplishing rapid construction and deconstruction tasks. The kit consists of Chisel Set, Pry bar, Hand Saws, Hack Saws, Hand Hammers, Hand File set, Craftsman Knife, Pliers, Screwdrivers, Hammer tacker, Carpenters and Combination Squares, Levels, Measuring Tapes, Chalk Lines.

Platoon and Squad Pioneer Kits

Pioneer Kits provides units with a variety of hand powered tree felling, earth moving and carpentry tools to assist in accomplishing construction, deconstruction and earthmoving tasks. The kit consists of Axes, Shovels, Posthole Digger, Rake, Sledge Hammer, Hand Saws, Wire Cutters, Tree and Pole Climbers Set, Pulleys, Hand Files, Hand Hammers, Small Socket Set, Screwdrivers.

Platoon and Squad Urban Operations Kits

Urban Ops Kits provide units with a variety of manual breaching, thermal breaching, rope ascending and rappelling equipment, cutting tools, fans and ladders. This kit is suitable for providing platoons and squads vertical and horizontal mobility in an urban environment.

CPT Cam Houk, PMP, is an Engineer Officer currently at the Captain's Career Course. He has a degree in Mechanical Engineering from Penn State University and is currently pursuing a degree in Engineering Management at Missouri S&T. Captain Houk's previous role was a Company Executive Officer for 10th Brigade Engineer Battalion, 1st Armored Brigade Combat Team, 3d Infantry Division during an Immediate Reaction Force rotation to Germany and upon return to home station for modernization.



Statement by Assistant Secretary of the Army for Civil Works on the President's Fiscal Year 2024 Budget

The Biden-Harris Administration today released the President's Budget for Fiscal Year 2025. Following historic progress made under the President's leadership—with over 14 million jobs added since the President took office and inflation down two-thirds from its peak—the Budget protects and builds on this progress with proposals for responsible, pro-growth investments in America and the American people. The President's Budget will lower costs for the American people, protect and strengthen Social Security and Medicare, secure Americans at home and abroad, and reduce the deficit by ensuring the wealthy and big corporations pay their fair share.

"The Army Civil Works FY 2025 Budget demonstrates this Administration's ongoing commitment to funding the construction of crucial infrastructure projects across the nation that will strengthen our economy, protect people and property, and restore key ecosystems. This budget provides \$79 million for research and development to spur innovation, ensuring we improve our capabilities to assess risk and aggressively confront water resource challenges. This Budget also delivers on the President's commitments to tackle climate change and promote equity for Tribal Nations and marginalized and rural communities," said Michael Connor, Assistant Secretary of the Army for Civil Works.

The Budget makes critical investments in the American people that will promote greater prosperity for decades to come. The Budget invests in the development, management, restoration, and protection of the nation's water, wetlands, and related resources through studies, construction and operation and maintenance of projects, the U.S. Army Corps of Engineers regulatory program, and emergency response. For the Army Civil Works program, the Budget will:

- Decrease Climate Risk for Communities and Increase Ecosystem Resilience to Climate Change Based on the Best Available Science.
- Improve the Nation's Infrastructure.
- Facilitate Safe, Reliable and Sustainable Commercial Navigation and Strengthen the Supply Chain.
- Promote Environmental Justice in Underserved and Overburdened Communities and Tribal Nations in Line with the Justice Initiative and Create Good Paying Jobs that Provide the Free and Fair Chance to Join a Union and Collectively Bargain
- Restore Aquatic Habitat where the Aquatic Ecosystem Structure, Function and Processes Have Degraded.
- Invest in Research and Development to Solve the Nation's Toughest Water Resources Challenges

For the Army Civil Works program, the Budget invests over \$7.2 billion in gross discretionary funding that would be distributed among the appropriations accounts as follows:

- Investigations \$110,585,000
- Construction \$1,958,370,000
- Operation and Maintenance \$2,469,500,000
- Regulatory Program \$221,000,000
- Mississippi River and Tributaries \$244,834,000
- Formerly Utilized Sites Remedial Action Program \$200,285,000
- Expenses \$231,240,000
- Flood Control and Coastal Emergencies \$45,000,000
- Water Infrastructure Finance and Innovation Act \$7,000,000
- Assistant Secretary of the Army for Civil Works \$6,400,000
- Harbor Maintenance Trust Fund \$1,726,000,000
- TOTAL \$ 7,220,214,000

The Budget funds 22 studies and design, including dam safety studies and dredged material management plans, to completion in the Investigations Account.

The Budget funds two projects to completion in the Construction Account — Iao Stream Flood Control, Maui, Hawaii (Flood Damage Reduction Riverine), and Pipestem Lake, North Dakota (Flood Damage Reduction Riverine). Additionally, the Budget funds 23 master plans and water control manual updates within the Operation and Maintenance account to completion.

Overall, the President's Budget for FY 2025 for the Army Civil Works program reflects the Administration's priorities to strengthen the supply chain and grow the nation's economy, decrease climate risk for communities and increase ecosystem resilience to climate change based on the best available science, and promote environmental justice in underserved and overburdened communities and Tribal Nations in line with the Justice40 initiative and creating good paying jobs that provide the free and fair chance to join a union and collectively bargain. The FY 2025 Budget investments will work to confront climate change by reducing flood risk and restoring ecosystems. The Corps is working to integrate climate preparedness and climate resilience planning in all of its activities, such as by helping communities reduce their potential vulnerabilities to the effects of climate change and variability.

The Budget builds on the President's record to date while achieving meaningful deficit reduction through measures that cut wasteful spending and ask the wealthy to pay their fair share.

For more information on the President's FY 2025 Budget, please visit: <https://www.whitehouse.gov/omb/budget/>. The FY 2025 Civil Works budget press book is available at <http://www.usace.army.mil/Missions/CivilWorks/Budget.aspx>.

5TH SFG (A) ENGINEER COURSE LOOKS TO CUT COST, FAMILIARIZE FORCE



Soldiers assigned to the 5th Special Forces Group (Airborne) participate in a week-long Engineer Course, December 6, 2023 at Fort Campbell, KY. The course is designed for SOP Soldiers to sharpen their construction skillset, giving them the improved flexibility and know-how when building structures overseas. So far more than 60 Soldiers spanning five Special Forces Groups have participated in the training. Photo middle: Combat engineer with Group Support Battalion, 5th Special Forces Group (Airborne) discusses construction techniques with a team of Green Berets. Soldiers assigned to the 5th Special Forces Group (Airborne) learn to install windows.

Article courtesy of the 5th SFG (A) All Photos by SSG Michale Solis



Engineers from 5th Special Forces Group (Airborne) created a force multiplier that eventually spread across the Special Forces footprint. The 18C Construction Course provides the Special Forces Engineer Sergeants (18C) and other Special Operations Forces (SOF) personnel, the opportunity to sharpen their construction skillset, and benefits the individual as well as the Operational Detachment Alpha (ODA).

The Group Support Battalion's (GSB) engineers instruct one to two classes quarterly depending on the demand signal, with eight to twelve Soldiers per class. The Engineer shops' youngest Private First Class all the way through Staff Sergeants give expert electrical, carpentry, and plumbing instruction that can be tailored to individual or team needs.

The genesis of this course started in 2021. Dan, a Construction Engineer Supervisor (12H) with 5th SFG (A) saw the need for a class during his time as the platoon sergeant. He developed slides, training material, and a basic outline for how the course would run. He said he saw a need for the teams to get training and showcase what the Engineers can do for the 5th SFG (A). To date, Dan has trained 60 personnel for five Special Forces Groups and spent over 500 hours as the lead instructor for the course. The skillsets taught to the personnel impact the command-and-control network nodes for SOF operations by upholding electrical grid and support for SOF personnel, influencing five Combatant Commands battlespace integration across six continents. By training the enabler population, he magnifies the small Engineer footprint across the Group's area of responsibility by creating trained personnel able to implement solutions with the crucial knowledge learned throughout the course.

"While the 18C course enables team members to execute construction skills and drills required for their mission sets in austere environments, the real benefit is its ability to link the Special Forces Teams to a whole host of Engineer enablers, building the network for reach back support, increasing awareness and ultimately pushing capabilities to the Teams where they need it most, the front lines," continued Dave, the lead Group Engineer for 5th SFG (A). "Resourcing these classes is a no-brainer, even with the rising costs of Class IV. The engineer trades get sets and reps, the Special Forces Soldiers get skills to refresh while improving their reach back networks, and a whole number of additional enablers get cross-trained, adding to their enabler skill pool. Ultimately, it allows us to reduce contract costs, CONUS and OCONUS, and leverage existing Department of Defense and Army supply networks to enable success in support of the Army Special Operations Forces mission set."

The Engineers of the 5th SFG (A) continue to refine and showcase the hallmark vision of Dan, the Non-Commissioned Officer who created the course. They are looking at the curriculum to include project management, concrete, and concrete masonry units into a new curriculum. The course of instruction can be tailored to implement other Engineers or enablers to ascertain the knowledge needed for future projects that can enable the appropriate amount of resourcing of staffing needed to accomplish missions and projects expediently and overcome hurdles. The ability to quickly train Soldiers with basic skills they can perfect with on-the-job training has the potential to enable the Group to reduce million-dollar construction projects to a fraction of the price. It will save money, enable cross-functional teams to emerge and execute a construction portfolio quicker and cheaper while completing construction projects sooner.



JPOTS

JOINT PETROLEUM OVER-THE-SHORE AND
THE ENGINEER REGIMENT



PART 2

After months of operational and sustainment planning, 130th EN BDE apart of the JPOTS TF, began to set conditions for the deployment of personnel into Far North Queensland, Australia. For a quick recap, 130th EN BDE was responsible for the planning and execution of the Joint Petroleum Over-The-Shore (JPOTS) apart of Talisman Sabre 23. Their task was to develop and validate a Joint Petroleum Over-The-Shore (JPOTS) capability for petroleum distribution connecting existing tactical fuel distribution systems at distributed locations ashore to fuel sources located beyond the high water mark. With the assistance of U.S. Army Quartermasters and U.S. Navy Seabees, the JPOTS TF was task organized to validate the proof-of-concept for the 8 Theatre Sustainment Command's (TSC) Command General.



By CPT Ashear N. Saad



Department of Agriculture, Fisheries, and Forestry (DAFF)

Prior to equipment and personnel departing from Home Stations, all equipment had to be inspected by Australia's Department of Agriculture, Fisheries, and Forestry (DAFF). This inspection was done to any container, vehicle, or piece of equipment being brought into Australia via Sea or Air. Months prior to the Military Vessel (MV) Bob Hope and MV Fisher arriving to various locations in the world to pick up equipment for Talisman Sabre 23, soldiers began setting conditions for inspections. Once equipment was inspected from home stations, the equipment was able to be loaded onto Sea or Air assets and shipped to Australia. A DAFF inspection is done before and after shipment which caused delays at ports for the initial receipt of equipment in Australia. If a spider web, insect, mosquito, standing water, etc., were found before equipment was offloaded in Australia, it would trigger an immediate fumigation/frustration. This was one of the many struggles that affected operational timelines during the JPOTS mission. This inspection is non-

negotiable and can be a show-stopper for exercises dealing in Australia. All but two 800 Gallon Per Minute (GPM) pumps passed inspection for the JPOTS TF. The fumigation of the pumps caused a 72-hour delay in the operational timeline.

Equipment Flow

Due to Weipa's remote location, equipment couldn't be directly transported into Weipa as the Vessels draft were too deep for the commercial sea port. Equipment had to be transported to Darwin, consolidated, then put on a Liner Vessel to Weipa. The synchronization of Military Vessels and a commercial Liner Vessel proved to be costly for both time and money. Due to DAFF inspection delays at the Port of Darwin, the Liner Vessel had to berth for 10 days longer than anticipated causing more delays for the JPOTS TF. Once all equipment was consolidated in Darwin, it was a 60-hour transit time via Sea to Weipa.

Force Flow
Now that the equipment was in transit, the correct force flow into RAAF Base Scherger was essential. Elements of 130th EN BDE's HHC, 475th QM GRP, and support functions began their

movement from Home Stations to Darwin for RSOI. Darwin, Australia was one of the Theatre Gateways during Talisman Sabre 23 and all personnel operating IVO North West/North Queensland had to enter theater there. All TS23 participants received specific country briefs with the biggest emphasis being on wildlife in the Area of Operations (AO). Personnel arrived to Darwin on Contracted Airlines flights but to get to Weipa, the JPOTS TF utilized RAAF C-130s for intra-theater travel. Upon arrival to RAAF Base Scherger, the ADVON team of the JPOTS TF setup and coordinated life support for the Main Body's arrival. They setup food services, communications, and their Tactical Operations Center (TOC) to begin integration with their higher command during TS23. 593rd Expeditionary Sustainment Command (ESC). Deliberate RSOI was done by 130th EN BDE's HHC to properly in-process, integrate and account for personnel on RAAF Base Scherger. At the peak, 130th EN BDE's Mayor Cell was responsible for 450 U.S. Army, Navy, and Marines.

Execution

The operation was conducted in two phases: construction and operation. Due to the deliberate logistics planning for the months leading up to execution, the 130th EN BDE was able to contract engineer equipment from local vendors in country. By contracting engineer equipment in country, there were no delays from waiting on equipment from a Military Vessel. This was also cheaper than shipping equipment from home station, while also testing the Engineers' ability to utilize host nation construction resources. 610th ESC utilized a D7 Dozer, Skid Steer Loader, Grader, Loader, and a Roller during the construction phase. Their Engineers utilized horizontal engineering techniques to ensure the site preparation was suitable for the construction of the IPDS. They used a combination of cuts and fills to compact soil and certify that the grade was within tolerance for the placement of the IPDS. A water distribution truck was utilized to mitigate dust on site and compaction was used for the placement of the bag farms. The pump stations had to be cleared, grubbed, and stripped to allow for follow on site prep. The terrain shaping the Engineers conducted during the operation was critical to set the conditions for seamless operations by the Quartermasters. It took the Engineer's three days to prep the pipeline trace and set the conditions to emplace the Inland Petroleum Distribution System (IPDS).

The IPDS was signed out from Army Prepositioned Stocks (APS) and sent to Darwin for consolidation with follow on movement to Weipa. 339th QM CO was responsible for the accountability of the IPDS equipment but 610th ESC was responsible for the construction of the pipeline trace. Deliberate accountability of the IPDS was done at the LSA for distribution to various segments along the pipeline trace. 339th QM CO utilized military vehicles signed for from APS to deliver the entire 3.2-mile segment of 6" pipeline, 210k bag, 3k bag, and one 800 GPM pump station to the Engineers. 610th ESC, with assistance from SME Quartermaster Chief Warrant Officer's, constructed the entire pipeline trace in 2 days. Each Engineer PLT (4 in total) was responsible for the construction of 0.8 miles of pipeline.

Once the pipeline was successfully constructed, the Quartermaster Group/Company did one final Quality Assurance/Quality Control. The pipeline trace was validated for the next task; fill, pressure test, and validation. On execution day, Amphibious Construction Battalion 1 boarded a civilian barge, Bandicoot, holding 175,000 GALs of fresh water and the Amphibious Bulk Liquid Transfer System (ABLTS). The Bandicoot was positioned 3000 ft away from the high water mark, utilizing a 4" hose line as the conduit for the fresh water. The ABLTS hose reel was tendered to shore and

connected to the Beach Terminal Unit (BTU), successfully completing the OPDS-to-IPDS connection.

Once the OPDS-to-IPDS connection was made, 475th QM GRP certified the entire pipeline after a nine-hour fill and test operation. Approximately 35,000 GAL of fresh water was offloaded from the Bandicoot and used to fill the entire length of the pipeline. The pipeline was then able to be used as a refueling point for follow on missions. Engineers were still required to be on stand-by for follow on maintenance or repairs needed during refueling operations. The JPOTS TF was able to validate the proof-of-concept constructing, validating, and operating the 3.2-mile pipeline trace in a total of 5 days.

Community Relations

The Area of Operations was Weipa, Australia, a town privately owned by the Rio Tinto Mining Company, on land leased from the Traditional Land Owners of the Napranum Aboriginal Shire Council. The Napranum Aboriginal Shire have been living in the Napranum and Weipa area for hundreds of years and it was crucial for the U.S. and Australian Forces operating in the AO to ask for permission of land use. The Napranum Aboriginal Shire hosted a Welcome to Country ceremony where the local leaders granted permission of land use and gave blessings to the U.S. and Australian Forces operating in and around



Playing sports with the local community kids during the JPOTS static display.



Photo left: JPOTS TF and B51 Far Northern Queensland Regiment. Right: WGCDR Johnson, RAAF Scherger Base CDR, provides JPOTS OIC with a plaque from 383 Contingency Response Squadron. Bottom: 610 ESC emplacing a elbow connection

their land. The JPOTS TF hosted a Joint Static Display in the local community's football field showcasing a segment of the pipeline trace; as well as U.S. Army, Marines, and ADF vehicles to show appreciation of their acceptance to their land and community.

Redeployment

Deliberate Reverse RSOI was conducted to ensure a proper base closure, equipment turn in, and staggered force flow out. 130th EN BDE was responsible for the redeployment of personnel and equipment back to home station or APS. Coordination's between 593rd ESC and USARPAC were conducted to synchronize the force and equipment flow out of theatre. After months of planning, prepping, and executing, 130th EN BDE successfully accomplished the JPOTS proof-of-concept.

Lessons Learned

The mission provided ample opportunity to learn and refresh our organizational knowledge on this unique mission set. During construction, many Engineer Soldiers did not have hands-on training with the IPDS prior to execution resulting in inexperienced crews. Soldiers attended the FORSCOM Petroleum Training Module (FPTM) at Fort Barfoot, VA, to familiarize themselves with the Inland Petroleum Distribution System (IPDS). This two-week long course trains Engineer and Quartermaster soldiers how to construct and operate the IPDS in a training environment. A Squad (9 Soldiers) from each Company attended the FPTM training. The course was executed in a classroom and field training environment. A recommendation would be to develop a deliberate Company train-up program that dedicates an MTOE Platoon to attend the FPTM. This builds institutional depth within the unit at all levels, and enables continuity for IPDS proficiency. Another recommendation would be to re-task organize Platoons to cross-level domain knowledge amongst executing personnel. An established planning factor during TS23 was 1200ft of the IPDS was emplaced per 8 hour period utilizing 24 personnel.

Due to vessel delays, equipment took a lot longer than expected to arrive into Weipa for the JPOTS mission. The decision to contract engineer equipment from a local vendor enabled the Engineers to start earth work prior to the

IPDS equipment arrival. Fortunately, as Weipa is a mining town, it was very easy for the team to set contracts in place and have equipment delivered exactly where it was needed. One key planning factor with contracting is time. It takes time to create a valid requirement, send to a Contracting Brigade, build a complete packet, execute solicitation, and finally award.

The equipment that was procured was insufficient for four Platoons to conduct site preparations. The following equipment was utilized through vendor contracting: one Dozer, one Bucket Loader, one Dump Truck, one Roller, one Grader, one Bobcat, and one Water Truck. Due to there being no redundancies in equipment, this caused lag in the schedule for the Engineer Platoons. A recommendation for an equipment set in the future would be to utilize the Rapidly Deployable Earthmoving Platoon-Light Equipment (RDE-L) which consists of one 924H Loader, two HMEE, six M1094 5T Dump, two CS-433 Roller, two 120M Grader, two M400 W/T Skid Steer, two D6 Dozer, and one M1088 w/M172 Trailer. All equipment besides the M1088 w/M172 Trailer are Air-Transportable, which can be a valuable asset while operating in any Area of Operation.

Lastly, as with all army operations, communications are extremely important. Tactical voice communication systems were not utilized during execution. Multiple voice communication nodes are necessary to cover the distance between the work site, LSA, and TAC. Due to MTOE shortfalls, commercial communications systems were utilized rather than tactical; Citizens Band (CB) radios in vehicles, unsecured handheld Motorola's, and Signal/WhatsApp. The SNN Team augmented the Task Force with additional communication capabilities; Starlink and TACSAT. Exercises should be treated as the new deployments; utilizing Army program of record systems and secured voice/data platforms. Tactical voice communication systems must be utilized, especially at the long range capacity, to ensure constant voice communications are established for status reporting and real-life emergencies rather than non-tactical systems. Starlink is an effective and expedient data communication platform which is not organically in the EN BDE but can be resourced for use during execution. This demonstrates the

need for additional communications packages to be added to the MTOEs of Engineer units (Platoons, Companies, Battalions, and/or Brigades) and fielded as soon as possible.

The Future of JPOTS

Looking into the future, during Talisman Sabre 25, the JPOTS mission is expected to be executed again to create a 25-mile pipeline trace from the shoreline, to RAAF Base Scherger. A new system which complements the IPDS is the Early Entry Fluid Distribution Systems (E2FDS). E2FDS is used as a rapidly emplaced early entry capability for petroleum throughput to set conditions for IPDS operations. It is a containerized system able to be easily transported via Palletized Load System (PLS) or Heavy Expanded Mobility Tactical Truck-Load Handling System (HEMTT-LHS). It can be emplaced at a rate of 25 miles per day and a throughput of 750k gallons of fuel or water. Utilizing the E2FDS and other new concepts will increase the effectiveness of JPOTS operations in the future.

Finally, future JPOTS/JLOTS missions in the Pacific will rely heavily on fast, expedient, and trained personnel to execute when the nation calls. 130th EN BDE was able to display a capability not seen in the Pacific in years and represented the Engineer Regiment leading the execution. Validating the proof-of-concept was one step in increasing the U.S. Army Pacific's readiness and interoperability within the region. With new technologies being developed and peer-threats on the horizon, Engineers must remain knowledgeable and ready to execute JPOTS operations.

CPT Ashear N. Saad is an Active Duty Engineer Officer currently acting as the Commander for HHC, 411th Engineer Battalion (Reserve) at Fort Shafter Flats, HI. He was previously a part of 130th Engineer Brigade at Schofield Barracks, HI where he was the Assistant Brigade Plans Officer. He was the main planner for the Joint Petroleum Over-The-Shore mission, a part of Talisman Sabre 2023.



Celebrating

THE LIFE OF

Mollie O'Neill

THE BEST OF THE BEST



A few things stand out about Mollie O'Neill. She was as radiant as her smile, kind as a true woman of faith should be, pure class, funny funny funny, and the love of the life of COL (Ret) Jack O'Neill since they were six years old. Last Friday in Pittsburgh at Mollie's service, the Priest asked Kirstina Colvin who worked with Mollie at Spectrum before she came to AEA, "Tell me about Mollie." Kirstina with no hesitation piped up, "She had an answer for everything." This was absolutely true. Upon reflection, I feel like this trait was how Mollie expressed her faith. Mollie was truly charitable, which I would define as giving assistance to those in need. Mollie was always ready with help, a story, or advice that soothed, informed, or fortified. I was truly fortunate to spend a lot of time with Mollie. After an exceptionally long first day at ENFORCE, we were finally able to eat dinner around

9pm. We ordered salads and Mollie said, "I know you young girls always want to watch your weight, but you are stressed out, so you need some fat in your dinner to coat your nerve endings." Mollie was a seamless blend of intelligence, caring, and empathy so she did not have to tell me twice. I changed the salad to Spaghetti a Carbonara which turned the evening around. Another time, registration went BAD. Mollie said to me "Oh, you think this is bad, it's not bad until someone jumps over the counter." I laughed, exhaled, and put everything into perspective. She saved the day again! I have about a thousand of these stories as I am sure anyone that knows Mollie does too. *Wherever a beautiful soul has been, there is a trail of beautiful memories.* — Ronald Regan.

Linda

Dredge Potter transiting on the Mississippi River. Photo courtesy of USACE Mississippi Valley Division Public Affairs Division



The United States Army Corps of Engineers Technical Engineering Capabilities Development Program TECDP is a beacon of opportunity for young engineers seeking a blend of military service and technical expertise USACE districts around the globe oversee a broad range of missions including military construction water way

navigation environmental stewardship flood risk management hydropower and recreation and much more allowing for an array of benefits and work opportunities that not only shape the engineers of tomorrow but also contributes to the community and the nation at large One of the foremost advantages of the TECDP program is

TECDP Soldiers and Civil Works

By 1LT Troy Ater

the access to on the job training skill development through certification courses and the ability to gain experience working to solve diverse problem sets found on project sites throughout districts across the country Therefore by allowing for the accumulation of required experience and course hours for the Professional Engineer and Project

Management Professional certifications Army Engineers can sharpen their technical prowess and develop the institutional knowledge and experience in various engineering and project management disciplines to stand out in their career field.

Among the many USACE districts that offer opportunities to aspiring officers, the St. Louis District, with its rich engineering heritage and a thriving community, offers a diverse range of opportunities for TEC-DP lieutenants. The District encompasses 28,000 square miles in Missouri and Illinois and is an engineering and water resource agency dedicated to maintaining a proper and healthy balance of the varying uses of the heartland's waterways. The Mississippi Valley Division encompasses six districts including St. Paul, Rock Island, St. Louis, Memphis, Vicksburg, and New Orleans. St. Louis District fights the devastating effects of floods through the construction of 87 levees and the maintenance of floodwalls in the Saint Louis area. To support nationwide commerce, the district maintains navigable waterways encompassing 300 miles of the Middle Mississippi River, 80 miles of the lower Illinois River and 36 miles of the Kaskaskia River, as well as the operation of a multitude of locks and dams. The district is also dedicated to the clean-up of hazardous and toxic waste material connected to Department of Energy activities in the 1940-1960s. TEC-DP Lieutenants are given the opportunity to contribute to projects that directly affect the local community and enhance the quality of life for St. Louis residents and the entire Mississippi Valley region.

The TEC-DP program emphasizes leadership, team building, and problem solving. Army Engineers develop and refine their leadership skills, working collaboratively within project delivery and cross-departmental teams filled with professionals from technical and non-technical fields. Additionally, the program instills a sense of responsibility, discipline, and teamwork – qualities that are paramount in both military service and the engineering profession.

1LT Ater's new beginnings in the TEC-DP program I have taken an interest in civil works around the country; and USACE impact on the Nation and abroad. After my assignment with a heavy combat engineer battalion, I wanted to grow my understanding of civil projects and professional expertise. The TEC-DP program gave me the opportunity to develop my understanding of civil work projects and enhance my professional expertise. As a lieutenant in the program, both military and civilian leadership have mentored me and integrated me into critical District projects. I've been given the opportunity to be a part of the project delivery team to execute environmental remediation services to remediate radiological contamination generated by activities of the Manhattan Engineer District and the Atomic Energy Commission during the development of the atomic



Remediation of contaminated soil at North County Hazelwood District August 2023. Photo courtesy of USACE.



Melvin Price Locks & Dam located on the Mississippi River. Photo courtesy of USACE Mississippi Valley Division Public Affairs Division

weapons in the 1940s and 1950s. I have a year left in my assignment and I am eager to develop my engineering and project management skills, deploy to regions in need of aid, and earn my certifications that will benefit me both in the active-duty Army and the civilian marketplace. I encourage lieutenants to apply for the program to further develop themselves and develop an understanding of the role USACE plays in our Nation both at home and abroad.

CPT Powelson's reflection on how TEC-DP has impacted his career: One of the main reasons I joined the military was the hope of someday working in USACE. Being able to work in USACE while also being active duty was an enormous blessing. I refined my ability as a structural engineer, learned new skills, and learned about the mission and scope of USACE. I spent a total of 3 months deployed during hurricane response for two different hurricanes (Hurricane Ida and Ian.) I worked at various levels for those two hurricanes, from the on-the-ground temporary roof estimator to battle captain.

I saw what USACE does well and gave feedback for areas of improvement. Now I am in Alaska and learned that my unit is the only active-duty unit in the army that Defense Support of Civil Authorities missions are part of its problem set. My experience in USACE allowed me to help shape my brigade commander's thinking about the relationship between active-duty Army and USACE for a recent meeting he had with the USACE Alaska district Commander. I encouraged him to think beyond construction projects and what we owe them, they owe us and consider how active-duty forces would coordinate with USACE for a DSCA mission, should a tsunami ever hit Alaska.

1LT Troy Ater is stationed at USACE, Saint Louis District. He currently works as a North County quality assurance representative/TEC-DP Lieutenant on the Formerly Utilized Sites Remedial Action Program (FUSRAP). Duties include conducting field inspection and documentation approval as well as additional taskings.

Water Through Wood: Water Pipes Found on the Waterways Experiment Station

At a site excavation in 2015 at the U.S. Army Engineer Research and Development Center (ERDC) formerly the Waterways Experiment Station (WES) in Vicksburg, MS, old wooden water pipes from possibly the late 1800s were found buried on the property, showing that throughout the decades, the need for water and water security has remained a constant.

People have lived and built civilizations along nature's water distributions systems – rivers, streams, and springs – from Mesopotamia to along the Mississippi River, including those in Vicksburg. Dr. Foster Lightcap, Vicksburg's first dentist, purchased a large parcel of land along Hall's Ferry Road, four miles southeast of Vicksburg, and constructed a residence called Magnolia Hall prior to the Civil War. Situated on high ground overlooking Durden Creek, Magnolia Hall was noted for its charm and elegance, as well as the beauty of its gardens. Tragedy, however, struck as civil war tore the nation asunder. On June 28, 1862, Dr. Lightcap was killed when Union gunboats opened fire on Vicksburg but failed to compel its surrender. War in all its horror returned to Vicksburg the following year as Union forces led by General Ulysses S. Grant besieged the city. For 47 days, the citizens of Vicksburg and its defending garrison withstood the constant bombardment of Union cannon and heavy mortars in a terrifying quest for survival. During the siege, Magnolia Hall served as the headquarters of Union brevet MG Jacob Lauman whose troops were part of Grant's encircling army that forced surrender of the city on July 4, 1863. Ravaged by war, Magnolia Hall and its once beautiful grounds never recovered and receded into the landscape. WES was established by the Flood Control Act of 1928 after the Great Mississippi Flood of 1927 that devastated the Mississippi River Valley and nearby lowlands. WES was built on land suitable for large-scale models on the grounds of former plantation called Magnolia Hall, a 147 acre tract.

A century later, in 1960, disaster visited again when fire destroyed the WES headquarters. A new headquarters building was quickly constructed on the exact site of Magnolia Hall, and relics of the past were unearthed. Among the items uncovered were large sections of wooden pipes that once furnished water to the residents of Magnolia Hall.

Terracotta and wood pipes have been used to increase the distribution of water for years, and there is even evidence that the Romans used some form of wooden pipes. Wood water pipes were installed in 1542 along the Danube River to help in fighting fires, in London drilled wooded pipes were used in their first water main, and in the U.S. wood water pipes and tanks were in use by 1754. In the early 1800's, wooden water pipes were commonly made from a long process of hand auguring logs in five- to six-foot sections that were typically fitted together with tapered ends. Over time, more efficient methods of making

wooden water pipes were created. Improved patented designs of the 1800s placed several long boards into a cylinder shape that were bound with an iron or metal wrapping to hold the shape. The result was a large open channel for water to flow through. Further design improvements included removable collars and joints that overlapped. Eventually, alternative pipes such as lead, cast iron, and plastics were introduced.

The excavation at ERDC uncovered a remnant of the water distribution system that was used near the original Lightcap Magnolia Hall property, presumably before WES was established. The ERDC Directorate of Public Works and contractors from Vinco, Inc. of Vicksburg were excavating a parcel of land to install a new water main and uncovered about 20 intact wooded water pipes. The wooden water pipes were located approximately 1,500 feet East of Magnolia Hall and still holding water in them. This was not the first time that wooden water pipes had been found at the Vicksburg site, but it was the first time that multiple intact pipes had been successfully recovered and removed. The recovered wood pipes were metal boards with a metal hoop wrapping that were 10-12 feet long with a diameter of 12 inches and were possibly installed with the construction of Magnolia Hall. The construction was very intricate and used interior wood pieces that were pie shaped wedges with the end cut off on the interior side that provided a round opening in the center. Those pieces were inserted into a separate round wood pipe. This exterior wood pipe consisted of tongue and groove parts fitted together to form a hollow log effect. Then it was all wrapped with metal bands and covered with a tar like material. The tar covered the bands completely to possibly keep the metal bands in place and protect the bands from deteriorating. The ends of the pipe had the interior "pie" piece off set on one end and extended on the other so the individual lengths would fit together or if you will "lock in place". The wood interior pieces would swell once in use from the water to help seal the joints.

Water is necessary for a civilization to survive and a people to survive. During a very basic act of water infrastructure maintenance at an Army installation which researches water and waterways revealed old water pipes that fulfilled the same need, likely at the Lightcap Plantation. The discovery of an intact network of wooden water pipes, while not in use but still holding water, is still a not-so-distant reminder of the enduring complexities associated with water distribution systems. The craftsmanship used to make and assemble the wooden water pipe network is amazing especially since they have been in the ground undisturbed for all these years. The pipes were replaced with upgraded technologies, but we are reminded of the basic human needs that connect us all.

Ms. Katie A. Martin is a Research Mechanical Engineer at ERDC Geotechnical and Structures Laboratory in Vicksburg, MS.

Mr. Terrence Winschel is retired and the former Historian at the National Park Service Vicksburg National Military Park and former Historian at ERDC in Vicksburg, MS.

Mr. Garrett W. Watson is a Research Psychologist at ERDC Environmental Laboratory in Vicksburg, MS.

Mr. Craig Prevost is retired and the former Director of Public Works Engineer at ERDC in Vicksburg, MS.

Ms. Mary Margaret Edney is the Chief of Public Affairs Office at ERDC in Vicksburg, MS.

Mr. William A. (Andy) Martin is the Assistant Director for the Wood Products Research Group at the U.S. Department of Agriculture's Forest Service Forest Products Laboratory in Madison, WI.

TERRACOTTA AND WOOD PIPES



Mr. Craig Prevost inspecting the wooden water pipes that were discovered at ERDC during recent excavation work. Photo courtesy of ERDC PAO.



Wooden water pipes that were discovered at ERDC, showing how the pipes would connect through a male and female connection. Photo by W. Andy Martin.

IRON AND METAL WRAPPING TO HOLD THE SHAPE

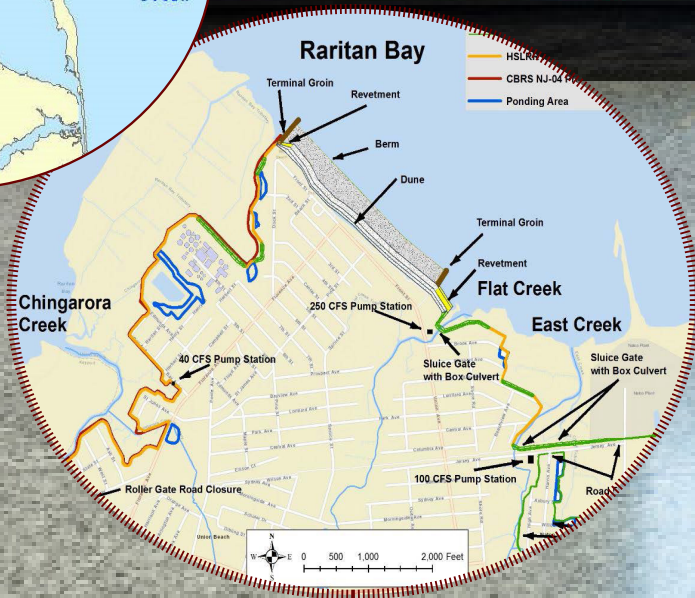
and Their Inspiration for Human Ingenuity

By Ms. Katie A. Martin, Mr. Terrence Winschel, Mr. Garrett W. Watson, Mr. Craig Prevost,
Ms. Mary Margaret Edney, & Mr. William A. (Andy) Martin.

To THE RESCUE NJ COMMUNITY RECEIVES COASTAL RESTORATION PROJECT

In the fall of 2012, Superstorm Sandy devastated the East Coast of the United States, including the State of New Jersey. Firefighter Mr. Paul Kerwin remembers he and his company rescuing his fellow Borough of Union Beach, NJ neighbors on that day, "Sandy was quite an experience. We worked round the clock, pulling people out from their flooded homes that were submerged in almost 10 feet of water. I remember a house actually coming off its foundation and floating across a creek and a shed lifting off the ground and drifting down a road with a man standing on its roof. We saved him and did about 200 rescues that night."

Mr. Kerwin is a lifelong Union Beach resident and has been a firefighter with the Union Beach Gardens Fire Department for decades. The safety of his community is important to him. This extends to his other job, as a maintenance worker for the New Jersey Department of Environmental Protection. His agency is working in collaboration with the USACE, New York District on coastal restoration projects along the New Jersey coast that will help to reduce flooding from future Sandy-like storms and sea level rise, and hopefully put an end to the days when he has to rescue his neighbors off from roofs. One of these projects is the Union Beach New Jersey.





BY JOANNE CASTAGNA, ED.D.



Coastal Storm Risk Management Project.

The Borough of Union Beach is a bayside community of 1.8 square miles along the coast of Raritan Bay on the northern portion of Monmouth County, NJ. From Union Beach, visitors have a view of the New York City Skyline and the Verrazano-Narrows Bridge. Over the years, the residential and commercial waterfront community has experienced flooding during tidal coastal storms because it is located on low-lying land with numerous small creeks. The flooding has worsened due to an increase in tidal storm events, restricted channel flow of the small creeks, and increased urbanization and coastal erosion. So, when Superstorm Sandy arrived the community was devastated. Sandy's storm surge flooded ninety percent of the Borough and as a result, sixty structures were destroyed and 629 were substantially damaged, leaving behind 4,500 tons of debris.

Mr. Kerwin remembers rescuing residents from their damaged homes, "They were overwhelmed, anxious and had lost everything. We put them on the big deuce and a half trucks (the surplus Army trucks with the canvas roof in the back that many municipalities now operate) and took them to the school to shelter them, but then the school had to be evacuated because it started to take on water and then we had to get them to the police station. This was all within the first few hours of the storm, but it felt like forever."

To reduce such massive flooding in the future, the Army Corps is performing a number of coastal flood risk management projects along the New Jersey shore including the Union Beach New Jersey Coastal Storm Risk Management Project that is being partially funded by the Hurricane Sandy Disaster Relief Appropriation Act of 2013 or what is referred to as the "Sandy Bill". New York District Commander, COL Alexander Young explained, "This bill is funding the District's Superstorm Sandy Coastal Storm Risk Reduction program of which the Union Beach project is a part of. So far, the District has completed 52 of the 60 projects in the program."

The Army Corps is performing this project in collaboration with the New Jersey Department of Environmental Protection, its non-federal sponsor, and Army Corps Contractor, Weeks Marine of Cranford, NJ. Mr. David Gentile, project manager, New York District, USACE expressed, "We're excited to be working on this project because Union Beach has been battered by many storms that have included a nor'easter in 1992, Superstorm Sandy, and most recently Tropical Storm Ida in 2021."

According to Mr. Gentile, this project will create a line of defense around the Union Beach community to help reduce flooding during future storms. This includes increasing the size of the beach, constructing measures that will slow down





WELCOME
TO
NEW JERSEY
THE GARDEN STATE





beach erosion, and building inland structures that will reduce flooding and help keep tidal water and rainwater out of the line of defense to keep the community from flooding.

Union Beach has eroded over the years due to wave action and longshore currents. When hurricanes and coastal storms occur, breaking waves and elevated water levels can change the width and elevation of beaches and accelerate erosion, which can put community structures landward of the beach in jeopardy. To help protect the community, the Army Corps is increasing the size of the beach. To do this, over 600,000 cubic yards of sand has been dredged from the ocean and pumped onto the beach to increase the beach's height and width. In addition, a 16-18-foot-high dune will be built and planted with dune grass.

An enlarged beach and dunes act as a buffer between the waves and storm water levels and communities near the shore. This was demonstrated during Superstorm Sandy. After the storm, the Army Corps examined its beach restoration projects across the northeast U.S., to identify what projects were more effective in reducing storm risk to the shore communities. The analysis showed that beach communities that had previously received beach restoration and dune construction sustained less destruction and saved billions of dollars in avoided damages.

To slow down the erosion of the newly constructed beach, two groins will be constructed. Groins are structures that extend out perpendicular from the shore into the water and interrupt water flow and limits the movement of sand, to prevent beach erosion.

Inland from the beach, structures will be built that will reduce flooding and help the storm water system drain excess water without letting tidal water flood the community. As mentioned earlier, Union Beach has numerous small creeks that flood during storm events. These creeks include

Chingarora Creek, Flat Creek and East Creek. The Army Corps is constructing three pumping stations and two sluice gates to reduce the risk of tidal flooding around these creeks. Pump stations pumps allow water to be removed from within the line of defense while the sluice gates are closed to prevent tide flood waters from flooding a community. In addition, several levees and flood walls will be constructed to keep tidal water from entering the community.

Presently, most of the beach construction has been completed and the remainder of the project will be worked on in 2024. Mr. Kerwin is optimistic about its success because he works with the Army Corps on other New Jersey coastal restoration projects that are performing as planned, "For the Keansburg Beach Hurricane and Storm Damage Risk Reduction Project, every time we operate the tide gate, it does what it's supposed to do and stops flooding in the area. I always tell Union Beach residents to talk with those in other New Jersey communities because they'll tell you how their tide gates are working and how they now have a level of protection."

When Sandy was charging up the East Coast of the U.S. Mr. Kerwin told his neighbors to leave. Many of them did not and as a result, he and his company were out in the storm, putting their lives at risk to save them and their children, some just babies, from their flooded homes. He declared that "Today when I tell them to leave, they ask me, 'How many bags should I take?'" Hopefully, with the completion of the Union Beach New Jersey Coastal Storm Risk Management Project, Kerwin and his neighbors can all stay safely in their homes when the next storm rolls around.

Dr. JoAnne Castagna is a Public Affairs Specialist and Writer for the USACE, New York District. She can be reached at joanne.castagna@usace.army.mil. Photos courtesy of USACE.

THANK YOU!

THE ARMY ENGINEER ASSOCIATION IS PROUD TO SUPPORT THE ENGINEER REGIMENTAL WEEK, WHICH WILL BE HELD 22-26 APRIL 2024 AT FORT LEONARD WOOD, MO. THE AEA WOULD LIKE TO THANK THESE DEDICATED SPONSORS FOR THEIR OUTSTANDING SUPPORT OF OUR ENGINEER REGIMENTAL AWARDS. WE COULD NOT DO THIS WITHOUT THE DEDICATED SUPPORT OF OUR INDUSTRY TEAMMATES WHO PROVIDE THE TECHNOLOGY AND CAPABILITIES THAT SUPPORT OUR ENGINEER SOLDIERS SERVING 365/24 AROUND THE GLOBE.

LTC John W. Morris Outstanding Civilian Award



SMA Leon Van Autreve Outstanding Engineer Junior Soldier Award



Outstanding Warrant Officer Award



1LT Orville O. Munson Outstanding Platoon Leader Award



Army Combat Engineer Squad/Section Leader Award



Super Sapper - Best Engineer Soldier Award

BAE SYSTEMS

The Caterpillar Silver De Fleury



Regimental



A Tale of Two Rooms The Castle Room at Fort Belvoir & the Engineer Regimental Room at Fort Leonard Wood

The Castle & Regimental Rooms ascendant unit flags and chandeliers are bolstered by the vibrant intricately designed unit plaques on the walls that create a living history space for Engineers filled with spirit, tradition, and honor.

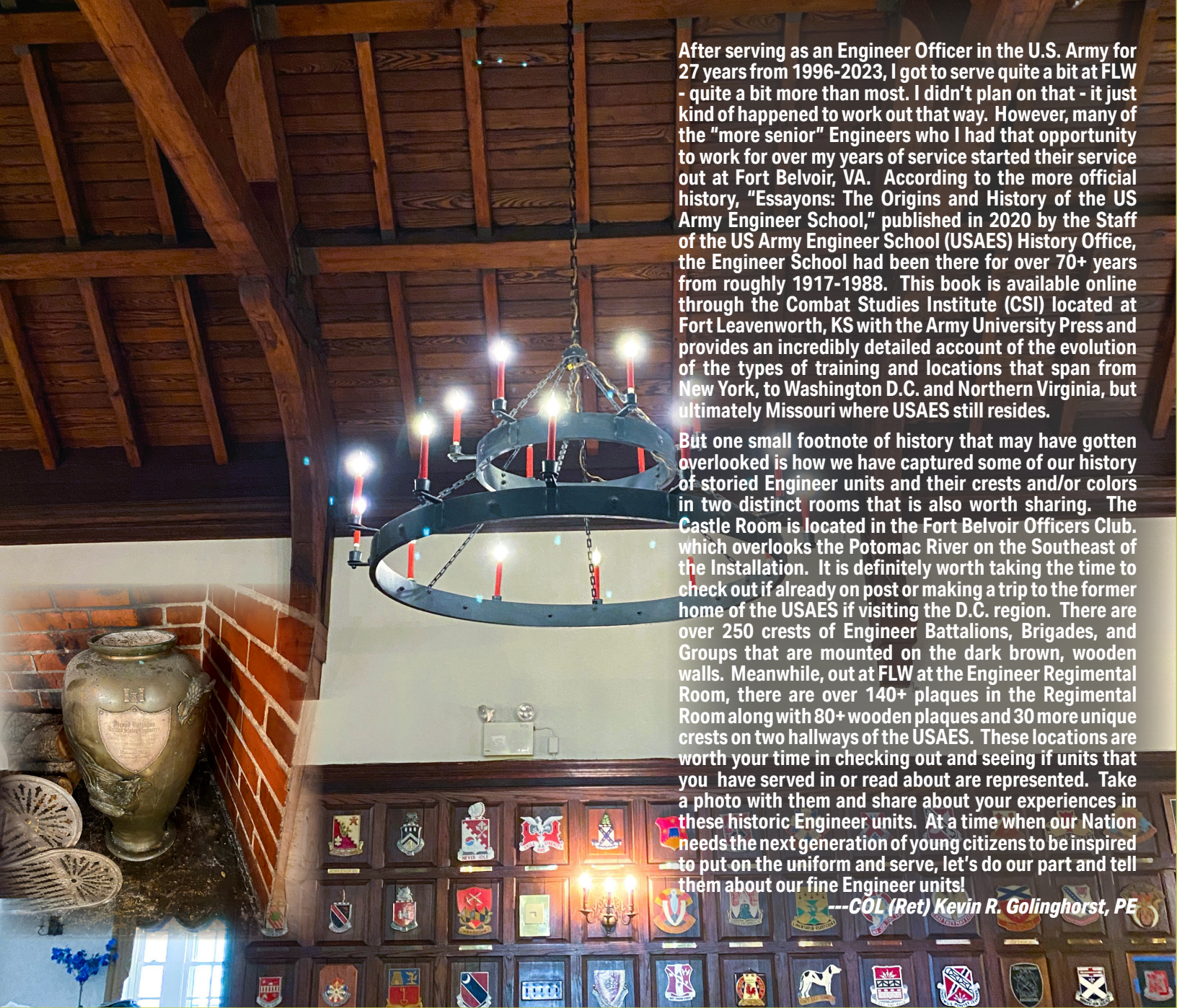
CASTLE

Castle Rooms

After serving as an Engineer Officer in the U.S. Army for 27 years from 1996-2023, I got to serve quite a bit at FLW - quite a bit more than most. I didn't plan on that - it just kind of happened to work out that way. However, many of the "more senior" Engineers who I had that opportunity to work for over my years of service started their service out at Fort Belvoir, VA. According to the more official history, "Essays: The Origins and History of the US Army Engineer School," published in 2020 by the Staff of the US Army Engineer School (USAES) History Office, the Engineer School had been there for over 70+ years from roughly 1917-1988. This book is available online through the Combat Studies Institute (CSI) located at Fort Leavenworth, KS with the Army University Press and provides an incredibly detailed account of the evolution of the types of training and locations that span from New York, to Washington D.C. and Northern Virginia, but ultimately Missouri where USAES still resides.

But one small footnote of history that may have gotten overlooked is how we have captured some of our history of storied Engineer units and their crests and/or colors in two distinct rooms that is also worth sharing. The Castle Room is located in the Fort Belvoir Officers Club, which overlooks the Potomac River on the Southeast of the Installation. It is definitely worth taking the time to check out if already on post or making a trip to the former home of the USAES if visiting the D.C. region. There are over 250 crests of Engineer Battalions, Brigades, and Groups that are mounted on the dark brown, wooden walls. Meanwhile, out at FLW at the Engineer Regimental Room, there are over 140+ plaques in the Regimental Room along with 80+ wooden plaques and 30 more unique crests on two hallways of the USAES. These locations are worth your time in checking out and seeing if units that you have served in or read about are represented. Take a photo with them and share about your experiences in these historic Engineer units. At a time when our Nation needs the next generation of young citizens to be inspired to put on the uniform and serve, let's do our part and tell them about our fine Engineer units!

---COL (Ret) Kevin R. Golinghorst, PE



Photos by Ms. Linda Mitchell

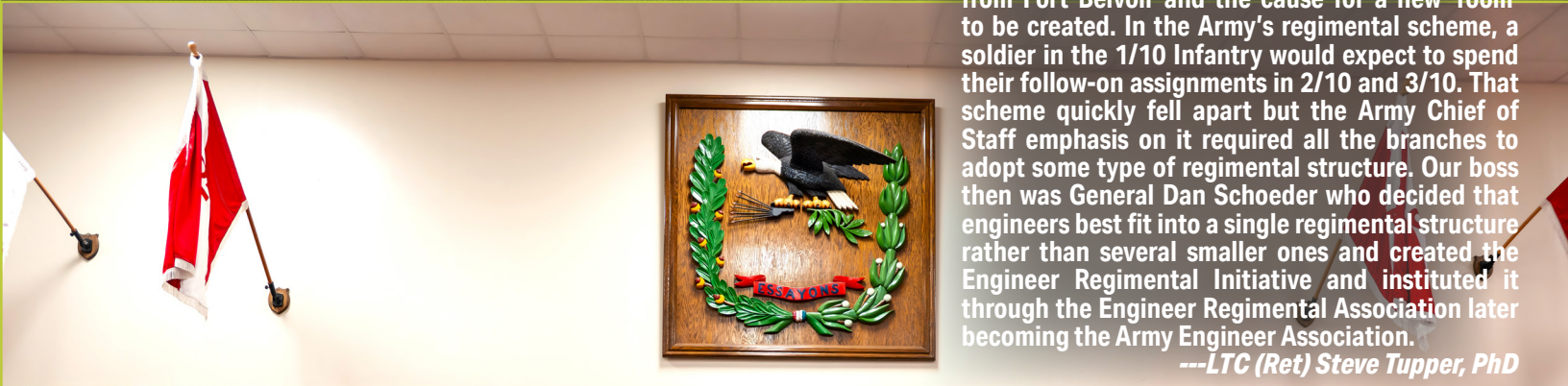


Active duty Engineers usually identified with the battalion they served in and occasionally with the brigade – hence the plaques in the both rooms are for battalions. On a second level they identify with the time/location of their battalion service. Reunions tend to be organized by battalion and for members from a specific time (example the 293d Engineers who were stationed in Baumholder Germany in the late 70's and early 80's self-identify as a group. The time cut offs seem to coincide with a specific battalion commander or commanders' tenures.

Reserve and guard Engineers also had battalion roots but perhaps not the same time boundaries. I suspect that is so since their units remain geographically stable. They also pay more heed to the upper levels of command (ENCOM and brigades). Their plaques are also in both rooms.

In the late 80's and early 90's the Army adopted the regimental heritage for the purposes both of unit assignments and historical pride. This was also the same time frame as the consolidation of engineers at Fort Leonard Wood, the departure from Fort Belvoir and the cause for a new 'room' to be created. In the Army's regimental scheme, a soldier in the 1/10 Infantry would expect to spend their follow-on assignments in 2/10 and 3/10. That scheme quickly fell apart but the Army Chief of Staff emphasis on it required all the branches to adopt some type of regimental structure. Our boss then was General Dan Schoeder who decided that engineers best fit into a single regimental structure rather than several smaller ones and created the Engineer Regimental Initiative and instituted it through the Engineer Regimental Association later becoming the Army Engineer Association.

---LTC (Ret) Steve Tupper, PhD



Photos by Mr. Ryan Thompson

Special Thanks to all of our
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**THE FALLEN SAPPER MEMORIAL
AEA COMBINED SOCIAL
THE 2024 ARMY ENGINEER REGIMENTAL BALL**

*AEA would like to thank AICI as a dedicated sponsors for their outstanding support of
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FIRST ANNUAL BEST MAPPER COMPETITION

The Army Engineer Association is proud to support the 2024 Engineer Regiment's Inaugural Best Mapper Competition 12-14 April 2024 and we could not do this without the dedicated support of our Industry Teammates who provide the technology and capabilities that support our Engineer Geospatial Soldiers serving 365/24 around the globe.



2024 ENGINEER REGIMENT'S 18TH ANNUAL LTG ROBERT FLOWERS BEST SAPPER COMPETITION

17th Annual LTG Robert Flowers Best Sapper The Army Engineer Association is proud to support the 2024 Engineer Regiment's 18th Annual LTG Robert Flowers Best Sapper Competition 20-22 April 2024 and we could not do this without the dedicated support of our Industry Teammates who support our Engineer Sappers serving 365/24 around the globe.



2ND ANNUAL AEA TRAP SHOOT COMPETITION

The AEA would like to thank Dawson Ohana for their sponsorship for the 2nd Annual AEA Trap Shoot Competition, outstanding prizes and making it a success for our competitors. Their ensured AEA can build upon and continue this tradition.





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USACE, Great Lakes and Ohio River Division, leadership and staff attended the Great Lakes Commission semiannual meeting and Great Lakes Day on the Hill in Washington, D.C., from March 5-7, 2024. Photo courtesy of USACE.