



The Corps

Volume 20, Issue 4  
November 2019

# Environment

## BUILDING STRONG!

Corps of Engineers  
constructs  
state-of-the-art  
school for  
21st century  
education

# 6

**Environmental Operating Principle #1**

**Foster sustainability as a way of life throughout the organization.**



## The Corps Environment

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*The Corps Environment* is an online quarterly news magazine published by the U.S. Army Corps of Engineers under the provisions of AR 360-1 to provide information about USACE and U.S. Army environmental initiatives, policies and technologies.

Opinions expressed herein are not necessarily those of the U.S. Army, the U.S. Army Corps of Engineers or the Department of Defense.

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*The Corps Environment's* editorial staff welcomes submissions with an environmental, sustainability or energy focus from USACE and Army units worldwide.

Send articles, photos, events, letters or questions to the editor, The Corps Environment, at [CEHNC-PA@usace.army.mil](mailto:CEHNC-PA@usace.army.mil).

Submission deadlines are as follows:

December 15 (February)

March 15 (May)

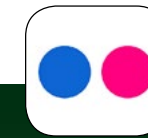
June 15 (August)

September 15 (November)

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[www.usace.army.mil/Missions/Environmental.aspx](http://www.usace.army.mil/Missions/Environmental.aspx)



## Setting conditions for **ARMY READINESS**

By Col. Isaac Manigault  
Commander  
U.S. Army Environmental Command

Resilient installations that can sustain military operations over the long term are the bedrock of Army readiness.

Our Army's environmental program protects more than 13 million acres of land and associated infrastructure to ensure the Army has maximum access to the land, water and airspace critical to military training and testing.

Simultaneously, this program protects the health and environment of our most valuable resource – Soldiers, families and civilians who live and work on Army installations or the surrounding communities.

As the Army undergoes unprecedented modernization and reform, installations must be capable of supporting both current and evolving readiness and power projection requirements.

Additionally, the effects of increased drought, wildfires and floods require installations to maintain or quickly rehabilitate landscapes and infrastructure vital to mission operations and training.

Sustaining environmental compliance in a transforming era is extremely challenging, especially in our resource-constrained environment. To meet this challenge, environmental professionals throughout the Army actively manage and mitigate environmental liabilities and restrictions, promoting sustainable and resilient installations.

So what is a sustainable and resilient installation?

Generally, it's the enduring ability of an installation to rapidly adapt its footprint to accommodate changing mission requirements.

From my foxhole, this includes the ability to proactively clear environmental restrictions to keep pace with evolving doctrine and enhanced materiel solutions for modernization.

Installation sustainability and resilience begin with early integration of environmental considerations into planning and decision-making.

By analyzing potential environmental effects of projected actions (e.g., changes to force structure, modernized installation infrastructure, reconfigured training areas and ranges), we can avoid or mitigate unacceptable environmental restrictions which impact mission and operations.

Ultimately, this planning helps ensure the landscape on Army installations remains viable and capable of enabling training and testing new capabilities to meet the Army's modernization timeline.

We employ key enablers to sustain realistic training.

As the Army transforms to effectively achieve America's national security requirements, we use cross-functional teams to ensure the Army makes the best choice when it comes to stationing, infrastructure, personnel and training.

We routinely collaborate with communities outside the fence line and with non-profit organizations to help our installations become more resilient.

Many of these partnerships have helped to protect Army land from encroachment, which in turn, has improved and enhanced installation sustainability and long-term viability.

Our subject matter experts develop and negotiate programmatic agreements with our regulatory partners to address holistically military effects on ecosystems within and outside installation boundaries. Through innovative practices, we protect and preserve natural and cultural resources while ensuring training remains unencumbered from environmental restrictions.

Environmental professionals at the Army Environmental Command, the U.S. Army Corps of Engineers and at Army installations work together with their operational range and training support counterparts to set the



Col. Isaac Manigault  
Commander,  
U.S. Army Environmental Command

conditions to ensure our Army is ready to train, fight and win.

As I and my command sergeant major reflect on our time here at AEC, we are in awe of the tremendous capability and dedication of our Army environmental professionals.

Our cadre of engineers, scientists and support personnel demonstrate daily their passion for ensuring our Soldiers have the tools and training they need to be lethal and ready to fight and win.

Ensuring we have sustainable ranges, sustainable operations, and sustainable installations is what we do.

We have the best job in the Army – taking care of the environment to provide enduring installations capable of supporting realistic training and testing to enable Army readiness.

# USACE delivers sustainability to nation's water resources

By Kathleen White  
Christian Manalo  
USACE, Headquarters

The U.S. Army Corps of Engineers Civil Works program is often in the limelight when it comes to questions about sustainability due to its role as both an environmental steward and implementer of massive infrastructure projects to support national economic development.

Today's stakeholders demand that USACE actions are sustainable. They require reliable performance in changing conditions and a responsible balance between environmental, economic and social considerations.

USACE is subject to the same sustainability statutes and regulations as most federal agencies, primarily related to sustainable buildings, energy and water conservation, alternative fuels, waste minimization and green procurement.

Although challenging, these federal requirements only partially address sustainability for USACE as a whole.

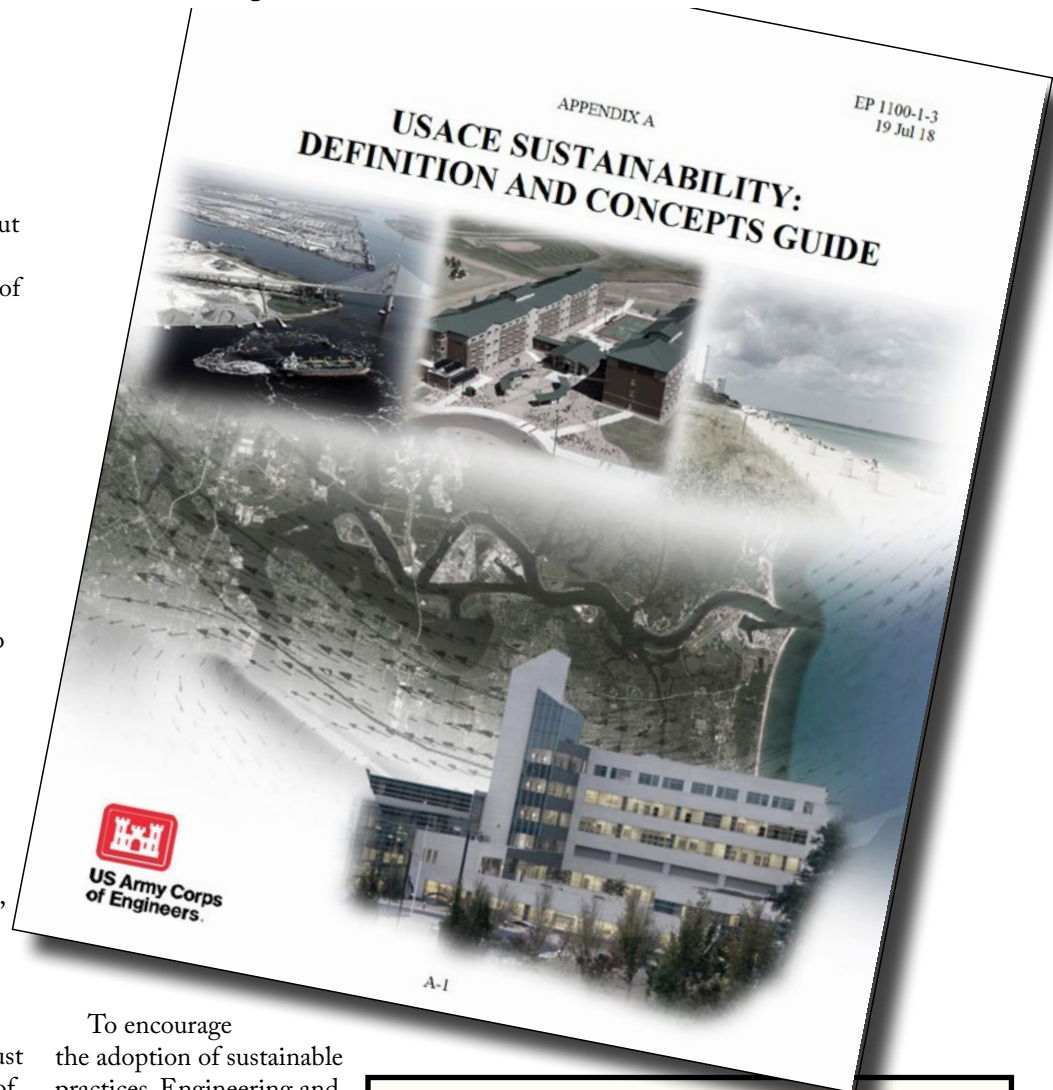
The Civil Works program includes flood and coastal storm risk management, navigation, ecosystem restoration, hydropower, emergency management, regulatory, recreation, and water supply missions and operations.

Civil Works infrastructure projects must perform as authorized over long periods of time, defined by project type and purpose.

Sustainability issues relevant to Civil Works are many; they include impacts to the local environment, social benefits, economic viability, historic and cultural resources, endangered species, coastal erosion, system maintenance, durability, climate preparedness and disaster recovery. Most of these issues are not addressed by federal sustainability metrics and targets.

Recognizing the uniqueness of Civil Works, USACE Headquarters Engineering and Construction Division is developing sustainability guidance that goes beyond traditional federal requirements.

In 2018, the USACE Sustainability: Definition and Concepts Guide (Engineer Pamphlet (EP) 1100-1-3) was issued to help direct the USACE community to the full meaning of sustainability throughout the organization. A uniform definition for "sustainable solutions" was prepared and more than 50 examples of sustainable practices were identified to demonstrate the breadth and depth of sustainability.



To encourage the adoption of sustainable practices, Engineering and Construction Division is close to issuing the Civil Works Sustainable Infrastructure Practices Guidebook (EP 1100-2-2).

This guidebook is a compendium of more than 800 specific actions that can be taken by Civil Works staff to improve the sustainability of their projects and activities. At more than 250 pages, the guidebook serves as a best practices reference and includes practice descriptions, implementation considerations and hundreds of citations for further information. Completion of the guidebook is a major achievement for both the federal government and the civil infrastructure community.

Finally, Engineering and Construction Division is preparing the Civil Works Guide to Sustainable Infrastructure Requirements (EP 1100-2-3), which identifies nearly three dozen engineer regulations and other existing USACE publications containing major

## Sustainable Solutions

**Solutions that balance environmental, economic and social benefits, and impacts to meet present needs without sacrificing the ability of future generations to meet their needs.**

**(USACE Engineer Pamphlet 1100-1-3)**

sustainability-related requirements.

Project Delivery Teams need to be aware of these publications, as applicable, when planning, designing, constructing, operating and maintaining infrastructure projects.

For each publication, the guide cites specific passages and explains their applicability and any exceptions.

The combination of these sustainability products – definition/concepts guide, practices guidebook and requirements guide – helps ensure USACE activities remain sustainable now and well into the future. When complete, all products may be found on the USACE Headquarters publications website at: [www.publications.usace.army.mil](http://www.publications.usace.army.mil).

# BUILDING STRONG!

## Corps of Engineers constructs state-of-the-art school for 21st century education

By JoAnne Castagna, Ed.D.  
USACE, New York District

Elementary school students are looking out their classroom windows at a nearby construction project and jotting down what they see. They're interested because what's being constructed is their new school that they helped to plan out.

The U.S. Army Corps of Engineers, New York District is constructing a new state-of-the-art elementary school for the children of Army Soldiers and Department of Defense civilians who live on the installation at the U.S. Military Academy at West Point, New York.

The students are playing an active role in the planning out of their school as a

way for them to learn about careers in science, technology, engineering, art and mathematics or what is called STEAM.

When completed, it will be an energy-efficient structure that will continue to serve as a STEAM teaching tool.

USACE has constructed many of the structures on the historic 200-year-old campus. Now it's creating a new school for the Department of Defense Education Activity.

The DoDEA had a paradigm shift in its methodology. It's changing the way teachers instruct and students learn by using a myriad of technological tools to better prepare students for their future.

To help it do this, it's making all of its new schools 21st Century Education Buildings.

According to the DoDEA website, this

is a school that has a flexible and adaptable design to provide different kinds of learning environments they need to learn.

"Students learn in different modalities and environments. As educators, we want to create this learning environment for them," said Denise DeMarco, principal, West Point Elementary School.

### 21st Century Education Building

The new school will replace an outdated structure that was built in the 1960s.

It will serve 509 students from pre-kindergarten to fifth grade and will be located near the campus' middle school and gym.

The multi-story, 95,552-square-foot-school is being built into the side of a mountain and will have beautiful views of the Hudson River,

the river valley and the surrounding forests.

Its design will embrace this beauty as a way to educate students about their region and the local culture.

Features will include large windows and a wide variety of colored paints and bricks to be used for the floors and ceilings, bringing the region's vibrancy into the building.

The interior structures will also bring in that vibrancy.

"For example, instead of having utilitarian staircases, the stairwells will be painted with pleasing colors for a pastoral feel," said Timothy Pillsworth, project engineer, USACE, New York District.

Speaking of utilitarian, instead of having corridors with classrooms to the left and right, students will be taught in

flexible learning spaces called learning neighborhoods.

Five learning neighborhoods will each host six learning studios and a teacher collaboration room surrounding a central learning hub.

The studios can be used for large or small groups and one-on-one instruction, DeMarco said.

"These flexible spaces will provide teachers an opportunity to be more collaborative in their teaching and they will be able to group students with like interests, needs and learning goals," she said.

Another benefit of these spaces is that it makes the best use of time during a day. Instead of students leaving their neighborhoods to see different instructors, the instructors will come to them.

The center hub area will serve as a seating and learning area, and will have a variety of different chairs and tables for students including couches, beanbags and pillows, DeMarco said. "Some students learn better at a table and chair and others sitting on the floor or on a bean bag."

In these neighborhoods and throughout the building, there will be moving partition walls that open and close like accordions, allowing the teachers to expand or limit the areas where they give their lessons.

Throughout the school there will be light-emitting diode, or LED light fixtures. These lights will have sensors that will turn off or dim the lights depending on the amount of natural light entering the large windows and whether or not the room is occupied.

**NEW SCHOOL, page 8**



Renderings of the front and back of the new West Point Elementary School. This is what the completed school will look like in 2020. (Illustration courtesy of DoDEA)

# NEW SCHOOL

continued from page 7

Natural light will be provided to its fullest. Besides having large windows, there will also be light wells throughout the structure to let in natural light.

Besides sufficient light, adequate heat is also important, especially in this region.

To efficiently regulate the room temperature, a special pump system is being set up. Instead of having one big boiler for the entire school, the building will have three smaller ones.

If heat is needed, one of the boilers will run up to 30-40% of its capacity. If additional heat is needed, the second one turns on and so on. They will ramp up or down depending on the need.

"Smaller boilers work more efficiently when they don't run at their full capacity and they last longer," Pillsworth said.

The boilers will be part of a radiant heating system that supplies heat directly to the floor or to panels in the wall or ceiling of a structure.

Throughout the school, heated water will circulate through plastic tubing within the floors, Pillsworth said. "When students sit on the floors in the wintertime, the floor will be warm."

During the warmer months, the students will have air conditioning – something they never had before – provided by an efficient central chiller plant.

Some of the building's energy will be

generated from solar panels and a wind turbine on the rooftop.

Outside there will be playgrounds for the different age groups, an outdoor patio for art classes and an amphitheater for instruction, gatherings and performances.

"Just like children learn differently, they also play differently," DeMarco remarked. "Some may want to play ball with a group or read alone in the amphitheater area."

USACE is also constructing an enclosure that will connect the new school to an existing gymnasium, so the students won't have to walk outside for physical education.

In addition, the old elementary school will be demolished and will provide space for a main access drive, bus and carpool drop-off, and 123 parking spaces.

Other features include water bottle filling stations, interior soundproof windows, and a full-service cafeteria.

All of the energy-efficiency work the district is performing on this project meets the environmental requirements to be certified LEED Silver by the U.S. Green Buildings Council.

What also qualifies the project for this certification is how USACE is involving students in the project as a way for them to learn about STEAM careers.

## Student Involvement

The students have been involved with the project even before the district engineers broke ground. Before construction began, trees needed to be removed to make space for the new structure.

"The students were concerned that removing the trees would harm wildlife," she said.

Noting their concern, DeMarco also saw this as a great learning opportunity for the students to learn from a real life situation. A meeting was organized so they could talk with wildlife experts about their concerns. Together, they came up with solutions that safeguarded wildlife and put the students at ease.

Student involvement didn't stop there. Not only did they talk with wildlife experts, they are also studying with project engineers, and reviewing maps and prints with architects.

DeMarco said that this experience has made many students extremely interested in architecture and planning.

In addition, the students are learning what's involved with planning and constructing a new school. This includes listening to guest speakers, i.e. architects, environmental specialists and civil engineers.

**See 21st CENTURY, PAGE 9**



(Photo by Dan Desmet)

Workers construct the exterior teaching areas of the new state-of-the-art elementary school at the U.S. Military Academy at West Point, New York.

# 21st Century

continued from page 8

“Speakers discussed the removal of the earth to prepare for the building. From this, the students learned about slopes and the differences between different soils and terrains,” said DeMarco.

The students also have a say in what they want their new school to look like. For example, for each neighborhood, the students voted on a mascot.

The mascots are animals indigenous to that region. Some of the mascots selected include the snow owl, turtle, black bear and raccoon. A mural of their mascots will be displayed in the entrance of each neighborhood.

The students are also selecting the color scheme and furniture for the hub areas of their neighborhoods, such as couches, wobble chairs, chairs with lumbar support and different table configurations.

While sampling the furniture, one student told DeMarco, ‘It’s more comfortable to learn in these soft seating areas.’

And now that the school is under construction, there is continued interest.

“The second and third graders, who are strategically located right outside of the construction area, are keeping journals and making daily entries about the changes they observe week to week,” she said.

## School as a teaching tool

DeMarco said, “The DoDEA 21st Century Education Buildings are designed to be used as a teaching tool and teaching environment. The design teams examined how every square foot in a facility might contribute to education. Building systems and architecture can be used to illustrate and complement STEAM education.”

When students enter the building, the floor in the main foyer will display the granite that was removed to make way for their new school and to show them what was there before.

Eight thousand cubic yards of granite was blasted, excavated and recycled. Some of the rock is being used as fill in the construction and some is being used by the academy.

As the students walk throughout the building, they will see colored concrete on the floor with contoured lines, showing them the original foundations or grades. “Students will be able to use these grades to create topographical maps,” Pillsworth said.

“So if we are giving a class about geography or topography, we can take them to these contoured floors to discuss



(Photo by Dan Desmet)

*Students will be able to view through hallway windows the school’s internal mechanical piping, wiring and cabling systems.*

it,” DeMarco said.

In the hallways, the students will be able to see and learn about the building’s internal operating systems.

There will be glass windows along the hallway, displaying the guts of the building, such as the heating pipes inside the walls, Pillsworth said.

Above them, students will be able to look inside a 20-foot-long window, exposing the school’s internal mechanical piping, wiring and cabling systems at work.

“There will be signs stating, ‘This is your chill water pipe where your air conditioning comes from’ and ‘this is a fire sprinkler pipe for fire protection,’” Pillsworth said.

On the rooftop, additional energy will be generated from solar panels and a wind turbine that the students will be able to monitor.

This will educate the students about renewable energy. “The students will have an energy dashboard that will tell them, ‘Hey today is a sunny day or a windy day. We will be generating this much electrical power,’” Pillsworth said.

Outside, there will be a walking path around a stormwater detention pond,

Pillsworth said. “Classes can walk around this system and see the vegetation and animals, and how the system works to protect the environment. It’s also a way for students to see how local plants and grasses can be integrated into construction projects.”

“We are very much looking forward to the opportunity to start tours with students and parents,” DeMarco said. “In the interim, we are taking photos and sharing them with the community to keep them abreast of the progress that is being made. As the interior walls of the flexible learning spaces start going up, stakeholders are starting to visualize what the school will look like and excitement is building.”

In the spring of 2020, the students and teachers will start to use the almost completed new West Point Elementary School. The students who were once watching the construction from the outside will now experience their new 21st Century Education Building from the inside.

They are proud to know they helped create their new school. If this experience sparked an interest in a STEAM career, they can further explore it in their new school that is a STEAM teaching tool.

# Environmental program grows future sustainability leaders

By Marti Sedgwick  
USACE, Headquarters

The Environmental Compliance and Sustainability Career Assignment Program is a great way for the U.S. Army Corps of Engineers to grow the next generation of environmental leaders and attract the next generation of talent.

Those selected for the program are welcomed to USACE Headquarters to work daily with the senior policy advisor for energy and environmental compliance and the national sustainability program manager, who serve as the program sponsors. Participants will rotate through the Operations and Regulatory and Environmental divisions.

The program provides a career broadening experience with a variety of work assignments and opportunities.

ECS-CAPs participate in numerous internal and external meetings, task forces and special projects while becoming a valuable part of the environmental compliance and sustainability team.

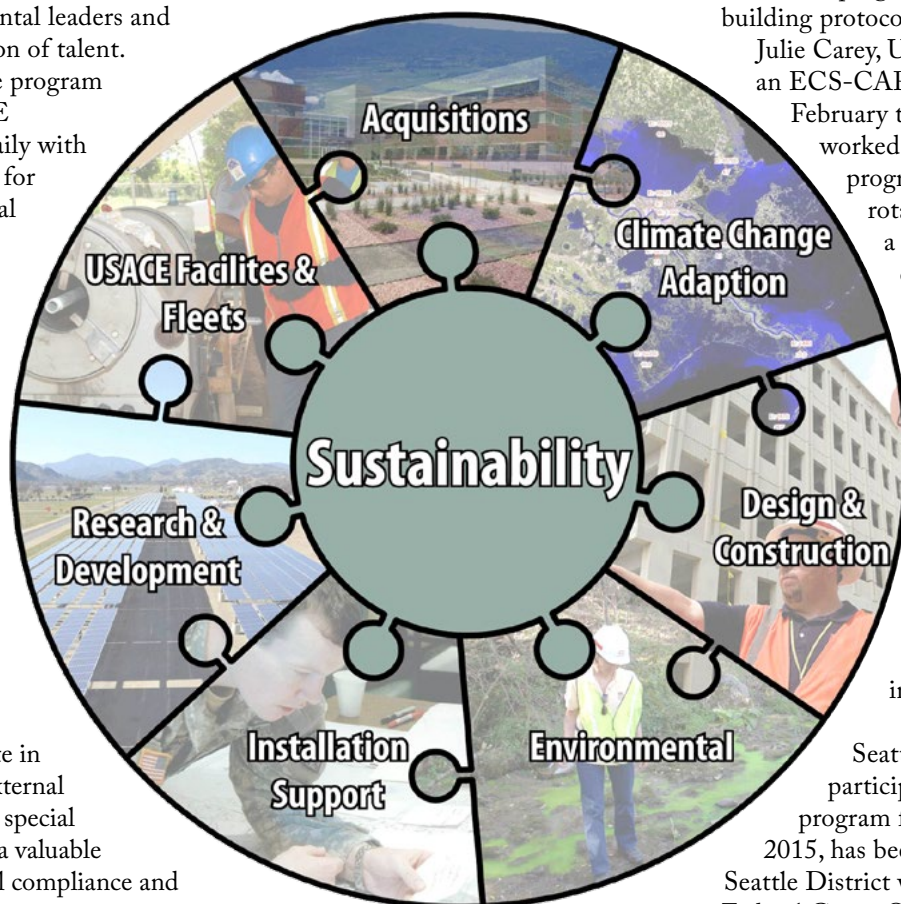
Past ECS-CAP participants have presented briefings to the Assistant Secretary of the Army for Civil Works, attended meetings at the White House with the Council on Environmental Quality, and represented USACE on interagency working groups.

Ken Duncan from USACE, Portland District is currently working at USACE Headquarters under the ECS-CAP program.

Duncan has rotated through the Environmental Division, providing significant contributions to USACE sustainability metrics and is now working in the Operations and Regulatory Division to further broaden his sustainability skillsets.

“The ECS-CAP program is a great

opportunity to contribute to USACE’s sustainability program and learn how USACE Headquarters approaches program management,” said Duncan. “I hope to bring that headquarters perspective back to Portland District to help strengthen our sustainability program there.”



*Sustainability is an umbrella concept that encompasses energy, climate change and the environment to ensure today’s actions do not negatively impact tomorrow. (File image)*

In September 2019, the program sponsors issued the eighth annual call for nominations from each USACE major subordinate command.

Two ECS-CAP positions will be filled from the nominees with assignments scheduled to run from January to June 2020 and from July to December 2020.

The chosen program participants will have the opportunity to work with the sponsors, as well as other staffers throughout USACE Headquarters, the Pentagon, and other federal agencies, providing networking and other career

opportunities.

Mike Riegert, USACE, South Atlantic Division, an ECS-CAP participant from March to August 2018, had the opportunity to serve as the senior policy advisor for energy and environmental compliance, drafting operational policy and developing sustainable federal building protocols.

Julie Carey, USACE, Tulsa District, an ECS-CAP participant from February to July 2019, had never worked in the sustainability program until her ECS-CAP rotation and has become a subject matter expert on sustainable federal building assessments and sustainability metrics.

The ECS-CAP program not only benefits USACE, but the individual participants who go back to their organizations to do great things or move on to “GREENER” (pun intended) pastures.

Brian Wilson, USACE, Seattle District, who participated in the ECS-CAP program from February to July 2015, has been instrumental in the Seattle District winning prestigious Federal Green Challenge Awards two years in a row.

Francisco Salazar, USACE, Albuquerque District, who participated in the ECS-CAP program from February to August 2017, championed the successful pilot study of the USACE Sustainability Acquisition Clause Selection Tool and ESPC ENABLE project for eight civil works dam sites, which will produce savings of more than \$1.5 million over the contract term.

ECS-CAP participants become a valuable part of the environmental compliance and sustainability team, while assisting the organization in growing the next generation of environmental leaders and attracting the next generation of talent.



## Online learning, continuing education portal offers CP-18 professional development courses

By Karla Langland  
USACE, Headquarters

Do you have continuing education needs?

Do you have state licensing requirements you must meet periodically?

Are you just interested in further developing yourself professionally but want to do it on your time when it's convenient for you?

Career Program-18 offers online learning and education for all Department of the Army civilians assigned to the career field, including engineers and scientists (construction). There are over 2,500 courses,

webinars and training packages designed to help individuals meet their CP-18 professional development needs.

Each course is approximately one to four hours of continuing education units.

Individuals wishing to be registered or licensed in a particular state can review their requirements on the website and take online training to meet those requirements.

The site is not CAC-enabled so individuals can access it at any time and on any computer.

Because this training is being offered to more than 27,000 CP-18 civilians, there is a cap on the number of hours an

individual can enroll each fiscal year. While the cap changes based on current usage, generally it is 10 hours per year.

However, if an individual has a specific training requirement that requires more than 10 hours, adjustments can be made to access additional training courses.

For a list of courses available, visit the website at: <https://www.enterprisetraining.com/armyengsci/index.php>.

Individuals needing to sign up for an account, please email: [CP18ProponencyTeam@usace.army.mil](mailto:CP18ProponencyTeam@usace.army.mil).

## Training offered for CP-18 environmental professionals

By Clifford Jordan  
USACE, Headquarters

There are many useful career development information resources available to employees with the U.S. Army Corps of Engineers in Career Program-18 who perform environmental work.

A good place to start is the Army Career Tracker. Career maps that describe career development plans are published on ACT at <https://actnow.army.mil> which:

- Depict a competency matrix for employee development from intern to GS-15
- Are distinguished by occupational series
- Provide guidance and references for functional, technical and leadership competencies
- Provide requirements and recommendations for professional development
- Provide recommended education and university training and career opportunities (experience)
- Provide recommended licensure or certification and recommended associations
- Provide references and links

Additional information and online learning resources available at:

- USACE Employee Development: <https://team.usace.army.mil/sites/HQ/PDT/devassign/default.aspx>
- My Biz: <https://compo.dcpds.cpmos.osd.mil>.
- Army Centralized Training Education and Development System Catalog: <https://actnow.army.mil/communities/community/civilian-ctld>



*(Photo courtesy of USACE, Mobile District)*

*With a lifespan of up to 50 years, the new water lines can support the waterway and its millions of visitors for years to come.*

## Energy-efficient upgrades improve Tennessee waterway

**By Mathew Liptak**  
U.S. Army Environmental Command

The many millions of visitors who have explored the Tennessee-Tombigbee Waterway over the years, for camping and other outdoor recreational opportunities, may find they have an even more beneficial experience if they return. The navigation project of the U.S. Army Corps of Engineers is now more energy-efficient and has improved water lines, thanks to the work that's been done.

Winding its way through rural Alabama and Mississippi, the waterway includes 234 miles of navigable river projects with 10 locks, two visitor centers, seven campgrounds and multiple day-use areas, receiving more than 1.5 million visitors annually.

That many people means a lot of thirsty campers, boaters and other outdoor enthusiasts who require water for consumption and other critical needs. It may not be surprising to learn that TTWW visitors consumed close to 16 million gallons of water in fiscal 2016, making it one of USACE's biggest consumers of potable water.

"Water sustainability projects have become a logical extension of the Navigation and Recreation missions," said Cesar Yabor, chief of public affairs, USACE, Mobile District. "Through analysis of the Tenn-Tom Waterway's water consumption, the sustainability team identified an opportunity to reduce long-term consumption."

Because of the high water consumption, TTWW requires more than a few water lines, many of them buried in the ground. Tree roots inevitably caused damage to the prior lines causing them to leak. Much of the water line infrastructure had been constructed from material that was vulnerable to corrosion, freezing and water pressure fluctuations. In addition, the lines had been installed at uneven depths and were in hard-to-reach locations. The loss in revenue combined with nonfunctioning water lines and yearly budget constraints, made finding a better, long-term sustainable solution critical to the functioning of the TTWW.

To remedy the situation, four sustainability packages were initiated to fund the work at a cost of \$355,000. By April 2017, an additional \$95,169 was provided by other sources to complete the new water lines in a reasonable amount of time. The construction used modern materials for both water lines and fixtures, with a lifespan expected to be up to half a century. Construction took place in the winter months to lessen impacts to both the environment and the public.

By 2017, TTWW had completed upgrades while keeping water conservation in mind. The work was done at 265 sites within four campgrounds. Additional funding was received to complete improvements by the time spring breakers came around.

The consequences of the work have been remarkably positive. With few if any leaks, water use dropped dramatically. In

the third quarter of fiscal 2017 alone, there was a 43% drop in water consumption and a 24% drop in cost. The USACE Mobile District glide path was expected to be exceeded for the first time ever and was the only district in the South Atlantic Division to accomplish this feat. Overall the reduction in cost from fiscal 2016 to 2017 was \$6,427.68.

The TTWW has also achieved success with the Energy Savings Performance Contract, which is an award-winning 20-year commitment with Siemens. The majority of the ESPC is focused on reducing electrical energy use. It has led to the replacement of fluorescent light fixtures containing mercury with more environmentally friendly, long-lasting and efficient light-emitting diode, or LED fixtures.

"The efforts made by the Mobile District's Tenn-Tom Waterway teams have not, and should not, go unnoticed," said Yabor. "Their commitment to maintaining the projects for the best possible benefits of both the public and the environment has resulted in significant improvements. Those efforts have served as a catalyst which has built momentum, not only for the TTWW, but for the wider USACE community."

Several other large Mobile District recreation areas have taken notice of the TTWW's sustainability effort and undertaken similar efforts.

With a lifespan of up to 50 years, the new water lines can support the waterway and its millions of visitors for years to come.

# Far East District project earns gold certification

By Antwaun J. Parrish

USACE, Far East District

Through design and development the U.S. Army Corps of Engineers, Far East District is continuing to make strides in building sustainable projects.

Recently the district earned a Leadership in Energy and Environmental Design Gold Certification by the U.S. Green Building Council and enhanced commissioning for family housing at Camp Walker, South Korea.

LEED certification is a report that contains the results of the technical review of the application submitted for a specified project. LEED certification is an official recognition that a project complies with the requirements prescribed within its rating systems as created and maintained by the U.S. Green Building Council. The certification program is administered by Green Business Certification Inc.

“LEED goes along with the commander’s intent to develop sustainable projects,” said Ho Sung, a district project engineer and LEED-accredited professional. “Gold or silver certification means that our building’s construction design will be eco-friendly, water saving and more energy-efficient.”

Lt. Gen. Todd T. Semonite, USACE commanding general, recently sent out a message asking everyone involved in the design of Army military construction and sustainment, restoration and modernization to document life-cycle cost analysis.

“To remain a world-class organization, we must demonstrate that we are building cost-effective and efficient facilities,” said Semonite.

The LEED certification is based around five areas, including sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.

The Camp Walker housing project began in 2015. Ho said most of the engineers who started the design of this project have left; however, they successfully transferred the information for continuity, which he believes made it easy to take over and complete.

Ho stated that he’s proud of the work they accomplished, though initially they were working towards a different goal.

“This design was based on LEED silver certification,” said Ho. “When we attended the project we got with the contractor

and found out that we needed six more points to achieve gold. To get this kind of certification, the most important thing to note is it takes teamwork.”

The LEED rating system is

the industry’s gold standard for environmentally-sustainable buildings, and the Far East District continues to look at more ways to continue to develop projects within that standard.



(Photo by Simon Kim)

*The Camp Walker housing project garnered the USACE, Far East District a Leadership in Energy and Environmental Design Gold Certification by the U.S. Green Building Council and enhanced commissioning due to its sustainable design and development.*

# Corps supports EPA's cleanup efforts

By Kelly Koontz  
USACE, Headquarters

The U.S. Army Corps of Engineers has been helping the U.S. Environmental Protection Agency clean up some of the nation's most contaminated sites for more than three decades.

EPA first approached USACE in 1982 to request assistance in providing engineering and acquisition support to EPA's Superfund Program.

Thirty-seven years later, the Corps is still working with EPA to help leave a cleaner environment for future generations.

Through a Memorandum of Agreement and Interagency Agreements, EPA has given the Corps over \$9 billion dollars to execute Superfund projects.

Superfund, also known as the Comprehensive Environmental Response, Compensation and Liability Act, was enacted in 1980 and then amended in 1986 by the Superfund Amendments and Reauthorization Act. Congress levied a tax on the chemical and petroleum industries that within the first five years created a fund of \$1.6 billion to clean up abandoned or uncontrolled hazardous waste sites.

EPA's goals for the Superfund Program are to:

- Protect human health and the environment by cleaning up contaminated sites
- Make responsible parties pay for cleanup work

- Involve communities in the process
- Return sites to productive use.

Originally, the majority of the Superfund sites were located in the northeast where early manufacturing and industrial activities took place.

Prior to the 1980s, environmental regulations were nonexistent and companies disposed of hazardous waste without concern for the air, soil, sediment or groundwater. Many companies that created hazardous waste were no longer in business but the contamination left behind still posed a threat to human health and the environment.

As sites in the eastern part of the country are cleaned up, EPA can focus on the mining sites found in the western regions where the legacy of large-scale mining practices presents new challenges. Many of these mines were used to extract gold, uranium and other resources, and EPA is trying to stabilize these mines in order to prevent runoff affecting the water quality in the surrounding area.

EPA is again turning to USACE to help with these new engineering and environmental challenges.

The EPA has 10 regional offices located across the United States with its headquarters located in Washington, D.C.

EPA regions work with the local USACE geographic districts to define the scope and level of effort needed for each Superfund project.

This is accomplished through Interagency Agreements, which EPA sends to USACE districts to provide funding for the project. USACE can provide technical support to EPA or manage a project cradle to grave, including acquisitions.

USACE, on behalf of EPA, can also provide oversight to a responsible party executing their own cleanup to ensure that the private company follows the requirements set out in the Record of Decision.

USACE has been involved with cleaning up thousands of residential properties, mining and industrial sites. Many citizens and communities have a safer place to live and work because of this work.

USACE, working with the EPA, executes Superfund projects that entail some of the most complex, challenging and technologically advanced remediation projects in the world; and run the gamut from \$50,000 to hundreds of millions of dollars and several decades to complete.

For more information on the Superfund Program visit: <https://www.usace.army.mil/Missions/Environmental/Superfund>.



(Photo courtesy of USACE, New England District)

*A dump scow is positioned during remediation efforts to address polychlorinated biphenyls, or PCBs, and heavy metal contamination in sediment at the New Bedford Harbor Superfund Site in Bristol County, Massachusetts.*

*Torry O'Connor (right) and Andrea Gregory calculate the size of archaeological collections as part of USACE's Archaeological Regionalization Program. As members of the Curation Regionalization Team, they determine the extent of archaeological collections that are USACE's responsibility and the level of processing required to bring collections to federal standards.*  
*(Photo courtesy of USACE, St. Louis District)*



# RESCUING HISTORY

## Curation team finds innovative ways to preserve artifacts

**By Matthew Liptak**  
U.S. Army Environmental Command

The U.S. Army Corps of Engineers is responsible for one of the largest archaeological collections in the United States. Unfortunately, because the collections are spread throughout the country, stewardship of these collections has proven to be challenging.

The Curation Regionalization Team has played a critical role in providing increased administrative oversight to the collections and is leading the effort to make sure that all collections are rehabilitated and stored to federal standards.

“The Curation Regionalization Team has been instrumental in creating progress with the regionalization of our collection,” said Jennifer Riordan, director, USACE’s Mandatory Center of Expertise for the Curation and Management of Archaeological Collections. “They have been a catalyst for much-needed change and are playing a vital role in the protection of these significant scientific and educational resources.”

The regionalization team is led by

members of the St. Louis District at the MCX CMAC, which includes archaeologists, collections management specialists and tribal liaisons. However, the process requires close collaboration and input from cultural resources specialists at every USACE district.

Critical coordination between the MCX CMAC, USACE Headquarters, divisions and districts through status reports, webinars, telephonic and email communication is helping achieve compliance with federal laws and regulations in the management of the collections.

The archaeological collections under USACE’s stewardship are held at more than 150 locations across the country, including museums, universities, contracting firms, and other storage locations. The effective management of collections housed at so many locations is not feasible or sustainable on either a financial or an organizational basis.

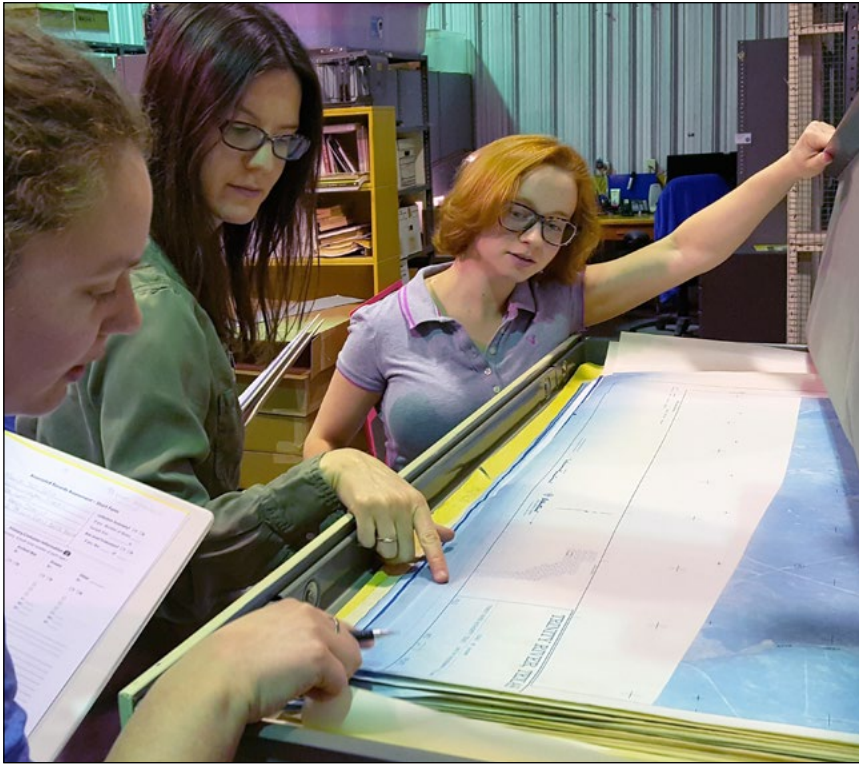
The CRT, working to coalesce the collections into a more manageable number of regional repositories, will allow more efficient oversight and administration

of the collections. Importantly, the collections will be more accessible to researchers and the public, while also being housed in a more cost-effective manner so that resources can be better allocated for preservation and collection management purposes.

A comprehensive overview of USACE collections will be created through the regionalization process. This will help make the artifacts and associated documentation—which have scientific and cultural value—available for both education and research. It will also enable USACE to plan for long-term storage and rehabilitation of the collections.

The process of regionalization requires coordination with Native American tribes to ensure that they have a voice throughout this process because of the artifacts that speak to their heritage. As such, the team has worked collaboratively with division and district tribal liaisons to fulfill USACE’s tribal trust responsibilities through a series of letters, webinars and in-person meetings, as well as government-to-government consultation.

**See HISTORY, page 16**



(Photo courtesy of USACE, St. Louis District)

(From left to right) Megan Schwalenberg, Sharon Knobbe and Molly McMurphy assess the condition of oversized archival maps and other documents. A majority of associated archaeological records have lacked proper attention for decades. Professional archivists on the Cultural Regionalization Team are assisting several districts to assess their collections to ensure the preservation of the necessary collection documentation.

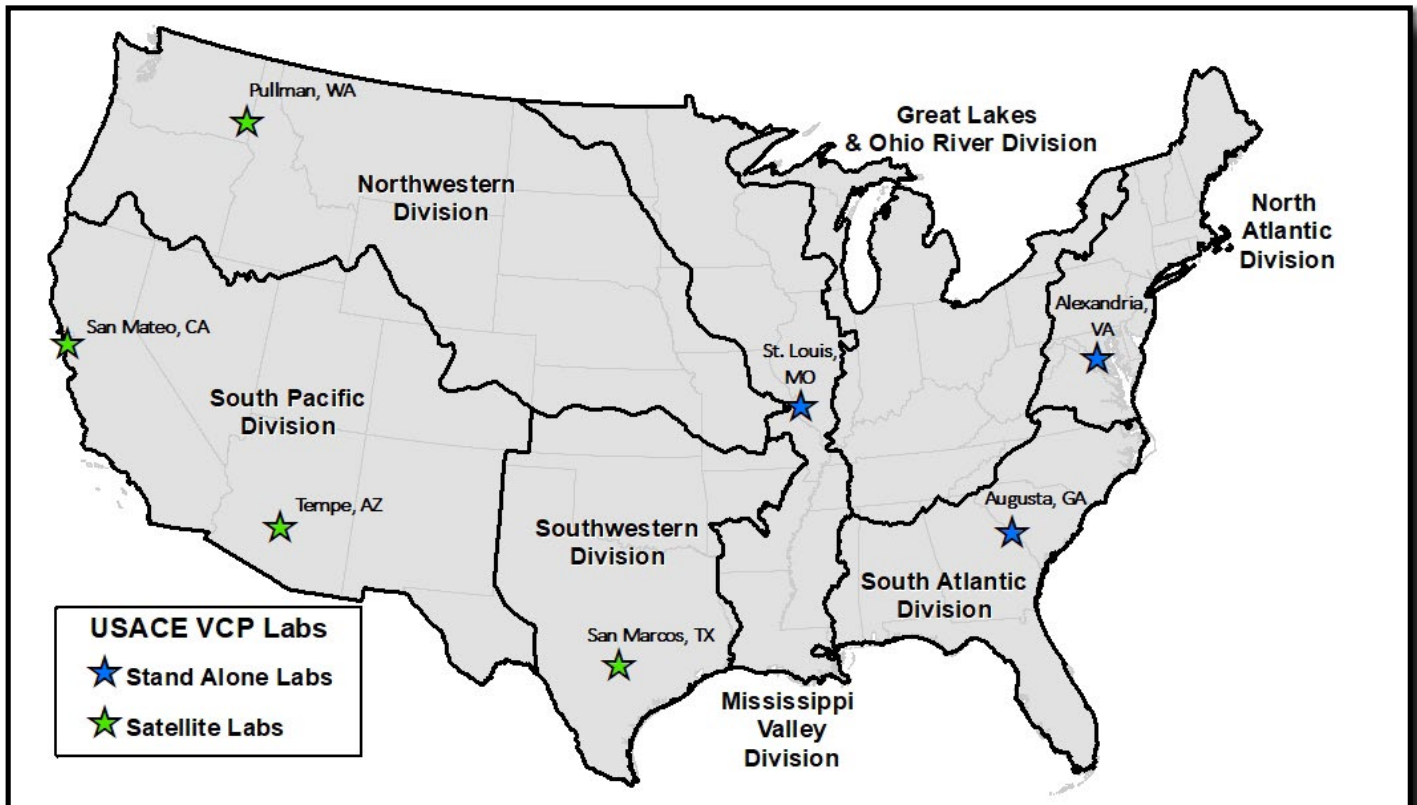
As part of the rehabilitation process, an innovative Veterans Curation Program supports hiring veterans to process and prepare at-risk USACE collections for long-term curation. This program assists disabled and recently separated veterans transitioning to the civilian sector.

For five months, these veterans hone their skills in inventory tracking, document scanning and imaging, records management, high-resolution photography, and cataloging. While playing a vital role in the rehabilitation of the artifacts and associated documentation, they also gain skills that enable them to successfully enter the civilian workforce.

“The Veterans Curation Program has helped more than 90% of more than 600 veteran participants find meaningful employment or continue their education following their military service,” said Alaina Harmon, Veterans Curation Program manager. “Through both assisting veterans transitioning to civilian life and meeting USACE curation requirements, the program is of mutual benefit to the veteran community and USACE.”

In the future, as USACE collections are consolidated, cataloged and made available for research and educational purposes, the benefits of the regionalization process are likely to become even more apparent.

The treasure of culture and history represented in USACE collections will be preserved for future generations to study and enjoy.



As part of the rehabilitation process, an innovative Veterans Curation Program supports hiring veterans to process and prepare at-risk USACE collections for long-term curation.

# Seattle District earns EPA green distinction

By Brian Wilson  
USACE, Seattle District

The U.S. Army Corps of Engineers, Seattle District with full engagement and active participation from the General Services Administration, received the U.S. Environmental Protection Agency's Region 10 Federal Green Challenge Innovation Award for reducing the energy load at the LEED Gold-certified Federal Center South Building 1202 (Oxbow building) that houses the Seattle District office.

The team was recognized for analyzing peak work hours to develop strategies to reduce energy load. The implemented strategies resulted in a 15% reduction of electricity consumption and a 21% reduction in

natural gas consumption.

As with most energy-efficient buildings, it is assumed that building settings are optimal and do not need to be adjusted. However, as a result of the district conducting real-time data collection and managing the sequencing based on current conditions, it was able to better manage energy use and reduce consumption.

This sequence control effectively reduces energy load when employees are not at work, thus reducing energy and gas consumption.

The criteria used to develop these strategies and innovative methods included workforce verification and actual number of employees occupying the building at certain times of the day. By verifying occupancy and

peak working hours, these controls were managed more appropriately to facilitate reduction in energy use during non-peak hours.

Moreover, these sequence controls could further be changed to meet real-time occupancy. This change has led to a significant change in operating conditions, allowing the district and GSA to assist with decreasing workload and energy load based on current conditions vs. arbitrary settings.

This is the second consecutive year the Seattle District has received an EPA Green Challenge Award.

Last year, the district was recognized for their efforts on energy by reducing electricity consumption by 9.76% at the Oxbow building.



*The LEED Gold-certified Federal Center South building is home to USACE Seattle District. (Photo by Marti Sedgwick)*

# South Dakota Guard garners sustainability award

Story & photos by Rita Hess  
U.S. Army Environmental Command

The South Dakota Army National Guard was recently named a runner up for the 2019 Secretary of the Army Environmental Award in the Sustainability – Team/Individual category.

That has not slowed the Sustainability Team, in part because they continue setting loftier goals.

The South Dakota Guard encompasses more than 3,100 Soldiers in 22 communities. At the center of the organization is Camp Rapid, a training resource and home to the Joint Forces Headquarters.

The Sustainability Team, co-located at JFHQ, is charged with maintaining compliance and improving sustainable management throughout the state.

In the past few years, the team

achieved outstanding results, successfully transforming the environmental culture of the Guard and its communities to create a greener, more resilient state for all.

Prior to fiscal 2016, the Guard was not fully engaged in recycling and solid waste diversion goals of at least 50% of non-hazardous solid waste annually, holding steady at 11–17%.

That year, the Environmental Quality Control Committee established a solid waste diversion program, and the Sustainability Team created a massive, hands-on education campaign targeting every SDARNG Soldier, staff member and tenant.

Results were dramatic. Waste diversion rates spiked statewide to 50% the quarter after training, thus meeting mandates, but the team set an even higher goal (61%) and met that!

“Many factors made them

successful,” said Emily Beck, SDARNG environmental conservation and compliance manager.

“For starters, they identified each facility’s risks and conducted on-site Environmental Performance Assessment System audits that introduced waste diversion—a customized recycling roadshow, of sorts,” she said.

The Sustainability Team also introduced positive peer pressure, establishing a ‘Caught in the Act’ incentive to acknowledge effective units and encourage friendly competition. The team helped Guard facilities find local recyclers, which was particularly helpful in rural communities with few vendors.

The team encouraged units to work together as well, such as by opting to drop off recyclable materials to nearby armories or stockpiling materials for regular transport to Camp Rapid.

**See SOUTH DAKOTA, page 19**



*To incorporate recycling into annual training activities, the South Dakota Guard utilized its own transportation units to haul recyclables from the geographically isolated camps back to recyclers in town.*



The efforts clearly paid off. Diversion and disposal rates jumped in two years, nearly achieving the 61% goal for fiscal 2017 and 2018. Diversion of construction and demolition debris now results in the recapture of sheet metal, asphalt shingles, concrete, and more. Concrete barriers from one project were listed on a state auction site, where farmers purchased them for agricultural use.

Soldiers have enjoyed the cultural shift. The team introduced a single-sort recycling collection during the Golden Coyote annual training exercise in fiscal 2017, collecting over 25,000 pounds of recyclable materials from the field in two weeks. They topped that in fiscal 2018 when they collected more than 25 tons. The entire project cost virtually nothing, as local businesses supplied pallets and collection containers.

The team's ongoing inspections and training instill accountability within units. Enhanced spill control and prevention training, for instance, led to a seven-fold increase in spill reporting.

The Sustainability Team is currently revamping the Guard's Qualified Recycling Program to generate additional funds for Morale, Welfare and Recreation. Sales of brass and other metals the past several years generated over \$70,000 to support sustainability initiatives.

The Hazardous Materials Inventory and Pharmacy is yet another achievement. The "pharmacy" lets units share materials rather than dispose of them or purchase new. The team also rewrote the Hazardous Waste Management Plan, tailored to actual operations at specific sites. Keeping all plans for the sustainability program current helps maintain the Guard's outstanding compliance record.

The Sustainability Team achieved its goals without sharp funding increases—instead fostering community outreach, volunteerism and donations. Additionally, their results saved disposal costs and generated recycling revenue.

Members participate in fairs and Earth Day events, as well as work with schools and scout groups. This vibrant education program supports the Guard's ethics of environmental accountability well beyond facility boundaries.

All of the Sustainability Team's undertakings directly support the state's commitment to achieving waste diversion goals and achieving compliance.

The team's continued success is an important reminder that when you accomplish one mission, it may be time to set another.



*The South Dakota Army National Guard sponsored a stage for children's science presentations during an annual Earth Day expo in Rapid City. Presenters on this stage gave children-oriented lessons on things such as climate change, pollinators, and experiments.*

# Defense center announces technology project winners

Story & photos by Troy Darr  
U.S. Army Environmental Command



*Damon Cardenas, program manager, National Defense Center for Energy and Environment, examines a stainless steel alloy plate that has been treated with citric acid passivation and run through a salt fog test at Corpus Christi Army Depot in Texas. Cardenas is employed by the U.S. Army Environmental Command in San Antonio, Texas.*

On Sept. 15, the National Defense Center for Energy and Environment announced the fiscal 2020 technology projects for demonstration/validation.

The NDCEE is a Department of Defense program that addresses its high-priority environmental, safety, occupational health and energy technological challenges.

Innovative technologies are demonstrated and validated at active DOD installations for military application. Proven technologies are transitioned to the services, other federal agencies and to the public.

Implementing technologies to enable the Army to fight and win our nation's wars are in accord with the Assistant Secretary of the Army for Installations, Energy and Environment, the Honorable Alex Beehler, who stated "the Army needs to build a 'technology-enabled' force by 2028."

Awarded demonstrated and validated technology selections are based on mission/readiness, technical quality, transition potential and modernization/improvement.

Examples of technologies currently under investigation include: portable monitoring devices to identify environmental contamination at forward operating bases to protect Soldiers' health and safety; measuring whole body vibration to Soldiers in rotary wing aircraft to aid in developing mitigation strategies; reducing vehicle fuel requirements through fuel cell modifications; and minimizing paratrooper accidents during jumps through jump exit data recording and analysis.

The Deputy Assistant Secretary of the Army (Environment, Safety, and Occupational Health) is designated by the Assistant Secretary of the Army (Installations, Energy and Environment) as the NDCEE DOD lead agent.

The U.S. Army Environmental Command provides NDCEE program management. Transitioned projects will ensure the NDCEE program remains an enabler in accomplishing the DOD mission with an emphasis in "achieving dominant capabilities through innovation and technical excellence."

The following projects were selected to begin in fiscal 2020:

**See NDCEE, page 21**

- Wastewater evaporators as Aqueous Film-Forming Foam Mitigation Strategy at firefighting training sites
- Mobile Per- and Polyfluoroalkyl Substances Removal System to support warfighter aircrafts and carriers
- Ruggedized Automatic Critical Power Transfer Switch: Advanced Medium Mobile Power Source Automatic Transfer Switch
- Agile Power Extender for Remote Operations: Power-Extender Grid Source
- Improved Bucking Bar to maximize worker performance and health
- Remote Emergency Generator Monitoring
- Charging-capable Li-ion Autonomous Safe Storage Interservice Container
- Compact High Density Tactical Energy Storage

The next call for NDCEE project proposals is March 2020.

For additional information on the NDCEE or on how to submit a nomination package, please visit the website: [www.denix.osd.mil/NDCEE](http://www.denix.osd.mil/NDCEE).



*Adrian Alvarado passivates stainless steel alloy plates using a citric acid bath at Corpus Christi Army Depot in Texas as part of an NDCEE project to validate a more environmentally friendly process for increasing corrosion resistance for metals used in Army weapons systems. The citric acid passivation project was funded by the NDCEE in 2018 and completed in 2019.*

# MAKING EACH ACRE COUNT!

## Guard balances natural resources, culture to ensure mission readiness

Story and photos by Rita Hess  
U.S. Army Environmental Command

With training land at a premium, every acre matters. Such is the case for the Hawaii Army National Guard.

Spanning the Hawaiian Islands, the Guard manages 14 installations encompassing nearly 1,300 acres. Two of its largest installations are the Keaukaha Military Reservation at 504 acres and Fort Ruger at 325 acres.

Fort Ruger is located within the iconic Diamond Head Crater, which is registered as a National Monument and Military Historic District.

Balancing the rich culture of the islands with the Guard's mission and readiness is critical and serves as the primary focus

of its cultural resources management program. Rather than simply preserving artifacts from the past, cultural preservation in Hawaii is also a matter of preserving the *aina* (land) and natural resources tied to its culture.

The efforts of the cultural resources management staff garnered a 2019 Secretary of the Army environmental award for cultural resources management in the small installation category.

"The greatest threat to cultural sites is invasive forest species, which overgrow the areas and make them inaccessible," said Craig Blaisdell, natural resources supervisor.

"Here, degradation of native forests is in itself a degradation of Hawaiian cultural values and resources," he said. "Invasive

species are also a great threat to readiness, making training spaces impenetrable. Managing them and restoring our native forests are objectives we must handle responsibly and respectfully."

Located on the east side of Hawaii Island, the Keaukaha Military Reservation contains some of the most endangered lowland wet forest ecosystems in the world, including the Hawaiian hoary bat and the Hawaiian hawk, as well as the culturally significant native *ohia lehua* tree.

Like many locations, the military reservation struggles with declining native species and aggressive invasive plants that rapidly change the forest ecosystem.

**See HAWAII GUARD, page 23**



*Staff from the Department of Land and Natural Resources, Division of State Parks, and the Hawaii Army National Guard survey historic resources in and around Diamond Head Crater, such as this World War II-era Battery Harlow data transmission room.*

Preservation of its native forest affects Soldier access and ecological stability.

Additionally, the forest is itself a cultural resource, deeply tied to the traditions and heritage of native Hawaiians. Thus, the Guard is helping eradicate invasive species on Keaukaha, and the University of Hawaii at Hilo helps, too, with a focused CRM component.

In a collaborative agreement, the installation initiated Liko na pilina, which means “growing new partnerships or relationships” in the Hawaiian language.

Students from a local charter school visit the training site to work on research projects in the classroom, lab and field.

In the field, the students follow Hawaiian cultural protocols, such as oli, a chant requesting permission to enter the forest to observe and collect data. During field excursions, they sit quietly and kilo (reflect) on their observations and the significance of their learning. From beginning to end, the program immerses the students in the culture and language, while incorporating rigorous scientific training.

At a year-end event, they present their findings, speaking only Hawaiian.

The university contributes thousands of hours to students, providing opportunities for mentorship that continue through high school and college.

The Liko na pilina project represents a tremendous investment in community outreach and education, as well as integration of natural and cultural resources management, which benefits the Guard.

The CRM program helped build relationships with property managers and stakeholders for a project at Diamond Head Crater that involved the demolition of several historic buildings.

The disposal of unoccupied and unusable buildings benefited the Guard as well as the Division of State Parks by transferring seven acres of land for future use by visitors to Diamond Head State Park.

The CRM program established a memorandum of agreement with the State Historic Preservation Division, DLNR-DSP, and the Office of Hawaiian Affairs to mitigate for the demolition of two Cold War-era buildings inside Diamond Head Crater.

Successful resolution required constant communication and coordination between the Guard and DLNR-DSP, which resulted in creative mitigation and cost savings.

Relationships with stakeholders and regulators demonstrated the CRM program’s transparency and willingness to pursue the spirit, rather than the letter, of compliance laws.

Through ongoing coordination, mitigation measures included Historic American Building Survey documentation of the buildings, integration of Cold War-era history into the park’s audio tour for visitors to Diamond Head, in-house monitoring of ground disturbing work and a joint effort to expand the 1984 Historic District Nomination Form to be more inclusive of all military resources within Diamond Head Crater. The mitigation efforts were carried out by in-house guard and DLNR-DSP’s CRM staff, saving thousands of dollars.

The CRM program hopes to continue integrating its natural resources stewardship goals with its cultural resources management program through partnerships and outreach, communicating early and often with stakeholders and regulators to ensure mission readiness success.



*A Ka 'Umeke Ka'eo student places litter bags out in the field to monitor leaf litter decomposition as part of the Liko na pilina project activities.*

# Preserving the Mission, Preserving the Heritage

## Cultural resources manager recognized with environmental award

Story & photo by Rita Hess  
U.S. Army Environmental Command

As cultural resources manager for the Texas Army National Guard, Kristen Mt. Joy preserves both the training mission and the land's heritage.

Her work is scattered across nearly 269,000 square miles and all kinds of environments—urban communities, floodplains, deserts, aquatic habitats and everything in between—and the cultural resources include prehistoric and historic archaeological sites, documents, buildings and much more.

So how does one person handle it?

Pretty darn well, it seems. Mt. Joy's achievements now include a runner up title for the 2019 Secretary of the Army Environmental Award in the Cultural Resources Management (Team/Individual) category.

Across the Texas Guard's five training sites, she manages a 221-acre district on the National Register of Historic Places; a missile silo and radar site; 52 buildings eligible for listing; six traditional cultural properties; and, more than 700 archaeological sites.

"Mt. Joy's cultural resources management program is a perfect blend of technology, partnerships and tribal

involvement," said Col. Les Davis, director of the Construction Facilities Management Office. "To safeguard the resources, she developed a protocol for conducting Traditional Cultural Property surveys that curtail training impacts, with a goal of completing all such surveys at Guard sites within five years. These surveys are unique because tribal nations helped create the scopes of work rather than archaeologists, helping implement an appropriate cultural landscape approach in management."

Introducing these surveys helped enhance the Guard's relationships with consulting tribes, such as the one at Camp Swift with four tribes participating.

Mt. Joy received grant funds to monitor TCP sites quarterly using unmanned aerial systems that survey large areas quickly, enabling a prompt return to missions.

Always cost-conscious, she works as a partnering organization for universities, researchers and other agencies applying for grants when possible and has streamlined processes with the State Historic Preservation Office to simplify cultural resources management compliance.

This year, Mt. Joy helped establish a 90-day permitting process for renovation to occur within 14 days, indicative of her preparation and communication efforts.

The CRM program manages Camp

Mabry's 220-acre historic district, and as a State Antiquities Landmark, it requires special state permitting for every rehabilitation, modification, demolition and new construction project. Mt. Joy's oversight—from early funding requests to design to construction—is essential, as the Guard risks a hefty fine for permit violations.

Her forward thinking allows her to obtain permits in advance of construction kick-off, if feasible, allowing concerns or issues to be addressed without a delay in project execution.

Sometimes, her efforts seem backwards, as happened when Mt. Joy worked to remove a property with a historic district designation. The former aircraft assembly plant was recommended eligible prior to the Texas Guard taking over its management. A portion of it was sold to private owners, who demolished critically significant buildings.

Still, other buildings had to be treated as contributing elements. Negotiating with the State Historic Preservation Office, she sought and gained approval to remove the designation, which allowed demolition of several deteriorated buildings.

Integral in developing training resources, Mt. Joy worked on a team tasked to quickly prepare an environmental assessment for a proposed drop zone, a normally lengthy process.

In this case, the location included three archaeological sites of indeterminate eligibility for protection and a protected site. Mt. Joy arranged for priority testing in those areas and consulted immediately with SHPO and tribal representatives, after which she proposed mitigation that allowed the drop zone to proceed with no adverse effects or time delays.

Mt. Joy shares her expertise and experience with professional organizations as well as the community, enhancing cultural awareness and education through hosting information booths, giving presentations and ensuring media feature special projects at Camp Mabry.

She takes part in Texas history events and is a proponent of science, technology, engineering and math education for children of Guard Soldiers and staff.

As a cultural resources manager, Mt. Joy is one of a kind—one person somehow doing the work of many to preserve the Guard's mission and history.



Texas Guard Cultural Resources Manager, Kristen Mt. Joy (fourth from right) lectures local community historical and beautification groups on various ways to protect and enhance archaeological sites for potential public visitation.



*Aerial view of Colebrook River Lake on the Farmington River in Colebrook, Connecticut. (Photo courtesy of USACE, New England District)*

## Colebrook River Lake Dam undergoes repair

# Project aims to prevent damages, save millions

**By Timothy J. Dugan**  
USACE, New England District

Repairs to the hydraulic cylinders and position indicator rods at the Colebrook River Lake Dam on the West Branch of the Farmington River in Colebrook, Connecticut, will be completed under the terms of a \$1.145 million contract issued recently by the U.S. Army Corps of Engineers, New England District.

Work will be accomplished by Marine Diving Solutions, LLC of Aurora, Colorado.

According to district officials, construction and repair work will extend over a two- to three-month period in the fall of 2019, and is not expected to greatly impact downstream water levels, activities

or fish and wildlife habitat.

Prior to this work, the Hartford Metropolitan District will draw down the West Branch Reservoir behind Goodwin Dam to about 580 feet over a period of about 30-35 days. It will remain at this level until construction work is completed and then slowly be raised to normal levels. The pool level behind the Colebrook Dam will remain at normal levels.

This drawdown will prevent hydropower production at Goodwin Dam during this period, but water will continue to be released downstream for water activities and fish and wildlife habitat on the West Branch of the Farmington River.

Once work starts at Colebrook Dam the district will continue to operate two of three sets of gates as needed. One set of gates

will be closed by dropping a 9,500-pound bulkhead in front of the gates so work can be done. Each set of gates will undergo this same closure operation to make repairs.

The Hartford Metropolitan District Commission currently is removing its turbines at Colebrook Dam and performing other work there. This work will be completed before construction and repair work starts.

Colebrook River Lake Dam on the West Branch of the Farmington River was completed in 1969 at a cost of \$14.3 million.

At capacity, the 1,300-foot-long, 223-foot-high dam can impound a lake of 1,185 acres containing 16.56 billion gallons of water. To date, the project has prevented damages of \$92.7 million.

# District team investigates formerly used defense site

By Ann Marie R. Harvie  
USACE, New England District

Members of the U.S. Army Corps of Engineers, New England District team traveled to Jamestown, Rhode Island, to meet invited guests for a short boat ride to Gould Island.

The district team has been tasked with performing investigations and studies in support of the environmental restoration of a portion of the island that was once used by the U.S. Navy.

About 35 people participated in the tour on Aug. 15. Guests included members of the South Gould Island Restoration Advisory Board (RAB), federal, state and local officials as well as members of the local media.

According to Tony Silva, district project manager, the community co-chair of the RAB requested the district's support in conducting the tour to provide guests with a better understanding of the current environment and physical conditions of the island.

"The project is an environmental restoration project that is being consulted by the Corps of Engineers under the Formerly Used Defense Site component of the Department of Defense's Defense Environmental Restoration Program," said Silva. "A key aspect of the tour was to identify areas of the island currently under evaluation as part of the ongoing Corps-led environmental restoration program, structures/physical hazards currently eligible for removal under the Corps' Building Demolition and Debris Removal program and structures/physical hazards that are not eligible for removal under

the Corps' congressionally-mandated authority."

Silva added that the scope of work would include a background file review, remedial investigation and field activities that are currently in progress.

"Work will include developing a remedial investigation report that presents the findings of the investigation and evaluates risk levels," said Silva. "There will also be a feasibility study report identifying potential environmental remedies, a proposed plan identifying the selected remedy and a decision document formalizing the proposed solution, all with an objective of achieving site closure under the FUDS program."

Used by the U.S. Navy from 1920 to 1973, the southern portion of Gould Island has been designated as a FUDS location.

The authority to conduct a FUDS investigation comes from the Defense Environmental Restoration Program, a congressionally-directed program that emphasizes the identification, investigation and cleanup of hazardous and toxic waste; unexploded ordnance; buildings and other structures and debris at current and former military facilities.

Gould Island was purchased in 1918 for use as a naval torpedo testing site and housed numerous facilities and structures, including seaplane ramps and aircraft hangars, a torpedo assembly building, warhead/materials storage bunkers, a boiler house, incinerator, maintenance facility, firehouse, and associated infrastructure to support operations.

"This southern portion of the island was transferred from the U.S. Navy to the state

of Rhode Island after 1973 and is currently used as a bird sanctuary," he said.

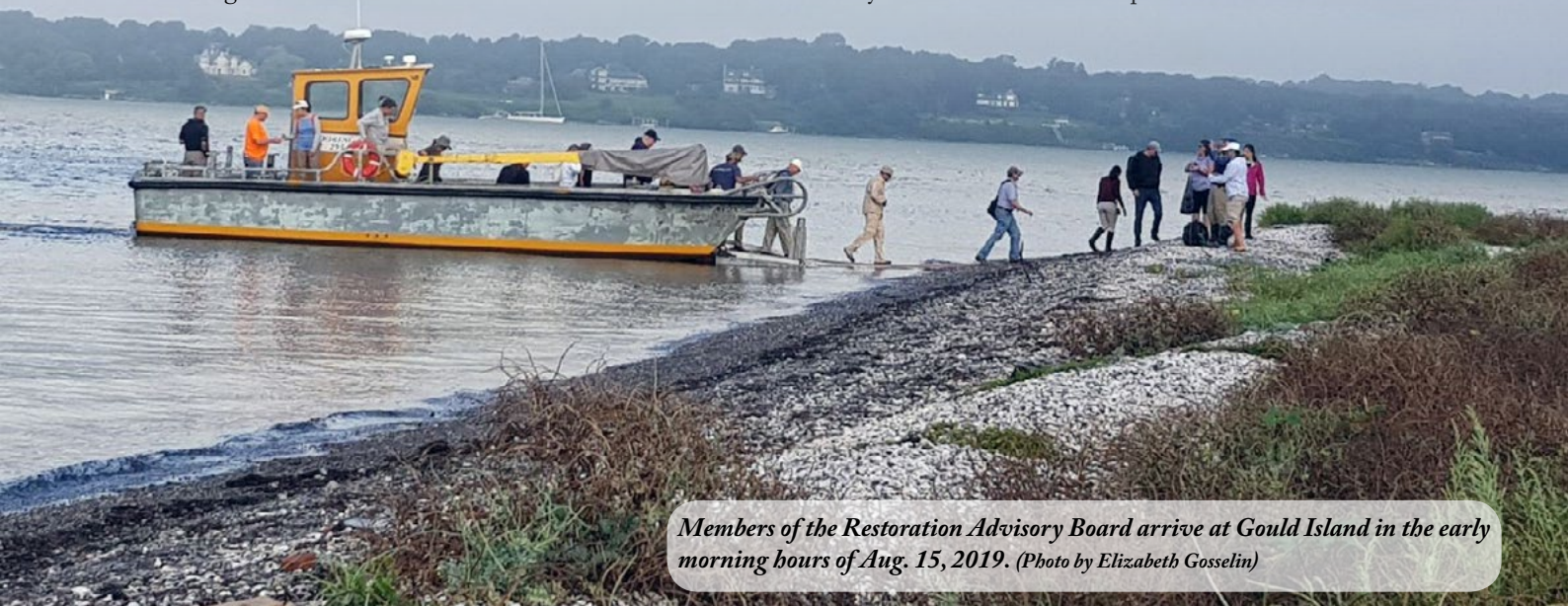
Of the approximately 56 acres which comprise Gould Island, the U.S. Navy's Naval Education and Training Center still has jurisdiction over the 16.6 acres of land on the north end of the island. This area will not be investigated and is not eligible for investigation under the DERP/FUDS program.

The Navy exceded approximately 39 acres of the island to the General Services Administration in 1972. Of these 39 acres, approximately 16.9 acres were transferred to the Department of Interior, Bureau of Outdoor Recreation. That land was then transferred to the state in 1975.

GSA conveyed the remaining land, 22.25 acres to the state in 1989. The 39.15 acres of property the state currently owns is managed by the Rhode Island Fish and Wildlife Department as a wildlife habitat and bird sanctuary. The island is heavily overgrown by trees and brush.

"We will be working to investigate this former naval facility on Gould Island with minimal disruption toward the local habitat," said Silva. "Due to the potential impacts the project may have on this community, we have established a Restoration Advisory Board. This board will serve as a point of contact between the community and the Corps of Engineers, allowing us to identify and address community concerns and needs as they arise."

Members of the New England District team who accompanied Silva on the tour were Gary Morin, FUDS program manager and Beth Gosselin, the district's chief of public affairs.



*Members of the Restoration Advisory Board arrive at Gould Island in the early morning hours of Aug. 15, 2019. (Photo by Elizabeth Gosselin)*



# Projects stop campground water leaks

By Ken Duncan  
USACE, Headquarters

At West Point Lake, the U.S. Army Corps of Engineers had a problem at the Amity and Whitetail Ridge campgrounds — water leaks!

Located along the Chattahoochee River on the Alabama-Georgia state line, West Point Lake is surrounded by deep forests and rolling hills. It features a wide variety of recreational activities, including campgrounds and day use parks with 35-year-old water piping that frequently leaked.

“Due to breaks in the old water lines we were having to close portions of our campgrounds, canceling reservations,” said Jay Jamison, USACE operations project manager for West Point Lake. “Our visitors were generally understanding but it was very inconvenient for them.”

It was also expensive. Leaks in the old system led to high and unpredictable water bills. Also, maintenance contractor staff had to stop regularly scheduled maintenance to do emergency repairs and replace water lines. The additional costs were estimated at over \$5,000 per year.

Last year, USACE completed a \$264,000 water line replacement project. The design was an improvement on the original. With strategically placed valves allowing for small segments of the park to be turned off, the entire campground water system didn't need to be shut down when a break occurred. This completed project will enable the campgrounds to stay open for visitors, reduce water bills and save significant time attempting repairs on old water lines.

“The new lines have provided a clean and dependable water source for our visitors,” said Jamison.

The water line work is part of a larger effort throughout USACE to modernize aging drinking water infrastructure.

In 2018, USACE successfully executed 15 water line replacement projects at a cost of \$2.6 million, and is expected to complete 22 water line replacement projects in 2019 with a \$2.9 million investment.

These water line projects are expected to save approximately \$800,000 in maintenance and water bills per year, over 23 million gallons in drinking water lost to leaks, and improve the visitors' experience at USACE parks and lakes.



*Contractors install a new water line at Whitetail Ridge Campground on the western shore of West Point Lake along the Alabama-Georgia state line. (Photo courtesy of West Point Project)*

# New England District breaks ground on new FDA facility

By Ann Marie R. Harvie  
USACE, New England District

When the Food and Drug Administration needed a new facility to house its new lab and office space, they called the U.S. Army Corps of Engineers, New England District and requested the agency build the facility.

Col. William Conde, district commander, and New England District team members joined FDA representatives for a groundbreaking ceremony June 20 at the Winchester Engineering and Analytical Center in Winchester, Massachusetts.

In his remarks, Conde reminded the audience that the New England District has had a good relationship with the agency in the past, saying that the Corps was involved with the Atomic Energy Commission in its work back in 1951, prior to the FDA using

the building for its labs.

“It’s only fitting that we’re back here, almost 70 years later through an interagency agreement, to build your new center,” he said.

According to the public notice issued July 31, 2017, the \$54.3 million project involves the construction of a new building for the FDA-WEAC of approximately 75,000 square feet and demolition of the current, 60-year-old building which no longer meets the FDA-WEAC standards for size, configuration and amenities.

The old building has outdated electrical and mechanical systems and has reached its size and capacity for the technical equipment needed for the facility to perform its analytical work.

“The project includes the design and construction of the new center,” said Conde. “The construction contract was awarded to Whiting-Turner

Contracting Company on July 31, 2018. The designer of record is ZGF Architects and Affiliated Engineers, Inc.”

Conde said the notice to proceed was issued on Aug. 24, 2018, and the project is moving along.

The new facility will be designed and constructed in accordance with the 2015 International Building Code and the National Institute of Health Design Requirements manual. The contract duration will be three years.

Conde thanked the partners who planned, organized and executed design, and planned construction of the project.

“Your combined efforts will bring this project from the initial concept to the drawing board, making it a physical reality of concrete and steel on this construction site,” he said.



(Photo by Brian D. Murphy)

Col. William Conde and USACE New England District team members joined Food and Drug Administration representatives for a groundbreaking ceremony June 20, 2019, at the Winchester Engineering and Analytical Center in Winchester, Massachusetts.

# Rebuilt terminal showcases Army's commitment to renewable energy

By Mathew Liptak  
U.S. Army Environmental Command

The U.S. Army Caven Point Marine Terminal in Jersey City, New Jersey, has rebounded from Hurricane Sandy and come out of the rebuild more environmentally friendly than ever before.

The terminal is a U.S. Army Corps of Engineers facility which provides support for USACE's navigation mission, hydrographic surveying and construction activities, along with housing a training center. It now contains three sources for renewable energy as well as a protective hardscape that covers much of the grounds.

Caven Point borders environmentally sensitive areas, including both managed and disturbed wetlands.

The salty estuary waters of the Hudson River have been consigned for promoting the established wildlife and its migration, as well as the fish in the river. Recreation is also a considered use for the waters off the point.

"As we continue to move toward a more environmentally sustainable future, the Caven Point Marine Terminal renewable energy components are integral to meeting those environmental goals," said Tom Creamer, chief of operations, USACE, New York District.

"While sustaining its mission of maintaining the New York and New Jersey Harbor, Caven Point Marine Terminal is instrumental in the development of Marine base practitioners and other key missions for USACE both home and abroad."

The site of Caven Point Marine Terminal comprises six acres on a 23-acre island on the western shore of New York Bay. The terminal was constructed in the late 1940s using dredged material from nearby land.

When Superstorm Sandy hit in October 2012, many structures and buildings were heavily damaged.

This natural disaster turned out to be

an opportunity to build a better facility.

The new main building includes fabrication shops, a warehouse, both soil and water laboratories, as well as an office space. Perhaps the biggest highlight of the rebuild is that it now contains three sources of renewable energy on its roof.

These new points of sustainable

*Perhaps the biggest highlight of the rebuild is that it now contains three sources of renewable energy on its roof.*

energy include four wind turbines that generate electricity throughout the day, a photovoltaic array that captures sunlight, and four solar collectors that help with heating needs. These additions reduce energy consumption, which both saves money and helps the environment.

This win-win scenario is expected to continue as workers learn to refine their use of the energy features.

The four vertical helical-blade wind turbines convert wind energy to electricity, relieving some of the utility needs of the facility. Together, the turbines produce 1 kiloWatt (kW) of energy in moderate winds, totaling 24 kW hours during a full day of use. An estimate suggests that in the first year of operation the turbine system produced 4,320 kW of energy and a reduction in cost of \$575.

Nearby, the photovoltaic array consists of photovoltaic panels that also help in making the terminal a more sustainable facility. This rooftop array can capture up to 240 kW hours of solar energy on a sunny day, producing an estimated 39,600 kW hours of energy in

the first year at a cost savings of \$5,267.

In addition, the four domestic water solar collectors on the roof have captured an estimated 55,276,700 British Thermal Units (BTUs) of energy in the first year, translating to a savings of about \$290.

The collectors are made up of a bank of specially coated vacuum tubes which collect thermal energy from the sun. This is then transferred to a domestic water tank. The heated water inside is then used for the facility.

A steel-reinforced hardscape on the eastern portion of the facility—bounded by the waterfront on three sides totaling 88,000 square feet—was constructed to protect the site as part of brownfield remediation.

The hardscape protects the facility from metal-contaminated soil in compliance with state regulations. This impermeable layer ultimately protects human health by limiting surface water infiltration. Prior to the hardscape being built, old underground storage tanks were removed.


"Caven Point Marine Terminal's renewable energy features reduce electrical and chemical energy consumption from local utility sources, thereby reducing greenhouse gas emissions and contributing to the facility's LEED SILVER certification by the U.S. Green Building Council," said Richard Thorsen, chief of USACE, New York District's Physical Support Branch.

LEED certification, or Leadership in Energy & Environmental Design, is verification of a building's 'green' features, allowing for the design, construction, operations and maintenance of resource-efficient, high-performing, cost-effective buildings.

The Army's ever-evolving mission at Caven Point Terminal presents unique challenges to the natural resource managers at the New York Bay, but they meet that challenge daily. Team members work hard on protection, restoration and enhancement projects.



*The new Caven Point Marine Terminal now contains three sources of renewable energy on its roof: four wind turbines that generate electricity throughout the day, a photovoltaic array that captures sunlight, and four solar collectors that help with heating needs. (Photo courtesy of USACE, New York District)*



*The 216,000-square-foot Weed Army Community Hospital at Fort Irwin, California, is the nation's first carbon-neutral medical facility, generating all of its energy from solar power and other renewable energy systems. (File photo)*

# Corps sustainability projects recognized for contributions to environment, nation

**By Jenn Miller**  
USACE, Headquarters

Fostering sustainability is a way of life within the U.S. Army Corps of Engineers. Not only are sustainable practices incorporated into all mission areas, in accordance with USACE's Environmental Operating Principles, but substantial sustainability efforts are recognized across the enterprise each year.

"The USACE Sustainability Awards provide the opportunity to mark our significant contributions in the fields of energy efficiency, sustainable solutions, reduced impacts to the natural environment, and preserving and enhancing our natural resources," said Lara Beasley, USACE Headquarters Environmental Division Interim Chief. "This year's highly competitive process made it challenging for the judges to pick a winner from such stellar nominations, which is exemplary of the great work being done in the field."

The EOPs reinforce USACE's role in, and responsibility for, sustainable use, stewardship and restoration of natural resources.

Introduced in 2002, these guiding principles are integrated across all mission areas. The first guiding principle is to foster

sustainability as a way of life throughout the organization.

"It is always inspiring to see the breadth and depth of great environmental work being done throughout and across civil works and military programs that supports our EOPs," said Beasley. "This year's award recipients serve as testaments of what we can collectively accomplish when integrating the EOPs across mission areas."

Award recipients for the 2019 USACE Sustainability Awards include:

## **Good Neighbor Award**

***Ted Shanks Conservation Area Habitat Restoration and Enhancement Project, USACE, St. Louis District***

The Ted Shanks project is part of USACE's Upper Mississippi River Restoration Program. As a result of strong partnerships and collaborative relationships among partnering agencies, non-governmental organizations, and stakeholders, the project team combined their resources with the Missouri Department of Conservation and U.S. Fish and Wildlife Service to develop a strategy for habitat restoration of the 2,900-acre project area. Comprised of setback levees and other innovative features, the project provides a sustainable strategy to enhance and supplement existing water level

management systems to provide multiple benefits for ecosystem health and flood risk management. This project serves as a model for other ecosystem restoration projects across the nation.

## **Green Dream Team Award**

***Fort Irwin Weed Army Hospital, Los Angeles District and Sacramento District***

The Weed Army Community Hospital at Fort Irwin, California, is the Department of Defense's first Leadership in Energy and Environmental Design-Platinum hospital.

As the nation's first carbon-neutral medical facility, this 216,000-square-foot structure generates all of its energy from solar power and other renewable energy systems. The new 20-bed hospital combines the functions of a hospital and clinics, creating a one-stop facility meeting Fort Irwin's needs for tertiary care, emergency medicine, clinical support activities, and laboratory and pharmacy services.

To support patient recovery and reduce stress, a majority of the facility including all patient rooms, working spaces and guest areas feature abundant natural light and panoramic views of the Tiefert Mountains and surrounding terrain.

**See AWARDS, page 32**

This was a military construction project that included seven energy conservation measures and also included a 1.2 Mega-Watts ground mounted photo-voltaic array that grew to 2.4 MW.

The PV array received an incentive of more than \$1.5 million and a 14.5 year payback. During the day, this array actually pushes power out onto Fort Irwin's local grid, reducing its usage during peak times. The hospital then withdraws this energy at night.

## Green Innovation Award

*Sturgis MH1-A Decommissioning and Dismantlement, USACE, Baltimore District, Galveston District and the Marine Design Center in Philadelphia*

Decommissioning and dismantling of the historic STURGIS vessel, the world's first floating nuclear power plant, was completed in March 2019.

As part of the radiological decommissioning, more than 1.5 million pounds of radioactive waste was safely removed and shipped, and more than 600,000 pounds of lead were recycled.

Additionally, as part of the subsequent shipbreaking, an estimated 5,800 tons of steel and other assorted metal from the ship were recycled. This recycling effort reduced the project's overall environmental impact while the team simultaneously addressed the vessel's remaining low-level radioactive waste in an environmentally conscious and safe way. As a result, the team minimized the volume of waste sent to disposal facilities and reduced the amount of greenhouse gas emissions associated with the production of metal from virgin ore by recycling scrap metal.

## Lean, Clean and Green Award

*Army Family Housing Rock Island Arsenal (LEED for Homes version 4), USACE, Louisville District*

This housing project at Rock Island Arsenal in Illinois recently achieved LEED for Homes Silver Certification.

This project is unique in that the design was performed by the Louisville District's in-house design team, the project was the first to attempt certification in LEED for Homes version 4.

The project included six different floor plans for 33 houses, featuring super-insulated building enclosures, triple-pane windows, whole-house ventilation with energy recovery and water-efficient fixtures

that resulted in significant water and energy utility savings for the Army as well as reduction in the pollution associated with energy usage.

## Sustainability Hero Award

*Matthew Wise, USACE, Europe District*

As the sustainable engineer program manager, Wise is responsible for the oversight and implementation of U.S. and host nation energy and sustainability requirements on all Europe District projects.

As a result of his efforts, three projects in Germany and one project in Romania are LEED Silver certified and 32 other projects in Germany and three in Belgium are on track for LEED Silver certification.

Wise also collaborates with partners in the German government to create clear and detailed scopes of work, and actively engages the German construction community to further develop an understanding of the U.S. energy and sustainability requirements.

The following individuals and teams also received honorable mentions in this year's competition:

## Green Dream Team Award

- Restrooms Replacement Mississippi River Locks 13 and 16, USACE, Rock Island District
- Joint Base Andrews Umbrella Mitigation Bank, USACE, Baltimore District

## Lean, Clean and Green Award

- Conchas Dam Electrical Upgrade to Solar, USACE, Sacramento District and Kansas City District

## Sustainability Hero Award

- Dijana Banjanovic, USACE, Louisville District
- Bill Woodall, USACE, Mobile District
- Kelley Stock, USACE, Sacramento District

## Environmental Operating Principles

*The Environmental Operating Principles reinforce the U.S. Army Corps of Engineers' role in, and responsibility for, sustainable use, stewardship and restoration of natural resources. Introduced in 2002, these guiding principles are integrated across all mission areas.*

1. **Foster sustainability as a way of life throughout the organization.**
2. **Proactively consider environmental consequences of all Corps of Engineers activities and act accordingly.**
3. **Create mutually supporting economic and environmentally sustainable solutions.**
4. **Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps, which may impact human and natural environments.**
5. **Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.**
6. **Leverage scientific, economic and social knowledge to understand the environmental context and effects of Corps of Engineers actions in a collaborative manner.**
7. **Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.**

# Tully Lake park rangers host Junior Rangers Program

Story & photos by Ann Marie R. Harvie  
USACE, New England District



*Grady Vancott shows off the leaves he collected on the nature walk during a Junior Ranger session hosted at Tully Lake, Aug. 9.*

What better way to spend a perfect summer day than breathing the fresh air and experiencing the great outdoors?

That's exactly what 30 children, ages 6-12, did when they visited Tully Lake in Royalston, Massachusetts, to participate in the Junior Ranger Program, Aug. 6 and 9.

According to Jeff Mangum, park manager, the summer park rangers were enthusiastic about the idea of running a junior ranger event and showing kids how wonderful being out in nature can be.

"We hoped the kids would walk away with an appreciation of nature, get out and enjoy it more," said Summer Park Ranger Ashley Casello. "We also hoped to instill some environmental stewardship in them."

When Jamie Paluck heard about the program via Tully's Facebook site, he thought the same thing. He brought his daughters, Haylee and Taylor, to the program.

"We live just down the street, so it was nice to hear about a program like this so close to home," he said. "I wanted my children to learn how to be a ranger and how to take care of the environment."

The children gathered at the recreation area pavilion while the park rangers shared what it was like to serve and discussed how important it was to be good stewards of the environment.

The discussion soon moved on to water safety.

Park Rangers Samantha Hutchins and Tansy Remiszewski demonstrated the proper way to wear a life vest.

Following her demonstration, Hutchinson selected two volunteers, one to try on the vest and another to help make adjustments; ultimately, each child learned the proper way to wear the vest.

Afterward, the junior recruits joined the park rangers for an ice-breaking session.

There, each child introduced themselves and named an animal that started with the first letter of their name. The session led to many giggles and discussions of the wildlife the children chose.

After the introductions, the park rangers took their excited charges on a brief hike through Tully Lake's nature trails, identifying various trees and plants along the way.

**See PARK RANGERS, page 34**



*The newest Tully Lake junior rangers pose for a picture with their mentors following their graduation. Over a dozen children participated in the Junior Ranger Program that was designed to get children outdoors and to introduce them to the concept of environmental stewardship.*

## PARK RANGERS

**continued from page 33**

At the end of the hike, the children received worksheets to record the results of the next event, the Junior Ranger Wildlife Olympics.

They were split into three groups, each rotating through one of four olympic trials: leaping like a snowshoe hare; standing on one leg like a great blue heron; jumping like a bison; and sprinting 25 yards like a pronghorn.

The children recorded their times and distances to share with their parents all the while being encouraged by the rangers and their fellow recruits.

Following the olympic trials, the groups selected leaves and plants they had identified along the way to use for their next activity – leaf rubbing.

After a brief demonstration by Remiszewski, the children went to work.

Some proved more creative with their rubbings, crafting all sorts of colorful scenes and backgrounds to complement the leaves. Others simply concentrated exclusively on the beauty of their selected vegetation and created detailed, suitable for framing, re-creations of their leaves.

The final activity for the action-packed day was a game of animal charades where each child picked a New England animal name out of Hutchins' bag and acted out the animal for the others to guess.

It was one last chance for them to show off their creativity and to expend that last bit of energy.

Most kids got multiple turns before

they returned to the shelter to receive paper ranger hats to color and pledge cards to recite during the graduation ceremony.

Donning their newly colored hats, the children returned to the clearing, recited their pledge from the card and received their junior ranger patches.

Hutchins, Casello and Remiszewski posed with their newly-minted rangers as their parents captured the moment.

"I think it went really well," said

Remiszewski as she watched some of the junior rangers root through their goodie bags.

Many of the parents agreed.

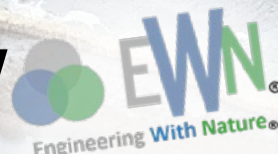
"I've never been to Tully," said Maggie Balins, who brought her granddaughter Mya. "We're outdoors people, so we're always looking to do something outside. It was a wonderful experience for both of us. We're coming back for sure!"



*Mya Oja tries on a life vest as Nieve Morris looks on during the Junior Ranger Program. The summer park ranger team at Tully Lake hosted the second of two sessions, Aug. 6 and 9, to encourage youth to experience outdoors and to become environmental stewards.*

The USACE Philadelphia District and its contractor, Barnegat Bay Dredging Company, construct a dredging and habitat creation project at Great Flats (previously part of Ring Island) near Stone Harbor, New Jersey, in December 2018. Work involved dredging a portion of the federal channel of the New Jersey Intracoastal Waterway and using the material to create habitat on marshland owned by the New Jersey Division of Fish and Wildlife. (Photo by Gary Paul)

# SEDIMENT AS CURRENCY



## Corps' dredged sediment management methods protect infrastructure, provide economic value

By Holly Kuzmitski  
Engineer Research & Development Center

In a continuous cycle, marshes and other coastal systems lose sediment into waterways through processes associated with sea level rise, erosive tides, vessel wakes and extreme storms.

The U.S. Army Corps of Engineers dredges waterways to remove sedimentation, providing safe and reliable navigation channels for the nation.

So how does one keep a greater percentage of the sediment in the same coastal system it comes from and why is it important?

"Sediment moves through a system naturally," said Dr. Katie Brutsche, research geologist at the U.S. Army Engineer Research and Development Center's Coastal and Hydraulics Laboratory, and the Regional Sediment Management program manager.

She explained that when sediment is taken

out of navigation channels and disposed of in offshore dredged material placement sites, combined placement facilities, or upland placement sites, it's taken completely out of the system.

"We're taking it completely, which means there is going to be erosion near where that sediment otherwise would have deposited," she said. "Through the use of RSM and Engineering With Nature concepts, including beneficial use of dredged sediment (BUDS), we strive to keep sediment in the system and maintain the overall sediment budget."

According to Monica Chasten, project manager with USACE, Philadelphia District, for years, dredged sediment was spoken about as waste, something we needed to dispose of.

"We had confined disposal facilities, and then things started evolving and we started to look at sediment differently, saying

'placement' instead of 'disposal,'" she said. "We now regard sediment as currency, and you don't throw currency away, because you can use it; it is valuable."

The dredged sediment researchers and project managers use in projects is clean, or uncontaminated, material.

"The Corps dredges between 200 to 250 million cubic yards of sediment a year from the nation's waterways," said Dr. Todd Bridges, national lead for the EWN initiative. "There are different methods for quantifying how much of this is clean, but the estimates are typically around 90%."

He added that there is an array of potential applications for this clean sediment.

"We can create aquatic features, islands, mudflats, and beaches and dunes," he said. "Using sediment to build beaches and dunes for recreation contributes social value; the material performs engineering functions by attenuating waves and protecting

infrastructure from storm surge, which provides economic value."

"The real challenge for USACE is determining what stands in our way from using 100% of our dredged sediment in beneficial use projects," Bridges added.

"The answer is affordability, affordability, affordability," he said. "Projects have to be affordable, or they will not happen."

Brutsche cites examples of districts integrating BUDS into ongoing navigation and flood risk management projects, a practice she thinks can potentially save districts money in the short and long term.

"The (USACE) Mobile District regularly dredges the Mobile Harbor navigation channel, but through the Water Resources Development Act of 1986, it was restricted to disposing of sediment at an offshore site," she said. "This led to erosion throughout the bay, and nearly tripled the cost of dredging due to the long-haul distance."

In 2012, that changed when it was able to pursue a one-time demonstration of thin-layer placement.

"Along with ERDC and other stakeholders, the Mobile District took the opportunity to monitor the project through data collection and the use of numerical models," Brutsche said. "The results of the monitoring and modeling effort brought a unanimous decision from the team to support in-bay placement as an environmentally acceptable alternative to ocean disposal."

In 2014, WRDA 1986 was reversed and sediment was allowed to be placed in the bay, resulting in an annual cost savings of approximately \$6 million.

Chasten thinks it should be standard business practice to think about how we can incorporate dredged sediment into projects. The Philadelphia District was one of the six coastal districts involved early on in the

RSM program and is now one of the three EWN proving grounds.

"The RSM program was established in 1999. The EWN initiative took off in 2010," she said. "From 2002 to 2012, the Philadelphia District made slow but steady progress towards more sustainable approaches to managing sediment."

Then in October 2012, Superstorm Sandy hit.

"The damage sustained by that event on multiple fronts—the shoaling in the New Jersey Intracoastal Waterway, the impaired beaches—was the impetus for us to advance BUDS practices very quickly," she said. "We know how valuable wetlands are to protecting shorelines, so we focused on multiple wetland restoration and habitat creation projects using NJIWW dredged sediments of varying grain size: Mordecai Island, Avalon and Ring Island."

See **SEDIMENT**, page 37



Chasten explained that the Philadelphia District looked at Mordecai Island and teamed up with stakeholders and ERDC to develop sustainable strategies, thinking about recovery in the short term and resilience in the long term.

“In November 2015, approximately 30,000 cubic yards of sediment was dredged from the NJIWW and placed in a breach area that separated two segments of Mordecai Island,” she said. “We used innovative placement techniques, and in 2016, marsh vegetation was planted to accelerate revegetation and anchor the sediment in place. We also adaptively managed the area by raising the elevation with a small amount of sediment in 2017.”

The Philadelphia District and its partners, including Mordecai Land Trust, the state of New Jersey, U.S. Fish and Wildlife Service and ERDC, continue to monitor the island.

In addition to the protective or economic benefits the restored wetlands offer, habitat was increased for diamond back terrapins and colonial nesting birds, which provides environmental and social benefits.

“Now we’re incorporating the lessons we learned on this and the other two projects into the Seven Mile Island Living Laboratory, a collaborative effort with ERDC, New Jersey Department of Environmental Protection, The Wetlands Institute, and others,” Chasten said. “This is where we take innovation to the next step by managing adaptively and exploring how to further harness natural processes to do most of the work for us. The idea is to refrain from over-engineering projects, so that they’re priced affordably and mimic nature as closely as possible.”

Bridges believes that sparking dialogue about how USACE can get to 100%

BUDS would be a useful process.

“What, besides affordability, is keeping us from getting there?” he said. “Is it technology, engineering practices, policy, habitual business practices, or effective partnerships with others? Of these, partnering with local sponsors and finding ways of cost sharing are going to help us broaden and expand.”

Dr. Edmond Russo, deputy district engineer for programs and project management, USACE, Galveston District agrees.

“Cultivating connections and working with environmental agencies to meet expectations is the best approach for developing BUDS projects; each agency has a slightly different interest and concern,” he said. “We formed the Houston Ship Channel Beneficial Use Group for the Houston-Galveston Navigation Channel project. The BUG is comprised of the Galveston District, the Port of Houston Authority, Texas General Land Office, Texas Parks and Wildlife Department, Texas Commission on Environmental Quality, U.S. Fish and Wildlife Service; Natural Resources Conservation Service; and National Marine Fisheries Service, National Oceanic and Atmospheric Administration and U.S. Environmental Protection Agency.

“The BUG’s work resulted in a large array of BUDS in Galveston Bay in connection with Houston Ship Channel maintenance and channel improvement projects, providing significant resources for fish and wildlife inhabitation,” he said.

The federal standard, as described in Engineer Regulation 1105-2-100, the Planning Guidance Notebook, stipulates that the dredged material placement alternative must represent the least-

costly alternative consistent with sound engineering practices, which also must meet outlined environmental standards established in 404(b)(1) guidelines in the 40 Code of Federal Regulations 230.

“Under the federal standard, we can’t always select BUDS over upland confined and offshore placement,” Russo said. “Consequently, the Galveston District works with state and federal agencies to receive funds and perform reimbursable work for BUDS efforts through the International and Interagency Services program. The results speak for themselves: successes such as the Houston-Galveston Navigation Channel project and a steady increase in the number of BUDS projects that we’ve been able to perform over time above the federal standard.”

Brutsche thinks that RSM and EWN concepts are now valued both inside and outside of the Corps.

“I think we’ve started and will continue to look at projects in a regional context and throughout the project life cycle to determine the best RSM alternatives to employ, executing projects more efficiently while maintaining sustainable systems,” she said.

“The Corps is always looking to make our practices more sustainable over time, and a large part of that is making our sediment management practices more sustainable,” Bridges said.

For information about EWN initiatives, visit [www.engineeringwithnature.org](http://www.engineeringwithnature.org).

For more information about RSM, visit <https://rsm.usace.army.mil>.

The beneficial use of dredged material website, through a Dredging Operations Technical Support-funded effort, is a useful source of information: <https://budm.el.erd.c.dren.mil>.

## EWN initiative captures sustainability award for USACE



By Holly Kuzmitski  
U.S. Army Engineer & Research Center

The Engineering With Nature initiative has been selected as the Renewable Natural Resources Foundation’s recipient of the 2019 Outstanding Achievement Award.

“I think it’s a great honor,” said Dr. Todd Bridges, national lead for EWN. “It stands out in the respect that an outside, non-government body is

drawing attention to the U.S. Army Corps of Engineers’ commitment and progress in leveraging nature and natural resources to develop better infrastructure projects.”

Bridges was informed of the RNR’s decision July 30, 2019.

The EWN initiative was nominated for the award by the Coasts, Oceans, Ports and Rivers Institute Coastal Zone Management Committee, an institute of the American Society of Civil Engineers.

# GREEN PURCHASING



## USACE focuses on sustainable acquisition strategies, ensuring energy, environmental compliance

By Marti Sedgwick  
USACE, Headquarters

**S**ustainable acquisition or “green purchasing” began in 1976 when Congress passed the Resource Conservation and Recovery Act, seeking to protect human health and the environment while reducing the already existing volume of waste. The latest mandate is outlined in Executive Order 13894, *Efficient Federal Operations*.

This executive order requires all federal agencies to acquire, use and dispose of products and services, including electronics, in accordance with statutory mandates, Federal Acquisition Regulation requirements, and other applicable federal procurement policies.

This means that 95% of the supply of products and services, including construction, require energy-efficient; water-efficient; biobased; environmentally preferable, non-ozone depleting; or recycled-content products.

“The U.S. Army Corps of Engineers has many environmental, energy and economic considerations affecting the acquisition process,” said Aggie Cantave, senior adviser on sustainable acquisition with USACE Headquarters Contracting Division. “All federal agencies are required to give preference to products that are energy-efficient, water-efficient and made from biobased or recycled content.”

Based on the sustainable acquisition regulations, USACE sustainable procurement commitments and goals are to ensure that acquisitions, plans, policies and programs meet or exceed all requirements by acquiring products with the most environmental attributes as possible. Sustainable acquisition has become an important part of the USACE Sustainability Report and Implementation Plan which is submitted annually to the Office of Management and Budget, and the White House Council on Environmental Quality.

USACE is currently focused on the implementation of its Sustainable Acquisition Clause Selection and Compliance Assessment Tool to institutionalize sustainable procurement practices and streamline reporting. This tool is an Excel-based spreadsheet with 28 easy yes-or-no questions to be used by requirement generators or contracting officer’s representatives.

After the CORs answer the questions, the spreadsheet generates the required clauses from FAR Part 52 Solicitation Provisions and Contract Clauses which are based on FAR Part 23 Environment, Energy and Water Efficiency and Renewable Energy Technologies. The output from the clause

selection tool is given to the contracting officer for inclusion in the resulting contract.

“This may sound very complex, but the tool makes it simple to be compliant,” explained Cantave. “We recently developed a training program with live demonstrations of the clause selection tool using an actual USACE statement of work. The tool also works well with performance work statements.”

Over 125 requirement generators and contracting officers have been trained; and the tool has been shared with the U.S. Environmental Protection Agency. The training is offered via webinar, and upon request, can be customized to individual district contracting business processes.

As part of business analytics, USACE tracks the percentage of applicable new contract actions that comply with federal sustainable acquisition requirements quarterly. This assures that USACE meets the OMB Scorecard for Efficient Federal Operations/Management metric, which requires incremental improvement each year.

“The incremental improvement shown on the OMB Scorecard is very important to the U.S. Army Corps of Engineers,” said Cantave. “It shows corporate responsibility and accountability for USACE activities.”

In support of reporting requirements, USACE developed a data mining technique for 12 sustainable acquisition clauses and prepared the data mining technique to apply to other clauses as statutory requirements become more stringent. USACE reported 95% compliant on new contract actions for fiscal 2018 to OMB, which is a 0.6% improvement from fiscal 2017.

USACE is responsible for ensuring all contract actions comply with statutory requirements for the product or service. It procures products and services in a cost-effective manner that advances achievement of energy and environmental performance goals.

Through sustainable acquisition, USACE is enhancing and sustaining mission readiness through cost-effective acquisition that reduces resource consumption.

*(Photo courtesy of USACE, Headquarters)*

*(From left) Aggie Cantave, senior advisor on sustainable acquisition, USACE Headquarters Contracting Division; Marti Sedgwick, sustainability national program manager, USACE Headquarters Environmental Division; and Joan Kim, USACE Headquarters Environmental Division intern, perform quality assurance to verify accuracy of sustainable acquisition data pulls.*



*A crane lifts one of the culvert sections into place. The precast culvert pieces were formed off-site and brought in by barge to allow for faster assembly and to decrease the project's footprint.*

## Corps district partners with city, works to restore salmon habitat

**Story & photo by Sarah Bennett**  
USACE, Portland District

In the summer of 2018, the U.S. Army Corps of Engineers, Portland District partnered with the City of Portland on a major habitat restoration project to bring salmon back to Oaks Bottom.

The complex of meadows, woodlands and wetlands offers a unique opportunity for large-scale, tidally influenced floodplain and wetland restoration in the heart of the city.

The Oaks Bottom Wildlife Refuge is the largest remaining natural area within the Lower Willamette River floodplain. The wetland there is prime habitat for migrating juvenile salmon looking for a place to eat, rest and grow before they reach the Columbia River.

For the past century, the wetland was effectively cut off from the Willamette River by a railroad berm, with only a small, round pipe-culvert to allow for high water flow.

The Corps and the city worked together to replace the culvert with a large, open bottom culvert, providing juvenile salmon with a much more natural path in and out of the refuge.

Construction crews also re-graded tidal channels to improve hydrology and habitat diversity in the wetland, benefiting a wide variety of birds, reptiles and small mammals.

To install the new culvert, construction crews had to cut through the railroad berm, which also supports the popular Springwater Corridor.

To allow for construction, the trail—used daily by recreators and Portland's

many bicycle commuters—had to be closed for four months during the summer, the only time “in-water work” is allowed in that stretch of the Willamette River. Working with city partners, the Corps engaged trail users before, during and after construction.

The uniqueness of the site and the limited work window tested the creativity and ingenuity of the project team and the construction crews.

Among other unique solutions to site-specific obstacles, large materials were delivered by barge. The crane used for the project was stationed on a barge floating in the river, and the culvert was built off-site in pre-fabricated sections.

In the upcoming planting season, crews will plant approximately 8,500 native trees within the project footprint.

*Bill Ziebron, program manager, South Sacramento Habitat Conservation Plan, addresses attendees Aug. 29 at the Sacramento County Administration building in midtown Sacramento.*



# Collaboration, persistence bring habitat conservation plan to life

Story & photos by J. Paul Bruton  
USACE, Sacramento District

Multiple agencies and stakeholders gathered recently at the Sacramento County Administration building to acknowledge and celebrate the formal adoption of the South Sacramento Habitat Conservation Plan.

The project has been 20 years in the making, and is a first-of-its-kind project.

But what exactly is it?

The SSHCP is a 50-year plan under the federal Endangered Species Act that balances the conservation of important species with planned development in a 317,655-acre area within Sacramento County.

While hundreds of habitat conservation plans exist in California, this is the first in the nation to include Clean Water Act permits issued by the U.S. Army Corps of Engineers in addition to the Endangered Species Act permits issued by the U.S. Fish and Wildlife Service.

Mike Jewell, chief of the USACE, Sacramento District Planning Division, was among several guest speakers at the Aug. 29 event, which included Sacramento County District 5 Supervisor Don Nottoli and other agency representatives.

Jewell said that since 2004, the Sacramento District has actively collaborated with U.S. Fish and Wildlife Service, the California Department of Fish and Wildlife, the Regional Water

Quality Control Board, and other SSHCP partners to craft a customized 404 permitting approach that is streamlined and synchronized with the Habitat Conservation Plan and local approval processes.

Jewell added that the '404 Permit Strategy' synchronized with the South Sacramento HCP and cuts the permit process timeline by more than half, protecting the most important aquatic resources, especially wetlands and streams, with buffers and conservation easements.

At the end of the day, the habitat conservation plan and the county's ordinance are about good government, Jewell said.

**See HABITAT, page 43**

# Training symposium focuses on sustaining mission readiness through environmental stewardship

By Cathy Kropp

U.S. Army Environmental Command

The connection between the environment and the Army's mission was never more understood or discussed than at the Army Environmental and Range Readiness Training Symposium. Army environmental and range professionals gathered Aug. 26-29 at Fort Carson, Colorado, to share best practices and lessons learned with each other.

Although the Army's Sustainable Range Program and Army Environmental Program have different missions, they have many mutual goals.

"The purpose of this symposium is to increase synergy between the programs, create efficiencies and pursue opportunities to collaborate," Col. Mary C. Williams-Lynch said. Williams-Lynch is the chief of Army environmental division with the Office of the Assistant Chief of Staff for Installation Management's Installation Services Directorate.

Sustaining mission readiness through environmental stewardship was the conference theme. Sixty training workshops brought together more than 500 Army

Soldiers and civilian employees to learn and collaborate on land management solutions and best practices through lectures and discussions on a number of environmental and range-related topics.

One goal of the symposium was to help range and environmental personnel better understand the commitment to the Army's mission from the perspective of each program.

Participants included range managers, Integrated Training Area Management coordinators, Army staff and subject matter experts responsible for executing the environmental program, and installation environmental program managers.

"About 25 years ago, we recognized that fundamentally we had a lot of land managers who looked at Army landscapes from different perspectives, and that is still the case today," said Thomas E. Macia, chief of the training simulations division with G3/5/7 at Army Headquarters. "We need to bring together these perspectives and align agendas to get some synergism and promote collaboration."

That is where this symposium was focused. Training sessions provided

information on laws and their requirements; basic program information for both environmental and range management programs; and demonstrations of automated tools used in both communities to enable proactive management of environmental resources and range assets.

Roundtable discussions shared lessons learned and best practices, identifying areas for improvement or requiring more collaboration to reach solutions beneficial to both programs.

Cross-functional panels examined different perspectives to common issues to discuss potential solutions that meet everyone's requirements. Field trips and tours provided participants a real world look at the value of land management, environmental management, range operations and modernization activities, and the direct effect of those activities on Army readiness.

Questions and comments from installation staffs helped program managers and leaders better understand how program changes affected the field and identified potential improvements to better meet these challenges.

**See AERRTS, page 43**



*Attendees listen attentively to trainers, topic leaders and subject matter experts from the Army's office of the Assistant Chief of Staff for Installation Management; Army Headquarters G3/5/7 Training Simulation Division; Program Executive Office for Simulation, Training and Instrumentation; Sustainable Range Program's Geospatial Support Center; USACE, Engineer Research and Development Center, Construction Engineering Research Laboratory, and Mandatory Centers of Expertise, presented at the symposium. Also leading discussions were staff from the Combined Arms Center's Training Support Center, Installation Management Command, Army Environmental Command, and 7th Army Training Command's Training Support Activity - Europe. (Photo by Scott Prater, Fort Carson Mountaineer)*

# HABITAT

According to Jennifer Norris of the U.S. Fish and Wildlife Service, the SSHCP is unique because it combines Clean Water Act Section 404 responsibilities with the Endangered Species Act.

“This is a real groundbreaking permitting strategy with the Corps of Engineers that’s never been done anywhere in the country,” said Norris. “This is the first!”

The Habitat Conservation Plan area includes wetlands, natural grasslands with vernal pools and oak savannas, and covers 28 species, most of which are wetland dependent, including vernal pool fairy shrimp, California tiger salamander, giant garter snake and Swainson’s hawk, among others.

“One of the biggest difficulties in getting one of these plans done is that it’s an absolute marathon. It’s not a sprint,” said Sean Wirth, co-chairperson for Habitat 2020 with the Environmental Council of Sacramento. “It took 24 years to get the South Sacramento HCP from idea to completion.

“When we’re done, we’re going to have a preserve network that works ... that’ll last

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*Vernal pools, such as this one seen in South Sacramento County, are one of the focus areas for conservation amid expected housing and area city expansion that the South Sacramento Habitat Conservation Plan will protect.*

in perpetuity,” he said.

For more information on the SSHCP project, check out the video from the U.S.

Fish and Wildlife Service:

<https://www.youtube.com/watch?v=XPLaYP90q3c>

# AERRTS

The Sustainable Range Program is the Army’s overall approach for improving the way in which it designs, manages and uses its ranges and training lands to ensure long-term sustainability.

Macia explained that sustainable range management is about preventive maintenance and proactive management of the landscape.

“Sustaining the landscape enables the readiness of the Army,” he said.

According to Bobby Floyd, Army G3/5/7 ITAM program manager and symposium co-coordinator, the Integrated Training Area Management program (part of the Sustainable Range Program) reconfigures, repairs and maintains maneuver land.

“ITAM is a training enabler,” Floyd said. “ITAM activities have a positive effect on installation natural resources. When we fix maneuver damage, we have to maintain environmental compliance. When we fix runoff and soil disturbance, that is good clean water stewardship.

“Endangered species often thrive in the same habitat the Army needs for training,” he added. “The programs overlap.”

The Army Environmental Program’s goal is to protect human health and the

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environment. It helps ensure the Army has the land, water and airspace needed for military training. It also ensures Army operations do not adversely affect the health or environment of the military and civilian personnel and their families who live and work on Army installations or surrounding communities.

“Understanding the link between training and environmental missions while supporting the applicable synergies of programs just makes sense,” said George Robitaille, symposium co-coordinator with the environmental division of the Office of the Assistant Chief of Staff for Installation Management’s Installation Services Directorate.

As was reinforced at the symposium, the goal of both programs, and focus of all attendees, is to ensure that the Army’s installations, ranges, and land assets are capable, available, and accessible now and in the future to support Army readiness.

“We need to protect the capability to train,” said Barry Hull, the Army Compatible Use Buffer and Integrated Training Area Management program coordinator at Fort Bragg, North Carolina.

Army installation staffs provided updates, status and lessons learned in a

variety of topics through panel discussions. The U.S. Fish and Wildlife Service also supported discussions involving natural resources and military training.

Paul Harvey, an environmental engineer from Aberdeen Proving Ground in Maryland, commented that he was able to take some classes in which he had no experience, allowing him to hear about future changes in other programs that could affect his job. He also appreciated the opportunity to network with others in his field to better understand what other installations did differently.

“I’ll take back to my installation what has been reinforced for me here to help me work better with the training staff,” said Timothy Bickford, conservation manager at Camp Keyes, Maine Army National Guard.

“We will all bend over backwards to ensure our Soldiers are as prepared as they can be,” said Col. Brian K. Wortinger, garrison commander, Fort Carson, Colorado.

That commitment was reiterated by all instructors, panel participants and attendees of the inaugural Army Environmental and Range Readiness Training Symposium.

# St. Paul District team improves communication, understanding between Native American tribes

By Matthew Liptak  
U.S. Army Environmental Command

With 22 federally-recognized Native American reservations within its boundaries and approximately 3,000 permits processed each year, the U.S. Army Corps of Engineers, St. Paul District Regulatory Branch recognizes effective communication and consultation with native tribes as a major requirement for their work.

Its district Tribal Assessment and Consultation Planning team has successfully taken action to improve communication and understanding between the district and the tribes. This is accomplished through both formal and informal means.

“The TAP team has made great strides to improve the ongoing relationship between the district and the tribes,” said Chad Konickson, regulatory branch chief, USACE, St. Paul District. “With such a widespread geography and so many tribes, their work was essential in building cooperation and understanding between those involved.”

This work aligns with priorities established in the USACE Tribal Consultation Policy, which was first developed and implemented in 2012.

The TAP team sought to improve both communication and consultation using a three-stage strategy to first assess, then plan, and finally implement process improvements to achieve the team’s desired outcomes.

In the assessment stage, the concerns and needs of tribes were assessed, then the tools and materials required to address the needs of the tribes were considered in the planning stage. Finally, in the implementation stage, the tools and materials were presented to the tribes in face-to-face meetings.

Basic parameters of consultation may sound simple—meet with tribes and see what their concerns and needs are. But in reality, the priority of consultation can lead to more extensive discussions which can, in turn, bring up further questions.

In the four months between October 2015 and February 2016, the TAP team met with 57 tribal leaders from 18 tribes.

Most tribes agreed on certain concerns and needs, and the team developed them into key themes: notifying tribes, developing a shared understanding of consultation, emphasizing personal relationships, leveraging other models and clarifying the decision-making process.

These assessment themes helped the TAP team develop strategies to improve communication,

minimize conflict and misunderstanding, and improve decision making. The team then documented all operations, as well as all ongoing efforts, and recorded them into a Tribal Consultation and Communication Strategy Report.

In 2016, the TAP team began the planning stage when they created a work plan based on their assessment. The team met six times, all the while conducting research, meeting with USACE staff and creating support material.

In response to the key themes raised by tribes, the TAP team developed a shared communication protocol, a variety of process and organizational handouts, and created a WebMap Viewer.

The viewer is an online spatial tool which provides details and locations for all pending district applications. It is a tool developed exclusively for tribes to see where permits are being sought in order to allow them to share information and input about sites or areas of concern that may otherwise be unknown to district regulatory staff.

Between May and June 2018, the TAP team met with 23 tribal leaders and members from 14 tribes to discuss the plan’s implementation.

They discussed what consultation and communication improvements were being made and

how they would move forward.

These meetings included the communication protocol, information about the WebMap Viewer, and handouts describing the process used to decide on permits and the USACE organizational structure.

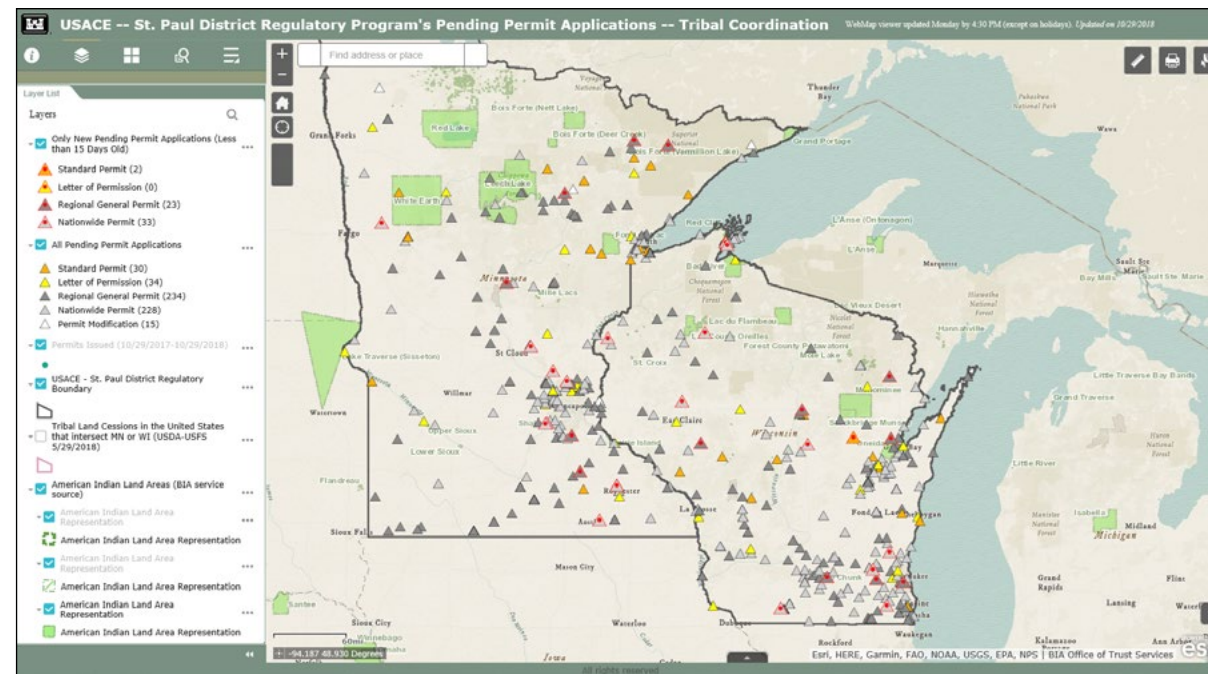
Tribal members felt positive about the information provided, particularly the WebMap Viewer. They saw it as an important addition in the effort to understand what projects were being permitted and allowed with the purpose that potential conflicts could be rooted out ahead of time.

The interactive WebMap Viewer has multiple attributes that make it useful to tribal members who want more information.

“The WebMap Viewer has been a big step forward in offering clarity to tribes regarding the planned permitted projects,” said Konickson. “Now they can get an up-to-date look at what’s going on and better understand how it may impact them.”

The district continues to receive positive feedback from the tribes.

The TAP team’s work has been critical to improving communication and consultation between the tribes and the district. As a result, understanding and cooperation between the groups will continue to flourish for years to come.



Screenshot of the tribal WebMap Viewer piloted by the USACE, St. Paul District, Regulatory Branch. The viewer is a password-protected system which provides secure access to tribes regarding pending projects within the district boundaries. (Graphic illustration courtesy of USACE, St. Paul District)



(Photo by Patrick Loch) Archaeology experts with USACE, St. Paul District excavate a recently-defunct well at the Sandy Lake Recreation Area and found that the area surrounding the well had most likely been upgraded during the 1960s.

# Partnerships help sustain, grow safe habitats for reservoir wildlife

Story & photos by Billy Birdwell  
USACE, Savannah District

Finding a quiet and safe place for a nursery tops the priorities for new parents, be they humans or fish.

The U.S. Army Corps of Engineers and state partners help fish in Savannah River reservoirs find those safe places for their young.

To make those safe places, this summer, workers, student interns and volunteers planted thousands of native aquatic plants in the Richard B. Russell and J. Strom Thurmond Lakes on the upper Savannah River.

This joint effort between the Georgia

Department of Natural Resources and USACE, Savannah District provides needed shelter for fish to hatch and then hide from other fish trying to eat them. The plants also provide feeding areas for the fry.

The agencies bring pallets full of water willow and maiden cane to transplant into shallow water near the lakeshore. Water willow (*justicia americana*) proves especially beneficial because it can spread naturally by root, rhizomes and seed.

"We've been very successful over the past few years in seeing water willow spread naturally from our planted areas into several other places," said James Sykes, Savannah District fisheries biologist. Water willow is

native to the region.

"These plants provide great fish habitat for juvenile and adult fish and good erosion control," added Chris Nelson, a fisheries biologist for Georgia DNR in Social Circle, Georgia. The DNR effort is backed by a grant from Yamaha Motor Corporation, a manufacturer of outboard boat motors.

Workers from the state and the Corps' Russell Lake planted more than 18,000 plants in 2018. Today, these plants cover several acres of shoreline at Russell Lake.

A 2017 survey of the reservoir indicated the places best suited for the plants that would provide the most cover for the most fish.

"Anglers really love the plantings," Nelson

said. He explained bass go into the plantings to spawn and feed then move about outside the patches of willow, which makes for good fishing spots.

The joint effort at Russell Lake led workers at Savannah District's Thurmond Lake to begin a similar program.

Without a dedicated greenhouse to start the willows, rangers fashioned an outdoor plant nursery. At this location near a campground for volunteer campground stewards, workers care for thousands of plants until they're mature enough to transplant into the reservoir.

David Quebedeaux, a park ranger at Thurmond Lake, manages the mini-nursery. He, other rangers and some dedicated volunteers prepare and plant the willows along selected areas at the reservoir north of Augusta, Georgia.

"We set it up near our volunteer campground and asked them to assist us, which has been very successful," Quebedeaux said.

Plants at both locations benefit the fish, giving them the necessary cover needed to grow. This, in turn, gives rise to a stronger fish population at both reservoirs.

"Nothing makes anglers happier than the tug of a nice fish on the end of the line," Quebedeaux said.

In conjunction with planting water willows, Thurmond Lake has had an oxygen injection system in place since 2006.

This system places pure oxygen into the reservoir about five miles above the Thurmond Dam. It enhances the habitat by increasing the dissolved oxygen in the water, helping fish survive hot summers when oxygen naturally depletes. This not only helps them thrive, but it also helps them avoid areas depleted of oxygen.

The Thurmond oxygen injection system also attracts anglers who know fish congregate near the system, Sykes said.

Increasing native aquatic plants in Savannah District reservoirs and the addition of oxygen injection systems give the sport fish the kind of start in life needed to keep the reservoirs rated among the best recreation areas in the Southeast, Sykes said.



Annette Dotson, a park ranger for the U.S. Army Corps of Engineers assigned to the Richard B. Russell Lake, prepares water willows for planting. The native plants, provided by the Georgia Department of Natural Resources, provide shelter for young bass, feeding areas for fish, and help prevent bank erosion.



Chris Nelson, a fisheries biologist with the Georgia Department of Natural Resources, prepares maiden cane for planting into the Savannah District's Russell Lake. This native plant, along with the water willow, provides safe habitat and food for young bass. It also helps protect the young fish from predators and aids in erosion control.