

Public Works

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This Issue: **Annual Report Summaries**

Annual Report Summaries	3
Installation Management	28
Successes	30
Professional Development	41

U.S. ARMY INSTALLATION MANAGEMENT COMMAND

IMIGOM



Crews work on trenches for geothermal wells at the Child Development Center under construction at Fort Drum, N.Y. Photo by Dan Desmet, New York District, U.S. Army Corps of Engineers. Page 34

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Annual Report Summaries



- 3 Meeting critical mission requirements in 2010, *by Lt. Gen. Robert L. Van Antwerp*
- 5 Army Public Works marks 2010 successes, *by Gregg Chislett*
- 6 Solid wastes and recycling update, *by William F. Eng*
- 9 Center carries the torch for sustainability, *by Dana Finney*
- 10 Huntsville Center missions surpass \$1.6 billion in fiscal 2010, *by Charles Ford*
- 14 Corps' environmental year in review, *by Candice Walters*
- 16 Corps labs: Sustainable installations through research, development, *by Ilker Adiguzel*
- 18 Oahu Army Natural Resources reintroduces native plants, saves snails, protects flies, *by Michelle Elmore, Amanda Hardman and Kapua Karwelo*
- 20 Europe District sees major construction projects, unique challenges in new countries, *by Rachel Goodspeed*
- 22 Honolulu District contracts benefit Army, local communities, *by Aiko Brum*
- 24 Vicenza delivers 4 new facilities as Dal Molin continues on track, *by Anna Ciccotti*
- 26 Public Works Technical Bulletins: 2010 in review, *by Dana Finney*

Installation Management



- 28 How to aggressively manage fixed-price construction contract schedules, *by Kevin McCullough*
- 29 Converting to low-maintenance grasses in improved, unimproved areas, *by Heidi R. Howard*

Successes



- 30 San Antonio installations: More square footage, smaller carbon footprint, *by Brian Dwyer*
- 32 At Fort Carson, employees with common goal of going green drive success, *by Eileen L. Williamson*
- 33 At Redstone Arsenal, Von Braun Complex final phase under way, *by Lisa Coghlan*
- 34 At Fort Drum, Corps looks below Earth's surface for green energy, *by Chris Gardner*
- 35 At Fort Polk, Facilities Reduction Program demolishes buildings fast, *by Jo Anita Miley*
- 36 Fort Polk, partners work for rare reptile recovery, *by A. Sara Thames*
- 37 Army Hawaii helps acquire land to protect endangered bird, enable training, *by Alvin Char*
- 38 Fort Drum Warriors in Transition Complex comes online, *by Chris Gardner*
- 39 Savannah District improves quality of life for Soldiers, Families, *by Rashida Banks*
- 40 Los Angeles District revamping water pipes at air force base, *by Elizabeth Casebeer*

Professional Development



- 41 Setting the standard for greatness, *by Lt. Gen Robert L. Van Antwerp*
- 42 Directorate of Public Works training available, *by Tracy P. Wilson*

From the editor

An article in the September/October issue misstated the requirement for Leadership in Energy and Environmental Design ratings. The required rating on all new Military Construction after 2008 is Silver.

Mary Beth Thompson
Managing editor



Meeting critical mission requirements in 2010

by Lt. Gen. Robert L. Van Antwerp

There is no greater sense of purpose and accomplishment for the U.S. Army Corps of Engineers than to support our nation's Soldiers, Civilians and Families at home and overseas. It's something that we have the privilege and honor to do. We do that working hand-in-hand with Directorates of Public Works around the world, employing innovation and disciplined thought to accomplish a near-record workload in 2010.

The USACE Military Programs mission has grown considerably since its inception in the 1940s, when much of our work included traditional projects like designing and constructing barracks. Today, our engineers and experts serve on the front lines with DPWs in developing solutions to many of our nation's most pressing challenges. Together, we're helping to improve our nation's economy by creating jobs and employing small businesses at a record pace, investing in our nation's future through sustainable designs and construction, building some of our country's most advanced science and medical research facilities, and deploying in support of vital overseas contingency operations.



Lt. Gen. Robert L. Van Antwerp
Photo by F.T. Eyre

To adjust to the rapidly evolving landscape of Army facility and construction engineering challenges, we have focused on our role as Army "solutioneers" working as an integrated team with our Public Works partners and customers in the field to better support our nation, Soldiers, Civilians and Families.

In fiscal 2010, our global team of expert engineers and project managers oversaw a budget of \$22.4 billion that included overseas contingency operations, day-to-day operations, environmental compliance responsibilities, Base Realignment and Closure missions and installation support. We awarded 92 percent of our planned

programs for Army and other Department of Defense customers that totaled 565 MILCON and BRAC projects at a programmed amount of \$13 billion. Also, the Facilities Sustainment, Restoration and Modernization program, funded by the American Recovery and Reinvestment Act, awarded 373

Acronyms and Abbreviations	
ARRA	American Recovery and Reinvestment Act
BRAC	Base Realignment and Closure
DoD	Department of Defense
DPW	Directorate of Public Works
FY	fiscal year
IMCOM	Installation Management Command
MILCON	Military Construction
USACE	U.S. Army Corps of Engineers

projects at \$693.9 million for the Army and other DoD customers, for a total of 736 projects at \$1,198 million awarded over the last two years.

In addition to the work we accomplished stateside, many USACE team members served around the world in support of our service members and international partners, strengthening our reputation for excellence and setting new standards for our profession. I was honored this year to recognize our 10,000th deployment! Our commitment to overseas contingency operations remains one of our most vital missions and a critical component in the reconstruction efforts necessary to rebuilding infrastructure, building capacity and stabilizing the region.

Our work overseas consists of construction for pivotal Afghan and Iraqi law enforcement and military facilities, medical institutions, schools, water purification systems and sewage treatment plants — projects designed to improve the health and welfare of the local populace. In FY 2010, we awarded more than 66 overseas contingency construction projects valued in excess of \$783 million.

On the home front, we continued to ensure the quality of life of our Soldiers, Civilians and Families by executing more than \$3.5 billion in support to Army installations to maintain and repair our military communities' facilities.

Now more than ever, our country has embraced the idea of sustainability, or building green, and we share in the Army's commitment to protect and improve ➤

MILCON Awarded in FY 2010

Type	Projects	Amount (\$M)
BRAC	91	2,409
Army	261	4,922
Air Force	130	2,664
TRICARE Management Activity	17	780
DoD Education Activity	6	109
Special Operations Command	18	41
Defense Logistics Agency	8	73
Other DoD	12	1,106
ARRA	22	723
Grand Total:	565	13,027



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our nation's natural resources. We are moving forward with new initiatives that include energy life-cycle cost analyses and holistic enterprise level master planning and training. The Senior Energy Council has been a great coordinated effort to produce an Army strategy to reduce consumption and expenditures for energy for the Army including overseas contingency operations.

As we work to build some of the largest projects ever in USACE history, we're infusing them with unprecedented green technology, such as solar and wind energy, placing them among the most environmentally friendly buildings ever built for the federal government.

Our environmental efforts didn't end there. In FY 2010, we accomplished more than \$3.1 billion in environmental requirements, including \$1.6 billion in reimbursable work, \$300 million in environmental quality work, \$400 million in installation restoration, \$200 million in BRAC 2005 and Legacy BRAC work, \$330 million on Formerly Used Defense Sites and \$280 million in Environmental Protection Agency Superfund work. By taking a vested interest in our environment, we continue to implement a full range of conservation, restoration and compliance efforts to help build our country to last.

Through our Real Estate Community of Practice, more than \$800 million in support was provided to our customers, including applicants for the Housing Assistance Program. More than 11,000 applications were received and processed

by our Real Estate team, and benefits paid to 3,279 applicants totaled \$481 million. In addition, more than 24,000 acres were disposed of for BRAC 2005 and Legacy BRAC.

USACE recently made history with the largest land transfer to date since BRAC's inception. More than 14,000 acres and associated property from the Lone Star Army Ammunition Plant in Bowie County, Texas, was transferred from Army ownership to civilian reuse. This transfer occurred less than one year after the operational closure of the facility, minimizing deterioration of the facilities and, more importantly, supporting the retention of 300 jobs and providing the local community the opportunity to generate new jobs and begin economic redevelopment.


For FY 2010, USACE was vital to the completion of the Human Resource Center of Excellence, an 880,000-square-foot complex at Fort Knox, Ky., designed to house the Human Resource Command, Cadet Command, Accessions Command and Recruiting Command. The Center of Excellence spans 104 acres and cost \$192 million. It is one of our shining accomplishments for the year.

Support to other federal agencies through our Interagency and International Services Community of Practice resulted in \$1.9 billion of work. Our efforts have enabled our interagency partners to operate new land ports of entry to better secure borders, accelerate cleanup of hazardous waste and provide modernization of several medical facilities for our military veterans.

The *USACE Campaign Plan* has revitalized how we conduct business providing the Army with vital engineering services necessary for the execution of its missions. A major emphasis is supporting Soldiers, Army Civilians and Families with the facilities they need to prepare, sustain and reset the force to execute current and future missions.

USACE has worked closely with the Installation Management Command to implement elements of its campaign plan so that it complements the missions and goals of IMCOM's plan for transforming military installations. Both campaign plans aim at supporting Soldiers and Family readiness through forward deployed combat and reach back capabilities and work to identify opportunities to deliver innovative sustainable solutions that add value to Soldier, Civilian and Family well-being.

We look forward to another exciting year ahead in 2011, which promises to offer more opportunities for us to further support our Soldiers and provide continued value to the nation.

Lt. Gen. Robert L. Van Antwerp is the chief of engineers and the commanding general of the U.S. Army Corps of Engineers. 

All Awards from Transatlantic Division in Iraq, Afghanistan, Middle East District

Location	Total to date	2008	2009	2010
Iraq	\$2.83 billion	\$1.9 billion	\$760 million	\$169 million
Afghanistan	\$6.3 billion	\$1.4 billion	\$2.4 billion	\$2.5 billion
Middle East	\$0.8 billion	\$255 million	\$258 million	\$283 million
Total	\$9.93 billion			



Army Public Works marks 2010 successes

by Gregg Chislett

As I sit in San Antonio, Texas, the new home to the Army's Installation Management Command, to write these comments for the *Public Works Digest*, I am convinced the Army's Public Works community is committed to setting the Department of Defense standard for infrastructure quality — enhancing Soldier and Family well-being and readiness, which aligns with the vision and strategic direction of the *Installation Management Campaign Plan*.

The campaign plan focuses on support to the Army family — installation senior commanders and their Soldiers, Civilians and Families. It also pulls together a powerful team comprising the Office of the Assistant Secretary of the Army for Installations, Energy and Environment, the Office of the Assistant Chief of Staff for Installation Management and IMCOM to represent the Installation Management community serving the Army family, along with great support from the Army Corps of Engineers.

2010 accomplishments

This year's *Public Works Digests* covered a lot of ground, highlighting innovative initiatives in construction, sustainability, operations and maintenance, energy, master planning and many others. This publication once again successfully served as a great source for sharing ideas across the Army Public Works community.

In addition to the information published this year, below is a summary of the investment we have made in support of the Army family.

- **The Manpower Requirements and Housing Master Plan** was developed in fiscal year 2010. Housing staff manning models were developed to ensure installations have the programming and resources necessary to develop and train a diverse staff of housing professionals dedicated to delivering increasingly technical and varied services.
- Concurrently, the Public Works' Hous-



Gregg Chislett
U.S. Army photo

ing Branch developed a comprehensive **Housing Master Plan**, a road map to house the force around the world, emphasizing quality of life for the Army family and delivering services and quality during times of conflict and peace.

- The **First Sergeants Barracks Program** was reviewed and validated. The FSBP provided funding and resources for implementation at 14 continental U.S. installations. The installations transitioning to operations under the program are: Forts Belvoir, Va., Myer, Va., Aberdeen Proving Ground, Md., Leonard Wood, Mo., Gordon, Ga., Jackson, S.C., Knox, Ky., Polk, La., Rucker, Ala., Carson, Colo., Huachuca, Ariz., Leavenworth, Kan., and Sill, Okla.; and the Presidio of Monterey, Calif.
- The Unaccompanied Personnel Housing Team developed and championed the Military Construction Program Objective Memorandum submissions for FYs 2012 to 2017. The successful submission was structured to meet the Army's goals for **buyout of permanent party and training barracks**. These buyout programs aim to eliminate the deficit of adequate barracks spaces for Soldiers in these categories. Permanent party barracks are to be in the program no later than FY 2013 and occupied by the end of FY 2015, and training barracks are to be in the program by FY 2015 and occupied by FY 2017.
- The UPH Team championed a collaborative and comprehensive review of the

Acronyms and Abbreviations	
DPW	Directorate of Public Works
FSBP	First Sergeant's Barracks Program
FY	fiscal year
GFEBS	General Fund Enterprise Business System
IMCOM	Installation Management Command
ISR	installation status report
UPH	unaccompanied personnel housing

Installation Status Report Infrastructure and Services booklets for the 2011 collection cycle. The team put significant effort into standardizing elements among all barracks facility types and ensuring that the evaluation criteria were current and comprehensible to the layman and user. The improvements in the accuracy of the ISR products will improve the quality of maintenance and facility replacement decisions.

- The *Installation Management Campaign Plan Line of Effort 6* set the path forward with keys to success to create energy- and water-efficient installations by leveraging new technologies, modernizing existing facilities, ensuring new facilities are designed and constructed with the latest economically feasible energy savings measures and measuring progress along the way.
- Nineteen installations completed **energy and water management plans**, providing comprehensive roadmaps for achieving the installations' energy and water reduction goals.
- More than \$43 million in project funding was secured to execute **energy efficiency projects** through the Army Energy Conservation Investment Program. An additional \$64.5 million in investments were developed and executed through third-party-financed energy contracts.
- **Utility programs** were also successful. More than \$143 million in capital improvements were executed for privatized utilities systems. In addition, advanced electrical meters were installed on 70 percent of the buildings required to have them by 2012 by the Energy



Solid wastes and recycling update

by William F. Eng

The next five years will be challenging as the Army looks for ways to meet the raised bar of solid waste diversion. Potentially adding to that challenge, the highly successful recycling programs have to have a bustling economy to exert demand for recycled materials.

Executive Order 13514

This EO, issued Oct. 8, 2009, requires federal agencies to:

- minimize the generation of waste and pollutants through source reduction;
- divert at least 50 percent of nonhazardous solid waste, excluding construction



William F. Eng
Photo by Alex Stakbiv

- and demolition debris, by the end of fiscal year 2015;
- divert at least 50 percent of construction

and demolition materials and debris by the end of FY 2015; and

- increase diversion of compostable and organic material from the waste stream.

The EO lays out a measurable nonhazardous municipal solid waste diversion goal. Its predecessor, EO 13423, issued in 2007, required only that federal agencies establish a MSW diversion goal to be achieved by Dec. 31, 2010, or to reaffirm a previously established goal, which the Department of Defense called “measures of merit.” The DoD diversion goals prior to the EO were 40 percent for MSW and 50 percent for C&D. ➤

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Policy Act of 2005.

- The **Army Space Planning Criteria Manual** was finally published. This important manual helps garrison master planners and real property specialists accurately determine functional adequacy for each facility type and then update the functional capability code in the Integrated Facilities System.
- The **American Recovery and Reinvestment Act** of 2009 invested \$1.47 billion in improving the condition of energy systems, utilities, pavements, roads, barracks, quality-of-life facilities, operations facilities, UPH and Army Family housing. This investment reduced the Army installations’ facility restoration backlog and made significant energy improvements.
- IMCOM executed an aggressive **inspection program** of more than 728 bridges, 18 dams, 581 miles of railroad tracks, eight airfield pavements and 387 feet of waterfront berthing. IMCOM also provided two training classes that certified 30 railroad track inspectors and 36 bridge safety inspectors.
- FY 2010 began with three garrisons using the **General Fund Enterprise Business System**. In April, GFEBs deployed to seven more sites, and it

became immediately apparent that the system and training classes as designed did not fully meet the needs of Directorates of Public Works.

In response to the identified shortfalls, a DPW functional tiger team was assembled to review the design and develop modifications to fully support DPW business processes. The tiger team conducted five workshops at which subject matter experts from the 10 GFEBs garrisons defined missing functional requirements and proposed solutions.

A majority of the design modifications were deployed Oct. 1 in concert with the GFEBs deployment to an additional 12 garrisons. The rest of the currently identified improvements will be released in January in conjunction with the deployment to another eight garrisons.

The subject matter experts’ participation was critical to the development of significant improvements to the system design, training materials and job aids. Some functionality shortfalls still must be addressed, and we need the continued support of garrison subject matter experts to make sure the requirements are accurately and thoroughly identified to the GFEBs development team.

Continued feedback from GFEBs-deployed garrisons and the sharing of lessons learned with future deployment sites is crucial to the development of a fully functional system and the successful implementation of GFEBs to garrison DPWs across the Army.

2011 Digest

I look forward to reading about the Army Public Works community in next year’s *Public Works Digest*. Mark your calendars with the schedule for issues, themes and deadlines, or contact the editor at mary.b.thompson@usace.army.mil to be added to the call-for-articles list:

January/February – Master Planning and Construction, Dec. 10

March/April – Housing and Lodging, Feb. 14

May/June – Environment and Sustainability, April 12

July/August – Infrastructure, June 10

September/October – Energy and Water, Aug. 15

November/December – Annual Report Summaries, Dec. 12

Gregg Chislett is the chief, Public Works Division, Headquarters, IMCOM.



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Integrated solid waste management

At the agency level, the emphasis is no longer merely on recycling but on the more encompassing principles of integrated nonhazardous solid waste management. The Army had already embraced the concept of ISWM many years earlier, but it never fully articulated guidance to allow installation managers the flexibility to make systematic waste diversion or disposal decisions based on an environmental management hierarchy.

Army installations should maximize solid waste diversion all along the waste stream to reduce disposal and the overall cost of ISWM. Waste stream characterization and analysis, and thorough knowledge of waste diversion or disposal options and associated costs are vital. Keeping informed of the recycling and scrap industries and the commodity markets is also crucial.

Army regulations require installations to develop and maintain ISWM plans. By taking a comprehensive approach to managing nonhazardous solid wastes and C&D wastes, installations should be better able to determine the most cost-effective, energy-efficient and least polluting means of handling most, if not all, of the solid waste stream.

Recycling handbook

The long wait is over. The *Qualified Recycling Program Handbook* has been



Recycling is now a common practice but not the only way the Army is diverting waste. Courtesy photo

approved for publication. The handbook will be posted on Army Knowledge Online on the Office of the Assistant Chief of Staff for Installation Management web page, <http://www.acsim.army.mil/>.

Solid waste reporting

The Solid Waste Annual Reporting system is the official database for collecting, managing and reporting the solid waste and recycling activities of active and Reserve component installations. Efforts that began last year to phase in solid waste and recycling data reporting in one system continue. Previously, many National Guard and Army Reserve sites were reporting in the Environmental Quality report.

In the past few years, DoD defined solid waste and recycling functions as facilities sustainment functions, not environmental or logistics. In the Army, this translates to the director of Public Works.

The Army National Guard had a very high participation rate. Army Reserve regional readiness commands are training to use SWARWeb.

Access to SWARWeb has been migrated from the Army Environmental Reporting On-line portal to the Installation Management Application Resource Center portal, <https://www.us.army.mil/suite/page/550262>. User accounts must be established for the resource center portal and SWARWeb.

Ordinance, explosive recognition training

The course trains Qualified Recycling Program personnel to recognize unsafe and unauthorized material when recycling firing-range scrap. The two-day resident course has been converted to a distance learning environment and is available without charge on the Huntsville Learning Center web site, <http://ulc.usace>.

Acronyms and Abbreviations	
C&D	construction and demolition
DoD	Department of Defense
EO	executive order
FY	fiscal year
ISWM	integrated solid waste management
MSW	municipal solid waste (nonhazardous)
PBWMS	performance-based waste management services
QRP	Qualified Recycling Program
SWARWeb	Solid Waste Annual Reporting, web-based
SWS	Solid Waste Solutions

[army.mil/dl.aspx](http://www.us.army.mil/dl.aspx). The course, number 844, consists of nine modules and is self-paced.

This course is intended to help attendees recognize explosives and ammunition, not to make them ammunition specialists. Successful completion is one of the requirements for an Army QRP to sell firing range scrap without going through the Defense Reutilization and Marketing Service. The primary audience consists of installation Recycling Program managers and QRP managers where the program includes the recycling of expended small arms brass and gleanings from fire range clearance.

The course contents are based on the resident course, which is currently offered on request at most locations worldwide on a cost-reimbursable basis. The course POC is Joseph C. Pickett, 256-895-7445; Joseph.C.Pickett@usace.army.mil.

Emerging Issues

Legislative language prohibiting destruction of fired brass – The FY 2010 National Defense Appropriation Act prohibits the destruction or demilitarization of certain small arms weapons and small arms ammunition and components. The legislative intent became clearer when the Army received congressional correspondence alleging installations were noncompliant with the law because QRPs were processing small arms fired brass through machines that crush, crimp or mutilate, as required ➤



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by regulations, when QRPs direct sell their small arms fired brass, thus making the fired brass not reloadable by sports shooters, who perceive this nonavailability as an infringement of Second Amendment rights.

Clear guidance on how QRPs should proceed is being hindered by a new legislative proposal for FY 2011. QRPs should consult their installation staff judge advocate offices or attorney advisors before they direct sell their fired brass.

Recycling plastic targets – Some installations have been recycling high density polyethylene silhouette pop-up targets through their QRPs, only to have their local Defense Reutilization and Marketing Offices object because the items have not been demilitarized. Nothing in the composition of the plastic target has an explosive component, but the confusion arises from DoD Instruction 4140.62, which states that material possessing potential explosive hazard can be generated from any number of sources, including targets. The concern is that live ammunition could be embedded in the plastic target and cause injury when the target is processed or handled.

A draft change states that 2-D target material, e.g., paper and plastic silhouettes, is not considered potentially explosive. However, when such material has been stored on an operational range after use, a cursory check should be made to ensure no explosive material has become commingled with it. Such a check requires minimal qualifications that can, in most cases, be met by on-the-job training that includes recognition of military munitions.

Performance-based services

In late 2009, the Office of the Assistant Chief of Staff for Installation Management funded a pilot study of performance-based contracting for ISWM services. Three Installation Management Command installations and the Ohio Army National

Guard will receive this special assistance for about one year. If the results are positive, the pilot installations will be able to continue for one year using their own funds.

An environmental consulting firm, Solid Waste Solutions, based in Evanston, Ill., evaluated each site's solid waste operations from point of generation to pickup and disposal or recycling. SWS monitored each contractor's daily schedule for about a week and reviewed invoices. SWS is in the process of writing a detailed report for each site that will recommend changes in solid waste and recycling operations, contract services, and cultural and educational training.

If a garrison contracts with the consultant, SWS will advise the installation or take control to make changes that improve waste stream management, depending on the installation's wants and needs. SWS's compensation would be derived from the shared savings generated by the recommended changes' reductions in wastes and costs.

Waste audits

A consultant uses a waste audit, which provides a comprehensive waste characterization and an understanding of waste and recycling processes and practices at an installation, as its cornerstone to build an overall plan to improve waste and recycling management and processes. A waste audit captures the unique variables of each facility including, but not limited to, personnel, size, volume, age, location, demographics and vendor availability.

Reporting and recommendations – After data analysis is complete, the consultant team develops specific recommendations for waste reduction protocols and best management practices. This two-pronged approach supports targeted strategy development for clients to apply best practices or identify operational efficiencies and drive culture change, the key to long-term success.

The consultant measures success directly by the reduction in waste costs and increases in recycling, and indirectly by increased operational efficiencies and decreased soft costs, such as the space, time and labor necessary to handle waste and recycling. Instead of paying a fixed price for the waste audit report, the installation pays a combination of a lower fixed price coupled with a percentage of the savings generated as a result of the waste audit.


Performance-based waste management services – PBWMS give pricing flexibility with reduced upfront costs combined with incentives in which the consultant shares in any reduction in waste costs. PBWMS work by developing a baseline cost, the client's average cost for waste and recycling services over the previous 12 months. A full year is used so that any seasonal or annual peaks and valleys can be averaged into the baseline.

If successful in reducing costs from the baseline, the consultant receives a percentage of the amount reduced. The baseline is set for the term of the agreement.

The installation's upfront costs are based on the number, sizes and locations of the buildings, and number of employees in the buildings. Costs for any waste and recycling equipment the installation chooses to acquire are the responsibility of the Army, although the consultant is able to offer financing options.

If the consultant is not successful in reducing the baseline costs, the installation owes the consultant nothing. The only risk for the Army is upfront costs.

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William F. Eng is the program manager, Solid Waste and Recycling, and the staff action officer, water and wastewater issues, Facilities Policy Division, Office of the Assistant Chief of Staff for Installation Management. 



Center carries the torch for sustainability

by Dana Finney

A rmy leadership stated its commitment to sustainability through the 2004 *Strategy for the Environment*. However, pulling together all of the Army elements to realize that vision is both challenging and complex.

To address the gap between the strategy's goals and the many steps needed to achieve them, Army leaders asked the U.S. Army Corps of Engineers to create a center to help point the way toward more sustainable operations and facilities. The Center for the Advancement of Sustainability Innovations resulted, launching its activities in 2006.

CASI is physically located at the Engineer Research and Development Center's Construction Engineering Research Laboratory in Champaign, Ill. Its outreach, however, is worldwide.

During fiscal year 2010, CASI forged a new partnership with the Installation Management Command's Strategic Planning Division. The intent is to identify topics related to emerging technologies and issues, and to analyze their potential impacts on installations.

The team devised a protocol for selecting and analyzing topics. The first three topics identified were:

- evolving commercial fleet vehicles,

- energy security in light of emerging energy technologies, and
- building information modeling.

Results of water studies conducted for the Army Environmental Policy Institute were released in ERDC technical reports during the past year. These studies developed national screenings of watershed vulnerability, regional water budgets documenting supply and demand in regions containing Army installations and projections of future water demand. Results are summarized in previous *Public Works Digest* articles (May/June 2009 and September/October 2010) and in technical reports.

A new focus area was added to CASI's existing nine focus areas: Green Remediation and Reuse. An initial project for this focus area is to develop a decision framework to incorporate green and sustainable practices into USACE remediation projects.

With Executive Order 13514's release in October 2009, CASI has become very active in helping USACE, the Army and the Department of Defense address the EO's many challenges. CASI formed a team, involving experts from ERDC and the Institute for Water Resources, to assist Headquarters, USACE, in the

Acronyms and Abbreviations	
CASI	Center for the Advancement of Sustainability Innovations
CERL	Construction Engineering Research Laboratory
EO	executive order
ERDC	Engineer Research and Development Center
FY	fiscal year
USACE	U.S. Army Corps of Engineers

development of its strategic sustainability performance plan, a requirement of the EO for all federal agencies.

In addition, the CASI team is assisting with another requirement by conducting studies of greenhouse gas emissions at both military bases and USACE Civil Works project sites. It has also developed tools and web training to help organizations with greenhouse gas reporting, to plan for greenhouse gas reductions and to conserve energy and water.

One of CASI's main areas of focus since its inception has been forward operating bases. Reducing their energy and water requirements as well as waste generation is critical to reducing the vulnerable logistics demands, e.g., long lines of supply trucks, to support the Army's forward operations.

In FY 2010, CASI teams conducted studies on the baseline requirements for water, energy, waste and base camp operations at forward operating bases of varying scale. These studies will help the Army select appropriate technologies to improve current operations and will provide the baseline needed to help shape research into the next generation of forward facilities.

Reports related to these FY 2010 activities are posted on the CASI website, <https://casi.erd.c.usace.army.mil>.

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Reducing water and energy consumption at forward operating bases could reduce the number of supply convoys, placing fewer Soldiers in harm's way. U.S. Army photo



Huntsville Center missions surpass \$1.6 billion in fiscal 2010

by Charles Ford

Contracts for installation support projects awarded by the U.S. Army Engineering and Support Center, Huntsville, Ala., in fiscal year 2010 totaled an impressive \$1.69 billion, up from \$1.09 billion last fiscal year.

Huntsville Center is the U.S. Army Corps of Engineers' Installation Support Center of Expertise. Its project managers partner with Corps districts; Directorates of Public Works; Headquarters, Installation Management Command; and other federal agencies on projects.

Army Stationing Facilities Support

Purpose – ASFS coordinates facilities requirements analyses and leads planning charrettes for Army installations that will see the move of more than 140,000 personnel during FYs 2010 to 2013. ASFS also provides IMCOM with centralized programmatic support for master planning and Military Construction programming. Support includes managing program resources, normalizing associated costs and assisting with Office of the Assistant Chief of Staff for Installation Management- and IMCOM-directed studies.

FY 2010 – ASFS provided economic analyses for 217 relocatable facilities at numerous installations, including lease and buy analyses and source-of-funding

determinations for Corps districts and installations, and put together relocatable facility request packages.

Planning and Programming

Purpose – The Planning and Programming team manages all areas of installation planning from energy to physical development. Services include: planning charrettes, area development guides or plans, real property master plans, comprehensive energy and water management plans, real property inventory updates and infrastructure capacity analysis.

FY 2010 – In addition to ongoing program actions, Planning and Programming awarded 29 requirements analyses, 46 planning charrettes and three area development plans at a value of about \$3.8 million.

MILCON Transformation Center of Standardization

Purpose – The facilities to support an Army organized according to modular concepts are critical to the success of the MILCON program. Huntsville Center leads COS efforts for 17 facility types and is working with proponents to further develop and modify Army standards for these facilities.

FY 2010 – The COS, in partnership with geographic Corps districts, awarded more than \$86.6 million of MILCON in direct support of this strategic initiative. Following the FY 2009 award of 25 COS facilities, the COS supported the field's construction efforts in FY 2010 through technical support including contractor design reviews.

To aid planning and programming of future facilities, the COS also continued development of template DD 1391s,

Acronyms and Abbreviations	
ACP	Access Control Point
ASFS	Army Stationing Facilities Support
COS	Center of Standardization
CUP	Commercial Utilities Program
DoD	Department of Defense
ECIP	Energy Conservation Investment Program
EEAP	Energy Engineering Analysis Program
ESPC	Energy Savings Performance Contracts
FRP	Facilities Reduction Program
FRR	Facilities Repair and Renewal
FY	fiscal year
HVAC	heating, ventilation and air conditioning
IDIQ	indefinite delivery-indefinite quantity
IMCOM	Installation Management Command
ISCX	Installation Support Center of Expertise
MEDCOM	(U.S. Army) Medical Command
MILCON	Military Construction
MDMS	Meter Data Management System
MRR	Medical Repair and Renewal
REM	resource efficiency managers
RTLTP	Ranges and Training Land Program
UMCS	Utility Monitoring and Control Systems
USACE	U.S. Army Corps of Engineers

available through the Programming Administration and Execution processor, for standard facility types.

Ranges and Training Land Program

Purpose – The RTLTP provides program management and engineering support to the Range Modernization Program, which consists of more than 250 Army, Army Reserve and National Guard projects. Support includes establishing engineering criteria and standard designs, initial planning and site selection, facilitating planning charrettes and preparing MILCON programming documentation.

RTLTP provides programmatic oversight and technical support to Corps districts responsible for design and construction of range projects. Project assessments evaluate the project from these functional areas: training capability, surface



Workers install solar panels on the roof of a dining facility at Fort Bliss, an alternative energy program managed by Huntsville Center's UMCS program. Photo courtesy of Huntsville Center



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danger zone capability, constructability and standard design compliance, National Environmental Policy Act, telecommunications infrastructure and unexploded ordnance.

Army Centralized Furniture Program

Purpose – Huntsville Center is the Army's Centralized Furniture Program manager for barracks and administrative furnishings. Its customers include Army Contracting Command and Navy and Air Force installations. Competitive procurements using General Services Administration schedules result in fair opportunities for manufacturers, and consistent quality and maximum cost avoidance for the Army. The program also monitors projects after contract award to ensure on-time delivery.

FY2010 – The Army Centralized Furniture Program obligated more than \$272 million, its largest-ever program. The program furnished 355 barracks with 61,531 barracks spaces and 482 administration facilities while avoiding costs of more than \$105 million. Costs were 29 percent under GSA pricing.

Key projects completed or awarded included: the Fort Knox, Ky., Human Resource Center of Excellence; the Aberdeen Proving Ground, Md., Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance complex; the Fort Bragg, N.C., Community Emergency Services Station; the Carlisle Barracks, Pa., Visitor and Education Center; the Presidio, Calif., General Instruction Building; and Fort Bragg's new unaccompanied personnel housing.

Facilities Repair and Renewal Program

Purpose – The FRR Program offers a fast, efficient method for design and execution of all types of facility repairs, renovations and minor construction. This program is available to all districts and

their customers. The key to the program's success is the innovative use of indefinite-delivery, indefinite-quantity service and construction contracts covering all 50 states plus U.S. territories.

The FRR Program has two execution strategies. The architect-engineer IDIQ service contracts provide designs, studies, investigations, surveying and mapping, tests and planning support. The design-build IDIQ construction contracts are multiple-award task-order contracts with design-build capabilities. The task order award process takes an average of 45 days.

FY 2010 – FRR awarded \$60 million in repair, renewal and construction contracts.

Two of the 15 awards were American Recovery and Reinvestment Act-funded projects including an award-winning, state-of-the-art visitor center at Table Rock Lake in Branson, Mo. Another noteworthy project was the total renovation of the Air Force Personnel Center Headquarters at Randolph Air Force Base, Texas, valued at \$25 million.

Facilities Reduction Program

Purpose – The FRP's sole mission is to cost effectively remove excess facilities. This program searches out and identifies best industry practices for removal of facilities and has developed regionally focused multiple-award task-order contracts around them. The result is that FRP can put specialized demolition contractors at the right place at the right time to



Air Force Brig. Gen. Ian Dickinson, 81st Training Wing commander, uses an excavator to begin demolition of a lodging facility at Keesler Air Force Base, Miss., one of three buildings being demolished there under an IDIQ task order issued by Huntsville Center's FRP. Photo by Kemberly Groue, U.S. Air Force

provide customers with significantly lower demolition costs, minimal time to remove a facility, maximum salvage or recycle credit and maximum landfill diversion.

The two most important FRP metrics are cost per square foot and landfill diversion percentage. Army policy requires a minimum of 50 percent of a demolished building's weight be diverted from landfills. By using best industry practices such as maximizing recycling and grinding concrete for use as aggregate and engineered fill, the FRP team has achieved an average diversion rate of 71 percent. (Editor's note: See article on page 35.)

FY 2010 – FRP awarded \$12.9 million in demolition for the Army, Air Force, NASA and the Army Reserve. The contracts awarded for the Army generated



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an average cost per square foot of \$10.85 and will remove 525,000 square feet in excess facilities.

Access Control Point Program

Purpose – The ACP Program, centrally funded by the Office of the Provost Marshal General through the Product Manager for Force Protection Systems, provides the installed equipment needed to prepare entry gates at Army installations for automated entry.

FY2010 – The ACP Program is more than 40 percent complete. ACP planning and equipment upgrades are installed at 26 of 59 garrisons. ACPs have been prepared to receive the automated installation entry system at 13 of 33 installations on the customer's priority list. Design and planning efforts are complete at 14 of 17 installations, and vehicle barrier safety equipment is installed at three of nine installations.

The ACP team initiated plans to improve coordination between the various government agencies that are involved with Army ACPs. The ACP Program acquisitions are under development for equipment installation and ACP construction, design and maintenance.

Utility Monitoring and Control Systems Program

Purpose – The UMCS Program Mandatory Center of Expertise supports customers at Army garrisons, Department of Defense and other federal agencies with consistent, high-quality, reliable and cost-effective products and services. Designing, procuring and installing complex monitoring and control systems are specialized skills. These systems include: building automation; supervisory control and data acquisition; advanced metering; fire alarm; heating, ventilation and air conditioning; photovoltaic; and alternative or renewable energy sources.

The UMCS Mandatory Center of

Expertise develops and maintains design criteria, prepares and reviews designs and test procedures, and provides technical assistance during all phases of procurement, installation, testing and commissioning. The team also provides trouble-shooting services. Acquisitions are accomplished through single- and multiple-award IDIQ contracts.

FY 2010 – UMCS awarded about 630 contract actions and obligated roughly \$249 million, which pushed the total active task order award value to more than \$600 million, an increase of 55 percent over FY 2009's awards of \$161 million.

Electronic Security Systems Program

Purpose – The Electronic Security Systems Program supports customers at Army garrisons worldwide, the National Guard Bureau, Marine Forces Reserves, DoD and other federal agencies.

FY 2010 – The program awarded \$55.1 million in contract actions to push the total current workload value to almost \$100 million. The FY 2010 contract obligation amount represents a 26 percent increase over the \$43.5 million obligated in FY 2009.

Army Metering Program

Purpose – To comply with the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007, advanced meters, known as smart meters, are being installed on about 8,700 Army, Medical Command, Army Reserve and National Guard facilities to monitor and electronically report consumption of electricity, natural gas, steam and water. The meter data will be electronically transmitted to a central database, the Meter Data Management System, which will give energy managers the means to identify excessive energy use, waste and inefficiencies at the facility level. The MDMS will access facility data such as square footage, functional use and type of construction from the real property inventory to pair with meter readings.

FY 2010 – Metering for 161 IMCOM garrisons, seven Army Materiel Command garrisons, four Reserve garrisons, three continental MEDCOM regions and 240 Reserve sites were awarded. A majority of the projects are located at overseas IMCOM garrisons in Europe, Japan and Korea. Of those, meters have been completely installed at 20 garrisons, and meter systems are fully functioning at seven garrisons, although metering of facilities beyond the program minimum is being pursued by most garrisons.

MDMS received a certificate of networthiness from the Army Networthiness Office and was fielded at Fort Stewart, Ga., Fort Carson, Colo., and West Point, N.Y.

Energy Savings Performance Contracting

Purpose – This program delivers energy- and water-reducing capital improvements that the garrison cannot fund through existing operating funds or other funding sources. In consultation with the garrison, the energy service contractor provides capital and expertise to make comprehensive energy- and water-efficiency improvements and maintains those improvements in exchange for a portion of the generated savings. The energy service contractor guarantees that the improvements will generate sufficient savings to pay for the project over the term of the contract, which cannot exceed 25 years.

Headquarters, IMCOM, centrally funds Huntsville Center's efforts to provide this service. More than \$402.8 million in private-sector-financed infrastructure improvements have been constructed at 49 Army installations since FY 2000. Energy savings total about \$45.8 million per year.

FY 2010 – An ESPC project was awarded at Detroit Arsenal, Mich., which included \$11.6 million in energy conservation improvements for heating system decentralization, permanent



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chiller installation cogeneration and infrared heating. The payback is 16 years 11 months, and the guaranteed first year savings is \$1.9 million.

At Camp Humphreys, Korea, an ESPC is providing an \$11.8 million energy monitoring control system for HVAC equipment to improve comfort and reduce energy consumption with a payback of 15 years, 8 months. The control system will allow monitoring, scheduling, control and diagnostic capability from a central location. The guaranteed first year cost savings is \$1.1 million.

Energy Conservation Investment Program

Purpose – ECIP is a MILCON-funded program to improve the energy efficiency of DoD facilities while reducing associated utility energy and nonenergy related costs. ECIP is a key component of DoD's energy management strategy.

ECIP projects focus on energy and water savings, implementing renewable energy and converting systems to cleaner energy sources. ECIP projects are prioritized based on the greatest life-cycle cost payback as determined by the savings-to-investment-ratio.

FY 2010 – Huntsville Center assisted in awarding and executing 15 energy conservation projects. These ranged from a single solar water heater at Fort Sill, Okla., to a complete power plant renovation at Dugway Proving Ground, Utah. The total for these projects was \$18 million.

Energy Engineering and Analysis Program

Purpose – This program provides holistic optional investment grade energy audits of installations and facilities. EEAP customers include: IMCOM; Headquarters, USACE; Army Reserve; the Defense Logistics Agency; the 88th Readiness Support Center; the Air Education Training Command and Joint

Base Operations San Antonio; and Fort Bliss, Texas.

Subject matter experts from Huntsville Center, the Construction Engineering Research Laboratory, Idaho National Laboratory, the Department of Energy and private industry identify and develop energy conservation measures, then assist garrison commanders and directors of Public Works in selecting the appropriate execution strategies and in developing capital investment strategies. The EEAP provides project documentation, e.g., ECIP DD 1391s, data for input into IMCOM's Project Priority System, the scope of work for ESPC opportunities, life-cycle project cost estimates and energy savings payback analyses.

Since FY 2006, 32 IMCOM garrisons have used EEAP to identify projects with an aggregate annual energy savings potential of 6,206,493 British thermal units and annual cost savings potential of \$125.4 million. The average payback is fewer than four years.

FY 2010 – Thirteen ECIP project DD 1391s were completed, and 24 more are in progress. The Huntsville Center Energy Portal was stood up on Engineering Knowledge Online to facilitate secure upload of required information, energy information sharing and energy conservation measures analyses.

Resource Efficiency Manager Program

Purpose – This program places REMs, who are energy expert consultants, at Army garrisons to help installations meet energy goals by finding, developing and employing energy conservation measures and renewable energy projects. IMCOM funds the first year of REM services, and the garrison funds the subsequent year options.

REMs have identified energy savings opportunities that yield as much as 10 times their annual salary cost, and they provide valuable assistance in using all

energy project funding streams. If the REM does not produce a positive return on investment, his or her contract is not renewed.

Total expenditures on REMs in place are \$3.7 million. This amount equates to a total program value of 5.4 times what the Army has invested.

FY 2010 – The REM program was not centrally funded by Headquarters, IMCOM; however, Huntsville Center awarded contracts for REM Level IIIs at Picatinny Arsenal, N.J., and Fort Irwin, Calif., for a total of \$443,085. Huntsville Center also awarded option year extensions at Fort Bragg's central energy plant and garrison; Fort Benning, Ga.; Military Ocean Terminal, Concord, Calif.; and West Point; for a total of \$956,204.

During FY 2010, REMs identified \$26 million in yearly savings with almost \$20 million in realized savings from executed projects and initiatives. The total project life savings if all REM-identified projects and initiatives are implemented by the Army would total \$184 million.

Commercial Utilities Program

Purpose – This centrally funded program ensures utilities are purchased using the best terms and rates available, and utilities are resold to garrison tenants in compliance with policies and regulations at fair rates. The Army averages six utility rate hearings annually at which utility companies seek rate increases of from 6 to 22 percent. The CUP provides a consultant to represent the Army as an expert witness at these hearings, helping to avoid or minimize increases.

The CUP also assists garrisons in reviewing utility billings to ensure the proper rates are being applied and to catch other errors. The program has achieved savings and cost avoidances totaling more than \$108 million since 2004.

FY 2010 – The CUP saved the Army about \$6.5 million by intervening in two rate increase filings at a cost of \$95,000. ►



Corps' environmental year in review

by Candice Walters

“Taking it to the field” could very well be the tagline for U.S. Army Corps of Engineers’ environmental program activities during the past year. USACE environmental professionals found themselves interacting more and more with customers, partners and environmental professionals from other federal agencies, academia and nongovernmental organizations as they shared information about the strides the Corps has been making in building a strong, sustainable environment for future generations.

From hosting town hall meetings at Corps districts and divisions to participating in conferences with other federal agencies and nongovernmental organizations and even teaching Boy Scouts about the dangers of unexploded ordnance and the value of conservation at the National Scouting Jamboree, Corps environmental professionals have been sharing messages about its environmental work and the need to increase collaboration.

“I’ve challenged the Corps environmental community this year in three areas,” said James B. Balocki, chief of the USACE Environmental Community

of Practice. “We need to be recognized as a federal leader in taking care of the environment, earning our reputation as the nation’s environmental engineer; to be fully collaborative in our work, reaching out across all program lines within the Corps and being fully inclusive of the best resources outside the Corps, because collaboration will make our decisions better and more robust, even though getting there may be harder; and to be focused on outcomes and outputs to be able to show both our customers and taxpayers something concrete at the end of the day.”

Collaboration, finding solutions to complex problems, incorporating sustainability and maintaining persistence were the themes interwoven throughout the USACE environmental community’s August conference where participants looked at how the community can work better with its customers, partners and other environmental professionals. The conference focused on collaborating across the wide spectrum of environmental concerns from adaptive management approaches, climate change and sustainability to green remediation and

Acronyms and Abbreviations	
BRAC	Base Realignment and Closure
DoD	Department of Defense
FY	fiscal year
USACE	U.S. Army Corps of Engineers

balancing competing interests within a watershed.

Balocki said he was impressed during the conference with the strong willingness to embrace change and to figure out how to work better together, both within the Corps and with partners and colleagues outside the Corps, to not only share lessons learned but also to find creative and innovative ways to solve the complex problems facing all.

“Clearly ours is difficult work,” Balocki said. “It’s time consuming and labor intensive, but at the end of the day, the payoffs are worth the effort. The passion and commitment of our employees for solving these hard issues continues to make the Corps of Engineers an unparalleled leader in the world’s environmental community.”

One of the big focus areas this past year within the Corps and throughout the

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Two more filings are under review for potential DoD intervention.

Utility procurement assessments for garrisons in Korea, Okinawa and Japan were completed. The program also assisted the Corps’ Pacific Ocean Division with utilities privatization issues and Fort Irwin in negotiations for its water and wastewater treatment plant privatization project. And the CUP provided assistance to Southern Command for utility connections and utility service contracts for the headquarters building under construction at Miami Garrison.

Medical Repair and Renewal Program

Purpose – The MRR Program

provides a fast, efficient method for design and execution of all types of medical facility repairs, renovations and minor construction projects. MRR provides program and project management, engineering, contracting and construction support to DoD and non-DoD agencies nationwide.

FY 2010 – The program is managing more than \$515 million in awarded medical facility repair and renovation projects for MEDCOM, the Air Force, the Navy and the Department of Veterans Affairs. MRR awarded more than \$161 million of this work in FY 2010, including about \$27 million in American Recovery and Reinvestment Act-funded projects.

Installation Support Center of Expertise

The ISCX links state-of-the-art business practices and innovative processes in its partnership with districts and other organizations by providing comprehensive and cost-effective support to DoD installations. Through centralized management with decentralized execution, ISCX leverages program management, engineering, contracting and legal matrix expertise embedded in its virtual project delivery teams.

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Army and Department of Defense has been sustainability. All federal agencies, including DoD, Army and USACE have developed and begun working on their strategic sustainability performance plans to meet the requirements of Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*.

For the Corps, Jo-Ellen Darcy, the assistant secretary of the Army for civil works, is the senior sustainability officer.

“We have set an ambitious target for our sustainability program,” Darcy said. “It’s a challenge, but this agency has risen to every challenge presented to it over the years.”

To help ensure that the Corps reaches its sustainability goals, a new Corps of Engineers Strategic Sustainability Council, which includes senior leaders from all functional areas of the Corps’ headquarters, divisions, districts, laboratories and field activities, was stood up at the end of the fiscal year.

Maj. Gen. Merdith W.B. Temple, the Corps’ deputy commanding general, described the USACE sustainability program as a command responsibility that follows two lines of operations — looking at internal efforts to ensure that “we do what we say, and say what we do;” and an external one that looks at the services the

Corps provides to its customers through Military Programs, Civil Works, and research and development to help them meet their sustainability goals.

One way that the Corps has been helping its customers meet sustainability goals is by identifying and costing energy and sustainably enhancements for five standard building types on military installations. In fiscal year 2010, the Corps’ Center for the Advancement of Sustainability Innovations completed four studies to characterize the water, energy, waste and operational requirements of forward bases and is beginning a research effort to create a virtual forward operating base with scalable solutions to integrate energy, water, waste, security and operations.

On the Military Construction front, the Corps is on track to make the Washington Headquarters Services’ 1.6 million-square-foot office building, being constructed as part of the Base Realignment and Closure Act efforts in the Washington, D.C., metro area, a Leadership in Energy and Environmental Design Gold certified building. It will use 50 percent less water than a traditional building of the same size, will have motion-activated LED lighting, and the trees that were removed from the construction site are being used in the building.

At Fort Irwin, Calif., work on a deployable-renewable energy power station is under way. Its remote, off-grid facilities include solar, wind and conventional generator technologies, battery storage and power conditioning to not only provide reliable power but

to reduce operation and maintenance costs.

With this type of sustainable work already under way, it’s easy to see that the Corps is in this for the long haul, Temple said.

“It makes sense for USACE, our nation and our customers,” he said.


When it comes to customers and environmental work, fiscal year 2010 was a banner year in the USACE environmental community, Balocki said. USACE completed nearly \$1.68 billion in reimbursable cleanup and restoration efforts — more than \$240 million, or about 15 percent, above last year’s efforts.

As of Oct. 1, the Corps accomplished about \$300 million in environmental quality work; \$500 million in installation restoration work; \$280 million in BRAC environmental work; \$330 million in the Formerly Used Defense Sites work; and \$280 in Superfund work for the U.S. Environmental Protection Agency. EPA also provided about \$260 million to the Corps in American Reinvestment and Recovery Act funding to obligate and execute for 16 Superfund projects across FYs 2009 and 2010.

Results like that, however, are not accomplished in a vacuum. Instead, they can only be accomplished by listening to and working with the environmental community’s customers to ensure that everyone is focused on achieving collaborative, cost-effective, efficient and sustainable solutions.

“We owe it to the American taxpayers to work together with others to make the difficult environmental decisions and move forward,” Balocki said. “We’re leaving a legacy. The only question is, what do we want that legacy to be?”

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Candice Walters is the environmental public affairs specialist, Headquarters, U.S. Army Corps of Engineers. 



The Fort Belvoir, Va., Community Hospital, being constructed by USACE’s Norfolk District, will have a number of green features, including a roof designed to collect rainwater that will be used to irrigate the hospital grounds. Photo by Marc Barnes



Corps labs: Sustainable installations through research, development

by Ilker Adiguzel

Fiscal year 2010 saw some exciting developments in the Construction Engineering Research Laboratory's installation support research. Drawing worldwide attention are programs that address energy issues through renewable and other technologies, modeling and simulation, building automation, security and, more recently, base camps.

Another major research area seeks innovative solutions to mitigate corrosion at Department of Defense facilities. Also serving a DoD priority, asset management is the continued development and enhancement of the CERL-developed sustainment management systems that include PAVER, RAILER, BUILDER and ROOFER.

To support installation Directorates of Public Works, the laboratory, part of the Engineer Research and Development Center, works with multiple partners and stakeholders, such as the Office of the Assistant Secretary of the Army for Installations, Energy and Environment; the Installation Management Command; the Office of the Assistant Chief of Staff for Installation Management; Corps of Engineers' headquarters and districts; other government agencies; academia; and industry. In addition, the Center for the Advancement of Sustainability



Ilker Adiguzel
Photo by Sandra Bantz,
ERDC-CERL

Innovations, housed at CERL, continues to serve as a central hub to help achieve the goals of the *Army Strategy for the Environment* and to help DoD address the requirements of Executive Order 13541. (Editor's note: See article on page 9).

Energy program

CERL's nearly 40 years' experience addressing energy issues serves the Army well as the nation now strives to eliminate dependence on foreign oil and reduce greenhouse gases. CERL's current initiatives parallel requirements of national legislation such as the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007.

Specifically, these activities aim to:

- reduce overall energy consumption,
- increase energy efficiency,
- increase use of renewable and alternative energy,
- assure access to sufficient energy supplies for improved security and independence, and
- reduce dependence on and environmental impacts of fossil fuels.

During FY 2010, energy researchers continued to support IMCOM's utilities recapitalization strategy through technical reviews

Acronyms and Abbreviations	
CERL	Construction Engineering Research Laboratory
DoD	Department of Defense
DPW	Directorate of Public Works
EISA	Energy Independence and Security Act
ERDC	Engineer Research and Development Center
FY	fiscal year
IMCOM	Installation Management Command
ISR	Installation Status Report

and input to installation DD Form 1391 development, helping to achieve a Leadership in Energy and Environmental Design Silver or better rating. In addition, CERL began to develop design specifications and guidelines for solar water heating technology to be combined with central heating systems at Army facilities that have significant year-round use of domestic hot water, e.g., barracks, dining facilities, child development centers and gyms. EISA requires all new and retrofit buildings to have 30 percent or more of their hot water provided by solar systems when it proves life-cycle cost effective.

CERL also continued to investigate building features, construction methods and materials that would optimize energy reduction and sustainability in standard designs. As a minimum, the objective is to ensure that standard designs meet all applicable energy reduction and sustainable design policy mandates.

EISA reductions in fossil fuel require 65 to 80 percent more energy-efficient facilities using Commercial Buildings Energy Consumption Survey data. CERL is working with Headquarters, USACE, along with USACE Centers of Standardization, Department of Energy laboratories and the Association of Heating, Refrigeration and Air-conditioning, to come up with designs for five building types initially. The extra costs to achieve the goals, beyond the previous standard construction costs, will also be calculated.

Specific targets include: ➤



Joseph Karbarz of ERDC uses BUILDER's new framework that allows two-way data exchange with the ISR. Photo courtesy of ERDC



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- planning for the Army community to be net-zero ready,
- 60 to 80 percent energy reduction compared to the Commercial Buildings Energy Consumption Survey 2003,
- 30 percent domestic hot water reduction,
- 50 percent wastewater reduction, and
- 25 percent operating cost reduction.

The first five facility type standard designs are battalion and brigade headquarters, unaccompanied enlisted personnel housing, tactical equipment maintenance facilities, enlisted personnel dining facilities and company operations facilities.

Combating corrosion

Corrosion is an expensive problem that causes potential dangers and the unavailability of military assets. Public Law 107-314 directed the secretary of Defense to, “develop and implement a long-term strategy to reduce corrosion and the effects of corrosion on the military equipment and infrastructure of the Department of Defense.”

CERL is the Army’s lead agent for the resulting Tri-Service Corrosion Prevention and Control program. The proponent is the deputy under secretary of Defense for acquisition, logistics and technology.

Last year, a team consisting of CERL and the Geotechnical and Structures Laboratory developed and tested a novel technology called corrosion-resistant vitreous enamel coating for bonding concrete to steel, known as COR-PROTEX. This product is the world’s first application of a vitreous enamel coating used with steel rebar to make it impervious to corrosion due to chloride intrusion from concrete.

COR-PROTEX is mixed with the cement before placing the rebar. It reduces the tendency of the steel rebar to corrode by at least 50 percent, greatly reducing

the likelihood that the steel-reinforced concrete will fail.

It affords longer service life and less maintenance, and it allows builders to use 30 percent less steel, lowering construction costs. The product has multiple potential uses for infrastructure.

Asset management

DoD set a goal to manage infrastructure assets with an integrated linear segmentation method by 2012. To this end, the department adopted the Army’s sustainment management systems developed by CERL to manage roads and other infrastructure assets. These tools provide the DPW the means to assess condition, performance and readiness of facilities.

CERL researchers noted many synergies between the BUILDER sustainment management system and the Installation Status Report. Using standardization mapping of their common data elements, CERL created a framework for two-way data exchange. This project was funded by the assistant chief of staff for installation management’s Installation Technology Transition Program.

The exchange format synergistically links local, tactical-level facility condition and functional requirements identified and managed through BUILDER to the strategic, headquarters-level, mission-readiness quality and mission metrics reported in the ISR. To do this,



Engineer Research and Development Center has a patent pending for a novel vitreous enamel coating that prevents rebar corrosion. Photo courtesy of ERDC

the individual ISR facility elements identified in its booklets were linked to the corresponding BUILDER inventory items based on the ASTM Uniformat II classification system.

In addition, ISR ratings of green, amber and red were mapped to the sustainment management system and condition index scale related to facility quality or to the functionality index related to facility capability. This connection provides a way for BUILDER to extract ISR condition and functionality data for certain building systems as needed. It also supports populating ISR with quality and mission capability ratings when a BUILDER assessment has been performed.

In effect, this effort bridges the gap between Army headquarters’ executive facility information needs and DoD’s goal to fully implement integrated asset management by 2012.

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Oahu Army Natural Resources reintroduces native plants, saves snails, protects flies

by Michelle Elmore, Amanda Hardman and Kapua Kawelo

Three of Oahu Army Natural Resources Program's biggest milestones during the past year have been reintroducing the flowers of an endangered palm, the discovery that Jackson's chameleons are eating endangered tree snails and gaining responsibility for two new endangered fly species on the island of Oahu, Hawaii.

The OANRP consists of more than 50 contracted employees working for the University of Hawaii's Pacific Cooperative Studies Unit. OANRP is headed by a federal biologist and the Environmental Division chief of the U.S. Army Garrison Hawaii's Directorate of Public Works.

Responsible for managing rare plants and animals found in Oahu Army training areas and the ecosystems on which they depend, OANRP staff members spend their days on Oahu's Army installations, home to almost 80 percent of Oahu's endangered species, helping to protect more than 50 endangered plant species, seven species of tree snails and the Oahu *elepaio*, a native forest bird.

Pritchardia kaalae flowers

The very first *Pritchardia kaalae* to reach maturity in a reintroduction site, where rare plants grown from seed are planted into the wild, was observed this past year



First documented flowers bud on a reintroduced *Pritchardia kaalae*. Photo by Kapua Kawelo



Julia Lee, OANRP natural resources management coordinator, admires the first mature *Pritchardia kaalae* from a reintroduction site. Photo by Kapua Kawelo

on Ohikilolo Ridge, above Makua Military Reservation.

P. kaalae is an endangered palm endemic to the Waianae Mountains, where only a little more than 300 known wild plants exist. This species faces a number of threats that must be addressed in conservation efforts. Rats, wild goats and pigs pose a threat to its habitat, potentially trampling, uprooting or grazing on seedlings or young plants.

This species represents a milestone for conservation efforts. Until now, the number of years it takes for a *P. kaalae* plant to reach maturity, begin flowering and produce fruit had been undocumented. A single plant grown from seed and planted at Oahu's Waimea Botanical Garden was estimated to have flowered after seven years. Yet, because this plant received supplemental water and care in cultivation, it was unknown if the time it took to flower would be comparable for plants grown in the wild, nourished solely by rainwater.

Now, there is potential for reintroduced *P. kaalae* plants to begin producing offspring.

Before management of *P. kaalae* began, only mature trees were found in the wild, with no

Acronyms and Abbreviations

DPW	Directorate of Public Works
OANRP	Oahu Army Natural Resources Program
USAG	U.S. Army Garrison

observed seedlings or immature plants. Following rodent control at Ohikilolo by OANRP staff, along with fence construction around wild plant populations and goat removal, abundant seedlings began to appear around the wild plants.

To boost *P. kaalae* numbers in the wild, OANRP staff have grown more than 500 individuals from collected seed and planted these seedlings in the Waianae Mountains since 1999. Part of the goal is to produce populations that will begin to reproduce on their own.

Jackson's chameleons invades

Jackson's chameleons, undeniably charismatic critters native to Kenya and Tanzania, have perhaps laid their final



Wild *Pritchardia kaalae* grows at Ohikilolo, above Makua Military Reservation, Hawaii. Photo courtesy of OANRP staff



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straw. Last year, OANRP staff members Vincent Costello and Michael Walker collected two Jackson's chameleons on Puu Kumakalii directly behind Schofield Barracks' West Range.

The final straw? These two Jackson's were found to have feasted on one of Oahu's own charismatic critters: the endangered *kabuli* tree snails.

For years, Brenden Holland, director of the endangered Hawaiian tree snail captive breeding and conservation genetics lab at the University of Hawaii, has been collecting Jackson's chameleons to dissect, based on the belief that they may enjoy the endangered tree snails as part of their diverse diet. More than 400 Jackson's had been dissected with no sign of ingested *kabuli* until the two chameleons found at Puu Kumakalii were studied.

Although the Kumakalii population of the snails is not specifically managed by the OANRP, it is very closely monitored. For nearly a decade, the snails' population has remained constant. Signs of rat predation are minimal, and the nonnative carnivorous rosy wolf snail, another predator of *Kabuli*, has yet to be seen at Kumakalii.

OANRP staff remains concerned about the potential threat Jackson's chameleons have to the endangered snail. The public has been urged not to release pets, especially Jackson's chameleons, into the wild because of the potential threat to

the fragile and rare ecosystems remaining on the Hawaiian Islands.

OANRP staff continues to survey the neighboring areas in order to get a better idea of the Jackson's chameleons' extent and dietary preferences. If Jackson's are thought to be a large enough threat to the endangered snail, OANRP will look to innovative management strategies to control Jackson's in snail territories.

New tiny taxa found

In 2007, the U.S. Fish and Wildlife Service listed seven Oahu picture wing flies, or Hawaiian *Drosophila*, as endangered species. Each different type, or taxa, has an intricate wing pattern all its own, giving them the name "picture-wings."

Ranging in size from a sunflower seed to a mere sesame seed in length, the 1,000 of these tiny species currently described are thought to have evolved from a single ancestor. *Drosophila* are found worldwide, but the Hawaiian species are the largest and most ornate in the genus and perform the most elaborate mating dances.

Hawaiian *Drosophila* are related to *Drosophila melanogaster*, the infamous fruit fly that is a major agricultural pest. Unlike *D. melanogaster*, which lays its eggs in fruit and is not native to Hawaii, the Hawaiian *Drosophila* use many different parts of native plants for egg laying. In fact, the listed endangered picture wings lay their eggs on only a specific and narrow range of native host plants.

When the picture wing flies were listed as endangered, the Army initiated surveys on Oahu Army training ranges. This year, two endangered tiny taxa were identified at Schofield Barracks: *Drosophila substenoptera* and *Drosophila montgomeryi*, during surveys led by Steve Montgomery, for whom *D. montgomeryi* was named.

Both taxa are located within the Lihue



Native to East Africa, Jackson's chameleons were introduced to the Hawaiian Islands in the 1970s as pets but now may be a threat to an endangered snail. Photo by Phil Taylor



Fragments of endangered *Kabuli* tree snail shells are recovered from the stomach of one of the Kumakalii Jackson's chameleons. Photo by Anita Manning

Fence Unit, an area proposed for fencing to protect endangered species from threats by wild pigs and goats.

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Drosophila montgomeryi is one of the newly identified taxa at Schofield Barracks. Photo by Karl Magnacca



Europe District sees major construction projects, unique challenges in new countries

by Rachel Goodspeed

At 6 a.m. local time Sept. 30, the U.S. Army Corps of Engineers' Europe District closed the books on fiscal year 2010 — only to pave the way for a record-breaking \$922 million predicted for FY 2011.

Altogether, the district executed more than 1,547 actions totaling roughly \$527.6 million in FY 2010, displaying its full-spectrum engineer force of high-quality Civilians and Soldiers who spend each day providing vital engineering services and capabilities. But Europe District's real story lies in the milestones reached and new territory explored over the past year.

Community of excellence

After almost a decade, USACE closed the books on the U.S. Army's biggest construction project in Europe since the 1950s. The huge Efficient Basing Grafenwoehr project was delivered on scope, on time and, most importantly, on budget.

EB-G, the U.S. Army Europe initiative to consolidate command and control headquarters and six battalion-sized elements, was not business as usual. It consisted of more than 150 projects valued at close to \$1 billion; the Europe District managed about \$100 million each year since 2001. Bringing this massive

construction project to fruition required innovative approaches to organization and acquisition.

"It is an understatement to say it was a lot of work, but somehow our engineers, architects and master planners made it look easy," said Col. John Kem, district commander. "This program has turned Grafenwoehr from the Army's premiere training facility outside the United States to a truly modern, highly developed community."

EB-G provided the facilities to change the former 1,000-Soldier garrison into an installation that could support more than 3,500 Soldiers and 5,000 Family members. Projects included the Netzaberg Housing Area with 830 three- and four-bedroom units; a shopping center that boasts a 250-seat food court, a post exchange, a commissary and a concessions mall; troop billet buildings, company buildings and motor pools; a physical fitness center with a running track and multi-purpose field; upgraded medical facilities; and a modern dining facility.

World-class health care

More than 230 architects and engineers representing 57 U.S. and German architect-engineer firms attended Industry Day June 2 to receive information on a project that will eventually replace the aging Landstuhl Regional Medical Center and Ramstein Air Base Clinic.

The hospital replacement project, estimated at \$1.2 billion, will provide joint venture design opportunities for U.S. and German firms.

Not only is

Acronyms and Abbreviations	
DoDDS	Department of Defense Dependents Schools
EB-G	Efficient Basing Grafenwoehr
FY	fiscal year
SHAPE	Supreme Headquarters Allied Powers Europe
USACE	U.S. Army Corps of Engineers

the project large, there are substantial complexities in designing a U.S. hospital in Germany, said Rick Flansburg, the district's senior project manager.

"The Europe District, USACE, health facility planning officials and TRICARE Management Activity have been doing a lot of work over the last year just to get to this point on setting the conditions for this project to succeed," he said. "There's been a lot of work between the U.S. and the German federal ministry of construction on how best to design the project and bring it to a successful conclusion."

So far, the district has received about \$3 million to conduct community master planning and topographic, utilities, traffic, environmental and archeological studies on the project site.

Successes in Israel

In addition to the district's budget execution of \$86.9 million in foreign military sales in Israel during the fiscal year, the completion of a vehicle maintenance facility at the Nachshonim Dry Storage Base marked the last of dozens of military construction projects totaling almost \$275 million ordered by the Wye River Memorandum, an agreement brokered to ease tension between Israel and the former Palestine Liberation Organization.

Although the memo was the reason the district set up offices in Israel, project delivery accomplishments in the early 2000s led to an increase in demand for military construction oversight services from the Israelis. In fact, business after the Wye River projects is not only continuing, it's growing.



The Grafenwoehr motor pool is just one of more than 150 projects valued at close to \$1 billion constructed as part of Efficient Basing Grafenwoehr. Photo by Rachel Goodspeed



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“We expect to see requests for our support on more and perhaps larger projects in the next few years than we’ve ever seen in the past,” said Maj. Landon Raby, former deputy resident engineer for the Israel Area Office. “And we’re looking forward to providing our allies with the same high-level products and services that they’ve come to expect. It’s just how we do business, and it’s the reason we’re still here.”



The Limbaži fire station is among 10 stations in Latvia that Europe District is renovating. Photos by Justin Ward



Israeli soldiers walk through Shomria, an Israeli basic training base constructed through the Corps’ Europe District.

Breaking new ground

Since the 1960s, the Supreme Headquarters Allied Powers Europe International School and Department of Defense Dependents Schools’ schools in Mons, Belgium, have not changed much. But the district commenced design on a landmark \$105 million project that will bring a combined, contemporary school campus to the SHAPE community with new DoDDS elementary, middle and high schools, and an international school to serve students from almost 40 nations.

Mons isn’t the only area to upgrade its educational facilities. In 2010, the district saw a surge in DoDDS projects across Europe totaling more than \$187 million in renovations and construction — up from just \$15 million the previous fiscal year. The program is anticipated to reach \$1.47 billion through FY 2016.

In addition, the district’s Army Lodging program achieved its own milestone as construction broke ground on an \$8.8 million, 26-room Army lodge at the U.S. Army Garrison Ansbach’s Urtas Training Area in Germany, marking the midway point in the largest-ever Army lodging initiative in Europe.

Where no district has gone before

This year, Europe District’s International Engineering Branch executed \$8.9 million

in renovations and construction projects in Europe and Africa — several of which took the district into new territory.

Limbaži, a small Latvian town, knows the dangers of fire. In 1747, the town burned to the ground. Because of limited resources, the town of about 8,000 has only one fire station with a solitary door through which it deploys its six fire trucks. But this small station and nine more like it around the country will receive the renovations they need.

The contracts, funded by U.S. European Command’s Civil Military Operations Program and administered by the Europe District, will go a long way toward reducing emergency response times. Two contracts have been awarded: the \$109,000 renovation at Limbaži and a \$112,000 renovation at Madona. Contracts for Aizkraukle, Gulbene, Keipene, Liepaja, Livani, Valka, Ventspils and Strenci are expected to be awarded by the end of the year and will total about \$1.5 million.

The district completed a \$444,000 community center for children with special needs in Varvarin, Serbia, for Right to Smile, a Belgrade-based nongovernmental organization for parents of children with special needs. The school is one of roughly 26 projects the district is managing in Europe and Africa, including sites in Albania, Armenia, Croatia, Estonia, Georgia, Latvia, Moldova, Serbia, Mauritania and Kenya.

Closing out 2010

Throughout the fiscal year, the district’s 490 employee workforce — up 10 percent from the previous fiscal year — proved why it is the organization of choice for its strategic partners with construction placement totaling \$478 million.

The district was able to reduce its unliquidated obligations from \$19.2 million on Oct. 1, 2009, to zero by Sept. 25. Unliquidated obligations are an obstacle every USACE district faces, but Europe District faces some unique challenges with host nation agreements on design and construction.

With FY 2010 wrapped up, district employees are already tackling the estimated \$922 million FY 2011 workload, including the Consolidated Intelligence Center and a new housing community in Wiesbaden, an Air Force Contingency Response Group Compound at Ramstein Air Base, and new housing communities in Ansbach and Baumholder in Germany. Other projects encompass humanitarian assistance and civil military projects across U.S. European Command’s and U.S. African Command’s areas of responsibility.

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Honolulu District contracts benefit Army, local communities

by Aiko Brum

The U.S. Army Corps of Engineers' Honolulu District completed another successful fiscal year. The district awarded 685 actions totaling \$272,634,689, including more than \$147 million to small business firms. U.S. Army Hawaii benefitted from several contract awards.

Contract awards

Among the awards were contracts for architect-engineer services for the design of FYs 2011 to 2015 projects, phases one through four, of a command and control facility complex — the future home of U.S. Army Pacific's headquarters at Fort Shafter, Hawaii, for \$21,526,998 in November 2009.

The facility will enable the command to exercise responsibilities across the Pacific Region, including additional responsibilities supporting the U.S. alliance with South Korea, according to Lt. Gen. Benjamin Mixon, commander, USARPAC.

In January, in keeping with sustainability initiatives, USACE awarded a \$1,539,810 contract to replace a roof and install two photovoltaic systems on Aliamanu Military Reservation buildings. The 47-kilowatt and 37-kilowatt photovoltaic systems, part of an American Recovery and Reinvestment

Act-funded project, will harness and convert the sun's rays to create electricity. They will also help foster a clean, energy-independent and efficient infrastructure for the Army on the island of Oahu.

In addition, a \$2,726,540 ARRA contract awarded in January will replace the water treatment plant generator at Schofield Barracks. Another ARRA-funded contract awarded in January, for \$528,994, will repair exterior drainage at a Schofield Barracks building. These ARRA projects help create and maintain jobs in Hawaii.

In August, USACE awarded a design-bid-build contract to a small business company for \$9,252,522 to construct a new single-story, 10,000-square foot conference and technology learning center for the Asia-Pacific Center for Security Studies at Fort DeRussy in Waikiki. The building will serve as a state-of-the-art information integration learning laboratory. It will include a 108-person plenary space, six seminar rooms, audiovisual and computer server rooms, required ancillary spaces and an ethno-botanical garden. The project will be built to the U.S. Green Building Council's Leadership in Energy and Environmental Design Silver rating or better.

Acronyms and Abbreviations	
ARRA	American Recovery and Reinvestment Act
FY	fiscal year
USACE	U.S. Army Corps of Engineers
USAG	U.S. Army Garrison
USARPAC	U.S. Army-Pacific

said Mixon. "We have had, on average, anywhere from 10,000 to 25,000 Soldiers deployed to Afghanistan, Iraq and the Philippines. What better way to take care of our Soldiers than to have great living facilities when they return back to their home station?"

The Fort Shafter barracks was a quality-of-life improvement implemented in the 2004 Army Barracks Master Plan, which strives to uphold the motto, "Quality Facilities for Quality Soldiers."

"Together we've partnered to create this \$27 million state-of-the-art, six-story barracks complex," said Lt. Col. Jon J. Chytka, former commander, Honolulu District. "Our task was to design and construct a barracks; a lighted, paved parking lot; concrete walks; covered bike racks; and a motorcycle shed smack dab in the center of most of the senior Army commands in Hawaii. As a team, we focused on communications, quality, sustainability and safety with great success, ... and we finished the work two-and-a-half months early."

The barracks complex houses about 156 single Soldiers in 78-room units. The barracks have central air conditioning with individual controls in each room, as well as a special wall paint interior finish that is more resilient to wear-and-tear. The finish is moisture-resistant and mold proof. Additional improvements included solid interior doors, 9-foot ceilings, solid surface kitchen countertops and 30-inch range ovens.

Of special note, the complex is environmentally friendly and consumes 30-percent less energy than older barracks.

"Over 10 years ago, the Army



The new six-story Fort Shafter barracks houses 156 Soldiers and consumes 30 percent less energy than older barracks in use today. Photo courtesy of U.S. Army Hawaii

Barracks completed

A maile lei untying ceremony, the Hawaiian equivalent of a ribbon cutting, opened Fort Shafter's newest Soldiers' barracks April 15.

"I don't have to tell you the demands that have been placed on our force across the military and specifically here in the United States Army Pacific over the last nine-plus years,"



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committed to take us from squad bays and multi-Soldier bedrooms with large shared latrines into a private room with a shared bathroom with just one other Soldier,” said Jim Duttweiler, U.S. Army Garrison Hawaii deputy commander. “This project brings us on to about 85 percent of the way for the Army in Hawaii.”

Aloha Center restored

In September, Fort Shafter’s Aloha Center — well-remembered by Soldiers, Families and those who lived, worked or traveled through Fort Shafter during the past 70 years — was completed. The two-year, nearly \$7 million rehabilitation and restoration project overcame several challenges.

Because of its advanced age, the building was in need of major restoration. Most of the internal structure had become termite eaten and unstable. Because of historic preservation requirements, specific portions of the building could not be demolished, essentially making engineers rethink how to reconstruct on and around untouchable sections of the facility.

Working closely with Honolulu District architect Maydean Martin and USAG Hawaii’s Directorate of Public Works architectural historian Ken Hays, the contractor carefully removed almost 65-percent of the original structure. Contractors restored the facility to its original exterior appearance from the 1940s and brought the facility up to current building codes while also adhering to current antiterrorism and force protection requirements.

Other challenges included removing the old roof by lifting it off the building in sections, retrofitting all of the buildings with new fire sprinkler lines and installing blast-resistant windows around steel tubing frames.

Specific repairs included replacing the roof, floors, windows, doors and all utilities; constructing new bathrooms; reconfiguring

office and administration spaces; installing new air conditioning, electrical, and telecommunication and water systems; as well as constructing an exterior gate and upgrading handicap access.

Soldiers Chapel revamped

In October, USACE completed a five-month, \$874,733 renovation of Schofield Barracks’ historic white clapboard country-style Soldiers Chapel, a 97-year-old sanctuary that is listed on the National Register of Historic Places and part of the National Register District at Schofield Barracks. The chapel was featured in the 1970 movie “Tora! Tora! Tora!”

Renovations included repairing the sanctuary and altar area and adding an addition to the office. Exterior work replaced damaged wood siding and replaced the sidewalk around the building. The chapel also received a new handicap-accessible ramp and a fresh coat of paint on the interior and exterior.

“Complying with federal law was the most challenging aspect of the project,” said Darren Carpenter, resident engineer, Honolulu District.

Federal law requires that all repairs, renovations and alterations to federal buildings are reviewed under the National Historic Preservation Act of 1966. The review process also requires consultation



Fort Shafter’s Aloha Center entrance, following the recent rehabilitation project, matches the original from the 1940s. Photo by Dino W. Buchanan



The renovated Soldiers Chapel at Schofield Barracks awaits rededication ceremonies. Photo by Joseph Bonfiglio

with the State Historic Preservation Office for all properties 50 years old or older.

All told, Honolulu District contracts in U.S. Army Hawaii signify the Corps’ commitment to provide high-quality facilities to the armed forces of the United States and to protect and improve the lives of the people of Hawaii and the region.

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Vicenza delivers 4 new facilities as Dal Molin continues on track

by Anna Ciccotti

The past year has been one of great accomplishments for U.S. Military Construction projects in Vicenza, Italy, with four new facilities completed, one design-build contract awarded and one project programmed for the well-being of Soldiers and Army Families. In addition, the new installation, Dal Molin, which consolidates the 173rd Airborne Brigade Combat Team in Italy, is progressing rapidly.

The four completed projects were managed by the Transformation Construction Management Office of the U.S. Army Garrison Vicenza and the Naval Facilities Engineering Command, the construction agent for U.S. Army Italy. With timely project execution, a new school complex, a child development center and school-age services facility, a modern access control point and a state-of-the-art health care facility were completed.

Each new project was completed on time and within budget, which epitomizes the efforts made by the Installation Management Command's Europe Region to efficiently meet the goals of Army Transformation and Base Realignment and Closure.

The new facilities showcase engineering excellence and sustainable design, meet all the U.S. and Italian construction standards and regulations, and conform to current anti-terrorism and force protection requirements.

Villaggio construction

Less than three years after the groundbreaking for the school complex in November 2007, the completion of the \$30 million project was celebrated Sept. 10. The school complex is located in the Villaggio housing area, where 100 housing units were demolished to make

Acronyms and Abbreviations	
MILCON	Military Construction
USAG	U.S. Army Garrison

room to accommodate the growing student population.

The two-story, 217,000-square-foot education building was built for an enrollment of 1,050 elementary students and 370 middle school students. Features include multipurpose labs, gymnasiums, a shared media center, a shared multipurpose hall with a stage for school plays and events, and an adjoining kitchen for school lunches. It was designed to meet the latest Department of Defense Dependents Schools' requirements and to provide students with a world-class environment for learning and growth.

The combined child development center and school-age services facility is located adjacent to the school complex and opened its doors Sept. 2. The \$10 million, single-story facility can accommodate up to 348 children in its 44,000 square feet.

The child development center features a dedicated kitchen and 13 rooms for infants, toddlers, preschool and multi-age activities. A central lobby connects it to the school-age services building, which offers child care before and after school. The specialty rooms for computers, arts, dance and music activities incorporate the most forward-thinking ideas in educational architecture, meeting the developmental needs of 21st century children.



The \$37.5 million, state-of-the-art health center replaces separate medical, dental, birthing and behavioral health facilities that were spread out around the post. Photo courtesy of USAG Vicenza



Construction progress is more than 30 percent complete at the Dal Molin site, future home of the 173rd Airborne Combat Team. Photo courtesy of the Naval Facilities Engineering Command, Vicenza, Italy



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A state-of-the-art access control point was also constructed on Villaggio. The entry gate is sized to smoothly manage the increased traffic flow to the area.

A design-build contract for \$4.6 million was awarded June 30 to build a 22,000-square-foot child and youth activity center. The center will also be on Villaggio and will be architecturally compatible with the new school complex and the child development center.

The project is scheduled to be completed by October 2012.

A new high school located next to the middle school is programmed to start construction in 2012. This \$41 million, 119,000-square-foot project will accommodate 370 students.

Along with general and specialty classrooms, features include a gymnasium with guest seating, a media center, a softball field and a football field surrounded by a regulation track. It is slated to be complete in 2014.

Caserma Ederle

On Caserma Ederle, three years after the September 2007 groundbreaking, the new health center opened its doors to patients Sept. 27. The \$37.5 million, two-story center was built to consolidate the aging dental, health care, birthing center and social work facilities that had been scattered throughout the post.

The health center brings a comprehensive array of inpatient and outpatient clinics into one 106,000-square-foot facility. Specialties include primary care, orthopedics, women's health services, pediatrics, pharmacy, radiology, physical therapy, optometry, social work and dental services.

In fact, the center provides several services that had been available only at the Landstuhl facility in Germany, saving Army patients an inconvenient 12-hour drive from Vicenza.



The USAG Vicenza military community's new school complex awaits the arrival of elementary and middle school children at the start of the school year. Photo courtesy of the USAG Vicenza

Built to the highest medical design standards, the facility is the largest European Regional Medical Command construction project in the last 20 years.

Dal Molin

On Dal Molin, the future home of the 173rd Airborne Brigade Combat Team, the \$289 million construction project is moving at a rapid pace. With less than two years to go until completion, construction progress is more than 30 percent complete with about \$70 million of construction in place.

Twenty-six cranes dominate the ever-changing site's skyline with buildings growing daily. The brigade headquarters and the recreation facility have covered roofs, and the precast-concrete structure is finished for the two six-level parking garages. Impressive systems of scaffoldings, concrete slabs and steel beams are ubiquitous on site and particularly noticeable on the two five-story barracks where 33,000 square feet of brick wall partitions are already up in the dwelling units that will house 1,200 Soldiers.

Simultaneous with vertical construction, there is just as much work being done underground and within the buildings. More than six miles of pipelines, three miles of medium voltage cables and 14 electrical substations have been placed to date for future connection to the urban grid.

Sustainable design for utilities and infrastructure is a key aspect of this project since the multi-facilities complex is being built for Leadership in Energy Environmental Design certification. Compliance criteria are very rigorous, and timelines allow no room for inaccuracy.

In the next few months, the number of workers and work on site will reach its peak. The challenges are huge with the workforce increasing from the current 300 to around 700 by spring and construction under way in every facility.

An enormous amount of work has been accomplished, and there is still a long way to go.

This last year was marked by the incredible performance and development of the Vicenza MILCON. Four large projects were delivered on-time and under-budget. The entire Dal Molin installation is making excellent progress and remains on track.

These success stories give confidence that solid foundations are in place for timely delivery of Dal Molin by fall 2012.

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Public Works Technical Bulletins: 2010 in review

by Dana Finney

Useful, hands-on guidance, assistance and technology tips for directors of Public Works and Army Corps of Engineers districts continued to flow during fiscal year 2010 with the release of 19 new Public Works Technical Bulletins. The latest PWTBs tackle environmental issues such as wastewater effluent reuse, selecting the right seeds for revegetating eroded lands and chlorine disinfection alternatives.

Most PWTBs can be downloaded from the Whole Building Design Guide website. You can navigate to this site easily through either the Construction Engineering Research Laboratory website or Engineering Knowledge Online's public pages: <http://www.cecer.army.mil> or <https://eko.usace.army.mil>. For those documents not yet posted, see the POC information below.

Brief descriptions of recently published PWTBs follow.

PWTB 200-1-66, **Detection of Fuel Spills in Wastewater Collection Systems**, reports the results of a technology demonstration conducted at Fort Bragg, N.C. The study successfully demonstrated that fuel spills entering a sanitary sewer system can be automatically detected and reported to DPW personnel by the use of specialized equipment placed in a manhole downstream of the spill.

PWTB 200-1-67, **Update to PWTB 200-1-38, Spill Prevention Control and Countermeasure Plan**, provides a review of the regulations concerning spill prevention control and countermeasure plans along with basic information that can be used by installation personnel responsible for making decisions on how best to manage stored petroleum to prevent releases to the environment.

PWTB 200-1-68, **Efficient Solid Waste**

Acronyms and Abbreviations	
DPW	Directorate of Public Works
PWTB	Public Works Technical Bulletin
SIRRA	Sustainable Installations Regional Resource Assessment



A novel microbial mat and polishing system did not meet pilot test goals for treating leachate from Fort Hood's landfill. Photos courtesy of Engineer Research and Development Center

Collection, describes current Army solid waste collection and disposal practices. Because private contractors usually provide solid waste services, this PWTB presents alternative performance-based and resource management contracting concepts designed to save money and promote waste reduction.

PWTB 200-1-69, **Demonstration of the EcoPod Composting System at Fort Lewis and Fort Hood**, Transmits information about an innovative composting system, EcoPod, that was demonstrated at two U.S. Army installations and discusses operation of the system, compared to other composting systems, equipment involved, use of additives and recommendations or conclusions regarding EcoPod and other composting methods.

PWTB 200-1-70, **Converting Nonnative Plant Species of Improved and Unimproved Grounds to Low-Maintenance Native Plant Species**, provides guidance for the conversion of improved and unimproved grounds to low-maintenance native plant species that can be used on Army facilities. The PWTB includes an overview of native plants appropriate

for Army facilities in various climate conditions by geographical regions. (Editor's note: See article on page 29.)

PWTB 200-1-71, **Lessons Learned: 404/401 Permitting on Military Training Lands**, provides a snapshot in time of regulatory requirements and of lessons that were gleaned from military land managers and environmental coordinators for 404 and 401 permitting.

PWTB 200-1-73, **Reuse of Materials from Modular, Relocatable Facilities**, provides guidance for recovering, reusing and recycling building materials typically found in modular, relocatable buildings installed under the Army transformation process.

PWTB 200-1-74, **Effective Use of Soil Coring for Archaeology and Pollution Prevention Site Characterization**, describes available soil sampling technologies and practical guidance on their effective use by archaeologists and pollution prevention personnel.

PWTB 200-1-75, **Rainwater Harvesting for Army Installations**, provides an overview of rainwater harvesting, ➤



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the capture of rainfall runoff from roofs or similar hard surfaces that would normally escape to storm sewers or overland flow, for Army installations. Rainwater harvesting provides a high quality water source that can be used to extend an installation's water supply.

PWTB 200-1-76, *Universal Waste Management and Disposal*, reviews the universal waste rule and provides basic information that can be useful at locations responsible for decisions on how best to manage and dispose of universal waste.

PWTB 200-1-78, *Spray Paint Materials Management and Pilot Delivery System at Fort Hood, Texas*, transmits the results of a paint booth emissions management system pilot study at Fort Hood.

PWTB 200-1-79, *Benefits of a Candidate Conservation Agreement for the Gopher Tortoise and Lessons Learned*, describes the Army's experiences from 2005 to 2009 in the development and implementation of a candidate conservation agreement for the eastern population of the gopher tortoise (*Gopherus polyphemus*).

PWTB 200-1-80, *Microbial Mat Landfill Leachate Treatment System*, describes results of a technology demonstration at Fort Hood of the use of a pilot-scale microbial mat system to treat leachate from the landfill.

PWTB 200-1-81, *Assessing Regional Sustainability with the Sustainable Installations Regional Resource Assessment Program*, provides information on accessing and using the SIRRA web-based analysis tool.

PWTB 200-1-82, *Modeling the Effects of Prescribed Burning on Ozone Precursors at Fort Bragg, N.C.*, describes results of an air pollution modeling study performed for Fort Bragg that determined the effects of prescribed burning on the concentration of ozone precursors in the region.

PWTB 200-1-83, *Feasibility of JP-8*



One PWTB reports on a study to model ozone precursors produced by prescribed burns at Fort Bragg.

Recycling at Fort Bragg, N.C., reports the results of a JP-8 fuel recycling feasibility study performed for the fort.


PWTB 200-1-84, *Air Emissions Source Monitoring Technology Implementation Study*, describes results of an air emissions source monitoring technology implementation study conducted at Fort Hood.

PWTB 200-1-85, *Installation Water Audit Guidelines*, presents information on how to conduct an installation water audit using methods developed during the Army Installations Water Sustainability Assessment research project.

PWTB 200-1-86, *Regional Water Availability Assessment Guidance*, informs installation staff about the watershed screening application of SIRRA and highlights ways in which this assessment can support installation water planning and management. This report details how installations can become involved in the planning process without extensive and costly procurement and provisioning activities.

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Call for **ARTICLES**

The January/February 2011
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How to aggressively manage fixed-price construction contract schedules

by Kevin McCullough

When you manage fixed-price construction contracts, contractor performance is key. What should you do when a project gets behind schedule? What can you do to get the contractor to finish? There are ways to help get the contractor back on schedule, or, if he keeps falling further behind, there is a process for terminating the contract for default.

The Federal Acquisition Regulation is the legal instrument that is used to enforce the contract. The first piece of advice is to be very familiar with the FAR. The second piece of advice is that, even if you are assertive in the steps you take to manage the contract, it still takes a lot of effort and diligence to succeed.

When contractors fall behind schedule, you can take steps to aggressively manage the contractor. Although the procedures will not be the same for every situation, this article provides a good rule of thumb that is consistent with most government policies.

Your goal is not to terminate a contract. If the contractor has an excusable delay, give him a time extension. However, there are cases where termination becomes the best course of action.

Schedule review

At the beginning of the job, it is very important that the contractor submits a realistic cost-loaded baseline schedule, which is the benchmark for schedule progress throughout the life of the project. Carefully review the earnings curve, and

the sequencing and time durations of all activities on the baseline schedule before approving it.

Contractors try to get paid as much as possible at the beginning of the project. This is known as front-end loading. Disapprove the schedule if it is front-end cost loaded.

For every contract, there is a government contracting officer and a contracting officer's representative. The COR is usually a project engineer or a construction representative who will refer to the approved baseline schedule throughout the contract.

Schedule slippage

If the contractor falls behind schedule by 5 percent, the COR has the option to retain up to 10 percent from progress payments. The retention is meant to get the contractor's attention and encourage him to get back on schedule.

If the contractor slips to more than 30 days behind the baseline schedule, four actions can be taken:

- retain 10 percent on the next progress payment;
- send a letter requesting a 90-day recovery schedule and a 90-day recovery plan;
- schedule a face-to-face conference with the contractor to go over the recovery plan and schedule, and to discuss the impact and the consequences of continued late performance; and
- meet weekly with the contractor to jointly evaluate the schedule recovery until the contractor is back on schedule.

Unsatisfactory evaluation

If after 30 days from the date of the first joint conference, there has been no material schedule improvement, the COR should send the contractor notice of the government's intent to issue an interim unsatisfactory

Acronyms and Abbreviations	
COR	contracting officer's representative
FAR	Federal Acquisition Regulation

evaluation. Interim unsatisfactory ratings alert the contractor to their shortcomings and can serve as a valuable tool in energizing a contractor to improve performance, correct deficiencies and avoid a final unsatisfactory rating.

After an interim unsatisfactory rating is issued, the COR must continue to monitor the contractor's performance and document performance improvement or vice versa, as the case may be. Documents should consist of memoranda of meetings, quality assurance reports and photographs. The COR will evaluate the interim unsatisfactory rating every three months until the contract is complete. The evaluations should include the reasons it is in the government's best interests to allow the contractor to continue performance of the contract.

The contractor has 14 days to respond to the intent to issue an interim unsatisfactory letter. If the contractor does not respond or if the contractor has not provided justification that shows that the delays were beyond his control, the COR will prepare the unsatisfactory rating on the appropriate agency form for the contracting officer's review and approval.

Cure notice

If after 30 days from the date of the interim unsatisfactory rating, the contractor has not shown material schedule improvement or a valid justification for the delay, the government can issue a cure notice. The contractor is given 10 days to respond.

If the COR receives a written response to the cure notice from the contractor within 10 days, the COR and the contracting officer review the response to see if the contractor has a convincing argument why he is behind schedule





Converting to low-maintenance grasses in improved, unimproved areas

by Heidi R. Howard

The costs, both environmental and financial, of periodic or regularly scheduled turf maintenance on cantonment and noncantonment areas can dominate the budgets of installation Directorates of Public Works and natural resources offices and can have adverse impacts such as excessive erosion and sedimentation. A new Public Works Technical Bulletin, developed by the U.S. Army Engineer Research and Development Center's Construction Engineering Research Laboratory,

addresses how to convert areas into stands of low-growing or low-maintenance species to help reduce economic and environmental impacts.

Converting areas into native low-growing stands could reduce the maintenance burden and labor schedules through improved management. One example is selecting appropriate locally adapted low-growing grass mixes to reduce mowing costs on small arms ranges or for improved and unimproved road rights-of-way. ➤



This closeup shows some of the native vegetation in CERL's demonstration plots. Photo courtesy of Engineer Research and Development Center

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and how he plans to get back on schedule quickly. The government may decide that the contractor has a valid justification and give 30 more days to "get well" while the government monitors the contractor's performance.

Show cause

If the government decides that the contractor's letter does not provide justification for delays or there is no response to the cure notice within 10 days, the contracting officer issues a "show cause" letter. The show cause letter allows the contractor 10 days to present mitigating circumstances why the government should not terminate the contract. If the contractor does not respond within 10 days, the contract may be terminated for default.

If the contractor sends a written response, the contracting officer evaluates the response to determine if the contractor provided justification for the past delinquency in terms of one of the 11 excusable reasons listed in the FAR. If the delay was not excusable, the contracting officer can issue a termination for default notice.

It is now 123 days, or about four months, since the start of the process. The termination for default process is long even if you aggressively follow the steps, so diligence is required.

Other considerations

When deciding whether to terminate a contract, the contracting officer and the Office of Counsel look at the big picture. They study the facts to see if allowing the contractor to continue is advantageous to the government.

Time and money are factors. It takes four to six months to re-advertise and procure a new contractor. They may decide to allow the contractor to complete the project if it is expected he would finish within three months. It may cost less to allow the contractor to complete the project than the cost to advertise and reprocure the contract.

They will also determine if the contractor is financially able and is motivated to complete the project. There may be liquidated damages when the project is past the contract completion date, which may be a factor as well.

Termination

In the final step in the process, the COR prepares a termination for default letter for the contracting officer's signature. The termination for default letter includes a summary of the termination decision and the findings of fact. The letter is very specific and detailed and incorporates supporting documentation. The COR also completes the contractor's final unsatisfactory performance rating for Office of Counsel

and the contracting officer's review.

The termination for default process is much shorter if the contractor has abandoned the job site and does not respond to correspondence. The government issues the cure notice at that point, the show cause letter 10 days later and then the termination for default.

Advice

To successfully navigate this process, the COR must thoroughly document the contractor's performance. Recommendations are:

- Work closely with Contracting.
- Keep dealings with the contractor professional at all times.
- Write letters whenever the contractor is behind schedule or is not following the contract.
- Take meeting minutes at all meetings.
- Take pictures of progress in the field and of any defective work.
- Write thorough daily reports.
- Document all conversations that take place on the phone or in the field.

If used wisely, these tools for aggressive schedule management are very effective.

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San Antonio installations: More square footage, smaller carbon footprint

by Brian Dwyer

The three military installations in San Antonio are entering the final year of a five-year period of extraordinary growth that was prompted largely by mission consolidations outlined in the 2005 Base Realignment and Closure law. By the end of September 2011, it's anticipated that more than 6 million square feet of BRAC-mandated facilities will have been added to the installations, in addition to hundreds of thousands of square feet of non-BRAC-funded facilities. One thing that won't be expanding, however, is the energy and water use of these buildings relative to their consumption levels had they been built just a few years earlier.

All BRAC and non-BRAC projects at San Antonio installations are being developed according to Leadership in Energy and Environmental Design Silver certification standards. LEED is a national green building rating and certification program administered by the

U.S. Green Building Council to promote improved environmental and human health performance. LEED standards call for the use of designs and materials that will produce energy savings, water efficiency, carbon dioxide emissions reduction and improved indoor environmental quality.

While work continues across the San Antonio construction program as a whole, the USGBC has already recognized individual BRAC projects for incorporating sustainability into their design and construction. Earlier this year, the dining facility that's part of the new Medical Education and Training Campus on Fort Sam Houston gained LEED Silver certification after a USGBC review yielded 35 points on the LEED rating scale. Between 33 and 38 points are required to qualify for Silver status.

More recently, the project to expand and renovate Brooke Army Medical Center on Fort Sam Houston, which is the largest project in the San Antonio program, also marked progress toward obtaining LEED Silver certification. A review of the project's design produced 23 points on the rating scale. An additional 15 points are being sought during the construction phase, which is expected to continue through next summer.

Other high-profile projects in this construction program are also being built to LEED Silver standards. They include a campus to serve as the new home of Headquarters, Installation

Acronyms and Abbreviations	
BRAC	Base Realignment and Closure
LEED	Leadership in Energy and Environmental Design
USGBC	U.S. Green Building Council

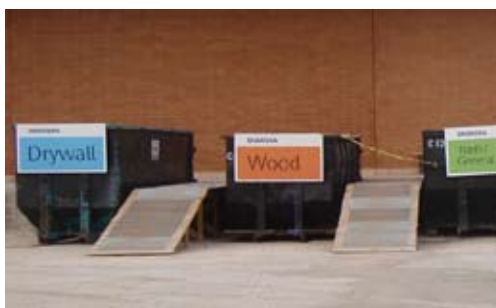
Management Command and a new building to house the headquarters of the 502nd Air Base Wing, which will consolidate the installation support functions of San Antonio's three military installations — Fort Sam Houston, Lackland Air Force Base and Randolph Air Force Base.

Small details, big difference

The Brooke Army Medical Center project involves construction of a seven-story, 760,000-square-foot tower addition, a central energy plant and a 5,000-space parking garage. More than 300,000 square feet of the existing hospital is being renovated. The design attempted to integrate enhancements into every element of the project that would boost conservation and foster healthier work environments.

A computerized simulation of the project in its finished state was created to evaluate the performance of every mechanical and electrical device as though they were operating every day for a complete year. The results projected an annual energy cost savings of 21 percent compared to the energy cost had sustainability features not been included in the design.

Realizing this level of efficiency will ➤



These dumpsters at the construction site of the Tri-service Research Laboratory, a BRAC project, are part of an effort to recycle and reuse construction materials. Photos courtesy of U.S. Army Corps of Engineers

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The bulletin provides guidance for the conversion of improved and unimproved grounds to low-maintenance native species that can be used at Army facilities. It delves into the establishment of native stands of grasses by providing examples of site preparation, installation and maintenance. In addition, an overview of native plants appropriate for Army

facilities in various climate conditions is provided by geographical regions.

This bulletin provides a summary of site preparation, installation and maintenance of native plant species that have been shown to provide some level of improvement in turf maintenance. PWTB 200-1-70, *Converting Non-Native Plant Species of Improved and Unimproved Grounds to Low Maintenance Native*

Plant Species, can be found at: http://www.wbdg.org/cb/ARMYCOE/PWTB/pwtb_200_1_70.pdf.

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require a collection of specialized features. The roof will be treated with a material that helps reflect sunlight, so that less energy is needed to cool the building. In addition, the roof insulation is more substantial than that required by code, and extra wall insulation is being used to reduce the heat transfer between rooms.

To further reduce interior temperatures, ornamental coverings will be placed over the windows to provide shade. They block direct sunlight, but will still allow natural light to enter the building and permit views to the outside. The window glass will have a high insulation value, and an enhanced solar heat gain coefficient is to be used instead of the minimum required by code. There will also be a large structural sun screen in place above the south side of the building to help limit heat absorption.

Inside the tower, the design calls for the use of one air handling unit per a maximum of 22,500 square feet of building space, which is expected to save a significant amount of energy. This arrangement will allow units serving areas that are not in continuous use to be shut down periodically. Employing a larger number of air handling units than usual also permits spaces requiring high-efficiency particulate air filters to be grouped with a single air handler so that the higher static-pressure air flow required can be minimized.

Keeping it clean inside and out

The same amount of effort devoted to reducing electricity demand has also been applied to bolstering the hospital's indoor air quality. The prescribed cleaning products comply with Green Seal's standard for cleaning and degreasing agents, meaning that they are nontoxic and non-irritating. The hospital staff will receive special training on how to safely use and store these products. Also, the mechanical system has been designed to

remove any irritating fumes or odors from storage areas.

The adhesives used to secure tile and carpet, the sealants for joints and connections, and the paint and other coatings used on the project were all selected because they contain only moderate quantities of volatile organic compounds, which, in high amounts, can produce harmful gases.

This sort of environmental sensitivity is further reflected throughout the tower in the finish materials selected because of their low impact on the environment. For example, the wood in the cabinets and doors is certified by the Forest Stewardship Council as having been harvested in ways that did not significantly displace plants and wildlife, as opposed to clear cutting.

The sustainability of the project's design extends outside of the hospital as well. A pond will serve as the main collection point for rainwater runoff from areas around the hospital. In addition to the rainwater, condensation and water will be collected from the cooling towers of the hospital's new central energy plant adjacent to the pond.

This water ultimately will be reused to irrigate the landscaped areas around the hospital. Also, sediment that forms in the pond will be collected and removed from the water that is allowed to enter storm-water drainage systems and flow into creeks and rivers downstream.

Down the road

It's anticipated that the LEED points garnered by the design of the medical center expansion project will be followed by additional construction points that would qualify the project for Silver certification. This project, however, is not expected to be the last one in the San Antonio program to become certified.

Representatives of the Joint Program Management Office overseeing construction of the Medical Education and



One of three dormitories on the Medical Education and Training Campus, which is geared to attain LEED Silver certification, is under construction.



A seven-story addition is being built next to Brooke Army Medical Center.

Training Campus complex are pursuing efforts to have 11 buildings, in addition to the dining facility, certified as Silver or higher. When completed next year, the complex is expected to be one of the few in the nation to have attained campuswide LEED certification.

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At Fort Carson, employees with common goal of going green drive success

by Eileen L. Williamson

The Omaha District of the U.S. Army Corps of Engineers is working with the Department of the Army and the Directorate of Public Works at Fort Carson, Colo., to quietly turn the post into one of the greenest places on earth.

Since 2007, 12 Fort Carson projects have resulted in 26 buildings achieving the U.S. Green Building Council's Leadership in Energy and Environmental Design certification. Thirteen achieved Gold certification, and another 13 are LEED Silver certified. These 26 buildings make Fort Carson's concentration of LEED-certified buildings one of the highest in the country.

Another 50 buildings are part of 30 projects presently pursuing LEED certification. The facilities are at various stages of the certification process.

In 2006, as the Army required that all new buildings were to be LEED Silver certifiable, Fort Carson was preparing to receive an entire combat brigade from Fort Hood, Texas. Foreseeing the potential impacts of implementing LEED on several construction projects led Omaha District to step back and look at the ramifications of LEED on such a high volume of buildings.

"We took the time to get LEED training so that we understood the philosophy and the processes associated with the new LEED requirements," said Matt Ellis, USACE resident engineer for the restationing workload surge.

USACE project engineer Cambrey Torres agreed.

"The LEED process is something that requires a change of habit," Torres said. "It is a change in the overall mindset for designers, contractors, the military and,

ultimately, the end-user."

Contractors are presented with new responsibilities that require a dramatic shift in practices. Attention is focused on recycling, using recycled materials, and tracking and recording the source of project materials and the quantity of material diverted from landfills.

"We've all had a huge opportunity to think and be innovative," Ellis said. "We were challenged to develop solutions for waste disposal, lighting, building orientation and how to measure and ensure we were meeting the standards for LEED certifiable."

The requirement for a facility to be LEED certifiable presented its own challenge: How does a project management team sign off on a project as certifiable?

Pursuing certification from the start of the project is less expensive than a retroactive review, which can cost tens of thousands of dollars to hire a third party to audit records and designs and to commission the building. Pursuing certification from the start with interim reviews by USGBC throughout the design and construction means the required documentation takes place along the way and results in a cost of about \$6,000.

Omaha District's LEED coordinator, Brian Nohr, praised the efforts of the team



(Left to right) Vince Guthrie, Fort Carson Utilities Program manager; Cambrey Torres, USACE project engineer; and Hal Alguire, Fort Carson DPW; discuss the LEED features of Fort Carson's new Wilderness Road Complex. Photo by Susan C. Galentine

at Fort Carson.

"The solutions they have developed, the approaches of each design team and the lessons we are learning will influence the future of energy-efficient and sustainable construction," Nohr said.

Some of the green features used at Fort Carson are: white thermal plastic olefin roofing to reduce heat absorption; precast concrete wall panels produced about five miles away, which helps meet the requirement to use 20 percent of materials produced within 500 miles of the project site; solar panels for domestic hot water heating; skylights and translucent

Fort Carson LEED Projects as of Aug. 27, 2010

Description	Level	Points	Cert Date	Bldgs
Bde Combat Tm-Hvy, Co Ops Facility	Silver	37 pts	Dec 08	6
Bde Combat Tm-Hvy, Bde Btn HQ	Gold	40 pts	Mar 09	1
Div HQ - Cmd & Ctrl Facility	Silver	33 pts	Jun 09	1
Div HQ - Btn HQ	Silver	33 pts	Oct 09	1
Bde Combat Tm-Hvy barracks	Gold	39 pts	Nov 09	4
Unacc Pers Hsg South Barracks	Gold	39 pts	Nov 09	1
Div HQ - Band Training Facility	Gold	41 pts	Jan 10	1
Div HQ - Unacc Pers Hsg & Co Ops Facility	Silver	34 pts	Feb 10	2
O'Connell Barracks Bldg 1000	Silver	33 pts	Feb 10	1
O'Connell Co Ops Facility Bldg 515	Silver	38 pts	Feb 10	1
Air Support Ops Squadron	Silver	35 pts	Apr 10	1
Bde Combat Tm-Hvy, Tact Equip Maint Facility	Gold	39 pts	May 10	6

Acronyms and Abbreviations

DPW	Directorate of Public Works
LEED	Leadership in Energy and Environmental Design
USACE	U.S. Army Corps of Engineers
USGBC	U.S. Green Building Council



At Redstone Arsenal, Von Braun Complex final phase under way

by Lisa Coghlan

Phase III of the Wernher Von Braun Complex, under construction at Redstone Arsenal, Ala., will be larger than Phases I and II combined. The \$212 million facility will house more than 2,650 Space and Missile Defense Command and Missile Defense Agency employees in an 840,000-square-foot facility.

The SMDC and MDA are being partially relocated to Redstone Arsenal, Ala., as part of the Base Realignment and Closure program.

“This facility is being designed and constructed using the latest in green technology,” said Ron Kalifeh, project manager. “All systems and lighting are very energy efficient. Recycled products are being used to the greatest extent possible. Construction waste is being recycled.”

Acronyms and Abbreviations

BRAC	Base Realignment and Closure, 2005
FY	fiscal year
MDA	Missile Defense Agency
SMDC	Space and Missile Defense Command

The recycled construction materials include concrete, steel and cardboard. Materials with recycled content that are being incorporated into the building are carpet, steel and ceiling tile. The building will be Leadership in Energy and Environmental Design certified.

A substation and upgrades will bring the total cost to \$221.8 million. Completion is slated for January 2011.

Phase I of the Von Braun Complex provided about 220,000 square feet of office space for SMDC and was completed in 2003 at a cost of \$32 million. Phase II, built for MDA and completed in 2007, cost \$44 million and is 230,000 square feet.

Phase III, a six-story building with a basement, will include administrative spaces, a cafeteria, an 800-seat auditorium, a fitness center and a central mechanical plant.

The project is being constructed as a design-build contract and was incrementally funded over three years with initial funding in fiscal 2008 of \$67 million,



This rendering depicts how the Von Braun Complex at Redstone Arsenal will look when completed. Graphic by LS3P Associates Ltd

\$127 million in FY 2009 and \$27.8 million in FY 2010.

All three buildings combined will be about 1.3 million square feet, which will make the Von Braun Complex the largest office complex on the arsenal, housing more than 4,500 personnel. The third phase of the complex is the largest administrative building in the state of Alabama.

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panels in conjunction with lighting controls and occupancy sensors to reduce energy consumption; habitat restoration and maximizing open space during site development; and landscaping that uses native plants to minimize irrigation demands.

“We need to give real credit to the employees who encouraged the focus on sustainable construction to bubble up by making sure that [everyone] knew decisions were made with the goals for LEED in mind,” said Hal Alguire, Fort Carson’s director of Public Works.

Enthusiasm from employees leading these projects was contagious and will continue to drive the program forward including earning certification for the operation and maintenance of existing buildings and achieving LEED certification for facility renovations, Nohr

said. Eventually it should result in net-zero facilities, which meet their annual energy needs through super efficiencies and energy generation.

“When the first project achieved LEED Gold certification, the bar went up for everyone else,” said Maj. Kevin Lovell, USACE project manager forward. “It was [as] if they collectively said, ‘If they can earn Gold, so can we,’ and ever since, they have been aiming for Gold.”

Because the construction-bidding environment over the last year has beat cost estimates by 10 to 30 percent, the Army has presented the challenge to reinvest the savings in further efficiencies by emphasizing energy conservation, sustainable design, low-impact development and energy independence.

The final step is educating the end-user, both Torres and Lovell said. Sometimes the LEED solutions result in a change

in convenience, such as water in the barracks being set to a lower maximum temperature. But, when end-users understand these efforts help projects go green, the response is positive.

“When the people who are driving this initiative come to the project meetings, it is clear we are led by a generation that is latching on to these goals for environmental responsibility and running with them,” said Vince Guthrie, DPW Utility Programs manager. “We are benefitting from the return on investment, marketability and the positive attention for implementing what is, essentially, the right thing to do.”

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At Fort Drum, Corps looks below Earth's surface for green energy

by Chris Gardner

With construction booming around Fort Drum, N.Y., and the Army looking for more ways to green its construction practices and buildings, the Fort Drum Program Office of the Army Corps of Engineers, New York District, decided to look into alternative sustainable energy sources for new construction. Among the sustainable energy sources it is using are geothermal systems for heating and cooling.

The temperature below the earth's surface remains nearly constant between 50 and 60 F. A geothermal system consists of a network of buried pipes filled with liquid that acts as a heat exchanger to transfer energy to and from the building. A geothermal heat-pump system provides temperature control inside buildings without burning fossil fuels.

"By using these systems, we exceed our military energy requirements and reduced utility costs for Fort Drum," said Edward Sim, New York District's Fort Drum Program manager.

For facility occupants, the heating and cooling of rooms is similar to traditional systems. Occupants can adjust the temperature on a room-by-room basis, and the installation can adjust the temperature from a central location.

The Corps started using geothermal systems at Fort Drum for the construction of the Wheeler-Sack Army Air Field Complex. During preliminary design discussions in 2002, engineers from the Fort Drum Program Office toured the local Indian River School District's large building addition that incorporated geothermal to learn about the system's operation and performance. The engineers also visited other facilities that use geothermal to get a better understanding of geothermal design before incorporating it into the designs and contract language for the Wheeler-Sack complex.

"We heard concerns during the design phase in 2003 that geothermal systems

would not work for our applications," said Phil Favret, project manager. "But the Wheeler-Sack Barracks is proof that the systems do work here at Fort Drum."

The barracks were two of 17 buildings in a \$100 million complex completed in 2006.

Favret said they were pleased with the end result of the project and a bit surprised at how well the geothermal systems worked in minus 20-degree temperatures during the winters that followed.

"We conducted a survey of the residents in the barracks over at Wheeler-Sack Barracks, and we received positive responses from all surveyed," Favret said.

A child development center under construction incorporates a geothermal heating and cooling system. The facility is designed to be Fort Drum's first Leadership in Energy and Environmental Design Gold-rated building.

Contractors have drilled 16 wells to handle the roughly 17,000-square-foot facility's heating and cooling needs. The wells are about 425 feet deep and took about a week to drill. The depths of the geothermal wells will vary throughout the installation depending on the geology and thermal conductivity of the area.

Using geothermal energy reduces energy costs by reducing the amount of fossil fuels burned, which can be intense during Fort Drum's extreme winters during which temperatures can drop well below zero and have reached the minus 30s.

Geothermal performs very well, even in the cold, said Favret, but in the most extreme temperatures, the system sometimes needs a boost from traditional heating sources.

Geothermal costs about 30 percent more during construction than traditional heating and cooling systems, Sim said. The payback — the amount of time it takes for a facility to recoup that initial cost with money saved in utilities — is usually three to seven years.



Crews work on trenches for geothermal wells at the Child Development Center under construction at Fort Drum. Photo by Dan Desmet, New York District

The payback depends on the building size and the fluctuating cost of fossil fuels. Increases in fuel costs in recent years have actually shortened the estimated payback time, he said. The Program Office is looking into monitoring systems to determine the specific return on investment for Fort Drum.

After success with the geothermal systems in barracks projects from 2004 through 2008, the Fort Drum Program Office is now providing geothermal as a primary option in all new construction where it is feasible. Geothermal does not work well in large, open-area buildings, like hangars and vehicle maintenance facilities, where the Corps uses solar walls. Projects that lend themselves to geothermal range from barracks facilities to administrative buildings.

Today, geothermal has been incorporated in 19 buildings that are completed, under construction or in design at Fort Drum. These include the child development center, 11 barracks buildings, a brigade and battalion headquarters building and an addition to the Guthrie Medical facility. Geothermal was also used in the recently completed Warriors in Transition Complex and will be included in two facilities to be added to this complex.

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At Fort Polk, Facilities Reduction Program demolishes buildings fast

by Jo Anita Miley

Although it's not unusual for the Facilities Reduction Program to demolish buildings, this is the first time the team has taken on a large scale demolition project to remove two buildings in fewer than 60 days. The team is tearing down a 4,830-square-foot World War II wooden building and a 31-year-old 70,832-square-foot facility formerly used as a thrift shop and an exchange at Fort Polk, La.

The FRP, part of the U.S. Army Engineering and Support Center's Installation Support and Programs Management Directorate, eliminates excess facilities and structures to reduce fixed installation costs and achieve energy savings. Huntsville Center centrally manages programs on behalf of the Installation Management Command. Since 2004, the program has grown to include NASA, the Defense Logistics Agency, the U.S. Army Reserve and the U.S. Air Force.

Fort Polk needed the buildings removed to begin new construction. The request was submitted to Janie Thompson, a general engineer with IMCOM's Southeast Region. The demolition was given a high priority and had to be completed in a short time frame due to the requirements of the other organizations involved.

"The timeline for this project didn't allow any leeway and had to be completed on schedule," Thompson said. "We had to accept the Army and Air Force Exchange's need for the buildings to be removed at an accelerated rate in a small amount of time. Their organization had to make sure that the work was done during a time that posed the least problems for them, to include minimizing [any] adverse effect on their forecasting and planning future construction.

"Huntsville Center found a contractor that was very capable of doing the job and could turn it around in the customer's timeline," Thompson continued. "I am pleased that the contractor did an excellent job."

Mindy Shelton, FRP project manager, at Huntsville Center, also called the project extremely successful.

"Not only did they finish it on time, due to the condensed schedule, AAFES only had minimal time to transfer inventory from the exchange and food court to a storage area while coordinating demolition of the old exchange in order to create the parking lot for the new site," Shelton said.

Construction and demolition teams worked long hours to get the job done, remaining well ahead of schedule throughout the entire process. Contractor All Phase of Delray Beach, Fla., began demolition June 14.

Workers recycled concrete blocks, brick, steel framing, aluminum, copper, tin, asphalt, stone, steel, grass and soil from the surrounding area. About 75 percent of the materials resulting from the demolition were recycled. The contractor compiled more than six different piles of uncontaminated material that was recycled.

Robert Hughes, engineering technician, Fort Polk Directorate of Public Works, Real Property Branch, said the recycling effort for the site was very well organized.

"Hazardous material such as asbestos was abated immediately, and sent to a separate facility," Hughes said. "We made



A backhoe takes down a 4,830-square-foot building, one of two structures at Fort Polk, La., demolished in 60 days by Huntsville Center's Facilities Reduction Program. Photo courtesy of Huntsville Center


sure the site was safe, and All Phase employees followed necessary hazardous material handling procedures. I can't stress enough how important safety is, especially when a project has to be turned around in a short time frame."

Dennis Jackson, realty specialist, Fort Polk DPW, Real Property Branch, said his office made sure the job was completed properly, in spite of the accelerated timeline. Jackson has been working closely with All Phase, Huntsville Center project managers and IMCOM officials since early June to make sure the project ran smoothly.

Complete restoration of the land on the site was finished Aug. 13, and the construction of a new parking lot is underway, to be followed by an exchange and a restaurant.

"Having a new exchange and Chili's restaurant will be a plus for our Soldiers and their Families, improving their quality of life," Jackson said. "This is what is important."

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Acronyms and Abbreviations	
AAFES	Army and Air Force Exchange Service
DPW	Directorate of Public Works
FRP	Facilities Reduction Program
IMCOM	Installation Management Command



Fort Polk, partners work for rare reptile recovery

by A. Sara Thames

Fort Polk, La., hosts the Army's premier Joint Readiness Training Center, providing tough and realistic combat training for the modern light infantry Soldier among the longleaf pine forests of west-central Louisiana. Fort Polk is also a haven for perhaps the rarest and most reclusive of North American reptiles; the Louisiana pine snake, *Pituophis ruthveni*.

While historically rare, populations of the Louisiana pine snake declined precipitously due to widespread logging of the longleaf pine forests during the last century. In the past, this ecosystem dominated the southeastern United States coastal plain, covering as much as 92 million acres. Subsequent conversions of land for commercial use and fire suppression further reduced available habitat for the snake. Today, roughly 3 percent of the longleaf pine ecosystem remains.

At one time, the Louisiana pine snake was established in at least nine Louisiana parishes and 14 Texas counties. Today, it is found in only four Louisiana parishes and five Texas counties. Due to this decline, the Louisiana pine snake was designated as a candidate endangered species by the U.S. Fish and Wildlife Service.

As a candidate species, it receives no formal federal protection under the Endangered Species Act, but does receive protection from direct harm and unauthorized collection under Texas and Louisiana laws, as well as Fort Polk regulations governing species of concern.

Fort Polk biologists proactively manage for the species, but managing for the Louisiana pine snake can be challenging due to its secretive nature and the limited knowledge available about its biology and habits. Due to these challenges, a consortium of federal and state partners came together to develop a way ahead for the reptile's management with the goals of establishing a framework for cooperation and ensuring the protection, conservation

and best management of the species.

The consortium established the Candidate Conservation Agreement, which covers national forest lands in Texas and Louisiana and on the Fort Polk Military Reservation. The goal of the agreement is to conserve the Louisiana pine snake on federal lands by protecting known populations and habitat, reducing threats to its survival, maintaining its ecosystem and restoring degrading habitat.

The agreement addresses the pressing needs of the species. Through such cooperation in implementing and refining conservation measures, it is hoped that the Louisiana pine snake, in addition to other candidate species, may be recovered without being added to the endangered species list.

All of the partners work toward the main goals of:

- reducing habitat fragmentation,
- identifying and monitoring areas of prime habitat,
- maintaining or increasing population, and
- serving as reservoirs for genetic diversity of the species.

The Joint Readiness Training Center and Fort Polk are doing their part by:

- managing the longleaf pine ecosystem at the installation using prescribed fire and forest management through an integrated forest prescription process;
- maintaining herpetofaunal monitoring stations, which are sets of traps established throughout prime habitat to document the seasonal presence or absence of the species;

- recording data on each captured snake, such as specific body measurements and sex identification, and collecting skin sheds, blood and fecal samples;
- tagging captured snakes to prevent the collection of duplicate data in the event of recapture;
- sharing information with the Southern Forest Experimental Station to increase knowledge on genetic diversity, prey preference and growth or age statistics, which will lead to a better understanding of the overall biology of the snake and improved management and conservation efforts in the future; and
- including a Louisiana pine



The Louisiana pine snake, a candidate endangered species, is a large, nonvenomous constrictor, usually 4 to 5 feet long and dependent for habitat on herbaceous layers and sandy soil like the longleaf pine ecosystems at Fort Polk, La.



Traps are used to capture Louisiana pine snakes throughout areas of prime habitat, so that data can be collected from each captured snake. Photos by Chris Melder, Directorate of Public Works, Fort Polk



Army Hawaii helps acquire land to protect endangered bird, enable training

by Alvin Char

How does an Army garrison safeguard both valuable training areas and endangered species — tasks that may seem mutually exclusive? One answer can be found in the Hawaiian saying, *'A 'ohe hana nui ke alu 'ia*: No task is too big when done together by all.

Located on the central plateau of the island of Oahu, Schofield Barracks, Hawaii, provides training and garrison support to the 25th Infantry Division, 500th Military Intelligence Brigade, 19th Military Police Battalion, 599th Transportation Brigade, Hawaii National Guard and other tenant units. Impact areas for high explosive ordnance are located at Schofield Barracks and also at Makua Military Reservation on Oahu's leeward coast.

The continued use of both impact areas is critical to weapons qualification training and collective training up to the company level. Numerous endangered plant species are located on lands surrounding these impact areas, which are threatened by wildfires caused by live-fire training.

In consultations with the U.S. Fish and Wildlife Service, the Army in Hawaii is required to protect these endangered plants and animals. Due to the small size of Hawaii's installations and the critically endangered status of many of these species, the Army, in addition to performing on-site mitigation, is required to establish



On the eastern slopes of the Waianae Mountains, U.S. Army Hawaii establishes and protects endangered species on the Honouliuli Forest Reserve, home to 39 threatened and endangered species, 16 of which are found nowhere else in the world. Photo by Phil Spalding III, the Nature Conservancy

and protect off-site populations.

One of the more important off-site mitigation areas is directly to the south of the Schofield Barracks impact area, on a parcel known as the Honouliuli Preserve. The preserve was owned by the James Campbell Estate and managed by the Nature Conservancy under a conservation easement.

Eighteen listed stabilization species are being managed by the Army on Honouliuli:

- four of 25 plant species found at Makua Military Reservation;
- six of 23 plant species found at Schofield Barracks;
- six plant species found at both Makua and Schofield;
- one endangered Oahu tree snail, *Achatina mustelina*; and

nella mustelina; and

- one endangered bird, Elepaio, *Chasiempis sandwichensis*.

Use of the Honouliuli Preserve for the stabilization of the Elepaio is critical. About 25 of the Army's required 75 breeding pairs are protected each season in the preserve.

The Campbell Estate placed the preserve on the market and sold contiguous fallow agricultural lands in the same area, which also results in the threat of incompatible development.

In 2010, U.S. Army Garrison Hawaii, in partnership with the Trust for Public Land and with the generous support of many other partners, purchased and transferred the 3,592-acre Honouliuli Preserve to the State of Hawaii Department of Land and Natural Resources to be permanently protected. The preserve was renamed the Honouliuli Forest Reserve.

As a result, the Army is able to continue its work to protect and stabilize these species and preserve the use of valuable training areas in support the Army in Hawaii.

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snake initiative in the approved Army Compatible Use Buffer Program proposal.

The Nature Conservancy, a Fort Polk partner, is in the process of negotiating with private land holders to secure prime habitat. This habitat, in the area with the highest known density of the snake, would provide a core stronghold for the species.

For the Louisiana pine snake, these

efforts may save the species. For the Joint Readiness Training Center and Fort Polk, these efforts provide valued insight on how best to manage a unique natural resource while continuing to provide full spectrum training.

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Fort Drum Warriors in Transition Complex comes online

by Chris Gardner

The recently completed 385th Infantry Battalion barracks and adjoining administrative facilities at Fort Drum, N.Y., are a bit different from the other barracks projects springing up as the installation continues to grow. The 385th is one of the Army's Warriors in Transition units, which is a relatively new concept for the Army. WIT units are made up of wounded Soldiers and are geared toward helping them make the transition back to traditional Army units or into civilian life.

The \$35.7 million project consists of two buildings — a 144-Soldier barracks and a company operations facility. The site is capable of expansion for up to seven similar facilities.

The project was awarded in July 2008 and was completed in mid-February. Soldiers moved into the barracks April 10.

The company operations facility is where Soldiers get medical and personal services, and commanders can manage the Soldiers' complex and often long transition processes in one place. It serves as a nerve center for their healing that is connected to their housing.

"I think the facilities are going to make the process of transition for the warriors move forward even better," said Capt. Judi Mckee-Sanders, the 385th's Alpha Company commander. "It's a significant improvement to have everybody under one roof and connected. The process will be streamlined."

Many of the Soldiers, whether they have suffered physical wounds, psychological wounds or both, have a litany of doctor, physical therapy and counseling appointments and other meetings required to get squared away for the next steps in their lives. Professionals who used to be spread all over the installation or even further away are now within walking



The Fort Drum WIT Complex comprises a company operations facility and a 144-Soldier barracks. Photo by Chris Gardner

distance of WIT housing, including case managers, nurses, social workers and counselors. The 385th's leadership is there, too, and Fort Drum's Guthrie Ambulatory Health Care Facility is across the street.

"The access to Guthrie Facility and for appointments is way better than having to drive and provide transportation for Soldiers who can't get around," said Spc. Brandon Kowalzek, a Purple Heart recipient who was injured by a roadside bomb in Afghanistan. "Access to the command area is a lot easier," Kowalzek said.

While the facility offers Soldiers many services to help them with their healing and their transition to traditional units, there is also help available for those looking to transition into the civilian world.

"The ultimate goal is to return the Soldier to duty," said Mckee-Sanders. "However, depending on what brought the Soldier here into the WIT unit, sometimes that's not always possible. So then, we look at the next option, which is returning them to civilian life."

Civilian transition can include helping Soldiers with career services, exploring educational opportunities and determining what kinds of support the Soldiers will need after they leave the Army.

Spc. Drew Brandenburg, another Soldier in the unit, was injured while training for deployment. Brandenburg plans move on to civilian life to become a police officer. He is getting help from education counselors in the nearby administrative building.

The WIT barracks appear similar to most other barracks, but the rooms are

designed to be more comfortable for the transitioning Soldiers as they heal.

"These Soldiers have made great sacrifices and fought for our freedom, so we owe it to them to take care of them when they get home," said Jay Pratt, U.S. Army Corps of Engineers, New York District's project engineer for the complex.

The living quarters have larger rooms, have kitchenettes and offer the Soldiers more privacy than in traditional barracks.

"It's actually very, very, very nice for Army barracks standards and conditions for single Soldiers to live in," Kowalzek said. "The size of it is basically like a small apartment. You've got your personal side and the doors to each room. There's a lot more comfort."

Certain rooms are Americans with Disabilities Act-compatible. These rooms have unique features like adjustable height countertops or specialized bathroom facilities for Soldiers with physical injuries.

"Our rooms are now specialized, so if I have a Soldier in wheelchair or who has a disability that requires him to sit or rest more frequently, we now have the ADA-compatible rooms with the stove and countertop that can be adjusted to their level, which is a huge plus for those individuals," Mckee-Sanders said.

The three-story barracks is equipped with oversized elevators and "areas of rescue," which are special spots near exits where people with disabilities can remain temporarily in safety during an emergency while awaiting further instruction. Neither the large elevators nor the areas of rescue are standard for Army barracks.

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
WIT	Warrior in Transition



Savannah District improves quality of life for Soldiers, Families

by Rashida Banks

Military Families call on the help of installation child care centers to care for their children. Family support facilities like these not only help to improve the quality of life for deserving military Families who support Soldiers, but they also provide convincing incentives for Soldiers to continue their service.

“The last thing Soldiers need to be worried about is their Families when they are deployed,” said Quian Huff, facility director of Indian Head Child Development Center at Fort Benning, Ga. “Our facility provides them with peace of mind, so that they can focus on their mission knowing that their child is in a safe environment.”

As an example of this important effort, more than \$145 million in construction



Education specialist Janeen Rosenberg discusses bachelor's degree program options with Staff Sgt. Jaime Perez (center) and Sgt. Juan Batista (right) at the Fort Stewart Soldier and Family Assistance Center. Photos by Billy Birdwell

projects in support of Soldiers and Families are under way within the Corps of Engineers' Savannah District. These Soldier and Family assistance centers, schools, and child development and youth centers, which will serve thousands of military Families on six installations, uphold the *Army Family Covenant*, which pledges to improve the quality of life for Soldiers and Families.

Providing peace of mind

Since January 2009, the Savannah District has constructed four child care facilities in Georgia — one at Hunter Army Airfield, one at Fort Stewart, and two at Fort Benning. Several others are under construction at Hunter, Fort Stewart, Fort Bragg, N.C., Fort Gordon, Ga., and Moody Air Force Base, Ga.

Child development centers on military installations typically provide care for children ages 6 weeks to 5 years and strive to provide a stimulating environment where children can develop motor, cognitive, social and emotional skills. The Savannah District builds the centers with these goals in mind. The child care rooms at the centers also come equipped with child-sized sinks, toilets and water fountains.

“These centers are not only visually appealing but conducive to learning,” said Evelyn Eggins-Alston, facility assistant director, Child, Youth and School Services



Children enjoy the playground at a Fort Stewart child development center recently built by Savannah District.

at Fort Stewart and Hunter Army Airfield.

At Fort Bragg, several Family support projects are under way to meet the demands of Soldiers and Families arriving at the installation due to restationing initiatives. The influx of military Families with school-age dependents has created a shortage of youth and child care facilities.

More than 17,700 school-age dependents of Soldiers and Civilians assigned to Fort Bragg are eligible for care, according to Michelle Peralta, Savannah District project manager for schools and child development centers at Fort Bragg.

“The stationing initiatives are anticipated to create an additional requirement for facilities to accommodate 1,300 6- to 10-year-olds,” said Peralta. “Currently, school-age child development facilities are full with extended waiting lists.”

Offering support during critical time

When Soldiers become ill, wounded or injured, they need to rehabilitate in a supportive environment. The new Fort Stewart Soldier and Family Assistance Center strives to provide that environment to Soldiers and their Families.

“Our facility provides a peaceful, supportive and safe place for Soldiers to share stories and express what's on their mind,” said Diane Smith, the center's director.

Savannah District completed the 15,000-square-foot center in June and

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The Fort Drum WIT Complex was one of the first of its kind. Another has since opened at Fort Riley, Kan.

The Phase I project is finished, but the complex will continue to grow. Phase II consists of a battalion headquarters, a Soldier and Family care facility and 48 Soldier rooms. There are also plans for additional housing, administrative facilities, a clinic and, potentially, a dining facility in the future.

“The WIT Complex was planned

and designed to grow in phases with the construction of future buildings having only a minimal impact to current occupants and the site,” said Edward Sim, the Corps' project manager at Fort Drum. “This is beneficial to the Soldier, minimizes impact to the environment and will provide savings to the government.”

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Los Angeles District revamping water pipes at air force base

by Elizabeth Casebeer

They're not visible unless unearthed, but the pipes that carry precious fresh water through the cantonment area at Vandenberg Air Force Base, Calif., were overdue for a remodel. The U.S. Army Corps of Engineers' Los Angeles District is spearheading a \$2 million American Recovery and Reinvestment Act-funded project to update the some 25,000 linear feet — roughly 4.7 miles — of pipes that carry the water from two nearby reservoirs to the many inhabitants of the base as well as its fire department.

The pipes, which were installed around 1940, are made of steel and concrete, said Dale Kirkham, a Corps quality assurance specialist. These products were what were available at the time but are not ideal for long-term use, as multiple maintenance and routine repairs over the years have shown, Kirkham explained.

The new pipes are made of high-density polyethylene, which will require minimal to no maintenance and will last for years to come. In addition to its longevity, HDPE


pipe is the better choice overall because of its ability to withstand natural disasters, which Southern Californians are no strangers to experiencing.

The flexibility in the plastic allows HDPE pipes to move along with seismic waves, explained contractor Jerry Neuman of Hal Hayes Construction, Riverside, Calif.

“This project is partly preventative maintenance, so if there were a blowout or earthquake, there would be less of a danger of a pipe bursting,” Neuman said. “This material is very flexible compared to the rigid pipe they have in the ground right now.”

The project broke ground in July. Officials estimate it will be completed in late December.

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Elizabeth Casebeer is the editor, NewsCastle Magazine, Los Angeles District, U.S. Army Corps of Engineers. 

Acronyms and Abbreviations	
HDPE	high-density polyethylene



A Los Angeles District project is replacing 1940s-era steel and concrete water pipes with HDPE pipe at Vandenberg Air Force Base. Photos by Elizabeth Casebeer

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plans to award two more contracts this year for similar facilities at Forts Benning and Bragg. Designed to complement Warrior in Transition units, Soldier and Family assistance centers provide a one-stop location for Family members who are caring for ill, injured or wounded Soldiers and for Soldiers who are transitioning back to military or civilian life.

The center's staff provides guidance, assistance and information on finances, child care, family advocacy, military personnel issues, legal assistance and a variety of other services. With a kitchen, computer lab, child-care room, playground and fireplace-equipped sitting area, the center provides a relaxing place for Families to seek the services they need.

Building quality schools

Savannah District is also building

several schools at Fort Bragg.

An elementary and a middle school will open next to the new Family housing in the Linden Oaks Area. At 123,616 square feet, the school will serve 714 students, prekindergarten through fifth grade. The middle school, at roughly 99,300 square feet, will serve 550 students in the sixth through eighth grades. Located on one site, the schools will share a cafeteria and parking lot.

The school's designs meet the standards of the Department of Defense Education Activity, which will operate both facilities.

Working for great cause

The projects that Savannah District constructs for military Families play a vital role in the support of Soldiers and the sustainment of the Army, and the district received recognition for its efforts. Savannah District was named the 2009

Directorate of Public Works Installation Support Program of the Year, by the Installation Management Command. In three of the past five years, the Savannah District has received this award, the Army's highest satisfaction rating among engineering agencies supporting the military, a testament to the district's dedication.

“It is an honor to provide these facilities to our Soldiers and Families who have given so much to this country,” said Peralta. “They deserve the very best.”

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Setting the standard for greatness

by Lt. Gen Robert L. Van Antwerp

Today's challenges in executing the Army's mission must be met by a workforce that is designed, built and maintained at all levels to consistently deliver high quality solutions to the Army's and the nation's needs. I have challenged our careerists throughout the Army to both deliver superior performance and set the standard for our profession so that we can provide a unique and valuable service to our nation.

Our technical expertise serves as the foundation that enables us to solve the myriad of complex engineering challenges facing our Army and creates a workforce recognized worldwide for its technical skills and abilities. To maintain that standard, we must determine the competencies we need to solve the engineering challenges of the future.

A clearly identified set of technical competencies has many benefits for the Army workforce. It improves how supervisors select, train and compensate employees, and it provides a solid basis for workforce planning, career management and succession planning. A sound framework establishing the Army's current and anticipated future competencies also helps identify existing and future competency gaps and facilitates the development of a deliberate strategy for closing those gaps.

Across the Department of Defense, competencies are now starting to be used in hiring and selection activities and to make informed decisions on creating career growth opportunities. DoD has a Civilian Leader Development Framework to identify competencies that DoD leaders must attain to resolve the array of national security challenges that lay ahead. The DoD career path framework outlines a



Lt. Gen. Robert L. Van Antwerp
Photo by F.T. Eyre

progressive leadership and management approach that broadens work experiences and steadily provides opportunities for more responsibility.

This model addresses senior Civilian leader development, but we also need a detailed, comprehensive strategy to grow Civilians from an entry level with superior technical knowledge, skills and abilities. Army leaders have long known that a more comprehensive approach was required in growing our Civilian workforce. To that end, the Army, in cooperation with the DoD, developed the Army Competency Management System.

The Army CMS is designed to validate specific competency requirements for each position, identify proficiency levels of employees in the required competencies, conduct gap analysis and accommodate updates and re-evaluations of these competency determinations for Army individuals and positions. The Army leadership plans to conduct competency-based gap assessments in a phased manner for 544 occupations — 328 white collar and 216 blue collar — over the next several years.

Once Headquarters, Department of the Army, completes validation of CMS, it will be used to identify competency gaps, and the results of the competency gap assessment will be used to identify the strategies for closing gaps. Army Headquarters is also researching various aspects of competency management, including their potential use in managing

the Army workforce, and all of the available measurement tools to provide for a broad-based competency-driven *Human Capital Strategic Plan*. The competencies required for a specific position will be linked to a number of personnel systems, like the Fully Automated System for Classification.

The development of the Army CMS responds to direction from the Under Secretary of Defense for Personnel and Readiness to identify Civilian workforce competencies, competency gaps and competencies needed in the future.

The U.S. Army Corps of Engineers has stepped forward to help the Army with this critical CMS initiative. As part of USACE's initiative to improve and sustain its technical skills and abilities, USACE established a National Technical Competency Team. The team has been working with Army Headquarters on a pilot study to assist with further development of the Army CMS.

USACE continues to pursue a systematic approach to improving its technical competency for all careerists including its share of the 18,262 careerists in Career Program 18, Engineers and Scientists – Resources and Construction, in collaboration with subject matter experts from across the Army. The Installation Management Command has also been an active participant in this deliberate process to analyze and identify competencies required to support the critical Public Works missions performed by CP-18 careerists.

Part of this improvement effort is the creation of professional development maps to identify functional, technical and core competencies needed for the top 31 occupational series in CP-18. Currently, there are more than 20 development maps published, which represents 91 percent of the CP-18 population. Work is under way to publish additional maps by the end of December, bringing the total to 31, which will cover 99 percent of the CP-18 careerists. ➤

Acronyms and Abbreviations	
CMS	Competency Management System
CP-18	Career Program 18, Engineers and Scientists – Resources and Construction
DoD	Department of Defense
USACE	U.S. Army Corps of Engineers



Directorate of Public Works training available

by Tracy P. Wilson

The Proponent Sponsored Engineer Corps Training, known as PROSPECT, schedule for Directorate of Public Works courses has been announced for fiscal 2011. All classes are open to all DPW staff, garrison logistics, facility management and contracting staff, and Corps of Engineers staff.

Course 988

DPW Basic Orientation Course

Dec. 13-17, April 18-22 and May 16-20, Huntsville, Ala.

This course provides students with an overview of the Army installation management concepts, organizations and missions, and DPW missions, functions and operations. The course covers:

- administration and management of real property maintenance activities,
- master planning,
- acquisition planning,
- financial and work management systems, and
- operational evaluation procedures.

Course 903

DPW Operation and Maintenance

Jan. 14-18 and July 11-15, San Antonio

This course exposes students to management techniques, facility life-cycle management, performance-based service acquisition and sustainment management systems. Topics covered include:

- preventive maintenance management;
- component life-cycle management;

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The competency and training areas identified in the development maps are being examined and updated. Updates to the professional development maps will provide guidance on training needed in expeditionary engineering and competencies for our deploying Civilians as well as information and requirements for our acquisition workforce. Planned additional efforts include expanding these maps to address specialty areas within each occupational series and updating sources and opportunities to obtain needed

- energy conservation and management programs such as Energy Savings Performance Contracts, the Energy Conservation Investment Program, Utility Energy Savings Contract and others;
- privatization contract management;
- critical infrastructure management;
- performance-based service acquisitions management;
- facility sustainment management systems like the PAVER Pavement Maintenance Management System, ROOFER Roof Maintenance Management System, RAILER Railway and Railroad Inspection and Maintenance Management System and PIPER Distribution Piping Inspection and Maintenance Management System; and
- plant operations and municipal services such as boilers, chillers, custodial services, pollution prevention and waste management, pest controls and grounds maintenance.

Course 902

DPW Engineering

Jan. 24-28 and June 20-24, San Antonio

The DPW Engineering Division manages acquisition of professional engineering and construction services from a myriad of sources. This course provides the journeyman an overview of the engineering and installation business processes used to accomplish the garrison engineering mission. The course covers:

competency training and experiential learning.

Competencies are not just definitions to assist careerists in building their own individual career paths. They are critical means for developing the collective skills of our current and future workforce to ensure that we continue to consistently deliver high quality solutions to meet the Army's and the nation's needs.

I ask that each Army member of CP-18 personally commit to continued professional development through lifelong

Acronyms and Abbreviations	
AR	Army Regulation
DoD	Department of Defense
DPW	Directorate of Public Works
IFS	Integrated Facilities System
JOC	Job Order Contracting
PAM	Pamphlet
RPMA	real property maintenance activity
SRM	Sustainment, Renovation and Modernization

- planning and delivery of engineering services,
- design and construction management,
- safety and quality management, and
- value engineering energy management.

Course 901

DPW Business Operations and Integration

March 7-16 and Aug. 1-10, San Antonio

As the Army transforms, the focus has shifted from a budget-management systems to cost-management systems. This transformation in business processes affects DPW business practices and processes including information management strategies and systems and the interpretation and presentation of qualitative cost data. DPWs must be adept at using the General Fund Enterprise Business System, the Installation Status Report, Common Level of Support and costs management as well as other continuous process improvement tools to effectively manage and measure RPMA performance. A few course topics include:

- annual work plans;

learning. This commitment is essential in developing and sustaining a workforce that is recognized worldwide as a relevant, ready, diverse and technically proficient team capable of solving the toughest challenges facing the Army and the nation in our journey to GREAT.

BUILDING STRONG through setting standards of excellence.

Lt. Gen. Robert L. Van Antwerp is chief of engineers, commanding general of the U.S. Army Corps of Engineers and the functional chief of CP-18. 



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- resource management plans;
- work classification and project approvals;
- Sustainment, Restoration, and Modernization; and
- Military Construction.

Course 990

DPW Job Order Contracting, Basic
April 5-7, Huntsville

This course teaches students the basic policies and procedures for properly executing SRM projects using JOC applicable to the DPW organization on an Army installation or community.

The course covers:

- the elements of JOC;
- task order scoping;
- task order proposal requesting, receiving, reviewing, evaluation, negotiation and documentation;
- task order placement by ordering officers;
- key JOC management issues; and
- JOC contract administration procedures.

The underlying themes through all the course modules emphasize a cooperative working agreement between contractor and government, efficient and timely processing and completion of projects, and adherence to proper contract administration procedures.

Course 989

DPW Management Orientation Course
April 11-15, San Antonio

This course provides an executive overview of DPW operations and management for new or returning DPW managers. It covers the administration, organization, functions and management systems of the installation DPW including:

- business operations and management,
- environmental programs,
- sustainable range management,
- design and construction contract management,
- housing functions and funding limitations,

- SRM work classification and approvals in accordance with Pamphlet 420-6,
- DPW resource management in accordance with Army Regulation 420-1 and PAM 420-6,
- real property master planning in accordance with AR 210-20, and
- the relationships among the Department of Defense, Headquarters, Department of the Army and the U.S. Army Corps of Engineers.

Course 991

DPW Job Order Contracting, Advanced
May 3-5, Huntsville

This course teaches students strategies and procedures for technical discussion and negotiation with contractors in the JOC task order process. JOC is most applicable to the DPW organization on an Army installation community. After completing the course, the student should be able to:

- serve as a knowledgeable ordering officer for the JOC Branch within the DPW;
- scope SRM projects using the JOC Unit Price Book;
- manage construction contracts and schedules;
- manage projects in accordance with RPMA program requirements, i.e., determine appropriate funding programs and work classification; and
- understand the indefinite quantity contract delivery process, competitive bid process and firm-fixed price requirements.

Course 972

DPW Quality Assurance
Aug. 9-10, Huntsville.

This course is for quality assurance evaluators, contracting officer representatives and other personnel with contract surveillance responsibilities. It incorporates recent DoD guidance addressing techniques for service contracts using commercial item acquisition procedures.

Through lectures, individual study and work group activities, this course provides a detailed description of:

- service contract surveillance techniques,
- quality terms and definitions,
- pertinent quality related contract clauses,
- new DoD procedures that shift the quality assurance focus from oversight to insight, and
- the concept of partnering with the contractor to validate the contractor's quality control system, establish meaningful metrics and monitor those metrics.

Emphasis is on understanding what is needed in terms of contractor management, worker skills, training, processes, procedures, materials, tools, equipment, facilities and all other elements of quality control.

Course 981

DPW Budget/Job Cost Accounting
Aug. 22-25, Huntsville

This course provides a concentrated look at the Integrated Facilities System Job Cost Accounting module's role as a tool to manage the financial aspects of work accomplished by the DPW. The scope of the presentations includes both RPMA resources interfaced to the installation's financial management system and project work maintained internally in IFS.

Through lectures, individual study and exercises, this class teaches students:

- how to enter cost data into IFS,
- how obligations and expenses are related to engineer work documents in the system, and
- how costs, hours and engineering operation resource information is passed to other accounting systems.

To view the full course descriptions and registration fees, go to <http://pdsc.usace.army.mil> or email DLL-CEHNC-Registrar@usace.army.mil.

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U.S. ARMY INSTALLATION MANAGEMENT COMMAND

IMIGOM

