

**United States Department of Defense  
Best Practices in Cultural  
Resources Management**

**DoD Legacy Project No. 07-365**



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November 2008



# Best Management Practices for Cultural Resources Management on DoD Lands

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## Disclaimer

This document is not official guidance nor does it contain all federal or state regulations. None of these documents, maps, photographs, references, etc., should be construed as waiving compliance or any regulatory requirements imposed by law.

Any mention of trade names, commercial products or machinery does not constitute endorsement, or recommendation for use.

This booklet will provide users with up-to-date information but should not be considered a complete source of cultural resources BMPs. By their very nature, specific BMPs will become obsolete when improved BMPs become available.

Any comments, questions, or suggestions regarding the content of this document may be directed to:

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## Purpose of this Guide

This guide is intended for two separate audiences. It provides information to cultural resources managers who are looking for new ideas and innovative solutions to some common management issues. The guide also helps demonstrate how use of best practices, as part of a proactive, integrated planning approach, can result in win-win situations for the installation and cultural resources.

The guide is written with a few assumptions in mind:

- It addresses management of archaeological sites on federally-owned or –controlled military installations.
- It presumes that the cultural resources manager overseeing the installation’s cultural resources program is a cultural resources professional (Cultural Resources Manager, archaeologist, historic preservation officer, historic architect).

The spirit of this guide is to provide the kind of information that an experienced and successful military cultural resources manager would share with a new colleague.

Some states and localities have their own cultural resource regulations to supplement the federal laws. This pamphlet does not cover every situation and is not a comprehensive guide. Hopefully, this guide will provide some of the practical information you need to get the best results for the least cost.

## What are Best Management Practices?

Best Management Practices (BMPs) are innovative, dynamic and improved practices for management of resources; in the context of this guide, they are practices relating to effective management of cultural resources. Cultural resources managers (CRMs) on DoD lands have the unique challenge of balancing the needs of the military mission with stewardship of cultural resources; in other words, trying to avoid, minimize, or mitigate impacts to cultural resources from necessary mission activities (training, construction, etc.). Use of BMPs not only helps protect our resources, but also facilitates the mission through proactive planning and innovative approaches, typically resulting in a “win-win” situation for both mission and resources. BMPs discussed in this guide highlight innovative training exercises, reuse of historic buildings and enabling access to military lands.

### *What are Cultural Resources?*

The United States Department of Defense (DoD) acts as steward in protecting the cultural resources of this nation’s military lands. America’s cultural resources are an irreplaceable part of our nation’s heritage. The understanding and appreciation of America’s past and present cultures are an integral part of the history of humanity. Preservation and archaeology are vital to constructing a more complete picture of the past.

Today, the DoD manages approximately thirty million acres of land in the United States, its territories and possessions. These lands hold tangible reminders of the people, events and ideas that shaped and continue to shape America’s character.

CRMs are charged with identifying and protecting all cultural resources on Federal land as applicable to all Federal laws and regulations. CRMs and their teams on Federal military lands ensure that all actions on their installations are completed in compliance with laws and regulations.

Cultural resources encompass archaeological, traditional, and built environment resources, including but not necessarily limited to buildings, structures, objects, documents, districts, cemeteries,

monuments, and sites. DoD Instruction 4715.16 defines cultural resources to include:

- Buildings, structures sites, districts and objects eligible for or included in the National Register of Historic Places (NRHP), as defined under regulations (36 CFR 60).
- “Cultural Items” as defined under the Native American Graves Protection and Repatriation Act (NAGPRA) (25 USC §3001). These include human remains, associated and unassociated funerary objects, sacred objects and cultural patrimony objects.
- American Indian, Eskimo, Aleut, or Native Hawaiian sacred sites for which access is protected under the American Indian Religious Freedom Act (42 USC §1996).
- “Archaeological resources” as defined under the Archaeological Resources Protection Act (ARPA) (16 USC 470 aa-11). These include any material remains of past human life or activities that are of archaeological interest as determined under ARPA regulations.
- “Archaeological artifact collections and associated records” as defined under the Curation of Federally-Owned and Administered Archaeological Collections (36 CFR 79). Under these guidelines collections include material remains such as artifacts, objects, specimens and other physical evidence, that are excavated or removed during a survey, excavation or other study of a prehistoric or historic resources. Associated records include original records (or copies thereof) that document efforts to locate, evaluate, record, study, preserve, or recover a prehistoric or historic resource.

### ***What are the legal responsibilities for Federal land managers in regards to Cultural Resources?***

This pamphlet is not designed to cover the laws, executive orders and regulations relating to cultural resource heritage protection in detail. Guidance for management of military cultural resources is found in the new DoDI 4715.16 and in the Service-specific environmental regulations. For the Army the specific regulation is found in AR 200-1. Guidance on the legal responsibilities for federal land managers also is provided by the National Park Service (<http://www.nps.gov>) and the Advisory Council on Historic Preservation (ACHP) (<http://www.achp.gov>).



Understanding the law is a critical step in protecting, preserving and maintaining cultural resources.

## *Commander's Role*

The Installation Commander is responsible for the Installation's cultural resources just as the Commander is responsible for all installation assets. When a pro-active approach is taken toward cultural resources management, appreciation of these properties becomes a positive aspect of management responsibility.

### *Tips for Command Success in the Cultural Resources Arena:*

- Be aware of cultural resources on your installation. Consider taking one or more afternoons away from the office and tour archaeological sites and historic places with the CRM as your guide.
- Empower your qualified CRM or preservation professional to do their job on your behalf. Make sure that they are meeting DoD requirements for developing and following integrated and practical management plans.

### **Myth Buster #1**

**Myth:** The State Office of Historic Preservation (SHPO) must approve any action on a federal installation that might potentially affect an historic property.

**Fact:** Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consult with the ACHP. The ACHP has delegated their consultation responsibility to the individual State Offices of Historic Preservation for any action that could potentially affect an historic property. As long as the federal agency, in this case a military installation, can demonstrate that they have offered the SHPO an opportunity to comment on the effects of the action, and provided the SHPO sufficient time to review the action, the requirement has been met. If the SHPO does not concur with the federal agency's effect determination, more consultation may be required to conclude the process; however, ultimately, it is the federal agency's to "take into account the effects of their actions" on historic properties.

- Remember that, as an Installation Commander, under DoD consultation policy, you have a responsibility to maintain positive consultation relationships with representatives of federally recognized Native American nations who have ancestors affiliated with your installation lands. This relationship takes place at the government-to-government level. Coordinate planning, discussion and meetings with interested Native American consultation partners. Work with Native Americans to protect access to sacred sites on installation lands without causing significant impact to the mission. Designate the right person to be the Garrison Native American Affairs Coordinator. Often the CRM offers the expertise to do this job well.
- Be a comfortable host during Native American Head-of-State visits. Be prepared to discuss such topics as family or your favorite book or movie.
- Remember that the CRM is hired to support the mission by finding innovative solutions to situations where military activity may affect cultural resources. The ideal manager will take a proactive approach to cultural resources management that should minimize the potential conflicts between cultural resources stewardship and operational activities.
- In cases where effects on cultural resources are inevitable, the Commander should require a responsible CRM to offer at least two well-informed alternatives with projections for the consequences for each course of action.
- Take legal responsibility for consultation with the SHPO when undertakings have the potential for adverse effects on installation lands.
- Be familiar with Service Regulation and DoD Instruction 4715.16. These documents outline responsibilities for cultural resources on installations, major commands, and affiliated organizations.
- Encourage respect for historic structures on your installation.
- Back up the CRM in situations where there has been lack of respect for or needless damage to cultural property.
- For more information, Colorado State University Center for Environmental Management of Military Lands is developing an educational guide for Commanders on the topic of cultural resources.

## Innovative Management Solutions/BMPs

### *Preservation of Historic Structures*

The DoD is the largest steward of historic buildings in the United States, managing over 10,000 historic buildings. Historic preservation is a powerful element in a community and economic development strategy, and an essential tool for DoD stewardship and regulatory compliance. From the original parade ground at Fort Riley, Kansas to West Point to Pearl Harbor, anyone who has been fortunate enough to visit North American military installations has had the opportunity to appreciate the contribution of preserved buildings, landscapes and neighborhoods to the quality of life at that installation. These resources also provide installation personnel a sense of being part of military heritage. The historic areas are not just aesthetically pleasing and livable; they become the heart and soul of the installation.

### *Planning Ahead for Historic Buildings (or How to Avoid Demolition by Neglect)—Don't Wait for the Demolition List!*

As noted above, historic buildings can add significantly to the feel and quality of life on installations. Regular maintenance of historic buildings is crucial; many older buildings are well-constructed and incorporate sustainable technologies if their materials and systems are properly maintained and repaired. Because missions change, however, there will be times when the original function of a historic building is no longer necessary for the mission. In those instances, federal regulations encourage agencies to look first at re-purposing the building, rather than consigning it to demolition. Changing the primary function of a building while retaining the building's structural and unique aesthetic details, known as adaptive re-use, is an increasingly viable solution for military installations. Adaptive reuse can also be an integral part of land conservation and limiting urban sprawl, two topics that are crucial to planning on almost any military base.

Langley Air Force Base (AFB) in Virginia provides several great examples of successful adaptive reuse projects. Langley AFB is the first US military base built specifically for air power and is the world's oldest continuously operating airbase. Thanks to the forward thinking of the Air Combat Command CRM, Dr. Paul Green, and the Langley AFB CRM Laura Baie Yates, Langley AFB has been very innovative in the field of historic restoration, renovation and adaptive reuse. Langley features a host of unusual and challenging historic buildings including wind tunnels, aircraft hangars, and even a helium factory. The Managers began to think about all of the historic structures on the installation and what their future potential might be, even before the most remote consideration of demolition.

One example of Langley's success is Building 661. This structure, originally designed by Albert Kahn, foremost industrial architect of his day, and built in 1918, was a machine shop on the verge of obsolescence. Building 661 was one of the first permanent structures on the base but underwent a number of changes and additions through the 1940s to the 1960s that obscured the building's original architecture. The project to renovate Building 661 was programmed as a 1997 Military Construction (MILCON) project in order to provide administrative space for additional personnel.

The project scope was carefully planned and included two basic tenets. The first was that the building would be efficient and function to meet the needs of the administrative personnel. The second was that there would be respect for and restoration of the significant historic qualities of the structure. The project scope included:

- Development and design for adaptive reuse of the building.
- Removal of the non-contributing and architecturally incompatible rear addition.
- Restoration of key architectural elements.
- Repair of failing structural and masonry systems.
- Complete replacement of infrastructure items like plumbing, roofing, electrical, and mechanical.

The success of the project was due to several factors.

- The Virginia SHPO was consulted before the actual start of the design-build process. In-progress design review meetings were attended by the SHPO representative and the CRM,

resulting in a nearly seamless consultation process that resulted in a final solution that all parties agreed upon. Involve your SHPO early and often.

- The stakeholders in the planning process were realistic about the goal of adaptive re-use vs. renovation or restoration. Budget constraints will always be a factor in historic buildings. Expect trade-offs and incorporate possible trade-offs in the planning stages.
- Extensive structural testing is crucial to developing a final budget and design.
- Historic preservation and adaptive re-use projects must have qualified contractors. The best new construction contractor is not necessarily a great choice for a renovation/restoration contractor. The wrong contractor will mean delays and large amounts of time on the part of the CRM to research and select materials and restoration methods. Remember too that if your installation is located in a rural area with limited availability of professional preservation contractors that local craftsmen may have skills that meet or



Building 661 Langley Field AFB, Virginia.

Top: Machine Shop (c.1918).

Bottom: Rehabilitated Building 661 for Administrative Personnel.



Building 442, Langley Field AFB, Virginia.

Top: Gas Station/Shopette (c.1940)

Bottom: Building renovations complete (c.2005)

exceed the Secretary of the Interior's preservation standards. Ask for references and personally inspect examples of their work just like you would for your own home.

- During the design phase be specific about materials. Budgeting will need to be made for custom made materials. If necessary warn your contracting office that substitutions or low budget materials will not work.

The project architect will need to be available for constant involvement.

Another great example of adaptive re-use and innovative historic structure mitigation was a historic base gas service station, Building 442. The \$600,000 restoration project was possible through a memorandum of agreement with Langley AFB and the Virginia SHPO. Construction of three new F/A-22 hangers required three c.1932 hangers to be demolished. To mitigate the loss of these historic structures, the renovation of Building 442 became a reality.

The new purpose of this building, completed in January 2005, was to be office space for Air Combat Command Inspector General staff, EEO and the Military EEO. Part of the mitigation requirement was to restore architectural features that would convey the building's original purpose. Floor to ceiling windows at first glance look like original garage bay doors, the leaded glass window at the entrance was restored and reinstated, a 20x50 foot addition was made in keeping with the building architecture, brick and synthetic slate were chosen in accordance with the



Secretary of Interior design standards. Laura Baie Yates, CRM at Langley stated, “Its restoration is a solid example of the commitment Langley has made to the preservation of its heritage.”

Langley AFB historic housing renovations have also found the balance between historically accurate renovation while preserving the necessary functions of modern life in the space.

The Washington D.C. Navy Yard has several excellent examples of adaptive reuse projects. It is the oldest US Navy shore facility, founded in 1799 on land set aside by George Washington. Through Navy realignments, relocations, staffing/equipment changes and BRAC procedures, the preservation planners and historic architects at the Washington Navy Yard have found the balance in maintaining the historic architectural integrity of the Yard while saving money to reuse and repurpose existing facilities and infrastructure.

### ***Speaking of Historic Structures...***

Many CRMs encounter situations where high ranking military officers and their families live in historic structures. Given the contributions of these families to our Nation, it is vitally important that they be as comfortable as possible living in these structures. It is also vitally important that the integrity of the structures be preserved for the next family and for the installation as a whole. Educating family members about the structures they occupy is an excellent opportunity to teach about preservation. Be proactive and positive about what is “OK” to do in the structure and engage their interest in the history of their houses. Remember that many military families enjoy decorating for the holidays, and it is helpful to provide non-invasive or historically accurate fasteners for decorations, picture hanging and window treatments. Don’t make issues out of decorating choices that do not affect permanent fixtures or structural integrity in historic housing.

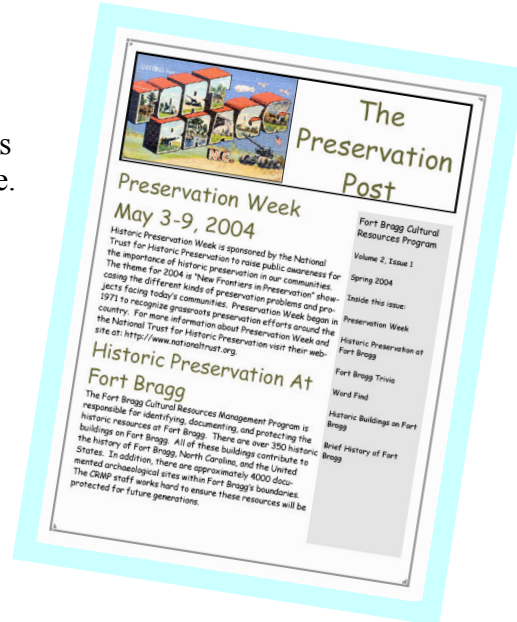
For any installation with historic housing, the CRM needs to work directly with the housing managers, whether they are part of the government system or part of a privatized housing scheme. In either case, during the military housing process, the CRM has opportunities for education and historic quarters inspection. A pamphlet along the lines of “Your Historic Quarters and You” with guidelines for responsible occupation of historic quarters could be included in any new lease housing packet.

Working with housing also offers opportunities for educational events and inspections of historic quarters as the occupants change over time.

## ***Making the Case for Historic Preservation***

### ***“The Greenest Building is the One Already Built”***

The 2008 edition of *The Preservation Post* from Ft. Bragg, NC highlighted an important aspect of preservation and the need for environmental stewardship. New policies, such as the Defense Installations Strategic Plan (DISP) and the DoD Installation Support Plan, are increasingly steering DoD to move towards decreasing its energy consumption. These policies are compatible with historic building preservation. “The greenest building is the one already built. Preservation is not just about history and building communities, it’s also about sustainability. . . . Preserving and reusing non-recoverable energy represented in an existing building supports the Army’s mission to strengthen operation capability by reducing our environmental footprint and enhances the well-being of our



### **Myth Buster #2**

**Myth:** The DoD must tear down a square foot of World War II construction for every square foot of new construction.

**Fact:** World War II buildings, both temporary and semi-permanent, have been renovated and are being adaptively re-used all across the United States. “One for One” does not exist.

If you are fortunate enough to be working on a restoration or adaptive re-use project, the National Trust for Historic Preservation has compiled an excellent resource for anyone working with contractors on historic buildings. Their informational sheet #32 can be found here:

<http://www.preservationnation.org/resources/technical-assistance/flood-recovery/additional-resources/32-Working-with-Contractors-and-Architects-Finding-Supplies-and-Furnishings-for-your-Historic-Home-or-Building.pdf> .





### Myth Buster #3:

**Myth** – You can't demolish or renovate historic buildings.

**Fact** – It IS possible to demolish or renovate an historic structure. The process requires good faith consultation with all of the stakeholders and some type of mitigation effort. The stakeholders may include but are not limited to the SHPO, interested members of the community, and Native American consultation partners. Mitigation can take a variety of forms, especially if the CRM shows creativity in considering potential options. Other examples of mitigation include oral history research and publications, community events, and museum displays. One outstanding example is the Interactive CD developed by Fort Lewis that includes interviews and simulated tours of the structures that serves as mitigation for loss of an historic housing neighborhood.

If demolition is on the horizon, and the building's historic significant lies in its architectural merit, historic structure evaluation should be comprehensive. If an installation either has a preservation architect or hires one to do historic structure evaluations, it is most efficient to evaluate all examples of specific types of structures. It is also helpful to evaluate entire neighborhoods and to think of historic neighborhoods as cohesive units. It is also very important to check with other CRMs and preservation architects to see if the building types and neighborhoods under consideration for demolition have already been thoroughly evaluated at other installations. Given the standardization that is so much a part of DoD architecture, previous evaluations of similar and even identical structures can be extremely helpful.

Soldiers, civilians, families, neighbors, and communities [*The Preservation Post* Vol. 6 Issue 1 Spring 2008].” Re-use of historic buildings also reduces the installation's waste stream.

The US Army Corps of Engineers (USACE) Seattle District Technical Center of Expertise for Preservation of Historic Structures is an excellent resource for information on preservation and adaptive re-use of historic military structures. Architect Horace Foxall from this facility has developed detailed models that illustrate the lifetime cost savings of renovation versus demolition of structures. Any manager looking for sound economic reasons to help make the case for saving a structure or neighborhood should contact the USACE/Seattle District.

## *And if the Wrecking Ball is Inevitable...*

Notice above that the renovation for building 442 at Langley Air Force Base was mitigation for demolition of three historic airplane hangars.

## Force Protection & Historic Structures

### *Fort Riley, KS*

Perimeter Wall: In order to maintain standoff requirements, Fort Riley installed a steel-reinforced concrete wall around the headquarters building. In order to comply with the Secretary of the Interior's *Standards* the wall was kept to a minimum height and faced with local limestone. Since all historic construction on post used local limestone, including retaining walls, the new construction is considered compatible with the National Register Historic District.

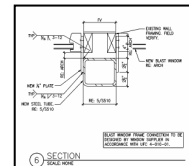


### *Fort Leavenworth, KS*



Perimeter Fence: In order to maintain a standoff perimeter at a school building, a “wrought iron” fence was installed at Fort Leavenworth that complies with ATSB standards. The posts are spaced and reinforced to meet ATSB standards, the wrought iron detailing reflects historic fencing at the post, and since this installation is considered a reversible treatment the design was acceptable to the SHPO.

Interior Blast Windows: Blast windows in historic buildings are a recurring area of concern, since removal of historic windows is proscribed by the Secretary of the Interior's *Standards*. By installing a structural support system to support interior blast windows (integrated with structural seismic upgrades when possible), the historic



windows are retained on the exterior and UFC compliance is achieved. Both the applicability and reversibility of this approach depend greatly on the structure of the building. In this case the application is to a frame addition to a masonry building, and additional protective measures are also implemented, both architectural and operational.

### *Pentagon*

Renovations at the Pentagon illustrate the benefits of integrating force protection with historic preservation. Blast proof windows with steel frames and Geotech panels to prevent wall fragmentation performed extremely well and protected the occupants when terrorists attacked the Pentagon on September 11, 2001. Historic window features like handles, screen holders, and sashes were preserved so that the renovated Pentagon retains its historic character.



## Identifying Installation Assets and Allies

Integration is the key to successful cultural resources stewardship. By identifying installation assets, protecting cultural resources can be an installation team effort. Just as working with the housing manager is one of the keys to successful stewardship to historic housing, partnership with a surprising range of installation offices can have similar results.

### *Administrative Assistants*

CRMs often bring an academic background to a military work environment. Competent administrative assistants offer guidance into a new world of forms and processes. Remember that administrative assistants have a chain of command just like everyone else in the military setting.

Never jump the chain to approach an administrative assistant for higher ranking personnel without working with the administrative assistant at your own level first. These individuals make all the difference in the world if you have any type of information that requires the attention of the Installation Command staff.

### ***Business Offices, Contracting, and Resource Management***

Depending on your approach, the people who handle the money can be the very best friends or very worst enemies of a cultural resources program. These people help to secure, track, and move the funds vital for program success. Get to know them personally and take the time to understand the processes they use to help you. They may ask you for information that may not seem important to you at all, and they may need it right away. Be sensitive and responsive to these requests. Also be very aware of the fact that all DoD personnel who work with funds are extremely busy during the month of September due to the demands of the end of the fiscal year.

### ***Protocol***

Support from Protocol is critical for successful Head-of-State visits. If there are federally recognized tribes that come to your installation regularly, you may want to purchase their flags for the protocol office.

### ***Legal Counsel***

Staff Judge Advocate, Judge Advocate General, Office of General Counsel – No matter what you call them, military lawyers can be excellent sources of sound advice. Do not hesitate to ask them for ethics opinions for any activity where you think there could be questions or potential conflicts of interest. Legal participation is often helpful during the Section 106 consultation process both with the SHPO and Native Americans and is required for development of agreements. Any recommendation that a CRM sends up the chain of command will require legal review.



## *Family Services*

Appreciation for cultural resources can become part of the fabric of an installation's social and educational life. The Family Services program provides installation child care, programming for military families, special events, and recreational activities. Development of outreach programs for all ages can enrich this program while offering an opportunity to educate installation personnel and family members about cultural resources. From dig boxes to walking tours, a good relationship with Family Services will benefit both programs.

## *Public Works*

For installations that expanded during World War II, it is not unusual for staff members at Public Works to be local citizens who can be excellent oral history resources. Many of them care deeply about the properties lost during World War II and become effective partners in stewardship. Because their work takes them around the installation on a regular basis, they can help keep an eye on historic properties that may require monitoring. In addition, carpentry staff may be called upon to make repairs in historic structures. Take the time to get acquainted so that they feel comfortable calling cultural resources whenever they have questions or concerns about an assignment involving an historic property.

## *Natural Resources/Forestry/Range Control*

The various land managing programs on the installation (natural resources, forestry, range managers, conservation law enforcement officers) are also crucial allies for monitoring the status of cultural resources and identifying practices that can avoid or minimize impacts from land management activities. On heavily forested installations, the installation forester is a key ally. In addition to supporting archaeological survey over large acreage tracts to support timber harvest, the installation forester is an excellent source of information on strategic use of equipment for minimizing ground disturbance during forestry management activities.

On Army installations, it is also important to take full advantage of Integrated Training Area Management support. It is critical to remember that one of the pillars of the ITAM mission is to protect archaeological sites in order to help support training. At Fort Drum cultural resources and ITAM work in partnership using geo-fabrics, fill, and horticulture to protect archaeological sites.

### ***Public Affairs***

The Public Affairs Office (PAO) covers community and media relations. Their experienced staff can help publicize all cultural resources outreach events. PAO can also help coordinate group visits to the installation like archaeology field trips. In addition to installation printed media like newspapers, military public affairs outreach efforts are becoming increasingly sophisticated with installations even producing their own television programs.

### ***Equal Employment Opportunity***

The Equal Employment Opportunity Office is responsible for ethnic and heritage celebrations throughout the year. Coordination for events like Native American Heritage and Black History months offers opportunities for cultural resources outreach programming.

### ***Real Estate/Real Property Office***

The real estate or real property office often has records that outline the history of every structure on a military installation. These records are a resource of value beyond measure, documenting changes made to a structure, and they often have enough data to determine and document that a structure lacks historic integrity due to extensive renovations. Even for routine management, it is extremely helpful to know the restoration history of any structure of concern. Make your real estate office staff aware of the value of these records for cultural resources management and request that you have the chance to copy any important records before they are destroyed or sent to archives. You will be glad you did!



## Mission Enhancement

As the Fort Drum CRM, Dr. Laurie Rush had very hard choices to make regarding the historic village of Sterlingville, taken over in 1941 by eminent domain. Sterlingville was a small rural crossroads community built around an iron works industry with some dozen homes and small businesses. Past residents of the village are still attached to the memories of this landscape where only basements and foundations remain. The village lies in an important training area at Fort Drum and the presence of basements and foundations were seen as hazards or constraints by the military personnel tasked with conducting training exercises.

In the hopes of finding a solution to the apparent conflict between preservation of the village and maintaining access for military training, the Fort Drum CR team consulted with former Sterlingville citizens and their descendents. A number of these people commented that their sacrifice of home and land would be meaningless if those areas were not used by soldiers. This was the opposite of the response the CR team was expecting.

Dr. Rush and the ITAM team decided on a two-fold solution. The foundations and landscape would be preserved by hardening the landscaping and supporting the foundations in order to allow for military training to occur on the landscape. By making the area available for training and by stabilizing and preserving the landscape, Dr. Rush and ITAM created a win-win situation.

In a similar vein, adopting the motto, “We Train as We Fight,” Dr. Rush also approached the training office at Fort Drum about ways in which cultural resources could be integrated with training exercises. One result of this conversation was development of a series of training exercises that make avoidance of specific areas (archaeological sites) a key task of the military team. Avoidance occurs while soldiers are in-theater, so training opportunities that mirror these situations while at home are a positive for the mission and training. A second result was augmentation of Fort Drum’s MOUT with cultural resource elements such as mock cemeteries and mock heritage sites (mosques) to help soldiers train for situations where they may be fired upon from cultural properties.



## Pro-active Range Management

### • Bridges

Survey, evaluate, and complete consultation for ALL of the bridges on your installation. At some point in time, they will all need to be replaced. Supplement archaeological investigation for areas that could be affected by bridge replacement with historic evaluation of the bridge architecture. In one case on Fort Drum, historic laid stone bridge abutments were able to be preserved and re-used by incorporating them as the support for a foot bridge.

### • Firing Ranges

Survey, evaluate, and complete consultation for ALL of the established ranges. Document all of the disturbance within the range footprints. Use the range towers as a vantage point for documentation photography, especially on ranges with dangerous ordnance. If these areas have been extensively disturbed by previous range activities and the stakeholders agree, then consultation is complete for any future range improvement project. If possible, complete archaeological survey for



## The El Dorado Mine Using Historic Properties for Low U.S. Army Dugway

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### 1. Abstract

Inspired by the Fort Drum model to provide both protection and access to cultural resources, U.S. Army Dugway Proving Ground has initiated a program to use a historic mine complex for low impact pre-deployment training missions. This project enables the Army to remain in compliance with cultural resources laws and regulations while still enabling real-world training utilizing archaeological historic properties in a rugged mountain setting.



Fig. 1. The most prominent structure of the El Dorado Mine Complex—a copper ore processing structure with extensive surface and buried archaeological material.

Fig. 2. Remnants of historic wooden water pipeline are among the various archaeological materials scattered throughout the canyon.



### 2. Introduction & Purpose

Dugway Proving Ground, in western Utah, has a climate and topography similar to that of the Middle East. Use of this high desert area can provide unique real-world training opportunities for our Soldiers.

One such area of opportunity is located in the El Dorado canyon on a mountain range entirely contained within Dugway Proving Ground. Terrain, climate, and many historic structures within the canyon simulate a variety of challenges facing deployed Soldiers.



Photo Courtesy of U.S. Army by Staff Sgt. Joseph Collins Jr.

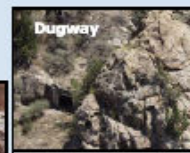


Fig. 3. Many of the structures within the El Dorado canyon are well hidden and will be used during training events.

Fig. 4. A Soldier from 3rd Battalion, 118th Infantry Regiment, Virginia National Guard, climbs to a cave suspected of containing an explosive cache in western Afghanistan.

### 3. El Dorado & Its Challenges

The El Dorado Canyon is rugged and difficult to access which makes it perfect for simulated real-world mountain and remote access training.

The canyon is two miles long and ranges in elevation from 4400 ft on the canyon floor to 6400 ft at the highest points. Temperatures within the canyon reach extremes, being freezing with snow in the winter and scorching dry heat in the summer.

The canyon contains a high number of archaeological historic properties which will be used directly during training.



Fig. 6. Examples of archaeological historic properties within the canyon include collapsed structures, markings, and artifacts.

### 4. Low Impact Training

The assets of the El Dorado Canyon are tremendous and low impact training can be performed without effect on historic properties.

Training missions include fast rope deployment from helicopter onto the primary tailings pile; simulated chemical/biological event; and, traversing the rugged terrain out of the canyon to a previously established location.



Fig. 5. Historic mine shafts and tailings piles provide strategic and tactical locations for a variety of training activities. The tailings pile in particular serves as the primary operational training site.

The tailings pile is the primary mission site for level 5 training. Soldiers require training in a high altitude hike out through historic mine shafts and foot traffic impact structures and deposits.



# Mine Complex: Impact Pre-Deployment Training by Proving Ground

Jennifer V. DeGraffenried  
U.S. Army Dugway Proving Ground, Utah

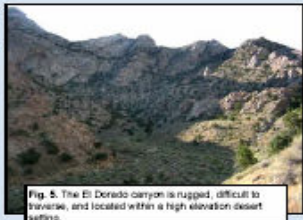


Fig. 5. The El Dorado canyon is rugged, difficult to traverse, and located within a high elevation desert setting.



Fig. 7. Historic artifacts like the canyon floor, some such as this shovel may be highly preferable.

## 5. Management Strategy

To meet the requirements of the National Historic Preservation Act, Dugway completed an archives literature search, aerial reconnaissance surveys, ground pedestrian inventory, National Register of Historic Places evaluation, and a baseline condition report for all historic structures and archaeological sites within the canyon.



Fig. 11. One of several partially collapsed structures monitored for stability and damage.

Avoidance of impacts to historic properties is maintained by pre-event reviews of training scenarios, briefings on sensitive areas, restrictions on excavation, and post-event monitoring of pilferable items and the structural stability of NRHP eligible structures.

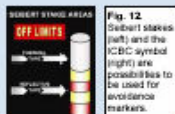


Fig. 12. Seibert stakes (left) and the ICBIC symbol (right) are possibilities to be used for evidence markers.



Future plans include installing signage such as Seibert Stakes and/or International Committee of the Blue Shield (ICBS).

## 6. Acknowledgements

We wish to recognize and thank the Dugway Command Group and the West Desert Test Center for their ongoing support and coordination.

Contract support was provided by General Dynamics, Information Technology and SWCA Environmental Consultants who performed the archaeological inventory, NRHP evaluations, and baseline condition reports for the El Dorado Mine Complex.

This project was supported in part by an intern appointment of the U.S. Army Environmental Command administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and USAEC.



Photo Courtesy of U.S. Army by Keith A. Mills

Fig. 8. An Army CH-47 Chinook helicopter, supporting the 22nd Marine Expeditionary Unit, lands in Chuzgan Province, Afghanistan. Similar events may occur in the El Dorado Canyon at Dugway.



Fig. 10. El Dorado's primary ordnance and explosive storage structures.

acreage surrounding live fire range perimeters so that consultation would be complete for any future range expansion as well.

## • Training Areas

Use either the range management schedule or the records of environmental consideration to develop a familiarity with intensity of use of various areas of the training lands. Consider overlapping the most often requested training areas with the areas of highest archaeological sensitivity to set Section 110 survey priorities. At Fort Drum, training patterns that have not changed since 1941 are not considered new undertakings for Section 106 purposes. This decision has been supported by studying vehicular fighting positions and fox holes that have been excavated in precisely the same locations for over sixty years. However, the consistency in past training behavior also means that there can be surprising tracts of completely undisturbed acreage within intensively used training areas so those areas require survey prior to any changes in training patterns. Fort Drum has found intact Native American hearths nearly adjacent to World War I trench features.



## **Myth Buster #4:**

**Myth:** Finding an archaeological site is a “black hole” or a “show stopper” for a construction project.

**Fact:** There are multiple ways to mitigate an archaeological discovery in a construction footprint. If design avoidance is not an option, mitigation can range from data recovery to public programming. The secret is proactive planning so that there is plenty of time for consultation with the stakeholders to partner in implementation of a mitigation plan.

Data recovery is, in essence, the process whereby the archaeologists remove the information contained in the site using controlled excavation techniques. Depending on the size and nature of the site, data recovery can take time and can be expensive. However, as soon as data recovery is complete, the site is gone from the proposed project area, and the project goes forward. One of the keys is for project engineers to give the archaeologists as much lead time as possible so that ideally, the mitigation is complete prior to all of the construction deadlines.

## ***Proactive Construction Management***

### ***• Corridor Projects***

For any corridor project that follows a road, survey both sides of the road. The project engineer may have to change the side of the road for a proposed utility corridor to avoid other resource areas or hazards. Also expand the survey anywhere along the road that looks like it is easy to pull off the road. Those locations often become spoil piles and lay down areas.

### ***• Related Impacts – Speaking of Spoil Piles***

Evaluate all proposed construction footprints to be sure that the project plans include all of the related impacts. In addition to spoil piles, lay down areas, sources of fill, and utility corridors, there also can be wetlands mitigation sites. Encourage the wetlands manager to provide all of the alternative mitigation sites as early as possible in the construction planning process. Remember that wetlands permits for construction cannot be issued unless the designated mitigation sites and proposed borrow areas are approved and Section 106 consultation is completed for them. The CRM never wants to be

caught at the last minute in a situation where construction is ready to go, and the wetlands mitigation sites and borrow areas have not been surveyed yet. If sources of fill for construction are coming in from off the installation, make sure that all sources of fill are coming from permitted mines that have been surveyed for archaeological material. The contracting office can make this specification in the construction contracts. Do not forget that contractors who install underground tanks may also bring in fill from off post, and they should also meet this requirement. The last thing any construction monitor wants to see is fill containing Native American human remains being supplied to a federal installation construction project by an unscrupulous contractor.

- ***Design Avoidance***

In situations where archaeological sites with well-defined perimeters are found within or adjacent to proposed construction footprints, consider design avoidance. If the archaeologist can work directly with the design engineer, it is often possible to completely save an archaeological site and tens of thousands of dollars. Take time to evaluate the design. Look for opportunities within the proposed footprint to avoid the site. Remember that geo-grids can be used to make excellent parking areas with minimal ground disturbance during installation. Most military building layouts include landscaping – perhaps the site could become a green space or picnic area within the larger project. For road improvements and parking lots, there may also be flexibility in terms of avoidance. Do not hesitate to ask if the project proponent really needs all those parking spaces. Remember too that archaeologists often have soil and landscape data that can be extremely valuable to the project designer. Make the engineers glad that they took the time to work with cultural resources.

*Warning ...* In a design-build process, design avoidance can become more complicated. If a footprint containing a site is provided to a contractor for a design-build project, there still needs to be careful interaction with the project designer but also careful monitoring to be sure that all agreed upon solutions are implemented. Get acquainted with the government contract representatives for each construction project. They are on the scene or check on these projects regularly. If you make them aware, you increase your stewardship and monitoring capability by an order of magnitude.

- ***Mitigation***

Sometimes, a federal undertaking is going to damage an archaeological site, and there is no alternative. At this point, the mitigation process begins.

*It is well worth the time for a CRM to approach the master planners, design engineers, airfield managers, range trainers and any other potential project proponent to ask not only about ongoing project plans but also about their dreams. It is remarkable how often a project dream comes true on a military installation. Also, the more CRMs learn about the planning, design, and construction process for different projects, the better able they will be to develop solutions, offer alternatives, and gain the understanding of other stakeholders. An effective CRM treats other stakeholders as customers, developing practices and solutions that help move everyone's mission forward.*

## Archaeology

### ***Exploring Alternatives to Data Recovery for Site Mitigation***

- ***Predictive Modeling***

Many CR programs DOD-wide use predictive modeling with success. The variety and continual fine-tuning of predictive models to locate archaeological sites is seen nationwide. These models have shown to be successful on installations like Nellis Air Force Base in Nevada. Archaeologist Keith Myhrer at Nellis has aggressively re-allocated funding which was traditionally used in low sensitivity area (where most federal actions occur) to higher elevation with the highest potential for eligible sites but rarely funded for survey. Using and testing various predictive models, while using statistical and aerial photography analysis, have allowed Myhrer to release over 60,000 acres in low elevation/low sensitivity areas. This has been a win-win situation for the military Mission and for identifying and protecting archaeological sites.

## *MCB Quantico, VA*

National Register of Historic Places nominations for three Civil War camp sites on MCB Quantico were completed, along with a Multiple Property Documentation for 'The Battle of the Potomac,' a campaign from May 1861 to March 1862 with which the sites are associated. Two of these sites (44PW917 and 44ST302) are the largest intact Confederate winter camps from that period. Historical information from the Official Records and maps along with archaeological data were used to produce a GIS-based KOCOIA (Key Terrain, Obstacles, Cover and concealment, Observation points, and Avenues of approach) analysis of the Battle of the Potomac campaign. This cumulative geospatial database is available to bona fide researchers in ArcView file format. A poster based on this research was produced for displays at professional conferences (Sustaining Military Readiness and Middle Atlantic Archaeological Conference).

- *Remote Sensing*

One of the newest tools in the remote sensing kit is LIDAR information. On some installations, the training program or installation engineers are commissioning LIDAR surveys to be added to the GIS. Make sure to incorporate LIDAR data into archaeological survey planning. John Haynes at USMC Quantico was able to identify potential Native American features from his desktop using LIDAR data.

## *MCB Camp Lejeune, NC and Fort Hood, TX*

Non-invasive testing to determine the presence of human burials or other archaeological features has several benefits. Camp Lejeune and Fort Hood are testing a complete remote sensing method to protect sensitive areas, lessen the risk of inadvertent discovery of human remains and be cost effective.

- *Pro-Active Compliance*

Pro-active compliance means staying ahead of the mission requirements so that cultural resources activities are nearly transparent to the project proponents. In other words, the survey and/or building evaluation and associated consultation and required mitigation is completed so far ahead of the construction schedule, all the trainers or engineers ever saw was a memo. Sometimes planning and



implementing potential mitigation ahead of time means that the CRM has a solution ready even before it is needed.

### ***Wood's Mills, NY***

One example is the Fort Drum Wood's Mills Oral History project. Wood's Mills is one of the Lost Villages on Fort Drum from the 1941 expansion. The former citizens approached the cultural resources program, asking for help in preparing a formal history of their community which is now located in the impact area. The cultural resources team scanned family album photographs and helped record and transcribe oral history interviews. The staff was also included in family reunion events where they were able to take additional notes and see additional photos. The results included a bound history of the village and CDs of all of the photos.

From a scientific perspective, the histories provided a completely different interpretation of the life of the community. Focusing on the archaeological remains of a masonry grist mill, previous archaeologists had not had an opportunity to appreciate that Wood's Mills was a saw mill town large enough to support a boarding house filled with workers. The new research and more sophisticated understanding of the community were presented in a scientific poster at the Society for American Archaeology meetings. Should the Wood's Mills portion of Fort Drum ever be required for development, mitigation in the form of photo documentation, oral histories, and a scientific presentation is already complete.



### ***Ft. Leonard Wood Cave Survey***

Ft. Leonard Wood, Missouri, developed a multi-phased Legacy project to establish “a strategy, plan, and priority list for managing cave resources from a military training, biological, geophysical, cultural and historic resources standpoint.” This project evolved as a direct result of current military activities, especially in Afghanistan, that showcased the need for military training activities in caves.

This project was also designed to help natural and cultural resource managers establish a “cave policy” for installation management issues because of increased regulation and pressure put on cave ecosystems. The success of this project is that nine caves were identified as suitable for military training. Specific standard operating procedures, safety risk assessments, and use/monitoring protocols were developed for each training scenario. At the same time extremely exciting cultural resource discoveries were made, from stone tools that had not been touched in over 5000 years to a Cold War refuge from nuclear attack.

Important lessons were also learned from the cave project. Over-reliance on a 1985 cave survey caused problems because portions of the report were incomplete or incorrect. Lesson learned: Do not blindly count on early survey results for your installation. Human remains were discovered in several caves, which activated NAGPRA consultation and notification process which required additional time. Lesson learned: Begin the consultation process prior to initiating any cave survey or survey where you feel that human remains are likely to be encountered.

## **Public Relations – “We Serve These People Outside our Gates” MG Oates, Commander 10th Mountain Division**

Successful military CRMs never forget that they are stewards of federal property and work on behalf of the United States tax payer. As a result, it is very reasonable to consider public programming as a critical component of stewardship and possibly as a mitigation measure. Public relations can take the form of children’s programs, publications, interpretive exhibits, volunteer opportunities, walking tours, lectures, interactive CDs, and websites. The list of opportunities is endless. It is also important to offer public access to cultural properties on military installations whenever possible. Successful events for the public share a series of attributes, with good organization and publicity at the top of the list.

**Eleven Step Event Checklist**

**Open House at an Historic Site**

**Staff Required day of event – 4**

**Preparation Time Total – two months**

**Two Months Before Event:**

- Select Date at least 8 – 10 weeks in advance.
- Clear through Range Control, Provost Marshall/Security, and Public Affairs Office (PAO).

**One Month Before Event:**

- Prepare Press Release and send to PAO 4 weeks out.
- Make and copy flyers (see example on back of this sheet) include title, date, time, location, and pertinent information, distribute throughout installation, distribute to Morale, Welfare & Recreation Office, local libraries on and off post, schools, mailing list, and local museums 3-4 weeks out.
- Make preparations for building if needed, (i.e. call exterminator, order portable latrines, etc.).
- Order brochures, posters, handouts.

**Two Weeks Before Event:**

- Remind PAO of event and press release and ensure it will go to the papers on time.
- Send e-mail to Range Control and Provost Marshall as reminder that event is scheduled and cleared.

**Day Before Event:**

- Clean site or building, set up exhibits, post signs, mark parking areas.

**Day of Event:**

- Arrive two hours before event scheduled for early birds, open building or site, finish set-up.
  - After event, remove exhibits, handouts, lock-up.
- 





## *China Lake Historic Road Signs*



Naval Air Weapons Station China Lake (NAWS China Lake) is an airborne weapons testing and training range operated by the United States Navy and its contractors. It is located in the northeast of California's Mojave Desert. China Lake is home to thousands of archaeological sites from prehistoric sites to early mines to settler's homes.

China Lake has used unique public relations education approaches to exhibit the historic nature of the area. An effective way to recreate an historic undeveloped landscape is to replace historic road signs. Russell Kaldenburg, then CRM at China Lake and winner of the DoD Environmental Award for Best Cultural Resources Management in 2005, researched the traditional California highway signs and replaced them throughout the China Lake training areas. In addition to the nostalgia, the road signs also provide effective directions for individuals navigating more remote sections of the training areas.

## *MCAS Yuma, Arizona*



The El Fortuna Mine in the Gila Mountains was the highest yielding gold mine in the Barry M. Goldwater Range West (BMGR) from 1896-1926. A historic context for mining in the BMGR West was prepared, the Fortuna Site and connected sites were mapped and recorded in preparation for a National Register nomination. Using historic photos gathered from archival research, an interpretive trail was developed with informational signs interpreting the history and features of the Mine. The trail was designed and entirely produced in-house under the direction of Richard Cerka, Range Warden at MCAS Yuma.

## *Fort Bragg, NC, "The Preservation Post"*

The Cultural Resources Management Program at Fort Bragg, NC, publishes a semi-annual public

newsletter entitled *The Preservation Post*. This newsletter serves to educate and inform the larger community of the multitude of resources contained on the fort that contribute to the history and pre-history of Fort Bragg, North Carolina.

## *Ft. Hase, Hawaii*

MCB Hawaii is controlling erosion of a 500 year old traditional-Hawaiian campsite by installing a flexible concrete block matrix system to protect the site from direct exposure to the wind, rain, and ocean waves. The project will also install physical barriers to deter foot traffic through the archaeological site, as well as provide interpretive signage to educate people of the importance of the preservation of this site.



## *No One Told Me It Was Heritage Month...*

Within the Army, each EO or Equal Opportunity Office is responsible for organizing ethnic and heritage celebrations during their respective months. Native American Month is in November and Black History Month is in February. These celebrations offer excellent opportunities for partnership and outreach. CRMs can encourage other programs to ask for help and support. It can range from bringing displays, to tracking down speakers, even to providing a speaker. In one case, the cultural resources program tracked down a top selling artist who was willing to give permission for reproduction of his poster for the benefit of the Soldiers.

## **Publications**

Several installations have self-guided walking tour brochures of the historic sites within the facility. These walking tour pamphlets are an excellent opportunity to showcase the historic attributes of our military facilities to both on-post and off-post audiences. With the constant

modernization, expansion, growth and change that our Nation's military forces exhibit it is as important as ever to show retain our ties to our military past and exhibit our commitment to our Nation's heritage through careful historic preservation. The tradition of our Military's excellence is a shared heritage of Soldiers past, present and future.

Here are just a few examples of publications designed for outreach, to promote volunteerism, stewardship and historic awareness.

### *U.S. Army Fort Sam Houston, TX*

Fort Sam Houston has several superior examples exhibiting the historic nature of the fort. A beautifully illustrated pocket guide to Historic Fort Sam Houston, a small walking tour guide, as well as booklets on the histories of the hospital and staff post are available for this area. Fort Sam Houston has more than 800 historic structures within its boundaries. This National Historic Landmark post has more than a century of the Army's architectural heritage preserved. Their Historic Neighborhood Awareness Program quotes, "Soldiers and their Families at Fort Sam Houston live and work surrounded by history."

### *MCB Camp Lejeune, NC*

Camp Lejeune finalized the publication "*Semper Fidelis*, A Brief History of Onslow County, North Carolina, and Marine Corps Base, Camp Lejeune" through the printing of 5,000 copies of the book. This publication provides a narrative history for the general reader, covering the prehistory of the area, through the World War II origins of the Base, and up to present operations.

### *Randolph AFB, TX*

Randolph Field AFB is known as the "Showplace of the Air Force" due to its stunning examples of Spanish Colonial Revival-style architecture. Randolph was declared a National Historic Landmark in August 2001 because of its large historic district in the center of the base which features 397 buildings, hangars and other structures built between 1929-1932. A limited edition printing of a fabulous photographic history of this architecture is featured in [The Architecture of Randolph Field, 1928-1931](#) by Victoria G. Clow . . . [et al.]

## Stewardship

### *The Arizona Site Steward Program*

Public land managers and CRMs have long recognized the value of education and outreach to inspire stewards for cultural resources. The Arizona site steward program, active at Luke AFB under Dr. Carol Heathington, has proven to be an excellent resource.

The Arizona site steward program is a volunteer organization trained and certified by the Arizona SHPO to report to land managers destruction or vandalism of prehistoric and historic archaeological and paleontological sites in Arizona through site monitoring. Volunteers increase public awareness about destructive forces on cultural resources by being active in public education and outreach activities.

Volunteer training requires a minimum of 10 hours of classroom and fieldwork instruction. Training includes antiquity laws, crime scene processing, map reading, and feature identification. This program empowers people with a strong interest in cultural resources to protect the resources on the ground, to discourage vandalism and the sale/trade of antiquities, allows for documentation of private artifact collections, collection of oral histories, and the photography and documentation of sites not previously recorded.

These volunteers have proven to be an excellent task force in protecting sites and increasing public education at little cost to the installation.

## Consultation and Volunteer Partnership



China Lake petroglyphs and NA docents.

One of the most notable archaeological sites at China Lake is the National Park Service's Coso Rock Art District, an area approximately 99 square miles containing over 20,000 documented petroglyphs. In 2001, this area was declared a National Historic Landmark.

The indigenous people live on the periphery of the training land and still recognize and understand the rock art panels as part of their cultural heritage.

Following the DoD pro-active consultation policy, the China Lake cultural resources program invited interested Native Americans to partner in providing stewardship and outreach for the rock art district. Native American volunteers guide outreach programs that interpret the panels for the interested visitors, offering a cross-cultural experience and appreciation that could not be duplicated in any other way. Native American participation adds specialized expertise to the small staff at China Lake and enables them to complete additional projects like constructing shelters along the rock art trails.

### *NAS Patuxent River – Webster Field Volunteer Partnership*

Since 2003, George Kennett, the Patuxent River Naval Air Station's fire chief initiated the 1st annual Memorial Day memorial service at the USS Tulip Monument adjacent to Webster Field. He assembled numerous partners to recognize the 8 fallen crew of the USS Tulip, with a wreath laying, flower planting, and a public ceremony with descendants and family members of the ship's crew in attendance. Maryland Historical Trust donated their services in cleaning and restoring the monument and performing the archaeology required to screen the area prior to excavation for erection of a flagpole. The Chief Petty Officer's Association (CPOA) from NAS Patuxent River purchased and erected



USS Tulip Memorial



an illuminated flagpole. Many local dignitaries joined the local historical society and Patuxent River Command staff in holding a memorial service and commemoration ceremony.



This natural and archaeological site at the Yakima Training Center is an important spiritual site but also a huge safety hazard for military personnel. This open lava tube is also a spiritual portal site for the Wanapum people. To alleviate the safety hazard and keep the site protected and accessible, Randy Korgel, the Yakima CRM, devised an innovative solution. A supported metal grate was constructed to fit over the opening, which was then covered in rock. This successfully eliminated the safety hazard and protects the site for spiritual purposes, while disguising it in the landscape.

## *Navy Puget Sound*

The Puget Sound area, a northwestern US inland marine complex of waterways from the Pacific Ocean, is also home to the Navy's third largest fleet concentration area. The NRNW Cultural Resources Team has been nationally recognized for its comprehensive cultural resources management, including one of its most successful endeavors, the creation of the Northwest Navy-Tribal Council. The Navy-Tribal Council established a forum for effective collaboration of matters of mutual concern between the NRNW and twenty-six federally-recognized tribes in Washington State. This council was established to develop mutual trust, improve knowledge, sensitivity and communication between Navy and the member tribes. It has proven successful. There is improved consultation and collaboration on numerous issues that had been neglected or overlooked for years, it fulfills federal trust responsibilities with minimal cost and it created a mechanism to facilitate and improve consultations on proposed actions or activities. The Council has also improved Navy education, knowledge, sensitivity and communication on local customs, protocol and organizational structures of the various tribes.

## Curation

Fort Riley's curation facility houses more than 150,000 artifacts but even more impressive is how they choose to store them. To ensure that artifacts are environmentally protected and preserved while ensure proper security controls, according to the requirements in 36 CFR 79, Fort Riley installed three walk-in storage coolers with approximately 4,300 cubic feet of combined space. These "meat lockers" ensure that proper environmental controls are set, like temperature and humidity, and have been retrofitted for security controls. They also are a solution to many pest management problems that artifact curation facilities often face since they are sealed



Fort Riley's Curation Facility  
 Left: Outside of the retrofitted "meat locker."  
 Right: Inside of the secure facility

units. Once inside the cooler, the artifacts are housed in archival bags and boxes or stored on powder coated steel shelving. This “out of the box” thinking for effective artifact housing has lead to a very effective curation facility for Fort Riley’s CRM Program.

## Partnerships

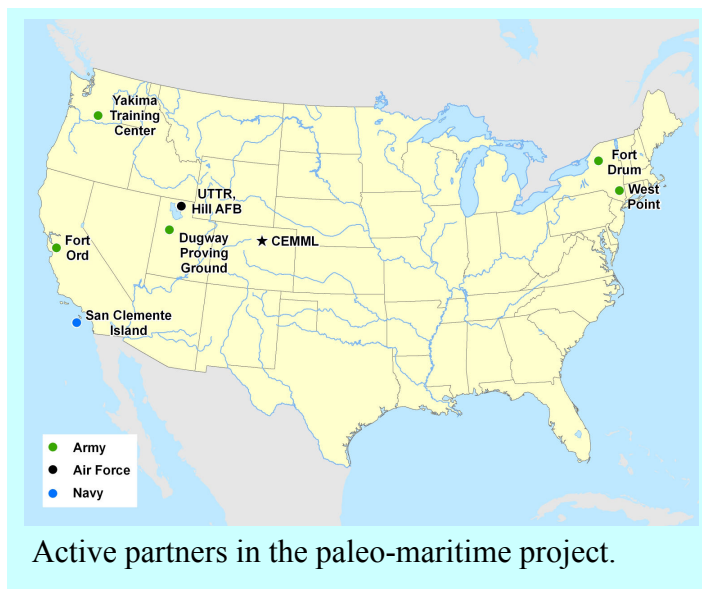
### *Community Preservation Organizations*

The Fort Bragg Oral History project was a natural development from the cemetery survey project. Many descendants of the families from the area were contacted during the completion of the cemetery report and many of these individuals had stories to share of the lives of those who lived on the land that became Fort Bragg. The Oral History Project recorded interviews with some of these individuals. You can find the oral history report at Fort Bragg’s website:

[http://www.bragg.army.mil/culturalresources/Docs/Sandhills\\_Families.pdf](http://www.bragg.army.mil/culturalresources/Docs/Sandhills_Families.pdf)

### *Military Colleagues*

Correspondence between glacial lake landforms and Paleo Indian occupation is an accepted part of the eastern North American archaeological record. This relationship, combined with evidence of paleo boat-building on the Pacific coast, makes it logical to look for paleo-maritime technology across the United States. An opportunity for the Cultural Resource Managers of all the DOD installations that may have sites representing this





context to work together will enable accurate evaluation of each individual site at a far reduced cost. The Paleo-maritime project (Legacy project 05-260) under Dr. James Cassidy (Staff Archaeologist, Marine Corps Air Ground Combat Center, Twenty-Nine Palms) has already included partners such as the Center for Environmental Management of Military Lands at Colorado State University, Dugway Proving Ground, Utah, UTTR (Utah Test and Training Range) Hill AFB, Utah, Yakima Training Center, Washington, and Fort Drum Military Installation, New York. Archaeological evidence from Navy-owned San Clemente Island (SCI), CA, and striking similarities in an artifact collection at Fort Drum Army installation were the catalyst for this DOD-wide project.

### *Educational Institutions*

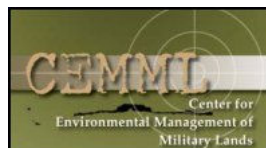
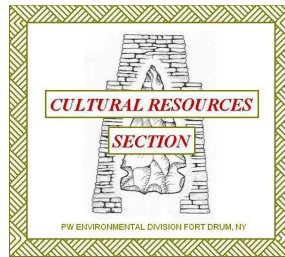
Ft. Drum CRM has one of the largest collections of 19<sup>th</sup>-early 20<sup>th</sup> century archaeological farmstead collections in the Northeast. The Fort Drum CR team has partnered with St. Lawrence University and Syracuse University. The universities are able to have ample material for MA and PhD students and the collections have extensive analysis and preservation. These reports and analysis is done at no cost for Fort Drum.





## ADDITIONAL MATERIALS





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