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Intermountain Region
Pacific West Region

Preservation and Management Guidelines for Vanishing Treasures Resources

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PRESERVATION AND MANAGEMENT GUIDELINES FOR VANISHING TREASURES RESOURCES

A ruins preservation program is essential to provide a last defense against the loss of these tangible symbols of America's heritage. An effective program can preserve the integrity, information and special meanings that these places hold for this and future generations.

(1997 Draft Ruins Preservation Guidelines)

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FORWARD

These Guidelines are written from the broadest possible perspective, as if a park were to plan to initiate treatment programs for the first time and have sufficient resources available to address perceived problems in an idealized manner. Such a comprehensive approach would focus on major preservation projects being implemented over a multi-year time frame, all laid out in a logical planning process. In the real world of everyday needs and realities, where small amounts of incremental funding are requested and must be used in limited time frames, it will be impossible to start at page one of the Guidelines and follow along step by step, achieving all planning agendas prior to moving forward through the process. Also it must be recognized that sites now receiving focus or attention have likely already received treatments. Vanishing Treasures (VT) sites are in a dynamic process including changes affecting the resource and changes which have been wrought by our predecessors. Because actions will most likely be taken without benefit of thorough research or all assessments being accomplished which fully inform a planning and implementation team, a less than perfect process is inevitable.

The goal of following and using the Guidelines should be one in which slowly but surely the blanks are filled in over time. In a case-by-case basis, an evaluation of what is needed will direct the lead person to ensure that key parts of the process are in place and that whatever action is taken does not preclude the need to eventually get to those missing pieces. This is simply the reality of working within the confines of a federal bureaucracy and all the aspects of funding and time constraints associated. Ultimately the responsibility falls to the Superintendent to make decisions regarding actions to be taken.

A great danger lurks when the Guidelines are not followed. The obvious example is when something appears to be, or is, in fact, falling down. There may be a rush to repair the particular feature, to put it back as quickly as possible because of what we think the public expects to see. Some of the most important questions may not be asked in the hurry to get pieces back in place or to reconstruct sections. Responsible personnel will utilize these Guidelines and, thinking of the long-term best interests of the resources, will always pause and ask the most important questions before taking action. Those questions are within the context of these Guidelines. With Vanishing Treasures resources, sometimes treatments should be the last resort. In fact some sites, such as those well protected inside cliffs, are best left alone. The Vanishing Treasures Program expects resource personnel to refer to the Guidelines and use them to develop complete and comprehensive preservation and documentation programs. If resources are not available to accomplish all steps at a given intervention, then make plans to get that part accomplished as soon as possible. If we are able to leave those following us with a better record than we have received, then we can say we have advanced our preservation mandate.

Acknowledgements

A Vanishing Treasures work group met in Santa Fe in July of 2007 and launched a plan to prepare these Guidelines. The 2007/08 authorship/editing/review-working group included:

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Jake Barrow, with assistance from Jim Trott, prepared a first draft which was sent out to the working group for review and solicitation of additional comment. In January 2008 following that review, the revised document was sent out to the field (Vanishing Treasures personnel in parks) to solicit broad comment. Thanks goes to all those who sent comments. Jake Barrow took the lead in editing and preparing the final document incorporating field comments. Layout assistance was provided by Randy Skeirik. Thanks to Bob Hartzler for comments on the History section. Bob Spude provided a comprehensive review and continued editorial advice. Dick Sellars reviewed the history section. During the late fall of 2008, the Guidelines were sent out to a select group of partners for peer review. We greatly appreciate this review and comments from Anne Oliver, Larry Nordby, Frank G. Matero, Pamela Jerome, Doug Porter and R. Brooks Jeffery Finally, copy-editing was provided by Gail Snyder. Any references to personnel, their contact information and FTP or HTML sites is based on time of publication data. The document was final edited, formatted and submitted in March of 2009.

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PREFACE

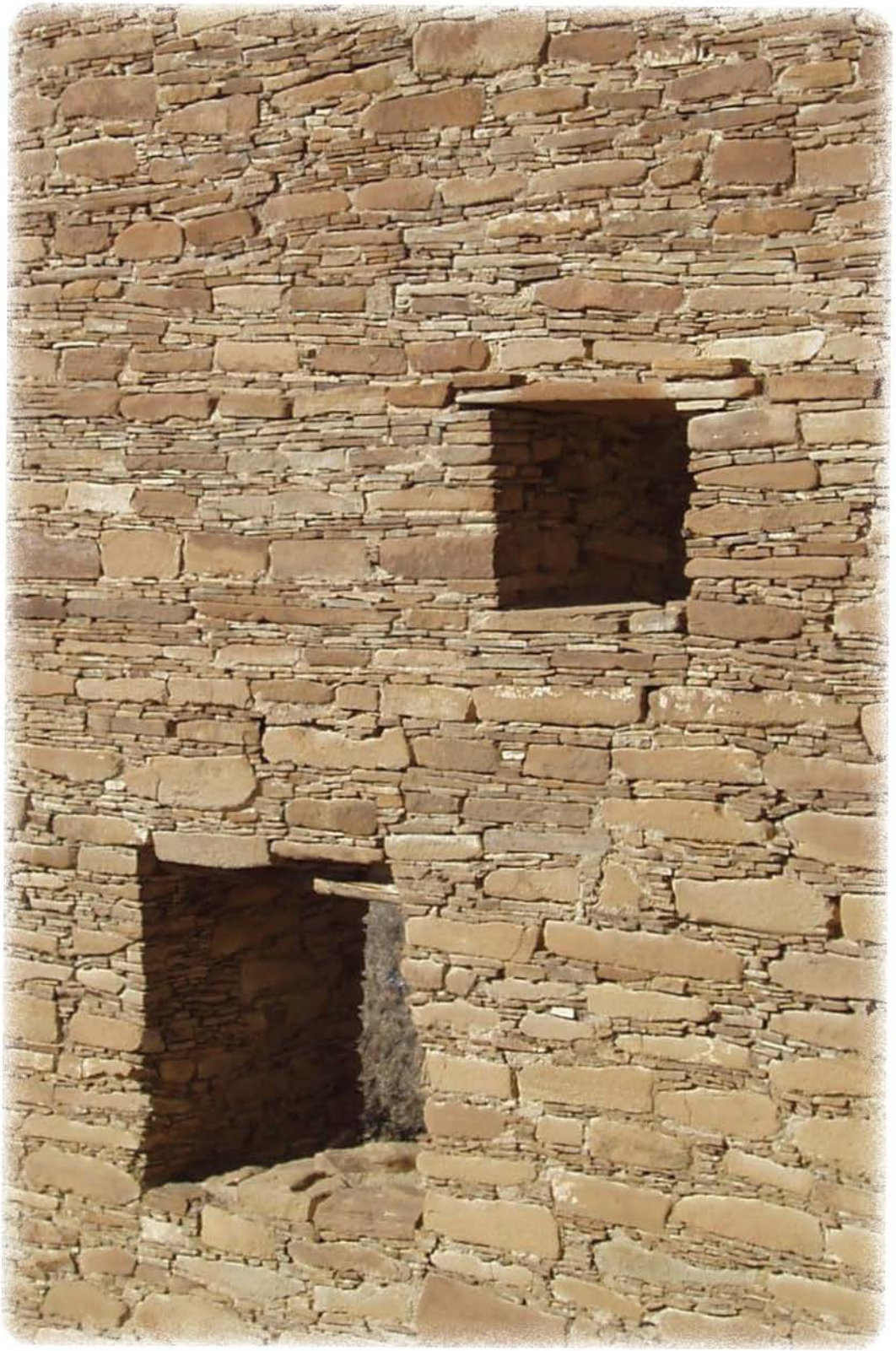
In 1997, the Draft Ruins Preservation Guidelines were initiated but never finalized and published. In July of 2007, a working group (listed in acknowledgments) met in Santa Fe, New Mexico to address this issue. The group reconvened in April of 2008. These Guidelines represent a reformatting, editing and expansion of the original 1997 document. They reflect ideas which emerged from the 2007 Santa Fe meeting, input from the field, peer review and follow-up discussions in 2008.

The 1997 draft, which was prepared by personnel from the Vanishing Treasures Initiative, drew heavily on earlier works that are identified in the History section of the Appendix. The 1997 version presented information on ruins preservation theory and practice. This version of the Guidelines continues the discussion on the evolution of current theory and practice. In the National Park Service, the preservation of cultural resources, including archeological sites and ruins, is guided by Directors Orders 28 and 28A, and by the Secretary of the Interior's Standards for the Treatment of Historic Properties (Appendix K.) The Guidelines presented here expand on those documents because of the special nature of ruins preservation, archeological site management and the unique needs of the special places identified as Vanishing Treasures (VT) Resources.

These Guidelines should be viewed as one road map that provides a route among many to achieve preservation goals. Planning procedures are critical to an orderly process of long-term preservation. The Guidelines are intended to be based on process, oriented toward results rather than detailed prescriptive specifications. They abstract from the specific and presume a level of professionalism to be applied by the practitioner. The Guidelines themselves fill the body of the text, while supporting and background information is available in the Appendices. It is anticipated that the document will also be made available online, with links available to connect to in-depth background information, examples and other resources. In this way, specialists may be contacted and prescriptive examples of work already accomplished can be accessed to serve as models. The planning procedures are like steps along the way and each step is intended to have several benchmark examples from the field. Partners and non-NPS personnel working on VT resources will be expected to apply pertinent aspects of these guidelines, but the primary responsibility for ensuring that the Guidelines are used is within the Service.

Three VT parks (Mesa Verde National Park, Chaco Culture National Historical Park and Grand Canyon National Park) are recognized as World Cultural Heritage Sites and therefore pertinent excerpts from relevant International Charters and doctrinal documents are also included in the Appendices. These documents also provide additional philosophical underpinnings for treatment approaches.

As has happened with past guidelines, these will eventually be superseded as perceptions, knowledge and needs evolve. Hopefully, they will assist today's managers and practitioners to ensure that the high quality of expert knowledge and workmanship necessary to preserve the very special category of resources identified in the Vanishing Treasures Program will continue into the future.



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I

INTRODUCTION

Vanishing Treasures Parks

Arizona

Canyon de Chelly National Monument
Casa Grande Ruins National Monument
Coronado National Monument
Fort Bowie National Monument
Grand Canyon National Park
Montezuma Castle National Monument
Navajo National Monument
Organ Pipe Cactus National Monument
Petrified Forest National Monument
Saguaro National Park
Tonto National Monument
Tumacacori National Historical Park
Tuzigoot National Monument
Walnut Canyon National Monument
Wupatki National Monument

California / Nevada

Death Valley National Park
Joshua Tree National Park
Mojave National Preserve
Manzanar National Historic Site

Colorado

Colorado National Monument
Dinosaur National Monument (also Utah)
Mesa Verde National Park

New Mexico

Aztec Ruins National Monument
Bandelier National Monument
Chaco Culture National Historical Park
El Malpais National Monument
El Morro National Monument
Fort Union National Monument
Gila Cliff Dwellings National Monument
Pecos National Historical Park
Salinas Pueblo Missions National Monument

Texas

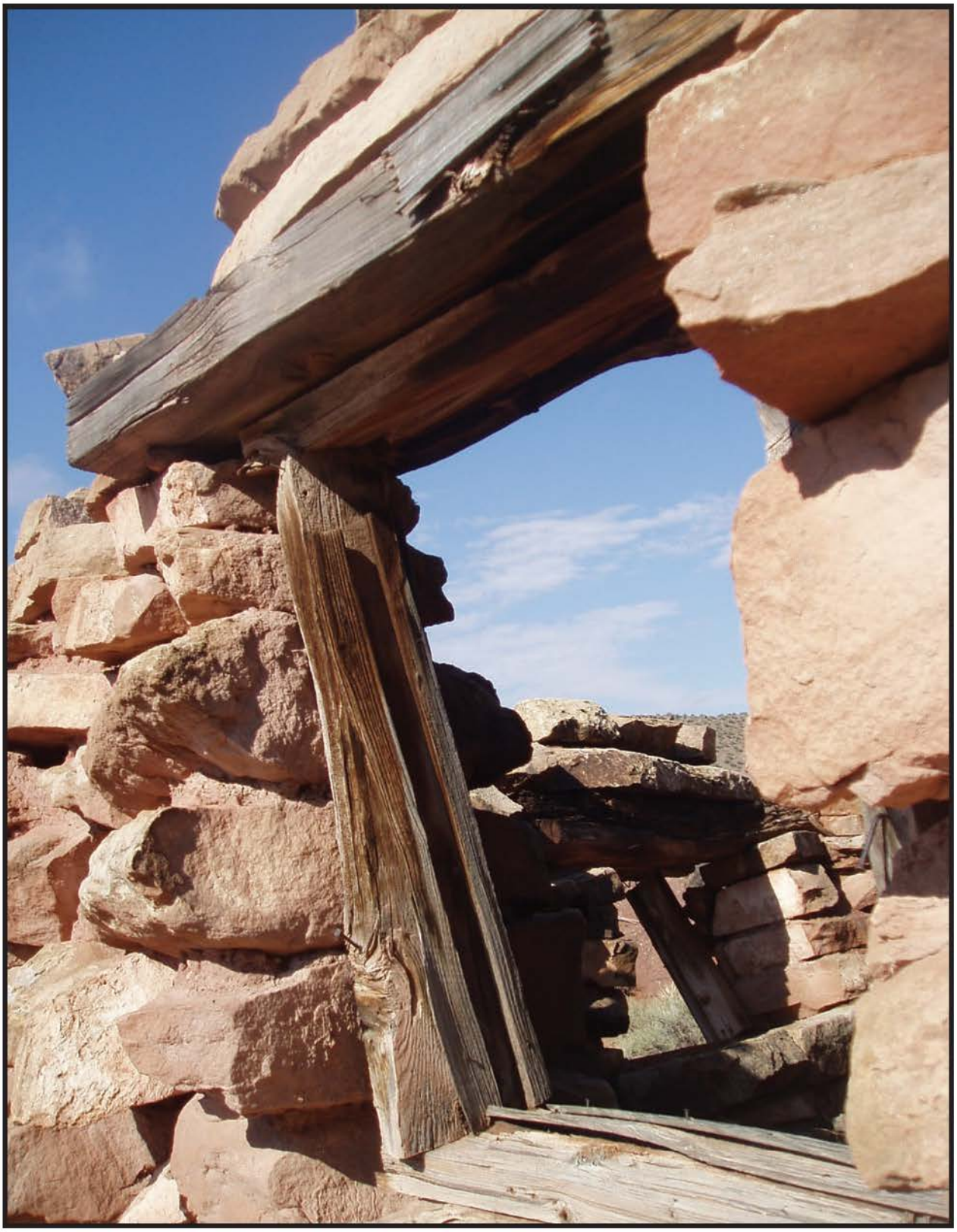
Big Bend National Park
Fort Davis National Historic Site
Guadalupe Mountains National Park
Lake Meredith National Recreation Area
San Antonio Missions National Historical Park

Utah

Arches National Park
Capitol Reef National Park
Canyonlands National Park
Glen Canyon National Recreation Area (also Arizona)
Golden Spike National Historic Site
Hovenweep National Monument (also Colorado)
Natural Bridges National Monument
Zion National Park

Wyoming

Fort Laramie National Historic Site



Introduction

The arid west of the United States contains one of the nation's richest, best preserved and most complete records of human history. The concentration and diversity of National Park Service archeological resources in the arid west are unique. By its very nature, an archeological site is constantly changing. Generally "ruins" have been damaged to some extent or even destroyed by natural forces, especially weather, and by human impacts. Because the record of the past is finite and non-renewable, such losses diminish our chances to study, understand and interpret critical parts of American history and likewise impact the ability of culturally-affiliated peoples to interact with these significant places; thus the general public's enjoyment of park sites is reduced.

From the late nineteenth century and continuing throughout the twentieth and into the twenty-first, the National Park Service and its predecessors have managed archeological sites. Over that time, several developments of note have shaped the way that we manage those sites. At the turn of the twentieth century, there was a great rush to discover and excavate sites, resulting in the exploitation and destruction of many resources. By the 1920s, the focus began to shift to site preservation and interpretation. By the end of the twentieth century, that shift was complete; site preservation and applied architectural conservation had replaced the damaging effects of excavation. Within the National Park Service, research archeology has become largely nondestructive, a transition that was accomplished with little, if any, consultation of culturally-affiliated peoples.

On the treatment side, it is relevant to note that the first such effort undertaken at Casa Grande in 1891 attempted to address the same preservation challenges that we continue to face today. These challenges include site desecration/human impacts, surface erosion from weathering, basal erosion, wall capping, sheltering, structural stabilization and backfilling. In the early part of the twentieth century, excavation work and preservation treatments were typically not executed by the National Park Service but by others, such as the Smithsonian Institution and field schools associated with educational institutions. Unfortunately, much of what they did remains in the dark since records are scarce and focused on subjects unrelated to treatment details. That began to change with the creation of Southwest Monuments and the subsequent professionalization within the Service. In the 1930s, some who had started working in parks for these other entities were hired into the National Park Service as the preservation process was internalized; occurring in conjunction with the Depression-era New Deal Programs.

As a result of their early recognition of the fact that fragile earthen materials in exposed environments had special needs, the National Park Service put out a call to the scientific community for help. Beginning with that call, through the recommendations of the Directors Committee on Ruins Stabilization in 1940, to internally conducted research in the 1970s, the move toward the implementation of scientific methods in ruins stabilization has been in a state of continuing development resulting in substantial, beneficial consequences. In the 1960s during the Mission 66 Program and following the Historic Preservation Act of 1966, a new thrust of energy and attention became focused on cultural resources. A further influx of professionals began joining the NPS during Mission 66 and into the 1970s, following the passage of this act. By the 1990s, universities were cooperating with the NPS in research activities, the pursuit of solutions and in student training. Cooperative Ecosystem Studies Units (CESU), which is the mechanism/instrument through which most universities participate with the Service, has reinvigorated the use of scientific methods and extended Park Service capabilities. Modern technology has provided new tools to accomplish more and better work. Archeological site management has become a curriculum within the context of university preservation programs at the graduate level.

With the passage of the Native American Graves Protection and Repatriation Act in 1990, the role and impact of consultation took on new meaning for southwest archeological sites as associated tribes and affiliated groups began to participate in the planning and decision-making processes. This and other important developments of the twentieth century have had a lasting impact on the way the National Park Service manages its archeological and ruins sites.

Mandated to manage and preserve resources for future generations, the National Park Service is doing so, in part, through the VT Program. The idea for the VT Program started when staff at three Southwest parks began jointly to strategize ways to address preservation problems associated with ruins. The attrition of staff, the lack of funding and the need for training were central in the minds of those individuals. Those grass roots meetings developed into a ten-year Initiative, which in turn has now become a Program. Congress first allocated funds to the Vanishing Treasures Initiative in 1998, and since then has done so annually. The Program's charter was finalized and signed in 2005 and then revisited for modification in 2008. In it, VT's mission is defined as the preservation of sites while meeting the recreational, educational, and scientific needs of those who may benefit from visiting or studying these unique resources.

Ruins preservation entails the protection and maintenance of the features and components of an archeological site, including its cultural landscape, architecture and artifacts. These guidelines provide an outline of fundamental design and implementation standards for a ruins preservation program. Successful preservation will minimize the loss of important scientific information, preserve examples of past technologies and architecture, and enhance the interpretation and appreciation of American cultures. Site preservation reduces the rate of deterioration of site architecture and contents and associated cultural landscape features, including landforms and circulation features.

An important component of any preservation treatment program is site documentation and recording, which includes a wide range of activities aimed at collecting narrative and graphic data. There are two points of view in considering an approach for documentation: the analysis of current conditions which inform treatment, and the analysis of site findings or research which informs the anthropological record. These are not mutually exclusive but are usually conceived of separately since their purposes are distinct and separate.

The methods for collecting the data have changed over time and continue to change with modern technological advances such as digital laser scanning. The Historic American Building Survey Program (HABS) is an early example of applied documentation strategy that has been utilized widely in National Parks. HABS prescribes four levels of documentation which have increasing complexity. This model is adaptable for VT resources. (See Appendix L.) HABS data collected from an archeological resource are both scientific and managerial. Data collection is a form of preservation. The anthropologist collects information that is analyzed, interpreted and preserved to contribute to the knowledge of a site and the people who inhabited it. The manager collects information to be used for conserving, managing, protecting and interpreting a site. Integrated ruins preservation documentation addresses both the scientific and managerial orientations in order to most effectively preserve fabric and values. Condition assessment and materials characterization can also yield anthropological information while the anthropological record yields information on the values inherent in a site and provides essential guidance in the selection of appropriate treatments and management strategies, so that these values can be preserved.

Documentation also addresses the potential loss of archeological information as a result of treatment actions, preserving a site's future research potential. Therefore Vanishing Treasures' use of the term 'treatment' is defined as not being limited to material intervention but also includes broad indirect actions, data recovery and documentation. Both architectural and overall site documentation must be conducted before, during and after the implementation of any direct action or treatment on an archeological resource. The documentation process must be planned, funded, scheduled, implemented and archived, according to appropriate standards. It must be recognized that documentation is a product of its time. Information gathered today is based on priorities, agendas and the knowledge base of the times. Future needs and capabilities can only be partially anticipated. The documentation accomplished today may well be insufficient for that future.

The goal of preventing the loss of existing original material, and thus the research potential and value inherent in it, is approached through data retrieval before treatment, and through documentation of the repairs. In this manner, consecutively over time, assessments can be made regarding integrity and authenticity so that repair work and its efficiency can be evaluated in relation to the condition of the original. The decision to implement treatment at a site assumes that enough documentation has been collected to prioritize the site features to be treated. The information provided by preliminary site documentation will reveal whether the

site is threatened and requires treatment, has significance and integrity, contains interpretive and scientific information and is potentially eligible for, or is listed on, the National Register of Historic Places. This information will inform a recommendation by resource managers to park managers whether or not to intervene at a site. Then park management must incorporate park-wide priorities to systematically evaluate the request.

Once a need has been identified which could lead to a preservation treatment at a site and the background information has been gathered, these Guidelines can be used to plan actions that determine:

- which preservation alternative should be considered, such as structural repairs, site modification, indirect off-site treatments, data recovery, etc.
- what type and level of documentation or data recovery is appropriate
- what materials should or should not be used in the repair process, and how the repairs should be performed
- the appropriate forms and methods for documenting the treatment process
- guidance for long-term management

Archeological site preservation is a specialized component of cultural resource management and historic preservation that incorporates perspectives of preservation, conservation and archeology. Each of these disciplines and other associated specializations brings a unique perspective to ruins preservation, its documentation process and the ultimate presentation of the resource. It is the integration of all perspectives that provides a balanced and relevant approach to documentation and preservation actions. Resource managers, archeologists and preservation specialists continue to develop a site and ruins preservation practice that involves minimal structural intervention and an emphasis on protection. Restoration or reconstruction is practiced only in a limited way that serves to preserve other features of high integrity. The practice seeks to preserve the scientific and heritage values inherent in the original construction materials by using compatible materials and techniques that characterize the original architecture and/or feature. Currently the process of excavating archeological sites is limited and the focus now has shifted to site preservation and the fulfillment of research requirements is accomplished ideally using non-destructive methods.

Archeological site preservation today emphasizes a series of activities which begin with assembling a team representing different disciplines to develop the preservation program. The team will direct and accomplish planning and research which leads to an analysis of the resources and a condition assessment. Assuming that a treatment program will be advanced, the team considers alternatives and ultimately evaluates them to arrive at a recommended approach. A scope of work or design for the treatment program will be drawn up and reviewed by the team. Once all is approved, especially in consultation, the treatment is undertaken. Long-term management of the resource will follow, which includes a monitoring component.

These eight activities have been shaped by past preservation programs of sites we continue to work with today. The history of archeological site management by the NPS and its forebears (see Appendix G-History) illustrates a continuum of thought and action, both constructive and contrary. A review of the history informs us, and hopefully also prevents the need to repeat research efforts and to avoid errors of the past as well as to benefit from records of the successes. Throughout history, the Service has accomplished and learned a great deal which has not been recorded in a manner accessible to the public. Thus, some partners and sister agencies have not been able to benefit from this knowledge. The NPS has a responsibility to make information publicly available to benefit resources outside its immediate domain.

Not all resources and projects are created equal. These Guidelines represent an approach to major site intervention. Small localized projects ultimately fit into larger programs, and they too must conform to the principles set forth, although sometimes in discreet and singular ways. Modest projects will entail scaled-down planning agendas. Off-trail and back-country sites not designated for interpretation should remain in a special category protected from public access to the extent practical and possible.

One continuous thread running through this process is the overriding concern and care manifested by the many individuals who have been charged with site stewardship over the past one hundred plus years. That stewardship has now been passed to us, and these Guidelines are presented as a benchmark of our times.

VANISHING TREASURES PROGRAM

MISSION:

Vanishing Treasures is a national program that vigorously pursues the preservation of architectural remains as a physical manifestation of the past and fosters and preserves the cultural connections.

PURPOSE:

- **provides a proactive resource protection and preservation program which identifies and addresses specific geographic and cultural regions and ties cultural and traditional methods to the resource**
- **serves as a partner with local communities to cultivate and maintain the physical aspects of the culture**
- **provides technical assistance to communities for unique VT resources where technical assistance is not available**
- **ensures the continuity of traditional craftsmanship for future generations and develops and shares new preservation techniques and technologies**

VANISHING TREASURES PROGRAM

RESOURCE DEFINITION

Vanishing Treasures Resources are defined as a structure or grouping of structures that are in a ruinous state. For the purposes of Vanishing Treasures, a ruinous state is further defined by the following:

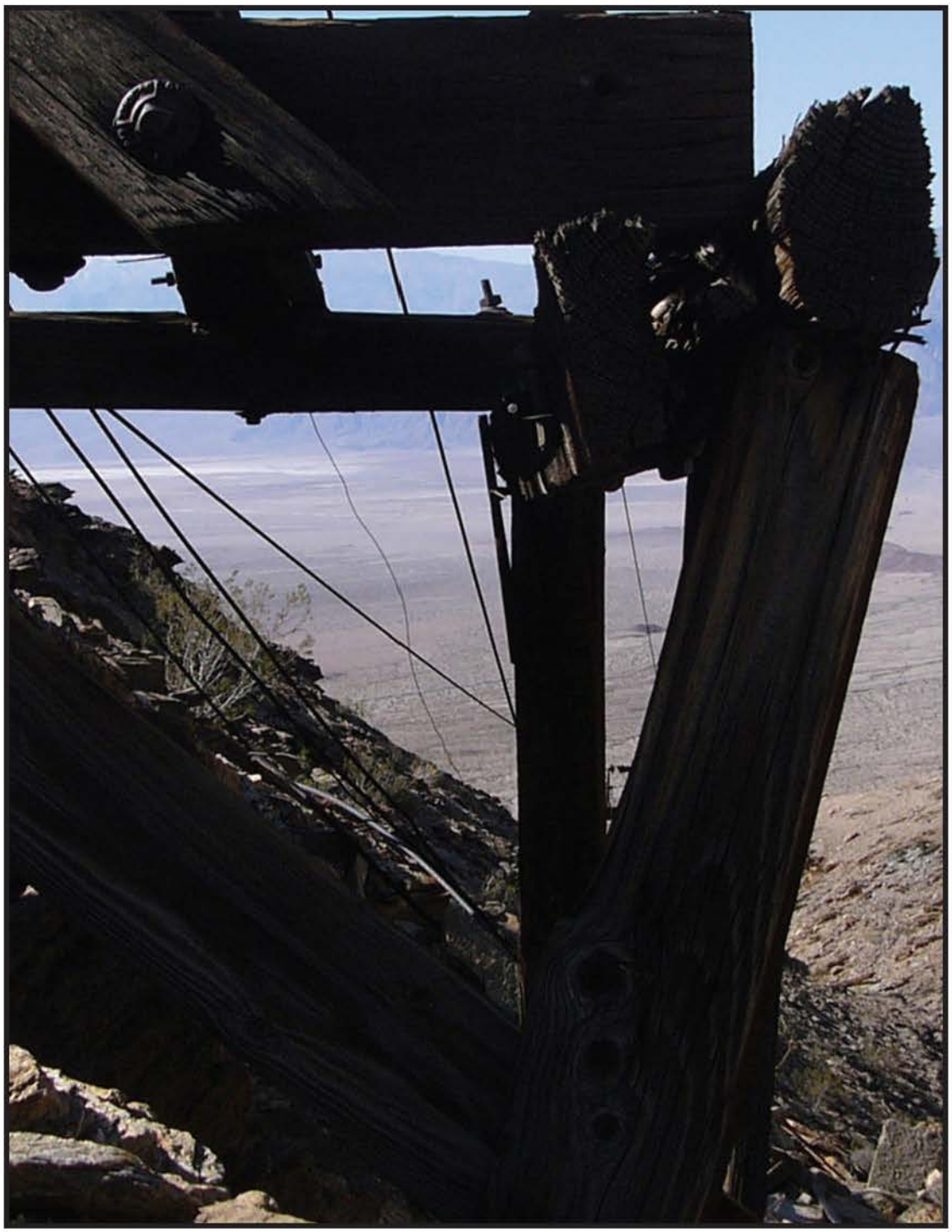
- having exposed, intact, original material (earth, stone, wood, etc.) or incorporating original materials with treatments (i.e. interpreted backfills and encapsulated walls)
- not being used for their original function but still representing that use
- not adaptively being reused for another purpose
- its occupation and utilization have been interrupted or discontinued for an extended period of time
- are located in the arid West
- is the resource, or a subset of the resources, for which the park was created;
- is a National Historic Landmark or listed on (or eligible for listing on) the National Register of Historic Places

Examples of Vanishing Treasures Resources:

- architectural remains that have intact original material exposed at or above grade (i.e. wall alignments, upright slabs, foundations, framing elements, bins, cists, constructed hearths)
- sub-grade architecture exposed through excavation or erosion (i.e. pit houses, dug-outs, cists, foundations, etc.)
- Native American architectural structures (i.e. Pueblos, cliff dwellings, cavates, hogans, wickiups, ramadas, corrals, earthen architecture, pre-historic trails, etc.)
- Euro- and Asian-American architectural structures (i.e. missions and churches, convents, forts, ranch-farm structures/homesteads, mining structures, acequias, landscape features, designed gardens, kilns, etc.)

Examples of Non-Vanishing Treasures Resources:

- sites with no exposed architecture or structural remains (i.e. collapsed, buried, mounded, or otherwise not evident)
- archeological or other sites with no architectural remains (i.e. lithic scatters, dumps, camp sites, etc.)
- Civilian Conservation Corps (CCC) and Civil Works Administration (CWA) buildings and features
- historic structures that are regularly maintained, and/or adaptively used
- structures in use as National Park Service facilities (i.e. administrative buildings, museums, trails, bridges, ditches, canals, etc.)
- mineshafts or caves that do not have architectural/structural features
- pictographs, petroglyphs, rock art, etc. (unless found closely related to architectural structures)
- reconstructed structures (i.e. Aztec great kiva, Bents Old Fort)



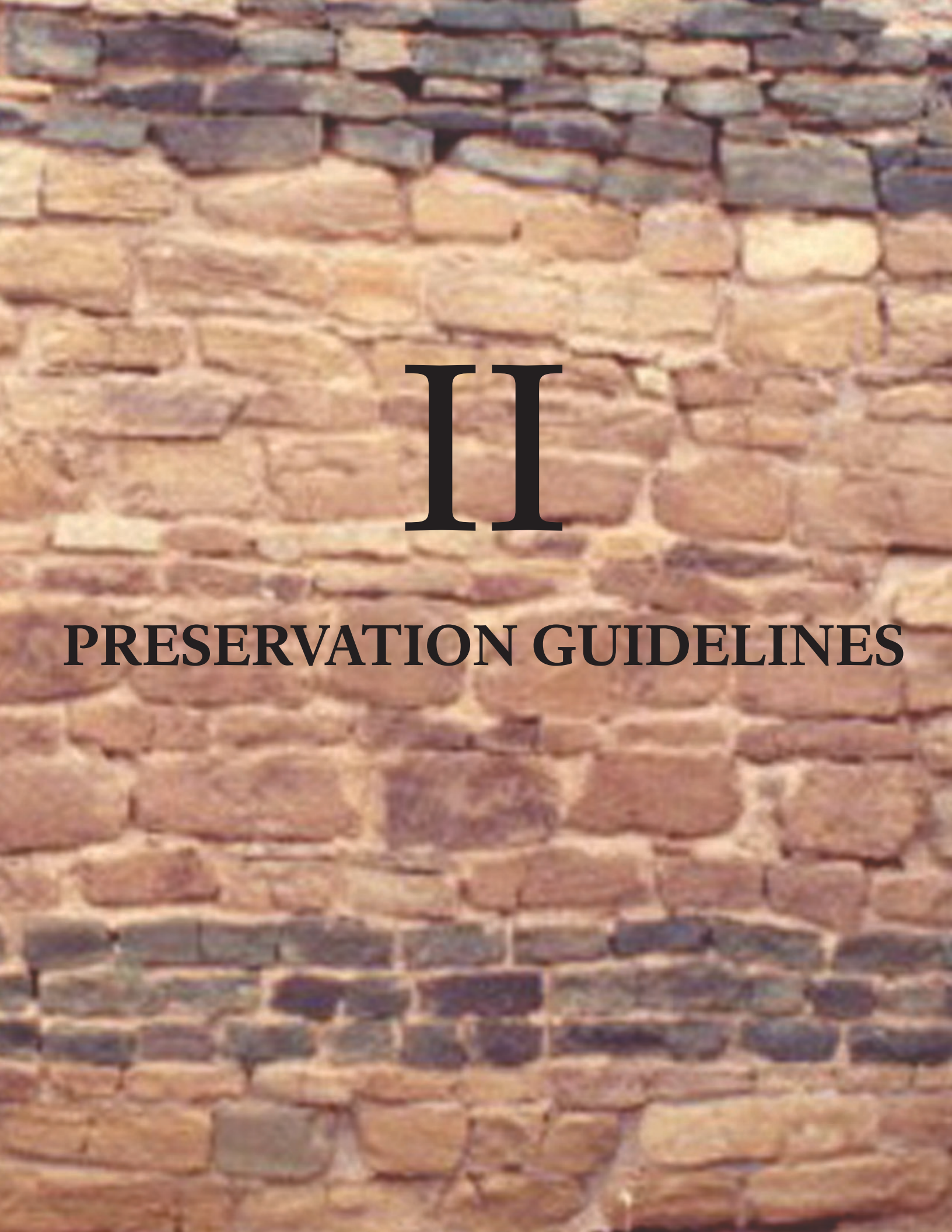
RESOURCE PRIORITIZATION

Identifying A Prioritized List Of Vanishing Treasures Resources Requiring Treatment

Ranking treatment projects: Prior to planning or implementing any resource-specific preservation plans or treatments, it is critical that each Vanishing Treasures park develop a park-wide, prioritized list of VT resources requiring preservation treatment. Each park should structure its preservation program to develop a "short list" of resources requiring preservation treatment. Each park has unique mandates and resource requirements but the process should be the same (an example method and further guidance can be found in the Appendix D).

- **Research past records** - acquire and evaluate existing data from inventories of all resources; evaluate the existing data to determine research needed to initiate planning and establish a list of resources recommended for treatment
- **Establish criteria** - establish weighted criteria to be used in prioritizing resources using a multi-disciplinary approach and input from park area divisional programs (see Preservation Priority Matrix- Appendix D)
- **Document** - collect information essential to identifying resources requiring treatment, creating "focused field studies" to provide architectural and condition information needed for prioritizing resources requiring treatment
- **Analyze** - analyze resulting information in a format enabling prioritization of identified resources requiring treatment
- **Prioritize** - develop a priority list of resources requiring treatment

In any future surveys or resource inventories, it is useful to include architectural and condition documentation so that the resources can be evaluated for inclusion on the prioritized preservation treatment list. Facility Management Software System (FMSS) data should also be acquired when work is anticipated (Appendix N).



II

PRESERVATION GUIDELINES

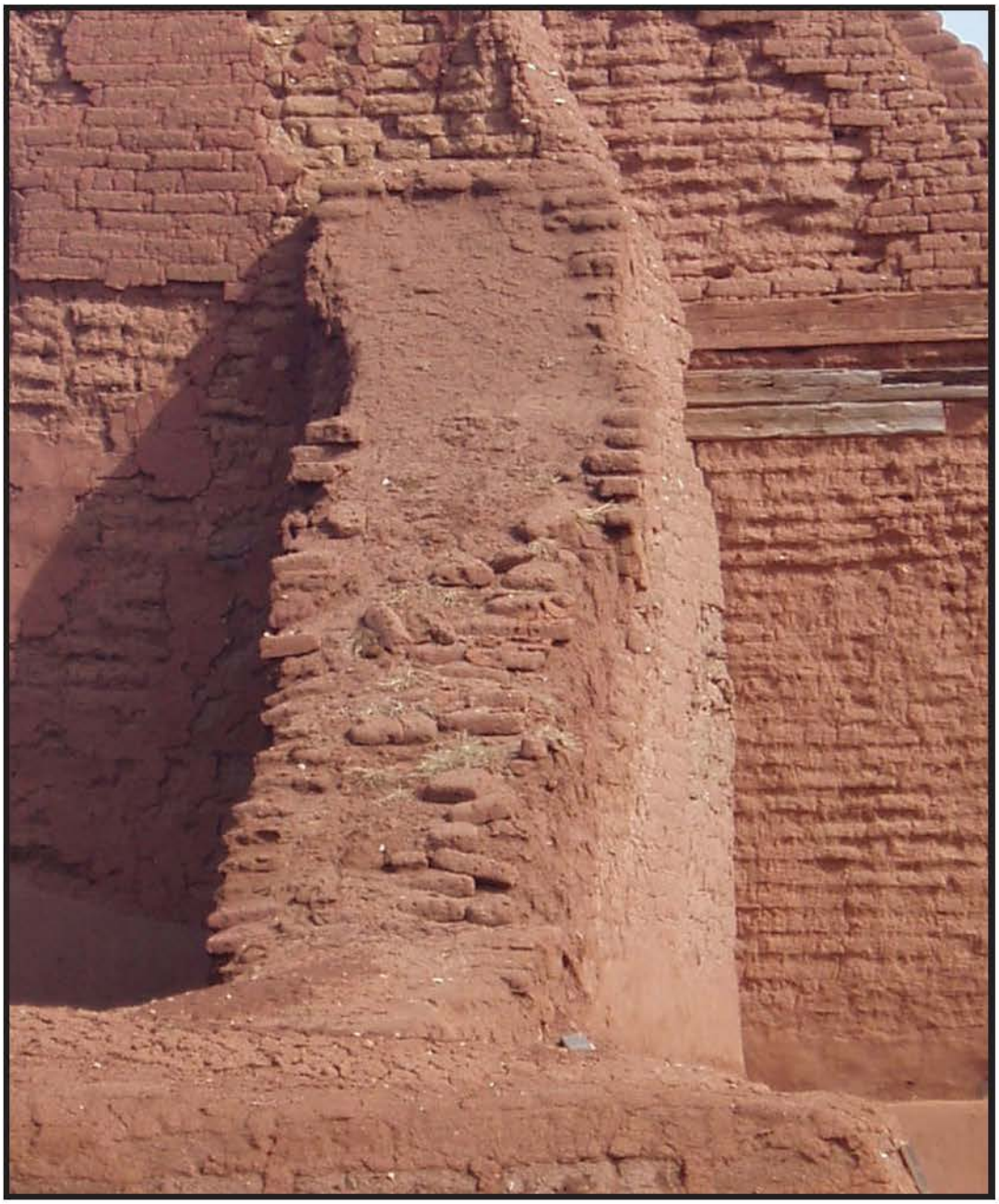
GUIDELINE SUMMARY

A Vanishing Treasures Resource Preservation Treatment Program

The focus of preservation treatment is on individual resources that are part of a larger cultural landscape. Intense analysis is required for each individual resource, including condition assessment, investigative studies, specialized analyses and archeological and architectural documentation. Preservation treatment programs require the multidisciplinary skills of specialists serving in a team. Inclusion of appropriate State Preservation authorities, American Indian tribes and local communities in the planning and review is essential. Integrating a planning process to initiate work and follow a deliberate course of action is required. These Guidelines constitute a planning process.

A preservation treatment program for a site can be applied in a process consisting of eight steps:

1. **Assembling a Multi-Disciplinary Team**
2. **Accomplishing Archival Research and Planning**
3. **Documenting and Analyzing the Resource**
4. **Developing Alternatives for Resource Preservation**
5. **Reviewing and Selecting the Preferred Alternative(s) for Resource Preservation**
6. **Designing the Selected Preservation Treatment**
7. **Implementing the Selected Preservation Treatment**
8. **Conducting Post-Treatment Maintenance and Management**



Assembling a Multi-Disciplinary Team

The first and most important task of any preservation project is to identify all potential issues that may affect the understanding and treatment of a resource. One of the first steps in this process is to assemble a multi-disciplinary team with expertise in addressing those issues. The multi-disciplinary team may be fully assembled at the beginning of a project or it may begin with only a few key members. As the need for input from additional areas of expertise is identified later in the project, new members should be added to the team. It is assumed that the Superintendent will play a key role in the team and will take part intermittently as appropriate.

The specialists who might be needed in the multi-disciplinary team include:

- cultural resource managers
- archaeologists
- architectural conservators
- historical architects
- ruins preservation and maintenance staff
- landscape architects
- structural engineers
- compliance specialists
- geologists
- soil scientists
- hydrologists
- fire specialists

For a given resource preservation project, it is likely that some but not all of these specialists will be required on the team, depending on the type of resource and the preservation issues at hand. Many of these specialties are represented within the NPS and at Vanishing Treasures parks in particular. VT staff should be asked to participate. Some parks may not have any VT staff and they will rely either on resource staff or get assistance from Program staff. A list of VT positions at the VT parks as well as other resource staff routinely charged with preservation responsibilities is provided in an Appendix to the Intranet edition of the Guidelines which includes contact information for the personnel currently filling those positions. For other specialties, e.g. soil science and hydrology, it may be necessary to seek expertise outside of the NPS.

The primary role of the VT park employee initiating the project, or any other user of these guidelines, may be that of a project manager, providing input relating to his or her own area of expertise but also coordinating the work of the different team members, facilitating the exchange of information, and guiding the decision-making process. As project manager, the employee may also be responsible for quality control, fact checking, report writing and compilation, information dissemination, safety and so forth.

Examples of Assembling Multi-Disciplinary Teams	
Recommended	**Not Recommended**
Reach out to other disciplines in the park, nearby parks, parks with similar resources, and/or in regional offices as appropriate.	Assemble a team of colleagues who typically work together on similar issues and share similar ideas.
Assemble a planning team that includes the multiple disciplines required to provide a comprehensive approach.	Assemble just a few individuals to plan and do not include one or more disciplines needed to ensure that all aspects of the project development are explored.
The planning team ensures that all the big picture issues are considered such as cultural landscapes, maintenance, long range goals, resource protection, NAGPRA, other park priorities, interpretation, etc.	The planning team only focuses on select issues related to the stabilization work and does not consider broader issues of park and resource context.

Archival Research and Planning

Planning is an ongoing process in an organized, cohesive and applied Vanishing Treasures Program. Through planning, priorities are set and deliberate actions followed based on the detailed procedures indicated in the Guidelines. Planning is undertaken by a multi-disciplinary team and ensures that all management and legal requirements are met. Following these Guidelines constitutes engagement in a planning process.

Archival research is one of the first actions undertaken which involves compiling and evaluating all available existing records pertaining to a resource. These include archeological records, preservation records (which may document reuse of building materials and previous areas of deterioration and repair), photographic records, management records (goals and objectives and previous decisions), previous specialized analyses and oral histories. Archival research may involve archivists and historical archeologists to investigate records appropriate to their disciplines. Physically verifying the results of records research should follow compilation of the existing information. The information gathered is used in the first steps of the planning process.

Archival Research, Compilation of Existing Documentation and Preparation of Outline Resource History

Compile and organize all existing information relating to the resource. Components may include:

- previous preservation actions and specialized analyses of materials
- lists of all material types of the resource, including original materials and those used in previous preservation treatments
- previous archeological investigations, including unpublished field notes
- all previous graphic and photographic documentation
- oral histories by individuals with previous involvement at the resource
- construction histories of the architecture, including interventions
- management plans, directives, use and changes in use
- input from park staff, resource, interpretive and other
- input from State Historic Preservation Offices, culturally affiliated tribes and local communities on resource-specific concerns
- examples of other planning processes which can be used for guidance

The products of this activity are:

- a provenience or structure identification system that correlates all previously used systems for subsequent use, including incorporation into the FMSS system.
- compiled existing archival and materials collection and curated materials
- record of all previous work as baseline for subsequent studies and treatment
- annotated inventory of data
- annotated bibliography
- record of input from the multi-disciplinary team
- record of consultation communications

Develop, evaluate and outline resource history. Components may include:

- preparing a current site description
- preparing a current condition description
- evaluating construction materials in collections and characterize the differences/similarities to on-site counterparts
- recording changes in structure or room designations or numbering systems through time

- appropriately tracing the archeological and stabilization histories of a structure
- preparing a chronological listing of resource interventions including archeological and stabilization activities
- documenting changes to original construction
- verifying the results and findings taken from the records research by conducting review and resource survey on site
- correlating previous interventions with a current condition description

The products of this activity are:

- an outline of the resource history
- a written description of the resource in its present condition today
- a summary of additions and alterations made to it through time, including exposition of previous preservation treatments applied to the resource and their effectiveness through time
- identification of areas needing further research and evaluation

Examples of Archival Research and Planning Activities	
Recommended	Not Recommended
Search park files and pull together all documents, including historic photographs, that relate to a resource. Research external park resources such as regional and other archives for records.	Not fully accessing park files which may have varying systems of organization and control as personnel changes over time and filing systems often change.
Have specialists with expertise in relevant areas evaluate past treatments.	Past treatments are not fully evaluated or specialists are not involved in the evaluations and unqualified assumptions are made.
Conduct oral histories when records are not complete regarding recent resource treatments. (Employees both retired and those still employed can recall what took place on a site.)	Personnel such as recently retired individuals who may know details about what happened on a site are not contacted for oral histories.
Prepare a comprehensive written report to lay the foundation for future planning and decision making, and also to serve as the primary source and common knowledge base for the members of the multi-disciplinary team.	Do not prepare a comprehensive report but rely on memory, diverse files, handwritten notes, verbal communication, etc. to document the process and share information about it.

Documenting and Analyzing the Resource

Documentation for Condition Assessment; and Research and Analysis of a Vanishing Treasures Resource

Documenting the resource may include, as deemed appropriate per priorities and dependent on its purpose: site maps, plans, elevations, photographic and other graphic imagery, material analysis, condition assessments, detailed architectural and archeological descriptions with structure specific preservation requirements and correlation of previous documentation with the current description.

The purpose of the documentation must be clearly understood and established at the outset. Based on this purpose and the value of the resource, the relative complexity of the project and the logistical issues specific to the documentation strategies under consideration, an appropriate level of documentation shall be applied. The level of complexity shall be determined by the team. The focus of whether the documentation is solely directed toward anthropological research, condition assessment, or a combination of both will be decided by the team. Historic American Building Survey (HABS) levels I-IV exemplify the potential for the range of complexity (See Appendix L.)

When extensive intervention, such as backfilling, is anticipated, the highest level of documentation is required. In the case where documentation is being planned as a research tool only, special requirements are designed into the program by the research archeologist on the planning team. These requirements respond to the purpose prescribed and focus specifically on that objective. In this case, research documentation may be supplemental to condition assessment documentation or, in some cases, it may stand alone.

A condition assessment involves examining an architectural structure or feature, analyzing existing conditions, identifying preservation problems and the causes of those problems, evaluating conditions using a multi-disciplinary team approach and a range of technical specialists' results in identifying conservation requirements and determining causes and effects of deterioration, as well as the effectiveness of previous preservation actions. Aspects of research documentation often are used in assessments since understanding rate of change from baseline condition as described by visual data becomes key to fabric treatment programs. Likewise, information gleaned from fabric investigation can well inform the anthropology, such as in the case of an assessment of decorated surfaces which might reveal a multiplicity of layers beneath the visible one.

Components of resource documentation, condition assessment and analysis are:

- documentation of architectural features which have anthropological implications singularly or in context of others within the resource or to related resources (may be less detailed for condition documentation only)
- identification of original, authentic material versus previous stabilization and repair material
- technical analysis and characterization of materials: stone, mortar, plaster, pigments, wood (including dendrochronology), earthen materials (adobe, mortar, plaster, etc.)
- identification of significant pristine features, components and attributes of a resource to be preserved intact and without significant alterations
- evaluation of deteriorating areas and determination of causes of deterioration (include in-puts from technical/research specialists as appropriate)
- correlation of existing conditions with previous descriptions and actions using technical specialists and material testing methods as needed
- evaluating the effectiveness of previous actions and techniques by consulting with technical specialists
- evaluating previous management actions with regard to direct or indirect impacts

The products of resource documentation, condition assessment and analysis are a written report and/or portfolio containing:

- an analysis of findings which informs the study of the anthropology of a site (used only minimally in condition assessment documentation)
- an assessment of potential threats and future impacts
- a summary of current resource conditions and their probable causes, supplemented with base maps, photographs and other illustrations of current conditions (to establish a baseline)
- a summary of preservation issues and specialized requirements
- an evaluation of park management plan directives and their relation to resource preservation issues
- a comparative collection of construction materials and curation of materials (if appropriate)
- preparation of Facility Management Software System (FMSS) planning documents based on recorded data for future maintenance needs

Examples of the Resource Documentation, Condition Assessment and Analysis Activities	
Recommended	Not Recommended
Performing needed documentation using the most appropriate tools and skills available to achieve a comprehensive product in direct relation to defined objectives and resource values.	Proceeding to document a resource without due consideration of purpose, values and resources available, resulting in information of little or no use.
Design the documentation to focus on the specific resource, taking into consideration the level of complexity appropriate as determined by team.	Design documentation with no defined objective in mind using formats adopted from other projects and not considered by team.
Documentation for the purposes of condition assessment will evaluate the entire history of the structure, including all treatments applied and establishing a baseline for future use.	Documentation which focuses on select aspects of a structure without considering others which are also of importance and is not recorded to establish a baseline for future referral.
Conditions of materials within a structure are fully evaluated, including comparative analysis, field evaluations and lab testing.	Material analysis is limited to field assessments and assumptions made by visual observation and not proven by scientific inquiry.
Documentation of a resource using FMSS input definitions in order that features can be put into the FMSS and the information gathered can serve to provide FMSS with accurate data.	Following previous designations for features which do not correlate with FMSS definitions; therefore documentation does not contribute to FMSS.

Developing Alternatives for Resource Preservation

This and the previous sections of these Guidelines essentially constitute the main elements of an Historic Structures Report (see Appendix Model HSR Table of Contents as defined in Directors Orders 28). By completing the defined work elements in these sections, one may assemble the results into one umbrella document as an HSR. This becomes very helpful in planning future work by formally establishing criteria.

This step involves the investigation and evaluation of alternatives for preservation treatment of architectural fabric, both for the short and long term. Consideration of alternatives is important to ensure that a deliberative process has been followed. Deliberations can illuminate the thought process of the team, thereby dispelling future conflicts or second-guessing.

Components of the investigation, evaluation and consideration of alternatives are:

- identifying use, especially visitor use/impact , which includes visitor traffic through or on resources
- identifying the preservation options, ranging from no treatment to extensive intervention, in concert with the multi-disciplinary team
- reviewing resource conditions and probable cause-and-effect relationships
- evaluating the efficiency, impact, reversibility, re-treatability and long-term maintenance implications of each proposed option
- incorporating long-term management goals, including consideration of the feasibility and reality of the proposal and its long-term viability
- soliciting input from partners, culturally affiliated tribes, concerned local communities and other stakeholders
- evaluating the potential effects of proposed preservation actions on associated resource features and the adjoining landscape
- correlating existing approved interpretive themes with desired outcome

The products of alternatives development in a written report include:

- a written presentation of the range of options and alternatives ranging from no treatment to extensive intervention
- an evaluation of the projected impacts, both positive and negative, on the resource, adjacent resources, associated landscape features, interpretive values, etc.
- a record of resource-specific and related concerns provided by stakeholder

Examples of the Process to Develop Alternatives	
Recommended	**Not Recommended**
The multidisciplinary team develops or considers the full range of alternatives which may have been put together by project leads.	A few park personnel consider alternatives which have been provided by a limited team, possibly one employee who is driving the project.
Team members rigorously consider issues of resource integrity, condition, treatment history, maintenance requirements and other factors and their interrelation with each treatment alternative to render a comprehensive viewpoint.	Only the alternatives which appeal to some members of the deciding group are considered and recorded.
Make early contact with SHPO and tribal entities to foster cooperation and learn about their potential concerns, which could affect treatment plans.	Wait until design documents are complete before contacting SHPO and tribal entities

Selecting and Reviewing the Preferred Alternative(s) for Resource Preservation

The activities associated with this decision-making stage are the review and selection of one or more preferred alternatives. This is done through a review process conducted by the multi-disciplinary team, including park management and staff. The evaluations will result in a recommended decision. The initial multi-disciplinary planning team usually will undertake this activity. Consultation will be conducted with the State Historic Preservation Office and should continue with common interest groups, such as culturally affiliated tribal governments and local communities who have an interest in the outcome. These groups collaborate on evaluating the recommendation package.

For the purposes of Section 106 compliance with the Historic Preservation Act of 1966, a proposal of "no action" is not relevant to Vanishing Treasures resources since documentation is considered a treatment or "action." However, documentation may be the only treatment selected as the preferred alternative. In the course of time, after archeological research and architectural documentation has been performed, a determination of "benign neglect" may be applicable, even to resources that possess research or interpretive values. "Benign neglect" is applied only if a specific management decision is made not to pursue further preservation actions. This determination may be made only after suitable archeological investigation has been performed which provides the pertinent scientific data to inform the decision.

Components of the decision-making activity are:

- reviewing alternatives in relation to park resources management goals, objectives and management plans
- selecting one or more preferred alternatives for resource preservation from among the suite of options developed in the "Alternatives" exercise
- considering and evaluating the relationship between the selected preservation action and the following as pertinent or appropriate:
  - Preservation and Management Guidelines for Vanishing Treasures Resources
  - Pertinent sections within DO-28 and 28A
  - The Secretary of the Interior's Standards for the Treatment of Historic Properties
  - The Native American Graves Protection and Repatriation Act (NAGPRA)
  - Curatorial archives and records management issues
  - The National Historic Preservation Act (NHPA 106/110 Compliance)
  - The National Environmental Policy Act (NEPA)
  - The Secretary of Interior's Cultural Landscape Treatment Guidelines
  - Other specific laws, policy and directives
- consulting with the SHPO, affiliated tribes and other stakeholders by presenting the preferred alternative(s) and evaluating the responses received

Products of this activity are:

- a written summary of input from concerned parties or representatives of affiliated groups, with copies of correspondence appended
- a written summary of the preferred alternative(s) and its level of compliance with applicable policies, guidelines and standards
- identification of the selected preservation treatment alternative with supporting comments

Examples of the Process to Select from Alternatives, Making Decisions	
Recommended	**Not Recommended**
A multidisciplinary team working with management and consulting parties renders a decision selecting an alternative with its reasoning included.	A manager or other park personnel makes a unilateral decision about what they think is best for a resource without consideration of other input and without providing the reasoning for the selection.
Alternatives are measured against DO 28, NAGPRA and the Secretary of the Interior's Standards, as well as pertinent parts of VT Guidelines, to ensure compliance with the intent as well as specific requirements where appropriate.	Alternatives are considered without evaluating how they fit into the intent and definitions provided by Policies, Guidelines and Standards.
Related tribal entities are contacted to ensure that input is received concerning alternatives. If necessary, an appointment is made and the tribal offices are visited to adequately transmit important information and receive feedback.	A letter is sent to the tribal entity informing them of the selected alternatives and, if a response is not received, the assumption is made that they are not interested or have no comment.

Designing the Selected Preservation Treatment

This step will involve the development and design of the selected preservation treatment and the review of that design by the multi-disciplinary team; additional technical specialists may also be necessary. Following design review, a scope of work including specific design, implementation methods and material details is prepared. This may be done by one individual who has access to the team and all background documents and reports necessary to prepare the scope. The ultimate result of this step will be a comprehensive construction document package for the project. Should the intent be to contract the work to external private entities, special provisions are required as prescribed by Federal Acquisition Regulations (FAR). Early consultation with contracting personnel is recommended.

Architectural documentation will have been accomplished prior to this stage which has provided the information needed to design the treatment. In the case where research documentation will be designed for a preservation treatment program, not all components and products below are relevant. The Facility Management Software System (FMSS) must be used and correlated throughout this process (see Appendix N).

Components of project design include:

- designing specific preservation action(s), including additional documentation and specialized analyses involving technical specialists as appropriate. *In documentation-only projects, the design will clarify the research objective by laying out research questions to be answered.*
- selecting techniques and materials that are compatible with and characterize the original construction methods and existing structural material
- identifying methods by which the proposed treatment will be identifiable from the original, authentic materials
- creating a "construction document" or "research document" package based upon design and specialized analyses, as appropriate for a specific project including a design and scope-of-work
- estimating costs to accomplish all aspects of project work
- considering and specifying policy and directive requirements, such as NAGPRA, DO 28, Secretary of the Interior's Standards and VT Guidelines
- considering and designing techniques for monitoring treatments over time, such as the installation of monitors or sensors
- considering curatorial issues for the handling of artifactual materials
- producing illustrations, photographs and plans that visually describe the proposed work
- completing compliance with Section 106 of the National Historic Preservation Act and with the National Environmental Policy Act, if appropriate
- incorporating an Inadvertent Discoveries Plan
- incorporating a Safety Plan
- evaluating the type, level and frequency of reporting to adequately document the project and associated changes to the resource

The products of this project design are:

- construction document package including: design drawings and specifications; architectural documentation
- scope of work which covers details such as mortar, plaster, pigment specifications, wood species, stone type
- research documentation package which includes a written narrative explaining the anthropological agenda as defined by the team
- an explanation of the type, level and frequency of reporting throughout the project and also the required contents of the final project report
- all necessary design specifications and documents, including incorporation of technical specialists inputs, reports and findings
- consultation and consideration of concerns of culturally-affiliated tribes
- inclusion of curatorial issues in project design documents
- documentation of "no action" decision, if appropriate
- thorough detailed cost estimates for funding and staffing requirements

- completed compliance with the National Historic Preservation Act, the National Environmental Policy Act and the Native American Graves Repatriation and Protection Act
- safety program built into the design package
- an Inadvertent Discovery Plan (if the park does not already have one)

In a case in which documentation is the selected preservation treatment, special provisions and guidelines are required to accomplish that task. These are not defined as specifically herein as those for material treatment-oriented projects since research agendas are abstract by definition. In this case the archeological record of the resource and the archeologist of record will be required to provide a research design appropriate for the task. The documentation activity will be designed with a specific research objective established by the team under the guidance of the archeologist of record. The goal of such documentation is to further the knowledge base of the resource and increase understanding of the anthropological context of a site.

Examples of Preservation Design	
Recommended	**Not Recommended**
When there are structural issues present, consult with an engineer to inform final design (see Appendix F: Structural Engineers Evaluation Guideline).	Rely on local knowledge to deal with structural issues.
In cases where documentation is the selected treatment, the archeologist of record or the archeologist who is an expert on the resource and its subject culture prepares the research design in consultation with the team clarifying the research objectives.	Rely on someone other than the most knowledgeable archeologist to prepare a research design or assume that a standardized documentation system used at another resource or park can be adapted for this project with no clearly stated research objective.
Specify material types and use descriptive terms to identify materials for repair.	Use generic descriptions for materials such as "wood," "stone" or "soil" rather than specifically identifying types, colors, species, mixes, etc.
Design a safety program for the project following the VT Guidelines (see Appendix O: Safety Program).	Rely on the contractor or implementation team to supply a safety program.
Develop a material-specific identification system so that the new work can be distinguished from the original, authentic materials at a close range.	Rely only on documentation to identify the differences between the new work and the original, authentic material.
Design and review the selected treatment with the involvement of all appropriate members of the multi-disciplinary team, using past designs from other parks as templates for a general approach but tailoring the specifics to the resource at hand.	Design and review the selected treatment using only local knowledge and/or relying on the general design and specific approach used for preservation treatments of other resources.

Implementing the Selected Preservation Treatment

Prior to implementing preservation treatments or actions, all of the previous Guidelines tasks should have been addressed. The primary components of implementation are establishing records management and applying the treatment as designed. Should the project be a 'documentation-only' project, research design provided by the archeologist of record will inform and possibly take precedence over the components and products listed here. 'Documentation-only' projects may not require the same analysis applied to treatment histories that material intervention-oriented projects require. The purpose of the documentation may be two-fold, both establishing a baseline of condition as well as exploring the archeological context. In this case, the multi-disciplinary team may increase capacity by coordinating the two activities in order to make the best possible use of resources.

Components of Project Record Management are:

- organizing all existing archeological, stabilization and other relevant preservation data into retrievable formats
- collecting additional data concerning the structure and its condition to fill information gaps, as necessary, including: mapping, photography, materials sampling, wood inventory, encoding selected data in compatible formats, and up-dating the record of the structure's condition which was established at the outset of treatment
- standardizing the terminology including that which defines provenience characteristics of the structure, ensuring that FMSS is taken into consideration
- creating records that can be archived for guaranteed future availability
- reporting which summarizes project development, implementation and results
- establishing a change order or change in design process based on findings in the field during construction

Components of Implementing the Preservation Treatment are:

- implementing the preservation action, involving appropriate technical specialists
- executing repairs using precise material selection, preparation and treatment techniques (these should be specified in the scope of work)
- implementing the selected method of visual identification of treatment to distinguish repair from original
- overseeing contractor(s) and/or NPS staff to ensure the stipulations of the construction documents are met
- minimizing ground disturbing activities to reduce the likelihood of disturbing buried cultural materials
- monitoring any necessary excavation or any ground-disturbing activities for archeological purposes
- documenting all actions and activities that are undertaken using written notes, reports and photographs as appropriate
- recording changes to the structure resulting from the treatment using photography, line drawings and written descriptions of the action in progress
- documenting the work/man power and quantities of materials used during each step of the work
- preparing and/or compiling final reports in appropriate formats, including project documentation and discipline-specific professional reports
- incorporating updated information into appropriate national, regional and/or park data bases and appropriate preservation and architectural research databases, including FMSS
- disseminating results to park and resource managers and integrating results into various park programs such as maintenance and interpretation
- analyzing monitoring and maintenance protocols

The products of this activity include:

- comprehensively compiled and curated records of all findings and materials recovered from the structure
- adequately curated materials, artifacts and records
- reports such as Resource Preservation Plans, Completion Report and/or Structure Preservation Guides or other appropriate preservation reports, including professional monographs that meet the needs of associated professions and management (various disciplines involved will produce specific reports)
- recommendations for long-term management including resource monitoring and maintenance information packet , preservation plan or maintenance guide
- new interpretive and educational information to update visitor information programs

Examples of Treatment Implementation	
Recommended	**Not Recommended**
Secure masonry materials off-site that closely resemble the historic material and/or are of a similar character with the existing materials to maintain a compatible appearance of repair to original. Make repairs identifiable under close scrutiny or at a close range.	Reuse historic/pre-historic material, e.g. re-constituting mortars back into wall sections, attempting to replicate exactly what is original work, or making an overt effort to distinguish the repair work so that it is clearly noticeable from a distance.
Repair deteriorated wood sections or parts by splicing in new wood to replace only the deteriorated parts.	Replace entire pieces of wood that are in generally good condition except for localized areas of deterioration.
When resources are affected in projects such as backfilling, retrieval of architectural data will be accomplished.	Burying, altering or concealing a resource without adequate retrieval of architectural information.
Stop work when historic/prehistoric material and archeological discoveries may be in danger of being lost or destroyed.	Continue to work on resources that will potentially cause the loss of authentic material of high integrity or cause the loss of archeological evidence.
Maintain the character of features, architectural details, wall configurations, style and massing.	Change features or architectural details due to construction practices or other influences on job sites; simplify wall configurations to make maintenance easier in the future.
Document work in a manner that is universally retrievable.	Document work in a manner that is proprietary and only retrievable by one person or only by specialized means.
Prepare a completion report and preservation management plan describing work accomplished, monitoring procedures and routine maintenance procedures.	Consider the work completed without leaving a record for future use that defines what was done or actions required to maintain the work accomplished.

Post-Treatment Maintenance and Management

Once a project has been completed in the field, evaluations, maintenance and monitoring will be required. Immediately subsequent to the preservation intervention, management will begin to implement strategies to maintain the treated resource with new directives and also implement monitoring programs to determine if and when changes occur, which will dictate a need for future action. At suitable intervals after the work has been completed, evaluations of the effectiveness of the intervention should be made as part of the monitoring process. Post project activities consist of actions taken on a routine basis to monitor, protect and preserve the resource.

Components of this activity involve implementing a preservation plan for the resource which will include:

- applying routine preservation maintenance work, monitoring and inspection of the structures and treatments
- accomplishing general housekeeping maintenance
- evaluating the effectiveness of treatments
- inputting FMSS data
- making decisions to facilitate long-range preservation, such as changing visitation patterns, closing resources to visitation or reducing access and increasing Archeological Resource Protection Act patrols
- updating the park priority list of resources requiring preservation treatment based on new conditions
- providing a description of the preservation process and the knowledge gained from the treatment process to the park interpretive program
- ensuring that all documents are accessible and retrievable as well as curated at WAAC and other pertinent facilities per archival guidelines (see Appendix I: Summary of Museum Responsibilities)

The products of this activity are:

- implementation of the resource preservation plan developed in Guideline 7, including routine maintenance and monitoring (e.g. periodic photography, crack monitors and/or erosion monitors with monitoring schedules), and long-term data collection and analysis
- a written summary of the effectiveness of the treatment, updated as needed
- updated priority list for other park resources with preservation requirements
- maintenance of resources in good condition/FMSS and ASMIS reporting
- recommendations for new interpretive themes as might be appropriate based on discoveries or treatment programs
- publications (e.g. leaflet, brochure, article, monograph) for both internal and external audiences, if appropriate

Examples of Post-Project Maintenance and Management	
Recommended	**Not Recommended**
Implement a preservation plan that includes routine maintenance and a monitoring component.	Wait for future funding to implement a resource preservation plan.
Inform interpretation of work accomplished and findings in order for new information to be available to the public.	Perhaps because of timing or differing priorities (such as the concern that signs may have to be changed or brochures rewritten, or a seeming lack of interest), it is decided not to inform interpretation staff of work accomplished and knowledge gained.
Archive final documents digitally and as hard copies. Share with all participants as well as repositories such as WACC, TIC and library collections (see Appendix I-Summary of Museum Responsibilities).	Project leader keeps final documents in personal space without disseminating.
Use monitoring to evaluate the effectiveness of treatments, including partial successes and failures by following procedures outlined in the resource preservation plan. Report on these so that others can benefit.	Monitor by visiting the resource and recalling features or treatments. Make assumptions from memory without documentation.
Re-evaluate park priorities after completing the project using knowledge gained from project and by reviewing completed work inventory updates.	Consider project complete and finished without relating it to other park resources and priorities in context.

Preservation Emergencies

Chapter IX of the Programmatic Agreement with the Advisory Council for Historic Preservation addresses "Emergency Actions" and these guidelines must be followed.

An emergency is defined as a situation in which material failure or collapse is occurring or about to occur. In consultation with management and with professional input from knowledgeable personnel and/or VT engineering consultation, a decision may be made to take immediate action to forestall collapse. This action may be required for health and human safety, especially in the case where the public has access to walls and structures. Safety is of the highest importance and resources may be closed due to hazards.

There are three levels of emergency. The first and highest is life and human safety. The second level is less critical but no less important, which is the imminent loss of historic original material but without human health and safety implications. The third level, which requires more management input to determine the need for action, is the imminent loss of non-historic repair material. Normally, this loss is not considered to be an emergency with regard to VT resources.

If a situation is deemed an emergency necessitating immediate action by the Superintendent, time can be very critical, making the following of normal Section 106 and consulting procedures impossible. Notification to the SHPO and other consulting parties is always advisable and, in the case of emergencies, it may be necessary to provide notification as soon as possible (within 24 hours) with appropriate follow-up. Actions taken to remedy the situation must be reversible and safely executed. They should not negatively impact the integrity of the structure. These actions usually take the form of trail closure, wall braces, temporary frames, sand bagging and temporary covers. Employees are not directed to take actions that put them in any danger but should contact trained professionals to implement emergency procedures if needed and if employee safety is a concern. Once the remedy has been taken and the wall or structure is reasonably secure, planning may be undertaken to get the project back into the normal procedures as outlined by these Guidelines.

Depending on the particular situation and anticipated timing of more permanent action, Section 106 and other consultation such as with tribal parties should be normalized as quickly as possible.

In the case of inadvertent discovery of human burials, the park should follow its Inadvertent Discovery Plan. If the Plan is not in place, then immediate tribal consultation is required prior to applying any treatment that could affect the burial in any way.

SUMMARY CHECK LIST

Preliminary planning

The following basic questions and series of actions summarize the Guidelines and can be used as a checklist:

☐ Is the structure a VT resource? If yes, proceed.

☐ Is it included in the List of Classified Structures (LCS)?
If yes, is the LCS file up-to-date?
If not, take action to bring the file up-to-date. Contact the Regional LCS Coordinator.

☐ Has the structure been listed on or determined to be eligible for listing on the National Register?
If not, consider a nomination.
If yes, is the Nomination complete and adequate?
If not, consider planning for a re-write.
Are conditions/changes such that the resource might be considered for de-listing as a VT resource?

☐ Is the site located in a wilderness area?
If yes, special requirements restricting mechanized equipment and access will be in force.

☐ Is a multi-disciplinary team assembled and ready to participate in planning?

☐ Have both park-wide and site-specific priorities been set?
If not, develop a plan to prioritize the site of concern within the park context (see Matrix in Appendix D).

☐ Is it an emergency? (If so, or for further clarification, see special procedures on page 28).

☐ Is an Inadvertent Discovery Plan in place?
If not, take action to develop the Plan.

SUMMARY CHECK LIST

Once the planning starts on a VT project, the following questions and actions are addressed:

Is the appropriate level of research, documentation, recording and consultation complete? What has been done and what more is needed? (Start a file with copies and notes defining the status of these subjects, including recommendations for what is needed.)

- ☐ Site history, HABS/HAER recording, other forms of recording
- ☐ Previous archeological investigations
- ☐ Construction/treatment history
- ☐ Current condition and condition history
- ☐ Analysis of condition including causes and rate of change
- ☐ Current and future threats identified
- ☐ Management History: General Management Plan, Resource Management Plan, Historic Strutures Report
- ☐ Oral histories
- ☐ Interpretive Planning
- ☐ Preliminary 106 and Tribal Consultation (NAGPRA)

A few fundamentals are:

- ☐ Has use of the resource or its relationship to adjacent resources changed?
- ☐ Have park management intentions changed?
- ☐ Have planning documents been updated?

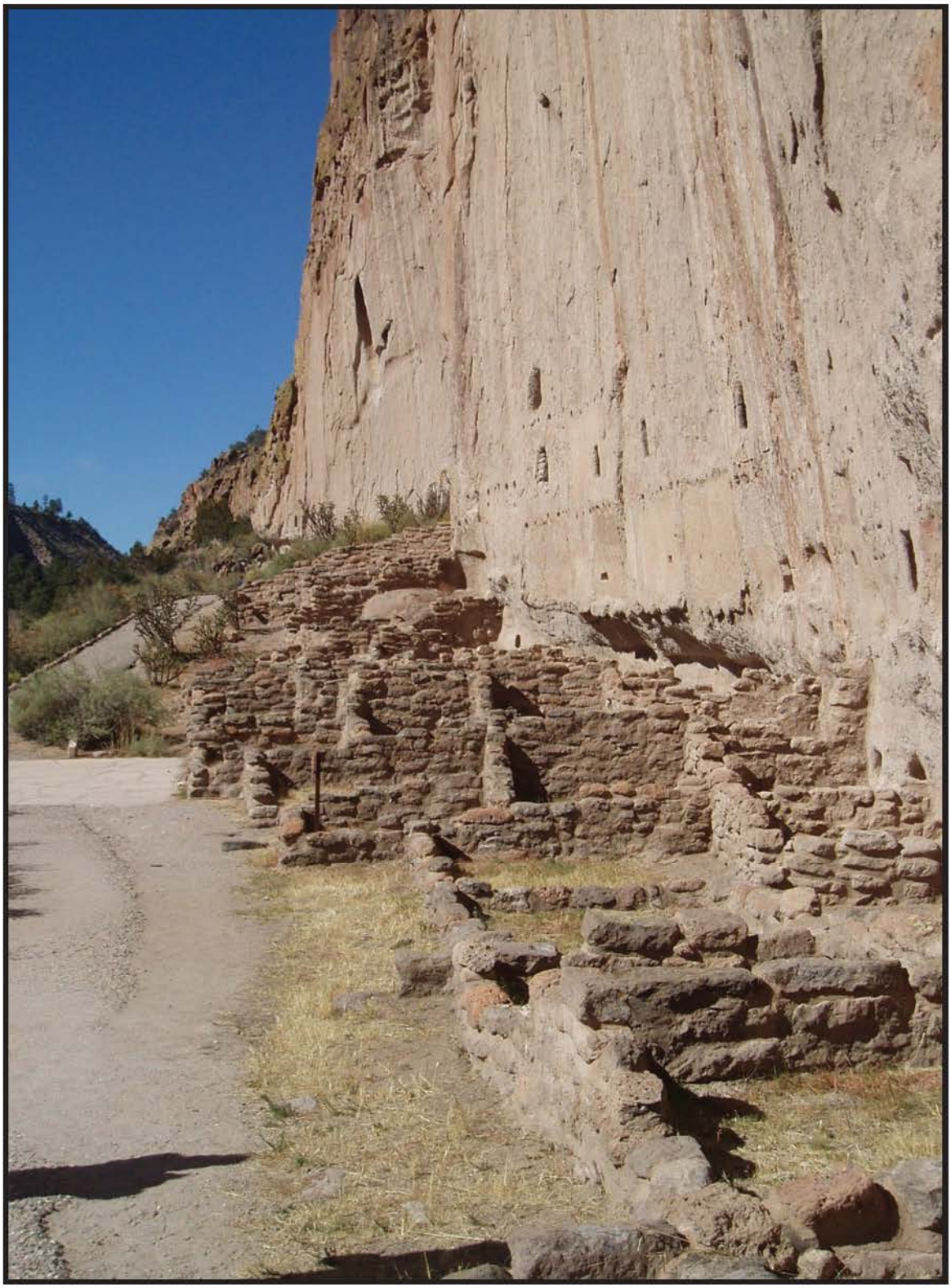
After satisfactorily addressing the above subjects, determine desired condition and options for treatment by following these guidelines requiring the team to:

- ☐ develop alternatives
- ☐ render a decision and develop a scope of work
- ☐ execute treatment
- ☐ post-project planning

After the treatment has been implemented, responsibility for managing, monitoring and maintaining the site must be established with guidelines provided by the project team. Specific instructions include monitoring methods, maintenance requirements, material specifications and other site-relevant information necessary to preserve the site. A completion report will include this information.

III

APPENDICES



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APPENDIX A

PROGRAM MANAGEMENT
IN THE
VANISHING TREASURES PROGRAM

CHARTER

Approved by:

Mike Snyder
Director
Intermountain Region

August 14, 2008
Date

Jonathan Jarvis
Director
Pacific West Region

August 19, 2008
Date

VANISHING TREASURES PROGRAM

Mission:

Vanishing Treasures is a national program that vigorously pursues the preservation of architectural sites (often termed "ruins," archeological and historic) in the arid lands of the West.

Program Goals:

The goals of the Vanishing Treasures Program are for each VT Park to achieve a proactive and forward-thinking preservation program. Park management can achieve these goals by designating park staff, program support staff, coordinating with other park's staff and requesting VT staff and/or partners to accomplish:

- Long-term plans and strategies to preserve resources
- Comprehensive resource inventory
- Determination of emergency/priority preservation treatment or documentation needs
- Completion of resources documentation
- Projects which maintain and preserve resources
- Monitoring resources on a cyclic basis
- Communication of preservation efforts among parks and partners to share accomplishments and new techniques and technologies

Background:

The VT sites represent a record of human experience remarkable in depth of time, geographic extent and cultural diversity. These sites contain the remains of buildings or other architecture that is at least partially exposed above the ground surface. Such resources may derive from building traditions that incorporated a variety of materials, technologies, designs and symbolic expressions that represent a continuum of architectural experimentation in a unique and arid environment. The Vanishing Treasures Program is composed of 45 national parks and monuments within the Intermountain and Pacific West Regions of the National Park Service. States that contain VT parks include Arizona, Utah, Wyoming, Colorado, New Mexico, Texas and the southern areas of California and Nevada. Vanishing Treasures parks contain cultural and historic sites with above-ground architecture whose occupation and utilization has been interrupted or discontinued for an extended period of time. Initial counts of the number of known exposed resources approximate 12,700 with several times that many structures potentially existing that have not yet been recorded.

Vision Statement:

As the Vanishing Treasures effort transitioned from an initiative to a program in 2008, its mission is to be a proactive resource protection and preservation program which focuses on preserving Vanishing Treasures resources and ensuring the continuity of preservation skills for future generations. The VT Program will help lead the Vanishing Treasures parks in identifying needs and developing strategies to implement and sustain effective proactive preservation measures. Collaborative efforts in preservation will be encouraged at all levels. Opportunities for sharing resources, staff and expertise will be fostered and encouraged among VT parks, the goal being to bring the most expedient and effective methods of preservation to vanishing treasures in need. Additionally, new ideas will be investigated including creation of a Friends Group which would lead the way in external support, advocacy and fund-raising. With these new efforts and all current preservation goals, the VT Program Charter will set the stage for the next ten years of ruins preservation and connect VT efforts to the stewardship goal of the NPS Centennial Initiative.

VT Program Excellence, Professionalism, Policy and Regulation:

The VT Program will foster the application of the best possible approaches to resource documentation and preservation with an emphasis on continually improving these practices. It is explicitly recognized that the methods employed within the VT Program must be consistent with federal historic preservation laws, standards and practices. Indeed, the National Park Service has taken responsibility for providing leadership in preserving the nation's cultural resources. The VT Program strives to be recognized as a service wide resource for expertise and information regarding preservation, particularly of masonry architecture. The Secretary of the Interior and the Advisory Council on Historic Preservation have the primary responsibility for overseeing and providing guidance for all preservation efforts; however, the National Park Service, in keeping with its mission and the spirit of stewardship and trusteeship it envisions, has the responsibility of protecting and preserving cultural resources under its jurisdiction. Accordingly, there are a number of existing historic preservation standards and guidelines that must be followed in the management of the VT Program. The Secretary of the Interior's Standards (1982, 1983 and 1985) and the Advisory Council's Handbook for the Treatment of Archaeological Properties (1986) are primary sources for providing technical guidance on cultural resource preservation.

The National Park Service has also developed policies and guidelines that expand upon and clarify the Secretary of Interior's Standards. These guidelines do not in all cases specifically address the unique architectural traditions involved in preservation in the American Southwest and thus the VT Program is developing and implementing its own Preservation and Management Guidelines to fill this need in Vanishing Treasures parks.

Maintaining the Accountability of Vanishing Treasures Funds and Positions:

The Vanishing Treasures Program accomplishes the preservation work for these fragile and irreplaceable sites through the combined efforts of the 45 VT parks, the Leadership Committee, the VT Program Manager and staff, along with partners and friends. Accountability is sustained through the Performance Management Information System (PMIS) and the Service wide Combined Call (SCC) processes. The combination of the SCC and PMIS ensures the two components of performance: accountability and accomplishments. Accountability is the ability to document the fact that allocated funds were encumbered as intended. Accomplishments are the measurable results of completed projects. The Pacific West and the Intermountain Region both participate in the IMR SCC process and as a multi-Region program, VT project lists are reviewed and approved by both Regional Directors. VT parks request base increases for permanent staff through the Operations Formulation System (OFS) following the procedures in place for the Intermountain or Pacific West region, depending on park location.

In addition, VT resources must also be documented in the database programs of Archeological Sites Management Information System, ASMIS, Automated National Catalog System+, ANCS+ and Facility Management Software System (FMSS must be included to be eligible for funding support).

Annual Reporting:

The VT Program Manager and staff prepare an annual report on the accomplishments of the VT program. VT parks that receive project funding are required to provide an accomplishment report in the prescribed format upon project completion for inclusion in the annual report. The report includes feature articles that highlight major programmatic accomplishments or topics relevant to many parks and issues in a thematic format. The bulk of the report is organized on a state-by-state basis, identifying parks and projects in each state. Each VT Park receives copies of the report to share with Congressional delegations, state and local government, tribal organizations, other federal agencies, partners and friends. The report is a valuable tool to share project information and to account for VT work.

VT continues to realize success in preservation efforts due to the scope of the program remaining narrowly and specifically defined and consistently demonstrating accountability for the fidelity of its funds. The definition of a vanishing treasures resource receives review periodically to ensure the program continues to support and meet park preservation needs.

MANAGEMENT ENTITIES

The Program began as a "grass roots" program at only three parks, but upon sharing information, the staff from many parks found that similarities in resource types and structural preservation issues were common to a much larger group of parks. This realization led to growth in the VT Program representing far more parks and variety of architectural preservation needs than was initially envisioned. As a result, a mixture of program managers and technical staff members was given collateral duty assignments as part of an effort to organize and to function as self-directed workgroups created to accomplish the goals of the emerging Vanishing Treasures Program. Three entities were ultimately created from among employees at parks to ensure program direction, coordination, progress, technical support and accountability to support program efforts. These include (1) the Leadership Committee; (2) the Program Manager; and (3) technical program staff. In addition, ad-hoc Work Groups were brought together to address specific programmatic needs and functions. The defined roles of each of these entities are defined in the Charter for Program Management.

The original management of the VT program through the organizational concept of a "self-directed work group" has no equivalent within the operations of the National Park Service. This fact, however, did not reduce expectations for accountability and productivity by VT park superintendents and their staff. Specifically, this has meant employing highly creative and entrepreneurial strategies to accomplish the goals and objectives of the Program, including guiding its course and direction, identifying and establishing priorities for fiscal and professional resources, securing operational funding, setting priorities for project development and insuring that standards are adhered to in terms of the work performed and the personnel hired. It also includes creating and using workgroups to address specific programmatic needs and functions and communicating the results and achievements of the program to the NPS and Congress. Although originally created for a limited and narrowly-focused purpose, the Vanishing Treasures Program continues to foster increased focus on a national preservation agenda.

This Charter identifies the role and function of a wider range of entities that play a part in the VT Program, including the VT parks themselves, staff from the IMR and PWR Regional Directorates, IMR State Coordinators and the PWR Desert Network Board and current and future VT Program staff.

LEADERSHIP COMMITTEE

Role and Function:

The Leadership Committee (LC) reports to the Regional Directors (RD) of the Intermountain and Pacific West Regions (IMR and PWR, respectively), who provide strategic and policy direction to the Program. The LC is responsible, through the RDs, for guiding the direction of the Vanishing Treasures Program, essentially serving as the VT Program Board of Directors with staff support from the VT Program Manager and program staff. The LC provides recommendations to the RDs on strategies, policy, funding priorities and other matters that relate to administration of the program and is responsible for identifying fiscal and professional resources, recommending priorities for project development and communicating the results and achievements of the program to a wide and varied audience. The LC also is responsible for providing information to decision-makers in Washington and others. More specifically, the LC:

- promotes the accountability and integrity of the VT Program, in all facets of its operation and serves as the Program's principal advocate, working through the IMR Deputy Assistant Regional Director, Cultural Resources (DARD, CR) and the PWR Chief, Cultural Resource Programs
- annually reviews project funding criteria, project priorities and position priorities and, in conjunction with the IMR DARD, CR and the PWR Chief, Cultural Resources and submits prioritized lists to the Regional Directors for approval
- ensures through the Program Manager that training, including that for preparing project proposals, is provided to VT parks as needed
- conducts business as a Board of Directors and assists in hiring the Program Manager and developing/approving her/his Annual Work Plan

- coordinates and participates in trips to Washington to educate members of Congress and the NPS Directorate about issues affecting the VT Program when directed by the RD
- periodically reviews and annually recommends changes to the RDs for the Vanishing Treasures Long-Range Plan
- attempts to resolve any disputes that may arise regarding any aspect of the operation of the Program
- maintains and, as necessary, updates an appeal process for questions regarding project or position prioritization
- identifies strategies for leveraging funds, partnerships and personnel to best accomplish VT Program objectives
- reviews the Charter every three years to insure that it remains a viable document governing the management of the Program

Selection and Tenure:
The Leadership Committee consists of a total of nine members, including seven members drawn from among the Superintendents (or Deputy/Assistant Superintendents) of the 45 parks currently in the Vanishing Treasures Program. Two of these seven committee members will be elected to represent the fifteen VT parks in AZ; two will be elected to represent the twelve VT parks in WY, CO and UT; two members will be elected to represent the fourteen VT parks in NM and TX; and the final member shall be elected to represent the four current VT parks in California and Nevada. In the Intermountain Region (IMR), the DARD-Cultural Resources will involve the NPS State Coordinators to assist in the nomination of interested candidates from within each group of parks and to poll all of the VT Superintendents within those parks to elect Leadership Committee members. In the Pacific West Region, the Board of the Mohave Desert Network shall be responsible for nominating candidates and electing a Leadership Committee member to represent VT parks in CA and NV.

While serving on the Leadership Committee, members will thus represent the entire group of parks from which they were elected and the best interests of the program, rather than their own individual park.

The Regional Directors from the IMR and PWR shall designate representation as standing members. The Regional Directors' representatives are usually the highest ranking official for Cultural Resources in each region; such as the IMR DARD and the PWR Chief. The IMR DARD, Cultural Resources and the PWR Chief of Cultural Resources Programs shall serve as permanent members on the Leadership Committee. Their role is to represent their respective Regional Director (RD), carrying out that function pursuant to whatever guidelines pertain in their respective region.

To ensure continuity, all Superintendents of VT parks have the opportunity to participate in the Program's management. To ensure that the Committee's viewpoints remain fresh, the election of Leadership Committee members shall be for a term of three years and no member may stand for election for more than two consecutive terms. Elections of Leadership Committee members will be staggered in such a way that either two or three members will be elected each year.

Should a member of the Leadership Committee transfer to a position outside a VT Park, a new member from the same group of VT parks shall be elected to serve the remainder of the departing member's term following the normal election process for that group of parks.

Selection and Role of the Chair:
The Leadership Committee will elect a Chair by majority vote from among its membership who shall serve a two-year term. The Chair of the Leadership Committee will organize and run meetings of the Committee. The Chair works with the IMR State Coordinators, the PWR Desert Network Board and the DARD, CR to ensure that all Program elections are carried out in a proper and timely manner.

Meetings:
The Leadership Committee will meet as often as necessary and as the availability of travel funding allows, but will target two meetings a year. The Chair will establish the date, location, agenda, purpose and length of the meetings and will notify members of such at least one month prior to the meeting date. Conference

calls or online conferencing may be used in lieu of face-to-face meetings if determined to be useful or prudent by the Chair. The content of these meetings will typically be determined by consensus; however any Leadership Committee member may ask that an item be added to the agenda or that a special meeting be convened.

Leadership Committee meetings will be conducted by the Chair. A quorum of five members (for a committee of nine) must be present in order to conduct official business or take a formal vote on any issue.

Generally, the Leadership Committee will operate by consensus; however, in the event that is not possible, decisions will be reached by simple majority vote of the members present. Voting on any issue will be conducted on a one-member, one-vote basis so that each group of parks will be on equal footing in decision-making affecting the VT Program. Minutes will be taken at all Leadership Committee meetings following protocols established by the Committee and shall be promptly transmitted to the IMR DARD-Cultural Resources, the PWR Chief of Cultural Resources and the Superintendents of all the VT parks.

VANISHING TREASURES PROGRAM MANAGER

The Vanishing Treasures Program Manager is duty-stationed in Santa Fe with the Cultural Resource Program in the Intermountain Regional Office, Santa Fe, and provides day-to-day management and overall coordination of the Vanishing Treasures Program, thereby serving all of the VT parks. The Program Manager is accountable to the Leadership Committee members in their role as a Board of Directors, with a reporting responsibility to the IMR DARD, CR, and the PWR Chief, Cultural Resources. The IMR DARD CR will work with the Leadership Committee in the hiring process. The IMR DARD, CR will serve as the direct supervisor of the VT Program Coordinator.

Role and Function:
The Program Manager serves in a staff position to the Leadership Committee and participates in the annual meetings as in an ex-officio capacity. In addition, The Program Manager (PM) assists in arranging meetings and logistics, developing agendas and coordinating between the Leadership Committee and the work groups. The PM serves as the Vanishing Treasures Program agent for the SCC and OFS processes, including working through the Leadership Committee to submit recommendations to the IMR Regional Director for project funding and position priorities. On behalf of the Leadership Committee, the PC is responsible for communications throughout the Program through implementation of a VT Program Communications Plan. Working with the Leadership Committee, this position develops and manages Program training opportunities and organizes and chairs VT conferences approved by the RD. In addition, the VT Program Manager:

- directs and coordinates services of other VT Program staff in conjunction with the Superintendent of their host park
- coordinates with the superintendents of their host parks to mutually develop and sign off on performance standards, work plans, and performance appraisals for other VT Program staff
- coordinates the membership and work of ad hoc work groups, as requested by the Leadership Committee
- develops and executes an Annual Work Plan
- prepares and distributes the VT Program Annual Report
- updates and distributes the Vanishing Treasures Program Handbook to all VT parks
- as appropriate, brokers assistance between VT parks in terms of sharing expertise and equipment
- coordinates with the Leadership Committee to maintain necessary records in order to effectively document the accountability and integrity of the Program regarding the use of project and personnel funding
- tasks individual Work Groups as directed by the Leadership Committee
- manages the program
- coordinates workshops, partnering opportunities with preservation agencies, tribes, non-profit organizations and universities
- works to establish a Friend's Group for the VT Program

OTHER VANISHING TREASURES PROGRAM STAFF

Role and Function:

Park and Central based positions provide technical advice and assistance to the VT parks at the request of the individual park. These positions may be established by the Leadership Committee to address identified needs from the parks. Park requests for using the services of one or more VT Program staff members will be coordinated through the Program Manager in concert with the superintendent of the staff member's host park. The host superintendent will be the direct supervisor for program-wide staff positions, which currently include a Historical Architect and a Structural Engineer. The host superintendent and the VT Program Manager will mutually develop and sign off on performance standards, work plans and performance appraisals for VT Program staff. The Exhibit Specialist/Architectural Conservator is duty-stationed in Santa Fe. The performance standards, work plan and performance appraisal are the responsibility of the VT Program Manager. VT Program staff serve in an ex-officio capacity on the VT LC.

VANISHING TREASURES AD HOC WORK GROUP

Role and Function:

Ad hoc groups will be established on an "as-needed" basis by the Leadership Committee to address specific issues and needs of the VT Program, such as:

- evaluating, prioritizing and recommending project funding proposals (through the SSC process); and personnel intake or position conversion proposals (through the OFS process)
- reviewing funding needs and evaluating alternative funding sources;
- providing technical review of special or multi-park projects

The composition and number of ad hoc group members will be determined by the Leadership Committee in a manner that brings together the range of expertise needed to carry out tasks assigned to each group. The use of ad hoc groups will ensure participation by many more VT park staff members due to the limited term or involvement and the variety of issues to be addressed.

Parks are encouraged to develop ad hoc groups to address multi-park issues. The VT Program staff can serve as advisors to the park ad hoc groups as requested. The VT Program Manager will serve as the point of contact for the park ad hoc groups.

Communications, Contact and Guidance Received:

The Ad Hoc Work Group reports to the Leadership Committee, through the Vanishing Treasures Program Manager, who serves as the single point of contact for program-specific issues and information and presents the recommendations of the Ad Hoc Work Group(s). If the task requires, the Work Group will generally operate by consensus. In the event that a unanimous opinion cannot be reached, a simple majority vote shall prevail with voting on any issue conducted on a one-member, one-vote basis. Minutes shall be kept of all Work Group meetings so that both majority and minority opinions will be documented. An executive summary of the minutes of Work Group meetings will be transmitted through the Program Manager to the Leadership Committee for their consideration.

VANISHING TREASURES PARK UNITS

Role and Function:

Superintendents of VT parks are responsible for assisting the VT Leadership Committee in communicating the goals, objectives and needs of the Vanishing Treasures Program to their respective congressional delegations. Park units submit project proposals and update personnel requests to the Leadership Committee

as appropriate. Park superintendents and their appropriate staff participate on committees and in Work Groups and share their resources to further the mission of the Vanishing Treasures Program.
Park-level program managers and VT archeologists, masonry workers, exhibit specialists, etc. are responsible for developing projects focused on inventorying, assessing and treating VT resources within their parks. Parks requesting positions to perform VT preservation efforts can seek support from the VT LC as the position goes through the OFS process. Parks should allocate Vanishing Treasures funding for both projects and personnel pursuant to VT Program guidelines. VT parks, through their Superintendents, should communicate questions or concerns about any aspect of the Program to their respective elected representative on the VT Leadership Committee and/or to the VT Program Manager.

The Vanishing Treasures Annual Report helps to ensures that the accountability of VT program funds is maintained and shares the accomplishments of preservation in parks. VT park superintendent and staff are responsible for annually reporting to the Leadership Committee, through the Program Manager, how Program funds allocated to them have been used. Any preservation work accomplished on VT resources is also highlighted in the Annual Report.

IMR DARD, CULTURAL RESOURCES, AND
PWR CHIEF, CULTURAL RESOURCE PROGRAMS

Role and Function:

These corresponding positions within the Intermountain and Pacific West Regions act in an advisory capacity on the Leadership Committee and serve as VT Program liaisons with their respective Regional Directors. They serve as ex officio non-voting permanent members of the Leadership Committee. The IMR DARD, CR serves as the direct supervisor of the VT Program Coordinator and is responsible for assuring that an adequate annual line item is maintained to cover program management and support costs.

STATE COORDINATORS (IMR) AND DESERT NETWORK BOARD (PWR)

Role and Function:

In the Intermountain Region, NPS State Coordinators may play a role in the VT Program by assisting the IMR DARD, CR with the nomination and election of Leadership Committee members from the group of states they represent. In the Pacific West Region, the Mojave Desert Network Board is directly responsible for the election of a Leadership Committee member from the VT Parks in California and Nevada and for assisting the PWR, Chief Cultural Resource Programs with other VT Program related matters upon request. Both groups also assist the Leadership Committee with the education of their state's congressional delegation and their staff regarding the goals, objectives and needs of the Vanishing Treasures Program.

APPENDIX B

Vanishing Treasures Leadership Committees- 2005, 2006 and 2008

May 2005

Name	Representing	Start Date	Term	End Date
Ann Rasor	Arizona	Incumbent	1 year	May 2006
Glenn Fulfer, Chair	New Mexico	Incumbent	1 year	May 2006
John Lujan	Texas	Incumbent	1 year	May 2006
Lee Baiza	Arizona	5/25/2005	3 years	May 2008
Bruce Noble	CO/WY	5/25/2005	2 years	May 2007
Corky Hays	Utah	5/25/2005	3 years	May 2008
Curt Sauer	PWR Parks	5/25/2005	3 years	May 2008
Sande McDermott	IMR-DARD		Permanent	
Stephanie Toothman	PWR-Chief CR		Permanent	
Virginia S-Halfmoon	VT Prog Coord		Perm-staff	

2006-2007

Name	Representing	Start Date	Term	End Date
Lee Baiza, Chair	Arizona	5/25/2005	3 years	May 2008
Bruce Noble	CO/WY	5/25/2005	2 years	May 2007
Corky Hays	Utah	5/25/2005	3 years	May 2008
Brad Traver	Arizona	1/24/2006	3 years	May 2009
Kayci Cook Collins	New Mexico	1/24/2006	3 years	May 2009
Todd Brindle	Texas	1/24/2006	2 years	*Replaced
Darlene Koontz	Texas	8/4/2006	1 year	Aug. 2008
Curt Sauer	PWR Parks	5/25/2005	3 years	May 2008
Sande McDermott	IMR-DARD		Permanent	
Stephanie Toothman	PWR-Chief CR		Permanent	
Virginia S-Halfmoon	VT Prog Coord		Perm-staff	

2007- 2008

Name	Representing	Start Date	Term	End Date
Lee Baiza	Arizona	5/25/2005	3 years	May 2008
Corky Hays	Utah	5/25/2005	3 years	May 2008
Brad Traver, Chair	New Mexico	1/24/2006	3 years	May 2009
Kayci Cook Collins	New Mexico	1/24/2006	3 years	May 2009
Curt Sauer	PWR Parks	5/25/2005	3 years	May 2008
Sande McDermott	IMR-DARD		Permanent	
Stephanie Toothman	PWR-Chief CR		Permanent	
Virginia S-Halfmoon	VT Prog Coord		Perm-staff	

APPENDIX C

Vanishing Treasures Funding Process

Vanishing Treasures (VT) Program project funds are obtained through the Service wide Comprehensive Call. The Intermountain Region (IMR) Financial Officer notifies parks of the years for which projects can be submitted. The IMR is maintaining a five-year list of prioritized projects which can be seen on the IMR Business and Technology, Financial Management, Service wide Comprehensive Call prioritized list. VT Project funding can be sought for treatment/documentation projects or condition-assessment projects. A completion report and project photos are required for project funds received. Portions of the completion report and photos are used in the VT Annual Report as a means of verifying appropriate use of funds and sharing information and techniques among parks and partners in the preservation community.

Criteria for projects, amount caps and number of projects per park can be seen on the intranet, IMR VT site or IMR Financial Management page. The project criteria and caps change occasionally at the recommendation from the VT project panel and in agreement with the VT Leadership Committee. It is incumbent upon the resource staff to stay current with funding changes.

A panel of experts from VT parks reviews all projects against the criteria and provides a score. The IMR budget staff designates the year the project will receive funding based on their project score; the desire is to fund the highest-ranked projects as the Region's top priorities.

An appeal process does exist for parks that want additional consideration for their project's ranking. In late August, a call for appeals goes out to the parks from the IMR Financial Officer. Parks are given two weeks to submit their appeal(s) which indicates the urgency of the project or relevant factors which may have been overlooked by the panel. The appeal(s) must be submitted to IMR Financial Officer and the VT program agent. The Financial Officer receives all appeals and prepares a list for review. In making their determination, a Steering Committee, composed of three superintendents and the Deputy Regional Director, reviews the project score, the park ranking of the project, statement of appeal(s) and statements from the program agent in making their determination.

APPENDIX D
Preservation Priority Matrix

This Matrix can serve as a template or as an example of a priority-setting process. By putting scores against values, some of which are weighted and then added together, a sum can be arrived at which can be compared to other sums for other sites to give a numerical value. The Matrix is only meant to be a relative tool and one which needs to be adjusted for the particular resources.

Preliminary information that is needed to establish a basis for priorities:

SITE:
Identifying name of site including Park or Monument name.

STRUCTURE:
Name of structure within a site.

ID NUMBER:
The identifying number of a site or structure being considered. ASMIS number: Archeological Survey Management Inventory System which is the primary NPS numbering system for archeological sites. In addition, states have their own numbering systems. Include all numbering systems here.

ELEMENT NUMBER:
A specific number which identifies a feature or individual unit within a structure or site.

TIME PERIOD:
The dates during which time the site or structure was occupied and used.
The date on which the site was established as a Monument or Park and preservation/interpretation was begun.

EXISTING AVAILABLE DOCUMENTATION:
List all available documentation which can be used for preservation planning purposes.

Example of how a weighted matrix can be used to calculate values relatively:

Rating Factor	Weight	Score
National Register Status 3 -Listed; 2-Eligible; 1-Not Eligible; 0-Not evaluated	1	
Historical Significance 3-Structure is nationally significant and has high importance to park; 2-Structure is relatively important ; 1- Structure has minor role in history of park; 0- No importance to history of park	1	
Documentation 3-No documentation is available; 2-Minimal and inadequate Documentation is available; 1-Adaquate documentation available; 0- Level 1 or 2 HABS-type documentation is available	1	
Architectural Significance 3-The structure has unique and representative features important to the Park; 2- Has some architectural significance; 1-Possesses little architectural value; 0- Has no architectural value	1	
Current Physical Condition 3-Unsafe and dangerous condition; 2-Poor and deteriorating condition; 1- Structure in need of attention for preservation; 0-In good condition	3	
Severity of Threats 3-Resource is threatened with loss unless action is taken in 1-2 years; 2-Moderate loss will occur if action is not taken in 5 years; 1- Normal aging of resource occurring, no impacting factors; 0- Good condition, being actively maintained	2	
Access 3-Accessible to the public, on view; 2- Back country, accessible to public but requiring long hike; 1- Difficult to reach and not available to public; 0- Nearly inaccessible, hardly ever visited by resource personnel	1	
Integrity 3-Very little or no alterations or treatments, with mostly original fabric remaining; 2-Some alterations have occurred and evidence of treatments exists; 1-The structure has received major alterations or treatments and little original fabric can be seen; 0-Complete reconstruction	3	
Interpretation 3-Plays a key role in the park's interpretive themes; 2-Plays a secondary role in the park's interpretive themes; 1-Has a limited and minimal role in the park's interpretive themes; 0-Has no role in the park's interpretive themes	1	
Use 3-Active use as part of an interpretive program, regularly visited; 2-Sometimes visited but remote or difficult to access; 1-Backcountry site seldom visited by the public; O-Off-trail, backcountry, never visited	2	
Treatment Decision 3-must be preserved; 2-Should be preserved; 1-May be preserved 0-May be treated with benign neglect	1	
Total of values with multiples applied		

Additional factors which can impact the assignment of priorities:

Environmental Factors
- Is the site within a recent wildfire perimeter?
- Is the site being impacted by runoff?
- Has the runoff visibly increased since the wildfire?
- Is the upper watershed intact?
- Do hydrophobic soils exist above or in the site?
- Is there a large expanse of exposed bedrock directly above the site?
- Is the site located under a natural pour-off or drainage?
- Would a silicone drip line drop runoff threat from severe to moderate or low?
- Would upper watershed treatments drop runoff threat from severe to moderate or low?

Overall Site Considerations
- Does the site have any unique characteristics (early occupation, long-term occupation)?
- Are unique features (plaster, rock art, wood elements and the like) threatened?
- Has the site been burned over, exhibiting visible fire effects (oxidization, ash staining)?
- Is there any alcove deterioration occurring that threatens features or architecture within the site?
- Will the installation of excelsior or silt logs around features lower overall threats to site?

Study Unit Considerations
- Does mortar erosion or basal stone deterioration threaten wall segment stability?
- If this wall fails, will others be brought down with it?
- Are there any severe cracks or leaning wall segments?

Site Location/Community Status
- Does this site have importance within a community setting?
- Will the community aspect be compromised if this site is left to deteriorate?
- Is the site easily accessible for stabilization treatments to occur?

Does a combination of any of the above factors exist?

Will any valuable information be lost if the site is not treated within three to five years?

If you have answered "YES" to a significant number of the above questions, then think seriously about giving the site a HIGH overall treatment priority (for any additional documentation or stabilization). Always consider if additional documentation (architectural documentation) instead of stabilization can be used as a form of treatment.

APPENDIX E
Terminology

Ruins Preservation Terminology – preservation/architectural terms, materials and techniques.

Amendment: An additive which when added to a material changes its properties, typically in conservation to improve durability, cohesion or adhesion. These are usually industrial chemicals and products but also may be organic natural products. Amendments have been used in VT resources to provide additional stability to earthen materials.

Authenticity: As used in the VT lexicon, this refers to the genuine qualities of the site, structure or feature. To be authentic, the aspect must be of high integrity. Reconstructions, reproductions and overly worked sites or features do not possess authenticity. The material fabric often reflects a true measure of an aspect of cultural history. The original historic or pre-historic fabric is authentic while repairs, reconstructions or restorations are not. Levels can apply, as a heavily worked site with some original materials might have low authenticity while a site with no or few interventions would have a high level of authenticity.

Cavates: Architectural recesses behind cliff dwelling which have been manipulated into the bedrock by humans. These features are usually the back walls of the cliff dwellings and do not constitute actual caves but are cave-like.

Condition: Establishing condition of a site or structure is for the primary purpose of coordinating the evaluation with FMSS documentation, ASMIS reporting and PMIS submittals. It is recognized that a condition of good may need to be re-evaluated to poor due to impending threats; it may also be possible for a "poor condition" to result in no treatment due to other factors such as management considerations. An additional complexity to be recognized is that within any site or structure many different conditions may be present and more detailed description will be required for site documentation than for planning purposes.

> Good Condition: The site shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The site's archeological values remain well preserved, and no site treatment actions are required in the near future to maintain its condition.
>
> Fair Condition: The site shows clear evidence of minor disturbance and deterioration by natural and/or human forces and some degree of corrective action should be carried out fairly soon to protect the site.
>
> Poor Condition: The site shows clear evidence of minor disturbance and rapid deterioration by natural and/or human forces and stable immediate corrective action is required to protect and preserve the site.

Cultural Landscape: a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity or person(s) or exhibiting other cultural or aesthetic values.

Earthen Architecture: Architecture built of earthen materials including adobe bricks, puddled earth (cob), rammed earth (pise) , wattle and daube (jacal), sod (terron) and /or any combination of these together.

Intensity of On-Site Erosion: As above, this definition may require nuance in the documentation as special cases likely will result in more complex analysis.

> Severe Erosion: The site will be significantly damaged or lost if action is not taken immediately.
>
> Moderate Erosion: For an impact to be considered moderate, it must meet at least one of the fol-

lowing criteria: The site will be significantly damaged or lost if action is not taken in the immediate future. The site has been damaged and some integrity has been lost.

Low Erosion: The continuing effort of the impact is known but will not result in significant or irreparable damage to the site.

None: The site has not been obviously impacted.

Integrity: The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during its historic and/or prehistoric period; the extent to which a property retains its historic appearance and its ability to convey its historic significance. In the larger sense of site, integrity refers to how much of the structure remains standing and intact. For example, a structure that only has one complete wall standing where four and a roof once were would be given a value of 20%. A structure with all four walls standing and intact, plus an intact roof and floor, would be given a value of 100%.

Ruins: Above-ground architecture which is no longer in use but still represents or depicts by its simple presence its original purpose. The structural remains may or may not be roofed or may only be partially roofed and the elemental parts of the structure exhibit the aging and effects of exposure which they have experienced over time. Ruins are the tangible memory of a formerly alive place which contain within the remains the particular cultural history of that place.

Site: A site in the largest sense incorporates the cultural landscape which is the geographic area including both the cultural and natural resources and the wildlife or domestic animals therein. Also included are trails, signage, rest stops, drainage, etc. which have been added to the landscape. Within the site, the cultural resources defining the site within the context of Vanishing Treasures are the archeological /architectural structural remains which are associated with historical events, people, activities or other cultural significant history or aesthetic value.

Site context: The cultural landscape of which the site is a part .

Stability: Stability refers to a wall or structure's state of equilibrium.

Stable: A structure that maintains consistency of composition and components with little or no sign of erosion that would lead to any form of structural degradation. The term stable can also be applied to structures that have essentially deteriorated to grade and thus have little or no standing structural remains above the ground surface that would be subject to further deterioration.

Partially Stable: A structure that exhibits signs of whole or partial degradation of the existing composition and components such that structural stability is threatened.

Unstable: A structure that has suffered damage from erosive forces such that structural collapse or complete degradation is imminent. Environmental changes or impacts pending which will lead to instability can be cause for an unstable designation.

APPENDIX F

Management And Monitoring : Structural Evaluation Guideline

Prepared by Preston Fisher, P.E. - April, 2005
Revised July, 2008

The purpose of these guidelines for field data collection of structural properties is to standardize nomenclature, coding values and procedures for describing, recording, monitoring and evaluating the structural properties and stability of archeological sites and the structures within them. The data collected will be used to determine the stability of structures by comparing the data with data previously collected, or by establishing baseline data that can be compared with data collected at a later date. The initial need for field data collection of structural properties is usually first identified by park staff. This is then reviewed in consultation with the VT Program Structural Engineer, who confirms the location of areas of concern and assists Park Staff with establishing specific monitoring point locations and data collection frequencies. A determination of the need for a site visit will be made at this point in the process. Park staff, in conjunction with the Structural Engineer, develops a systematic approach to analyze and evaluate structural properties of sites and establish monitoring frequencies. Initial monitoring points are established by the park staff and/or the Structural Engineer and subsequent readings are usually taken by park staff, with copies provided to the Structural Engineer for evaluation. Comparisons are generally more frequent initially to establish baseline conditions and may be made at more frequent intervals, such as after significant rainfall or after heavy snowfall or extended period of freezing weather. Generally this process involves recording findings on a form which includes tabular data, photographs and/or drawings as appropriate. Forms will be created in response to the specific site and complexity of issues. Ultimately, the form will be used to look for patterns or clues indicating the mechanism of deterioration. Examples of forms are to found on the Intranet site.

These guidelines are adapted from guidelines originally developed for standing prehistoric archeological sites consisting mostly of stone and mud mortar or adobe. Portions of these guidelines have been amended to include procedures for evaluating other VT resources that include log, timber and wood frame structures. These guidelines are intended to guide park staff in evaluating areas of structural concern establishing monitoring points and frequencies.

G.1 Structural Evaluation

A structural evaluation examines and considers the condition of a structure to determine if there is any movement of walls or footings/foundations, or portions of them that may lead to eventual structural failure. The focus for this work is primarily on evaluating potential major wall failure. During structural evaluation work, each wall is inspected for cracking, leaning and bulging sections and deterioration of members within the wall. The footings/foundations are inspected to determine if there are any voids or any settlement of the wall foundation. Roofs, if present, are inspected for settlement and distortion. In alcove sites, the alcove ceiling and walls are inspected for past or potential rock fall and alcove scaling hazards. In timber and frame structures, connections are examined to ensure continuity. Materials of the structure such as stone, mortar or wood are evaluated for soundness.

The Structural Evaluation focuses on six basic conditions. In terms of definitions, most of these are self-explanatory. These conditions can be listed as:

- cracked walls
- leaning or out-of-plumb walls
- bulging walls
- composite conditions (a blend of the other three conditions)
- deteriorated and non-functional connections
- deteriorated structural materials
- site-specific physical abnormalities (unstable soil/bedrock, alcove conditions, erosion that threatens architecture, etc.)

Whichever of these conditions pertains, the objective is always to determine whether the condition is ac-

tive or inactive. Active conditions are those that appear to be changing during the present and recent past, generally for the worse. Inactive conditions are those where movement occurred long ago, but the wall or other construct has not undergone much if any change in the modern or historic era. In some cases, seasonal environmental changes reflect benign movement such as expansion and contraction which can be misleading. Unless you have some way of knowing what has happened recently, it is generally difficult to know whether the structure moved long ago and is in relative stasis. This is the reason historic photographs or past documentation photos may be important.

Another way of addressing this issue is to have some degree of knowledge about stabilization work that has been done. For example, if a repair to a wall was done in 1970, and there is separation of several mm or cm along the mortar used in that repair, it is likely that movement is active. Since this situation often does not pertain and many times there are no historic photos of a given wall, you can determine if a condition is active or not by taking measurements over a period of time and comparing them. For this reason, precise measuring is often necessary to determine what is occurring.

Threats such as differential fill levels, poor drainage, water infiltration, seepage, basal moisture/deterioration, settlement, erosion, insect damage and rodent burrowing are recorded. The impact of these factors to overall structural stability is the focus of the structural analysis. As a general rule, walls that are leaning, bulging or cracking should have structural evaluation data and record forms completed for them. This evaluation documentation should be maintained at the park with a copy sent to the structural engineer. Complex cases will require a structural engineer to further evaluate the wall. Deterioration of load bearing elements in wood structures will require engineering review. Any recommended mitigation activity should consider potential impact to the structural stability and should be documented and kept in a monitoring site file at the park with a copy to the structural engineer. This record will be used to qualitatively and quantitatively observe changes over measured time in relation to environmental influences.

The steps in the Structural Evaluation process are:

(1) Archival research
(2) Fieldwork
(3) Reporting
(4) Monitoring

The product of the structural evaluation process ranges from data in the site files to formal reports, but the objective is to complete an analysis recorded as a baseline structural evaluation which standardizes and makes available the required information. (An example of a baseline structural evaluation form can be found on the Intranet site) These data ultimately are used to assess periodic change during a structural monitoring program that can be done either independently of the overall site condition monitoring program or in concert with it.

G.1.1. Archival Research

Before visiting and inspecting any site, evaluators should locate any existing photos, reports, stabilization records or other documents available. These records consist of two general kinds:

- First, in many cases, site files, local museums, libraries or archive centers are an important source of information. Many structural changes in these buildings took place over long periods of time, making historical photographs or occasional comments important. If possible, making copies of any old photos for comparison with current conditions will be beneficial during the evaluation phase. Especially useful are images showing wall elevations or evidence of structural movement such as cracking, leaning or bulging in the past.
- Secondly, if you are working at a National Park, Monument or Historical Site, you should check any database to see if the site has been previously visited and documented. This is described in more detail below.

Making a working copy of the latest available site map is critical because it supplies important provenience information to link with other site data fields, and you will need the map to add notations in the field. This map will then become part of the record of your inspection. If you prepare a report, you will need to know the room number, which wall (north, east, south, west, etc.), and whether a condition is noted on the exterior or interior of a wall. Noting these on the plan and/or elevations in relation to photography and data forms will be very useful in the assessment.

If any of the conditions above are noted, the resource person or project lead should refer to the site narrative and photos for that site to help quantify the type and severity of threats to the structural integrity of the site and try to ascertain if there has been any movement since the last or original observations. Recording that in a manner for others to see and understand will provide the basis for any actions recommended.

G.1.2. Fieldwork

In addition to maps, photos and literature collected and copied for use in the field, additional tools to help evaluate the structural integrity of the site are suggested. Digital and/or 35mm cameras should be taken along to document areas of concern within the site. Calipers graduated in 1/20 mm and a tape measure graduated in mm should also be utilized to take accurate measurements. A plumb bob should be taken to determine vertical profiles of walls. An ice pick or scratch awl can be used to probe into deteriorated wood to evaluate the extent of deterioration. A thermometer is also recommended to document ambient air temperatures as well as surface temperatures of the architecture. Access equipment such as ladders and ropes should be taken along if needed. Any forms necessary for recording the data and paper for sketches should also be taken.

In approaching the site, the surveyor should observe and note any potential exterior threats to the site such as water and erosion paths leading into, through or undermining the site. Note any leaning or bulging walls, walls that have already fallen, rock fall above, in, or around the site, or any other threats to the site. The type of architecture should be characterized and identified and the construction method and materials used should be noted in a wall data section of the form being used, unless this data has been recorded during previous documentation efforts.

Upon arrival at a masonry site, the surveyor should systematically evaluate the site beginning at one end and working toward the opposite end, inspecting each wall for cracking, leaning, separating and bulging sections. The foundations/footers are inspected to determine if there are any voids or any settlement of the wall foundation or footing elements. In alcove sites, the alcove ceiling and walls are inspected for past or potential rock fall, and alcove scaling hazards. During a structural evaluation, threats such as differential fill levels, poor drainage, water infiltration, seepage, basal moisture/deterioration, settlement, erosion and rodent burrowing are also noted, with special attention given to how they impact or might impact cracked or leaning/out-of-plumb walls.

Arriving at a timber, log or wood structure site, the surveyor should completely circulate around the structure, inspecting for telltale signs of deterioration such as leaning, settlement, roof failure, water damage or out of plane sections. The foundation and ground condition must be checked, working up the building to the roof, if there is one. Areas where wood is in direct contact with ground should be inspected carefully. Wood is particularly susceptible to insect attack so this inspection must always be carried out. A sharp object such as an ice pick can be a useful tool for probing into wood to see if the inner portion of wooden members is solid. In the case of roofless wooden structures, the wood elements exposed to rain and snow will have to be checked for rot. The wood elements and their connecting points need to be checked for deterioration and/or failure. In designing forms for wooden structures, conditions such as severe cracking, rot and insect damage should be noted, especially at any connections and joints. Annotation on photographs documents and locates specific areas of deterioration.

G.1.2.1. Cracked Walls

The life span of the prehistoric masonry structures we are observing has been much longer than the expected life span of structures built today. For example, cracks which have developed since historic stabilization materials were added are more likely related to active movement than cracks in original fabric, which may indicate movement several hundred years in age. Due to the long life span of the structures we are evaluating, we need to look for recent movement and try to determine if movement is active over a number of years. A crack or wall that shows little or no movement over a one- or two-year time span may show appreciable movement over 10, 20 or 50 years. It is common for walls and cracks to fluctuate with daily and seasonal temperature changes; however, structural engineers look for cracks that get progressively wider over longer periods of time. Changes in the rate of movement may also indicate instability in a structure. Most often, as an object such as a wall nears the point of failure, the rate of movement will accelerate; thus, if we can identify rate of movement through repeated site visits, we can sometimes predict how near a

structure or wall may be to imminent collapse. (See Intranet site for examples of a crack monitoring program.)

Cracking can indicate movement in the structure, which can indicate a potential for the eventual collapse of the structure. When cracks are evident, a determination must be made as to whether the cracks are just on the surface or are more significant structural cracks.

Additional questions that you should have in mind as you are evaluating whether a crack is active or not would include: What is the direction of movement? What is the cause of the movement?

The two primary causes of cracking are differential settlement, and thermal expansion and contraction.

- Vertical cracks that run generally parallel to the end of a wall (at, or near, an abutment) often are a result of thermal expansion and contraction. Typical cracks to be concerned with could be at wall intersections/abutments or cracks that run most of the height of the wall.
- Small hairline cracks usually indicate shrinkage in the mortar and pose no serious threat to the structure.
- Cracks that are wider at the top than at the bottom, or wider at the bottom than the top, often indicate structural problems, and the foundation of the structure may be settling unevenly (differential foundation settlement).
- Diagonal cracking often indicates differential settlement as well. A line drawn perpendicular from the midpoint of a diagonal crack toward the ground usually points to the source of the problem, namely, differential settlement at that point.
- Horizontal cracks can indicate foundation settlement or deterioration of stones and mortar along the base of the wall.

Inactive cracks simply need to be documented. Active cracks need to be monitored to determine the rate of movement.

G.1.2.1.1. Measuring Cracks

When cracks are encountered, some initial measurements noting the configuration of the cracks and/or walls should be noted on the Structural Engineering Evaluation and Monitoring Form. The guideline for encoding the crack severity value is tied to the relationship between crack size and wall height, and determining whether the cracks is active or not is tied to a baseline evaluation of width as well as length. Measurements should be taken at locations that can be referenced in the future, keeping in mind that walls may settle slowly such that the movement may not be noticeable for years, decades or centuries.

Measuring and characterizing cracks can be done in the following ways: (1) utilizing calipers and/or tape (2) installing commercial crack monitors and (3) photographing cracks and walls from datum points. Photography is also an important part of the first two strategies.

G.1.2.1.1.1. Calipers/Tape Measurers

The first step is to find and establish measuring locations along the crack. These locations will be used to take a baseline measurement of the crack that can be measured again in the future to determine if the crack is active. At each location, the measurement will be taken as distance between three points on stones with two marks on one side and one on the other side of the crack, rather than of the crack itself. Select measuring locations by scanning the crack and taking preliminary measurements to find the widest point of the crack. Most vertical cracks will show movement more readily toward the top, making it easier to determine if they are active there. It is best to establish the measuring location at, or near, the point where the crack is widest, and to try to measure as perpendicular to the crack as possible.

Once measuring locations are selected, it is imperative to mark the locations and take a photograph so that they can be located in the future, and compared to baseline measurements. Locate the horizontal and vertical distance to the measuring location from the edge of the wall, and the bottom or top of the wall. After selecting locations, each should be given a measuring location designator (e.g. Cr01Rm3WIntML1) for reference. Cr01Rm3WIntML1 stands for Crack number 1, Room 3, West Interior, Measuring Location 1. This measuring location designator should be noted on the plan map, a sketch elevation map and/or a copy of the elevation map. You can also label the location on the wall itself with a Sharpie or pencil, if appropriate. Attention must be paid to the wall material and the marker type to ensure reversibility.

Each location is then given three measuring points. Most of the measuring locations will be geared toward measurement with a caliper, although for longer distances, a tape measure can be used. In any case, the distance between the three points is recorded to the nearest mm. Points on two stones, or opposite sides of the crack, should be marked by scratching fine lines and using fine pencil marks shaped like this ├, and this ┤ (Figure 1). If possible the two points on one side should be on the stable surface.

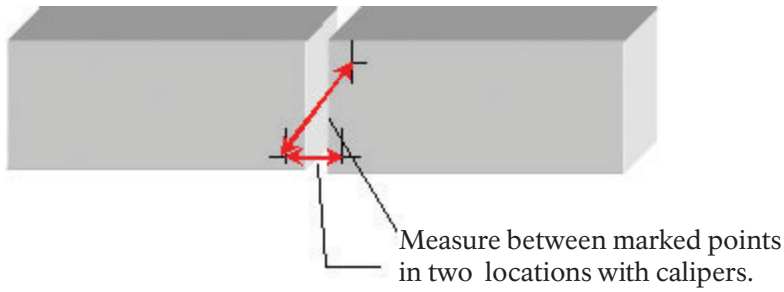


Figure 1. Caliper measuring points etched on Building Stones.

Calipers are tools that can take refined measurements of small spaces, so they are especially useful in measuring cracks. Calipers can be used to take both interior and exterior measurements. Once the points are aligned, the space between them is then recorded to the nearest mm, even though calipers can take more precise measurements than that.

Tape measures can also be used to measure between points, but since they are less precise than calipers, it is recommended that they be used only for measurements too long to measure with calipers. Points similar to the caliper measuring points are etched into the wall with a knife blade and/or marked with a pencil on rocks at a convenient distance, and the measurements are taken with a tape measure to the nearest mm. One example of a situation in which a tape measure might be needed is to measure between marks on a sagging roof, and a marked point on the floor beneath it.

For future location purposes, it is important to supply photos with a scale showing the measuring location(s) enough of the crack to be able to identify the location(s). Photo reference information is included on the Structural Engineering Evaluation and Monitoring Form. Both close-up and overall shots are recommended. If measuring locations are established, the measurement and relocation information should be included on the Structural Engineering Evaluation and Monitoring Form. The form has a space for describing or supplying basic measurements for relocating measuring locations.

G.1.2.1.1.2. Commercial Crack Monitors

Commercial crack monitors consist of two overlapping acrylic plates (Figure 2). One plate is white with a black millimeter grid, while the other is transparent with red cross hairs centered over the grid. Once the

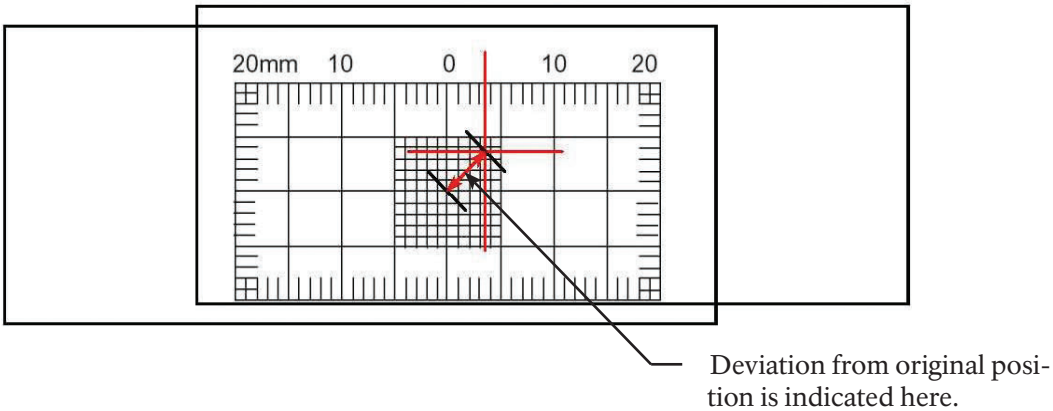


Figure 2. Commercial Crack Monitor.

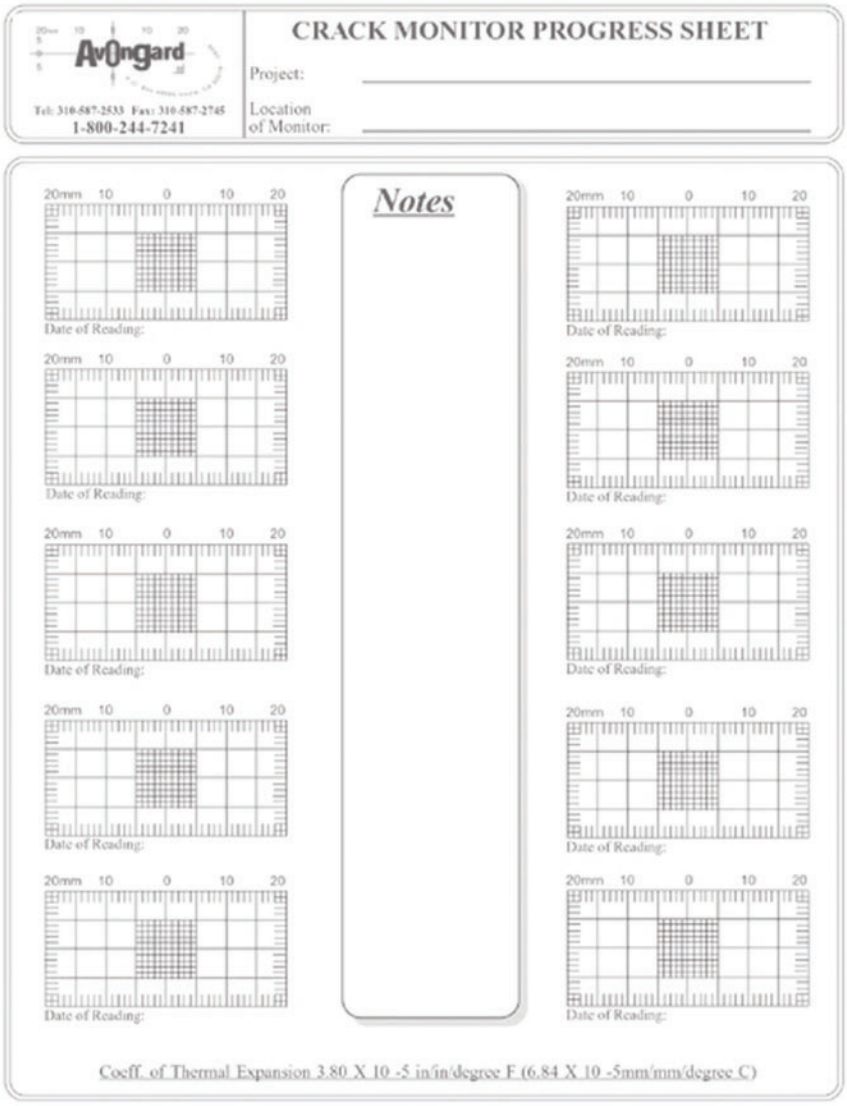


Figure 3. Crack Monitor Baseline Record and Progress Sheet

crack monitor is in position across a crack, the crosshairs shift vertically or horizontally on the grid if movement occurs. The movement is then recorded on monitoring sheets in the image of the crack monitor ruler with a red pencil.

Commercial crack monitors are more intrusive than measuring marks but are an inexpensive way to measure movement. They should be installed at locations where one part of a wall is believed to be stable, and the other wall moves independently of the first part. Crack monitors should be installed where minimal impact to original plaster or other material occurs and definitely not on unstable surfaces. Placement of a crack monitor may require consultation with a conservator. The usual method of attachment is to use epoxy cement, following the instructions supplied with the gauge. It takes from several hours up to a couple of days for the epoxy to cure so that the grids can be separated and the gauge is operational.

After the monitor becomes operational, you will need to take a baseline reading. During monitoring revisits, periodic readings are recorded on crack monitor progress sheets that are included with each Avongard ™ (1-800-244-7241) crack monitor (Figure 2). Under no circumstances are crack monitors to be installed without a program in place which includes routine review and consultation with the VT Engineer.

G.1.2.1.1.3. Photographing Cracks and Walls from Datum Points

Photography is useful for identifying the crack monitor locations so that monitoring revisits are less complicated. Photographs are taken of areas of generalized cracking to establish baseline criteria for future evaluation. The location and height of the photographs from a datum is noted, so photos can be taken from the exact location again over years of monitoring. Documentary photographs of each monitoring location are also taken to help relocate the measurement locations.

G.1.2.2. Leaning/Out-Of Plumb Walls

Walls may begin to lean, twist or bulge as gravity takes its toll, sometimes without cracking. Factors include differential fill, rodent burrowing, top-heaviness and many others. Evidence that a wall is leaning, or has the potential for leaning, in alcove sites may be fresh ghost lines on the alcove ceiling or roof beam displacement.

When a leaning wall is encountered, it is possible to evaluate how likely it is to collapse using the Rule of Thirds. This concept is incorporated into the severity coding values for use on the Structural Engineering Evaluation and Monitoring Form. Determine the deflection value (DV) by dropping a plumb bob to the current grade on the side toward which the wall leans, as shown in Figure 4. Compare the greatest distance of deflection (Deflection Value or DV) against the wall thickness (WT) near the base of the wall. If the deflection value is less than one-third of the wall thickness, the wall is probably still stable. If the deflection value is greater than two-thirds the wall thickness, the wall is probably unstable or nearing collapse.

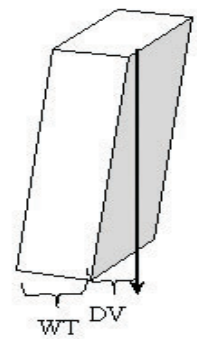


Figure 4. Rule of Thirds

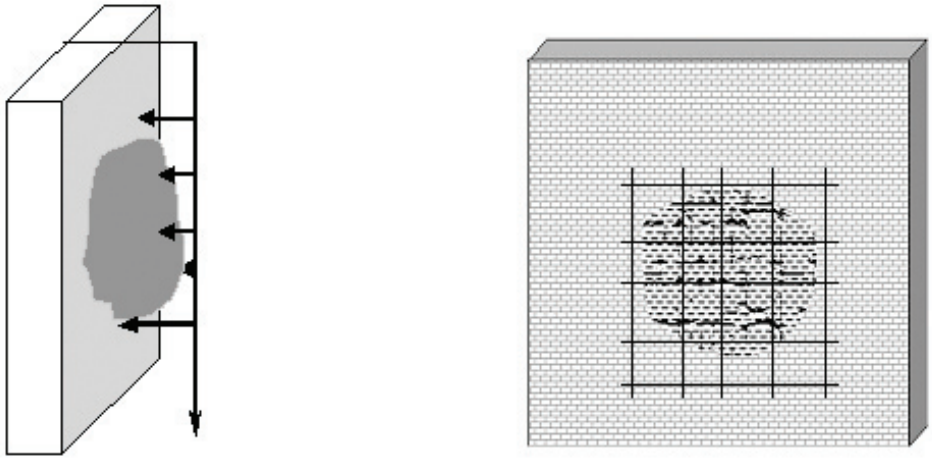
As with crack monitoring, you need to inspect the wall enough to be able to find a point where the wall lean is greatest. This can be done by suspending a plumb bob from the top of the wall, or a reference point on the alcove ceiling, and taking a few preliminary measurements. After selecting a point along the leaning wall top where the wall lean is greatest, it should be marked. Marks can be made with a pencil or Sharpie, and a notch can be etched into the top stone where the plumb bob string is placed. Suspending a plumb bob to a point on the ground, that is also then marked, will permit the distance between to be measured, probably near the ground. In cases where the wall lean is not uniform, a vertical profile of the wall at this point should be recorded.

As with crack measuring points, relocation of these points is important for monitoring changes in the amount that the wall leans in the future. Therefore, they must be described on the form, and photographed to show where they are located.

G.1.2.3. Bulging Walls

Bulging walls can be the result of many different factors such as rodent burrowing, moisture infiltration, mortar erosion, differential settlement and top-heaviness. Bulging walls may or may not show evidence of cracking, and may also be associated with leaning walls.

When a bulging wall is encountered, you need to inspect the wall enough to be able to find a point where the bulge is greatest. This can be done by suspending a plumb bob from the top of the wall or a reference point on the alcove ceiling, and taking a few preliminary measurements. After selecting a point along the wall top where the bulge is greatest, both points should be marked. Suspending a plumb bob to a point on the ground that is also then marked will permit the distance to be measured between the plumb line and the wall, thus creating a vertical profile of the wall at the bulge. This should also be done on a horizontal portion of the wall. At the point where the bulge is greatest, you should set a level line along the portion of the wall where the bulge is greatest, and measure from the line to the wall to create a horizontal profile of the wall at this portion of the wall. If possible, a vertical and horizontal grid should be established by creating several horizontal and vertical profiles at points across the wall face. A sketch should be included outlining the extent of the bulge, if possible, and identifying any other concerns such as cracks, missing mortar or missing stones.



Measure from plumbline back to the face of the wall.

Measure at several points to form a grid.

Figure 5. Measuring bulging walls

G.1.2.4. Composite Conditions

This term applies to those walls that have a combination of any of the above conditions such as leaning or bulging walls with cracking and/or severe threats. In this case, fill out any or all sections of the form that are appropriate.

G.1.2.5. Connections

This term applies mostly to timber and frame structures. The integrity of timber and frame structures depends largely on the connections between units and members. When connecting points deteriorate either due to the material loss or connector deterioration, the structural stability can be compromised. It is necessary to characterize the connection and its deterioration so the structural engineer can evaluate the situation.

G.1.2.6. Materials

Material deterioration (such as stone disaggregation, spalling, flaking and delaminating), wood deterioration (such as fungal decay, insect damage, stress cracking and fire damage) and adobe erosion are fundamental causes of structural deterioration and failure. These materials make up the fundamental parts of a structure. Their condition and the condition of the system which connects the parts ultimately determines the capacity of a structure to support load, resist overturning or up-lift, respond to stress, and perform as intended. In ruins, often major parts of the system are gone; therefore the system becomes more complex and challenging, often relying on original redundancy to stay viable. Material condition must be recorded and changes noted in order to analyze fundamental capacity.

G.1.3. Reporting

A copy of the forms generated by the processes described above should be kept in the site file for each specific site. A written report should be generated if there are several monitoring points established at a site, and/or if it is determined that there may be active movement at a site or there is a need for additional monitoring at the site. This report will generally be produced by the Structural Engineer, but can also be produced by anyone else who has inspected the site in consultation with the Engineer. The report should detail the site(s) visited, a general summary of the site conditions, detailed summaries of the areas of concern, monitoring methods initiated and recommended actions, including monitoring frequencies, stabilization measures and treatments and an updated site map, with monitoring points depicted on the map. The format of such reporting must be easily retrievable and not in any kind of proprietary program.

G.1.4. Monitoring

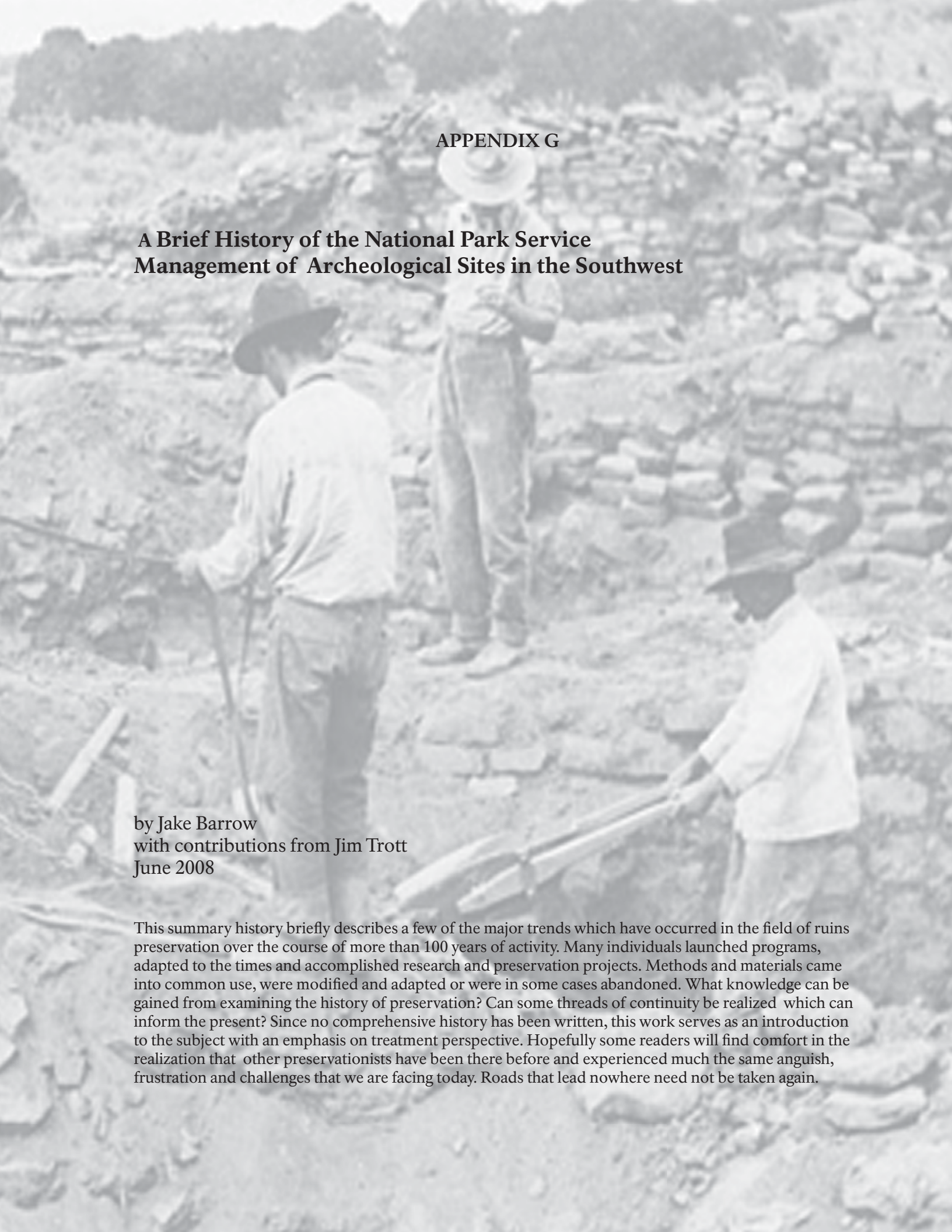
Once current or baseline conditions have been identified, areas of concern identified (if any) and monitoring points established, a monitoring schedule is required. The monitoring frequency will depend on the ease of accessibility to the site, the severity of threats to features within the site and availability of personnel to conduct the monitoring. If threats have been identified as severe, monthly monitoring should be conducted for at least one year until it can be determined if there is any movement of the walls, cracks, etc. and to establish a rate of movement. Monitoring data should include the current condition of the feature, any measurements, the person conducting the monitoring, time of reading(s), weather conditions such as temperature and sunny/cloudy/etc. and any unusual weather conditions or events prior to the time of monitoring such as recent storms and precipitation events or animal activity. This will also help to identify any rate of change and may help to identify causes of any movement noted. If aggravated conditions occur, comparisons should occur in more frequent intervals, such as after significant rainfall or after heavy snowfall or extended period of freezing weather. Photography should be used to aid in locating monitoring points. In large complex sites, GPS may be used. If no movement or change is noted after one year of monitoring for severe threats or if the initial threats are classified as moderate, monitoring should be conducted on a quarterly basis. If the initial threats are low or two years of monitoring severe threats shows no movement, or one year of monitoring moderate threats shows no movement, the monitoring should be conducted annually. If the data collected indicates a sudden change or increase in movement, the Structural Engineer or other qualified professional should be notified immediately and an on site inspection may be necessary and/or emergency stabilization measures may be necessary.

Monitoring data and information can be recorded in a tabular format which is typically kept in site files, or the information can be recorded in a field notebook kept at the site, in the site file or in an appropriate location. It is important to note that the monitoring data should be kept in a location that it can be easily retrieved and the site and location of monitoring points can be reestablished as needed. Copies of the monitoring data should be provided to the VT Structural Engineer quarterly or annually and a copy should be kept in the site file at the park. The monitoring forms, locations and schedule are often designed with the assistance of the structural engineer or architectural conservator. They should be designed with the user in mind, who is most likely to be unskilled in structural evaluations. Therefore the form and process should be user-friendly and accomplished in a brief site visit.

In many cases, this information is recorded for a few years and set aside for many years. This information is important when new site mangers observe conditions at sites as many as 50 years after the monitoring points were first established. Duplication of data which is stored at multiple locations aids in long-term retrieval.

G.2 Sample Inspection Forms

Examples of structural evaluations and monitoring programs are available on the VT Intranet site. The Structural Engineering Evaluation and Monitoring forms and instructions adapted from Mesa Verde National Park's Archeological Site Conservation Program are one set of examples available. These forms were developed for use in prehistoric archeological stone structures typically found at Mesa Verde National Park. They are included as examples of forms that can be modified as needed for use at other Archeological and Historic Sites.



APPENDIX G

A Brief History of the National Park Service Management of Archeological Sites in the Southwest

by Jake Barrow
with contributions from Jim Trott
June 2008

This summary history briefly describes a few of the major trends which have occurred in the field of ruins preservation over the course of more than 100 years of activity. Many individuals launched programs, adapted to the times and accomplished research and preservation projects. Methods and materials came into common use, were modified and adapted or were in some cases abandoned. What knowledge can be gained from examining the history of preservation? Can some threads of continuity be realized which can inform the present? Since no comprehensive history has been written, this work serves as an introduction to the subject with an emphasis on treatment perspective. Hopefully some readers will find comfort in the realization that other preservationists have been there before and experienced much the same anguish, frustration and challenges that we are facing today. Roads that lead nowhere need not be taken again.

Some Beginnings

For more than a hundred years, the United States Federal Government (and, after 1916, the National Park Service) has managed and preserved archeological sites in the arid southwest. Historically this preservation has been referred to as "ruins stabilization." The National Park Service, signed into being by President Woodrow Wilson in 1916, inherited the origins and energy which began being devoted to ruins preservation beginning in the nineteenth century. That legacy has continued unbroken since the beginning and in 2008 is managed, in part, by the Vanishing Treasures Program within the Intermountain Region of the National Park Service.

Throughout the historical process of ruins preservation, the central mission, whether local or regional, have not changed since 1916. The establishing principles of the National Park Service as legislated by Congress provide the organization with a mandate. As written in the 1916 Organic Act establishing the National Park Service, it states: "…conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The history of ruins treatment is not recorded in one document nor is there an administrative history of the NPS management of archeological sites. The history of this process represents an organic and developing response that has been institutionally dependent on individuals both inside and outside the Service, and whose interest and enthusiasm for the subject matter moved the agency through advocacy to action. Public advocacy has had a role to play in pushing the agency toward some actions. The National Park Service depends on interrelationships of personnel who often change jobs and move from site to site and often move up in the chain of command. Others stay in one place for their entire careers. The organization itself grew, changed and sometimes contracted over time in a seemingly cyclical manner in which activities are engaged, then abandoned and seemingly forgotten for a time; and then the same energy re-emerges with new motivation and new knowledge. Reviewing selected parts of the history informs the present, hopefully avoiding reinvention.

There are opportunities for cross-fertilization when personnel move from site to site, while also resulting in resistance on the part of old-timers to change to new ideas and new energy. Bottom-up solutions often collide with top-down policy and direction and, as is typical in construction practice, the ideas and methods of craftsmen and craftswomen often are at odds with those of the architects or more highly educated archeologists and managers. Site-specific solutions emerge in which continuity begins to unfold over time. Due to the nature of this give-and-take process, the continuity appears to break when a new direction or approach is taken. But the overall continuity continues so long as the agency stays alive and its mission remains valid. Ultimately the fervor for this mission by the individuals making up the organization will determine the viability of the agency to meet its goals.

It can be said that archeological activity started in the Southwest when the United States Army of conquest began exploring in earnest during the middle of the 19th century. Sites such as Chaco, Montezuma Castle and Hovenweep were put on the map and interest in those places took hold. Concurrent with the early interest and archeological activity during the later half of the century, there existed a trend of interest in antiquities throughout the western world. Pot hunting and relic collecting was a major part of the activity. The interest also encompassed an academic aspect in which deeper understanding of history was sought through direct contact with archeological and architectural remains of the past. Sometimes this included a romantic view toward ruins in which the remains were to be regarded as almost mythical or magical elements of former and sometimes lost times. This interest is clearly evident in the late renaissance recognition shown toward the Greco-Roman antiquities which first came to light in the seventeenth and eighteenth centuries in Europe, but gained in renown with the Napoleanic conquest of Egypt in 1798 and the resultant discovery and romanticism of ruins.

In addition to the romantic aspect, there was a significant educational aspect to the interest in antiquities. Authenticity of a ruin's site played a significant role as educated scholars visited them to better understand

the values, messages and information inherent in ancient fabric in order to better understand the past. The fundamental drive in this interest is for the individual to directly experience aspects of the past without the lenses of manipulated history provided by others. Deeper and deeper understanding of the behavior of the inhabitants of these places becomes possible and the anthropological record is informed. Following this objective is the desire to preserve such sites unimpaired for the future.

As the nineteenth century closed and twentieth century unfolded, archaeological activity in the United States had become popular. Eastern institutions of higher learning and museums sent archaeologists into the Southwest to expand their knowledge of its history. The Bureau of American Ethnology in the Smithsonian Institution and the Archeological Institute of America (AIA) sponsored many of the activities. The National Geographic Society participated. Cultures were identified, time periods delineated, ethnography introduced, professional meetings convened and development of archaeological sites for research and public use were generally established. All these activities influenced the National Park Service.

In 1880, Adolf Bandelier made his first trip representing the AIA to Pecos, New Mexico. Over the next few years, he visited and wrote about many sites in the Southwest which popularized the potential for exploitation. Charles Lummis was not far behind, photographing many sites for the first time. Edgar Lee Hewett, gifted and armed with unlimited energy and enthusiasm for the subject matter, left a huge legacy. Jesse Walter Fewkes played an important role which became somewhat controversial at the end of his career. Later, noted archaeologists such as Neil Judd, Earl Morris and Alfred Kidder, among others, engaged in excavations at select sites at Chaco, Aztec and Pecos. Generally Federal and State employees such as Fewkes applied some stabilization to ruins, whereas those from academia and other institutions did no stabilization. Morris was an exception. They all accomplished varying levels of recording and documentation.

Eventually the early National Park Service archeologists and those following them became intimately involved in stabilization as the founding mandate served to remind those in the field of their preservation agenda. These activities constitute the origins of the preservation and presentation of archeological sites in the Southwest. Archeology as a discipline emerged and grew right along with the growth of the new National Park Service Agency. In addition to the archeologists, the early managers and ethnologists were involved as well, thus creating the multi-layered and diverse approach to archeological site management. S.J. Holsinger, his protégé Frank Pinkley and Jesse Nusbaum imparted much influence. From this point, there evolved repetition, new directions, refinements and technological advancements over the new century. Pinkley began his career in 1900 at Casa Grande and would manage NPS efforts for the next 40 years, while Nusbaum began in 1909 with the Museum of New Mexico and its preservation of the Palace of the Governors (Santa Fe) and ended as the Superintendent of Mesa Verde in the 1940s. They would greatly impact early preservation in the Southwest.

Places Become Parks, People and Projects:
Casa Grande and the Rise of Frank 'Boss' Pinkley

Archeological site management in the United States began at the Casa Grande Ruins National Monument located in south-central Arizona in 1889.* In that year, Senator George F. Hoar of Massachusetts succeeded in getting an appropriation and a declaration of a reservation for Casa Grande attached to the US Geological Survey budget which stated:

Repair of the ruin of Casa Grande, Arizona: to enable the Secretary of Interior to repair and protect the ruin of Casa Grande, situated in Pinal County near Florence, Arizona, two thousand dollars; and the Presi-

*Although a year before, in 1888, Richard Wetherill's sighting of Cliff Palace from the mesa top served as a starting point for the most major pre-Columbian program of archeological site management in North America at Mesa Verde, it would be years before stabilization work actually occurred there. Likewise, in 1896, Edgar Lee Hewett was conducting field research on the Pajarito Plateau following in the footsteps of Bandelier. No stabilization was done. In any case, Mesa Verde does have the distinction of being the first National Park designated for its archeological values. Mesa Verde remains the only archeological area with that designation.

dent is authorized to reserve from settlement and sale the land on which said ruin is situated and so much of the public land adjacent thereto as in his judgment may be necessary for the protection of said ruin and of the ancient city of which it is a part.

Casa Grande is a three-story elevated puddled earth structure (sometimes the filled base level is referred to as a floor level, thus a reference to a four-story structure) constructed by the Hohokam culture who thrived in the area from around 550 AD to 1450 AD. Casa Grande was built circa A. D. 1200s and abandoned in circa A.D. 1400s.

Jesuit Priest Eusabio Kino was leading a missionary movement in the Sonoran desert when he saw the Casa Grande in 1694, placing it on the map as a destination. In 1879, Professor George Cook, a geologist, initiated what were the first scientific examinations of the remarkable structure. While his reports were not accessed for this history, the fact that a geologist was sent indicates the recognition that something about the soils of the architecture were remarkable and needed evaluation. An earthen building standing without a roof or maintenance for hundreds of years was remarkable by any standards. Recognition of the unique qualities of the structure as well as its important history resulted in the 1889 authorization to have it saved as a Federal Reservation. This act put it under the jurisdiction of the General Land Office (GLO) in the Department of the Interior. (The GLO was a precursor of the Bureau of Land Management.) Casa Grande later was legislatively proclaimed in 1892, and re-designated in 1918 as a National Monument when it came into the managerial jurisdiction of the newly-created NPS.

This ruins treatment program at Casa Grande began in earnest in 1891 when federal funds launched a stabilization project to correct basal erosion, install bracing (probably seismic restraint) and plan for a protective shelter which eventually was constructed in 1903. A major earthquake occurred in Northern Sonora, Mexico in 1887 which heavily affected southern Arizona. While it is not precisely documented, damage is likely to have occurred to sections of the free-standing walls. Pre-1887 photos showing sections of walls that do not appear in photos taken post earthquake lend credence to this supposition.

Florence, Arizona resident Rev. Isaac T. Whittemore advocated for site preservation in 1889 which resulted in a site visit by the Santa Fe General Land Office Representative Alexander Morrison. They met on-site and Whittemore, who had some construction experience, convinced Morrison to address suggested preservation issues including discussion of roofing, underpinning and vandalism. These two men developed an agenda for preservation that initially was rejected as too expensive by authorities. Very soon, though, Anthropologist Victor Mindeleff of the Smithsonian Institution's Bureau of American Ethnology was engaged to travel out to Casa Grande to survey the ruins and recommend repairs in response to the earlier request. The Smithsonian, through this Bureau, played a continuing role in the management of archeological sites well into the twentieth century.

With the earlier input of Morrison and Whittemore in hand, Mindeleff prepared what is considered the first ruins stabilization scope of work to be applied in the US. He specified six objectives:

1. protective fencing
2. a site management custodian
2. site cleaning, underpinning basal erosion
4. capping
5. reinforcing walls
6. a sheltering roof plan

It is interesting to note that archeological evaluation or research was not a part of the program at this point. Nor does documentation figure into the picture. Over the next few years as funds became available the scope was largely achieved. It took a little longer to realize the shelter. This scope embodies fundamental preservation concepts for the preservation of earthen structures: the need to protect sites from vandals, a system to manage the site and thus provide monitoring, addressing basal erosion which is always present in earthen ruins which are normally set close to the ground, capping fragile wall tops which is a requirement in all exposed ruins masonry whether earthen or stone, reinforcing un-reinforced masonry walls that have been compromised by the loss of lateral restraints provided by roofing structures and, finally, the

more controversial but also the most effective preservation measure, sheltering. Sheltering the Casa Grande has come with a price, as it has caused a major impact on the site; still, it can not be denied that the shelter provides a significant amount of benign protection.

In 1889, Whittemore, although unpaid, was named the first custodian, . This fact demonstrated his personal enthusiasm behind the initial effort. The idea of a site custodian eventually morphed into that of park Superintendent. As sole site employee, the early custodians had a job description which encompassed everything. In 1892, under Presidential proclamation, the site was made a reservation and therefore Whittemore was empowered by the Secretary of Interior to use the authority of the United States Government to protect the Casa Grande site. So it was under his jurisdiction that the first preservation work was accomplished. In the execution of the scope, some of the work was invasive. The treatment for basal erosion amounted to clearing debris from the base of walls, preparing the puddled earth surface and installing a brick veneer set in Portland cement mortar. Later this unsightly intervention was stuccoed over to achieve some visual compatibility. Portland cement, a product of the industrialization of building materials, had only been available for little more than a decade at this time. Strong, quick-setting, fairly easy to work with, Portland cement must have seemed like a cure-all and wonder product to stabilize the base of the Casa Grande.

Casa Grande after initial basal stabilization

H. B. Mayo succeeded Whittemore in 1899 and continued to advocate for the ruin, specifically for a shelter. His tenure was very brief, for in 1901 Frank Pinkley took over as custodian. Pinkley had no training, background or experience in this work. He was twenty-years-old had graduated from high school and had worked in a jewelry store. He was sent to Arizona for his tuberculosis. Coincidentally, his uncle was the GLO commissioner for Arizona and he offered his nephew a job to watch over the site. Pinkley wasted no time in assuming a measure of control and asserting himself. By 1902, he was disputing earlier recommendations to the central office regarding the need for fencing and the idea of a shelter. Under the jurisdiction of the GLO, Special Agent S.J. Holsinger made visits to Casa Grande. Holsinger had significant influence over Pinkley and shifted stabilization work to a more materially compatible approach in contrast to the initial work (basal repair of brick laid in cement mortar) which was visually and materially incompatible with the character of the ruin. Rather than using brick and cement stuccos as were used in the first stabilization effort, he required that original materials be sought and applied for stabilization. He tested materials made from debris piles for crack filling. He also discovered the strata of soil from which the original caliche-rich soils used by the natives in construction originated, several feet below the surface. Holsinger designed the first shelter. He succeeded in convincing Pinkley of the value of a shelter, and then went on to have considerable influence over the development of archeological sites and resources around the Southwest.

Thus, in this early management sequence, actions taken resulted in later reevaluation of treatments seeking more compatibility and integrity of material use, as well as the benign influence of the shelter. At this early date, the dialogue about treatment methodology had emerged with the emphasis on maintaining the character of the resource. Pinkley had been opposed to the shelter, in part due to the consider-

First shelter over Casa Grande

ation of the landscape. Quite simply, fabric erosion as a result of some heavy rains he witnessed convinced him of the long-term viability of sheltering. Considering that the Casa Grande had stood for hundreds of years unprotected, the argument for sheltering needed strong justification. While the exact record of argument is unavailable, the proponents prevailed and it was erected in 1903. In 1932, the original barn-like structure which had greatly deteriorated after 30 years was replaced by the current shelter. The new shelter, highly engineered and built of large steel posts to lift the roof high over the ruin, has always been somewhat controversial. Regardless, a significant amount of the structural and material conservation over the long-term has been realized.

Meanwhile, preservation techniques continued to evolve. Jesse Walter Fewkes, ethnographer/archeologist of the Smithsonian's Bureau of American Ethnology, arrived at Casa Grande in 1907 to lead efforts to conduct excavations and make repairs and recommendations. Once the shelter had been constructed, the focus at Casa Grande went to archeology and sites surrounding the "Big House." Reports indicate that Fewkes was sent to Casa Grande in response to Pinkley's approach at managing the site, which reflected a somewhat unscientific attitude of engaging in overzealous excavations. Pinkley did something we would now call pot hunting in order to get the artifacts out on display for visitors. This sort of activity continued well into the twentieth century. It seems that by this time, the GLO felt the need to seek professional expertise rather than to rely solely on the uneducated but enthusiastic Pinkley. Fewkes embodied the recognition of the need to apply professionalism in archeological site management on the heels of the passage of the 1906 Antiquities Act. At the time Fewkes arrived on-site, he may have had little experience with ruins preservation but perhaps more an educated inclination from his time documenting the living Hopi and Zuni tribes a few years before. Quite simply, at that time, there weren't many opportunities to gain experience in archeological research or ruins preservation work in the United States. In the course of his work, Fewkes made the decision to expose more ruins and make them available for interpretation, ironically, since Pinkley's zeal went in the same direction. Quickly Fewkes pushed for an expanding archaeological knowledge base by re-examining old excavations and conducting new ones. He stipulated that the sites should be prepared for public visitation "…by applying simple stabilization procedures."

Unfortunately, not much can be said to shed light on what he meant by this statement. Records indicate that Fewkes was using cement to stabilize low walls. Perhaps the authority on-site became confusing since Fewkes worked for the Smithsonian and Pinkley for the General Land Office. Fewkes' tenure at Casa Grande marks the separation of duties based on discipline since he was interacting with the resources while Pinkley began to take on more of an administrative role.

Fewkes' treatments were seen as somewhat temporal by Pinkley, who in his annual report to the GLO of 1910, wrote of his concern about the exposed ruins "…from which there seems no practical method to protect the greater part of them".

Pinkley became less than enthusiastic about the excavation activities which left ruins exposed and the lack of any funding to do anything to protect them. Records of the time indicate an emerging focus on park infrastructure such as visitor services and less about the resource preservation of the earlier period. Clearly Pinkley had changed his opinions during and following the Fewkes period and came to realize some of the gravity of the preservation problems he faced. Being the site steward rather than the visiting archeologist contributed to his growth toward a deeper appreciation for the complexity of his responsibility. Pinkley came of age during this experience at Casa Grande. He was learning on the job how to manage a site, including visitor services' aspects such as interpretation, museum management, advocacy, funding requests, planning and preservation. Much of the early work remains visible at Casa Grande as sheltering has afforded the structure a slower rate of change and thus a less invasive preservation approach over time.

Antiquities Act and Expansion- Pinkley Goes to Tumacacori

The passage of the Antiquities Act in 1906 had an enormous impact on the management of archeological sites. Fundamentally an act to protect sites from looting, it also gave the power to the President of the United States to proclaim National Monuments. This resulted in many sites of compelling importance to be proclaimed and thus fall under the protection of the federal government. Edgar Lee Hewett had been an instrumental force in propelling the Act forward. Concurrently, funding from private institutions such

as the Carnegie Institute, the Peabody Foundation and the American Museum of Natural History for major archeological excavations of sites within park areas or areas which later became national monuments or parks was increasing. The Antiquities Act marked a fundamental benchmark in the way cultural resources were to be valued and managed in America. Within a decade, sixteen major Southwest areas were declared National Monuments.

In 1916, the National Park Service was established and sites previously under the GLO began to be transferred over to the new agency. Soon Pinkley picked up new responsibilities as manager of the new Southwestern National Monuments. Even though his job slowly developed to encompass many parks in a multi-state region, he never moved his headquarters away from Coolidge and the Casa Grande.

The Tumacacori Mission is located 113 miles south of Casa Grande and was proclaimed a National Monument in 1908 under the Antiquities Act authority. In 1918, it was added to the young National Park System. The first mission at what is now Tumacacori NHP was part of the Kino Mission system of the Sonoran desert which was first established at the Pima village of the same name in 1691. 'Boss' Pinkley was put in charge of the new park site and he wasted no time in planning preservation activities to reverse long standing deterioration. By 1921, he began the reconstruction of the Mission Church roof which had collapsed some years before. Open to the elements, much of the decorated interior was compromised by the lack of a roof. The walls of the Mission were built of adobe block and the interior walls were plastered and decorated, typical of Spanish mission construction throughout the New World. This project was not a shelter as in the Casa Grande case but a reconstruction of the collapsed original roof. The philosophical discussion is not available but the project stands as a testament to partial reconstruction in order to preserve architectural fabric which otherwise would surely have been compromised and most likely lost should the roof not have been constructed. Having the roof to protect the interior surfaces set the stage for the many years of conservation-focused treatments which have occurred on the site. While the roof protected the interior, many exterior elements on the Mission and nearby structures remained at risk. In 1922, Pinkley is credited with acquiring the first ever grant of monies secured from the State when he received $1,000 from Arizona for repairs there.

Tumacacori Mission Church before stabilization

A clue to Pinkley's evolving philosophy may be seen in his reconstruction of the bell tower stairway at Tumacacori. He is reported to have made the new work look old with a somewhat ruined appearance. Philosophical arguments about distinguishing new work from the original had not yet evolved and made their way into Pinkley's thinking. Also this work and the reconstruction of the roof may have been somehow a result of his feelings about the solution at Casa Grande, which he initially opposed.

The Park Service may have gotten off to a slow start but by 1923, developments were moving much faster. Pinkley was appointed first Superintendent of the Southwestern National Monuments which was established to include twelve monuments: Casa Grande, Tumacacori, El Morro, Montezuma Castle, Petrified Forest, Chaco, Navajo, Grand Quivira, Hovenweep, Pipe Springs, Wupatki and Aztec. It grew quickly. In support of the idea of creating Southwestern National Monuments, NPS Director Mather wrote in favor of "…[the] idea of unifying the monuments work and passing the problems from the various monuments up to a local man who would be in touch with local conditions, thus relieving the already overcrowded Washington office of some of the work which could be better understood and more economically handled from a field headquarters…."

This amounts to a very nice way of saying that the Washington Office really didn't want to be saddled with these resources and all their difficult problems. Funding was very meager, if at all, as systems for project identification and financial requests were primitive and simplistic. Washington had a focus toward the big natural parks and only when Depression-era programs got underway did some major funding become available for the ruins. Some of these Monuments were pretty hard to get to, as roads were not paved and the sites were located at remote locations.

In any case, 1924 marks the year that archeological site management including ruins preservation became a recognized activity in the NPS, even if it only meant that a small group who were on salary attended to it. Pinkley can be credited with establishing this concept administratively and with professionalizing the site custodians, who came to revere the "Boss," as Pinkley became known. His monthly reports provide a direct view into these times and the focus on visitor services and the growing tourism interest was clearly an effort to attract attention in Washington. The reports reflect Pinkley's realization that if he were to get attention from Washington, it would be because visitors were coming to these parks. He focused heavily on reporting about visitors. At this point, archeological research was still being conducted by outside institutions who did not engage in stabilization activities.

A Ruins Triangle- Mesa Verde, Aztec and Chaco

The stabilization efforts at these three parks characterize some preservation trends and developments from the early part of the century through WWII. Resources at these three sites were constructed of stone and the earth and this required some different approaches than those applied to strictly earthen sites such as Tumacacori and Casa Grande.

Since the Wetherill family "discovered" Mesa Verde, made collections from the ruins and provided tours to visit the cliff dwellings, it has only grown in popularity. In 1891, Gustaf Nordenskiold, a Swede who was assisted by Wetherill in getting access to the site, was one of the first archeologists to excavate at Mesa Verde. Before the time of autos and roads, these visits and activities were done on horseback, living in very primitive camps in Wild West-style. Having excavated at Cliff Palace, Nordenskiold packed his collections out of the site and took them to Helsinki, Finland. It was not easily accomplished logistically or politically, as many protested. They are held there today in a very modest and hard-to-find State Museum with a small selected collection of the artifacts on display. Some burial remains and funerary objects are a part of this collection but they are not displayed. This removal led to a public outcry against allowing collections to be taken outside of the United States. Ultimately public sentiment over this issue and similar cases elsewhere led to the passage of the Antiquities Act in 1906. It also led to the 1906 creation of Mesa Verde National Park. On a positive note, Nordenskiold is credited with accomplishing a very scientific excavation which established methods of analysis which had heretofore not been practiced.

Nordenskiold relaxing at Mesa Verde

Recognition of the effects of the various excavations at Mesa Verde led Jesse Fewkes to depart Case Grande in 1908 for Mesa Verde to excavate and stabilize ruins there. This represented a return trip for him since he had conducted surveys there a few years earlier. Hewett advocated for Fewkes to come to Mesa Verde based on his reputation and accomplishments at Casa Grande. Under his direction, the Smithsonian Institution's Bureau of American Ethnology initiated a comprehensive excavation program for the major sites in the park. So long as the ruins had been left in a natural,

though slowly-collapsing state, they were in apparent stable condition but the uncontrolled excavations of previous years seriously undermined the stability of many walls. Fewke's task was to reverse this trend of digging up sites without considering the preservation and presentation . He first focused on Spruce Tree House. His primary motivation was his view that sites held interpretive potential. He wanted to educate the public. Pinkley's realization that public access and tourism were key to gaining attention and resources, was also influencing Fewkes.

More or less simultaneously, Dr. Edgar Lee Hewett was beginning to engage university students through the Archeological Institute of America to "…pursue studies among the ruins of Mesa Verde…"

This is likely the first field school activity to take place in an archeological site in America. The partnership with academic institutions and the value of that partnership had beginnings here and, even with interruptions, this important activity has been sustained from that moment to the present.

Fewkes was the first to systematize any kind of repairs. Repair work, according to him, was a delicate task seeking to preserve the original character of the ruin as far as possible, using earthen or soil cement (possibly the first use). Repair, not restoration, was the goal and prevention of further disintegration guided the work rather than reconstruction. Stated goals of authenticity of the resource were seen as more valid than reconstructing lost wall sections for interpretation. Even so, while pursuing his repair agenda, he was equally well-known for advocating for the visitor experience. At times, sections of ruins had to be reconstructed to preserve the remainder and clarify the context. Fewkes had noble intentions but history has not judged all of his activities positively as it appears that his stated objectives were not always realized in the physical manifestations of the treatment. When he arrived to work on Cliff Palace, the same philosophical approach applied at Spruce Tree House and Casa Grande was taken, just up-scaled to respond to the large size of the site. The terraced face presented some problems which in some cases required the rebuilding of those walls. It doesn't seem that Fewkes had any reservations about using Portland cement: "To permanently protect these sections of the ruin, the top of walls and plazas were liberally covered with Portland cement, and runaways were constructed to carry off the surface water into gutters by which it was diverted over the retaining walls..." he wrote.

Fewkes' wall capping

On exposed mesa-top sites, Fewkes introduced Portland cement into capping to stabilize wall tops and get the water to run off. While this may have helped the wall tops, it didn't help with the depressions of the kivas and drainage. Recognition of the problem of differential levels such as kiva floors which could catch and contain water could only be theoretically resolved with shelter construction. It would be many years before shelters appeared on the mesa top sites. Backfilling would not have been considered since opening sites to visitors was paramount in the minds of archeologists. In characterizing the problems and as justification, Fewkes recorded some notes which also indicate some specific and troubling aspects of his work related to the complexity of the wall caps:

> Water from the melting snow was particularly damaging, since it percolated between the facings and the core of the wall, and subsequently froze, forcing the facing of the wall away from the central core until it fell. In order to prevent the water from melting snow from penetrating the walls, or the rain from percolating between the core of the wall and its facing, I placed a cap of cement on the top of all the walls. The inner facing of the outer walls, as a rule, stood a few courses of stone higher than the outer, and it was necessary to add masonry to bring the outer wall to the level of the core and inner facing. Having leveled the top of the wall, I covered it with small, angular fragments of stone, placing these fragments highest in the middle or over the core. Over this roof-like covering was spread a thick layer of adobe. The top of the wall was thus made in a way to shed water. Over this roof of adobe was spread

> a layer of Portland cement, 2 inches thick, mixed in proportion of 1 to 5, care being taken to use this cement freely in pointing the joints in the facing of the wall in order to prevent the entrance of water in the cracks. The roof shape of this covering or the fact that it is highest in the middle will shed the water and throw it away from the wall without harm.

This crown-shaped gutter capping of soil cement which he had applied to tops of walls must have had a striking appearance. Most of this – probably all – has been removed at Mesa Verde, replaced over the years with more compatibly visual masonry which is achieved by setting stones close together, unevenly, so that water flows off in various ways. Some of the setting mortars he used beneath the cap to stabilize the top section of wall are likely still in place. This reference may entitle Fewkes to be the father of soil cement which has seen continued and widespread use at many sites. The strong and visually incompatible capping treatment likely contributed to some peer criticism of Fewkes.

By 1910, Fewkes had moved onto sites in recently established Navajo National Monument. It seems as if Fewkes was the first traveling itinerant ruins treatment expert. Meanwhile funds were available to work at Balcony House in Mesa Verde. Fewkes, busy elsewhere, was unavailable. Edgar Hewett and Jesse Nusbaum made a preliminary study of the conditions of Balcony House.

Fewkes was not far away and not gone long. Over the following years, he reappeared at Mesa Verde many times. He is credited with starting the fireside chats, the interpretive story-telling to visitors to the parks sitting around an open fire. It's apparent he had much to say and his various activities and attitudes eventually collided with management. In 1923, Acting NPS Director Cammerer wrote, "We've got to keep the doctor out of the Mesa Verde because he is impossible. He is approaching senility, and his petty meanness and professional jealousy creates an intolerable situation. I think we should speak to Dr. Walcott and ask him to forbid Dr. Fewkes going into the Mesa."

In order to ensure that Fewkes would be precluded from work, Cammerer allotted funds to be managed by Jessie Nusbaum for stabilization work. Fewkes was finished by 1923. Mesa Verde's popularity as a tourist attraction had increased rapidly. Cliff Palace, Balcony House and Square Tower were to some extent stabilized and open to the public. A new era was marshaled in under the direction of Nusbaum, an archeologist by training, who was appointed Superintendent in 1921.

Hewett, who had first advocated for Fewkes, seems to have developed a disdain for the somewhat heavy-handed restorations he was doing over the years. He, along with Judd, were two archeologists who influenced the development of Mesa Verde and Chaco respectively, realizing properly preserved ruins are of interest to the public. Hewett is quoted as saying that ruins should be preserved as ruins, "…not as ghastly restoration…"

Fewkes with an artifact collection

One can't help but wonder if Hewett was reacting belatedly to some of Fewkes' work. Hewett taught students in his field schools that demolition for archeological purposes should be avoided, minimal intervention should be used to stabilize them and to do only what is absolutely necessary for preservation. He focused on masonry details to preserve character and suggested models instead of reconstructions. In his 1921 article in *Art and Archeology*, he photographically compared Chacoan masonry to that of Peruvian sites and many in the Mediterranean basin. The issues of the Southwest have similarity to other sites internationally. These discussions suggest that treatments thought by one professional to be compatible and interpretable were seen by another to be completely wrong. The strong language used criticizing Fewkes and the Director's

admonition indicates the seriousness which the issue of ruins stabilization began to be taken.

One important aspect of stabilization at Mesa Verde is the fact that cliff sites are inherently protected to some degree and this has provided for a level of benign protection that open sites such as those on the mesa tops or on open terrain such as at Chaco and Aztec don't have. Often the slopes at the front of cliff sites present the most serious problems.

Also during this time period, an important discovery was made and activity initiated which has had extensive implications for Southwest archeology and indirectly, stabilization. Dr. A. E. Douglas, leader of the National Geographic tree-ring expeditions of the 1920s, established an unbroken tree-ring chronology dating before the year 700 A. D. to modern times in Mesa Verde. That work has continued at other southwest parks including Gila, Wupatki, Walnut Canyon, Tonto, Chaco, Natural Bridges, Aztec, Pecos and Salinas. This work has provided research archeologists and preservationists with scientific evidence to date wood in structures and thereby date the structures

Through the influence of Edgar Hewett, Earl Morris, a New Mexico boy who had pot hunted with his father as a child, received an education, and entered onto the archeology scene at Aztec in 1916. During 1916-1922, while employed by the Museum of Natural History (Smithsonian), he was in charge of excavations and stewardship at the site. Over the course of these years and succeeding ones, he recognized the huge burden caused by excavations without consideration of stabilization. Eventually he was forced to divert manpower and funds to repair, rather than to excavate. His tenure and influence characterize more than two decades of developments. His initial feelings from early experiences on site were somewhat naïve and optimistic as he wrote in 1917, "The portions excavated show less deterioration than was to be anticipated, and it seems that a capping of cement will make the walls relatively permanent…"

Applying a cement cap and relying on that to preserve a wall would prove insufficient. His early optimism was replaced by a stunning realization of the fragility of the exposed ruins. Very soon, Morris's workers were dismantling and re-laying portions of the sandstone block veneer of many of the less stable walls at Aztec using Portland cement for mortar. He was certainly not adverse to the use of modern materials. In 1918, he purchased an entire boxcar of cement, attesting to his understanding of the severe need to stabilize the ruin as well as his reliance on cement. The early use of cement and concrete was widespread at Aztec, which also included the construction of concrete slabs over pre-historic roofs. It would continue for many years here as well as other sites throughout the region. Interestingly, several caps which resemble the descriptions of Fewkes-style caps still exist on several walls at Aztec.

The use of cement seemed to fit a philosophy of allowing for the application of new materials so repairs would be recognizable. At this time many felt that a distinction between old and new work was desirable for the sake of authenticity. In a dialogue between himself and Boss Pinkley, Morris is reported to have stated, "If the coloring is made too close to the original earth mortar, many will not be able to distinguish between the work of the aboriginal and that of the modern masons. On the contrary the use of natural colored cement would create a condition that could not fail to be understood by anyone with sufficient intelligence to wonder about it."

Morris's report in 1918 to the American Museum recounted some details of the repair activity:

> For the most part, the walls were in bad condition, hence a considerable proportion of the season's activities consisted of patching those that threatened to collapse, and of rebuilding those that had fallen. As a final protection against the elements, the tops of the walls of the east wing, and those of north wing as far as they have been exposed, were capped with from one to three courses of stone laid in cement, the total area of wall surface so treated amounting approximately to 7500 square feet. By way of summary of the three years' work [1916-1918], the walls of the east wing and one half of the north wing have undergone the ultimate stages of repair."

A significant change occurred administratively in 1923 when Morris was hired by the NPS to serve as first custodian of the newly-created Aztec National Monument. He served in this capacity until 1927. In an elite club with Nusbaum, he became the second professional archeologist to be hired into the Service to both manage and undertake stewardship of ruins. Instead of a reliance only on external institutions to conduct archeological excavations, the NPS was beginning to internalize the functions by hiring these experts into the NPS. Site preservation was expected and thus coupled with the archeological excavations. Could Boss Pinkley have had something to do with this development?

Southwest archeologists, whether in the NPS or outside, had their own agenda. In 1927, led by Alfred Kidder, many of these archeologists got together for a conference at Pecos to discuss, compare and sort their discoveries. From these annual meetings, archeologists have been able to clarify and classify the many architectural, masonry, pottery and artifact findings into an evolving historically-relevant record. These conferences have continued uninterrupted ever since and continually enliven the never-ending debates focusing on anthropological research realized through the painstaking analysis of the contemporary archeologist. While these meetings have been invaluable to anthropologists, ruins stabilization has never had a place at this table for the seven decades they have been held.

In 1933, an advanced program of repair and protection was prepared for Aztec Ruins; Morris, who had left his custodian post at Aztec in 1927 for a position with the Carnegie Institute serving as field archeologist, was asked to return to supervise the work.

Morris led a move to make excavation and repair more formalized. Since so much early work had been done in prior years that was not well documented, a change was in order. It was agreed by those connected with the 1934 project that in excavation and repairs, there should be a satisfactory record to establish the identity of every ancient detail before any work could proceed. Photography was to be integral part of this documentation goal. Distinguishing between ancient original work and some repairs was impossible while in other cases repairs were too easily distinguishable and incompatible with the surrounding historic material. Apparently a considerable amount of time was spent in Cliff Palace distinguishing between ancient and rebuilt walls and this would be unnecessary in future unexplored sites if this policy were rigidly adhered to. The realization of the value of documentation may have been born at this time and over the ensuing years documentation approaches have only grown in complexity and variety. While few agree as to the type and method of documentation, no one disputes its ultimate value.

Morris's work during this period served as something of a model for future excavating, repairing and rebuilding. The philosophy applied could best be described as the belief that while the repair work should be as nearly like the original as possible, it would be the practice to distinguish the ancient from the rebuilt in some manner, perhaps no more evident than a slight discoloration of the mortar joints. The 1931 Athens Charter (an International Charter defining guidelines for the treatment of cultural patrimony) takes up this point: "In the case of ruins, scrupulous conservation is necessary, and steps should be taken to reinstate any original fragments that may be recovered (anastylosis), whenever this is possible; the new materials used for this purpose should in all cases be recognizable."

Morris and associates probably knew of the Athens Charter. (See Appendix M: The Athens Charter for the Restoration of Historic Monuments, Adopted at the First International Congress of Architects and Technicians of Historic Monuments, Athens 1931 as an outgrowth of the International Museums Office of the League of Nations.)

Meanwhile, back in the administrative offices of SW Monuments, Pinkley was increasingly aware of the mounting difficulties in maintaining the many prehistoric sites in the Southwest. Beyond the daily management needs, he also sought the first of what was to become a succession of engineering studies for means of preserving fragile walls. As he explained in 1933 to the director of the National Park Service, "This whole situation of the repairs to ruins has been almost unbearable. We have been in a situation of a half dozen men trying to put out a forest fire...wherever we were and however hard we worked with what we had, we knew Nature was getting ahead of us someplace else."

In 1933, James B. Hamilton, assistant engineer from the National Park Service's field headquarters in San Francisco, was sent to Aztec to evaluate the precise condition of the ruins from a professional point of view and to work out methods that could be taken to keep them from reverting into rubble heaps. He wrote, "At Aztec Ruins National Monument, much work should be done soon to prevent deterioration which is progressing rapidly there."

Hamilton recognized quickly the major forces at work, including standing water in some rooms and the effect it had on the relatively soft sandstone. He recognized rising damp as well as wall top vulnerabilities and also the effects of freeze/thaw cycling. By this time, the early cement caps installed by Morris were deteriorating and allowing water to infiltrate walls through cracking of the interface between the rock and the cement mortar. Some of the concrete-slab, secondary roofs placed over rooms with intact ceilings had cracked open, letting water reach the perishable ceilings below. Hamilton offered many recommendations, accompanied by engineering drawings, for further monitoring of destructive forces and upgrading means for dealing with them.

He recognized the impact of the irrigation system nearby and potentially negative effects of the ground water which moved beneath the surface creating a saturated subsurface. He recommended test pits; if they proved conclusive, diversion methods should be undertaken. He went further to recommend a new wall cap design using stone on the top provided with expansion joints to replace the solid cement-based mortars. He recommended the use of tar paper in conjunction with masonry to prevent water entry; the use of dry barrels to collect water in low areas was included in his recommendations as well as some paving options for addressing the issue of concrete roofs.

Following Hamilton's ground water recommendations, in 1933 borings and test wells were installed. Wet sand was discovered at twelve feet below the surface. The National Bureau of Standards was engaged to evaluate samples. Early testing defined both the characteristics of the subsurface soil as well as the existence of alkali salts. Then again in 1944, several studies were done by the Park Service and drainage and soil experts from the Soil Conservation Service in Albuquerque to determine the exact nature and scope of the environmental problems af icting Aztec Ruins and how best to resolve them. The volumes of data produced merely confirmed earlier beliefs: the source of the distressing subsurface water was from the north and northeast of the ruin, where a major unlined canal and irrigated fields existed. Topography and soil conditions contributed to the difficulties.

Over the years, many diversion channels and buried water systems have been installed, all yielding varying degrees of mitigation, and in 2004 further hydrological studies were initiated. But by far Hamilton's most profound recommendation was for the reconstruction of the Great Kiva, which had nothing to do with preservation of existing resources. In his report, he stated, "…following Morris's excavation report in 1921, it should commence as soon as possible."

It was the impression of Hamilton that the Great Kiva had lost its form and outline by 1933 and must be rebuilt to be understandable. In this case, we see the engineer weighing in on interpretive agendas. It is apparent that Hamilton's recommendations carried weight in Washington as NPS director Cammerer then requested the services of Earl Morris from the Carnegie Institute (where he was employed at the time) for the Kiva reconstruction. Since leaving Aztec in 1928, Morris had been engaged in Central America on Mayan sites working with Carnegie. This experience likely broadened his horizons. In 1933, he agreed to take up the Aztec work and was appointed as "Collaborator at Large" to the National Park Service. His salary was paid by Carnegie while per diem was paid by NPS. The major part of the Great Kiva reconstruction project took approximately five months from the spring into fall of 1934 under Morris's supervision with a large WPA crew. While the actual ruminations concerning the philosophy and administrative decision process are not recorded, Robert Lister, archeologist and Chief of the Southwest Cultural Resources Center in 1977-78 and a protégé of Earl Morris remarked in 1988, "I think Earl felt, in order to preserve the Great Kiva that it was a good idea to restore[sic] it...[He] felt that one of these (Great Kivas) should be restored[sic] so that the public would realize the magnitude...[You] don't get this feeling from going

to Pueblo Bonito or Chetro Ketl or Casa Rinconada. Such unreconstructed sites look like holes in the ground."

The Great Kiva, finally completed in 1935, represents the only large-scale reconstruction undertaken within the Southwest's archeological sites under the jurisdiction of the National Park Service. As a result of this particular status, it is not considered a Vanishing Treasures resource as reconstructions are precluded due to integrity and authenticity values.

Great Kiva under construction

By 1990, after 100 years of trying to preserve and manage ruins, Dr. Robert Lister wrote these illuminating and reflective comments in relation to the Aztec experience: "In the case of the Aztec Ruins, the demands of archeology and the commitment to place the results on permanent exhibition were paramount. While concomitant preservation needs were recognized from the outset, their enormity, their perpetual recurrence, their possible distortion of the prehistoric record, and their huge expense were not then appreciated. It was only in later years that the National Park Service came to a full understanding and acceptance of the ramifications of the responsibility it had almost unknowingly acquired."

The complexity of these ramifications continues to confound but perhaps are more clearly recognized today.

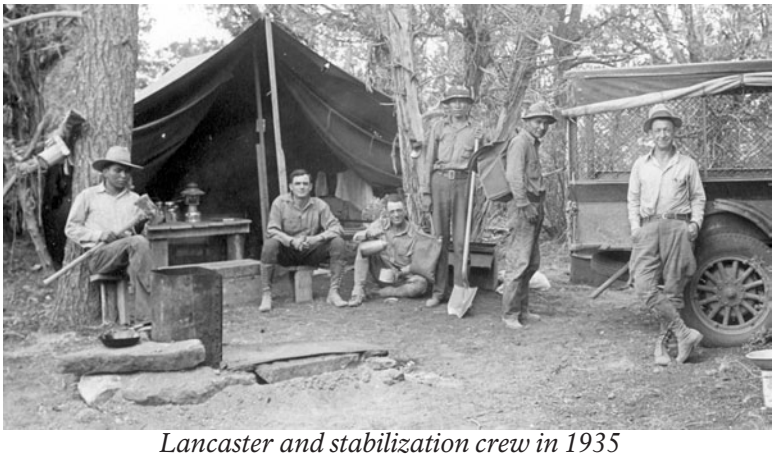
Morris's influence went beyond Aztec as he was also involved at Mesa Verde. In 1934, he hired Al Lancaster to supervise repair and reconstruction there. Lancaster became something of a legend in the ruins preservation and Southwest archeology world. He represented a special breed of person to be brought into resource preservation work during the '30s. Morris depended heavily on him, believing that repair and stabilization work called for professional qualifications that were not easy to find. Some of the qualifications he identified were: "…practical common sense, intimate familiarity with and understanding of the materials used by the ancient builders, wide and penetrating observation of original methods of construction, a working knowledge of masonry technique, an eye to aesthetic effect, and intense interest in the work at hand. Obviously such a man, if found, could not be picked up at a moment's notice."

This could well be the first job description for a ruins stabilization worker. He did not include a description for his own job which likely would have included an academic aspect. The first person to fully meet the qualifications set out by Morris was Al Lancaster. This job description was written after he met Lancaster. Morris was very conscious of how badly damaged sites such as Cliff Palace were due to the excavations and early repairs. It appears that he was recognizing the need to include some construction skills into the mix, as past work accomplished by the archeologist left something to be desired.

Lancaster, a bean farmer who had homesteaded in Southwest Colorado, had good basic construction skills learned, in part, from building a home from the earthen materials on his land. In 1925, he first tried out government service working at Mesa Verde on the road improvement project started up that year. Getting the mesa-top opened for automobile traffic and visitors was a National Park Service priority and road development was always on the front burner during the early years. Lancaster was a person of natural skills with a good eye who was willing to try about anything. After his initial federal service, he went on to participate on non-NPS projects at Lowry Ruin and at Awatovi into the early 1930s where he picked up valuable "hands on" experience with excavations and wall repair. During that work, he was discovered by Morris, who hired him back into the Service for archeological site duties in 1934. Morris needed someone he could trust to leave in charge of the Mesa Verde work while he was busy at Aztec.

Lancaster's job title was Temporary Supervisor of Repair and Reconstruction. An example of his early work is the stabilization of Speaker Chiefs Tower in Cliff Palace where he placed iron screw jacks beneath supporting stone for the tower which had listed. He constructed a stone veneer to conceal the jacks in a style so similar to the original it was virtually unrecognizable as a repair. It remains in place today. He found himself redoing much of Fewkes' work which by this time was seen as too invasive and heavy-handed. It's worth noting, however, that some twenty to twenty-five years of service life realized from Fewkes' work could be considered rather effective, considering these are ruins.

Lancaster had the skill to match prehistoric work and that was apparently appreciated. His depth of understanding of site dynamics can be illustrated by the diversion channels on the mesa tops to protect ruins below which he is credited with constructing. In 1940, he constructed the first of these over Square Tower. Off-site, non-invasive treatments to protect a site demonstrate an early indirect conservation approach. Better to treat the disease, it was thought, than to focus on the symptom. Lancaster was too old to serve in WWII so he continued on during the war and was reassigned in 1945 to Aztec where he is listed as being a Park Ranger. The Park Service has always managed to use flexibility in job descriptions and assignments when it comes to actually getting work done.



Lancaster and stabilization crew in 1935

The lack of maintenance during the war created some situations around Southwestern Monuments needing attention from someone like Lancaster. By 1946, he was working at Chaco and, in 1947, he was back at Mesa Verde completing the triangle. His services were needed at Hovenweep during the 1947 season and Lancaster continued to travel for work. In 1951, he is credited with constructing shelters over the pit houses along the ruins road at Mesa Verde using leftover and reused CCC lumber from the camps. The completion of the ruins road was a long-held goal of Mesa Verde to fully interpret the 600-year architectural history of the Puebloan peoples who occupied the Mesa. Lancaster clearly understood the fragile nature of pit houses which lacked the protection of protective cliff overhangs. During this time period of the early 1950s, he also provided assistance at Atsinna at El Morro where excavations had begun. His logistical expertise with dealing with the hard-to-get-to site was invaluable in this case.

In 1953, Dr. Robert Lister from the University of Colorado was reintroducing University field schools at Mesa Verde as well as other sites, so he got Lancaster involved with that effort, training graduate students about excavation and stabilization. This had to be a rewarding experience for Lancaster since he only had an eighth-grade education. The Mesa Verde Archeological Research Center was started up and Lancaster played a major role in guiding the students, being a field leader and getting project work done.

He had a large influence over the field as he had trained so many who went on themselves to become icons in Southwest archeology. In 1958, George Cattanach and four others joined Lancaster in the excavation and stabilization of Long House. Work proceeded very quickly and Lancaster is credited with stabilizing features as the excavation progressed, accomplishing work that was virtually indistinguishable from the original.

Lancaster may not have been conversant in the various philosophies being argued over concerning authenticity in academic circles, but he clearly had a deep understanding of the construction methods used by the Puebloan builders. Lancaster succeeded in accomplishing repair work that not only worked structurally but also aesthetically. One might ponder the question of Lancaster's legacy of work that remains visible

today and whether or not it can be distinguished from the original.

After a full thirty year NPS career, he retired in 1964. He had received the National Park Service's Distinguished Service Award in 1962 for his achievements. Even after retirement, he continued to participate in many related activities, offering his knowledge and experience answering many calls for help from the likes of Lister and others. Al Lancaster's method, which he forged together with his experience of working with Morris, has been well-stated by J. Adams:

> Every attempt was made to remain loyal to the aboriginal construction. Walls were rebuilt only when needed for retaining loose fill or for supporting other structures. Original building stone was reused until the supply was exhausted and then fresh stone was shaped to look aboriginal. Red adobe was packed into the joints and a thin coating was painted over the walls. As this aged, the new construction was nearly indistinguishable from the ruined walls.

While Lancaster managed the trees, Morris was looking to the forest. Because of his experiences during the Public Works Administration programs at Mesa Verde and Aztec Ruins, Morris favored a permanent plan for ruin survey within the National Park Service synchronized with an annual schedule of repairs. Morris's systematic approach accomplished one benchmark in 1937 when the National Park Service initiated the mobile unit or team specially hired and directed to care for the ruins. The rational plan of procedure, he said, was to develop a stabilization crew in the park to continue repair and restoration on a permanent basis, the individuals to be given full-time jobs.

In addition to Lancaster, the hiring of R. Gordon Vivian about the same time represents another significant internalization of professionalism in the NPS. Vivian was one of Hewett's students who went on to formalize many of the concepts put forth by Hewett. In 1933, Vivian initiated a major stabilization project on Chetro Ketl and Pueblo Bonito at Chaco under the administrative umbrella of the Civil Works Project program. The National Park Service took advantage of the federal jobs programs to get field work activities up and running in parks. Vivian's work continued into 1934. Many indirect measures were taken, including constructing water diversion dams and drainage work around sites. Between 1933 and 1937, he began major site preservation work at Pueblo Bonito, Chetro Ketl and Casa Rinconada. By 1939, it is recorded that Vivian had written what may have been the first ruins stabilization manual. (This manual was not available for reference for this history.)

Vivian at Chaco in 1930

Vivian and Lancaster's career started during the last ten years of Boss Pinkley's. The work of these three was closely intertwined. Pinkley died on the job as Director of the Southwestern Monuments in 1940. He had a distinguishing career of nearly forty years devoted to preserving, protecting and interpreting archeological sites in the Southwest (that is, after his initial foray into pot hunting). At the time of his death, twenty-one Monuments were under his capable direction. He surely gave meaning to the administrative concept of "command and control".

The 1930s and growth of the federal government provided the NPS with internal capabilities that had not been seen before. The Depression had brought a significant change to archaeology in the Southwest. Relief work spilled into archaeology and stabilization, emphasizing the employment of both unskilled workers and skilled workers — the latter including engineers, artists and anthropologists. More archaeological sites were excavated, studied and stabilized. This decade was critical to the development of modern archaeology. The Bureau of American Ethnography, the School of American Research and educational institutions would take a back seat to this new and impressive cadre of workers at some NPS sites.

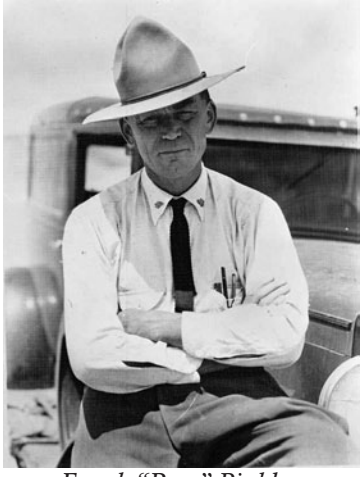
In 1937, a Civilian Conservation Corps (CCC) camp first involving some 200 enrollees was set up at Chaco which coincided with the establishment of the Mobile Unit there. The Mobile Unit was conceived as a branch of the Ruins Stabilization Unit (RSU) based out of Globe that was supervised by Vivian. The management of the Mobile Unit was set up to be led by an archeologist with building experience to ensure maintenance of inherent values in sites. He was to be aided by an architect to record and develop plans. An agreement between the Bureau of Indian Affairs (BIA) and the NPS allowed for cooperative work programs. By joining forces with the CCC and BIA, The National Park Service engaged in some early capacity building. The NPS provided materials, equipment and supervision. The Navajo Agency supplied a crew of Native American enrollees to work out of a base camp in Chaco Canyon. For the following five years, the unit moved between many Southwestern monuments accomplishing both emergency and routine maintenance stabilization work as required. The number of Navajo participants decreased from 200 to twenty in 1938, then to ten in 1940. Between 1942 and 1946, the Civilian Conservation Corps Mobile Unit was disbanded because of World War II.

CCC Camp, Christmas 1938

After the conclusion of the War, the Mobile Unit was back in action again by 1947, repairing flood damage and stabilizing walls at Chetro Ketl. The Mobile Unit also worked extensively at Aztec National Monument, since it was so close to Chaco. Although for many years their methods of work necessarily remained on a trial-and-error basis, the first Navajos enrolled in the program soon jelled into an efficient group of stone masons. Their early work at these two sites focused on walls and features which were falling into disrepair because of the environmental exposure they suffer. Untreated but still a major factor was damage from underground water which Hamilton had recognized ten years earlier as an impact at the Aztec Ruins.

The compromise between sound building methods and authenticity in appearance was a constant challenge. The RSU policy probably spelled out by Vivian in his first guidelines became one of retaining the look of the Puebloan architecture as it was found upon excavation, while calling for reinforcement using modern products and methods which would not alter that appearance. A systematic inspection of ruins and a standardized style of documentation of remedial treatment were instigated so that future technicians would be enabled to distinguish original from treated constructions and know how to proceed. Stabilization advanced from repairs done after the fact to setting up long-range plans to deal routinely with unstable ruins walls and to observe them over time to prevent, rather than fix, damage. No matter what the program, inevitably when one wall was fixed, another was falling down.

Pinkley had accomplished a great deal but the reality of ruins preservations was still a headache. In 1941, an AZRU ranger was quoted: "...ruins may be seen falling before one's eyes...hardly a foot of uncapped wall which has not suffered serious damage. In the southwest wing of the pueblo, a huge section of wall and door have collapsed." Later the same ranger begged: "Stabilization is urgently required."


Frank "Boss" Pinkley

The Search for Solutions (Miracles), Materials and Methods

A change in the approach to ruins stabilization was being sought between 1930 and 1935, probably due to recognition that the authenticity of original architecture was being compromised. On March 31, 1931, The National Park Service in Washington, D. C., issued the following notice:

National Park Service is seeking means of protecting Pueblo ruins from weathering. The ideal solution would be a transparent, waterproof coating which could be sprayed on the walls, but no suitable product has been found, and the Service announced today it would

welcome suggestions for a substitute.

In 1932, Standard Oil presented their suggestion, naturally a product off the oil industry shelf in the asphalt family. They titled the product Soil-Bitumen 1, which was an emulsified asphalt that could be added into the earthen mix to render a more weather-resistant material. The use of bitumens as amendments in mortars saw some extensive use during the1937-1940 period and it had intermittent use for some years following. One recognized weakness was attributed to its incompatibility with the high salt contents in the soils and waters which occurs in many Southwest areas. Also the admixture tended to discolor the earthen mortar. The discoloration is reduced over time through the effects of ultraviolet light. Bitumen mortars can still be found present in some ruin walls today, indicating at least partial success. Asphalt mixtures continued to be used by preservationists in different forms up into the late 1950s. It is relevant to note that contemporary stabilized and semi-stabilized adobe are manufactured with an aqueous-based asphalt emulsion. Asphalt-stabilized adobe bricks have become a commercial industry standard and have modern widespread use in new construction in New Mexico and other parts of the Southwest.

Looking beyond industry to academia, the National Park Service began a collaboration with Stanford University seeking to make its own preservative. An experimental vinyl resin, labeled NPSX, was the result. In early 1935, it was applied to the exterior façade and interior of the nave of the Tumacacori Mission. The results of these treatments remain unqualified and for whatever reason, the use of this material was not continued. Any reticence at applying experimental chemicals to historic walls is not in the record. Little documentation exists and if some scientific advances were made, they were lost. It is a recurring problem throughout the early history that many field trials were done but the lack of documentation as well as the lack of scientific methods being applied handicapped the process.

It seems that little progress in the research was recognized when in 1940 a meeting took place in Santa Fe resulting in The Report of Director's Committee on Ruins Stabilization. Members of the committee included Erik Reed, Dale King, Lyle Bennett, A.R. Kelley, Edmund Preece and Jesse Nusbaum. The work of Gordon Vivian and Al Lancaster and the others must have informed these discussions. Nusbaum provided the history of the topic. The final product resulted in policies and recommendations informing the field.

Among the points made was a comment regarding the 1908-1923 Fewkes period of influence. The general feeling of the group as noted in the Report was that Dr.Fewkes had "…deviated too far from aboriginal methods, exceeded justifiable limitation in matters of rebuilding, construction, and type restoration."

Fewkes presented his conjectural reconstructions as authentic and thus had stepped out-of-bounds. It is ironic that a person who argued so strongly for the preservation of ruins was ultimately viewed as one who exceeded the limits of acceptable standards of the time. This comment mirrors many over the years in which whatever philosophy is current casts a shadow over its predecessors. In reality, almost all treatments are a product of their respective times. They will nearly always be criticized from the vantage point of future knowledge and the experts of the times.

Cement capping installed at Aztec and Chaco was very unfavorably reviewed by this committee. The Committee declared in the Report that bitumen-stabilized soil demonstrated a positive value, stating, "It is highly probable that they will continue to occupy an important position in the family of techniques that may eventually be developed."

The 1940 Committee Report previously states, "The basic deficiency is material. It is highly probable that superior methods of application will quickly follow the development of suitable materials. Existing stabilization measures are founded almost entirely upon the use of native soils, cement mortar as capping, cement mortar and soil mortar masonry and, particularly at Chaco Canyon, native soil stabilized with bitumen. A single attempt to apply modern plastics was made between 1933 and 1935, which consisted largely of experimental work and which, failing to recognize the physics and mechanics inherent in the problem, resulted in little, if any, positive value."

In concluding this section of the Report, the Committee remarks, "[Existing Stabilization measures] must be supplemented by materials of different characteristics which probably will be found only in the developments of industrial chemistry. The resins, and silicon ester in particular, appear to offer hope of eventual solution."

The silicon ester (ethyl silicate) has in contemporary times become very useful in consolidating earthen resources, particularly surfaces.

Among the recommended policies in this document are the following:

> 8. Limited stabilization measures should be conspicuously distinct, particularly integral structural members or other devices that may be introduced under Limited Special. Subordination of appearance in Comprehensive Stabilization by means of concealment, coloration, and structural inconspicuousness is highly desirable. In general Related Stabilization measures should not attempt to simulate original construction but they should be harmonious and subordinated. While conforming to the requirements of obviousness, aboriginal materials and techniques shall be rigidly adhered to in Comprehensive Repair where the needs of preservation can be adequately satisfied.
>
> 9. Prehistoric and historic structures constitute scientific data. Scientists and the public must be able to discriminate aboriginal from altered conditions now and for all time. Although stabilization procedures are required to be distinguished clearly upon close examination, the permanency of these measures can not be assured. Therefore, they must be supported by complete recordation.

The Committee had the vision to realize that techniques and materials were deficient, and in the 1940s, the value of resins, plastics and silicon esters was recognized, but they were not researched until after World War II. One major recommendation was to equip and fund a mobile technical unit under the direction of an archeologist with assistance from an architect, to be manned primarily by Native Americans skilled in masonry work. This serves as a stamp of approval for the RSU which had already been functioning for a few years. Definitions were provided in the document in recognition of the fact that this area of work involved terminology outside normal construction lexicon. The committee also recognized the need to continually meet to revisit issues. It is unlikely that they met again due to the onset of WWII. During the waning years of the war, government officials looked ahead to what would be needed for the preservation of aboriginal ruins within the National Park Service system once the war was over. A call went out for statements showing comprehensive stabilization necessary under a Major Repair and Rehabilitation Program (also called Comprehensive Post-War Stabilization Program). As a part of this planning, portions of the Aztec ruin were designated for backfilling. The early recognition of this treatment option presages the emphasis placed on backfilling some fifty years later. In 1943, looking down on all these activities from his vantage point at the School of American Research, Edgar Lee Hewett wrote:

> In short, the preservation of these monuments means the establishment of sanctuaries where a spirit of reverence may abide. We will not put back a single block of stone more than is necessary to arrest destruction, I will let no work or hands deface the work of their builders nor belie the spirit that brought them; for that spirit lives in every chapel in our southwestern land and blesses simple native homes with the peace more precious than worldly wealth. When it is important for the information of the public, make a model of the building or a restoration on paper, clearly indicating where it is conjectural and let it go at that. Such is the spirit in which we regard our obligation to preserve and protect ancient monuments. In this spirit we have laid the foundation of a policy in Chaco Canyon, Pecos, Jemez, Abo, Quarai, and Grand Quivira.

Don Morris, NPS archeologist, reflected in 1977 on Hewett's comments that he was having a reaction against the reconstructions at Aztec, Wupatki and Kinishba. Hewett's strong comments also reflect a

similar philosophy corresponding to that of the nineteenth-century English conservationist and critic John Ruskin who advocated for restraint and respect for the remains of the past precluding all but the most modest intervention.

Hewett's statements seem to have had limited impact within the ranks of the NPS as major work continued.

At Tumacacori in 1946, Charlie Steen surveyed and identified adobe and plaster deterioration at the Mission and, in 1947, he returned with Al Lancaster to accomplish basal repair and crack filling which addressed the basic adobe problems. Basal repair and crack filling can be considered the "endless summer" of preservation treatments of earthen ruins, as these and capping deterioration are chronic conditions.

Recognition of the values associated with the decorated surfaces on lime plasters and washes inside the mission led to R. J. Gittens of Harvard's Fogg Museum coming to the site in 1949. He surveyed the painted surfaces, making recommendations for treatment, some of which later were accomplished by Steen. The chemical polyvinyl acetate, a common consolident in art conservation at the time, was used in the process which also included edging and cleaning of surfaces. This project represents a first in the Southwest for approaching decorated surfaces from the point of view of an art conservator.

The use of modern chemicals was not limited to this intervention, as Vivian is reported to have used a silicone "Daracone" (a silicone-based water-proofing product manufactured by Dewey and Almey Chemical Co.) during the 1950s. In 1951, a new member of the Mobile Unit, archeologist Roland Richert, was at work for Gordon Vivian. Together, these two forged ahead with many treatment programs. The Daracone applications were water-repellent surface treatments verses the acetate used at Tumacacori, which has consolidating properties. In 1955, Vivian wrote to Richert requesting that he purchase Daracone for use at Casa Grande and at Tumacacori. Experimental test walls he had constructed by the Mobile Unit at Chaco in 1954 convinced him that improvements were achieved in comparison to un-amended adobe. He was hosing down the walls with water to evaluate the treatment. History would show that Vivian and Richert were not treatment-averse or reticent to try things out. Time has shown that surface coatings such as Daracone typically resist direct water flow but perform less well under the influence of capillary water which is moving beneath the surface.

Richert and Vivian in the field

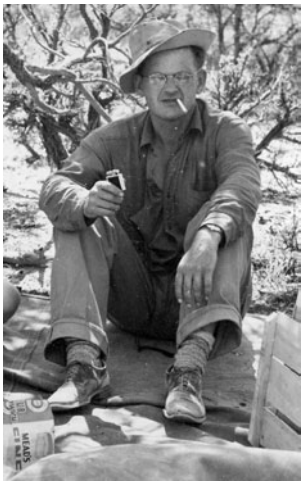
Richert is recorded as using soils strengthened with the bitumens, particularly where it was necessary to correct basal erosion. Later Richert began using Daraweld C (a polyvinyl acetate copolymer dispersion in water) in 1960 as a substitute for the Daracone and bitumens. Bitumens darken the soil mix and are recognizable. Throughout the history of treatments, amendments having no optical effects were continually sought. Daraweld C offered that characteristic, at least in its initial application, and it has continued to be used today as an earthen amendment at many sites. Its deterioration pattern is quite different from un-amended earth, but this fact did not become evident for many years. The rationale for the shift away from Daracone to the Daraweld C is not recorded or currently available in the record. Possibly the inherent differences between these products (Daraweld C may be both intermixed as well as applied to a surface while Daracone was a surface coating only) may explain part of the justification.

Daraweld C has continued in widespread use. It is manufactured as a concrete bonding agent that has been adapted for use in the preservation of earthen materials. NPS preservationists during this period were actively experimenting and achieving some success using it as an amendment as measured simply by field results. These products offered a level of weather resistance and the user therefore had some new products in his tool kit which he could use to prolong the inevitable.

Throughout the entire history of treatments, the use of soil cement (combinations of soil and Portland cement) appears over and over again. Its use may be traced back to the Fewkes work at Mesa Verde and it appears to be the one treatment type that surfaces and resurfaces in some cases and also has been continually used at some locations. As with other materials, it had not benefitted from thorough scientific scrutiny. The 1940 Committee comments reflect a general feeling that cement is not an adequate solution. From 1941 to 1946, A. E. Buchenburg is recorded as conducting controlled testing of soil cement at Wupatki National Monument. Between these dates, soil cements were being experimented with in various ways, in particular with mortars, and the results were deemed satisfactory. His tests were simply outdoor exposure tests of 6x10x3/4" brickettes of various formulations which were observed over time. As a result, soil cement attained a new level of legitimacy. It continues to be used today in various mixtures, as some parks have realized what they consider a satisfactory level of success.

In anticipation of the fiftieth anniversary of the founding of the NPS, in 1956 the National Park Service launched the Mission 66 Initiative to address long-standing deficiencies in the 179 units of the system. While this initiative was primarily focused on new construction enhancements such as visitor centers, roadways and the like, it did represent a large influx of resources to revive, repair and construct in parks throughout the system. New personnel were hired. Seventy new units were authorized. The expansion into Weatherhill Mesa at Mesa Verde became a major objective.

In 1960, Gordon Vivian decided that the bitumens and soil cements were unsatisfactory. In his opinion, it would be better to use unadulterated cement mortars tinted for compatibility. Unfortunately the background considerations for this decision are not available. At this point, Vivian had nearly thirty years' experience and his opinion must have carried some weight. Records show that the Ruins Stabilization Unit crew (ten Navajo men) led by Charlie Voll and Martin Mayer in 1965 were recorded as replacing bitumen mortars with tinted cement mortars. The distinction between soil cement mortar and cement mortar is simply that cement mortar meets an industrial standard and contains only clean washed sand free of soil. Vivian and Richert were practitioners who learned on the job. They took their cues from empirical field experience. Vivian's legacy and that of the RSU continued.



Vivian in 1953

The Ruins Stabilization Unit was located out of Tucson and it became a part of the Western Region in the 1971 reorganization of the NPS. Arizona, except for a few parks in the northeast corner, went to the Western region, while New Mexico stayed in the Southwest Region. The Unit worked primarily in Arizona parks but also continued to assist at Aztec to some extent. It functioned in a slowly declining manner until George Chambers and his assistant, the last operatives of the Unit, retired in the late 1980s. The shops at Casa Grande which Boss Pinkley had established served as their field staging and operations center.

During the next decades, illustrative examples offer a view of the times illustrating many fits and starts as well as measurable progress.

Even though it might be delayed, deterioration inevitably occurs and frustration emerges. Practitioners go after other answers. In 1971, University of Arizona soils scientist Daniel Evans was tasked with researching the moisture problems in the walls at Tumacacori. This endeavor marks a realization that underlying hydrologic processes are often at work at sites which likely affect masonry materials as moisture moves through capillary action. Rather than always treating the symptom, an effort to understand the depth of the problem emerged which led to treating the cause. Where is the source of the moisture? What is the quantity of the moisture? How does it move in the materials? What can be done to address the problem? A new era of the scientific process was emerging.

Following this line of thinking, a new comprehensive preservation approach was launched at Tumacacori

in 1975. The fundamentals of this approach included laboratory material analysis, recognition of the processes of deterioration, monitoring for rate of change, increased levels of documentation, a multi-disciplinary team approach and critical review. Treatments included the judicious application of conservation materials such as consolidents to conserve painted surfaces which could be scientifically evaluated following the program. A maintenance program was laid out and implemented at various levels. The consolident Acryloid B-72 (an acrylic resin used extensively in the art conservation world) was used in the project. Training programs and international partnerships occurred. Aspects of the project were published and many contributions toward a better understanding of earthen architecture preservation were made. Historical Architect Anthony Crosby of the Denver Service Center led the project.

In 1976, the Navajo Lands Group (NALA) was formed, working out of Farmington to provide preservation services to sites in the Southwest Region. Steve Adams, archeologist, served as Ruins Preservation Specialist for NALA which, at the time, consisted of a small crew of Navajo men from Chaco Canyon. Meanwhile, Archeologist Larry Nordby was hired at Pecos and he and Adams conducted "hands on" ruins preservation training workshops, primarily at Aztec. NALA is recorded as working at rehabilitation tasks at Aztec from May to November 1977 of what comprised the fifth season of a major stabilization program. They were providing a service the RSU (now being managed out of the Western Region) could no longer do. They undertook the usual relaying, recapping and repointing repairs to 34 rooms, five clan kivas and two rooms of the Great Kiva. Wherever possible, they knocked out loose tinted cement mortar that had discolored and replaced it with an amended soil mortar using "Wilhold" (a latex-based concrete adhesive which probably performed in a way similar to the Daraweld C.) Workers also took down the wooden roof and sides of a late nineteenth-century root cellar at Mound F. NALA operated much as the RSU had with specialists trained in historic preservation working with Navajo craftsmen traveling the Region to accomplish day labor preservation on sites. During these years, experiments with methyl methacrylate were undertaken at Glen Canyon and Navajo NM. NALA was disbanded not long after it was founded as the Southwest Cultural Resources Center (Division of Conservation under the direction of Dave Battle, Historical Architect) absorbed some of those responsibilities save what remnants still existed in the Tucson Office under the direction of Chambers. The use of traveling day labor crews which started out in Chaco during the Depression continued into the present through these various administrative changes because they provided a viable means to address preservation needs in the Southwest.

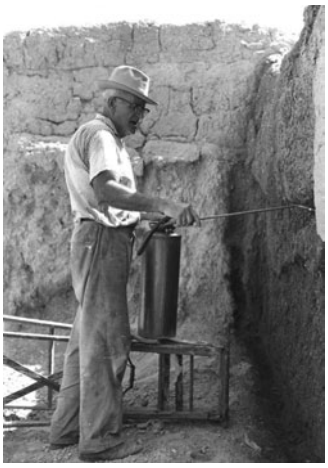
Preserving Earthen Western Forts and Missions

Earthen ruins exposed to the forces of nature present the most challenging of preservation problems and looking into some of the activities at several earthen sites can illustrate some of the most compelling issues including, to a lesser extent, stone sites. The history of preservation activity at Fort Union National Monument is very illustrative of the bold attempts to control natural forces, the fits and starts of preservation activity, and the cycles of treatment approaches. On April 4, 1956, Fort Union was designated a National Monument. A quote taken from the historical record of the nineteenth century stated: "Indeed, from the moment they were completed until their abandonment in 1891, the fort's adobe structures were in an almost constant state of unremitting deterioration."

A brief summary of preservation activity since the establishment of the Monument :

1956-1958: excavation and structural stabilization
1959-1962: capping with soil-cement adobes and spraying with silicone water repellent
1963-1980: applying soil-cement shelter coats and spraying with silicone water repellent
1981-present: application of unamended soil shelter coats
1996-2003: implementation of Preservation Action Plan, major recapping 100 percent of ruins
1999-2000: initial and limited application of Rhoplex-amended soil shelter coats

In the first season of Fort Union's becoming a National Monument, the NPS was ready to set work in motion, likely due to the effect of the Mission 66 Program. Under the supervision of archaeologist George Cattanach, a park-based preservation crew cleared rubble and debris from the base of the walls to return the grade to its historic level, regraded and installed drainpipes to direct water away from the walls, stabilized



Spraying adobe walls

chimneys by reinforcing them with angle iron and concrete, rebuilt corners and built buttresses where necessary to stabilize existing walls. The crew also spent time setting in motion experimentation with capping walls with various mixes and material combinations. But as it inevitably works in the NPS with personnel moving around the system, in August 1958, Cattanach left for work at Mesa Verde National Park. Archeologist Rex L. Wilson took over the supervision of the work at Fort Union. Excavation and structural stabilization continued with a focus of capping walls with soil-cement adobes and spraying adobe walls with the silicone water repellent (a five-percent solution of Dow Corning Silaneal 772 in water). Wilson also experimented with other proprietary silicone products and created two test walls he referred to as "Experimental Walls" to compare various water repellents. Remnants of these test walls could still be seen in the early 1990s. The exact formulation of the soil-cement bricks used for capping is not recorded by Wilson, but the 1988 draft "Preservation Plan" states: "Soil-cement adobes were made from a mixture of one-part cement, three-parts screened red sand and three-parts native adobe soil. In order to compensate for the light color [caused] by the addition of cement to the mixture, raw umber and burnt sienna pigment were added."

After the departure of Rex Wilson in August of 1961, the records indicate:

> The maintenance crew applied silicone coating to the walls that needed it twice a year, but the silicone created a thin, whitish film which was easily damaged by hail, and was regarded as unsatisfactory. In 1963...the collapse of several walls due to high winds renewed the search for more reliable methods of stabilization and preservation.

Resurfacing of adobe walls with a soil-cement shelter coat is noted about 1963 which is after Wilson had departed the site and maintenance/preservation fell to Superintendent Homer Hastings. Discontinuity of personnel and the continual frustrated search for a cure for adobe weathering is again illustrated by this switch to soil cement.

On June 22, 1972 the Southwest Regional Office produced its report, *Operations Evaluation of Fort Union National Monument* in the section entitled "Historic Resources Management" it stated:

> The present method of stabilization consists of capping wall tops with soil cement mortar colored to match the adobe and filling eroded places in adobe bricks with soil cement. The adobe walls are then sprayed with a water-soluble silicone solution called Silaneal 772 manufactured by Dow Corning Corporation to waterproof them. Following hail storms and strong rainstorms, the walls affected are re-sprayed to reseal cracks and fractures in the silicone seal. Each wall at the fort is treated this way on a five-year cycle. Original wood beams are treated with wood preservative every five years. Metal is painted with rust-resistant paint on in an "as-needed" basis.

The report also recommended that the maintenance staff: "…experiment with a capping and patching material of mud mixed with silicone instead of soil cement. This material will bind better to the old adobe and crack less."

Even though this statement indicates silicone as the additive, old timers on the staff at the park insisted that soil cement shelter coats continued to be used, as recorded by the Oliver Report of 1996.

In 1975, a new 100-gallon tank sprayer was purchased; its use is unspecified in the report, but it likely was destined for the application of silicone to the adobe walls.

Beginning in 1981, the maintenance staff at Fort Union created preservation plans for each year; the plans

were developed by inspecting the ruins and prioritizing the necessary work. A major change in preservation philosophy and practice also occurred. The maintenance staff abandoned the soil-cement and silicone regimen in favor of a return to "traditional" materials, namely the use of unamended soils for adobe blocks and shelter coats. This change came about due to regional influence from the Southwest Cultural Resources Center with *A Comprehensive Preservation Plan* that was developed prior to the start of the 1981 season with the assistance of Dave Battle, Regional Architect. The objectives of this plan were to:

> 1) return to the use of original materials in adobe and foundation work, rather than the cement and chemically stabilized material used in past years,
> 2) concentrate on repair of ruins whose condition constituted major safety hazards to employees and/or visitors, and
> 3) repair foundations where identity of entire buildings or of remaining adobe walls was about to be lost.

In 1987, Historical Architect Tony Crosby, working out of the Southwest Cultural Resources Center, and P. G. "Buzz" McHenry, a well-known adobe preservation architect, presented training in adobe preservation techniques at the fort, including the selection of proper soil, the manufacturing of adobe bricks, crack repairs and the mud plastering of walls.

A *Work Procedures Manual* and video resulted from the workshop and it served to direct park personnel in modified procedures for treating walls for several years. The *Manual* itemized the different work activities routinely undertaken by the maintenance staff, defined each activity and listed the recommended procedures to complete that activity. These activities included the repair of coving, holes and cracks, the removal of debris and weeds, the manufacture of adobe bricks, the reattachment of loose plaster, etc. It did not involve the use of chemicals or any type of stabilizers as it focused on technique and a heightened understanding of the capacity of earthen materials properly understood and used. Included were field methods for evaluating adobe materials.

In 1996, a new Preservation Action Plan was prepared and finalized as then-Superintendent Harry Myers refused to accept any loss of adobe; rather, he energized the staff and partners to develop a new preservation strategy. Since 1991, park and regional staff had been working in close collaboration with the Graduate Program in Historic Preservation at the University of Pennsylvania in which students, their professor, Frank Matero, and NPS personnel collaborated in a multi-year research, training and pilot treatment program focused on preserving detached lime plasters. This work evolved into the new agenda which set out to establish some baseline information:

> 1. chemical characterization of the historic materials
> 2. review deterioration history and past conservation treatment
> 3. conduct a structural survey and analysis of the walls
> 4. the establishment of a monitoring program for present and future assessment of conditions and
> 5. the design of a testing program of current and proposed treatments

The Action Plan represented a holistic approach for the preservation problems at the Fort. Ultimately, the value of this work was to redirect resources toward prioritized preservation needs that were established based on scientific findings. This focusing of resources provided the park with a rational method of approaching annual work and established priorities for that work. Primary was the realization of the value of the historic capping and how this had so significantly saved fabric. Certain walls, lintels and corners also played into the formula, as did weathering patterns and environmental influences. A realization emerged that magic formulas or new chemical products were unlikely to solve the age-old quandary of adobe deterioration; rather, focused routine maintenance would be required.

Located not far southwest of Fort Union, Pecos National Historical Park is a similar resource consisting of extensive exposed earthen ruins of the Spanish Colonial Mission and Convento which is located adjoining and on top of a major Puebloan earth and stone village site. Pecos has undergone a somewhat different

treatment history from Fort Union with no less energy and interventions attempted. The "Stabilization History of Pecos National Monument 1974 and Before" notes: "Since Bandelier's initial visit in 1880, hardly a decade has passed without someone excavating or stabilizing at Pecos."

The 1960s were a transition time for work at Pecos because for so many years so much had happened with a mixed record of documentation. It might be described as a huge problem in that momentum for construction of a visitor center and interpretation of resources was in place while the history and archeological research wasn't adequately available to provide the basis for interpretation. The transfer of Pecos from the State to the National Park Service in 1965 didn't help since record-keeping held by State and other repositories were not immediately accessed by the new NPS staff. Some natural confusion occurred.

Archeologist Jean Pinkley arrived on site in 1966 with extensive experience from working at Mesa Verde and also working with Al Lancaster. Jean was the daughter-in-law of the "Boss." She was tasked with the goal of excavating and stabilizing the ruins in a three-year plan. This dream eroded very soon and, by 1968, there was a Pecos Problem.

A level of frustration with developments there was emerging in management. Deputy Regional Director George Miller is quoted as saying, "Once you let those archeologists in, you can never get rid of them."

The project just got more complex and bigger and bigger by the day, although progress was being made. During these years, the Lancaster method of combining excavation with stabilization was followed. This method offers the positive value of assuring maximum reliability regarding fine details of reconstruction which could easily be neglected in delayed stabilization. This method was personnel-dependent, relying on the skills of Lancaster. By mid-fall, Ruins Stabilization Foreman Al Decker and his four-man Navajo crew had completed the excavated portion of Site 620. By mid-summer 1969, the final excavation and stabilization had been completed, making the site ready for interpretation and public visitation. Jean Pinkley died of a heart attack in 1969 and it became evident that she had left the same problem she had inherited: little available documentation and limited available records. That same year, Richert capped Convento walls with soil cement adobes and later, in 1970, Soil Seal bricks are recorded being applied to the West Convento wall by park Historian Frank Wilson. Soil Seal (methyl acrylic polymer) is first recorded being tried by Charlie Steen. Steen is recorded as having built test walls using Soil Seal amended bricks in 1970 and 1971. The test walls were constructed after field trials, which seems backwards, but was par for the course during these times. The use of the colorless additives versus cement offered a way to treat the ruins so that the repairs were less apparent and jarring to the viewer. Lancaster's approach was to make the repairs disappear and this method influenced the others.

Lancaster and Navajo crew

The Pecos experience until 1974 demonstrates a transition away from soil cement and toward chemical stabilization. It also incorporated all the frustrations inherent in the use of these materials. After initial failures using Pencapsula (polyurethane emulsion) as a spray applied to walls, in 1969 Pinkley and Richert began applying a veneer and cap which essentially encapsulated the walls with adobe, typically modified in some way. This solution has been retained until today.

After Pinkley and during the period of 1971 to 1974, archeologist Gary Matlock was in charge at Pecos. In 1974 Matlock wrote, "But I think that the basic problem then and even now, remains the same. We do not yet know how to stabilize and preserve exposed adobe or earth walls. A lot of people in and out of the Park Service have and are working on the problem and progress is being made, but we have a long way to go."

In Matlock's statement, the sense of hope for clear coatings and chemicals is sustained. The use of soil

cement had been discontinued in favor of colorless amendments. Thus the desire for a permanent maintenance-free hard mortar, capping and surface treatment was replaced by a goal to develop an earthen mortar, brick and plaster which would be more compatible both visually and materially than cement and soil cements modified materials did.

The confidence gained by the field performance of the Soil Seal test walls led to a campaign to replace the earlier soil cement bricks. The effect of these new veneer bricks was more in keeping with the historic materials in color and texture. The color, texture and general incompatible appearance of Pinkley's earlier soil cement bricks caused the response. In 1972, Matlock records using Acryl 60 (an acrylic emulsion) in bricks and the use of better quality soil. The philosophy behind using these colorless amendments was stated by Matlock: "And while it is desirable to have stabilized material clearly different from the original, if the distinction is too great, stabilized material becomes an ugly intrusion."

In addition, recognition of moisture being trapped under soil cement caps and changing color under wet conditions led to moving away from cement use. During Matlock's tenure, he summarized the guiding precepts for the work:"…to preserve the original, find new material solutions, maintain character using authentic materials, not cement, stabilize with interpretation in mind and recognize the need for constant maintenance."

One missing concept in Matlock's statement is how to deal effectively with identifying the authentic from the repair.

Science Applied in Seeking Chemical Solutions

Scientific validation of colorless amendments took one step forward when, in 1971, Dr. Darrel Butterbaugh, a retired chemist from Rohm and Haas Corporation (the producer of Rhoplex), volunteered as a Research Associate for the Museum of Applied Science Center for Archeology, University Museum, University of Pennsylvania, Philadelphia. After visiting Casa Grande, he initiated a program of research and testing seeking a chemical solution for exposed earthen architecture. He initiated this program in 1973 at Pecos and Chaco. Butterbaugh initiated consideration of numerous new chemicals including the acrylic emulsion Rhoplex, a cement amendment developed for the construction industry. It's not very surprising that Rhoplex was his preferred ingredient, considering his background. At Chaco, Butterbaugh tested materials on pithouse sites, Lizard House and Pueblo del Arroyo. In 1975, Butterbaugh placed two Rhoplex E-330 amended adobe bricks on the roof of the University Museum at UPenn. They were reported as being still there and in good condition during the mid 1990's in the course of a round of research into Rhoplex use being conducted at that time.

A benchmark for treatments was the *Handbook Ruins Stabilization in the Southwestern United States* compiled by Roland Von S. Richert and R. Gordon Vivian and published in 1974. This 168-page soft-cover book thoroughly discussed precise stabilization measures, materials and techniques of the times. It is an update of Vivian's 1968 publication which followed the 1949 version. Oddly, in 1962 the NPS put out the *Handbook for Ruins Stabilization, Part 2 – Field Methods* with the proviso that Part 1 would come later. They wanted to get the materials and methods part out as soon as possible. The 1974 publication was more formalized and also served to commemorate the distinguished career of Gordon Vivian, who died before it was published. Not only does this book lay out prescriptive solutions but it serves today to illustrate the many treatments used during the fifties, sixties and into the seventies. Reinforced cast-in-place concrete used to stabilize historic earth and stone masonry units is amply represented.

The search for solutions in the university setting continued. In 1974, James Kriegh and Hassan Sultan, two civil engineering professors at the University of Arizona, entered into a research agreement with the NPS to study problems of earthen architecture and to recommend solutions. Fort Bowie and Casa Grande were selected as focus sites for their work. They published results of lab work testing chemical treatments of adobe. They tested twenty combinations of chemicals including the Rhoplex E-330 that Butterbaugh had launched. Sultan was instrumental in developing F325–Adobeseal (an ionized extended water miscible

polysiloxane). A field test was applied at Fort Bowie in February of 1974 which was followed by wholesale treatment in May during which time 20,000 sq. ft. were surface-treated by spraying as many as three coats of this material all over exposed adobe walls. The enthusiasm for this and other chemicals was not shared by all. Their plans for Casa Grande which amounted to honeycomb drilling and installations of epoxy-embedded rods was fortunately rejected. Using engineers to seek solutions for conservation problems in these cases was something of a mismatch. The relationship with Sultan and Kreigh wasn't sustained for the long-term.

In late 1974 and early 1975, a series of memoranda circulated between the Washington Office, the Southwest Regional Office, the Western Regional Office, the Navajo Lands Groups and others concerning the use of modern materials eventually leading to a moratorium as well as a testing program. On Oct. 18, 1974, WASO Assistant Director, Park Historic Preservation, Bob Utley wrote, "We have observed the use of many modern materials in the restoration and maintenance of our historic structures which have questionable value and which in many cases do permanent damage."

He announced a program of research with the National Bureau of Standards in which testing of materials would be accomplished and reported on using WASO as a clearing house for information. James Clifton's work including publications in 1977 and 1978 on adobe were two such studies accomplished that have contributed substantially to the field.

In 1975, Dr. Dennis Fenn, soils scientist at the University of Arizona, was engaged by the NPS through a cooperative agreement to initiate a testing program to seek scientific solutions for the problem of preserving earthen materials in ruins (the by-now familiar refrain since the '30s once again is used to launch a program). Applying soils science to a soils problem gets a lot closer to the issue than using engineers to come up with solutions. This reflects some critical thinking on the part of management. Fenn's approach was to build test walls on-site to which would be applied various chemicals. He began at Chaco in 1976 constructing a group of test walls in which he tried seventeen various chemicals including Rhoplex as mortar amendments (picking up where Butterbaugh left off). The site is commonly known as "Kin Fenn" (Navajo for Fenn's house). This materials test incorporated a variety of promising mortar amendments including those that had been used in the past. Each material tested was exposed to all directions and interior and exterior of rooms, all of which received accelerated weathering in the form of applied moisture. He expanded his testing program in Chaco and to other sites as well. Test walls were put up at Casa Grande, Tumacacori, Fort Bowie and Bents Old Fort. He reported in 1978 making recommendations including for the use of Rhoplex as an amendment. In 1979, he revisited the Chaco test walls and reaffirmed his findings. A team, including the author, revisited those walls with Dr. Fenn in 2004 and he proclaimed that all the results remained essentially the same after more than twenty years of exposure. The walls remain as a testament to the validity of his findings. Amended mortars in wall surfaces that do not receive direct rainfall appear clearly to perform better than un-amended mortars. This same statement can not be applied to capping because the direct damage caused by rain and snow on caps has proven to negatively affect the emulsion-modified soils much more than in the more protected joints below.

Casa Grande test walls

Based on these studies, the acrylic emulsion Rhoplex E-330, along with Daraweld C, were verified through these field tests to be useful as amendments for earthen mortars as proven by the Chaco test walls. These water-based emulsions were able to strengthen mortar and still allow a degree of transmission of water vapor through of the mortar. Rhoplex E-330 was initially used in the stabilization of Wijiji Ruin at Chaco. Once the National Park Service gave its tacit approval for the use of Rhoplex at Wijiji, the application of this chemical in ruins stabilization spread rapidly. The undercurrent here is that among practitioners and managers there continued to be a desire to find a product which when added to earthen materials would provide an increased level of sustainability. Fenn's unofficial stamp of approval provided a kind of green

light even though in his reports he is very guarded about his recommendations and states the findings are for internal use only. From then into the 1980s, Rhoplex was widely used. With this expanded use came some problems since all of the behavioral characteristics of this product were not well understood. Problems due to inappropriate use occurred in performance, sometimes with very quick failures. In the late 1980s, a representative from Rohm and Haas, the company that manufactures Rhoplex, was invited to a National Park Service ruins preservation training course which served to provide some parameters for the correct use of Rhoplex. Later in the 1990s, lab research was conducted which provided parks with hard scientific data and improved guidelines for using this material.

The history that unfolded at Fort Bowie illustrates the application of knowledge gained elsewhere that may not have been informed by the site characteristics at the Fort. In 1977, as a result of limited field evaluations at the Fort, a new direction was taken which further indicates practitioners trying to eradicate cement use. The historic structures preservation guide stated: "The preservation of above grade adobe ruins will comprise complete removal of soil cement caps, veneer, basal erosion fill, and reconstruction."

In 1978, work to remove the caps was undertaken in earnest. Measurement of damage and scientific evaluation of deterioration caused by the cement was not undertaken. An account of the decision to take this action is not clear beyond the decision to use only compatible materials and allow the site to better conform with the intended "abandoned" description that is in the founding legislation. The growing dislike for Portland cement generally is likely the motivation for all this work. This action is in sharp contrast to the developments at Fort Union where not only were the soil cement caps shown to have performed admirably for nearly forty years but, in the 1990s, the decision was made to replace these caps in a similar manner. Fort Bowie has suffered serious losses since the caps were removed and ultimately lime plaster shelter coats (starting in 1988) have been applied to forestall deterioration of historic fabric which continued to erode unprotected.

Philosophical discussion about what to do with ruins surely permeated these times. There are not many written expressions available but one helps to shed light on prevailing thought. In 1977, Don Morris, archeologist at WACC, wrote in his draft "Pre-Stabilization Standards,"

> …[in] United States National Park Service policy developed in 1940 and current today, obligations to science as well as the public necessitate a firm policy of no modifications to unexcavated sites. Maintenance of those sites unmodified may involve, however limited stabilization [and] stabilization work should be held to a minimum necessary for adequate preservation with a minimum impairment of the site. Stabilization inevitably involves some alteration of the fabric of the original prehistoric material. These alterations are often subtle and very likely more significant than anticipated.

In 1979, *A Study of Historic Preservation in the National Park System* prepared by the Management Consulting Division and Cultural Resources Management Division, WASO came out and, among its recommendations was the establishment of cultural resource centers in the regions where personnel resources could be centered to better assist parks. The Southwest Cultural Resources Center had already been formed and one of the many recommendations for activities was to provide guidelines to the field. Archeologist Larry Nordby, working out of the SWCRC anthropology program, was guiding field ruins treatments while archeologist Steve Adams was doing the same thing for the Navajo Lands group (NALA). NALA was a kind of an offshoot of the RSU, working within the confines of the Southwest Region. Together these two, with other assistance, conducted ruins training workshops. When NALA disbanded, the only day labor group left was operating out of the Center. The concept of a mobile unit to serve small isolated parks was the same as that which had started in 1936. The very simple justification for this activity was the special nature of the work coupled with the high cost of bringing contractors to remote locations.

Central office command and control mechanisms were in place and operative. On Dec. 13, 1984, a moratorium went out from the Acting Regional Director of the Western Region to only allow Portland cement to be used for emergency structural purposes. He wrote, "In short, cement will be used only where the struc-

tural integrity of the architectural features is so impaired that collapse of the historic material is eminent."

The vilification of Portland cement was proclaimed. It is certain that not everyone heard and obeyed the command.

Partnerships, NAGPRA, and the VT Program

In 1965, the University of Colorado Archeological Research Center was set up at Mesa Verde using a fifteen-year cooperative agreement. Robert Lister was named Director. With his extensive NPS experience, using Al Lancaster to work alongside students and Dave Breternitz to run the field programs, the Center launched a partnering program affecting and educating many of the SW archeologists working today in and outside the Service. This agreement formalized a process which had been underway at Mesa Verde for some years already.

In the late 1980s, Chaco embarked on an ambitious program of site reburial (backfilling). Not long afterward, Aztec began a process of reducing the exposure of major portions of their resources by partial backfilling selected areas of West Ruin. In the early 1990s, at about the same time as the Native American Graves Protection and Repatriation Act (NAGPRA) was being enacted, plans were underway to rebury Rainbow House at Bandelier National Monument. This project may be the first in the NPS during which the backfill program designed within methods for the repatriation of human remains and funerary objects incorporated which complied with NAGPRA.

The NAGPRA law of 1990 and the effect this has had on the treatment and interpretation of Native American Ancestral Sites can not be overstated. The effect of this law has been that Native American stakeholders have been involved in direct consultation on many issues concerning site treatments at sites to which they have heritage relationships. A century of work had gone on at sites with direct relationships to various existing tribes, yet seldom if ever did consultation take place. In most cases, a complete about-face occurred with regard to consultation processes and the relationship between tribes and the NPS.

In 1988, a joint NPS and State of New Mexico architectural conservation laboratory heavily focused on earthen materials was started in the Santa Fe NPS office using collaboration and partnership between the State of New Mexico and the Southwest Cultural Resources Center. The lab provided practitioners with an additional tool to analyze materials, deterioration mechanisms and potential treatments at a deeper level beyond the simple field observation.

In 1990, the International Conference on the Preservation of Earthen Architecture co-sponsored by the NPS, State of New Mexico, US/ICOMOS and the Getty Conservation Institute was held in Las Cruces, New Mexico. One major focus of this meeting was the presentation of extensive test walls constructed at Fort Seldon State Monument by the Getty Conservation Institute in which many of the same chemicals that the Park Service had been experimenting with were again subjected to yet another battery of field trials. The results of this program mirrored the earlier NPS conclusion in that a magic bullet to preserve earthen architecture had yet to be discovered. The Getty Conservation Institute has continued to be a partner to the NPS with many ventures including resource studies at Chaco and partnering for three seminal conferences on Sheltering Archeological Sites (2001), Reburying Archeological Sites (2004) and Treatments for Decorated Surfaces of Earthen Sites (2006).

Out of the meetings in Las Cruces, a partnership between the NPS and the Architectural Conservation Laboratory (ACL) in the School of Design (Director: Frank G. Matero) at the University of Pennsylvania was conceived in late 1990 and launched in 1991 with the fundamental idea to revive the 1930s' concept of "parks as classrooms." With the beginning of a trend to shrink the size of government and the following reduction of in-house capability, the NPS was looking at partnerships as a way of accomplishing work. This trend has expanded into the new century with vigor as an extensive network of nationwide Cooperative Extension Studies Units has been set up at key universities which provides access to university assistance with research, treatment development, training and project work for students.

The first of the ACL field schools got under way during the summer of 1992 at Fort Union and Fort Davis, focusing on the problem of detached lime plasters on earthen substrates. These represented a large resource typology which was not being addressed largely due to a lack of research, skill, methods and material knowledge. Conserving these authentic fragments of decorated and undecorated lime plaster on adobe walls was one of the first challenges undertaken by the university. Three consecutive five-year agreements were signed and executed during which research, training and pilot work was undertaken first at these two parks and then at others. Through a process of research and laboratory testing, building slowly on a knowledge base year by year, these and other difficult treatment problems began to be addressed. As the process advanced, graduates went to work in parks on other issues and challenges they addressed in the university lab. Those research agendas continue today using the CESU process.

From the early work on lime plasters, the university began to look at even more difficult problems of earthen surfaces, decorated and not, at Bandelier, Casa Grande and, ultimately, at Mesa Verde. Mesa Verde work continues through today, advancing research and pilot treatments. Year after year, graduate students participated by engaging in the nuances of these challenging research questions through the masters thesis process, each building on the advances made by their predecessors. A considerable body of work has emerged which at this point is internationally recognized. Three examples of this kind of research effort resulting in a direct resource effect were Anne Oliver's work on the San Antonio Mission San Jose Convento stone column, Bob Hartzler's work on Rhoplex, and Elisa Del Bono and Kecia Fong's work on the material analyses of Casa Grande.

Oliver's research and follow-up treatment of the column at Mission San Jose (1993) established a protocol of treating sandstone with consolidents and water-repellents separately which provided the basis for a process to save the extremely deteriorated column through limited reintegration, consolidation and, finally, repellent application. In 1996, Bob Hartzler published his thesis research on Rhoplex which established and clarified the behavior of this material so that users could finally clearly understand field attributes. This study showed that if properly used under controlled conditions and with the correctly balanced soil materials, benefits can be achieved. As stated elsewhere, Rhoplex continues to be the amendment of choice in many Southwest sites. Elisa Del Bono in 1999 completed her "Characterization and Analysis of the Caliche Walls of the Great House, Casa Grande Ruins National Monument, Coolidge, Arizona." In her work, Del Bono showed through lab analysis that carbonate-rich substrates have been enriching the surface layer of the Great House thereby creating a kind of case-hardening of that surface. In essence, her lab work demonstrated that capillary moisture migrating to the surface of the walls in the evaporative process was depositing a residue of carbonates at the molecular level to enrich this surface. This remarkable conclusion demonstrated that when building materials inherently provide the level of protection needed, a hands-off approach may be advised.

In 1993, two facility managers and an archeologist from their respective parks (Salinas, Aztec and Chaco) began discussing maintenance backlogs as well as problems in ruins preservation due to the decade or so of adverse changes that had been taking place, including the disbanding of the Mobile Unit, retirements of skilled personnel working on ruins, misperceptions about archeological site resources and where ruins preservation fit into the overall Cultural Resource Management (CRM) process, among other problems creating a crisis for these resources. These NPS staff got Vanishing Treasures (VT) started. It was envisioned as a corrective program to improve CRM in this area of work. The focus would be documentation of rate of change to demonstrate the seriousness of the problem, to foster an atmosphere for training within the ranks so that those retiring could impart their knowledge to new and younger hires, and to seek funding for personnel and projects. This initiative took off and by 1998, VT realized its first full year of funding. After ten years of existence, the initiative has become a full Program established in the Intermountain Region which continues to operate largely for its original purposes.

The creation of the Vanishing Treasures Initiative coincided with the reorganization of the Regional Offices and the ultimate dissolution of the Southwest Cultural Resources Center and many of the various divisions within. Ultimately the Southwest Region was joined with the Rocky Mountain Region and parts of the

Western Region with the establishment of the Intermountain Region in a nationwide reorganization of the NPS. Day labor crews and project work being conducted out of the regional office were ultimately reduced with the emergence of a new agenda that was park-based. Central office command and control was over. The Ruins Stabilization Unit that started in the 30's and morphed from being park-based to regional office-based ultimately found itself back in a park being assigned to Bandelier in 2007.

In 1997, the VT Initiative drafted Guidelines for Ruins Stabilization. This document was never finalized and approved. The 1997 document drew heavily upon an earlier text, *The 1988 Ruins Stabilization Report Technical Series No. 51 - Ruins Stabilization: A Handbook* , by Todd R. Metzger. Prior to these works, the volume *Ruins Stabilization in the Southwestern United States* compiled by Roland Von S. Richert and R. Gordon Vivian in 1974 (based upon a 1962 revision of Vivian's 1949 ruins stabilization manual) served to provide the field with working guidelines. The Vanishing Treasures Program has evolved and, due to vigilance in publishing an annual report each year in which funding allocations are scrupulously documented, the program continues to thrive. Some highlights of the emerging program are: documentation of projects and outcomes, sharing resources internally and externally, involving the larger scientific and preservation community to address needs and developing and applying new methods of documentation.

In sum, attempting to slow down the effects of nature and physics on ruins deterioration provides a challenge requiring knowledge of the past and the utilization of diverse methods and materials. There can be no single solution to all of our preservation problems. In the visionary words of the 1940s Director's Committee on Ruins Preservation:

> Stabilization may be said to be standing, gaunt and lean, among a multiplicity of unapplied techniques. The urgent need is exploratory study to determine applicable materials and their use in the light of modern conceptions of material physics and mechanics. Only in this way can progress be carried forward to that goal of preservation required by the organic legislation establishing the Service."

Comments on Major Historical Trends and Developments

Likely the most profound and beneficial shift in emphasis over the more than a century of archeological site management has been the shift from recovery archeology to archeology and preservation and, ultimately, the shift to applied conservation and non-destructive archeology. In current times, archeological excavations are virtually limited to mitigation only. The early days of plundering sites was immensely destructive to resources. Even though these activities continue illegally, many safeguards are now in place to protect sites. Ultimately the value of preserved sites is the information inherent in the sites which benefits the visitor and scholar. The thread of history and knowledge inherent in the archeology grows with time as new techniques and knowledge emerge to better document, sort and evaluate the information. The Pecos conference started a process which continues to enrich the record year by year.

The development of site and fabric preservation treatment programs has evolved from the fundamentals as they were first simply and eloquently established at Casa Grande in 1891. A list includes:

- sheltering resources such as first accomplished at Casa Grande
- reconstruction of the roof at Tumacacori and subsequent reconstruction of roofs at Fort Davis forty years later
- the stone and earth wall stabilization at ancestral Puebloan sites which has evolved in very complex ways and more often than not is appropriately unique to each site
- the many uses of modern and modified building materials for stabilization purposes including the early use of Portland cement and the introduction of soil cement; other modifiers such as bitumens, later synthetic emulsion modifiers, the use of un-amended earthen materials, cycles of material use
- the slow steady move toward the application of scientific methods to best define behavior
- the Fort Union Preservation Action Plan and subsequent treatment program including the re-cap-

ping of walls
- the re-burial (backfilling) programs throughout the Region as typified by the leadership of those at Aztec and Chaco
- realization of the growing awareness on the part of the visiting public who respect authenticity which has helped to focus practitioners on preservation rather than restoration

A seminal part of this history are the legislative actions which have originated in Congress to provide the legal basis for the work. These include the Antiquities Act of 1906, The Historic Sites Acts of 1935, the National Historic Preservation Acts 1966, as amended, and The Native American Graves Repatriation Act in 1990. In addition, many other international charters and acts have added to understanding the many and varied aspects of preserving archeological sites. One result of the legislation has been increased and improved consultation which has improved site interpretation and expanded the influence of stakeholders.

Partnering between agencies and use of field schools which have evolved from the early activities of Edgar Lee Hewett through to Lister and then Matero has had a major impact on preservation development. Beyond the direct benefits of accomplishing research and training coupled with solving field problems, there now exists a by-product: expanding the constituent base by involving the public sector in the preservation agenda for sites. Often the students from these field schools have found work in the NPS. Gordon Vivian's thirty-year career is a good first example.

Professionalism in the National Park Service got off to a good start in the hiring of staff during the 1930 Depression-era programs. The Mobile Unit out of Chaco which later moved to Globe, AZ and ultimately split off to Farmington, NM, is a good example. Two very different but important individuals were Gordon Vivian and Al Lancaster who hired into the Service during the '30s and devoted their entire careers to this work. In the 1950s, the Mission 66 program resulted in the further internal enlargement of professional staff to accomplish preservation work. It continues today as historic preservation has advanced in the academic sphere as a legitimate profession. Many Universities offer MS and MA programs in historic preservation. Graduate certificates in Archeological Site Management are now available at several institutions. The University of Delaware offers a Doctorate in Historic Preservation. More and more highly educated and trained individuals are finding work in the field and some in the ranks of the National Park Service. These professionals advance the capability of staff to deal with increasingly complex, technical, legal and philosophical issues. The advance of these educational influences has not diminished the influence of traditional practices in preserving architecture.

Technology has also influenced the work in many ways. Photography became a part of early documentation and the advent of computers along with digitalization has provided many new venues for managing an ever-increasing amount of complex data. Internet resources and more sophisticated software continue to increase our capabilities, and thus transform the work of resource management. One downside to this new development is the potential loss of data due to digitalization. The shift in the mid-1990s to digital media from the formal written correspondence left open the possibility of losing large amounts of important information since record keeping is no longer controlled by or located in central office files; it's entirely individual driven. So while capability has advanced, the insurance of finding information has declined.

Since the early days of the first handful of National Monuments, now forty-five parks now participate in the VT program, almost double the number Boss Pinkley was responsible for at the end of his career. The entire National Park system has also continued to enlarge, increasing the responsibilities of resource personnel year by year. Growth of the National Park System can be directly related to increasing visitation and population growth. A by-product of the increase in visitation to parks is the crisis of carrying capacity for ruins. Nowhere can this be highlighted better than in the Superintendent's report in 1965 on Mesa Verde: "...facilities are showing the effects of the strain...the ruins most of all. . .Limit the trips to Balcony House as this prehistoric gem has more than reached the breaking point. . ..At Cliff Palace. . .with hundreds of people per hour and rangers being forced to yell above the racket, interpretation. . .is rapidly becoming a farce."

Ultimately in 1967 a limitation on tour size was instituted which empowered management to control this

very negative impact.

Many changes occurred over the years and changes continue but the fundamentals remain much the same and the issues which surfaced in 1892 are very similar to the ones we face today. Research potential continues to grow exponentially. Treatment programs reflect the times, skills, knowledge and abilities of those applying them. Usually they are correct for their times and in retrospect can be easily criticized from the viewpoint of new knowledge and findings. There are no magic bullets and there are not likely to be any in the future. There is no substitute for good maintenance, dedication, hard work and integrity of approach.

The following, from an unknown source, sums up the prevailing VT philosophy:

"Do as little as possible, as much as is necessary."

Fort Union National Monument capping in 2000

Key Events and Founding Dates of Monuments and Parks

Currently forty-five parks in the arid West are within the jurisdiction of the Vanishing Treasures Program. Following are dates for the establishment of these parks and some other dates significant to resource preservation and management:

1879 Founding of Archeological Institute of America
1880 Adolf Bandelier began visiting sites in the Southwest
1888 Richard Wetherhill and Charlie Mason first set eyes on Cliff Palace
1892 Casa Grande Ruin Reservation
1893 Grand Canyon Forest Reserve
1902 Edgar Hewett mapped sites at Chaco
1904 Hewett's Memorandum to Congress concerning the historic and pre-historic ruins of Arizona, New Mexico, Colorado, Utah and their Preservation. He wrote, "It will be a lasting reproach to our government if it does not use its power to restrain the destruction of ruins."
1906 Antiquities Act
1906 Montezuma Castle National Monument
Petrified Forest National Monument
El Morro National Monument
Mesa Verde National Park (now listed as a World Heritage Site)
1907 Tonto National Monument
Chaco Canyon National Monument (later to become Chaco Culture National Historical Park, now listed as a World Heritage Site)
Gila Cliff Dwelling National Monument
The School of American Research (SAR) founded by Hewett
Jesse Walker Fewkes starts to work at Casa Grande
1908 Natural Bridges National Monument
Tumacacori National Monument
Grand Canyon National Monument
1909 Navajo National Monument
Gran Quivira National Monument established (now Salinas Pueblo Missions)
Zion National Park (proclaimed as Mukuntuweap, NM and later incorporated as Zion, NM in 1918; established as a National Park in 1919)
1910 Richard Wetherill shot dead at Chaco
Jesse Nusbaum rebuilt the roof on the Kiva in Ceremonial Cave at Bandelier
1911 Colorado National Monument
1915 Walnut Canyon National Monument
Dinosaur National Monument
1916 Bandelier National Monument
Organic Act passed by Congress establishing the National Park Service
1918 Grand Canyon National Park (now listed as a World Heritage Site)
1920 Ken Chapman rebuilt a cliff dwelling "Talus House" at Bandelier.
1923 Hovenweep National Monument
Frank Pinkley chosen as Superintendent of Southwestern National Monuments
1924 Wupatki National Monument
Aztec Ruins National Monument
1925 At Chaco, Boss Pinkley, who by this time was well in charge of the Southwest Monuments, saw to the stabilization of Pueblo Bonito with field assistance from Martin Jackson, who continued in 1928 with the work
1927 First Pecos Conference
1929 Arches National Park
1930 Jesse Walter Fewkes died at the age of 80
1931 Canyon De Chelly National Monument
1933 Saguaro National Park

Death Valley National Monument
Region 3 (later to become the Southwest Region) established in Santa Fe, NM
The Historic American Building Survey (HABS) program started
1934 A section of pictograph was glassed in to preserve it at Bandelier's Long House
1934 J.F. Motz is recorded as using soil cement mortar at WUPA and soil cement can also be traced to TUZI in 1935 in a project supervised by Spicer and Caywood
1935 Big Bend National Park
The Historic Sites Act
Ruins Stabilization Unit started at Chaco
Earl Morris completes the Great Kiva reconstruction at Aztec
1936 Joshua Tree National Monument
1937 Organ Pipe Cactus National Monument
Capitol Reef National Park
A routine ruins stabilization program initiated at Bandelier by J.W. Hendron; Robert Lister participated
1938 Fort Laramie National Monument
1939 Tuzigoot National Monument
1939-1940 William Witkind excavated, stabilized, reconstructed ruins at Pecos using CCC who manufactured adobes from historic remains sometimes modified with asphalt emulsion
1940 Frank "Boss" Pinkley had a heart attack and died on the job
1942 Southwestern National Monuments moves to Santa Fe from Casa Grande
1946 Edgar Lee Hewett died
Charlie Steen tested Ethyl Silicate at Casa Grande
1952 Coronado National Monument
Southwestern National Monuments moved from Santa Fe to Globe, AZ
1954 Fort Union National Monument
1954 Ray Rigenback photographed at Tumacacori spraying ethyl silicate on the school house walls
1956 The Mobile Unit was renamed the Ruins Stabilization Unit and was moved to Globe, AZ with Gordon Vivian was still directing it
Mission 66 Program launched
Archeologist George Cattanach began clearing the site and applying preservation treatments at Fort Union
1957 Roland Richert, Field Director for the RSU installed sheltering roofs over eleven prehistoric ones at AZRU.
- Southwestern National Monuments ceased operation with some functions and personnel relocated to the Southwestern Archeological Center
- Cattanach began experimenting with water repellents on adobe walls at Fort Union
1958-60 Rex Wilson took over from Cattanach and continued spray on treatments; installed soil cement caps on walls (FOUN)
1958-66 Gordon Vivian served as Chief, Southwest Archeological Center in Globe, AZ
1961 Fort Davis National Historical Site
1962 *Prehistoric Ruins Stabilization Handbook- Part 2, Field Methods* published
1963 Fort Davis began reroofing ruins utilizing concrete bond beams to stabilize wall tops and support rafters thereby protecting ruins
1964 Canyonlands National Park
Fort Bowie National Historic Site
1965 Pecos National Monument
Lake Meredith National Recreation Area
Golden Spike National Historic Site
- The Archeological Research Center was established at Mesa Verde National Park by Dr. Robert Lister
1966 Guadalupe Mountains National Park
- The National Historic Preservation Act (NHPA)

1967 Archeologist Don Morris and RSU Chief Roland Richert visited Fort Bowie and made major stabilization recommendations including the addition of soil cement caps. Chaco crews were used to accomplish the work.
1968 Don Morris revisited Fort Bowie and determined that Pencapsula (polyurethane resin) applications were a failure as the polymer-saturated layer was sloughing off
1971 The Establishment of the Chaco Center (NPS & UNM) under the direction of Dr. Robert Lister and Dr. James Judge
1971 Perry Borchers began to record sites using photogrammetry followed by laboratory-created drawings based on photo work
1972 Glen Canyon National Recreation Area
1974 *Ruins Stabilization in the Southwestern United States,* by Richert & Vivian published
1977 The Southwest Cultural Resources Center, Santa Fe was founded
Wilcox and Shenk published *The Architecture of The Casa Grande and Its Interpretation*, including detailed drawings and photography of the walls of the ruin (a benchmark for documentation)
James Clifton published *Preservation of Historic Adobe Structures: A Status Report*, (National Bureau of Standards), in which he stated, "Existence of a universal preservation material or process is doubtful. . . ."
1978 San Antonio Missions National Historical Park
- Clifton and Robbins published a second volume for the National Bureau of Standards entitled, *Methods for Characterizing Adobe Materials*
- *Lab Assessment of Soil Cement Mortars,* by Fenn et. al. published
1981 Todd E. Rutenbeck, structural engineer with the Division of Adobe/Stone Conservation at the Western Archeological and Conservation Center, Tucson, Arizona published an article on Monitoring Structural Movements in the National Park Service CRM BULLETIN Vol.4, No.1; (Ruteneck is noted for installing the first crack monitors.)
Documentation as treatment represented in Larry Nordby's Sliding Rock Report
1987 El Malpais National Monument
1990 Native American Graves Repatriation Act
1990 The International Earthen Architecture Preservation Conference, Adobe 90, was held in Las Cruces, New Mexico
1991 The Southwest Region of the NPS and the Graduate Program in Historic Preservation at the University of Pennsylvania launched a Cooperative Agreement to participate in research, training, and pilot treatment development at multiple parks
1992 Manzanar National Historical Site
1994 Mojave National Preserve
1994 The NPS as part of the government reinvention act entered into the paperless age in which records are no longer consistently maintained in hard copy
1995 The NPS reorganized its regional divisions, and parts of the former Southwest, Western and the Rocky Mountain Regions were reconfigured into the Intermountain Region
1998 The VT Initiative began receiving funding for projects and park-based staff increased by sixty over the following ten years
2000 "Standards for Field Data Collection and Documentation," by Nordby, Metzger, Williams and Mayberry published at Mesa Verde
2001 *Protective Shelters* colloquium and publication
2004 S*ite Reburial* colloquium and publication
2006 *The Conservation of Decorated Surfaces on Earthen Architectur*e colloquium and publication
2008 Vanishing Treasures completed the transition from an Initiative to a Program

APPENDIX H

Selected Readings

For a more complete listing of sources and other bibliographic references, see the Intranet site

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APPENDIX I

Summary Of Museum Responsibilities

The projects conducted under the Vanishing Treasures Program are designed and implemented to promote ruins preservation. Information about the project and any resulting archeological objects and architectural samples are preserved by adding them to the park's museum collection. Ensure that each project includes funding to accession and catalog the collection, and properly store it in the designated repository per Directors Order 24.

The designated project coordinator is responsible for ensuring that all documentation, objects and samples are assembled for the museum collection and deposited with the curator as a complete accession. The collection should be housed in acid-free materials and be labeled properly and packaged for long-term storage. Consult with the repository in which the collections will be curated for their standard boxing, foldering and labeling instructions and recommended materials. Each repository uses different materials and box sizes to facilitate storage and for optimal preservation of the collections.

Projects produce field documentation in a variety of formats, including electronic and paper records. Use the list from Directors Order 28 (reproduced in the *Processing and Cataloging Handbook*) to ensure that all relevant documentation has been assembled. Print electronic files and a sample of digital photographs for each project to ensure that the information is available if future migration efforts with the electronic media are unsuccessful. Include appropriate metadata for all electronic files. Catalog this field documentation as archives following the step-by-step procedures in the *Processing and Cataloging Handbook* developed by the Intermountain Region Museum Services Program (we will provide a copy so you can scan and post).

Cataloging archeological collections and architectural samples should follow the guidelines in the *Museum Handbook, Part II*. Contact the park curator and the designated repository before initiating cataloging, as object name lists or other specific conventions may be used in cataloging to facilitate database searches. Project managers are encouraged to include the results of analyses in the catalog records to maximize the information available for future research. Consult with your park curator about the most appropriate method for incorporating this information. Remember to separate items physically so they can be retrieved by future users. For example, if ten different types of paint chips have been identified from a single provenience, make certain that each type is bagged and labeled separately so there will be no question about which chips are which type. Consult with the designated repository for instructions on labeling and organizing the collection for permanent storage, as some facilities store by material type and others by provenience.

APPENDIX J

Consultation Guidelines: Section 106 and Tribal Consultation

Section 106 Regulations

Initiate the Section 106 process (800.3)
Federal agencies are encouraged to integrate the Section 106 process into agency planning at its earliest stages.

Establish undertaking (800.3(a))

The determination of whether or not an undertaking exists is the Agency Official's decision. However, the Council may render advice on the existence of an undertaking. If there is an undertaking, but it does not present a type of activity that has the potential to have an effect on an historic property, then the agency is finished with its Section 106 obligations. If the action is subject to a program alternative, such as Programmatic Agreement or an alternate agency procedure, then the agency should follow that process.

800.3(b) This section emphasizes the benefit to an agency of coordinating compliance with related statutes to increase efficiency and avoid duplication of efforts. However, this coordination is not mandatory and is up to the Agency Official. Although agencies are encouraged to use the information gathered for these other processes to meet Section 106 needs, the information must meet the standards in these regulations.

Identify appropriate SHPO/THPO (800.3 (c)-(d))

The Federal agency has the responsibility to properly identify the appropriate SHPO and/or THPO that must be consulted. If the undertaking is on or affects historic properties on tribal lands, then the agency must determine what tribe is involved. If the relevant tribe has assumed the SHPO's responsibilities for Section 106 under Section 101(d)(2) of the Act, thereby having a THPO, the agency must consult with such THPO in lieu of the SHPO. A list of THPOs is available from the National Park Service. Certain owners of property on tribal lands can request SHPO involvement in addition to the THPO in a Section 106 case in accordance with the Act. If the relevant tribe has not assumed SHPO responsibilities for Section 106 under Section 101(d)(2) of the Act, the agency consults with such tribe and the SHPO.

Other related points include:

- A group of SHPOs may agree to designate a lead SHPO to act on their behalf for a specific undertaking.
- The manner of consultation may vary depending on the agency's planning process, the nature of the undertaking, and the nature of its effects.
- Failure of a SHPO/THPO to respond within the time frames set by the regulation permit the agency to assume concurrence with the finding or to consult about the finding or determination with the Council in the SHPO/THPO's absence. Subsequent involvement by the SHPO/THPO is not precluded, but the SHPO/THPO cannot reopen a finding or determination that it failed to respond to earlier.
- For undertakings occurring, or affecting historic properties, on tribal lands, the Section 106 process may be completed even when the SHPO has decided not to participate in the process. A SHPO and a tribal representative may develop tailored agreements for SHPO participation in reviewing undertakings on the tribe's lands.

* The regulations define the term "THPO" as those tribes that have assumed SHPO responsibilities on their tribal lands and have been certified pursuant to Section 101(d)(2) of the NHPA. Nevertheless, remember that tribes that have not been so certified have the same consultation and concurrence rights as THPOs when the undertaking takes place, or affects historic properties, on their tribal lands. The practical difference is that during such undertakings, THPOs would be consulted in lieu of the SHPO, while non-certified tribes would be consulted in addition to the SHPO.

Plan to involve the public (800.3(e))

The Agency Official must decide early how and when to involve the public in the Section 106 process. A formal "plan" is not required, although that might be appropriate depending upon the scale of the undertaking and the magnitude of its effects on historic properties.

Identify other consulting parties (800.3(f))

The Agency Official, at an early stage of the Section 106 process, is required to consult with the SHPO/THPO* to identify those organizations and individuals that will have the right to be consulting parties under the terms of the regulations. These may include local governments, Indian tribes, and Native Hawaiian organizations, and applicants for Federal assistance or permits. Others may request to be consulting parties, but that decision is ultimately up to the Agency Official.

No undertaking/no potential to cause effects (800.3(a)(1))

If the Agency Official determines that there is no undertaking as defined in Section 800.16(y), or there is an undertaking but it is not a type of activity that has the potential to cause effects on historic properties, there are no further obligations under Section 106 or the Council's regulations. Agencies are strongly advised to keep appropriate records of such findings in case questions are raised by members of the public or other parties at a later date.

Undertaking might affect historic properties

Assuming that the Agency Official has determined that the undertaking is a type of activity that has the potential to cause effects on historic properties, the agency proceeds to identify properties that might be affected.

Identify historic properties (800.4)

- Determine scope of efforts (800.4(a))

  At the beginning stages of the identification process, the Agency Official must consult with the SHPO/THPO* on the scope of its identification efforts and in fulfilling the steps in subsections 1 through 4. These steps include:
  - determining and documenting the area of potential effects;
  - reviewing existing information about historic properties;
  - seeking information from parties likely to have knowledge of or concerns about the area; and
  - gathering information from Indian tribes and Native Hawaiian organizations about properties to which they attach religious and cultural significance, while remaining sensitive to any concerns they may have about the confidentiality of this information.

  The SHPO/THPO should be consulted at all steps in the scoping process. The determination of the area of potential effects is made unilaterally by the Agency Official, after such consultation. Where Federal agencies are engaged in an action that is on or may affect ancestral, aboriginal or ceded lands, Federal agencies must gather information from Indian tribes and Native Hawaiian organizations regarding properties that may be of traditional religious and cultural significance to them, and that may be eligible for the National Register, on such lands.

- Identify historic properties (800.4(b))

  This section sets out the steps an Agency Official must follow to identify historic properties. Reminders scattered throughout the section emphasize the need for consultation with various parties.

  800.4(b)(1) The standard for identification is a "reasonable and good faith effort" to identify historic properties, depending on a variety of factors (including, but not limited to, previous identification work). Appropriate identification may include background research, consultation, oral history interviews, sample field investigation, and field survey.

  800.4(b)(2) Phased identification may be done when alternatives under consideration consist of corridors or large land areas, or where access to properties is restricted, and the nature of the undertaking and its potential scope and effect has therefore not yet been completely defined. Final identification

and evaluation may also be deferred if provided for in an agreement with the SHPO/THPO* or other circumstances. Under this approach, Agency Officials are required to follow up with full identification and evaluation once project alternatives have been refined or access has been gained to previously restricted areas. Any further deferral of final identification would complicate the process and jeopardize an adequate assessment of effects and resolution of adverse effects.

- Evaluate historic significance (800.4(c))
  This section sets out the process for determining the National Register eligibility of properties not previously evaluated for historic significance.

  800.4(c)(1) Federal agencies are required to apply the National Register Criteria to properties identified in the area of potential effects, and to acknowledge the special expertise of Indian tribes and Native Hawaiian organizations when assessing the eligibility of a property to which they attach religious and cultural significance. Old determinations of eligibility may need to be re-evaluated due to the passage of time or other factors.

  800.4(c)(2) The Agency Official makes determinations of eligibility in consultation with the SHPO/THPO*. If there is disagreement or the Council or Secretary of Interior so requests, the Agency Official must refer the matter to the Keeper of the National Register. If an Indian tribe or Native Hawaiian organization disagrees with a determination of eligibility involving a property to which it attaches religious and cultural significance, then the tribe can ask the Council to request that the Agency Official obtain a determination of eligibility. The intention is to provide a way to ensure appropriate determinations regarding properties located off tribal lands to which tribes attach religious and cultural significance.

No historic properties affected (800.4(d)(1))
Assuming that the Agency Official has determined that the undertaking is a type of activity that has the potential to cause effects on historic properties, the agency proceeds to identify properties that might be affected.

Historic properties are affected (800.4(d)(2))
The Federal agency must proceed to the assessment of adverse effects where it finds that historic properties may be affected or the SHPO/THPO* or Council objects to a no historic properties affected finding. The agency must notify all consulting parties and invite their views. Certified tribes would be consulted in addition to the SHPO.

Assess adverse effects (800.5)
800.5(a) The SHPO/THPO*, and Indian tribes and Native Hawaiian organizations attaching religious and cultural significance to identified properties, must be consulted when agencies apply the criteria of adverse effect. The Agency Official also needs to consider the views of consulting parties and the public.

- Apply criteria of adverse effect (800.5(a))
  800.5(a)(1) Adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the Register. Reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative also need to be considered.
  800.5(a)(2) Examples of adverse effects include physical destruction or damage; alteration not consistent with the Secretary of the Interior's Standards; relocation of a property; change of use or physical features of a property's setting; visual, atmospheric, or audible intrusions; neglect resulting in deterioration; or transfer, lease, or sale of a property out of Federal ownership or control without adequate protections.

  If a property is restored, rehabilitated, repaired, maintained, stabilized, remediated or otherwise

changed in accordance with the Secretary's Standards, then it will not be considered an adverse effect (assuming that the SHPO/THPO* agrees). Where properties of religious and cultural significance to Indian tribes or Native Hawaiian organizations are involved, neglect and deterioration may be recognized as qualities of those properties and thus may not necessarily constitute an adverse effect.

If a property is transferred leased or sold out of Federal ownership with proper preservation restrictions, then it will not be considered an adverse effect as in the past regulations. Transfer between Federal agencies is not an adverse effect per se; the purpose of the transfer should be evaluated for potential adverse effects, so that they can be considered before the transfer takes place.

Alteration or destruction of an archaeological site is an adverse effect, whether or not recovery of archaeological data from the site is proposed. The Council has issued guidance to help agencies and others reach agreement on the treatment of such properties.

800.5(a)(3) This section is intended to allow flexibility in Federal agency decision making processes and to recognize that phasing of adverse effect determinations, like identification and evaluation, is appropriate in certain planning and approval circumstances, such as the development of linear projects where major corridors are first assessed and then specific route alignment decisions are made.

800.5(b) The SHPO/THPO* may suggest changes in a project or impose conditions so that adverse effects can be avoided and thus result in a no adverse effect determination. This subsection emphasizes that a finding of no adverse effect is only a proposal when the Agency Official submits it to the SHPO/THPO* for review. This subsection also acknowledges that the practice of "conditional No Adverse Effect determinations" is acceptable.

800.5(c) The Council will not review no adverse effect determinations on a routine basis. The Council will intervene and review no adverse effect determinations if it deems it appropriate based on the criteria listed in Appendix A (circumstances warranting Council involvement), or if the SHPO/THPO* or another consulting party and the Federal agency disagree on the finding and the agency cannot resolve the disagreement. If Indian tribes or Native Hawaiian organizations disagree with the finding, they can request the Council's review directly, but this must be done within the 30 day review period.

If a SHPO/THPO* fails to respond to an Agency Official finding within the 30 day review period, then the Agency Official can consider that to be SHPO/THPO* agreement with the finding. When the finding is submitted to the Council, it will have 15 days for review; if it fails to respond within the 15 days, then the Agency Official may assume Council concurrence with the finding. When it reviews no adverse effect determinations, the Council will limit its review to whether or not the criteria have been correctly applied. The Council's determination is binding.

No historic properties are adversely affected (800.5(d)(1))

If no historic properties are found or no effects on historic properties are found, the Agency Official provides appropriate documentation to the SHPO/THPO* and notifies consulting parties. Members of the public need not receive direct notification, but the Federal agency must place its documentation in a public file prior to approving the undertaking, and provide access to the information when requested by the public.

Once adequate documentation is received, the SHPO/THPO has 30 days to object to the determination. The Council may also object on its own initiative within the time period. Lack of such objection within the 30 day period means that the agency has completed its Section 106 responsibilities.

Historic properties are adversely affected (800.5(d)(2))

A finding of adverse effect requires further consultation on ways to resolve it.

Resolve adverse effects (800.6)

The process for resolving adverse effects has been changed to reflect the altered role of the Council and the consulting parties.

- Continue consultation

800.6(a)(1) When adverse effects are found, the consultation must continue among the Federal agency, SHPO/THPO* and consulting parties to attempt to resolve them. The Agency Official must always notify the Council when adverse effects are found and must also invite the Council to participate in the consultation when any of the circumstances in 800.6(a)(1)(i)(A)-(C) exist. A consulting party may also request the Council to join the consultation. The Council will decide on its participation within 15 days of receipt of a request, basing its decision on the criteria set forth in Appendix A. Whenever the Council decides to join the consultation, it must notify the Agency Official and the consulting parties. It must also advise the head of the relevant Federal agency of its decision to participate. This is intended to keep the policy level of the Federal agency apprized of those cases that the Council has determined present issues significant enough to warrant its involvement.

800.6(a)(2) New consulting parties may enter the consultation if the agency and the SHPO/THPO* (and the Council, if participating) agree. If they do not agree, it is desirable for them to seek the Council's opinion on the involvement of the consulting party. Any party, including applicants, licensees or permittees, that may have responsibilities under a Memorandum of Agreement must be invited to participate as a consulting party.

800.6(a)(3) The Agency Official is obligated to provide project documentation to all consulting parties at the beginning of the consultation to resolve adverse effects. Particular note should be made of the reference to the confidentiality provisions.

800.6(a)(4) The Federal agency must provide an opportunity for members of the public to express their views on an undertaking. The provision embodies the principles of flexibility, relating the agency effort to various aspects of the undertaking and its effects upon historic properties. The Federal agency must provide them with notice such that the public has enough time and information to meaningfully comment.

If all relevant information was provided at earlier stages in the process in such a way that a wide audience was reached, and no new information is available at this stage in the process that would assist in the resolution of adverse effects, then a new public notice may not be warranted. However, this presumes that the public had the opportunity to make its views known on ways to resolve the adverse effects.

800.6(a)(5) Although it is in the interest of the public to have as much information as possible in order to provide meaningful comments, this section acknowledges that information may be withheld in accordance with Section 304 of the NHPA.

Memorandum of Agreement (800.6(b)

If the Council is not a part of the consultation, then a copy of the Memorandum of Agreement must be sent to the Council so that the Council can include it in its files to have an understanding of a Federal agency's implementation of Section 106. This does not provide the Council an opportunity to reopen the specific case, but may form the basis for other actions or advice related to an agency's overall performance in the Section 106 process.

800.6(b)(1) When resolving adverse effects without the Council, the Agency Official consults with the SHPO/THPO and other consulting parties to develop a Memorandum of Agreement. If this is achieved, the agreement is executed between the Agency Official and the SHPO/THPO and filed with required documentation with the Council. This filing is the formal conclusion of the Section 106 process and must occur before the undertaking is approved. Standard treatments adopted by the Council may set expedited ways for competing memoranda of agreement in certain circumstances.

800.6(b)(2) When the Council is involved, the consultation proceeds in the same manner, but the agreement of the Agency Official, the SHPO/THPO and the Council is required for a Memorandum of Agreement.

800.6(c) A Memorandum of Agreement evidences an agency's compliance with Section 106 and the agency is obligated to follow its terms. Failure to do so requires the Agency Official to reopen the Section 106 process and bring it to suitable closure as prescribed in the regulations. The reference to Section 110(l) of the Act is intended to conform the streamlining provisions of these regulations with current statutory requirements, pending amendment of that section.

800.6(c)(1) The rights of signatories to an agreement are spelled out, along with who is required to sign the agreement under specific circumstances. The term "signatory" has a special meaning as described in this section, which is the ability to terminate or agree to amend the Memorandum of Agreement. The term does not include others who sign the agreement as concurring parties.

800.6(c)(2) Certain parties may be invited to be signatories in addition to those specified in Section 800.6(c)(1). They include individuals and organizations that should, but do not have to, sign agreements. It is particularly desirable to have parties who assume obligations under the agreement become formal signatories. However, once invited signatories sign MOAs, they have the same rights to terminate or amend the MOA as the other signatories.

800.6(c)(3) Other parties may be invited to concur in agreements. They do not have the rights to amend or terminate an MOA. Their signature simply shows that they are familiar with the terms of the agreement and do not object to it.

800.6(c)(4)-(9) These sections set forth specific features of a Memorandum of Agreement and the way it can be terminated or amended.

Failure to resolve adverse effects (800.7)

What happens when the consulting parties cannot reach agreement? Usually when consultation is terminated, the Council renders advisory comments to the head of the agency, which must be considered when the final agency decision on the undertaking is made. There may be circumstances where the Council will recommend further discussion to try to resolve the matter.

ACHP comment and agency response

800.7(a)(1) The head of the agency or an Assistant Secretary or officer with major department-wide or agency-wide responsibilities must request Council comments when the Agency Official terminates consultation. Section 110(l) of the NHPA requires heads of agencies to document their decision when an agreement has not been reached under Section 106.
800.7(a)(2) The Council and the Agency Official may conclude the Section 106 process with a Memorandum of Agreement between them if the SHPO terminates consultation.

800.7(a)(3) If a THPO* terminates consultation, there can be no agreement with regard to undertakings that are on or affect properties on tribal lands. In such cases, the Council will issue formal comments. This provision respects the tribe's unique sovereign status with regard to its lands.

800.7(a)(4) In cases where the Council terminates consultation, the Council has the duty to notify all consulting parties prior to commenting. The role given to the Federal Preservation Officer is intended to fulfill the NHPA's goal of having a central official in each agency to coordinate and facilitate the agency's involvement in the national historic preservation program.

800.7(b) The Council may provide advisory comments even though it has signed a Memorandum of Agreement. This provision is intended to give the Council the flexibility to provide comments even

where it has agreed to sign an MOA. Such comments might elaborate upon particular matters or provide suggestions to Federal agencies for future undertakings.

800.7(c) The Council has 45 days to provide its comments to the head of the agency for a response by the agency head. When submitting its comments, the Council will also provide the comments to the Federal Preservation Officer, among others, for information purposes.

800.7(c)(4) This section specifies what it means to "document the agency head's decision" as required by Section 110(l) when the Council issues its comment to the agency head.

Updated February 12, 2001

TRIBAL CONSULTATION FAQs

What is Consultation?

Consultation is the basic means by which American Indian tribes and federal agencies approach and resolve differences in the application of policies and regulations. Government-to-Government consultation is recognition of tribal sovereignty and the unique legal and historic relationship between the U.S. Government and Indian tribes shaped by treaties, congressional acts, court decisions, Executive Orders and other actions of the Executive Branch.

Why is consultation necessary?

Numerous laws require agencies to consult with American Indian tribes on federal actions. Federal actions are defined as projects, activities or programs funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a federal agency. The decision for an agency to enter into consultation depends upon adherence to federal law, regulation, and agency policy as well as on the nature and scale of the project. Tribal governments may also request formal consultation on issues of interest at their discretion.

What Laws, Regulations, Director's Orders, Policies and Guidelines require federal agencies to consult?

National Historic Preservation Act (NHPA) of 1966, as amended (P.L. 89-665; 16 U.S.C. 470 et.seq.): Section (§) 106 of the act requires federal agencies to review federally funded projects for their affect on cultural properties. The statute and implementing regulations (36 CFR 800) require American Indian tribes to participate when an undertaking or project affects Indian lands or properties of historic value to an Indian tribe on non-Indian lands. When it is determined by the federal agency that an action or undertaking may have an effect on these properties, representatives of appropriate Indian tribes are to be invited to consult. § 110(d) of the act also calls for consultation with American Indian tribes when preservation activities are planned. At a minimum, preliminary ethnographic or ethno historic research is required to make any determination of effect resulting from federally funded projects. The need for consultation should arise from this preliminary work and initial contacts related to the proposed undertaking. § 304(a) of the act makes it possible for agencies to maintain confidentiality of information obtained during consultation regarding the location of sensitive resources.

National Environmental Policy Act (NEPA) of 1969 (P.L. 91-190; 42 U.S.C.4371 et. seq.): Directs federal agencies to consult early with American Indian tribes concerning planned actions by private applicants or other non-federal agencies [see 40 CFR 1501.2(d) (2)]. Regulations also require agencies to invite tribes to participate in the project scoping process and those possible conflicts between the proposed project and tribal land use plans, policies or controls for use of a concerned area are discussed as Environmental Consequences [see 40 CFR 1501.7(a)(1) and 1502.16(c), respectively]. NEPA requires agencies to request tribal comments on draft Environmental Impact Statements and agencies to notify tribes of proposed projects of local concern. The law also authorizes Indian tribes to be cooperating agencies in NEPA compliance.

American Indian Religious Freedom Act (AIRFA) of 1978 (P.L. 95-431): Recognizes that the constitutional right of all U.S. citizens to practice their respective religions also includes American Indians. The law states that it is the "policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise [their] traditional religions…including but not limited to access to sites, use and possession of sacred objects…"

Archeological Resource Protection Act (ARPA) of 1979 (P.L. 96-95): § 7 of the act requires consultation with American Indian tribes if issuance of a permit will result in harm or destruction of a site that has importance to that community.

Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (P.L. 101-601): Requires

federal agencies and museums receiving federal funds to conduct summaries and inventories of their collections or holdings, identify potential lineal descendant(s) or cultural affiliated tribes and consult with tribes regarding the repatriation of human remains, funerary objects, sacred objects and objects of cultural patrimony as defined by NAGPRA. The statute also outlines requirements for inadvertent discoveries of American Indian grave sites including a ceasing of all activity at that site for thirty days following an inadvertent discovery to allow consultation with affiliated tribes to take place regarding the protection or re-internment of the remains.

National Register Bulletin 38 – Traditional Cultural Properties n.d.: Defines a new category of properties for consideration to the National Register of Historic Places (NRHP) based on the authority of NHPA. Bulletin 38 defines eligibility criteria for placing a Traditional Cultural Property on the National Register and outlines the need for field research and culturally sensitive consultation with groups having an affiliation with the property under consideration.

Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" 1993 (DOI only): Reinforces the responsibility of all Interior agencies toward the protection of trust resources of all federally recognized tribes and directs Interior agencies to operate within a government-to-government relationship with Indian tribes on all matters dealing with trust resources.

Executive Order 12898, "Environmental Justice" 1994 (All federal agencies): Requires all federal agencies to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States…" The order specifically addresses the need for agencies to collect, maintain and analyze information on the consumptive patterns of populations relying principally on fish and/or wildlife for subsistence. Details of tribal involvement in the execution of this order will be determined after consultation with federally recognized tribes.

Executive Order 13007, "Sacred Sites" 1996 (All federal agencies): Requires each agency to "(1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites."

Other laws, regulations, policies and guidelines that have secondary relevance to the need to consult with American Indian tribes:

- Antiquities Act of 1906 (P.L. 209), as amended: Provides for the protection of historic or prehistoric remains and sites of scientific value on federal lands, establishes criminal sanctions for unauthorized destruction or removal of antiquities, authorizes the president to establish national monuments by proclamation, and authorizes the scientific investigation of antiquities on federal lands, subject to permit and regulations.
- Historic Sites Act of 1935 (P.L. 74-292): Directs the secretary of Interior to carry out wide-ranging programs in the field of history and places with the secretary the responsibility for national leadership in the field of historic preservation. Authorizes the Historic American Buildings Survey, Historic American Engineering Record and National Survey of Historic Sites and Buildings. The regulations accompanying this act require notification of the chief executive officer of an Indian tribe if a property selected for study to determine its potential for designation as a National Historic Landmark is located on an Indian reservation [36 CFR 65.5 (c)(1)].
- Endangered Species Act of 1973 (P.L. 93-205) and Secretarial Order # 3206, "American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act" 1997 (DOI and Commerce only): Clarifies the responsibilities of the component agencies, bureaus and offices of the Department of the Interior and the Department of Commerce (Departments), when actions taken under authority of the Act and associated implementing regulations affect, or may affect, Indian lands, tribal trust resources or the exercise of American Indian tribal rights, as defined in the Order. The Order further acknowledges the trust responsibility and treaty obligations of the U.S. toward Indian tribes and tribal members and its government-to-government relationship in dealing with

tribes. Accordingly, the Departments will carry out their responsibilities under the Act in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty and statutory missions of the Departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation.

- Museum Properties Management Act of 1955 (P.L. 84-127): Authorizes the National Park Service to accept donations or bequests of museum properties, purchase them from donated funds, exchange, transfer, convey or destroy them, and receive and grant museum loans.
- Executive Order 11593, "Protection and Enhancement of the Cultural Environment" 1971: Directs Federal agencies to locate, inventory and nominate all potentially eligible sites, buildings, structures, districts and objects under their control to the Secretary of the Interior for listing on the NRHP. Agencies must also take precautions to prevent the sale, transfer or demolition of historic properties. Any property that will be damaged as a result of a Federal undertaking must be fully assessed and documented before it is impacted.
- See also agency specific management policies.

Where can I find more information?
http://inside.nps.gov/regions/custommenu.cfm?lv=1&rgn=&id=5682

Who can I call for more information? See:
http://inside.nps.gov/waso/contacts.cfm?lv=2&prg=20

National Park Service
Intermountain Region
Office of Indian Affairs and American Culture

DRAFT TRIBAL CONSULTATION GUIDELINES
July 12, 2006

BACKGROUND

Many laws, regulations and executive orders require federal agencies to consult with American Indian tribes. It is the policy of the NPS Intermountain Region to pay for costs of tribal participation in official government-to-government consultation initiated by the NPS. These guidelines will facilitate consistency within the region.

1. ESTIMATING CONSULTATION MEETING COSTS

   Parks should estimate the cost of the planned consultation meeting before sending out invitation letters. The number of tribal representatives supported by the NPS to attend a consultation meeting depends upon the number of affiliated tribes, the topics for discussion, and the budget available. The NPS may cover the costs for one or two participants from each tribe but can state that other representatives are welcome to attend at the tribe's expense. Parks should prepare a DI-1(s) or Purchase Request(s) for the professional services to be provided during the consultation meeting by the designated representatives following preparation of the budget estimate. In IMR parks, the Superintendent has the line authority to sign consultation related correspondence and authorize expenses. In the IMR office, the Director for Indian Affairs and American Culture (IAAC) has the line authority to sign consultation related correspondence and authorize expenses; at WACC, the Center Manager has the authority. An example budget estimating spreadsheet and letter of invitation to consult are attached.

2. FACILITATING TRIBAL PARTICIPATION

   Tribal participation may be facilitated by including the following expenses in the "Fee for Professional Services" (note that this is not an explicit endorsement to pay travel expenses for tribal attendees but rather that accumulated travel expenses may be considered as part of the total fee paid to attendees for professional services rendered):

   • AIRFARE

     Tribal representatives may travel by air as needed and can be reimbursed via the Fee paid for Professional Services.

   • VEHICLE

     Tribal representatives may travel in personal vehicles, tribal vehicles, or rental cars. Participants traveling in their personal or tribal vehicle should be reimbursed at the prevailing standard government mileage rate unless their mileage is being paid for by the tribe. Tribal representatives may be reimbursed for a rental car at the prevailing government rate and fuel costs.

   • LODGING

     Parks should arrange for a block of rooms at the prevailing government rate and are encouraged to work with the hotel to arrange for an RSVP date, after which rooms will be released. NPS employees may not reserve or pay for rooms for anyone other than themselves. Tribal members may call the hotel directly to reserve their room with their own credit card; they must pay for telephone calls, room service and incidentals on their own.

   • PER DIEM

     Tribal participants not being paid by the tribe may be provided per diem at the prevailing government rate for travel and meeting days as part of the total "Fee for Professional Services."

   • FEE FOR PROFESSIONAL SERVICES

     If the tribal participant is NOT being paid by the tribe as an official representative, the NPS may provide a "Fee for Professional Services" for their subject matter expertise not to exceed $150 (this is in addition to any other considerations regarding the 'cost to participate' as detailed above).

   • REIMBURSEMENT

     At the meeting, tribal participants submit an invoice for the Fee for Professional Services with their individual information including their Social Security number or tax identification number, mailing

address, telephone number, and description of services provided. It may be helpful to provide a draft invoice form son-site (example attached). During the meeting, an authorized NPS staff member will compile the information and prepare payment of Professional Services Fees to be dispersed at the close of the meeting referencing the DI-1(s) or Purchase Request(s). Tribal representatives should sign the invoice acknowledging submission of the invoice and receipt of payment. Tribal representatives should receive a copy of the signed invoice and the park or office should retain all original forms as part of the administrative record.

3. MEETING DOCUMENTATION, ACCOUNTABILITY, AND REPORTING

The park should maintain a detailed administrative record of consultation meetings, attendees and process. IAAC will maintain consultation records in regional program files if the parks provide copies to IAAC. In response to OMB Circular A-123 (draft), parks and offices should submit an annual overview of consultation activities. A simple template is attached.

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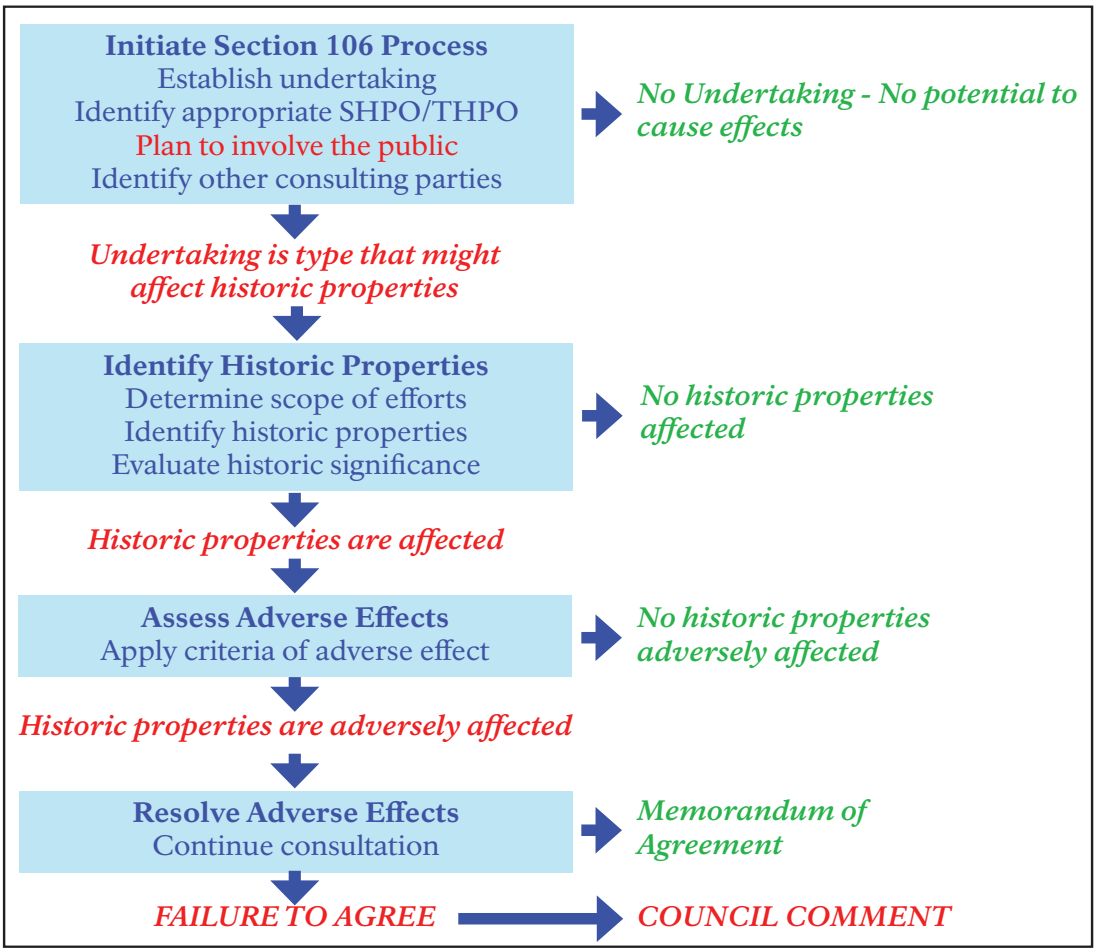


APPENDIX K

Policy, Standards and Guidelines For Historic Preservation In The National Park Service

Historic preservation actions within the National Park system are directed by existing policies, standards and guidelines. While these provide over arching instruction, they often do not specifically or directly address the resources and challenges involved in ruins preservation. By definition, Vanishing Treasures resources have been un-maintained over some part of their life, have experienced some level of deterioration and are to be maintained in their current, deteriorated state. As such, these resources are covered under a combination of archeological, historic structure, preservation and cultural landscape policy statements, standards and guidelines. While these existing policies, standards and guidelines include conceptual guidance that is appropriate for managing these resources, they do not provide specific procedures that are required to develop and implement a Vanishing Treasures project. That is the purpose of these *Ruins Preservation Guidelines*.

Following is a synopsis of the various policies, standards and guidelines that provide the legal and conceptual underpinnings of the Vanishing Treasures *Ruins Preservation Guidelines*.

1. Policy
As stated in the National Park Service *Management Policies 2006,* "Policy sets the framework and provides direction for all management decisions. This direction may be general or specific; it may prescribe the process through which decisions are made, how an action is to be accomplished, or the results to be achieved." The *Management Policies* is "the basic Service-wide policy document of the National Park Service, superseding the 2001 edition. It is the highest of three levels of guidance documents in the NPS Directives System."

Chapter 5 of the *Management Policies* includes a general discussion of the treatment of archeological fabric, historic and prehistoric structures, and ruins. It focuses on the policy that these resources are to be preserved in a stable condition. Some of the discussion for these resources includes:

> **5.3.5 Treatment of Cultural Resources**
> The Park Service will provide for the long-term preservation of, public access to, and appreciation of the features, materials, and qualities contributing to the significance of cultural resources. With some differences by type, cultural resources are subject to several basic treatments, including (1) preservation in their existing states; (2) rehabilitation to serve contemporary uses, consistent with their integrity and character; and (3) restoration to earlier appearances by the removal of later additions and replacement of missing elements. Decisions regarding which treatments will best ensure the preservation and public enjoyment of particular cultural resources will be reached through the planning and compliance process, taking into account
>
> - the nature and significance of a resource and its condition and interpretive value
> - the research potential of the resource
> - the level of intervention required by treatment alternatives
> - the availability of data and the terms of any binding restrictions
> - the concerns of traditionally associated peoples and other groups and individuals
>
> Except for emergencies that threaten irreparable loss without immediate action, no treatment project will be undertaken unless supported by an approved planning document appropriate to the proposed action.
>
> **5.3.5.1 Archeological Resources**
> Archeological resources will be managed in situ, unless the removal of artifacts or physical disturbance is justified by research, consultation, preservation, protection, or interpretive

requirements. Preservation treatments will include proactive measures that protect resources from vandalism and looting, and will maintain or improve their condition by limiting damage due to natural and human agents. Data recovery actions will be taken only in the context of planning, consultation, and appropriate decision-making. Preservation treatments and data recovery activities will be conducted within the scope of an approved research design. Archeological research will use nondestructive methods of testing and analysis wherever possible. The Park Service will incorporate information about archeological resources into interpretive, educational, and preservation programs. Artifacts and specimens recovered from archeological resources, along with associated records and reports, will be maintained together in the park museum collection.
(Also see Director's Order #28A: Archeology; 36 CFR Part 79; Secretary of the Interior's Standards and Guidelines for Archeological Documentation [48 FR 44734-737]; Museum Handbook.)

5.3.5.2 Cultural Landscapes
The treatment of a cultural landscape will preserve significant physical attributes, biotic systems, and uses when those uses contribute to historical significance. Treatment decisions will be based on a cultural landscape's historical significance over time, existing conditions, and use. Treatment decisions will consider both the natural and built characteristics and features of a landscape, the dynamics inherent in natural processes and continued use, and the concerns of traditionally associated peoples. The treatment implemented will be based on sound preservation practices to enable long-term preservation of a resource's historic features, qualities, and materials. There are three types of treatment for extant cultural landscapes: preservation, rehabilitation, and restoration.
(See Decision-making Requirements to Identify and Avoid Impairments 1.4.7. Also see Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes.)

5.3.5.4 Historic and Prehistoric Structures
The treatment of historic and prehistoric structures will be based on sound preservation practice to enable the long-term preservation of a structure's historic features, materials, and qualities. There are three types of treatment for extant structures: preservation, rehabilitation, and restoration.
(Also see Secretary of the Interior's Standards for the Treatment of Historic Properties.)

5.3.5.4.10 Historic and Prehistoric Ruins
The stabilization of historic and prehistoric ruins will be preceded by studies leading to the recovery of any data that would be affected by stabilization work. Ruins and related features on un-excavated archeological sites will be stabilized only to the extent necessary to preserve research values or to arrest structural deterioration, recognizing that it is preferable to preserve archeological sites in situ than to excavate them. Archeological ruins to be exhibited will not be excavated until consultation has occurred with traditionally associated peoples and adequate provisions are made for data recovery and stabilization. Structures will not be deliberately reduced to ruins, and missing structures will not be reconstructed to appear damaged or ruined.

2. Director's Orders
With the *Management Policies* establishing a broad conceptual framework for ruins preservation, the second tier in the NPS Directives System creates operational policies and procedures to supplement the Management Policies. In the form of Director's Orders, this tier provides standards that define the quality expected to be achieved and maintained in implementing management policies. In the realm of cultural resource activities, Director's Order 28, *Cultural Resources Management* and Director's Order 28A, *Archeology* provide measures of satisfactory accomplishment and guiding principles for archeological and historic preservation methods and activities.

Director's Orders are typically developed by the WASO program office that has functional responsibility or subject matter expertise relevant to the subject of the Order. As of January 2009, Director's Orders 28 and 28A were being updated. Release 5 remains in effect until the update is finalized.

3. Handbooks and Reference Manuals
The third tier in the system provides further detail and guidance beyond the Service-wide policies and procedures that are laid out in the Director's Orders. This information is usually provided in the form of handbooks and reference manuals.

At this level, the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68) is integral to Director's Order 28. Likewise, the Secretary of the Interior's *Standards and Guidelines for Archeological Documentation* is integral to Director's Order 28a. These two sets of *Standards* are broad conceptual principles that are designed to provide philosophical consistency in the treatment of cultural resources.

While the *Standards for the Treatment of Historic Properties* stand on their own, the *Standards and Guidelines for Archeological Documentation* is part of the larger *ARCHEOLOGY AND HISTORIC PRESERVATION: Secretary of the Interior's Standards and Guidelines [As Amended and Annotated]*. These *Standards and Guidelines* are not regulatory and they do not set or interpret agency policy. They are intended to provide technical advice about archeological and historic preservation activities and methods. While these *Standards and Guidelines* are not always directly applicable to ruins and structure preservation, they all support background resource identification, evaluation, and registration as activities that are necessary before the implementation of historic preservation treatment actions.

In addition to the *Standards and Guidelines for Archeological Documentation, ARCHEOLOGY AND HISTORIC PRESERVATION: Secretary of the Interior's Standards and Guidelines* includes 7 other sections. These are: Preservation Planning, Identification, Evaluation, Registration, Note on Documentation and Treatment of Historic Properties, Historical Documentation, and Architectural and Engineering Documentation, each of which is accompanied by relevant Guidelines and Technical Information. Each of these Standards, along with its applicability to Vanishing Treasures resources, is discussed below.

1. Standards for Preservation Planning: Preservation Planning is a process that organizes preservation activities (see Identification, Evaluation, Registration, and Treatment below) in a logical sequence. The Standards for Planning discuss the relationship among these activities, while the remaining activity standards consider how each activity should be carried out. They outline a process that determines when an area should be examined for historic properties, whether an identified property is significant, and how a significant property should be treated.
Applicability to Vanishing Treasures resources: Preservation Planning Standard II, "Preservation Planning Uses Historic Contexts to Develop Goals and Priorities for the Identification, Evaluation, Registration and Treatment of Historic Properties" specifies that preservation planners use historic contexts to develop goals and priorities for resource treatment actions. This becomes even more important as Vanishing Treasures sites are increasingly viewed within the context of the larger cultural landscape, and planning efforts expand beyond the preservation of the just the structures themselves.

2. Standards for Identification: Identification activities are undertaken to gather information about historic properties in an area. The scope of these activities will depend on existing knowledge, goals developed through the planning process, and current management needs.
Applicability to Vanishing Treasures resources: The three standards; "Identification of Historic Properties Is Undertaken to the Degree Required To Make Decisions," "Results of Identification Activities Are Integrated Into the Preservation Planning Process," and "Identification Activities Include Explicit Procedures for Record-Keeping and Information Distribution" lay the foundation for documentation of Vanishing Treasure resources.

3. Standards for Evaluation: Evaluation is the process of determining whether identified properties

meet defined criteria of significance and therefore should be included in an inventory of historic properties determined to meet the criteria. The criteria employed vary depending on the inventory's use in resource management. The Vanishing Treasures program has defined a specific set of criteria that determine eligibility for inclusion in the Program.
Applicability to Vanishing Treasures resources: Evaluation Standard III "Evaluation Results in a List or Inventory of Significant Properties that is Consulted in Assigning Registration and Treatment Priorities" echoes the process that is used to determine the eligibility of, and treatment priorities for Vanishing Treasures resources.

4. Standards for Registration: Registration is the formal recognition of properties evaluated as significant.
Applicability to Vanishing Treasures resources: Registration Standard II "Registration Information Locates, Describes and Justifies the Significance and Physical Integrity of a Historic Property" states that registers are used for planning, research and treatment. They must contain adequate information for users to locate a property and understand its significance. Additional information may be appropriate depending on the intended use of the register.
Initially, a module was created within The Archeological Sites Management Information System (ASMIS), which is the National Park Service's database for the basic registration and management of park prehistoric and historic archeological resources that was intended to inventory VT resources. However, this module was never adequately populated and the Program is now actively working to create a comprehensive inventory of VT resources.

5. Note on the Standards for Historical Documentation: Documentation and treatment of historic properties include a variety of techniques to preserve or protect properties, or to document their historic values and information. While documentation activities may be applied to any potentially historic property, generally only those properties that first have been evaluated as significant against specified criteria (such as those of the National Register or the Vanishing Treasures Program) are treated. Some commonly applied treatments are preservation in place, rehabilitation, restoration and stabilization; there are other types of treatments also. Documentation and treatment may be applied to the same property; for example, archeological, historical, and architectural documentation may be prepared before a structure is stabilized or before foundations or chimneys or other lost features are reconstructed.
Applicability to Vanishing Treasures resources: Of the possible treatments listed above, only stabilization and preservation in place are applicable to VT resources. Rehabilitation and restoration are not appropriate treatments for VT sites. Additionally, within the Vanishing Treasures Program, documentation alone is also considered to be an appropriate "treatment."

6. Standards for Historical Documentation: Research of historic information can provide important information related to the significance of a property for use by historians, researchers, preservationists, architects, and historical archeologists. Research is used early in planning to gather information needed to identify and evaluate properties. Historical documentation is also a treatment that can be applied in several ways to properties previously evaluated as significant; it may be used in conjunction with other treatment activities (as the basis for rehabilitation plans or interpretive programs, for example) or as a final treatment to preserve information in cases of threatened property destruction.
Applicability to Vanishing Treasures resources: Historical documentation is a data gathering technique to provide information, in a structured format, about Vanishing Treasures resources. This documentation can serve as the foundation for the development of treatment plan or it may serve as a final treatment to preserve information of sites that will not receive further preservation treatments.

7. Standards for Architectural and Engineering Documentation: These standards concern the development of documentation for historic buildings, sites, structures and objects, which usually consists of measured drawings, photographs and written data. They provide information on a property's significance for use in preserving that property. Documentation enables accurate repair or preservation of a resource or preserves information as a final treatment. These Standards are intended for use in developing documentation to be included in the Historic American Buildings Survey (HABS), the Historic American Engineering Record (HAER), and the Historic American Landscapes Survey (HALS) programs.

Applicability to Vanishing Treasures resources: These standards are directly applicable to preservation of Vanishing Treasures resources and should be applied to Vanishing Treasures projects whenever written or graphic documentation is prepared.

8. Standards for Archeological Documentation: Archeological documentation may occur at any or all levels of planning, identification, evaluation or treatment with the nature and extent of documentation being determined by each specific set of circumstances. Archeological documentation consists of such activities as archival research, observation and recording of above-ground remains, and observation (directly, through excavation, or indirectly, through remote sensing) of below-ground remains. Archeological documentation is employed for the purpose of gathering information on individual historic properties or groups of properties and may be undertaken as an aid to preservation treatments including research, interpretation, and data recovery.
Applicability to Vanishing Treasures resources: These standards are directly applicable to the preservation of Vanishing Treasures resources. The *Ruins Preservation Guidelines* have been developed as part of a strategy to expand upon the Cultural Resource Management Guidelines (NPS-28), and to define fundamental standards for ruins preservation documentation and treatment. Because the majority of VT resources are archeological sites, this form of documentation must occur at all levels of the planning, evaluation and treatment of many Vanishing Treasures resources.

As it was originally conceived, *ARCHEOLOGY AND HISTORIC PRESERVATION: Secretary of the Interior's Standards and Guidelines* had one addition category, the Standards for Historic Preservation Projects. These standards have since been superseded by the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (36 CFR Part 68), which is specifically referenced in Director's Order 28. Unlike the earlier standards which were not regulatory and did not set or interpret agency policy, the Secretary of the Interior's *Standards for the Treatment of Historic Properties* are part of the Code of Federal Regulations (CFR), which codifies the general and permanent rules created by the executive departments and agencies of the Federal Government. As such, the Secretary's *Standards* have the force of law under certain circumstances, and may be used by anyone planning and undertaking work on historic properties.

The *Standards* are a series of concepts about maintaining, repairing and replacing historic materials, as well as designing new additions or making alterations. They cannot, in and of themselves, be used to make decisions about which features of a historic property should be preserved and which might be changed. But once an appropriate treatment is selected, the Standards provide philosophical consistency to the work.

There are Standards for four distinct, but interrelated, approaches to the treatment of historic properties--preservation, rehabilitation, restoration, and reconstruction. Of these, only the Standards for Preservation, which focus on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time, provide guidance that is applicable to Vanishing Treasures resources.

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment. The Standards for Preservation are:

1. A property will be used as it was historically, or be given a new use that maximizes the retention of distinctive materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a property will be protected and, if necessary, stabilized until additional work may be undertaken.
2. The historic character of a property will be retained and preserved. The replacement of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve existing historic materials and features will be physically and visually compatible, identifiable upon close inspection, and properly

documented for future research.

4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. The existing condition of historic features will be evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a distinctive feature, the new material will match the old in composition, design, color, and texture.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

Guidelines, which are instructions for determining procedures for the implementation of policy and/or assuring that policy requirements and standards are met, accompany all of the standards included in the *ARCHEOLOGY AND HISTORIC PRESERVATION: Secretary of the Interior's Standards and Guidelines*. Illustrated guidelines have been prepared for the *Standards for the Treatment of Historic Properties*. Additionally, direction for the implementation of service wide cultural resource management policy is provided in NPS-28: Cultural Resource Management Guideline.

NPS-28 elaborates on the National Park Service *Management Policies 2006* and offers guidance in applying them to park cultural resources. These guidelines, although more specific, are in conformance with the guidelines that are offered with *ARCHEOLOGY AND HISTORIC PRESERVATION: Secretary of the Interior's Standards and Guidelines,* and the Secretary's *Standards for the Treatment of Historic Properties*. Of particular relevance to Vanishing Treasures resources are Chapter 6, Management of Archeological Resources and Chapter 8, Management of Historic and Prehistoric Structures.

Chapter 6 includes sections on the types of archeological resources, NPS objectives, applicable standards, archeological research, resource management planning, and stewardship of archeological resources. Likewise, Chapter 8 has sections dealing with the types of historic and prehistoric structures, NPS objectives, research, including identification, evaluation, and registration, resource management planning and stewardship of historic and prehistoric resources.

Even though the guidance becomes more specific as it moves from general policy to handbooks and reference manuals, the existing literature generally lacks the specialized knowledge required by the unique challenges of maintaining sites and structures that are in various states of deterioration. It is that gap that the *Ruins Preservation Guidelines* is meant to fill.

REFERENCES

National Park Service *Management Policies 2006*
URL: http://www.nps.gov/policy/MP2006.pdf

Director's Order 28, *Cultural Resources Management*
URL: http://www.nps.gov/policy/DOrders/DOrder28.html
Director's Order 28A, *Archeology*
URL: http://www.nps.gov/policy/DOrders/DOrder28A.html

Secretary of the Interior's *Standards for the Treatment of Historic Properties*
URL: http://www.nps.gov/history/hps/tps/standards_guidelines.htm

ARCHEOLOGY AND HISTORIC PRESERVATION: Secretary of the Interior's Standards and Guidelines [As Amended and Annotated]
URL: http://www.nps.gov/history/local-law/arch_stnds_0.htm

Illustrated guidelines for the Treatment of Historic Properties
URL: http://www.cr.nps.gov/hps/tps/standguide/index.htm

NPS-28: Cultural Resource Management Guideline
URL: http://www.nps.gov/history/history/online_books/nps28/28contents.htm

Laws and Executive Orders that Affect Historic Preservation-The guidelines for cultural resource management in the national park system are derived from a hierarchy of laws, proclamations, orders, regulations, and policies. Primary among these are the acts and proclamations establishing individual parks which state the congressional or presidential intent for including them in the system. Other laws and executive orders have general application to cultural resource management throughout the park system.

- **Antiquities Act of 1906** (P.L. 59-209, 34 Stat. 225)
- **National Park Service Act of August 25, 1916** (P.L. 64-235, 39 Stat. 535)
- **Historic Sites Act of 1935** (P.L. 74-292, 49 Stat. 666)
- **Management of Museum Properties Act of 1955** (P.L. 84-127, 69 Stat. 242)
- **Reservoir Salvage Act of 1960** (P.L. 86-523, 74 Stat. 220)
- **Department of Transportation Act of 1966** (P.L. 89-670, 80 Stat. 931)
- **National Historic Preservation Act of 1966** (P.L. 89-665, 80 Stat. 915; as amended by P.L. 91-243, P.L. 93-54, P.L. 94-422, P.L. 94-458, P.L. 96-199, P.L. 96-244, P.L. 96-515, P.L 98-483, P.L. 99-514, P.L. 100-127, and P.L. 102-575)
- **National Environmental Policy Act of 1969** (P.L. 91-190; 31 Stat. 852)
- **Executive Order 11593, *Protection and Enhancement of the Cultural Environment*, May 13, 1971** (36 FR 8921)
- **Archeological and Historic Preservation Act of 1974** (P.L. 93-291; 88 Stat. 174)
- **Mining in the Parks Act of 1976** (P.L. 94-429; 90 Stat. 1342)
- **Tax Reform Act of 1976** (P.L. 94-455; 90 Stat. 1916)
- **General Authorities Act of 1976** (P.L. 94-458; 90 Stat. 1939)
- **Public Buildings Cooperative Use Act of 1976** (P.L. 94-541; 90 Stat. 2505)
- **American Indian Religious Freedom Act of 1978** (P.L. 95-341; 92 Stat. 469)
- **Archaeological Resources Protection Act of 1979** (P.L. 96-95; 93 Stat. 712)
- **Alaska National Interest Lands Conservation Act of 1980** (P.L. 96-487)
- **World Heritage Convention, 1980** (P.L. 96-515, 94 Stat. 3000)
- **Abandoned Shipwreck Act of 1987** (P.L. 100-298; 102 Stat. 432)
- **Native American Graves Protection and Repatriation Act of 1990** (P.L. 101-601; 104 Stat. 3049)
- **Executive Order 13007, *Indian Sacred Sites*, May 24, 1996** (61 FR 26771)

Regulations-Regulations are promulgated and published in the *Code of Federal Regulations* (CFR) to direct the implementation of laws. The following CFR citations are most pertinent to cultural resource management.

- **36 CFR 2.5** (NPS Act of 1916)
- **36 CFR 18** (National Historic Preservation Act of 1966)
- **36 CFR 60** (NHPA and EO 11593)
- **36 CFR 61** (NHPA and EO 11593)
- **36 CFR 63** (NHPA and EO 11593)
- **36 CFR 65** (Historic Sites Act of 1935)
- **36 CFR 67**, "Historic Preservation Certifications Pursuant to the Tax Reform Act of 1976, the Revenue Act of 1978, the Tax Treatment Extension Act of 1980, and the Economic Recovery Tax Act of 1981
- **36 CFR 68** (NHPA)
- **36 CFR 79** (NHPA and ARPA)

- **36 CFR 800** (NHPA and EO 11593)
- **43 CFR 3** (Antiquities Act)
- **43 CFR 7, Subparts A and B** (Archaeological Resources Protection Act, as amended)
- **43 CFR 10** (NAGPRA)

NPS Orders and Guidance-The following NPS orders and guidance pertain to cultural resource management.

- **Director's Order 24**, "Standards for NPS Museum Collections Management"
- **Director's Order 26**, "Projects Must Fund Basic Preservation of Museum Collections They Generate"
- **Director's Order 27**, "Historic Property Leases and Exchanges"
- **Staff Directive 96-1**, "Linking Cultural and Natural Resource and Socio-economic Data to Park Planning and Management"
- **Department of the Interior Interim Standards for Documentation, Preservation and Protection of Museum Property** (September 1990)
- **National Park Service Abandoned Shipwreck Act Guidelines** (55 FR 50116, Dec. 4, 1990; 55 FR 51528, Dec. 14, 1990; 56 FR 7875, Feb. 26, 1991)

NPS-DO-28 and 28A: Cultural Resource Management Guidelines, Release #5

Relevant sections of Chapter 6 and Chapter 8 of DO 28 are excerpted below:

CHAPTER 6: MANAGEMENT OF ARCHEOLOGICAL RESOURCES

D. Stewardship

Stewardship of archeological resources is wide-ranging. It includes their treatment, preservation, and protection. It includes monitoring resource condition and assessing threats and disturbances. It also includes staff involvement and training in protection concerns and methods, preservation of significant features, sites, and recovered materials, and interpretation of archeological resources for public benefit.

1. Treatment

   Archeological resources will be left undisturbed unless intervention can be justified based on compelling research, interpretation, site protection, or park development needs. Recovered archeological materials and associated records will be treated in accordance with the NPS Management Policies, NPS Museum Handbook, and 36 CFR Part 79. Archeological collections will be cataloged, stabilized, and prepared for storage as part of the study or project that generated the material.

   a. Preservation

      Guidance for preserving historic and prehistoric structures is presented in Chapter 8 of this guideline, and that for museum objects is found in Chapter 9. More specific guidance for preserving archeological resources, including prehistoric structures, can be found in sources listed in Appendix J, the selected archeology bibliography. Guidance applicable to all types of archeological resources is summarized here:

      (1) All resources will be protected against natural and human agents of destruction and deterioration whenever practicable.

      (2) Preservation will maintain the existing form, integrity, and materials of the resource.

      (3) Preservation will include techniques of arresting or retarding deterioration through a program of ongoing maintenance. Deteriorated areas (e.g., depressions created through erosion, slumping, subsidence, and other natural causes) will be backfilled or otherwise stabilized.

      (4) Excavation and other destructive techniques will be employed only when necessary to provide sufficient information for research, interpretation, and management needs. Excavated areas (including potholes excavated by looters) will be backfilled or otherwise stabilized.

      (5) Stabilization of a resource to arrest and inhibit deterioration will be done in such a way as to detract as little as possible from its appearance and significance and not adversely affect its research potential unless adequate data recovery has occurred. Stabilization by vegetation, installation of rip rap or landscape netting, burial, or other alteration will be undertaken only after sufficient research or experimentation to determine the probable efficacy of the action and only after existing conditions are fully documented. A complete record of stabilization work will be kept.

      (6) Data recovery will precede and be completed before physical intervention into any archeological resource, including sites associated with historic structures.

   b. Rehabilitation, Restoration, and Reconstruction

      Archeological sites and structures will not be rehabilitated, restored, or reconstructed.

2. **Protection**

   Archeological resources will be protected from vandalism and looting. Patrols, fencing, warning signs, and remote-sensing alarms will be used as appropriate. Stewardship programs wherein concerned local people are enlisted to monitor conditions of archeological resources are encouraged.

   Interpretive and public educational programs to promote site protection are encouraged. The public should be made aware of the value of archeological resources and the penalties for destroying them through posters, films, and other media. Park staff should be made aware of protection concerns and methods through training sessions.

CHAPTER 8: MANAGEMENT OF HISTORIC AND PREHISTORIC STRUCTURES

A. Introduction

1. Resource Definition

A historic structure is "a constructed work . . . consciously created to serve some human activity." Historic structures are usually immovable, although some have been relocated and others are mobile by design. They include buildings and monuments, dams, millraces and canals, nautical vessels, bridges, tunnels and roads, railroad locomotives, rolling stock and track, stockades and fences, defensive works, temple mounds and kivas, ruins of all structural types, and outdoor sculpture.

Prehistoric structures are included in this chapter because the technical aspects of their preservation are similar to those of many historic structures. All prehistoric structures are also archeological resources, and some are ethnographic resources. They should therefore be managed within the general provisions of Chapters 6 and 10, particularly with respect to research and planning. Prehistoric structures are further distinguished by National Park Service policy limitations on their use and treatment. Given these qualifications, the term "historic structure" in this guideline is meant to encompass prehistoric structures unless otherwise stated.

2 Program Objectives

The preservation of historic structures involves two basic concerns: slowing the rate at which historic material is lost, and maintaining historic character. Research on, planning for, and stewardship of historic structures focus on these concerns. Research defines historical associations, integrity, character, and the causes of material deterioration; planning develops and evaluates proposals for use and treatment in terms of their likely effects; and stewardship entails activities ranging from craft training to the identification and mitigation of threats.

Preservation of historic structures is an interdisciplinary effort requiring cooperation and communication among historical architects, architectural conservators, preservation specialists, archeologists, landscape architects, historians, ethnographers, and curators.

B. Research

Research about historic structures is a prerequisite for treatment and provides a basis for decision-making by managers. Situations benefiting from research-generated information range from review of weekly maintenance projects to long-term planning projects. Research also contributes to interpretation, compliance, and facility design.

To accomplish these purposes, research typically concentrates on three broad aspects of a historic structure: its historical, technical, aesthetic, or scientific associations; its developmental history or evolution; and the nature, performance, and capability of its materials and systems. This information is collected, analyzed, and organized through a variety of means, discussed below.

1. Identification, Evaluation, and Registration

Section 110 of the National Historic Preservation Act requires the NPS to identify and nominate to the National Register of Historic Places all structures and other properties under its jurisdiction that appear eligible. Historical areas of the national park system are automatically listed in the National Register in toto upon their establishment by law or executive order, but those structures and other features within them that contribute to their historical significance must still be documented for Register purposes.

a. Historic Resource Study

The historic resource study (HRS) is the primary document used to identify and manage the historic resources in a park. It is the basis for understanding their significance and interrelationships, a point of departure for development of interpretive plans, and the framework within which additional research should be initiated.

Although structures may be nominated to the National Register on an individual basis, they are most efficiently processed as part of an HRS. (For more guidance see "Baseline Research Reports" in Chapter 2.) With respect to historic structures, an HRS is adequate when three conditions–re-

quired for National Register nomination–are met. First, the thematic context must be sufficient to evaluate historical, aesthetic, technical, or scientific associations of structures within the study area. Second, the HRS must contain enough information about the developmental history or evolution of each structure to evaluate its integrity. Third, the study must contain enough information about the contributing environment of each structure to enable National Register boundaries to be defined and possible overlaps with cultural landscapes and archeological or ethnographic resources to be identified.

Research on structures or topics that were not included in an earlier HRS should be published as an addendum to that document.

b. National Register Nominations

National Register nominations may be prepared either for individual structures or for groups of structures. Collective nominations are appropriate for structures that are physically related, as in a historic district, or thematically related, as in a multiple property nomination. (For additional guidance see "Resource Identification, Evaluation, and Registration" in Chapter 2.)

As noted in the introduction to this guideline, the cultural resource types in the NPS Management Policies and this guideline are adaptations for management purposes of the property categories used by the National Register. Park resources classified as structures may be listed as buildings, structures, or objects in the National Register. Historic and prehistoric structures also may be included in the Register as contributing elements of historic districts, either as components of developed areas or as landscape features.

c. List of Classified Structures

The List of Classified Structures (LCS) is the primary computerized database containing information about historic and prehistoric structures in which the NPS has or plans to acquire any legal interest. Properties included in the LCS are either in or eligible for the National Register or are to be treated as cultural resources by law, policy, or decision reached through the planning process even though they do not meet all National Register requirements. Data fields in the LCS include identification, category of significance, condition, use, threats, treatments, cost estimates for treatments, and physical description.

The LCS has three major applications: (a) to describe historic structures on an individual or collective basis at park, regional, or Service-wide levels, (b) as a common information source for other automated management systems such as the Maintenance Management (MM) program and the Housing Inventory, and (c) as an analytical tool in budgeting, scheduling, and program development.

(For more information see "Service-wide Inventories" in Chapter 2 and the List of Classified Structures [LCS] User's Manual, 1993.)

d. Categories of Significance

All cultural resources are managed under a uniform standard of preservation responsibility. The following categories of significance are used to establish LCS management categories, determine appropriate levels of graphic documentation, and make other related management decisions for prehistoric and historic structures within the national park system.

Category Ia: Individual structures that qualify as national historic landmarks, are listed in the National Register as nationally significant, or that possess national significance by act of Congress or executive order.

Category Ib: Structures that do not possess national significance on an individual basis, but contribute to the national significance of a park or historic district.

Category II: Structures that individually or collectively qualify for the National Register and possess significance at the state level.

Category III: Structures that individually or collectively qualify for the National Register and possess significance at the local level.

2. Documentation and Investigation

As a rule, research about a historic structure should complement existing information and strive to produce a comprehensive understanding of the structure in order to adequately address management objectives. Research effort should be proportional to the significance of the structure and the range of effects associated with the objectives. Although individual features, areas, or systems may be emphasized, research should approach the structure as a whole.

Research needed to supply missing information should be defined in terms of subject, scope, and level of investigation. The subject may range from one feature on a single historic structure to a complex of structures. Scope includes but is not limited to thematic context, physical documentation, temporal associations, developmental history, scientific value, and material analysis. Level of investigation describes the nature and location of sources to be consulted and the degree to which extant material will be disturbed or destroyed during research. These considerations are described in the task directive and research design for every substantial research effort. (See "Research Methodology" in Chapter 2.)

Destructive techniques, such as archeological excavation and selective demolition, should be used only when alternatives are inadequate to provide information essential for evaluating, planning for, treating, or interpreting a historic structure. Any research that would directly impact a cultural resource must be reviewed in advance through the compliance process. Research involving prehistoric and some historic structures may also require consultation with Native Americans or other associated ethnic groups.

a. Historic Structure Report

The historic structure report (HSR) is the primary guide to treatment and use of a historic structure and may also be used in managing a prehistoric structure. A separate HSR should be prepared for every major structure managed as a cultural resource. Groups of similar structures or ensembles of small, simple structures may be addressed in a single report. In no case should restoration, reconstruction, or extensive rehabilitation of any structure be undertaken without an approved HSR, Parts 1 and 2.

An HSR includes the following:

Management Summary. This is a concise account of research done to produce the HSR, major research findings, major issues identified in the task directive, and recommendations for treatment and use. Administrative data on the structure and related studies are included.

Part 1, Developmental History, is a scholarly report documenting the evolution of a historic structure, its current condition, and the causes of its deterioration. It is based on documentary research and physical examination. The scope of documentary research may extend beyond the physical development of the structure if needed to clarify the significance of the resource or to refine contextual associations; however, major historical investigation of contextual themes or background information should be conducted as part of a historic resource study. If the Inventory and Condition Assessment Program (FMSS) is used to describe the nature and condition of features, resultant reports (e.g., the historic asset assessment report) should be included in the HSR's appendix.

Part 2, Treatment and Use, presents and evaluates alternative uses and treatments for a historic structure. Emphasis is on preserving extant historic material and resolving conflicts that might result from a structure's "ultimate treatment." Part 2 concludes by recommending a treatment and use responding to objectives identified by park management. In most cases, design work does not go beyond schematics.

Part 3, Record of Treatment, is a compilation of information documenting actual treatment. It includes accounting data, photographs, sketches, and narratives outlining the course of work, conditions encountered, and materials used.

All aspects of a historic structure and its immediate grounds should be addressed in an HSR. Potential overlaps with other cultural resource types and natural resource issues should be identified, and applicable studies and reports should be called for or referenced. An HSR and analogous reports (e.g. a cultural landscape report) may be combined to address multiple resource types at a single property or area.

Parts 1 and 2 of an HSR should be prepared jointly as part of a comprehensive effort soon after acquisition of a structure or recognition of its status as a cultural resource. Given funding and time constraints, however, an HSR may be prepared incrementally. Incremental research and design should also be considered when a complete HSR does not exist or an existing HSR does not adequately address aspects of a proposed treatment such as replication of missing features, removal of significant features or large amounts of historic material, or introduction of new systems or exterior additions. In no case should a Part 2 be prepared without a Part 1.

The scope, level of investigation, and extent of schematic development are outlined in a task directive that is based on the recommendations of a historical architect in consultation with other cultural resource specialists and the park manager. Major factors considered in developing the task directive include the structure's significance, condition, and intended use. The task directive should also address participation of other cultural resource specialists and publication of the document.

The following standards apply:

- A historic structure report (HSR) is prepared to minimize loss of character-defining features and materials whenever existing information about the developmental history and condition of the historic structure does not provide an adequate basis upon which to address anticipated management objectives, whenever alternative courses of action for impending treatment and use could have adverse effects, or to record treatment.
- Architectural, landscape, and archeological investigations supporting an HSR have the least possible impact on the property studied and employ nondestructive methods to the maximum extent possible; they are prescribed and justified in a task directive that includes a research design and impact analysis.

b. Graphic Documentation

Documentation of historic structures is undertaken to record preservation treatment, provide a baseline for monitoring, aid in interpretation, support scholarly research, and serve as an objective reference for repair or reconstruction in the event of damage or loss. The scope, method, and level of documentation of a structure should be proportional to its significance as a cultural resource, the character of its features, the degree to which it is endangered, and the ways in which the documentation is most likely to be used.

All documentation is done in conformance with the Secretary of the Interior's Standards for Architectural and Engineering Documentation (see Appendix C). Where recording is done to establish a baseline for planning or before demolition, the following documentation levels are recommended: Level I for Category Ia structures, Level II for Category Ib structures, Level III for Category II structures, and Level IV for Category III structures.

New materials and replacement features introduced should be recorded in place with photographs or drawings that clearly indicate their extent. Physical evidence of the developmental history of a structure should be recorded before being removed or covered during treatment. Copies of task directives, daily reports, and change orders should also be retained in park files.

3. Ultimate Treatment

The ultimate treatment of a historic structure is a general definition of its development limits based on considerations of use and the historic character that should be presented to the public. It is accomplished through one or more construction projects, after which the structure is preserved by preservation maintenance. Subsequent rehabilitation or restoration may be needed to update the structure's functional aspects and to repair or replace damaged or deteriorated features. Pending ultimate treatment, a structure is stabilized and protected in its existing condition; it may also receive interim treatment compatible with its planned appearance and use.

The categories of ultimate treatment are preservation, rehabilitation, restoration, and reconstruction.

Preservation as an ultimate treatment maintains the existing integrity and character of a historic structure. This alternative precludes uses that would require major additions or demolition. It should always receive first consideration.

Reconstruction produces a new structure identical in form, features, and details to a historic structure that no longer exists. Management Policies permits reconstruction only if (a) it is essential for public understanding of the cultural associations of a park established for that purpose, (b) the structure can be built at full scale on the original site with minimal conjecture, and (c) significant archeological resources will be preserved in situ or their research values will be realized through data recovery. Meeting the first criterion requires a demonstration that no other interpretive media or techniques can render the park's primary theme comprehensible to visitors. Reconstruction will be undertaken only upon specific written approval of the director after policy review in the Washington office.

D. Stewardship

For historic structures, stewardship focuses on five major activities: (a) control of treatment and use, (b) monitoring conditions of deterioration and structural failure, (c) protecting structures from human and environmental threats, (d) retaining or delegating responsibility for structures, and (e) developing the skills, knowledge, and attitudes needed to support the program. The last of these is addressed in Chapter 4 as part of training. Guidance for the others follows.

1. Treatment and Use

Treatment and use of historic structures follows the conditions outlined in approved planning documents such as the general management plan, historic structure report, and FMSS work procedures.

Treatment of historic structures is divided into four categories: preservation, rehabilitation, restoration, and reconstruction. These categories parallel those used in planning for the ultimate treatment of historic structures. They are also the same as those outlined in Management Policies and the Secretary of the Interior's Standards for the Treatment of Historic Properties, commonly referred to as the Secretary's Standards.

One treatment category, preservation, encompasses four activities recognized in the 1995 Servicewide Programmatic Agreement (PA): stabilization, housekeeping, routine maintenance, and cyclic maintenance. Under stipulation IV of the PA these activities are referred to collectively as "preservation maintenance." (See Chapter 5 for additional information.)

The following standards apply to all treatments:

- Use is monitored and regulated to minimize both immediate and long-term damage.
- Use of destructive techniques, such as archeological excavation, is limited to providing sufficient information for research, interpretation, and management needs.
- All work that may affect resources is evaluated by an historical architect and other professionals, as appropriate.
- All modification, repair, or replacement of materials and features is preceded by sufficient study and recording to protect research and interpretive values.
- New work, materials, and replacement features are identified, documented, or permanently marked in an unobtrusive manner to distinguish them from original work, materials, and features. The manner and location of identification is recorded using the Inventory and Condition Assessment Program (now in FMSS).
- A proposed treatment project is initiated by the appropriate programming document, including a scope of work and cost estimate from an HSR or FMSS. Such projects include preservation maintenance as well as major treatment. No treatment is undertaken without an approved HSR or work procedure documenting the work, and Section 106 compliance.
- A treatment project is directed by a historical architect and performed by qualified technicians.
- Representative features salvaged from a historic structure are accessioned and cataloged, provided that they fall within the park's scope of collection statement.
- All changes made during treatment are graphically documented with drawings and photographs. Records of treatment are managed as archival materials by a curator or archivist within the park's museum collection.

a. Preservation

Preservation maintains the existing integrity and character of a historic structure by arresting or retarding deterioration caused by natural forces and normal use. It includes both maintenance and stabilization. Maintenance is a systematic activity mitigating wear and deterioration of a structure by protecting its condition. Stabilization involves reestablishing the stability of an unsafe, damaged, or deteriorating structure while maintaining its existing character. The following standards based on the Secretary of the Interior's Standards for the Treatment of Historic Properties apply:

- A historic structure is used as it was historically, or is given a new or adaptive use that maximizes the retention of historic materials, features, spaces, and spatial relationships. Where a treatment and use have not been identified, a structure is protected and, if necessary, stabilized until additional work may be undertaken. Adaptive use of prehistoric structures is prohibited.
- The historic character of a historic structure is retained and preserved. The replacement or removal of intact or repairable historic materials or alteration of features, spaces, and spatial relationships that characterize a structure is avoided.
- Each historic structure is recognized as a physical record of its time, place, and use. Work needed to stabilize, consolidate, and conserve historic materials and features is physically and visually compatible, identifiable upon close inspection, and properly documented for future research.
- Changes to a historic structure that have acquired historical significance in their own right are retained and preserved.
- Historic materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a historic structure are preserved.
- The existing condition of historic features is evaluated to determine the appropriate level of intervention needed. Where the severity of deterioration requires repair or limited replacement of a historic feature, the new work matches the old in design, color, texture, and where possible, materials. Repair or replacement of features is substantiated by archeological, documentary, or physical evidence.
- Chemical or physical treatments that cause damage to historic materials are not used.
- Archeological and landscape resources are protected and preserved in place. If such resources must be disturbed, mitigation measures are undertaken including recovery, curation, and documentation.

The following additional standards apply:

- Stabilization detracts as little as possible from a historic structure's appearance and significance. Reinforcement is concealed wherever possible so as not to intrude upon or detract from the aesthetic, historical, or archeological quality of the structure, except where concealment would result in the alteration or destruction of historically or archeologically significant features, materials, or physical or visual relationships. Accurate documentation of stabilization procedures is kept and made available for future needs.
- Maintenance is executed by qualified technicians in accordance with approved work procedures. Where such procedures are nonexistent or incomplete, a historical architect provides technical guidance.
- All features of a historic structure are inspected on a scheduled basis and information about their condition is entered into ICAP (now FMSS).

d. Reconstruction

Reconstruction entails reproducing the form, features, and character of a non-surviving historic structure, or any part thereof, as it appeared at a specific time and place. Reconstruction of an entire structure is always a last-resort measure for addressing a management objective and will be undertaken only upon specific written approval of the director after policy review in the Washington office. The following standards based on the Secretary of the Interior's Standards for the Treatment of Historic Properties apply:

- Archeological, documentary, or physical evidence is available to permit accurate reconstruction with minimal conjecture, and such reconstruction is essential to public understanding of the cul-

tural associations of a park established for that purpose.

- Reconstruction of a historic structure in its historic location is preceded by a thorough archeological investigation to identify and evaluate those features and artifacts which are essential to an accurate reconstruction. Mitigation measures are undertaken including recovery, curation, and documentation.
- Reconstruction includes measures to preserve any remaining historic material, features, and spatial relationships.
- Reconstruction is based on the accurate duplication of historic features substantiated by archeological, documentary, or physical evidence, rather than on conjectural designs or the availability of different features from other structures. A reconstructed historic structure re-creates the appearance of the non-surviving structure in design, color, texture, and, where possible, materials.
- A reconstruction is clearly identified as a contemporary re-creation.
- Designs that were never executed historically are not constructed.

The following additional standards apply:

- The reconstructed historic structure is full-scale and on the original site.
- The reconstruction does not simulate a damaged or ruined historic structure or constitute a general representation of a "typical" structure.

2. Monitoring and Inspections

   Planning for maintenance of historic structures requires information about the nature and condition of their features. These data are collected on a systematic basis using the procedures outlined in the Inventory and Condition Assessment Program (ICAP). Major components of ICAP include the scheduled and major assessments modules that upload information into the Maintenance Management (MM) program to generate work requests. ICAP work procedures are contained in the Historic Property Preservation Database (HPPD) and are compatible with the MM program. ICAP interfaces electronically with the List of Classified Structures (LCS) and the Cultural Resources Management Bibliography (CRBIB).

   As an integrated database with a growing capacity to coordinate information between maintenance and resource management, ICAP should be promptly implemented in all parks. All major assessments of historic structures should be based on ICAP, and reports of work done to historic structures should be recorded in ICAP.

   ICAP has now been superseded by FMSS; see Appendix N.

3. Protection

   Special attention must be paid to protection of historic structures from threats caused by use and environmental forces. Such threats include vandalism, smoking, storage of flammable materials and explosives, and vehicular and airplane traffic. Solutions include road patrols, restrictions on smoking and storage of flammables (as required in certain cases by Management Policies), proper collection and disposal of trash, housekeeping, routine and cyclic maintenance, installation of fire detection and suppression systems, limitations on or removal of traffic, and periodic inspections.

CHECKLIST FOR MANAGEMENT OF HISTORIC AND PREHISTORIC STRUCTURES

RESEARCH:

- All structures eligible for the National Register of Historic Places have been identified and nominated.
- All historic structures are in the List of Classified Structures and entries are complete and current.
- Documentary research and physical examination are sufficient to support treatment.
- Work procedures and major assessments are complete in an FMSS format.
- All historic structures have been recorded to levels commensurate with their significance and mandated purposes.
- Material samples, field notes, photographs, and construction files composing the resource information base are properly organized and placed in the park museum collection.
- All professional reports and publications are entered in the Cultural Resources Management Bibliography.

PLANNING

- All historic structures are appropriately addressed in the park's general management plan, development concept plan(s), and interpretive prospectus with respect to their significance, purposes or uses, and research bases.
- Plans and specifications for all preservation, rehabilitation, restoration, and reconstruction work are prepared by a historical architect.
- Work assignments for preservation maintenance are assigned priority based on the relative significance of assets and the relative seriousness of their condition.
- Required consultation and legal compliance is carried out before any work is initiated, and the concerns of consultants are taken into account in decision-making.

STEWARDSHIP:

- All work is done by qualified people in conformance with approved plans and specifications or work procedures.
- All historic structures are inspected at least annually in an FMSS format.
- All maintenance personnel who work in, on, or around historic structures are given appropriate training.
- The entire park staff is made aware of the significance of all historic structures and the major threats to them.
- All ground disturbance around historic structures is cleared or monitored by an archeologist.

CHECKLIST FOR MANAGEMENT OF ARCHEOLOGICAL RESOURCES

RESEARCH:

- Sufficient research is conducted to identify and evaluate park archeological resources and to assess their condition and threats to them.
- Recovered archeological materials are cleaned, conserved, studied, cataloged, and properly stored. Associated records documenting resources are maintained as a part of the archeological collection.
- Information about archeological resources is compiled and maintained in the archeological component of the Cultural Sites Inventory. Paper and electronic records are maintained nationally and at parks, support offices, and centers.
- Eligible archeological resources are nominated for listing in the National Register of Historic Places.
- Park base maps are prepared showing the location and distribution of archeological resources and the nature and extent of archeological identification activities.
- Research results are disseminated to park managers, planners, interpreters, and other NPS specialists and incorporated into appropriate park planning documents.

PLANNING:

- Planning for actions that might affect archeological resources is preceded by research sufficient to identify and evaluate such resources.
- Planning decisions promote the preservation of archeological resources in place.
- Planning decisions that result in adverse effects on archeological resources are made only after a thorough analysis of impacts, when there are no feasible alternatives, and when all reasonable measures to limit the adverse effects are taken.
- Required consultation and legal compliance is carried out, and the concerns raised during consultations are taken into account in decision-making.

STEWARDSHIP:

- Archeological resources are preserved and protected by eliminating and avoiding natural and human impacts, stabilizing sites and structures, monitoring conditions, and enforcing protective laws and regulations.
- Information about archeological resources is included, as appropriate, in interpretive and educational programs designed for the public.

MODEL HSR CONTENTS

i. Cover Page
ii. Table of Contents
iii. Executive Summary. This introductory text provides a concise account of (a) research done to produce the HSR, (b) major research findings, (c) major issues identified in the task directive, and (d) recommenda-tions for treatment or use. Deviations from general planning documents should be identified here and discussed more fully in the body of the report.
iv. Administrative Data. This section contains (a) names, numbers, and locational data used to refer to the historic structure, (b) the proposed treatment of the structure including the source document, (c) related studies, (d) cultural resource data including date listed in the National Register, period of significance, and context of significance, and (e) recommendations for documentation, cataloging, and storage of materials generated by the HSR.

PART 1. DEVELOPMENTAL HISTORY

A. A. Historical Background and Context. This section briefly describes the people and events associated with the structure. The section should establish a recommended period or periods of significance if this has not been done in the National Register nomination or historic resource study (HRS).
B. B. Chronology of Development and Use. Physical construction, modification, and use of the structure is summarized in this section. The text should be based on historical documentation with corroboration from first-hand observation and materials analysis.
C. C. Physical Description. This section contains a systematic accounting of all features, materials, and spaces according to age, significance, and condition. Copies of computer-generated inspection reports should be included in the appendix but summarized in the body of the chapter. The text should also discuss causes of deterioration and structural adequacy.

PART 2. TREATMENT AND USE

A. A. Ultimate Treatment and Use. This narrative discusses and analyzes the ultimate treatment and use of the structure as defined in park planning documents. If they have not been defined, this section may recommend an ultimate treatment and use. If analysis of the structure suggests that a planned treatment or use would adversely affect it, the text may present an alternative approach.
B. B. Requirements for Treatment. In concise terms, this text outlines applicable laws, regula-tions, and functional requirements. Specific attention should be given to issues of human safety, fire protection, energy conservation, abatement of hazardous materials, and handicapped accessibility.
C. C. Alternatives for Treatment. This section presents and evaluates alternative approaches to realization of the ultimate treatment. Alternatives are presented in both text and graphic form. Analysis addresses the adequacy of each solution in terms of impact on historic materials, effect on historic character, compliance with NPS policy, and other management objectives. The section concludes with elaboration on the recommended course of action and specific recommendations for preservation treatments.

PART 3. RECORD OF TREATMENT

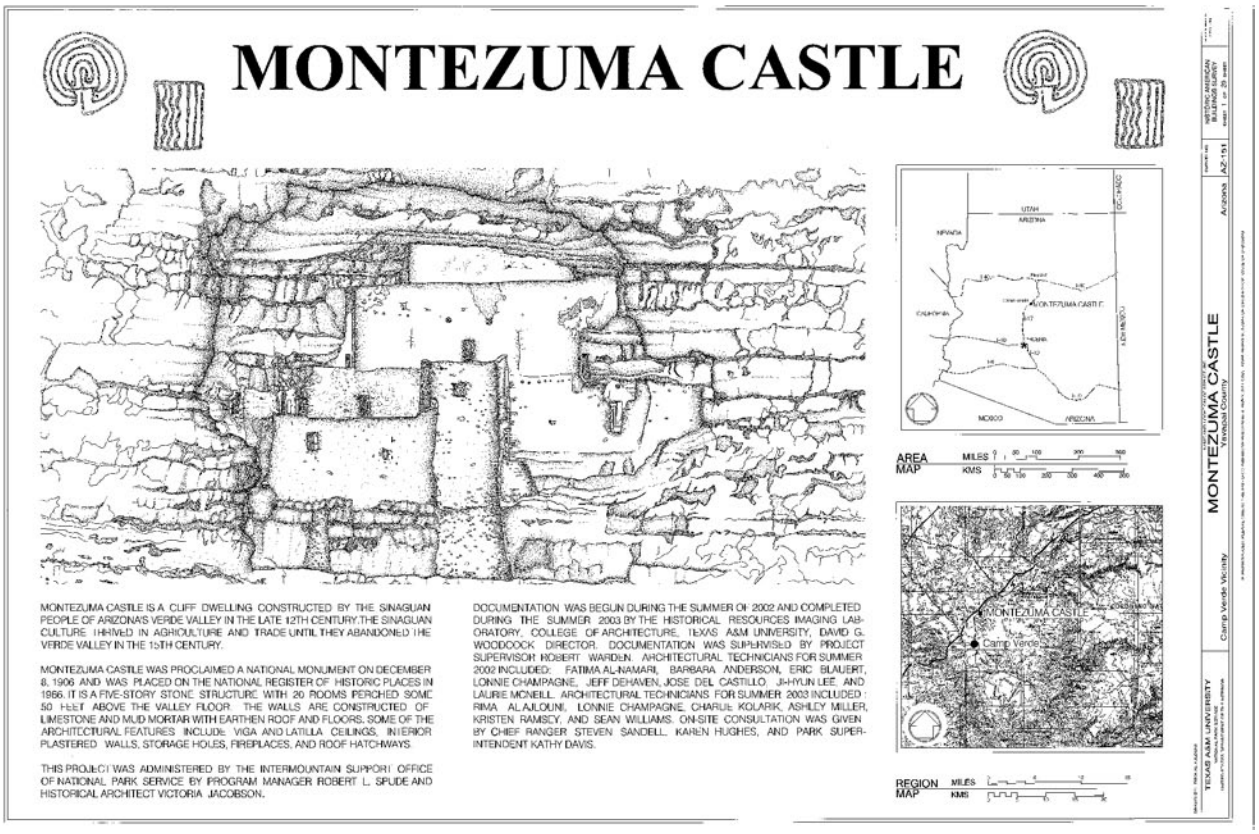
A. A. Completion Report. This section summarizes (a) the intent of the work, (b) the way in which the work was approached and accomplished, (c) the time required to do the work, and (d) the cost of the work. It also describes any information about the history of the structure based on physical evidence discovered during construction.
B. B. Technical Data. This portion of the report contains copies of field reports, material data sheets, field notes, correspondence, accounting spread sheets, and contract summaries.

APPENDIX
Bibliography
Drawings
Photographs
Materials Analysis

APPENDIX L
Historic American Buildings Survey (HABS)

The Historic American Buildings Survey (HABS) is the nation's first federal preservation program, begun in 1933 to document America's architectural heritage. Creation of the program was motivated primarily by the perceived need to mitigate the negative effects upon our history and culture of rapidly vanishing architectural resources. At the same time, important early preservation initiatives were just getting underway, such as restoration of the colonial capital at Williamsburg and the development within the National Park Service (NPS) of historical parks and National Historic Sites. Architects interested in the colonial era had previously produced drawings and photographs of historic architecture, but only on a limited, local, or regional basis. A source was needed to assist with the documentation of our architectural heritage, as well as with design and interpretation of historic resources, that was national in scope. As it was stated in the tripartite agreement between the American Institute of Architects, the Library of Congress, and the NPS that formed HABS, "A comprehensive and continuous national survey is the logical concern of the Federal Government." As a national survey, the HABS collection is intended to represent "a complete resume of the builder's art." Thus, the building selection ranges in type and style from the monumental and architect-designed to the utilitarian and vernacular, including a sampling of our nation's vast array of regionally and ethnically derived building traditions.

HABS recording combines drawings, history, and photography to produce a comprehensive, interdisciplinary record. The documentation ranges in scope depending largely upon the level of significance and complexity. It should first and foremost convey what is most important about that particular structure. The drawings component generally includes floor plans, elevations, architectural details, and construction elements, sometimes expanded to include sectional or



axonometric drawings to convey the interrelationship of the building parts. In the case of relatively simple vernacular structures, however, it may be enough to undertake only a first floor plan and significant architectural and structural details. The written history follows an outline format that begins with a statement of significance supported by the development of the architectural and historical context in which the structure was built and subsequently evolved. The report also includes architectural description and bibliographic information. Again, in the case of a structure of limited complexity, the HABS "short format" historical report may suffice. The large-format, black-and-white photographs record the environmental setting, elevations, and significant details, both inside and out. The number of photographs should be weighted against the other components (and vice versa); it may be more appropriate to photograph rather than draw or describe elements such as secondary elevations and architectural details. In any case, each component of the documentation conveys an important piece; together they create a comprehensive understanding of the site.

There are four standards that describe the fundamental principles of HABS/HAER documentation:

Standard I: Content

1 Requirement: Documentation shall adequately explicate and illustrate what is significant or valuable about the historic building, site, structure, or object being documented.

2. Criteria: Documentation shall meet one of the following documentation levels to be considered adequate for inclusion in the HABS/HAER collections.
   a. Documentation Level I;
      (1) Drawings: a full set of measured drawings depicting existing or historic conditions.
      (2) Photographs: photographs with large-format negatives of exterior and interior views; photocopies with large-format negatives of select existing drawings or historic views where available.
      (3) Written data: History and description.
   b. Documentation Level II;
      (1) Drawings: select existing drawings, where available, should be photographed with large-format negatives or photographically reproduced on mylar.
      (2) Photographs: photographs with large-format negatives of exterior and interior views, or historic views, where available.
      (3) Written data: history and description.
   c. Documentation Level III;
      (1) Drawings: sketch plan.
      (2) Photographs: photographs with large-format negatives of exterior and interior views.
      (3) Written data: architectural data form.
   d. Documentation Level IV: HABS/HAER inventory card.
3. Test: Inspection of the documentation by HABS/HAER staff.
4. Commentary: The HABS/HAER office retains the right to refuse to accept any documentation on buildings, sites, structures or objects lacking historical significance. Generally, buildings, sites, structures or objects must be listed in, or eligible for listing in the National Register of Historic Places to be considered for inclusion in the HABS/HAER collections. The kind and amount of documentation should be appropriate to the nature and significance of the buildings, site, structure or object being documented. Generally, Level I documentation is required for nationally significant buildings and structures, defined as National Historic Landmarks and the primary historic units of the National Park Service. On occasion, factors other than significance will dictate the selection of another level of

documentation. For example, if a rehabilitation of a property is planned, the owner may wish to have a full set of as-built drawings, even though the significance may indicate Level II documentation. Level IV documentation consists of completed HABS/HAER inventory cards. This level of documentation, unlike the other three levels, is rarely considered adequate documentation for the HABS/HAER collections but is undertaken to identify historic resources in a given area prior to additional, more comprehensive documentation.

Standard II: Quality

1. Requirement: HABS and HAER documentation shall be prepared accurately from reliable sources with limitations clearly stated to permit independent verification of information.
2. Criteria: For all levels of documentation, the following quality standards shall be met:
   a. Measured drawings: Measured drawings shall be produced from recorded, accurate measurements.. No part of the measured drawings shall be produced from hypothesis or non-measurement related activities. Documentation Level I measured drawings shall be accompanied by a set of field notebooks in which the measurements were first recorded. Other drawings prepared for Documentation Levels II and III, shall include a statement describing where the original drawings are located.
   b. Large format photographs: Large format photographs shall clearly depict the appearance of the property and areas of significance of the recorded building, site, structure or object. Each view shall be perspective-corrected and fully captioned.
   c. Written history: Written history and description for Documentation Levels I and II shall be based on primary sources to the greatest extent possible. For Levels III and IV, secondary sources may provide adequate information; if not, primary research will be necessary.
3. Test: Inspection of the documentation by HABS/HAER staff.
4. Commentary: The reliability of the HABS/HAER collections depends on documentation of high quality. Quality is not something that can be easily prescribed or quantified, but it derives from a process in which thoroughness and accuracy play a large part. The principle of independent verification of HABS/HAER documentation is critical to the HABS/HAER collections.

Standard III: Materials

1. Requirement: HABS and HAER documentation shall be prepared on materials that are readily reproducible for ease of access; durable for long storage; and in standard sizes for ease of handling.
2. Criteria: For all levels of documentation, the following material standards shall be met:
   a. Measured Drawings:
      Readily Reproducible: Ink on translucent material.
      Durable: Ink on archivally stable materials.
      Standard Sizes: Two sizes: 19 X 24” or 24 X 36”.
   b. Large Format Photographs:
      Readily Reproducible: Prints shall accompany all negatives.
      Durable: Photography must be archivally processed and stored. Negatives are required on safety film only. Resin-coated paper is not accepted. Color photography is not acceptable.
      Standard Sizes: Three sizes: 4 X 5”, 5 X 7”, 8 X 10”.
   c. Written History and Description:
      Readily Reproducible: Clean copy for xeroxing.
      Durable: Archival bond required.
      Standard Sizes: 8½ X 11”.
   d. Field Records:

Readily Reproducible: Field notebooks may be xeroxed. Photo identification sheet will accompany 35 mm negatives and contact sheets.
Durable: No requirement
Standard Sizes: Only requirement is that they can be made to fit into a 9½ X 12" archival folding file.

3. Test: Inspection of the documentation by HABS/HAER staff.
4. Commentary: All HABS/HAER records are intended for reproduction; some 20,000 HABS/HAER records are reproduced each year by the Library of Congress. Although field records are not intended for quality reproduction, it is intended that they be used to supplement the formal documentation. The basic durability performance standard for HABS/HAER records is 500 years. Ink on mylar is believed to meet this standard, while color photography, for example, does not. Field records do not meet this archival standard, but are maintain in the HABS/HAER collections as a courtesy to the collection user.

Standard IV: Preservation

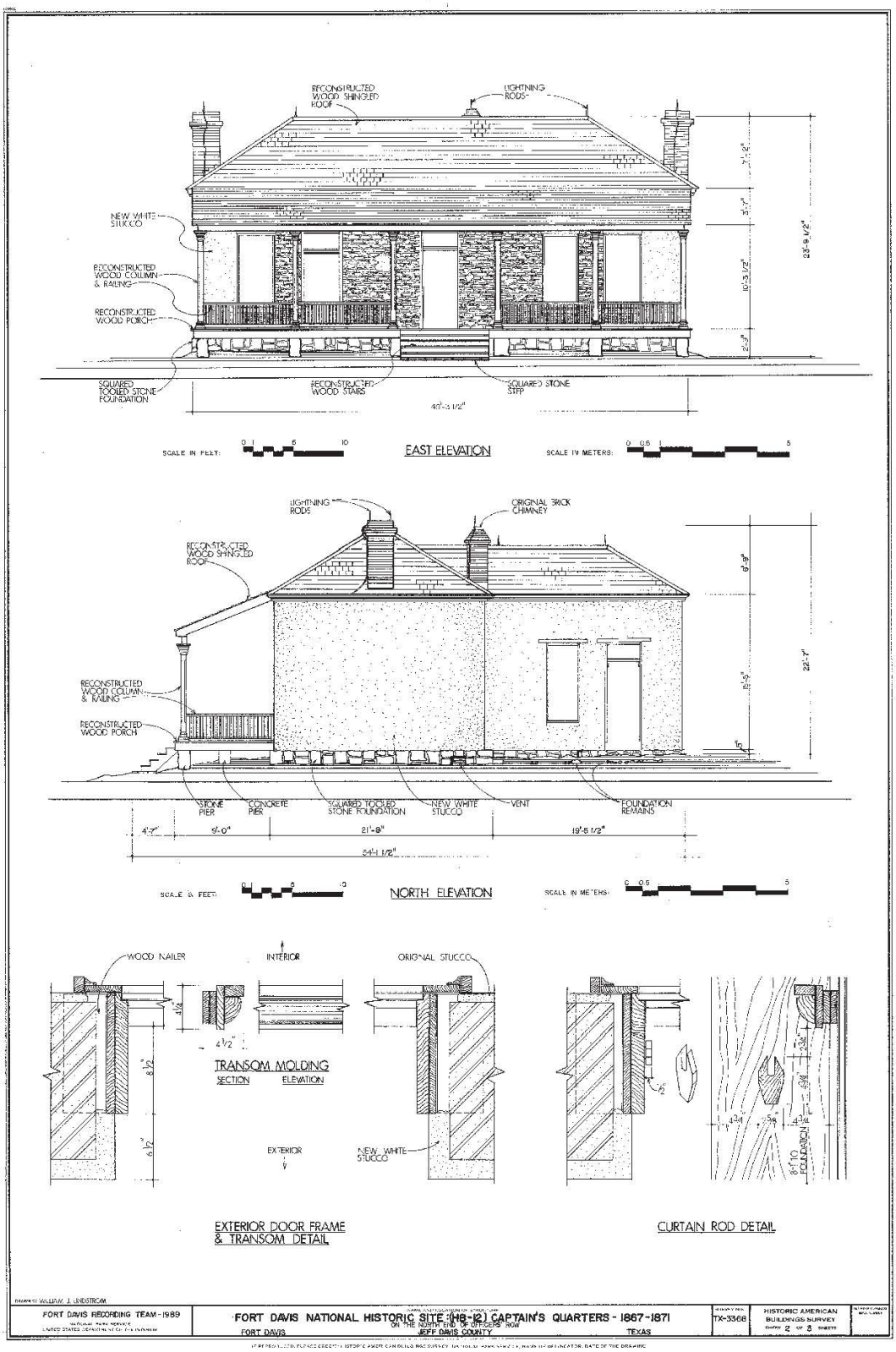
1. Requirement: HABS and HAER documentation shall be clearly and concisely produced.
2. Criteria: For levels of documentation as indicated below, the following standards for presentation will be used:
   a. Measured Drawings: Level I measured drawings will be lettered mechanically (i.e., Leroy or similar) or in a hand printed equivalent style. Adequate dimensions shall be included on all sheets. Level III sketch plans should be neat and orderly.
   b. Large format photographs: Level I photographs shall include duplicate photographs that include a scale. Level II and III photographs shall include, at a minimum, at least one photograph with a scale, usually of the principal facade.
   c. Written history and description: Data shall be typewritten on bond, following accepted rules of grammar.
3. Test: Inspection of the documentation by HABS/HAER staff.

In addition to the Standards, guidelines provide direction in the production of measured drawings to HABS Standards. These guidelines cover:

1.0 Project Preparation
2.0 Field Notes
3.0 Measuring Structures
4.0 Preliminary (Pencil) Drawings
5.0 Ink On Drafting Film Drawings
6.0 Landscape Documentation
7.0 Documentation Of Construction Histories And Site Development
8.0 Completing The Set

HABS appendices cover the additional topics of: Graphic Constructions; Perimeters, Areas and Volumes; Using Trigonometric Laws and Functions to Solve Surveying Problems; Determining the Heights of Tall Structures with a Transit; Measuring Circular Objects and Areas; Projections from Plans to Elevations, and; English and Metric Systems.

More detail on the Historic American Building Survey and its Standards and Guidelines can be found at the NPS Heritage Documentation Programs website: http://www.nps.gov/hdp/index.htm.


RECONSTRUCTED WOOD SHINGLED ROOF
LIGHTNING RODS
NEW WHITE STUCCO
RECONSTRUCTED WOOD COLUMN & RAILING
RECONSTRUCTED WOOD PORCH
SQUARED TOOLED STONE FOUNDATION
RECONSTRUCTED WOOD STAIRS
SQUARED STONE STEP
SCALE IN FEET:
EAST ELEVATION
SCALE IN METERS:
LIGHTNING RODS
ORIGINAL BRICK CHIMNEY
RECONSTRUCTED WOOD SHINGLED ROOF
RECONSTRUCTED WOOD COLUMN & RAILING
RECONSTRUCTED WOOD PORCH
STONE PIER
CONCRETE PIER
SQUARED TOOLED STONE FOUNDATION
NEW WHITE STUCCO
VENT
FOUNDATION REMAINS
4'-7"
9'-0"
21'-8"
19'-5 1/2"
54'-1 1/2"
SCALE IN FEET:
NORTH ELEVATION
SCALE IN METERS:
WOOD NAILER
INTERIOR
ORIGINAL STUCCO
TRANSOM MOLDING
SECTION
ELEVATION
EXTERIOR
NEW WHITE STUCCO
EXTERIOR DOOR FRAME & TRANSOM DETAIL
CURTAIN ROD DETAIL
FOUNDATION
FORT DAVIS RECORDING TEAM - 1989
FORT DAVIS NATIONAL HISTORIC SITE (HB-12) CAPTAIN'S QUARTERS - 1867-1871
ON THE NORTH END OF OFFICERS' ROW
FORT DAVIS
JEFF DAVIS COUNTY
TEXAS
TX-3368
HISTORIC AMERICAN BUILDINGS SURVEY

APPENDIX M
Commentary and Excerpts from other Relevant National and International Charters, Declarations, and Codes

Grand Canyon National Park, Chaco Culture National Historical Park and Mesa Verde National Park have the distinction of being designated as World Heritage Sites. The Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) was adopted by the UNESCO General Conference at its 17th session in Paris on 16 November 1972. The Convention came into force in 1975 and as of December 2001 had 170 member countries. The list includes twenty American places. The Convention is considered the most successful global instrument for the protection of cultural and natural heritage.

The World Heritage Convention aims to promote cooperation among nations to protect heritage from around the world that is of such outstanding universal value that its conservation is important for current and future generations. It is intended that, unlike the seven wonders of the ancient world, properties on the World Heritage List will be conserved for all time. States Parties to the Convention commit themselves to ensure the identification, protection, conservation and presentation of World Heritage Properties. States recognize that the identification and safeguarding of heritage located in their territory is primarily their responsibility. They agree to do all they can, using their own resources and, at times with international assistance, to protect their World Heritage Properties. They agree, amongst other things, to as far as possible:

- adopt a general policy which aims to give the cultural and natural heritage a function in the life of the community and to integrate the protection of that heritage into comprehensive planning programs.
- undertake 'appropriate legal, scientific, technical, administrative and financial measures necessary for the identification, protection, conservation, presentation and rehabilitation of this heritage'
- refrain from 'any deliberate measures which might damage, directly or indirectly, the cultural and natural heritage' of other Parties to the Convention, and to help other Parties in the identification and protection of their properties

This international recognition afforded by the Convention suggests that additional charters be referenced so as to provide guidance to the safeguarding of the status of the listed sites. It should be recognized that similar issues and problems confronting Vanishing Treasures sites exist elsewhere in the world. The United States has participated actively in the Convention and has had involvement in the drafting of many of the documents that follow. Resource protection philosophy and applied technology has been shared internationally for many years. The higher status of these sites and the heightened attention they receive which often results in increased funding, more projects and a higher level of applied conservation can provide, through demonstrable action, benchmarks for other work that occurs on other Vanishing Treasures sites. These excerpts inform our history and process.

Excerpted from:
The Athens Charter for the Restoration of Historic Monuments

Adopted at the First International Congress of Architects and Technicians of Historic Monuments, Athens 1931:

VI. -- THE TECHNIQUE of CONSERVATION.
The Conference is gratified to note that the principles and technical considerations set forth in the different detailed communications are inspired by the same idea, namely:

In the case of ruins, scrupulous conservation is necessary and steps should be taken to reinstate any original fragments that may be recovered (anastylosis) whenever this is possible; the new materials used for this purpose should in all cases be recognizable. When the preservation of ruins brought to light in the course of excavations is found to be impossible, the Conference recommends that they be buried, accurate records being of course taken before filling-in operations are undertaken.

It should be unnecessary to mention that the technical work undertaken in connection with the excavation and preservation of ancient monuments calls for close collaboration between the archaeologist and the architect.

With regard to other monuments, the experts unanimously agreed that, before any consolidation or partial restoration is undertaken, a thorough analysis should be made of the defects and the nature of the decay of these monuments. They recognized that each case needed to be treated individually.

Excerpted from:
The VENICE CHARTER - 1964

[Preamble]
Imbued with a message from the past, the historic monuments of generations of people remain to the present day as living witnesses of their age-old traditions. People are becoming more and more conscious of the unity of human values and regard ancient monuments as a common heritage. The common responsibility to safeguard them for future generations is recognized. It is our duty to hand them on in the full richness of their authenticity.

It is essential that the principles guiding the preservation and restoration of ancient buildings should be agreed and be laid down on an international basis, with each country being responsible for applying the plan within the framework of its own culture and traditions.

By defining these basic principles for the first time, the Athens Charter of 1931 contributed towards the development of an extensive international movement which has assumed concrete form in national documents, in the work of ICOM and UNESCO and in the establishment by the latter of the International Centre for the Study of the Preservation and the Restoration of Cultural Property. Increasing awareness and critical study have been brought to bear on problems which have continually become more complex and varied; now the time has come to examine the Charter afresh in order to make a thorough study of the principles involved and to enlarge its scope in a new document.

Accordingly, the IInd International Congress of Architects and Technicians of Historic Monuments, which met in Venice from May 25th to 31st 1964, approved the following text:

Excerpts from the section:
VENICE CHARTER CONSERVATION

ARTICLE 4. It is essential to the conservation of monuments that they be maintained on a permanent basis.

ARTICLE 5. The conservation of monuments is always facilitated by making use of them for some socially useful purpose. Such use is therefore desirable but it must not change the lay-out or decoration of the building. It is within these limits only that modifications demanded by a change of function should be envisaged and may be permitted.

ARTICLE 6. The conservation of a monument implies preserving a setting which is not out of scale. Wherever the traditional setting exists, it must be kept. No new construction, demolition or modification which would alter the relations of mass and color must be allowed.

ARTICLE 7. A monument is inseparable from the history to which it bears witness and from the setting in which it occurs. The moving of all or part of a monument cannot be allowed except where the safeguarding of that monument demands it or where it is justified by national or international interest of paramount importance.

ARTICLE 8. Items of sculpture, painting or decoration which form an integral part of a monument may only be removed from it if this is the sole means of ensuring their preservation.

Excepted from the section:
RESTORATION

ARTICLE 9. The process of restoration is a highly specialized operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original material and authentic documents. It must stop at the point where conjecture begins, and in this case moreover any extra work which is indispensable must be distinct from the architectural composition and must bear a contemporary stamp. The restoration in any case must be preceded and followed by an archaeological and historical study of the monument.

ARTICLE 10. Where traditional techniques prove inadequate, the consolidation of a monument can be achieved by the use of any modem technique for conservation and construction, the efficacy of which has been shown by scientific data and proved by experience.

ARTICLE 11. The valid contributions of all periods to the building of a monument must be respected, since unity of style is not the aim of a restoration. When a building includes the superimposed work of different periods, the revealing of the underlying state can only be justified in exceptional circumstances and when what is removed is of little interest and the material which is brought to light is of great historical, archaeological or aesthetic value, and its state of preservation good enough to justify the action. Evaluation of the importance of the elements involved and the decision as to what may be destroyed cannot rest solely on the individual in charge of the work.

ARTICLE 12. Replacements of missing parts must integrate harmoniously with the whole, but at the same time must be distinguishable from the original so that restoration does not falsify the artistic or historic evidence.

ARTICLE 13. Additions cannot be allowed except in so far as they do not detract from the interesting parts of the building, its traditional setting, the balance of its composition and its relation with its surroundings.

Excerpted from:
THE DECLARATION OF SAN ANTONIO - 1996

We, the presidents, delegates and members of the ICOMOS National Committees of the Americas, met in San Antonio, Texas, United States of America, from the 27th to the 30th of March, 1996, at the Inter-American Symposium on Authenticity in the Conservation and Management of the Cultural Heritage to discuss the meaning of authenticity in preservation in the Americas. We did so in response to the call issued by the Secretary General of ICOMOS for regional participation in the international debate on the subject.

AUTHENTICITY AND MATERIALS

The material fabric of a cultural site can be a principal component of its authenticity. As emphasized in Article 9 of the Venice Charter, the presence of ancient and original elements is part of the basic nature of a heritage site. The Charter also indicates that the material elements of our tangible cultural heritage are bearers of important information about our past and our identity. Those messages include information about a site's original creation as well as the layered messages that resulted from the interaction between the resource and new and diverse cultural circumstances. For these reasons, those materials and their setting need to be identified, evaluated and protected. In the case of cultural landscapes, the importance of material fabric must be weighed along with the immaterial distinctive character and components of the site.

Over time, heritage sites have come to possess a testimonial value - which may be aesthetic, historic or otherwise - that is readily evident to most of society. In addition to the testimonial value, there are less evident documentary values that require an understanding of the historic fabric in order to identify their meaning and their message. Since the documentary value responds to evolving questions posed by the community over time, it is important that the material evidence, defined in terms of design, materials, manufacture, location, and context be preserved in order to retain its ability to continue to manifest and convey those concealed values to present and future generations.

The degree to which documented missing elements are replaced as part of restoration treatments varies within the Americas in accordance to the cultural characteristics of each country. Some national policies indicate that what is lost can only be part of our memory and not of our heritage. Elsewhere, policies encourage the replacement of fully documented elements in facsimile form in order to re-establish the site's full significance. Nevertheless, we emphasize that only the historic fabric is authentic, and interpretations achieved through restoration are not; they can only authentically represent the meaning of a site as understood in a given moment. Furthermore, we universally reject the reliance on conjecture or hypotheses for restoration.

That further consideration be given to the proofs of authenticity so that indicators may be identified for such a determination in a way that all significant values in the site may be set forth. The following are some examples of indicators:

- Reflection of the true value. That is, whether the resource remains in the condition of its creation and reflects all its significant history.
- Integrity. That is, whether the site is fragmented; how much is missing, and what are the recent additions.
- Context. That is, whether the context and/or the environment correspond to the original or other periods of significance; and whether they enhance or diminish the significance.
- Identity. That is, whether the local population identify themselves with the site, and whose identity the site reflects.
- Use and function. That is, the traditional patterns of use that have characterized the site.

Some important and relevant language from the NAGPRA law is provided and relevant excerpts from the New Zealand treaty of Waitangi follow that. These relate to the important issues of contextual relationships with native populations and give definition to what has been termed "intangibles" in the modern lexicon of historic preservation.

Excerpted from:
NAGPRA 43 CFR 10.2 Cultural affiliation

> (e) What is cultural affiliation? Cultural affiliation means that there is a relationship of shared group identity which can reasonably be traced historically or prehistorically between members of a present-day Indian tribe or Native Hawaiian organization and an identifiable earlier group. Cultural affiliation is established when the preponderance of the evidence — based on geographical, kinship, biological, archeological, linguistic, folklore, oral tradition, historical evidence or other information or expert opinion — reasonably leads to such a conclusion.
> (f) What types of lands do the excavation and discovery provisions of these regulations apply to? (1) Federal lands means any land other than tribal lands that are controlled or owned by the United States Government, including lands selected by but not yet conveyed to Alaska Native Corporations and groups organized pursuant to the Alaska.

Native Claims Settlement Act (43 U.S.C. 1601 et seq.). United States "control," as used in this definition, refers to those lands not owned by the United States but in which the United States has a legal interest sufficient to permit it to apply these regulations without abrogating the otherwise existing legal rights of a person.

Pursuant to NAGPRA the example in New Zealand has relevance.

Excerpted from:
ICOMOS NEW ZEALAND- Charter for the Conservation of Places of Cultural Heritage Value

The Treaty of Waitangi is the historical basis for indigenous guardianship. It recognizes the indigenous people as exercising responsibility for their treasures, monuments and sacred places. This interest extends beyond current legal ownership wherever such heritage exists. Particular knowledge of heritage values is entrusted to chosen guardians. The conservation of places of indigenous cultural heritage value therefore is conditional on decisions made in the indigenous community, and should proceed only in this context. Indigenous conservation precepts are fluid and take account of the continuity of life and the needs of the present as well as the responsibilities of guardianship and association with those who have gone before. In particular, protocols of access, authority and ritual are handled at a local level. General principles of ethics and social respect affirm that such protocols should be observed.

Excerpted from:
CHARTER FOR THE PROTECTION AND MANAGEMENT OF THE ARCHAEOLOGICAL HERITAGE (1990)

Prepared by the International Committee for the Management of Archaeological Heritage (ICAHM) an approved by the 9th General Assembly in Lausanne in 1990.

MAINTENANCE AND CONSERVATION

Article 6.

The overall objective of archaeological heritage management should be the preservation of monuments and sites in situ, including proper long-term conservation and curation of all related records and collections etc. Any transfer of elements of the heritage to new locations represents a violation of the principle of preserving the heritage in its original context. This principle stresses the need for proper maintenance, conservation and management. It also asserts the principle that the archaeological heritage should not be exposed by excavation or left exposed after excavation if provision for its proper maintenance and management after excavation cannot be guaranteed.

Local commitment and participation should be actively sought and encouraged as a means of promoting the maintenance of the archaeological heritage. This principle is especially important when dealing with the heritage of indigenous peoples or local cultural groups. In some cases it may be appropriate to entrust responsibility for the protection and management of sites and monuments to indigenous peoples.

Owing to the inevitable limitations of available resources, active maintenance will have to be carried out on a selective basis. It should therefore be applied to a sample of the diversity of sites and monuments, based upon a scientific assessment of their significance and representative character, and not confined to the more notable and visually attractive monuments.

The relevant principles of the 1956 UNESCO Recommendations should be applied in respect of the maintenance and conservation of the archaeological heritage.

excerpted from the section :
PRESENTATION, INFORMATION, RECONSTRUCTION

Article 7.

The presentation of the archaeological heritage to the general public is an essential method of promoting an understanding of the origins and development of modern societies. At the same time it is the most important means of promoting an understanding of the need for its protection.

Presentation and information should be conceived as a popular interpretation of the current state of knowledge, and it must therefore be revised frequently. It should take account of the multifaceted approaches to an understanding of the past.

Reconstructions serve two important functions: experimental research and interpretation. They should, however, be carried out with great caution, so as to avoid disturbing any surviving archaeological evidence, and they should take account of evidence from all sources in order to achieve authenticity. Where possible and appropriate, reconstructions should not be built immediately on the archaeological remains, and should be identifiable as such.

ETHICS

The American Institute for the Conservation of Historic and Artistic Works (AIC) has provided the professional field with a Code of Ethics. This has been included because the focus and quality of the Code can be used to provide ethical standards for those practicing conservation activities relating to treatments on historic monuments generally. The fundamental authenticity of sites within the VT program which can be considered of irreplaceable value puts them in the highest category of cultural resources; thus, approaching such sites demands that the highest level of integrity and professionalism be applied. This level is well defined by the AIC Code. This Code is focused on the private sector which directly relates to work which might be performed under contract and thus guides expectations which might be placed on contractors working on VT sites. Civil servants charged with resource management responsibilities can apply these standards through an adaptive process refocusing from a public sector point of view.

Excerpted from:
The CODE OF ETHICS of the American Institute for Conservation of Historic and Artistic Works

PREAMBLE

The primary goal of conservation professionals, individuals with extensive training and special expertise, is the preservation of cultural property. Cultural property consists of individual objects, structures, or aggregate collections. It is material which has significance that may be artistic, historical, scientific, religious, or social, and it is an invaluable and irreplaceable legacy that must be preserved for future generations. In striving to achieve this goal, conservation professionals assume certain obligations to the cultural property, to its owners and custodians, to the conservation profession, and to society as a whole. This document, the Code of Ethics and Guidelines for Practice of the American Institute for Conservation of Historic and Artistic Works (AIC), sets forth the principles that guide conservation professionals and others who are involved in the care of cultural property.

I. The conservation professional shall strive to attain the highest possible standards in all aspects of conservation, including, but not limited to, preventive conservation, examination, documentation, treatment, research, and education.

II. All actions of the conservation professional must be governed by an informed respect for the cultural property, its unique character and significance, and the people or person who created it.

III. While recognizing the right of society to make appropriate and respectful use of cultural property, the conservation professional shall serve as an advocate for the preservation of cultural property.

IV. The conservation professional shall practice within the limits of personal competence and education as well as within the limits of the available facilities.

V. While circumstances may limit the resources allocated to a particular situation, the quality of work that the conservation professional performs shall not be compromised.

VI. The conservation professional must strive to select methods and materials that, to the best of current knowledge, do not adversely affect cultural property or its future examination, scientific investigation, treatment, or function.

VII. The conservation professional shall document examination, scientific investigation, and treatment by creating permanent records and reports.

VIII. The conservation professional shall recognize a responsibility for preventive conservation by endeavoring to limit damage or deterioration to cultural property, providing guidelines for continuing use and care, recommending appropriate environmental conditions for storage and exhibition, and encouraging proper procedures for handling, packing, and transport.

IX. The conservation professional shall act with honesty and respect in all professional relationships, seek to ensure the rights and opportunities of all individuals in the profession, and recognize the specialized knowledge of others.

X. The conservation professional shall contribute to the evolution and growth of the profession, a field of study that encompasses the liberal arts and the natural sciences. This contribution may be made by such means as continuing development of personal skills and knowledge, sharing of information and experience with colleagues, adding to the profession's written body of knowledge, and providing and promoting educational opportunities in the field.

XI. The conservation professional shall promote an awareness and understanding of conservation through open communication with allied professionals and the public.

XII. The conservation professional shall practice in a manner that minimizes personal risks and hazards to co-workers, the public, and the environment. XIII. Each conservation professional has an obligation to promote understanding of and adherence to this Code of Ethics.

GUIDELINES FOR PRACTICE
of the American Institute for Conservation of Historic and Artistic Works

The conservation professional should use the following guidelines and supplemental commentaries together with the AIC Code of Ethics in the pursuit of ethical practice. The commentaries are separate documents, created by the AIC membership, that are intended to amplify this document and to accommodate growth and change in the field.

PROFESSIONAL CONDUCT

1. Conduct: Adherence to the Code of Ethics and Guidelines for Practice is a matter of personal responsibility. The conservation professional should always be guided by the intent of this document, recognizing that specific circumstances may legitimately affect professional decisions.

2. Disclosure: In professional relationships, the conservation professional should share complete and accurate information relating to the efficacy and value of materials and procedures. In seeking and disclosing such information, and that relating to analysis and research, the conservation professional should recognize the importance of published information that has undergone formal peer review.

3. Laws and Regulations: The conservation professional should be cognizant of laws and regulations that may have a bearing on professional activity. Among these laws and regulations are those concerning the rights of artists and their estates, occupational health and safety, sacred and religious material, excavated objects, endangered species, human remains, and stolen property.

4. Practice: Regardless of the nature of employment, the conservation professional should follow appropriate standards for safety, security, contracts, fees, and advertising.

> 4a. Health and Safety: The conservation professional should be aware of issues concerning the safety of materials and procedures and should make this information available to others, as appropriate.
> 4b. Security: The conservation professional should provide working and storage conditions designed to protect cultural property.
> 4c. Contracts: The conservation professional may enter into contractual agreements with individuals, institutions, businesses, or government agencies provided that such agreements do not conflict with principles of the Code of Ethics and Guidelines for Practice.
> 4d. Fees: Fees charged by the conservation professional should be commensurate with services rendered. The division of a fee is acceptable only when based on the division of service or responsibility.

4e. Advertising: Advertising and other representations by the conservation professional should present an accurate description of credentials and services. Limitations concerning the use of the AIC name or membership status should be followed as stated in the AIC Bylaws, section II, 13.

5. Communication: Communication between the conservation professional and the owner, custodian, or authorized agent of the cultural property is essential to ensure an agreement that reflects shared decisions and realistic expectations.

6. Consent: The conservation professional should act only with the consent of the owner, custodian, or authorized agent. The owner, custodian, or agent should be informed of any circumstances that necessitate significant deviations from the agreement. When possible, notification should be made before such changes are made.

7. Confidentiality: Except as provided in the Code of Ethics and Guidelines for Practice, the conservation professional should consider relationships with an owner, custodian, or authorized agent as confidential. Information derived from examination, scientific investigation, or treatment of the cultural property should not be published or otherwise made public without written permission.

8. Supervision: The conservation professional is responsible for work delegated to other professionals, students, interns, volunteers, subordinates, or agents and assignees. Work should not be delegated or subcontracted unless the conservation professional can supervise the work directly, can ensure proper supervision, or has sufficient knowledge of the practitioner to be confident of the quality of the work. When appropriate, the owner, custodian, or agent should be informed if such delegation is to occur.

9. Education: Within the limits of knowledge, ability, time, and facilities, the conservation professional is encouraged to become involved in the education of conservation personnel. The objectives and obligations of the parties shall be agreed upon mutually.

10. Consultation: Since no individual can be expert in every aspect of conservation, it may be appropriate to consult with colleagues or, in some instances, to refer the owner, custodian, or authorized agent to a professional who is more experienced or better equipped to accomplish the required work. If the owner requests a second opinion, this request must be respected.

11. Recommendations and References: The conservation professional should not provide recommendations without direct knowledge of a colleague's competence and experience. Any reference to the work of others must be based on facts and personal knowledge rather than on hearsay.

12. Adverse Commentary: A conservation professional may be required to testify in legal, regulatory, or administrative proceedings concerning allegations of unethical conduct. Testimony concerning such matters should be given at these proceedings or in connection with paragraph 13 of these Guidelines.

13. Misconduct: Allegations of unethical conduct should be reported in writing to the AIC president as described in the AIC Bylaws, section II, 12. As stated in the bylaws, all correspondence regarding alleged unethical conduct shall be held in the strictest confidence. Violations of the Code and Guidelines that constitute unethical conduct may result in disciplinary action.

14. Conflict of Interest: The conservation professional should avoid situations in which there is a potential for a conflict of interest that may affect the quality of work, lead to the dissemination of false information, or give the appearance of impropriety.

15. Related Professional Activities: The conservation professional should be especially mindful of the considerable potential for conflict of interest in activities such as authentication, appraisal, or art dealing.

EXAMINATION AND SCIENTIFIC INVESTIGATION

16. Justification: Careful examination of cultural property forms the basis for all future action by the conservation professional. Before undertaking any examination or tests that may cause change to cultural property, the conservation professional should establish the necessity for such procedures.

17. Sampling and Testing: Prior consent must be obtained from the owner, custodian, or agent before any material is removed from a cultural property. Only the minimum required should be removed, and a record of removal must be made. When appropriate, the material removed should be retained.

18. Interpretation: Declarations of age, origin, or authenticity should be made only when based on sound evidence.

19. Scientific Investigation: The conservation professional should follow accepted scientific standards and research protocols.

PREVENTIVE CONSERVATION

20. Preventive Conservation: The conservation professional should recognize the critical importance of preventive conservation as the most effective means of promoting the long-term preservation of cultural property. The conservation professional should provide guidelines for continuing use and care, recommend appropriate environmental conditions for storage and exhibition, and encourage proper procedures for handling, packing, and transport.

TREATMENT

21. Suitability: The conservation professional performs within a continuum of care and will rarely be the last entrusted with the conservation of a cultural property. The conservation professional should only recommend or undertake treatment that is judged suitable to the preservation of the aesthetic, conceptual, and physical characteristics of the cultural property. When nonintervention best serves to promote the preservation of the cultural property, it may be appropriate to recommend that no treatment be performed

22. Materials and Methods: The conservation professional is responsible for choosing materials and methods appropriate to the objectives of each specific treatment and consistent with currently accepted practice. The advantages of the materials and methods chosen must be balanced against their potential adverse effects on future examination, scientific investigation, treatment, and function.

23. Compensation for Loss: Any intervention to compensate for loss should be documented in treatment records and reports and should be detectable by common examination methods. Such compensation should be reversible and should not falsely modify the known aesthetic, conceptual, and physical characteristics of the cultural property, especially by removing or obscuring original material.

DOCUMENTATION

24. Documentation: The conservation professional has an obligation to produce and maintain accurate, complete, and permanent records of examination, sampling, scientific investigation, and treatment. When appropriate, the records should be both written and pictorial. The kind and extent of documentation may vary according to the circumstances, the nature of the object, or whether an individual object or a collection is to be documented. The purposes of such documentation are:

- to establish the condition of cultural property;
- to aid in the care of cultural property by providing information helpful to future treatment and by adding to the profession's body of knowledge;
- to aid the owner, custodian, or authorized agent and society as a whole in the appreciation and use of

cultural property by increasing understanding of an object's aesthetic, conceptual, and physical characteristics;

- and to aid the conservation professional by providing a reference that can assist in the continued development of knowledge and by supplying records that can help avoid misunderstanding and unnecessary litigation.

25. Documentation of Examination: Before any intervention, the conservation professional should make a thorough examination of the cultural property and create appropriate records. These records and the reports derived from them must identify the cultural property and include the date of examination and the name of the examiner. They also should include, as appropriate, a description of structure, materials, condition, and pertinent history.

EMERGENCY SITUATIONS

29. Emergency Situations: Emergency situations can pose serious risks of damage to or loss of cultural property that may warrant immediate intervention on the part of the conservation 26. Treatment Plan: Following examination and before treatment, the conservation professional should prepare a plan describing the course of treatment. This plan should also include the justification for and the objectives of treatment, alternative approaches, if feasible, and the potential risks. When appropriate, this plan should be submitted as a proposal to the owner, custodian, or authorized agent.

27. Documentation of Treatment: During treatment, the conservation professional should maintain dated documentation that includes a record or description of techniques or procedures involved, materials used and their composition, the nature and extent of all alterations, and any additional information revealed or otherwise ascertained . A report prepared from these records should summarize this information and provide, as necessary, recommendations for subsequent care.

28. Preservation of Documentation: Documentation is an invaluable part of the history of cultural property and should be produced and maintained in as permanent a manner as practicable. Copies of reports of examination and treatment must be given to the owner, custodian, or authorized agent, who should be advised of the importance of maintaining these materials with the cultural property. Documentation is also an important part of the profession's body of knowledge. The conservation professional should strive to preserve these records and give other professionals appropriate access to them, when access does not contravene agreements regarding confidentiality.

In an emergency that threatens cultural property, the conservation professional should take all reasonable action to preserve the cultural property, recognizing that strict adherence to the Guidelines for Practice may not be possible.

APPENDIX N

A Summary of Maintained Archeological Sites in the Facility Management Software System

The National Park Service manages over 68,000 archeological sites in park units throughout the country. A percentage of those archeological sites receive care and intervention by cultural resource experts and facilities management staff, sometimes in tandem, to ensure they are stabilized, preserved and well-maintained.

A group of NPS archeologists, facilities management experts, and park managers (the Maintained Archeological Sites Working Group [MASWG]) worked on integrating the operations and maintenance of specific archeological sites with the Facility Management Software System (FMSS) since 2006. This integration enables park managers, facilities management and cultural resource staffs to:

- estimate and plan more efficiently the maintenance needs for specific park archeological sites
- determine and document the long-term requirements and costs to maintain these sites at the park, regional and national levels
- apply for funding from Facility Management funding sources, such as Cyclical or Repair, Rehab, or the Recreation Fee Program
- track staff time, costs and project funding for archeological site maintenance

The MASWG began by defining Maintained Archeological Sites (MAS) as archeological sites within the NPS system that are maintained actively. This involves improvements to an archeological site that extend its life and enhance its value through conservation or preservation activities. Such activities include preventative maintenance, in-kind replacement of parts and structural components, conservation treatments, recurring repairs, normal repairs, unscheduled repairs, and other actions. Active maintenance of archeological sites is part of a resource stewardship and management program. Reasons for active maintenance of archeological sites include: (a) to retain structural and physical integrity, (b) to correct or prevent deterioration, (c) to be kept at or brought to a state of "fair" or "good" condition under ASMIS criteria, (d) for public interpretation, (e) emergency situations, or (e) for other management purposes.

As of January 2009, all the protocols to enter a MAS into FMSS are in place, including the asset specification template, the equipment specification templates, and the data fields necessary to develop work orders on MAS. The MAS Business Practices are also finalized (see web page below), which provide guidance on:

- the general management approach to MAS
- how to identify a park's inventory of MAS and the various kinds of archeological sites that may be MAS
- how to create an asset record for a MAS in FMSS
- how to classify and rank MAS within the FMSS framework
- how to deal with potential overlaps between MAS and other asset types
- MAS and the Current Replacement Value (CRV)
- MAS and the Asset Priority Index (API)
- how to inspect a MAS to determine its condition and deferred maintenance needs

All parks have an asset portfolio and an accompanying asset management plan. The portfolio must include MAS, if a park has any. The plan must integrate maintenance goals and objectives for MAS, if a park has any. Also, specific maintenance activities for MAS need to be included in a park's annual funding plans and project schedules so these assets may be preserved and used over the long term as important places for commemoration, historical and scientific research, and/or visitor interpretation. MAS included in a park's asset portfolio, plan, and FMSS are only those expected to require ongoing maintenance activities.

The maintenance, documentation and tracking in FMSS of MAS are the responsibility of facility maintenance staff members at a park. However, facility managers and maintenance staff members must collaborate with archeologists and cultural resource managers to produce the most effective outcomes of a maintenance program designed to sustain the integrity of certain archeological sites while maintaining them in a condition that promotes the use and interpretation of sites to further the mission of the NPS.

Identifying MAS

To create an effective asset management program for archeological sites, park managers must first identify any MAS within their park. The service-wide Archeological Sites Management Information System (ASMIS) database provides the overall inventory of NPS archeological sites. However, the archeologist or cultural resources staff and facilities management staff at each park and region, when appropriate, must identify which, if any, archeological sites in ASMIS are actively maintained and require treatment. The park then must value what those assets are worth, assess their condition, and determine what it will take to sustain them over time.

The primary criteria used to identify a MAS are:

- The archeological site is registered in ASMIS as a site or sub-site.
- The site fabric was previously stabilized.
- The site must be maintained for physical integrity.
- The site must be maintained for interpretation purposes.
- The site is regularly accessed by the public, presenting potential safety hazards or impacts from visitor use that requires treatment.
- The park performs regular routine or cyclic maintenance at the site.
- The park has applied for funding and/or plans to perform major site work (e.g. fabric or environmental stabilization along with the appropriate documentation).
- The park wants to track staff time, costs, and project funding for site maintenance.

Evaluating Archeological Sites Already Registered in FMSS

MAS are asset code 7200, formerly called "Ruins," in FMSS. Approximately 1,200 existing "Ruins" assets have been rolled into MAS as of June 2008, because the latter can be more broadly interpreted and include a wider variety of archeological sites.

The MASWG evaluated the list of assets once coded as "Ruins" in FMSS to determine which ones are definitely MAS and which ones might need to be reclassified. Approximately 900 assets were determined to be MAS. The MASWG intends to contact each park with the potential non-MAS assets to discuss the work required to determine if they are a MAS or if they need to be reclassified in another asset category. Steps will need to be taken to decide on the appropriate asset category for these resources, including a visit to the asset by an archeologist and a facility staff member to document it. If the asset is determined to be a MAS, a site record in the ASMIS must be created. The MAS asset record in FMSS must be updated and the MAS equipment specification templates must be entered in FMSS. If the asset is determined to be another asset type, the necessary steps must be taken in FMSS to reclassify it appropriately. It is also possible that the field visit could result in a determination by park staff to remove the asset from FMSS, following the established protocols on asset disposition.

To Learn More about MAS and FMSS:

The MASWG and NPS Archeology Program have a webpage on InsideNPS for information about developments of the MAS-FMSS procedures. The MAS Business Practices are posted on the site at:

http://inside.nps.gov/waso/custommenu.cfm?lv=3&prg=279&id=4943

If there are questions about the MAS Business Practices or other aspects of the MAS asset type in FMSS, contact:

Terry Childs, in the Archeology Program, Washington Office (WASO), (202) 354-2125 or

Gayle Burgess, in the Park Facility Management Division, WASO, (970) 641-2774

APPENDIX O

Safety Program

A complete Safety Program for any project is available on line at:
InsideNPS>Regions>Intermountain Region>ARD Park Operations – Facility Management, Design and Engineering> Historic Preservation
http://inside.nps.gov/regions/custommenu.cfm?lv=3&rgn=1013&id=5622

This Program originates from the Historic Preservation Training Center of the National Park Service in Frederick Maryland and was adapted by the Historic Preservation Projects Program within the Facility Management Division of the Intermountain Region.

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