# STABILIZATION AND RECONSTRUCTION

## PURPOSE

The purpose of this course is to provide the basic academic and field skill to permit the avocational archaeologist the ability to participate in stabilization and reconstruction projects of the AAS and to provide assistance to the professional community as may requested. This course will also briefly cover the methods and concepts of site excavation with the endpoints of stabilization and reconstruction in mind.

## OBJECTIVES

At the completion of this course, the student will be able to:

1. Determine the purpose of stabilization and the various types and methods which exist.
2. Understand the difference between the terms "stabilization" and "reconstruction".
3. Name archaeological sites known to have been stabilized in the American Southwest, plus define the various kinds of stabilization and reconstruction techniques known to have been used.
4. List the various types and functions of tools used by the archaeologist during stabilization projects.
5. Understand the principles in site stabilization and reconstruction.
6. Explain how and why walls are mapped, photographed, and documented before and after stabilization.
7. Learn variations of excavation strategies and methods when stabilization and reconstruction are the anticipated goals.
8. Develop interpretive themes and trails.
9. Indicate the use of photography and its importance in stabilization.
10. Understand both the positive and negative aspects of stabilization and its relationship to archaeological science.

## COURSE FORMAT

The student is to receive a minimum of twenty hours of classroom instruction, coupled with forty hours of actual field experience. Within the field work requirement, there should be no single specific activity necessary for fulfilling this requirement, though the following

conditions must be met.

COURSE FORMAT (continued)

1. The student is to work in at least two different types of stabilization work (i.e., walls and floors or stone construction versus adobe construction), plus some form of reconstruction activity.

2. During the five field days, the technician is to be involved in: mapping, profiling, photographing, excavating or clearing, soil/clay analysis, wall stabilization, floor stabilization, wall reconstruction, feature reconstruction, and stabilization/ reconstruction documentation and record keeping.

Normally, the field work requirements will be fulfilled by work on at least five different days. The last eight hours of field work will be spent in finalizing and completing drawings/profiles, stabilization forms, reconstruction documentation, and any additional administrative tasks.

A brief final report of the field work undertaken, along with the successful completion of all written and administrative work assigned, coupled with the instructor's evaluation of both the student's classroom and field work, will determine the student's successful completion of this course.

GENERAL COURSE SET-UP

This course is to be taught in conjunction with an on-going stabilization/reconstruction program/project. Through such a program; classroom and laboratory space should be provided without significant cost, as should most major tools, chemicals, building materials, dyes, plus copying of materials to be used as text. No one good text is presently available to use in this course. Therefore, it is suggested that several manuals such as the National Park Service Stabilization Manual, and the Besh-Ba-Gowah Management Plan be used as supportive texts when warranted.

The class is enhanced by the use of guest speakers who have had a wide range of stabilization and reconstruction experience in the American Southwest (both historic and prehistoric sites). A list of possible speakers is presented, below. This is not an all inclusive list but simply one which notes those individuals who have most recently, as of January 1992, undertaken a major stabilization effort.

1. Dr. Alfred E. Dittert, Jr. (New Mexico & historic Yuma, Arizona)
   Department of Anthropology
   Arizona State University
   Tempe, Arizona 85287

2. E. Charles Adams (Homolovi program, director)
   Arizona State Museum
   University of Arizona
   Tucson, Arizona 85721

3. Peter J. Pilles (Elden Pueblo, Sedona cliff dwelling)
   Forest Archaeologist, Coconino National Forest
   2323 Greenlaw Lane
   Flagstaff, Arizona 86001

4. John W. Hohmann (Besh-Ba-Gowah Archaeological Park, Q Ranch, Casa Malpais)
   Louis Berger & Associates, Inc.
   1100 East Missouri Avenue, Suite 200
   Phoenix, Arizona 85014

5. Adrien S. White (Homolovi II, III, Escalante Ruin, Lowry)
   Soil Systems, Inc.
   1121 North Second Street
   Phoenix, Arizona 85004

6. Cory Breternitz (Interpretive Trail Development Homolovi II)
   Soil Systems, Inc.
   1121 North Second Street
   Phoenix, Arizona 85004

7. John H. Madsen, Archaeologist (Homolovi II Project)
   Arizona State Museum
   University of Arizona
   Tucson, Arizona 85721

8. Richard C. Lange (Homolovi program, assistant director)
   Arizona State Museum
   University of Arizona
   Tucson, Arizona 85721

9. Dr. Charles L. Redman (Shoofly Village, Payson, Arizona)
   Department of Anthropology
   Arizona State University
   Tempe, Arizona 85287

10. Dr. R. Gwinn Vivian, Associate Director (Chaco Canyon)
    Arizona State Museum
    University of Arizona
    Tucson, Arizona 85721

11. Steve Dosh, Archaeologist (Homolovi I, II, III)
    Department of Anthropology
    Museum of Northern Arizona
    Flagstaff, Arizona 86001

Another aspect which also enhances this class besides the use of guest lecturers, is at least one, if not two, field trips to other archaeological sites where stabilization and reconstruction efforts have already been undertaken such as Homolovi II, Elden Pueblo, Tonto National Monument, Chaco Canyon, and Besh-Ba-Gowah.

GENERAL COURSE SET-UP (continued)

Persons enrolling in this class must have first completed the required Prehistory of the Southwest class, and are strongly recommended to have already completed Field Crew Member I class ( introduction to excavation techniques) before enrolling in this course. Like that class, the student must provide their own basic dig kit for this class.

COURSE OUTLINE

A. Some general concerns
   1. Principles of stabilization
   2. Organizational aspects of stabilization
   3. Reasons for stabilization
      a. Interpretive themes
      b. Site/feature protection
      c. How reasons for stabilization affect how such work is undertaken
   4. Demands of stabilization
      a. Good physical condition
      b. Proper clothes and safety precautions
      c. Judging site contents and their implications for stabilization and reconstruction
         - Site size and configuration
         - Architectural features
         - Floor features/surfaces

B. Stabilization and its goals
   1. Circumstances leading to site stabilization
   2. When such processes are merited or warranted
   3. Stabilization techniques
      a. Basic techniques
      b. Kinds of sites and features which can be stabilized and/or reconstructed including special techniques required for specific features
      c. Teamwork and coordination between staff and crew
         - There is no such thing as a "dumb" question
         - Talk with each other about what you are seeing and doing
      d. Assign specific crew-member responsibilities
         - Record keeping, site stabilization forms
         - Integrity control and work planning
         - Site/feature mapping, wall profiling
         - Site, wall, and feature photography
         - Soil analysis and mortar development and coloration

C. Reconstruction and its goals
   1. Circumstances leading to site reconstruction
   2. When such actions are merited or warranted
   3. Remembering site integrity

D. Excavation or re-excavation with stabilization in view
   1. A review of standard excavation techniques and methods
   2. Variations in strategies due to constraints or requirements

of stabilization and reconstruction

E. Specialized techniques in stabilization
   1. Chemical treatments
   2. Stone types and uses
   3. Working with adobe, wood, glass, and other materials
   4. Soil and clay types
      a. Using a Munsell Soil Color Chart
      b. Determining a soils bonding texture and qualities
      c. Matching soils to prehistoric mortars
      d. Development of soil cement mixtures for stabilization
   5. Drainage problems
      a. Soils
      b. Topography
      c. Slope
      d. Vegetation
      e. Climate
      f. Additional environmental considerations
   6. Keeping the stabilized site clear of unwanted vegetation
   7. Special problems when roofing a site

F. Stabilization records
   1. Selecting the proper stabilization and reconstruction forms for the particular site and/or feature
   2. Developing a stabilization and reconstruction plan
   3. Developing interpretive themes
   4. Additional necessary documentation
   5. Room and feature maps and profiles
      a. Mapping techniques
         - Compass and pace
         - Compass and tape
         - Brunton tripod and tape
         - Alidade mapping
            - Theodolite mapping and profiling
      b. Establishing a permanent site datum
      c. Profiling walls and features
      d. Mapping floors and features
      f. Precise methods vary from site to site and project to project
   6. Photography with stabilization and reconstruction in mind
      a. Types of cameras
      b. Types of film
      c. Lighting conditions
      d. Exposure settings
      e. Scale, directional indicators, and photo identification
      f. Keeping photographic records
      g. Photographic distortion
         - Large scale objects
         - Small scale objects

G. Finalization of a project
   1. The development and use of interpretive trails
   2. Regional themes
   3. Museums and visitor centers

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