

Mississippi Department of Transportation (MDOT) Guidelines for Archaeological Investigations

The attached document is a slightly modified version of *Guidelines for Archaeological Investigations and Reports in Mississippi* by Douglas C. Sims for the Mississippi Department of Archives and History (MDAH). The document contains archaeological requirements and standards for individuals and firms conducting Section 106 and Antiquities Law compliance in Mississippi. The modifications of that document contained herein address the specific requirements of MDOT-contracted archaeological investigations. All modifications to the original MDAH document are noted by underlined text. Except for minor grammar modification, the underlined text in the attached document is the only change of the original MDAH document. In all cases, the underlined text in the attached MDOT modification are more specific than the original MDAH document. Therefore, it is assumed that adherence to the guidelines in the attached document will ensure conformance with all MDAH requirements. After research designs and reports are reviewed by MDOT Environmental, the documents are submitted to MDAH for review. The MDAH review is facilitated through MDOT Environmental.

Note: Appendix A referenced in this report is not a part of the MDAH guidelines but contains data recording standards of MDOT Environmental. The standards are not completed at this time and therefore the Appendix is not included in this report.

Guidelines for Archaeological Investigations and Reports in Mississippi

Douglas C. Sims

Abstract

The Mississippi Department of Archives and History (MDAH)/Mississippi State Historic Preservation Office (SHPO) has written more comprehensive guidelines to assist archaeologists and other individuals and institutions responsible for Section 106 and Antiquities Law compliance in the state. These guidelines address: professional qualifications, laboratory and curation facilities, treatment of human remains, terrestrial and underwater archaeological research, and report preparation. As cultural resource management laws and regulations, archaeological theory and techniques, and the public's attitude toward cultural resources change, the document itself will evolve to reflect them. For now, however, it is hoped these guidelines will assist archaeologists and agency administrators in developing research designs that will serve to produce sufficient amounts of data to identify and evaluate cultural resources and when needed to develop and implement appropriate mitigation proposals.

Introduction

The purpose of this document is to assist archaeologists, other professionals, and agency administrators involved in cultural resource management (CRM) (as defined by the National Historic Preservation Act of 1966, as amended) with the development and implementation of adequate statements of objectives or research designs for archaeological investigations in Mississippi (see Schiffer and Gumerman 1977:190). MDOT Environmental will use these guidelines when reviewing Cultural Resource Management (CRM) reports, and omissions from the procedures recommended herein may be grounds for rejecting reports or requiring further field, laboratory, or background work. However, it must be emphasized that the following guidelines are not intended as a “cookbook” or comprehensive step-by-step instruction manual governing archaeological investigations in the State of Mississippi. A variety of available literature on CRM (e.g., Bense et al. 1986), other states’ guidelines (e.g. Alabama Historical Commission 1996; Davis 1982; Georgia State Historic Preservation Office 1993; Harper and Fielder 1995; McGahey n.d.; New Jersey State Historic Preservation Office 1990; Pennsylvania Historical and Museum Commission 1991; South Carolina State Historic Preservation Office n.d.; Tennessee Division of Archaeology 1997; and Texas Historical Commission 1995), and requests for proposals (e.g., Bruce et al. 1998; Carr et al. 1998; Moore 1996a; 1996b) were used to develop this document and should be consulted for additional insights on how to proceed with cultural resource investigations. Other relevant documents include the Secretary of the Interior’s “Standards and Guidelines for Archeology and Historic Preservation” and “Standards for Treatment of Archeological Properties,” the National Park Service’s “Guidelines for Recording Historic Ships,” and

the Advisory Council on Historic Preservation's "Working with Section 106" series (see Reference Section).

Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966, as amended, require federal land management agencies and others receiving federal funds, licenses, or permits for land alteration projects to consider the impact of their agency's actions on cultural resources that are located within their project's area of potential effects. Usually this consists of identifying properties or sites, determining if they are eligible for inclusion in the National Register of Historic Places, as well as assessing the effects of the project, if any, on the resources. How does one go about this task? According to the Section 106 implementing regulations (see 36 CFR 800), there are no specific rules governing the identification and evaluation process, only that agencies exercise a "reasonable and good faith effort" to identify all significant resources (Advisory Council on Historic Preservation 1986:20).

While NHPA is an important management tool, agencies or individuals participating in such projects should also be in compliance with numerous other laws and regulations governing cultural resources. These include, but are not limited to: Executive Order 11593; the National Environmental Policy Act (NEPA) of 1969, as amended; Department of the Interior regulations 36 CFR 60, 36 CFR 63, 36 CFR 66, and 36 CFR 79; Native American Graves Protection and Repatriation Act (NAGPRA), and the Mississippi Antiquities Law (39-7-3 et seq. of the Mississippi Code of 1972), as amended.

This document provides guidance on several topics relevant to the profession, including qualifications, curation of recovered data, treatment of human remains, terrestrial and underwater archaeological fieldwork, and report preparation. However, those required to conduct cultural resource investigations should consider the relevant legislation and scopes of work governing the action as the primary source of information on how to proceed, not this document.

Projects of different levels require differing stages of cultural resource investigation. For our purposes, terrestrial and underwater archaeologists utilize three basic phases of research: Phase I-cultural resources survey; Phase II-site testing and evaluation; and Phase III-mitigation. Each of these phases, primarily Phases II and III, should be approached within the context of a research design that will contribute to a better knowledge and understanding of Mississippi's past.

During Phase I investigations qualified archaeologists locate archaeological sites through a variety of survey techniques and remote-sensing technologies. For the purposes of these guidelines, archaeological sites are defined as physical locations containing concentrations or spatial clustering of data, such as artifacts, ecofacts, and features, produced or modified by humans (Ashmore and Sharer 1988:219; Thomas 1989:649). These locations may be prehistoric, historic, or both, as well as on land (terrestrial) or underwater. Phase I survey techniques may include visual surface examination, subsurface shovel testing and screening, or a combination of both. The techniques and remote-sensing technologies employed during the survey and the amount of research conducted (sampling) are dependent upon numerous factors (e.g., project size and accessibility, terrestrial or underwater locations). Each factor should receive equal consideration when developing a survey strategy, keeping in mind that each situation is

unique, and that the research design should be flexible and adaptable as the situation necessitates.

Once an archaeological site has been located, archaeologists need to define its boundaries, identify the possible effects of the proposed project on the site, and determine whether additional investigations are necessary to determine National Register eligibility. If, as a result of Phase I investigations, a site's eligibility status remains unknown or undetermined and it will be affected, additional investigations will be required. Phase II research then begins to assess the nature and integrity of the cultural deposits. Testing techniques may involve controlled surface collecting, limited underwater diving, the excavation of test units (e.g., 1x1 meter, 2x2 meter), deep soil core sampling, and mechanized trenching, all dependent upon the situation. These techniques should adequately sample the site and generate sufficient data, enabling the archaeologist to determine if the property is eligible for inclusion in the National Register. Sampling strategies and testing techniques employed during this phase of research should consider a variety of factors, such as site size, location, disturbance, accessibility, and artifact density and distribution. Each factor should receive equal consideration when developing a testing strategy, keeping in mind that each situation is unique, and that the research design should be flexible and adaptable as the situation necessitates.

National Register Bulletins 15 (How to Apply the National Register Criteria for Evaluation), 16A (How to Complete the National Register Registration Form), 20 (Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places), and 36 (Guidelines for Evaluating and Registering Historical Archeological Sites and Districts) provide additional information to archaeologists and agencies charged with determining site eligibility. Copies of all National Register Bulletins can be obtained by writing the:

National Register of Historic Places
U.S. Department of Interior, National Park Service
P.O. Box 37127, Washington D.C. 20013-7127.

Additionally, archaeologists and agency administrators may also want to consult the 1995 supplement to CRM, volume 18, no. 6, that provides several relevant articles on the National Register and archaeology.

The last phase of archaeological research is Phase III-mitigation. Once a property has been determined eligible for the National Register by the archaeologist and SHPO, the archaeologist must make recommendations to the site's management agency or landowner on how to preserve the data contained in the site. The first option should involve redesigning the project in hopes of avoiding the eligible property altogether. However, if project modification is not an option, then the archaeologist will need to create a research design that preserves the significant data through retrieval, reporting, and curation. The archaeological techniques selected for this action are dependent upon numerous factors, including the specifics of what makes the site significant, and should be outlined in a Memorandum of Agreement. The following sections will elaborate on these phases of investigations.

Professional Qualifications

MDOT Environmental requires individuals or groups conducting federally-funded archaeological research, or research as a result of federal or state permits and licenses in the State of Mississippi, to meet the minimum professional qualifications outlined in the Secretary of the Interior's *Standards and Guidelines, Archaeology and Historic Preservation's* "Professional Qualifications Standards" (Federal Register vol. 48, no. 190, 9-29-83, Part IV, pg. 44738-44739). Throughout the duration of the archaeological investigation, either the Principal Investigator or Field Director must be present in the field directing and monitoring the activities of the Field Crew. To meet the minimum professional qualifications in archaeology:

1. The Principal Investigator must: 1) have a graduate degree in anthropology, archaeology, or closely related field; 2) have demonstrated an ability to successfully implement Phase I, II, and III archaeological work/research; 3) have prepared technical reports that meet state and federal guidelines; and 4) be a Registered Professional Archaeologist (RPA). This person should have experience with, but not necessarily specialization in, Mississippi prehistory and history, as well as possess a working knowledge of Southeastern archaeology.
2. The Field Director/s should also have a graduate degree in anthropology, archaeology, or closely related field or must have considerable experience and demonstrated ability to successfully function in a supervisory capacity. This person must possess formal training and considerable experience in archaeological theory, methodology, analysis, interpretation, and report preparation, and have demonstrated the ability to recognize and evaluate both historic and prehistoric cultural features. Prospective field directors without a graduate degree in anthropology must be approved by MDOT Environmental prior to the initiation of field work.
3. Field Crew Member/s should have an undergraduate degree in anthropology, archaeology, or closely related field, or possess considerable experience and have demonstrated the ability to recognize and evaluate both historic and prehistoric cultural features and artifacts. Prospective field crew members without an undergraduate degree in anthropology must be approved by MDOT Environmental prior to the initiation of field work.
4. Any archaeologist conducting archaeological research (Phase I, II, and III) must have access to : 1) adequate field and laboratory equipment to conduct the survey, excavation, or other research; and 2) adequate facilities to properly treat, analyze, and temporarily curate cultural material obtained as a result of the investigation.

Consultant List

Effective July 1, 2001, MDAH-SHPO will maintain a consultant list comprised solely of archaeologists and companies listed by the Register of Professional Archaeologists (RPA). For information on becoming an RPA or obtaining a list of current RPAs, write the:

Register of Professional Archaeologists
5024-R Campbell Boulevard
Baltimore, Maryland, 21236

or visit the web site: www.rpanet.org. Also effective July 1, 2001, MDOT Environmental will only accept reports (Phase I, II, and III) resulting from Section 106 or Antiquities Law projects from consultants who are RPAs. Federal and State archaeologists performing cultural resource work for their respective agencies, however, are exempt from this policy. Furthermore, a policy regarding probationary and permanent removal from the consultant list has also been devised. This policy will work in concert with those set forth by the Register of Professional Archaeologists.

Removal From List

Each consultant working for MDOT Environmental is responsible for adhering to the MDOT revision of the MDAH-SHPO's "Guidelines for Archaeological Investigations and Reports in Mississippi." When MDOT Environmental receives a deficient report, the report will be "placed on hold," and the contractor will be notified of its deficiencies. When the deficiencies are corrected, MDOT Environmental will submit the report to MDAH-SHPO.

If a consultant's CRM reports are placed on hold three (3) times within one year, MDAH-SHPO will notify the consultant in writing and provide the consultant an opportunity for a hearing before the SHPO, Deputy SHPO, Chief Archaeologist, and Review and Compliance Officer before further actions, if necessary, are taken. If, at the conclusion of the hearing, a satisfactory explanation for the deficiencies has not been presented, the consultant's name will be removed from the list, and his/her reports will not be accepted by MDAH-SHPO for one (1) year. At the end of one year, the consultant may submit a written request to MDAH-SHPO to have his/her name reinstated to the list.

Permanent Removal From List

Serious ethical and legal violations will result in the permanent removal of a consultant from the list and in the permanent refusal of MDAH-SHPO to accept the consultant's reports. Again, the consultant will be notified of the problem/s in writing and provided an opportunity for a hearing before the SHPO, Deputy SHPO, Chief Archaeologist, and Review and Compliance Officer to appeal the permanent removal. Likewise, if a contractor's name is removed from the Register of Professional Archaeologists, his/her reports will no longer be accepted by MDAH-SHPO.

Laboratory and Curation Guidelines

The following guidelines must be followed when preparing recovered archaeological materials and generated field records for curation:

Laboratory Guidelines

1. Laboratory personnel should have an undergraduate degree in anthropology, archaeology, or closely related field, or possess considerable experience and demonstrated knowledge of standard analytical techniques, existing regional typologies, and the ability to recognize and evaluate both historic and prehistoric artifacts. Prospective laboratory personnel without an undergraduate degree in anthropology must be approved by MDOT Environmental prior to the initiation of field work.
2. Standard analytical techniques and existing typologies, as appropriate for Southeastern prehistoric and historic archaeological studies, must be employed, (see Appendix A for MDOT Environmental data recording standards)
3. Proper stabilization and conservation techniques must be employed.
4. All recovered cultural material must be cleaned, labeled, catalogued, and prepared for curation.

Curation Guidelines

1. All cultural material, field notes, project records and photographs must be curated upon completion of the project in accordance with 36 CFR 79 (“Curation of Federally-Owned and Administered Archeological Collections”) on acid free paper, as applicable.
2. The archaeological contracting firm must clean, label, and prepare all materials recovered during the study, and arrange for the transfer of recovered materials and records to the MDOT Environmental curation facility at 2567 North West St., Building D, Jackson, Mississippi 39216-3840.
3. All artifacts recovered through underwater archaeological research must be treated in the field to stabilize and lessen deterioration. Standard cleaning and preservation procedures must be followed once artifacts are taken to the laboratory.
4. Due to additional problems and costs associated with proper artifact stabilization and long-term curation of submerged archaeological resources, these artifact collections should be kept to the absolute minimum necessary to make required assessments and determinations.

Treatment of Human Remains

It is the responsibility of the archaeologist to comply with all state and federal legislation (e.g., Mississippi Antiquities Law, Native American Graves Protection and Repatriation Act) concerning archaeological sites and the treatment of Native American human remains encountered during archaeological investigations. Additionally, some agencies have internal guidelines governing the treatment of human remains (e.g., USDA Forest Service's Human Remains Policy), and these should also be consulted when applicable. If non-Native American human remains are discovered, then the principal investigator should immediately notify the county coroner, sheriff, and/or board of supervisors to begin consultation. Should aboriginal human remains be discovered, archaeological activities (e.g., shovel testing, test excavations, mechanical stripping) should cease in that area. The field archaeologist should contact MDOT Environmental for further instruction. In the absence of Federal involvement, if Native American burials are encountered on state, county, municipal or private land, the field archaeologist should contact MDOT Environmental and apply for a burial excavation permit. Burial excavation permits may also be applied for in anticipation of encountering burials. Work may continue in the area once a burial excavation permit has been granted by MDAH-SHPO. Encountered aboriginal human remains shall be recorded, handled, and protected according to the stipulations stated in the permit.

Under the provisions of the State Antiquities Law (39-7-31), the Board of Trustees of MDAH is given the responsibility of considering and permitting, if deemed appropriate, the excavation of prehistoric or historic Indian burials. Specifically, 39-7-31 states:

No person without a permit from the board and without written permission of the landowner, shall intentionally injure, disfigure, remove, excavate, damage, take, dig into, or destroy any prehistoric or historic American Indian or aboriginal burial.

As stated in 39-7-3 (Declaration of Public Policy), it is the policy of the State of Mississippi and in the interest of the State to protect and preserve archaeological sites of every character. Burials in the context of the Antiquities Law are archaeological sites. They are, however, very special kinds of archaeological sites which are given additional legal protection by other laws. For this reason, burials are the only type of site for which MDAH-SHPO has legal authority on private property, except for "Mississippi Landmarks" for which this authority is voluntarily given by the landowner.

In order to prevent confusion and to establish clear directives, the following guidelines are instituted:

1. No permit will be issued unless the excavation is to be performed or supervised by an archaeologist meeting the aforementioned professional qualifications. It is recommended that a physical anthropologist be present during the excavation to ensure the recovery of a maximum amount of pertinent information.

2. A report, following the guidelines established in this document, detailing the findings of the excavation, including photographs and sketches, must be submitted to MDAH- SHPO within one year of completion of the excavation.
3. If the burial/s in question is reasonably expected to be of a known, existing tribe, the written comments of that tribe shall be sought and, if obtained, submitted in written form to MDAH-SHPO when application is made for a permit.
4. The remains are to be curated in a facility that meets or exceeds standards set forth in 36 CFR 79 or reburied after scientific analysis. The decision on whether to require reburial will be determined by MDAH-SHPO after reviewing documentation submitted with the request for a burial excavation permit (see Step 3).
5. Permits to excavate burials will not be issued in most circumstances unless there is a threat to the integrity of the burial/s through vandalism, natural forces (e.g., erosion, inundation), or development which is clearly in the public interest.
6. For purposes of these guidelines, a burial is understood to include the items that are interred with the body/human remains.
7. In the event of the unintended discovery of burials during the course of an excavation, the encountered remains are to be recorded in such a manner as to minimize the loss of scientific data. A burial excavation permit is to be sought, if the archaeologist wishes to continue with the burial excavation/removal.
8. MDAH-SHPO may, as it finds advisable, call for a written proposal from the applicant on the procedure for burial removal and reserves the right to deny the participation of any archaeologist. Such written proposals should address the adequacy of crew size and experience, laboratory and temporary curation facilities, as well as arrangements for long-term curation or reburial of remains.

Terrestrial Archaeological Research

As previously stated, Sections 106 and 110 of the National Historic Preservation Act (NHPA) of 1966, as amended, require federal land management agencies and others receiving federal funds, licenses, or permits for land alteration projects to consider cultural resources within their project's area of potential effects. Usually this process consists of locating sites, determining if they are eligible for inclusion in the National Register of Historic Places, as well as assessing the effects of the project, if any, on the resources. This does not mean every single site must be found. Instead, it means the responsible agency must make a reasonable and good faith effort to "consider all kinds of historic properties" in the project's area of potential effects (Section 301[7]; King 1998:62, 67). Therefore, research designs and survey or testing methodologies should reflect this concept of "reasonable and good faith effort" (Advisory Council on Historic Preservation 1986:20).

The following section briefly outlines Phase I, II, and III techniques and guidelines to assist archaeologists and agency administrators in developing research designs, primarily for Phases II and III, capable of retrieving sufficient amounts of data to identify and evaluate terrestrial cultural resources. Each phase must be approached within the context of a research design with project results contributing to a better knowledge and understanding of Mississippi's past.

Create a Research Design

An explicit research design must govern all archaeological work, especially Phase II and III investigations. Prior to going into the field, a design or plan must be created addressing the justification and legitimacy of the proposed field work, as well as the techniques to be employed. Furthermore, the research design should reflect the needs of the sponsor, such as "how much area to look at and how much and what kinds of data to record" (Davis 1982:B-5).

In addition, each archaeologist must submit a scope of work to MDOT Environmental for approval prior to conducting Phase I cultural resource surveys of 200 hectares (500 acres) or more. Scopes of work must also be submitted to MDOT Environmental for approval before conducting any Phase II or III investigations. These documents should specify the types of cultural resources known or anticipated to be in the project's area of potential effects, the field and/or archival techniques proposed, the projected number of field personnel required for the project and their qualifications, and the estimated time in the field.

Conduct Literature Review/Records Check

Prior to investigations of terrestrial cultural resources, historical and archaeological records, literature, and archival sources should be examined to provide a cultural/historical context for the study area and to identify previously recorded archaeological or historical properties in or near the project area. The following is a brief list of sources maintained by MDAH-SHPO available for consultation prior to conducting Phase I, II, and III terrestrial cultural resources investigations:

1. Mississippi Archaeological Site File (contains information on known sites)
2. Archaeological Maps (15' and 7.5' USGS Topographic Quadrangles) which contain information on known site locations, previous cultural resource surveys, etc.
3. Cultural Resources Survey reports and other applicable literature, such as the *State Historic Context Document*, *Mississippi Archaeology*, *Louisiana Archaeology*, *Journal of Alabama Archaeology*, *Arkansas Archeologist*, *Tennessee Anthropologist*, *Southeastern Archaeology*, *American Antiquity*, etc.
4. Archaeological Subject File (supplemental data on recorded sites, such as artifact illustrations and photographs, site maps, newspaper articles, correspondence, etc.)

5. Deeds, Historic Maps, Aerial Photographs, and other Remote Sensing Data
6. National Register of Historic Places Files

Recordation

1. Field notes must be maintained during the entire investigation and for all aspects of the project. If possible, all notes should be written or copied onto acid-free paper.
2. Significant archaeological sites and prominent features found must be photographed with color and black and white film. Although most black and white film types are fairly stable, most color films are not. Due to color film dye instability and short life expectancy, archaeologists are strongly encouraged to use Kodachrome slide film when photodocumenting sites for the permanent record. All photographs should be printed with a standard finish, such as matte, glossy, or satin and should be at least 3 x 5 inches. Each photograph must be labeled with a permanent audio-visual marking pen or pencil. Adhesive labels should not be used on photographs because they can become detached. All original photographs, negatives and transparencies must be included with the curated materials. Digital images, regardless of the media, are not appropriate for the permanent record. For further advice concerning photographing significant archaeological sites refer to National Register Bulletin 16A: How to Complete the National Register Form and National Register Bulletin 23: How to Improve the Quality of Photos for National Register Nominations.
3. Maps of the project area must be maintained to record all areas investigated and sites located.

Phase I: Terrestrial Cultural Resources Survey

The overall goal of a Phase I cultural resources survey is the location and evaluation of archaeological resources within a project's area of potential effects. If sites are found during this phase of research, sufficient information must be recovered to determine whether further investigations are necessary to assess National Register eligibility. Specific objectives of the Phase I cultural resources survey include: (1) a review of archaeological and historical records pertaining to the general project area; (2) a complete field inspection to determine the presence, nature, and degree of integrity of any archaeological resources within the project's area of potential effects; and (3) an evaluation of the potential impact of the project on the identified archaeological resources.

Fieldwork Guidelines

The areas surveyed and the methodologies employed should be decided on an individual project basis. The following list, however, provides basic guidelines to assist the archaeologist in retrieving adequate information: *General*

1. The field survey must include a systematic pedestrian surface examination of all exposed ground surfaces, as well as shovel testing and screening of all vegetated ground surfaces (30 percent or greater) in the entire area of potential effects.
2. If predictive modeling is used during any part of the Phase I cultural resources survey, the model must be verified through field testing.
3. Written records must be maintained throughout the course of the study.
4. Photographic documentation of potentially significant archaeological resources identified in the project area must be maintained to record the geographical setting and land use (see Recordation section for information concerning photographs).
5. Representative artifact collections (i.e. all artifact types, not just diagnostics) must be made from archaeological sites identified within the project area for the purposes of determining the site's temporal and cultural affiliations, as well as the functional and technological aspects of the assemblage.
6. All previously recorded sites in the project area must be visited. Information on these sites must be updated in the form of a new site card, if warranted.
7. Gathering information from local informants about cultural resources in the project vicinity is encouraged. If possible, view, describe, and photograph private artifact collections obtained in or near the project area.
8. Past land alterations (e.g., plowing, timber activities, borrow pits, construction activities, erosion) in the project area of potential effects must be recorded.
9. Every shovel test, auger test, and other ground disturbance must be refilled upon completion of the survey unless consultation with participating agencies and/or landowners has produced an agreement to forego filling.
10. The entire survey area and site/s locations must be depicted on 7.5' USGS topographic maps.

Systematic Pedestrian Visual Surface Examination

1. Ground cover conditions must be described and the techniques of pedestrian survey specified.
2. A systematic pedestrian visual surface examination must be conducted in those portions of the project area, such as cultivated cropland, possessing good surface visibility.
3. In areas of good surface visibility (30 percent or less vegetation cover), archaeologists should walk transects spaced at 15-30 meter (50-100 feet) intervals maximum. A transect spacing justification (e.g., ground visibility, density of archaeological sites in area, severely disturbed areas, inaccessibility) must be part of the cultural resources survey report.
4. While a surface collection may help determine horizontal site boundaries, it is not considered an adequate procedure for assessing site nature (i.e., depth, composition, possible integrity, etc.). Therefore, some subsurface investigations must also be conducted at the site, as warranted.

Shovel Tests/Screening

1. Where the surface cannot be inspected with reasonable thoroughness, sub-surface testing must be conducted in all areas where archaeological sites are likely to occur.
2. The nature of any sub-surface testing must be reported with size, depth, and spacing intervals of tests specified.
3. Shovel tests should be excavated at 30 meter (100 feet) intervals maximum across terrain with poor ground surface visibility.
4. Each shovel test, approximately 30x30 cm (12x12 inch) in diameter, must be excavated into sterile subsoil or 100 cm, whichever occurs first.
5. Excavated soil must be screened through 6.35 mm (1/4 inch) or smaller hardware cloth. When such soil conditions exist that preclude such screening, alternate recovery procedures must be approved in advance by MDOT Environmental archaeologists.
6. When an artifact bearing (positive) shovel test is excavated, the testing interval should be reduced to 5 to 10 m with shovel testing continuing in a cruciform or grid pattern until two consecutive sterile (negative) shovel tests are encountered. This method will assist in determining horizontal site dimensions and boundaries.
7. Records of each artifact bearing shovel test must be maintained, including their locations within the project area and the number and types of artifacts recovered from each shovel test. Artifacts encountered exclusively in disturbed zones or at

any other depths should be noted. Additionally, it is important to record any negative findings encountered during the survey. Artifacts bearing shovel tests must be labeled consecutively with a unique designation and all artifacts recovered from each shovel test must be bagged separately and identified with that unique designation.

8. Unvegetated cultivated fields and land forms are not automatically exempt from shovel testing. Therefore, if shovel tests are not excavated, the principal investigator should justify the decision. Plowed fields should be shovel tested under the following conditions: poor artifact visibility (e.g., soil recently plowed, lack of rainfall), in a dynamic depositional environment (e.g., adjacent to aggrading stream, creek, river), or artifacts observed on the surface.

Deep Soil Sampling

1. Principal investigators should conduct limited deep soil sampling, utilizing cores, augers, backhoes, or approved remote sensing methods to locate and delimit cultural deposits deeply buried under alluvium, colluvium, and/or water. Deep soil sampling helps the archaeologist more thoroughly evaluate the project area by gathering site and soils information unobtainable through pedestrian survey and traditional shovel testing procedures.
2. Consultation with a geomorphologist or pedologist is required if the principal investigator is not trained in or familiar with the geomorphology of the area.

Other Methods

1. Archaeologists may also incorporate a variety of remote sensing techniques into the survey, such as ground penetrating radar (GPR), gradiometer, resistivity, conductivity, magnetometer, metal detecting, aerial photographs, multispectral imaging, etc. The research design should justify the use of these additional survey techniques.

Phase II: Terrestrial Cultural Resources Testing and Evaluation

The primary objective of the Phase II investigation is to determine if a site is eligible for inclusion in the National Register of Historic Places. Although archaeological site significance can be documented under National Register Criterion A (events), B (important persons), and C (design, construction, and work of a master), eligibility for most sites will probably be determined under Criterion D (information potential) or a combination of all the above (see National Register Bulletin 36). “In order to determine the significance of a site [under Criterion D], enough subsurface investigation must be done to establish the potential for information that can be used to formulate and answer research questions” in regard to a regional context (Bense et al. 1986:56). Investigation objectives include, but are not limited to, identifying: 1) the vertical and horizontal extent of intact archaeological deposits within each site; 2) the

density and distribution of the archaeological deposits within each site; 3) the cultural affiliation of the components represented at each site; 4) the presence of undisturbed/relatively intact subsurface features or buried stratified deposits at each site; 5) the classes of archaeological remains retrievable; and 6) whether the site is eligible for inclusion in the National Register. Phase II investigations must not be initiated without prior approval of MDOT Environmental.

Fieldwork Guidelines

The fieldwork methodology and areas to be investigated are determined on an individual site basis. The selected methodology is focused only on retrieving data relative to research questions of potential importance as they pertain to evaluating National Register significance. The following list provides basic guidelines that will assist the archaeologist in retrieving adequate information:

General

1. Written records and standardized forms must be maintained throughout the course of the study. Test units, features, soil profiles, and other identified anomalies must be photographically recorded.
2. All field investigations must use a permanent reference grid.
3. Every test excavation unit, auger test, backhoe trench, or other ground disturbance must be refilled upon completion of the testing project, unless consultation with participating agencies and/or landowners has produced an agreement to forego filling (e.g., preparation for Phase III mitigation).
4. Provide location of Phase II testing on 7.5' USGS topographic map.
5. Conduct additional relevant archive and background research.

Testing

1. Work conducted during the Phase I cultural resources survey should have identified the archaeological property's boundaries and artifact distribution and/or concentrations. However, if this is not the case, then the archaeologist may need to conduct limited clearing and/or plowing and disking of the site to enhance surface visibility. Some areas, such as forests, may preclude this step. Therefore, it is recommended additional shovel tests and screening be conducted in order to identify site boundaries. Upon completion of this task, the archaeologist should conduct a controlled surface collection utilizing a permanent reference grid. Areas in tree/bush lines may be investigated by excavating test units. Based on the results of the surface collection, shovel testing, and/or previous artifact/feature concentrations encountered during Phase I survey, a limited number of test units (based on site size, artifact distributions, land formations, etc.) should be

manually excavated to determine the depth of the plowzone (or A horizon) and nature of subplowzone deposits and subsoil. All land clearing and testing activities should be justified in the report.

2. Excavated soil must be screened through 6.35 mm (1/4 inch) or smaller hardware cloth (e.g., dry shaker screens or water screens). It is advisable to double screen feature fill or other complex deposits through a 1.58 mm (1/16th inch) fine hardware cloth to ensure retrieval of as much cultural material as possible (e.g., micro-debitage, archaeobotanical and zooarchaeological remains) (see also Flotation Sampling).
3. If deemed appropriate by the principal investigator and in consultation with MDOT Environmental archaeologists, heavy equipment (e.g., backhoe, grader) may be used to remove selected portions of disturbed upper soil zones (e.g., plowzone) to expose possible intact buried deposits. Locations and orientation of trenches, depositional and pedogenic profiles for trenches, and stratigraphic evidence for integrity, or lack thereof, must be included in the Phase II archaeological report. However, it is important to note, that solely grading a site and looking for features is not considered an appropriate, effective, or scientific means of testing an archaeological site. Justification for conducting all mechanical tests must be included in the Phase II archaeological report.
4. Typically, the sampling design should provide adequate sub-surface exposure (i.e., below plowzone or other identified initial soil level) of the site area as defined by surface and subsurface techniques (e.g., surface collections, shovel tests). Each site is different, and the archaeological methods used, the areas of the property tested, and the percentage of the site sampled in order to determine National Register eligibility should be decided on an individual site basis. Site specific detail contained in the Request for Proposal for a specific project supercedes that contained herein.
5. A justification of test excavation unit spacing and placement (e.g., artifact densities, presence of features) must accompany the Phase II testing report.
6. Priority must be given to accurately mapping the distribution of subsurface features and deposits that have been revealed through testing (e.g., plan and profile illustrations; artifact piece plotting).
7. A representative sample of subsurface cultural features and deposits must be excavated to determine temporal and cultural affiliations and classes of artifacts present.
8. Munsell soil color and texture data must be provided for all excavated units (by level) and features.

Deep Soil Sampling

1. Limited deep soil sampling must be conducted at appropriate locations, if applicable, across the site in order to ensure proper coverage and to detect any deeply buried deposits that may exist.

Flotation Sampling

1. Systematic flotation samples must be taken to provide a sample of artifacts less than 6.35 mm (1/4 inch), such as archaeobotanical and zooarchaeological remains. Flotation samples provide an index not only of the presence of remains but also an indication of the density of material. The percentage of site (levels, features) sampled through flotation should be decided on an individual site basis. Any standard machine assisted flotation technique (e.g., IDOT, SMAP) may be used.

Chronometric Sampling

1. Systematic chronometric samples must be taken to provide information on the age of the site. Types of chronometric dating procedures include radiocarbon dating, archaeomagnetic dating, oxidizable carbon ratio, thermoluminescence, etc.

Other Methods

1. Archaeologists may also incorporate a variety of remote sensing techniques into the testing program, such as ground penetrating radar (GPR), gradiometer, resistivity, conductivity, magnetometer, metal detecting, aerial photographs, multispectral imaging, etc. The research design should justify using these additional survey techniques.

Phase III: Mitigation of Terrestrial Cultural Resources

The mitigation of impacts or effects on a significant (i.e., National Register eligible) property can take several forms. For example, relocating, changing, or modifying the proposed project is one way to avoid impacting an eligible archaeological site. Although the site may not be preserved in the long run, this action can eliminate imminent impacts and adverse effects associated with the original project. This step incorporates the property into the project in a non-destructive manner.

However, when avoidance of a significant property is impractical and partial or total destruction is unavoidable, an agreement to conduct data recovery (i.e., extensive and in some cases complete site excavation) is usually reached (see Section 110b of NHPA). This plan is usually a continuation and expansion of Phase II activities. The data recovery plan should be detailed, discussing and justifying the design of the investigation which will retrieve the data, what research questions will be addressed, the proposed analysis and the expected results, and a justification for the expenditure of money on the data recovery project should be clearly stated. If the recovery plan is unusually complex, then a Memorandum of Agreement (MOA) will be developed.

Mitigation recovery projects may not proceed without prior approval of MDOT Environmental and the development of the appropriate written agreement. This plan must be consistent with the principles set forth in “Consulting About Archeology Under Section 106,” the “Secretary of the Interior’s Standards and Guidelines for Historic Preservation Projects,” and the “Participants Desk Reference” issued by the Advisory Council on Historic Preservation in 1995.

Underwater Archaeological Research

Mississippi possesses a diverse range of submerged cultural resources, ranging from canoes and pirogues to steamboats, schooners, and ocean-going vessels, as well as prehistoric sites inundated through coastal subsidence. These archaeological sites receive the same level of protection as do terrestrial sites. In addition to the aforementioned laws (e.g., NEPA, NHPA) governing terrestrial site protection and mitigation, additional legislation, such as the Abandoned Shipwreck Act of 1987, serve to further protect these important resources.

The following section briefly outlines Phase I, II, and III techniques and guidelines that should assist archaeologists and agency administrators in developing research designs capable of retrieving sufficient amounts of data in order to identify and evaluate submerged cultural resources, primarily sunken vessels. Each phase should be approached within the context of a research design with project results contributing to a better knowledge and understanding of Mississippi’s past.

Create a Research Design

An explicit research design must govern all archaeological work, especially Phase II and III investigations. This design or plan must address questions regarding the justification and legitimacy of the proposed field work, what is to be gained from this work, and what techniques will be employed to complete the task. Furthermore, the research design should reflect the needs of the sponsor, such as “how much area to look at and how much and what kinds of data to record” (Davis 1982:B-5).

In addition, each archaeologist must submit a scope of work to MDOT Environmental for approval prior to conducting Phase I cultural resource surveys of 200 hectares (500 acres) or more. A proposed scope of work must also be submitted to MDOT Environmental for approval before conducting any Phase II or III investigations. These documents will specify the types of cultural resources known or anticipated to be in the project’s area of potential effects, the field and/or archival techniques proposed, the projected number of field personnel required for the project and their qualifications, and the estimated time in the field.

Conduct Literature Review/Records Check

Prior to investigations of submerged cultural resources, historical and archaeological records, literature (e.g., *Ways Packet Directory, 1848-1994*), and archival

sources should be examined to provide a cultural/historical context for the study area, and to identify previously recorded archaeological or historical properties in or near the project area. The following is a brief list of sources maintained by MDAH-SHPO that should be consulted prior to conducting Phase I, II, and III submerged cultural resources investigations:

1. Mississippi Archaeological Site File (contains information on known sites)
2. Archaeological Maps (15' and 7.5' USGS Topographic Quadrangles), which contain information on known site locations, previous cultural resource surveys, etc.
3. Cultural Resources Survey reports and other applicable literature, such as *H.P. Owen's Steamboats and the Cotton Economy*, *Mississippi Archaeology*, *Louisiana Archaeology*, *Journal of Alabama Archaeology*, *Tennessee Anthropologist*, *Southeastern Archaeology*, *American Antiquity*, etc.
4. Archaeological Subject File (supplemental data to recorded sites, such as artifact illustrations and photographs, site maps, newspaper articles, correspondence, etc.).
5. Deeds, Historic Maps, and Aerial Photographs.
6. National Register of Historic Places Files.

Recordation

1. Field notes must be maintained during the entire investigation and for all aspects of the project. If possible, all notes should be written or copied onto acid-free paper.
2. Significant archaeological sites and prominent features (e.g., shipwrecks, docking facilities) with good visibility (e.g., low tide; clear water) should be photographed with color and black and white film. Although most black and white film types are fairly stable, most color films are not. Due to color film's instability and short life expectancy, archaeologists are strongly encouraged to use Kodachrome film when photodocumenting the site and research for the permanent record. All photographs should be printed with a standard finish, such as matte, glossy, or satin and should be at least 3 x 5 inches. Each photograph should be labeled with a permanent audio-visual marking pen or pencil. Adhesive labels should not be used on photographs because the labels can become detached. All original photos, negatives, and transparencies should be included with the curated materials. Digital images, regardless of the media, are not appropriate for the permanent record. For further advice concerning photographing significant archaeological sites refer to National Register Bulletin 16A (How to Complete the National Register Form and National Register), 20 (Nominating Historic Vessels

and Shipwrecks to the National Register of Historic Places), 23 (How to Improve the Quality of Photos for National Register Nominations).

3. Maps and scaled drawings of the project area and recorded anomalies should be maintained throughout the investigation. This is particularly important since many submerged cultural resources in Mississippi can not be photodocumented due to poor visibility associated with water turbidity.

Phase I: Submerged Cultural Resources Survey

The overall goal of a Phase I submerged cultural resources survey is to locate and evaluate archaeological resources within the project's area of potential effects. During this phase of research, archaeologists need to recover sufficient information to determine whether further investigations at the site/s is necessary to address National Register eligibility. Specific objectives of the Phase I submerged cultural resources survey include: 1) a review and search of the archaeological and historical records pertaining to the general project area; 2) a field inspection and complete Phase I survey to determine the presence, nature and degree of integrity, if possible, of archaeological remains within the project's area of potential effect; and 3) an evaluation of the potential impact of the project on the identified archaeological resources.

Fieldwork Guidelines

The areas surveyed and the methodologies employed should be decided on an individual project basis. The following list, however, provides basic guidelines that should assist the archaeologist in retrieving adequate information:

General

1. Each submerged and visible watercraft, as well as other cultural resources (e.g., bridges, structures) identified in the project's area of potential effects, should be recorded and preliminarily evaluated as to its National Register eligibility.
2. Due to varying levels of survey complexity often associated with riverine and marine environments, such as water depths and poor visibility, remote-sensing technologies should be used. Remote-sensing technologies should include, but not be limited to, systematic magnetometer survey, bathymetric or fathometer survey, and side-scan sonar. All instrument data should be recorded in concert with a Differential Global Positioning System (GPS).
3. A magnetometer survey will detect most anomalies in the project's area of potential effects. Archaeologists will need to conduct more detailed systematic magnetic surveys for all anomalies thought to be potentially significant. Analyses of the initial and more detailed magnetic surveys should provide the principal investigator with enough information to determine the identity of the anomaly and the potential for further testing.

4. If it is determined that additional testing of an anomaly is needed/required, then a side-scan sonar should be employed to enable the principal investigator to make a more precise determination regarding the anomaly's National Register potential. Side-scan sonar may be excluded from use when field conditions prohibit or dictate otherwise. In these instances, a justification for not using side-scan sonar must be discussed in the report. It is important that all generated data (side-scan sonar, magnetometer, etc.) be correlated in order to produce as accurate a survey result as possible.
5. Systematic water jet probing from the deck of the survey boat or adjacent banklines should be conducted to determine the location and extent of all identified submerged watercraft and other potentially significant underwater resources.
6. All exposed watercraft elements should be fully recorded to the extent possible with a detailed discussion provided in the report.
7. Survey and site/s locations must be depicted on 7.5' USGS topographic maps.

Magnetometer, Bathymetric/Fathometer

1. Magnetometer and Bathymetric/Fathometer are remote sensing instruments that produce survey data capable of being downloaded into a computer database. There are two types of magnetometers currently used in the field of underwater research, a proton precession magnetometer and a cesium magnetometer. The proton precession magnetometer is probably sufficient for the Phase I cultural resource survey. Data collected from the magnetometer survey should be of sufficient precision and quality to allow for interpretations.

Side-Scan Sonar

1. Archaeologists are encouraged to use as high a frequency side-scan sonar as possible, such as 500 kHz. Higher frequencies produce superior resolutions thereby allowing for better identification and interpretation of targets. While lower frequency side-scan sonars, such as 100 kHz, can produce good results, they do not produce the high quality results higher frequency side-scan sonars do. Again, archaeologists are encouraged to utilize a side-scan sonar capable of recording data that can be down loaded into a computer database (note: some side-scan sonars are equipped with video monitors, but are incapable of storing the generated data).

Positioning Systems

1. A positioning system should be incorporated into all submerged cultural resources surveys, so archaeologists can easily map and relocate any targets encountered.

To ensure precision during the remote sensing survey a ± 5 meter variance in positioning data is suggested. In order to achieve this accuracy, the archaeologist should use either an on-shore total station or a Differential (or corrected) Global Positioning System (GPS). The on-shore total station may be more practical and feasible if: the survey area is limited in scope, the line of sight between shore and survey vessel is good, and/or there is a single target involved.

Remote Sensing Survey

1. Transect lane spacing should not exceed 30 meters (100 feet).
2. Positioning control points should be obtained at least every 30 meters (100 feet) along transects.
3. Background noise for the magnetometer data should not exceed ± 3 gammas.
4. Magnetic data should be recorded on the 100 gamma scale.
5. The magnetometer sensor should be towed a minimum of 2.5 times the length of the boat or projected in front of the survey vessel to avoid vessel noise.
6. The survey should utilize the Universal Transverse Mercator (UTM) grid system when providing site and feature locations.
7. Additional, more tightly spaced transects should be run over all potentially significant anomalies.
8. Differential GPS survey control should be used to determine the exact locations of the magnetic anomalies or exposed watercraft.

Survey Intervals

1. Although interval spacing should be established on a case by case basis, it is recommended that magnetometer spacing not exceed 30 m (100 ft). This spacing increases the possibility of detecting the smallest of targets. A transect spacing justification (e.g., density of archaeological sites in area, inaccessibility) for all forms of remote sensing should accompany the cultural resources survey report.
2. Any magnetic target that produces an anomaly greater than 20 to 25 gammas, covers an area greater than 15 meters, or produces a complex signature should be viewed a second time. A justification for any subsequent viewing, or a decision not to reexamine an anomaly such as this, must accompany the survey report.
3. Additional survey lines (normally perpendicular to the original survey) should be run across targets deemed to be of interest. These supplementary lines provide additional data on the character of the target, as well as aid in the development of magnetic contour maps.

Terrestrial Surveys

1. In some cases, a terrestrial survey of bank lines may provide supplementary data to the information generated during the underwater survey. Examples of such data include the locations of vessels partially covered by bank lines, associated structures such as docking or landing facilities, and sunken vessels abandoned at or near these facilities. In addition, terrestrial surveys provide access to shore lines deemed inaccessible by boat due to heavy vegetation or low water (For information concerning appropriate survey methods see Terrestrial Cultural Resources Survey section).
2. Archaeologists are also encouraged to use hand-held magnetometers when conducting these bank line and shallow water terrestrial surveys. This is especially true in river settings where magnetic targets are observed trending under the bank.

Phase II: Submerged Cultural Resource Testing and Evaluation

The primary objective of the Phase II investigation is to determine if the site in question is eligible for inclusion in the National Register of Historic Places (note: Phase I and II underwater investigations are sometimes combined into a single activity. The governing/contracting agency is responsible for ensuring that a scope of work exists in which the specific tasks are outlined and that the proper officials are notified). Unlike terrestrial archaeological sites, National Register eligibility for most submerged cultural resources will be determined using most of the established Criterion, as opposed to just Criterion D (see National Register Bulletin 36). However, as with terrestrial sites, “In order to determine the significance of a site [under Criterion D], enough subsurface investigation must be done to establish the potential for information that can be used to formulate and answer research questions” in regard to a regional context (Bense et al. 1986:56). Investigation objectives include, but are not limited to: 1) the vertical and horizontal extent of intact archaeological deposits within each site; 2) the density and distribution of the archaeological deposits within each site; 3) the cultural affiliation of the components represented at each site; 4) the presence of undisturbed submerged features or buried stratified deposits at each site; 5) the classes of archaeological remains retrievable; and 6) whether the site is eligible for inclusion in the National Register. Phase II investigations should not be initiated without consultation with MDOT - Environmental.

Fieldwork Guidelines

The fieldwork methodology and areas to be investigated should be decided on an individual project basis. However, the selected methodology should focus only on data

relative to research questions of potential importance as they pertain to evaluating National Register significance. The following list, however, provides basic guidelines that should assist the archaeologist in retrieving adequate information:

General

1. Since it is practically impossible to adequately identify and assess the significance of submerged cultural resources based solely on the generated remote-sensing data, some form of diving will probably be required during Phase II investigations. Because diver safety is a prime concern, MDOT Environmental requires that the principal investigator submit an Underwater Dive Safety Plan to the governing/contracting agency for approval prior to any diving activity (For additional information on operating in a safe manner, the principal investigator should become familiar with the 1996 “U.S. Army Corps of Engineers Safety and Health Requirements Manual”). This Plan should address: accident management, hazardous activities analyses, operating procedures, and equipment selection and use. Diver standards should meet or exceed the minimum required by the U.S. Army Corps of Engineers. In addition, the principal investigator/contracting firm will ensure that: 1) divers are medically fit to dive; 2) experienced at diving depths; experienced at tasks to be performed; and 3) experienced with the equipment to be used. All divers, including standby divers, should be qualified divers, as well as knowledgeable in archaeological methodology for submerged cultural resources. A record of all dives should be kept by a timekeeper.
2. Written records should be maintained throughout the course of the study. Test units and other identification techniques, as well as identified anomalies should be photographically recorded, if possible.
3. All field investigations must use a permanent reference grid.
4. Field methods should employ terrestrial and underwater archaeological methods, as applicable. These methods include, but are not be limited to, remote-sensing surveying, probing, hydroprobing, underwater diving, surface excavation, systematic structural recordation, and the stabilization and conservation of recovered artifacts.
5. All instrument data should be recorded in concert with a Differential Global Positioning System (GPS).
6. Provide location of Phase II testing on 7.5’ USGS topographic map.

Testing

1. Work conducted during the Phase I submerged cultural resources survey should have identified the archaeological property’s boundaries and artifact

concentrations. However, due to uncontrollable forces (e.g., current, fishing activities) some targets may move, and therefore the re-establishment of the target's location via remote-sensing technologies is suggested.

2. Physical examination of the target by a diver may be required in certain situations. If the target is buried, examination of the target with a stainless steel probe or a hydraulic probe can provide insights on target dimensions, configuration, depth, condition, etc.
3. If deemed necessary, excavations should only be to the extent that provides adequate data to make the necessary assessment of the submerged cultural resource. Because underwater investigations can be costly and time-consuming, sampling strategies should be employed, thereby limiting work to the minimum necessary to make the required assessments and determinations. However, each site is different and the archaeological methodology used, the areas of the property tested, and the percentage of the site sampled should be decided on an individual site basis.
4. Equipment (e.g., air lift, water jet, hydraulic venturi dredge) needs should be tailored to the specific project with justifications for the selection and utilization of this equipment outlined in the report.
5. Priority should be given to accurately mapping the distribution of submerged resources (e.g., artifact concentrations, vessel features).
6. Information on site conditions, precise limits, chronological placement, structural integrity, dimensional data, and watercraft type and identity, if possible, should be obtained.
7. Data recovery techniques should adhere to professional standards. A primary goal is a physical examination and documentation of vessel construction. It is recommended that at least three cross sections of each hull be completely inspected and documented for the purpose of analyzing construction techniques and materials.
8. Information should be collected regarding historic watercraft known to have traveled the project's area of potential effects and should include, but not be limited to, newspaper accounts, handbills, and enrollment certificates. Typical schematic drawings of watercraft construction plans that are similar to types located in the project area should be included in the report.
9. A datum must be established at each site and measurements should be controlled and referenced by this point. Probing will be useful in locating hull remains and machinery. Probing by hand or with a water jet will determine the amount of sediment overburden and will aid in optimum placement of excavation units (or trenches).

10. Each excavation unit should be cleared until evidence of hull remains or machinery is encountered. The units should be placed in such a manner as to ensure maximum retrieval of data. The inferred locations of the bow and stern should be examined, if possible, to determine the orientation of the vessel/s. The proper location of these test units should reveal construction details about the ship's hull, deck, and machinery.
11. A detailed and accurate map of the exposed portions of each hull should be made to determine exact horizontal site limits, detect artifact densities, and assess the relationship between areas. Plan drawings or sketches should be made from test excavations to illustrate the location of artifacts, structural members, machinery, and hull layouts.
12. If a vessel type was built for a specific use, its relationship to a specific historical context should be assessed. Documentation of former enrollment records and registries should be researched. The integrity of each vessel needs to be thoroughly documented, discussing original form, materials, workmanship, and changes.
13. A detailed and accurate map of the extant portions of each hull should be made to determine exact horizontal site limits, detect artifact densities, and assess the relationship between areas. Plan and profile drawings should be made from test excavations to illustrate the location of artifacts, structural members, machinery, and hull layouts. Historic plans, drawings, and photographs should be reproduced or prepared to visually represent each vessel. Views of deck plans, inboard/outboard profiles, and hull and longitudinal sections should be included. These drawings of existing portions and representative samples of each vessel should be drawn to show methods of construction and individual features. See the National Park Service's Guidelines for Recording Historic Ships (1988) for additional information.

Phase III: Mitigation of Submerged Cultural Resource

The mitigation of impacts or effects on a significant (i.e., National Register eligible) property can take several forms. For example, relocating, changing, or modifying the proposed project is one way to avoid impacting an eligible archaeological site. Although the site may not be preserved in the long run, this action can eliminate imminent impacts and adverse effects associated with the original project. This step incorporates the property into the project in a non-destructive manner.

However, when avoidance of a significant property is impractical and partial or total destruction is unavoidable, an agreement to conduct data recovery (i.e., complete site excavation) is usually reached (see Section 110b of NHPA). This plan is usually a continuation and expansion of Phase II activities. The data recovery plan should be detailed, discussing and justifying the design of the investigation which will retrieve the data, what research questions will be addressed, the proposed analysis and the expected

results, and a justification for the expenditure of public money on the data recovery project should be clearly stated. If the recovery plan is unusually complex, then a Memorandum of Agreement (MOA) between participating agencies should be used. Mitigation recovery projects may not proceed without approval from MDOT Environmental and the development of the appropriate written agreement. Whatever is decided, this plan should be consistent with the principles set forth in “Consulting About Archeology Under Section 106,” the Secretary of the Interior’s Standards and Guidelines for Historic Preservation Projects,” and the “Participants Desk Reference” issued by the Advisory Council on Historic Preservation in 1995.

Report Guidelines

All final cultural resources survey (Phase I), testing (Phase II), and mitigation (Phase III) reports should be in narrative form, including a clear and concise presentation of project purposes, methods, results, and recommendations. Phase I cultural resources surveys should discuss positive and negative findings. Phase II archaeological testing reports should address three aspects: 1) a description of the study and results of fieldwork and laboratory analyses, 2) an assessment of the presence and nature of the encountered archaeological deposits, and 3) an evaluation of the National Register of Historic Places eligibility of each site in conjunction with recommendations for further work. In addition to these three aspects, Phase III archaeological mitigation reports should also 4) answer in detail all research questions outlined in the data recovery plan and the MOA, if applicable. Facsimiles of reports will not be accepted by MDOT Environmental. In addition, all reports submitted to MDOT Environmental are subject to peer review prior to approval. Furthermore, all final reports submitted to MDOT Environmental for review should adhere to the guidelines listed below or be subject to hold and/or rejection. Whenever it is impossible to follow any guideline, an explanation should be provided in the report. After the report is accepted by MDOT Environmental, the document will be submitted by MDOT Environmental to MDAH-SHPO for concurrence.

Phase I - Cultural Resources Survey

1. Reports must be in narrative form and fully address the questions proposed in the research design.
2. Reports must be submitted on acid free paper.
3. Reports must provide survey commencement and termination dates, as well as specify actual number of days in the field.
4. Reports must provide number of personnel that participated in field work and lab analysis.
5. Reports must provide descriptions of field conditions, such as visibility, for both underwater and terrestrial archaeological investigations.

6. Reports must provide total number of hectares (acres) surveyed.
7. Reports must provide discussion of field methods and results explicitly addressing negative as well as positive findings.
8. Reports must include clear copies of all sections of 7.5' USGS topographic quadrangle maps included in the project area with the precise locations and boundaries, of areas surveyed and the precise location, form, and size of sites discovered prior to and during the course of the survey indicated thereon. The report 7.5' USGS topographic maps must clearly demarcate the project Right of Way. The topographic map/s must be clearly labeled with the quadrangle name. Any possible pre-World War II standing structures located in the project area during the survey must be reported and their locations indicated on the appropriate 7.5' USGS topographic quadrangles. A completed Historic Resources Inventory (e.g., standing structure, monument, bridge) form, including photograph, for each such resource must be submitted as part of the report. Forms can be obtained by writing the:

Architectural History Section
Mississippi Department of Archives and History
P.O. Box 571
Jackson, Mississippi, 39205-0571

or phoning 601-359-6940.

9. Use assigned state site number/s (trinomial) when referring to archaeological sites in the report. A completed or updated copy of the state archaeological site form for each site must be submitted as part of the report. Site forms must be filled out completely. Archaeological site cards can be obtained by writing the:

Archaeology Section
Mississippi Department of Archives and History
P.O. Box 571
Jackson, MS 39205-0571

or phoning 601-359-6940. Site forms may be submitted to SHPO prior to report preparation for number assignment.

10. Descriptions of archaeological sites must include sufficient information on location, setting, extent (length, width, depth, etc.), regional chronological positions and cultural affiliations (when possible), intact deposits encountered and degree and types of disturbances observed to evaluate whether additional investigation is warranted to determine their National Register eligibility. A statement should be made on how further investigations of the site could lead to a better understanding of the area's past.

11. All newly located and previously recorded sites investigated/revisited during the survey should be illustrated in the report by means of a sketch map/plan with northing arrow and scale, showing topographic features and any identifiable permanent landmarks, as well as the spatial relationship to the project. The location of all Right of Way, transects and shovel tests (both positive and negative) must be noted on these maps.
12. Reports pertaining to underwater research must also include: a post-plot map illustrating the actual track of the survey vessel; position and contour map of all magnetic targets of interest; examples of pertinent side-scan sonar and bathymetric/fathometer records; and a table providing information on the location and characteristics of each target of interest with recommended treatments.
13. Classify artifactual remains using existing regional typologies as applicable. In addition, the report must include a tabulation of all artifacts and archaeobotanical and zooarchaeological remains collected from the site.
14. Illustrate recovered diagnostic artifacts or an appropriate sample.
15. Archaeologists should express opinions as to the nature of each site, village, quarry, hunting camp, extinct town, etc., and how this opinion was formed. If such a determination can not be made, an explanation for the lack of determination should be included in the report.
16. Archaeologists must evaluate the effects of the project on each site identified.
17. Archaeologists should suggest alternatives or steps to avoid or mitigate effects to any potentially eligible or eligible National Register site/s that will be affected by the project.
18. The report must be signed and should include the addresses (postal and email, if applicable) and telephone numbers of the principal investigator and field director/s.
19. No fonts less than 8 pt may be used in the report. All figures and tables must be legibly presented and keyed for ready interpretation and clear photocopying. In general, *American Antiquity* reporting formats must be used.

Phase II - Archaeological Testing

1. Reports should be in narrative form and fully address the questions proposed in the research design.
2. Reports must be submitted on acid free paper.

3. Reports must provide testing commencement and termination dates, as well as specify actual number of days in the field.
4. Reports must provide number of personnel that participated in the field work and lab analysis.
5. Reports must provide the percentage of the archaeological property tested, as well as a justification for the sampling strategy.
6. Reports must provide discussion of field methods and results explicitly addressing negative as well as positive findings.
7. In addition to including 7.5' USGS topographic maps showing location of testing, reports must also include a large scale topographic map of the site with all controlled surface collection, shovel test, excavation unit, backhoe trench, and other investigative method locations portrayed in relation to permanent datum. The report 7.5' USGS topographic maps must clearly demarcate the project Right of Way. A variety of other maps may also be required if conducting underwater research (e.g., magnetic).
8. Reports must include plan and profile illustrations of two adjacent walls for all test excavation units and features encountered.
9. Use assigned state site number/s (trinomials) when referring to archaeological sites in the report.
10. Classify artifactual remains using existing regional typologies as applicable. In addition, the report must include a tabulation (counts and weights, as applicable) of all artifacts and archaeobotanical and zooarchaeological remains collected from the site.
11. Archaeologists should provide detailed information about the nature of the components represented at site, village, quarry, hunting camp, extinct town, etc., state how this opinion was formed, and provide regional cultural designations and chronological positions for encountered deposits and the site as a whole.
12. Archaeologists must provide a determination concerning the significance of the site (i.e., is it eligible for the National Register) and whether the site merits preservation. Provide rationale and justification for this determination, as well as explain how the site meets the National Register criteria (e.g. Bulletin 20: *Nominating Historic Vessels and Shipwrecks to the National Register of Historic Places*).
13. Archaeologists must evaluate the effect of the project on each site tested.

14. Archaeologists should justify all suggested mitigation measures. If data recovery investigations are recommended, a research design must be provided to MDOT Environmental detailing specific research questions to be addressed, along with citations of relevant literature supporting the importance of these questions to the current body of anthropological knowledge. However, if the site/s under consideration are determined ineligible, reasons supporting this conclusion should also be included.
15. The report must be signed and should include the addresses (postal and email, if applicable) and telephone numbers of the principal investigator and field director/s.
16. No fonts less than 8 pt may be used in the report. All figures and tables must be legibly presented and keyed for ready interpretation and clear photocopying. In general, *American Antiquity* reporting formats must be used.

Phase III - Mitigation

1. Reports must present in detail the investigative methods employed.
2. Reports must be in narrative form and fully address the questions proposed in the research design.
3. Reports must be written on acid free paper.
4. Reports must provide mitigation commencement and termination dates, as well as actual days spent in the field.
5. Reports must provide the number of personnel that participated in the field work and lab analysis.
6. Reports must provide the percentage of the archaeological property mitigated, as well as a justification for this percentage (e.g., Was only a section of the site adversely affected?).
7. Reports must provide discussion of field methods and results explicitly addressing negative as well as positive findings.
8. In addition to including 7.5' USGS topographic maps showing location of mitigation, reports must include a large scale topographic (or magnetic, for example, if research pertains to submerged resources) map of the site with all excavation/sampling units portrayed. The report 7.5' USGS topographic maps must clearly demarcate the project Right of Way.
9. Use the assigned state site number/s (trinomials) when referring to archaeological sites in the report.

10. Classify artifactual remains using existing regional typologies as applicable. In addition, the report must include a tabulation (counts and weights, as applicable) of all artifacts and archaeobotanical and zooarchaeological remains collected from the site.
11. Archaeologists should provide detailed information about the nature of the site village, quarry, hunting camp, extinct town, logging schooner, etc., state how this opinion was formed and provide regional cultural designations and chronological positions for encountered deposits and the site as a whole.
12. Archaeologists should provide the rationale for the mitigation project. All research questions should be answered in specific detail, along with citations of relevant literature supporting the importance of these questions and their results to the current body of anthropological knowledge.
13. The report must be signed and should include the addresses (postal and email, if applicable) and telephone numbers of the principal investigator and field director/s.
14. No fonts less than 8 pt may be used in the report. All figures and tables must be legibly presented and keyed for ready interpretation and clear photocopying. In general, *American Antiquity* reporting formats must be used.

Example Report Outline for Phase I, II, and III Investigations

1. *Title Page* (e.g., title; author/s; organization, agency and/or client; contract number; date of report completion)
2. *Management Summary*
3. *Table of Contents*
4. *Introduction* (e.g., project purpose and goals, such as a summary of the scope of work, including applicable regulations or permits as known; project administration and contracting agency; general description, including location, number of person days in the field, and project conditions or constraints).
5. *Background Research* (e.g., environmental setting; summary of paleoenvironment and present climate and vegetation conditions; past and present land uses and current conditions; overview of prehistoric and historic (including navigation history, if applicable) cultural history, of the local project area, including project specific site; review of known sites, previous investigations and research in the project area and vicinity, and information provided by local collectors; primary documentary research for the project area, including historic maps, deeds, or other

pertinent information). This section should provide the context for research questions, survey methods, site evaluations and further recommendations.

6. *Research Design* (e.g., research objectives and theoretical context, using the historic contexts outlined in the State's Historic Contexts Document and other relevant references; specific research problems or questions; methods to be employed to address these research objectives and questions; a discussion of the expected results, including hypotheses to be tested as part of the current investigation).
7. *Methods* (e.g., description of field and laboratory methods employed, including rationale, discussion of biases, problems or obstacles encountered, as applicable; an estimated percentage of total project area investigated, with discussion of sampling design and rationale; discussion of changes made during fieldwork from the stated methods and the rationale for these changes).
8. *Field Results* (e.g., clear description of all areas investigated, including those where resources were not recovered or observed; discussion of soils and stratigraphy, including areas and types of disturbance, if applicable; site topography and stratigraphy, size, noted structures or features, and artifact types and density; maps, figures, and original photographs of test locations, features, and soil profiles, as needed; original photographs of individual standing building and photographs of streetscapes, if applicable).
9. *Artifact Analysis* (e.g., detailed descriptions and results of analyses used; original photographs or drawings of selected or representative artifacts, including scale; a complete inventory of artifacts by provenience and class should be included; tables or other summary information; identification of the final artifact collection and project notes repository).
10. *Interpretations/Conclusions* (e.g., discussion of the results in terms of the background cultural context, research design and goals, and stated research problems; discussion of constraints and reliability of methods; discussion of future potential research problems based on results and conclusions; and assessment on whether further work should be conducted at the site).
11. *Recommendations* (e.g., a statement on whether the site is eligible for inclusion in the National Register of Historic Places).

Conclusions

This document provides basic guidelines for conducting and reporting Phase I, II, and III archaeological investigations in Mississippi. However, it is important to remember that this document will be subject to modification as times goes by. As cultural resource management laws and regulations, archaeological theory and techniques, as well as the public's attitude toward cultural resources change, the

document itself will evolve to reflect these changes. For now, however, it is hoped these guidelines will assist archaeologists and agency administrators in developing research designs capable of retrieving sufficient amounts of data that will address the identification and evaluation of cultural resources and the development and implementation of appropriate mitigation proposals.

Acknowledgments

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References

Advisory Council on Historic Preservation

- 1980 Treatment of Archeological Properties: A Handbook. Advisory Council on Historic Preservation, Washington, D.C.
- 1986 Working with Section 106: Section 106, Step-by-Step. Advisory Council on Historic Preservation, Washington, D.C.
- 1989 Working with Section 106: Preparing Agreement Documents. Advisory Council on Historic Preservation, Washington, D.C.

Alabama Historical Commission

- 1996 Alabama Historical Commission Policy for Archaeological Survey and Testing in Alabama. Manuscript on file at the Alabama Historical Commission, Alabama State Historic Preservation Office, Montgomery.

Anderson, Richard K.

- 1988 Guidelines for Recording Historic Ships. National Park Service, U.S. Department of the Interior, Washington, D.C.

Ashmore, Wendy and Robert J. Sharer

- 1988 *Discovering Our Past: A Brief Introduction to Archaeology*. Mayfield Publishing Company, Mountain View, California.
- Bense, Judith A., Hester A. Davis, Lorraine Heartfield, and Kathleen Deagan
1986 *Standards and Guidelines for Quality Control in Archaeological Resource Management in the Southeastern United States*. *Southeastern Archaeology* 5(1):56-62.
- Bruce, Kevin, Philip Carr, Cliff Jenkins, and Bruce Gray
1998 Request for Proposals: Phase II Testing of Archaeological Sites 22Lw616, 22Lw617, 22Lw618, 22Lw619, 22Lw620, 22Lw621, and 22Lw622, in Conjunction with the Proposed Widening and Realignment of U.S. Highway 84 from the East end of the Monticello Bypass to the Lincoln/Lawrence County line, in Lawrence County, Mississippi (MDOT Project No. 97-0015-01-077-10). Manuscript on file at the Mississippi Department of Transportation, Archaeology Section, Jackson.
- Carr, Philip, Cliff Jenkins, Kevin Bruce, and Bruce Gray
1998 Request for Proposals: Phase III Mitigation of Archaeological Site 22Ok973, in Conjunction with the Proposed Four-Laning of Mississippi Highway 25, Oktibbeha County, Mississippi. Manuscript on file at the Mississippi Department of Transportation, Archaeology Section, Jackson.
- Davis, Hester A., editor.
1982 *A State Plan for the Conservation of Archeological Resources in Arkansas*. Arkansas Archeological Survey Research Series 21.
- Georgia State Historic Preservation Office
1993 *Archaeological Assessment Report Guidelines and Components*. Manuscript on file at the Department of Natural Resources, Historic Preservation Division, State Historic Preservation Office, Atlanta.
- Harper, Herbert L. and Nick Fielder
1995 *Tennessee SHPO Standards and Guidelines for Archaeological Resource Management Studies*. Manuscript on file at the Tennessee Historical Commission, Nashville.
- Jackson, H. Edwin
n.d. *University of Southern Mississippi's 1991 Archaeology Field School: Field and Laboratory Procedures*. Manuscript on file at The University of Southern Mississippi, Hattiesburg.
- Kentucky State Historic Preservation Office
1990 *Specifications for Archaeological Fieldwork and Assessment Reports*. Manuscript on file at the Kentucky State Historic Preservation Office, Kentucky Heritage Council, Frankfurt.

King, Thomas F.

- 1978 The Archeological Survey: Methods and Uses. Heritage Conservation and Recreation Service, U.S. Department of the Interior, Washington D.C.
- 1998 Cultural Resource Laws & Practice, an Introductory Guide. AltaMira Press, Walnut Creek, California.

McGahey, Samuel O.

- n.d. State of Mississippi Guidelines for Cultural Resource Survey Reports. Revised 1988, 1989, 1990, 1993, 1994, 1995, 1996, and 1998. Manuscript on file at the Mississippi Department of Archives and History, Jackson.

Moore, James M.

- 1996 Request for Proposals: Phase I Archaeological Survey. Proposed Improvements to Walker Springs Road/Gallaher View Road, from North of Interstate 40 to State Route 169 in Knoxville, Knox County, Tennessee. Manuscript on file at the Tennessee Department of Transportation, Nashville.
- 1996 Request for Proposals: Phase II Testing of Archaeological Sites 40SI185, 40SI187, and 40SI192, Sullivan County. In Conjunction with the Proposed Improvements Proposed State Route 93 (South Wilcox Drive) from South of SR-347 to South Gaylemont Drive in Sullivan Gardens, Sullivan County, Tennessee. Manuscript on file at the Tennessee Department of Transportation, Nashville.

New Jersey State Historic Preservation Office

- 1990 Guidelines for the Preparation of Cultural Resources Management Archaeological Reports Submitted to the Office of New Jersey Heritage. Manuscript on file at the Department of Environmental Protection, Division of Parks and Forestry, Office of New Jersey Heritage, Trenton.

North Carolina State Historic Preservation Office

- 1982 Guidelines for the Preparation of Reports of Archeological Surveys and Evaluations. Manuscript on file at the North Carolina Archeology and Historic Preservation Section, Division of Archives and History, Department of Cultural Resources, Raleigh.

Pennsylvania Historical and Museum Commission

- 1991 Cultural Resource Management in Pennsylvania: Guidelines for Archaeological Investigations. Manuscript on file at the Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission, Harrisburg.

Prentice, Guy

- 1991 Field Procedures Manual for the Big South Fork River and Recreation Area Archaeological Resource Survey Project 1991 Field Season. Manuscript on file at the Southeast Archaeological Center, National Park Service, Tallahassee, Florida.

Schiffer, Michael B. and George J. Gumerman

1977 Conservation Archaeology: A Guide for Cultural Resource Management Studies. Academic Press, Inc., New York.

South Carolina State Historic Preservation Office

n.d. Guidelines and Standards for Archaeological Investigations. Manuscript on file at the State Historic Preservation Office, Review and Compliance Branch, South Carolina Department of Archives and History, Columbia.

Tennessee Division of Archaeology

1997 Standards and Guidelines for Archaeological Permit Application. Manuscript on file at the Tennessee Department of Environment and Conservation, Division of Archaeology, Nashville.

Texas Historical Commission

1995 A Guide to Archeological Survey Standards for Texas: Draft for CTA Review. Document Prepared by the Department of Antiquities Protection, Texas Historical Commission, Austin.

Thomas, David Hurst

1989 Archaeology. 2nd Edition. Holt, Rinehart and Winston, Inc., Fort Worth, Texas.

United States Army Corps of Engineers.

1998 Scope of Work for Limited Survey and National Register of Historic Places Eligibility Evaluations of all Bridges, Structures and Targets 4-6, 4-7, 4-11, 4-12, 4-15, and 4-16 Located within Item 4 of the Upper Yazoo Projects, LeFlore County, Mississippi. Vicksburg District.

United States Congress, Office of Technology Assessment

1987 Technologies for Underwater Archaeology and Maritime Preservation Background Paper, OTA-BP-E-37. U.S. Government Printing Office, Washington D.C.

The Mississippi Department of Archives and History's Board of Trustees approved the use of these guidelines on July 23, 1999. The guidelines went into effect September 1, 1999, following a 30 day comment period required by the Secretary of State's Office.