

SOUTH CAROLINA STANDARDS AND GUIDELINES FOR ARCHAEOLOGICAL INVESTIGATIONS



**The South Carolina Department of Archives and History, State
Historic Preservation Office, the South Carolina Institute of
Archaeology and Anthropology and The Council of South
Carolina Professional Archaeologists**

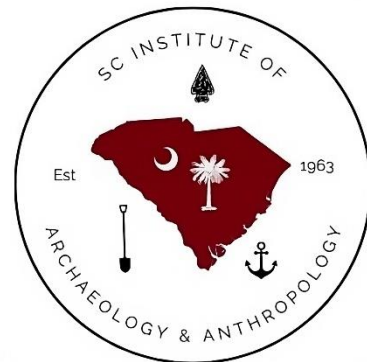
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I. INTRODUCTION

The edition of Standards and Guidelines has been designed as an advisory framework for archaeological fieldwork and reporting in the state of South Carolina. It offers guidance to project archaeologists, administrators, and other interested parties who prepare reports and case studies like those initiated or conditioned by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended.

In publishing this edition of Standards and Guidelines, South Carolina, like the majority of southeastern states, is revising its minimum specifications for the collection and presentation of technical archaeological information. NOTE: Survey or data recovery methods that do not meet the minimum standards described below may result in additional project costs and delays, as such, it is advised to clarify proposed survey or excavation methodologies with the State Historic Preservation Office Archaeologist prior to the initiation of fieldwork.

While this edition of Standards and Guidelines focuses on archaeological concerns, readers should note that Section 106 of the NHPA also requires the consideration of buildings, districts, structures, and objects. While this manual therefore provides an overview of the legislation and processes by which all historic properties (see Definitions below) are considered, the specifics of investigating and documenting buildings, districts, structures, and objects can be found in the Survey Manual for the South Carolina Statewide Survey of Historic Places (available from the State Historic Preservation Office [SHPO]).

If you have any questions about these Standards and Guidelines or about archaeology in South Carolina, please call the SHPO Archaeologist or South Carolina Institute of Archaeology and Anthropology (SCIAA). Additional information about archaeology in South Carolina can be found at <https://scdah.sc.gov/historic-preservation/resources/archaeology>.

A. DEFINITIONS

The following definitions are provided to insure a common understanding of the terms and concepts used in this document.

1. AREA OF POTENTIAL EFFECT

The Area of Potential Effect (APE) is defined as “the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist” (36 CFR Part 800.16[d]). Examples of effect can be direct, indirect, cumulative, visual, atmospheric, audible, beneficial, or adverse (Section D.6).

2. ARCHAEOLOGICAL SITE

An archaeological site is defined as an area yielding three or more historic or pre-contact artifacts within a 30-meter radius and/or certain cultural features including but not limited shell middens, cemeteries, structural remnants, architectural foundations or earthen berms.

3. CONSULTING PARTIES

According to federal regulations, an agency official “shall involve the consulting parties ... in findings and determinations made during the section 106 process” (36 CFR Part 800.2[a][4]). Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes, local governments, or the public. Depending on the undertaking, consulting parties can include the SHPO; Tribal Historic Preservation Officer (THPO); Indian Tribes and Native Hawaiian

organizations; representatives of local governments; and applicants for Federal assistance, permits, licenses and other approvals (36 CFR Part 800.2[c][1-5]). Consulting parties may also include “certain individuals and organizations with a demonstrated interest in the undertaking” (i.e., legal, economic, professional, or advocacy).

4. DATA RECOVERY

When an agency’s proposed action will cause an adverse effect to a historic property listed in or eligible for the National Register, the agency initiates consultation with the SHPO (36 CFR Part 800.6[a]). The purpose of the consultation is to seek agreement, usually through a Memorandum of Agreement (MOA), on ways to avoid, minimize, or mitigate the adverse effect to a historic property.

One way of mitigating adverse effect is through archaeological data recovery. However, before data recovery is carried out, a Data Recovery/Treatment Plan must be developed and approved by the agency, the SHPO, and other involved parties. For further guidance in developing a data recovery plan, see “Treatment of Archaeological Properties: A Handbook” (Advisory Council on Historic Preservation 1980) and “Consulting about Archaeology under Section 106” (Advisory Council on Historic Preservation 1990).

5. EVALUATION

Evaluation is the process of determining whether identified properties meet defined criteria of significance for inclusion in an inventory of historic properties (Federal Register 48:44723). Under most circumstances the evaluation should follow the criteria set forth in 36 CFR Part 60.4 for inclusion in the National Register of Historic Places.

6. HISTORIC PROPERTY

A historic property is “a district, site, building, structure, or object significant in American history, architecture, engineering, archaeology or culture at the national, state, or local level” (Federal Register 48:44739).

7. IDENTIFICATION

Identification is the process of inventorying and locating historic properties within the area of potential effects. It includes a number of activities, such as archival research, informant interviews, field survey and analysis (Federal Register 48:44721).

8. INTENSIVE SURVEY

Intensive survey is “a systematic, detailed examination of an area designed to gather information about historic properties sufficient to evaluate them against predetermined criteria of significance within specific historic contexts” (Federal Register 48:44739). The goal of an intensive survey is to identify historic properties within the Area of Potential Effect (APE). This is the most common type of survey for CRM purposes and should be the default mode unless otherwise agreed to in advance by the lead federal agency (under Section 106) and/or the SHPO.

9. ISOLATED FIND

An “isolated find” is defined as no more than two historic or prehistoric artifacts found within a 30-meter radius.

10. RECONNAISSANCE SURVEY

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A reconnaissance survey is defined as “an examination of all or part of an area accomplished in sufficient detail to make generalizations about the types and distributions of historic properties that may be present” (Federal Register 48:44739). Both predictive models and “landform surveys” are considered to be specific types of reconnaissance survey.

The overall goal for a reconnaissance-level survey is to provide the SHPO Archaeologist with the basic information necessary to determine whether a project has the likelihood of affecting historic properties and if additional intensive survey is necessary. Reconnaissance surveys are best utilized to develop a historic context. They are also useful when there are multiple alternatives for a project location, or when it is necessary to assess the archaeological potential of areas that will not be immediately affected or subject to Section 106 requirements.

For further guidance on the specific requirements required within a reconnaissance survey, please see Section II. C – Field Methods for Reconnaissance Surveys, of this document.

11. GEOGRAPHIC AREAS OF PARTICULAR CONCERN

Geographic Areas of Particular Concern (GAPCs) under the South Carolina Coastal Zone Management Act include archaeological sites and historic structures that are listed in the National Register of Historic Places (NRHP)

12. ARTIFACT

Artifacts are objects used, transported, or altered by humans. Artifacts found in South Carolina often include portable items made of stone, ceramic, and metal but can also include other materials, and some non-portable features such as shell middens and cemeteries.

13. LANDSCAPE FEATURE

A landscape feature is a non-portable, structural, built environmental feature. Examples including military or agricultural earthworks, railroads, transportation networks which usually form part of a system and should be interpreted as such, although not all may be extant.

B. FEDERAL LEGISLATION

1. OVERVIEW OF SECTION 106

The following federal legislation guides the SC SHPO:

National Historic Preservation Act of 1966 (as amended)

Executive Order 11593

National Environmental Policy Act of 1969

Department of the Interior regulations (36 CFR 60, 36 CFR 63, and 36 CFR 66)

Advisory Council on Historic Preservation regulations (36 CFR 800).

The SC SHPO was created in 1969 to implement the statewide preservation program described by Section 101 of the National Historic Preservation Act. 36 CFR 61.2 outlines SHPO responsibility for the development of that program. In addition, under the regulations of Advisory Council on Historic Preservation that govern the Section 106 process, the SHPO is required to participate in the process by considering and commenting on the effect that federal or federally funded, licensed, or assisted projects will have on all historic and prehistoric sites, districts, buildings, structures, and objects that are determined to be eligible for inclusion in the NRHP.

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36 CFR 60 describes the National Register criteria and states, “The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and a) that are associated with events that have made a significant contribution to the broad patterns of our history; b) that are associated with the lives of persons significant in our past; c) that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or d) that have yielded, or may be likely to yield, information important in prehistory or history.”

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect their actions may have on historic properties that are listed in or eligible for the NRHP. This accounting is referred to as “the Section 106 process” and is set forth in the regulations issued by the Advisory Council on Historic Preservation (36 CFR 800) (last amended 2004). The regulations emphasize the need for consultation between the federal agency, the SHPO, and other consulting parties. They also give the President’s Advisory Council on Historic Preservation an opportunity to comment on federally assisted, licensed, or funded actions. The Section 106 process is a broadly recognized aspect of statewide historic preservation planning. It is designed to identify historic properties that are eligible for listing in the NRHP and to reduce the adverse effects of federal projects on those properties.

2. ARCHAEOLOGICAL RESOURCES PROTECTION ACT

In 1979, the United States Congress passed the Archaeological Resources Protection Act “to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before October 31, 1979” (16 U.S.C. §470aa (b)).

For the specifics of the law, please see: [U.S.C. Title 16 - CONSERVATION \(govinfo.gov\)](https://www.govinfo.gov/subject-terms/viewall.html?id=900000)

3. NATIVE AMERICANS GRAVES PROTECTION AND REPATRIATION ACT

Pub.L. 101-601; 25 U.S.C. 3001-3013; 104 Stat. 3048-3058; 43 C.F.R. 10

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 protects and restores Native American human remains, funerary objects, sacred objects, and objects of cultural patrimony (hereafter, cultural items) to lineal descendants and authorized representatives of Federally recognized Indian Tribes and Native Hawaiian Organizations (NHO). Compliance is required for:

- Any institution (including State or local government agencies, museums, institutions of higher learning, and private firms) that has 1) possession or control of eligible holdings and 2) received or receives Federal funds;
- Federal agencies with possession or control of eligible holdings or with responsibilities on Federal or Tribal lands;
- Indian Tribes on Tribal lands in Alaska and the continental U.S.; the State of Hawai’i Department of Hawaiian Home Lands (DHHL) on Tribal lands in Hawai’i.

To determine your compliance obligation, contact the [National NAGPRA Program](https://www.nagpra.gov/).

Regulation 43 CFR 10 outlines compliance responsibilities for the act, including Duty of Care, establishing cultural affiliation, protecting human remains and cultural items on Federal or Tribal lands, and repatriation of human remains and cultural items by museums and agencies. The regulations also describe

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the necessity of consultation throughout all required activities. Consultation is an open, good-faith exchange of information with the aim of considering all viewpoints, striving for consensus or mutually acceptable alternative, and enabling museums to meaningfully consider Native American traditional knowledge. Respectful collections stewardship and repatriation require frequent, ongoing consultations with lineal descendants and authorized Tribal representatives.

A Final Rule changed 43 CFR 10 effective January 12, 2024. New Duty of Care provisions require consultation about storage, treatment, and handling of human remains and cultural items, as well as free, prior, and informed consent for exhibit, access, or research. Protection and repatriation activities are now outlined step-by-step for clarity and ease of enforcement.

Additional questions concerning the law can be posed to the NAGPRA Coordinator at SCIAA.

C. STATE AND LOCAL LEGISLATION

South Carolina currently has a multitude of various cultural resources legislation interwoven through differing State, County and City level apparatuses. For specifics on pertinent cultural resources legislation throughout the state, please see below:

1. ARCHAEOLOGICAL RESOURCES ACT OF 2010

In 2010, the South Carolina State Legislature, under Governor Mark Sanford, passed the Archaeological Resources Act stating “(C) It is unlawful for a person to willfully, knowingly, or maliciously enter upon the lands of another or the posted lands of the State and disturb or excavate a prehistoric or historic site for the purpose of discovering, uncovering, moving, removing, or attempting to remove an archaeological resource. Each unlawful entry and act of disturbance or excavation of a prehistoric or historic site constitutes a separate and distinct offense.”

With offenses defined as “(D) For a first offense, a person who violates the provisions of this section is guilty of a misdemeanor and, upon conviction, must be fined, imprisoned, or both, pursuant to the jurisdiction of magistrates as provided in Section 22-3-550.

(E) For a second offense for violating this section on the same property as the first offense or on another posted property, a person who violates the provisions of this section is guilty of a misdemeanor and, upon conviction, must be fined not less than one thousand dollars or more than three thousand dollars or imprisoned not more than three years, or both.

(F) For a third or subsequent offense for violating this section on the same property as the first offense or on another posted property, a person who violates the provisions of this section is guilty of a felony and, upon conviction, must be fined not more than five thousand dollars or imprisoned not more than five years, or both.”

For the purposes of the Act, an Archaeological Resource is defined here as “(1) "Archaeological resource" means all artifacts, relics, burial objects, or material remains of past human life or activities that are at least one hundred years old and possess either archaeological or commercial value, including pieces of pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, rock paintings, rock carving, intaglios, graves, or human skeletal materials.”

For the entirety of the law, please see: <https://www.scstatehouse.gov/code/t16c011.php>

2. PROTECTION OF STATE OWNED OR LEASED HISTORIC PROPERTIES

In 1992, the State amended Title 60 of the 1976 Code of Laws of South Carolina by adding Chapter 12

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“Protection of State Owned or Leased Historic Properties.” Chapter 12 encourages state agencies and institutions to preserve National Register-listed properties they own or lease by establishing a consultation process with the South Carolina Department of Archives and History - SHPO. The process is designed to incorporate historic preservation concerns with the needs of state projects. The Department is also charged with providing technical historic preservation training for state agency staff who are involved with the management of National Register properties.

Further defined as: “(State) Agencies shall consult with the department (SCDAH-SHPO) when planning projects that might adversely affect those properties listed in the National Register of Historic Places at the time of consultation. Consultation may be accomplished in one of three ways:

(1) The department shall negotiate a programmatic agreement with each agency that has qualified preservation professionals in charge of management of historic properties. The agency shall agree to avoid or, when appropriate, minimize adverse effects to historic properties under its jurisdiction. The agency shall then assume responsibility for administering its own historic preservation program. The agency's qualified preservation professionals shall participate in continuing education provided by the department at no charge.

(2) An agency that does not have qualified preservation professionals in charge of the management of historic properties may negotiate a programmatic agreement with the department for covered projects that are similar and repetitive, projects involving routine maintenance, or projects that will not significantly alter the historical integrity of a property. The agency shall then assume responsibility for carrying out the projects or types of projects included in the programmatic agreement without having to notify the department on a project-by-project basis.

(3)(a) Before an agency plans a project not covered by a programmatic agreement, the agency shall submit documentation describing the proposed project to the department. If the effect will be adverse, the agency also must describe alternatives that were considered to avoid or minimize adverse effects and the reasons why any rejected alternatives were considered not to be feasible or prudent.”

For the entirety of the law, please see: [Code of Laws - Title 60 - Chapter 12 - Protection Of State-owned Or Leased Historic Properties \(scstatehouse.gov\)](https://scstatehouse.gov/code/title60/chapter12/protection-of-state-owned-or-leased-historic-properties)

Additional guidance can be found on the SHPO website at: <https://scdah.sc.gov/historic-preservation/programs/review-compliance/state-owned-or-leased-historic-properties-process>

3. COASTAL ZONE MANAGEMENT ACT

The South Carolina Department of Environmental Services – Bureau of Coastal Management (DES-BCM) ensures that projects requiring state or federal permits within the Coastal Zone of South Carolina comply with the mandate of the Coastal Zone Management Program as defined in the Federal Coastal Zone Management Act of 1972. The Coastal Zone consists of the following eight counties: Beaufort, Berkeley, Charleston, Colleton, Dorchester, Georgetown, Horry, and Jasper.

Section 48-39-150(6) of the South Carolina Coastal Zone Management Act of 1979 (amended 1990), states that BCM must consider “the extent to which development could affect... irreplaceable historic and archaeological sites of South Carolina’s coastal zone.” Section 48-39-80(4) of the same act requires this comprehensive management program to “inventory and designate areas of critical state concern within the coastal zone.”

Under its Coastal Zone Management Program, DES-BCM has designated certain natural and cultural areas as “Geographic Areas of Particular Concern” (GAPCs). The SHPO Archaeologist is asked to advise DES-BCM on the management of GAPCs and significant sites and to determine the eligibility of archaeological sites, structures, objects, and districts for nomination to the NRHP.

Additional guidance can be found on the SHPO website: <https://scdah.sc.gov/historic-preservation/programs/review-compliance/state-owned-or-leased-historic-properties-process>

4. SOUTH CAROLINA WATER RESOURCES PLANNING AND COORDINATION ACT

Under the 1967 South Carolina Water Resources Planning and Coordination Act (Section 49-3-10) (as amended), the state's Department of Natural Resources must consider the effect that development near the state's ground and surface waters will have on cultural and environmental resources. This department works closely with the Department of Environmental Services - Bureau of Coastal Management and county planners to protect cultural resources.

5. SOUTH CAROLINA MINING ACT

The South Carolina Mining Act (Sections 48-20-10 through 48-20-310 of the South Carolina Code of Laws) mandates that no mining may be carried out in South Carolina unless "plans for the mining include reasonable provisions for protection of the surrounding environment and for reclamation of the area of land affected by the mining." Applicants for mining permits must present reclamation plans to the South Carolina Department of Environmental Services (SCDES's) Division of Mining and Solid Waste Management. According to the Mining Act (Section 48-20-40), reclamation plans must include "proposed methods to limit significant adverse effects on significant cultural or historic sites." The SHPO Archaeologist oversees review and guidance of all archaeological concerns within mining permits ranging from, but not limited to, initial archaeological reconnaissance surveys to Phase III data recovery excavations.

6. HAZARDOUS WASTE MANAGEMENT FACILITIES (DHEC)

The South Carolina Department of Environmental Services (SCDES) has published regulations governing the location of hazardous waste management facilities (South Carolina Code of Regulations 61-104). The regulation stipulates that hazardous waste treatment, storage, and disposal facilities will be prohibited in areas where they will "adversely impact an archaeological site as determined by the State Historic Preservation Officer and the State Archaeologist or a historic site as determined by the State Historic Preservation Officer" (R. 61-104, IV, D.2.a.). The SHPO provides comment on how hazardous waste facilities will affect historic properties.

7. BEAUFORT COUNTY ZONING ORDINANCE

As of 2017, Beaufort County added Article 5, which includes a historic preservation section, to its Community Development Code. Article 5, Division 5:10 of the code enables the county planning director to require a cultural resource survey if he/she believes that the proposed development may affect NRHP listed, eligible, or potentially eligible cultural resources. According to the ordinance, "identified resources shall be preserved and/or the effects of the proposed project mitigated in accordance with the applicable federal and state laws and guidelines" (Section 5.10.100). The ordinance also allows for the assessment of penalties for anyone caught excavating, altering or otherwise damaging an archaeological or historic site unless such activity is pursuant to a permit issued by the county planning director (Section 5.10.70). However, it is still advised to clarify proposed archaeological survey or excavation methodologies with the SHPO Archaeologist prior to the initiation of fieldwork as due diligence.

8. CITY OF BEAUFORT ORDINANCE

In 2003, the City of Beaufort added Section 8.3, Archaeological Impact Assessment, to Development Review Procedures of its Unified Development Ordinance. This section requires that the City investigate all development projects (excluding individual residential lots) for known historical and archaeological resources. If an indication of cultural resources exists, an intensive survey of the property is required. Evaluation of the resources, assessment of effect, and mitigation, if appropriate, follow the intensive survey.

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Additionally, it is illegal, unless pursuant to a permit, for anyone to excavate, remove, damage, or otherwise alter any archaeological or historic resource within the City.

9. BERKELEY COUNTY ZONING ORDINANCE

The intent of Berkeley County's ordinance (Appendix A, Article 10.2), adopted in 1997 and revised in 1999, is to preserve the integrity of NRHP listed properties in the county. A special area permit is required for any development that might affect such properties. In addition, the ordinance sets standards for developments that are issued special area permits so that adverse effects will be minimized.

10. HILTON HEAD ORDINANCE

The Town of Hilton Head Island developed South Carolina's first local ordinance to protect archaeological sites (Ordinance No. 90-10B, Proposed Ordinance No. 90-16, amending Title 17 of the Municipal Code 17-2-112). The ordinance protects all archaeological sites - as well as any area, structure, or artifacts on such sites - from disturbance or removal without written permission from the town manager or a designee. The SHPO Archaeologist provides the Town technical advice on the suitability of specific archaeological survey and excavation methodologies and reports as due diligence.

11. MOUNT PLEASANT ZONING ORDINANCE

Chapter 156 of the Mount Pleasant Zoning Code, updated 2014, provides several forms of protection for cultural resources. “(1) Pursuant to the town's historic district certified local government (CLG) status, the Commission may request funding for and authorize a survey and inventory of properties... and is coordinated with and complementary to those standards of the State Historic Preservation Office; and follows procedures described in the South Carolina State Historic Preservation Program: Survey Manual.” However, it is still advised to clarify proposed archaeological survey or excavation methodologies with the SHPO Archaeologist prior to the initiation of fieldwork as due diligence.

156.054 – Impact Assessment, The purpose of an impact assessment shall be to provide a basis for assessing a proposed major development project's favorable or unfavorable impact on the town's overall environment and infrastructure, with an emphasis on transportation, drainage and service provision. – section E.3.f; (f) *Cultural, archeological and environmental resources* stipulates that an impact assessment must “1. Describe the impact of the proposed project on relevant cultural, archeological and environmental resources, particularly as it relates to displacement or alteration of the same as a result of drainage improvements and land disturbance for development.” And “2. Indicate tree removal on conceptual plan.”

156.105 – Cluster Development section D. 1. d stipulates that “Any areas of environmental, historic, archaeological, or cultural significance, as determined through the planning process, shall be preserved and included in open space areas. These areas shall be shown on all Sketch Plans and Preliminary and Final Plats.”

156.305 – Planned Development Districts section H.2.b.5 stipulates that planners “Design around and preserve sites with historic, archaeological and/or cultural value.”

For the entirety of Chapter 156 within the Mount Pleasant Zoning Ordinance, please see: [Microsoft Word - Zoning Code adopted 08.12.14.docx \(tompsc.com\)](#)

12. ABANDONED CEMETERIES AND BURIALS

Several South Carolina Codes protect historic cemeteries (South Carolina Code 27-43-10, Notice of Proposed Removal; 27-43-20, Removal to Plot Agreeable to Governing Body and Relatives; 27-43-30, Supervision of Removal Work; and 16-17-600, Destruction or desecration of human remains or

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repositories). A 1989 amendment to Section 16-17-600 clarified and extended legal protection to the remains of Native Americans by changing the word “graveyards” to “burial grounds.” This amendment also made the destruction or desecration of human remains a felony punishable by a maximum fine of \$2,000 and imprisonment for not less than one (1) year and up to ten (10) years.

Permits provide an additional check on burial disturbance. These are required for the exhumation and transport of human remains from cemeteries by South Carolina Department of Public Health (South Carolina Code of Regulations Section 61-19-28, 29), and are available from the Division of Vital Records.

For additional information concerning burial laws currently within South Carolina, please see the SHPO website: <https://scdah.sc.gov/historic-preservation/resources/preservation-laws>

13. SOUTH CAROLINA UNDERWATER ANTIQUITIES ACT

The South Carolina Underwater Antiquities Act of 1991, South Carolina Code of Laws, Section 54-7-610 et. seq., makes SCIAA responsible for managing and protecting the state’s underwater archaeological resources on behalf of the State Budget and Control Board. Delegation of shipwrecks to state authority ultimately devolves from the federal Abandoned Shipwreck Act (PL100-298). No artifact or fossil may be removed from a state-owned river or ocean bottom, nor may it be disturbed without formal review and license issued by SCIAA – Maritime Research Division (MRD). Section 54-7-815 states that no person may excavate or salvage any sunken warship found within state waters that contains, or is believed to contain, human remains without express approval. Persons violating this section are guilty of a felony and may be fined at the discretion of the court and/or sentenced to a term not to exceed five (5) years. Other violations are considered misdemeanors.

In addition, SCIAA-MRD advises the SHPO on the eligibility of underwater archaeological resources. The current regulations covering licensing, survey, and salvage are available as brochures from SCIAA-MRD.

14. CERTIFIED LOCAL GOVERNMENT PROGRAM

The State Historic Preservation Office (SHPO) administers the CLG program in partnership with the National Park Service (NPS) to facilitate funding, technical assistance, and training. Through local preservation programs, CLGs are better prepared to manage future growth and encourage economic development while protecting the historic and prehistoric resources that are significant to their community, to the state and to the nation.

For additional information concerning the CLG program and a list of current CLGs within South Carolina, please see the SHPO website: <https://scdah.sc.gov/historic-preservation/programs/local-governments/clg>

15. SOUTH CAROLINA PALMETTO SITES PROGRAM

As of 2020, the SHPO has developed a Memorandum of Understanding with South Carolina Department of Commerce regarding the Implementation of Guidelines for Cultural Resource Identification Surveys conducted for the South Carolina Palmetto Sites Program. Stating: “The purpose of the South Carolina Department of Commerce Palmetto Sites Program is to identify and clarify issues pertaining to the development of a specific commercial or industrial site. To that end, the South Carolina Department of Commerce (DOC) and the State Historic Preservation Office (SHPO) developed guidelines for collecting initial information regarding cultural resources, including historic buildings, structures, districts, objects and sites (including archaeological), that may be affected by potential development at Palmetto Sites. The entity requesting the Palmetto Site designation will hire a consultant who meets the Secretary of the Interior’s Professional Qualification Standards ([36 CFR 61](#)) in Archaeology, History and/or Architectural History (as appropriate) to prepare a Cultural Resource Identification Survey (CRIS). A CRIS is designed to provide preliminary identification of significant above-ground/architectural and below

ground/archaeological resources on or near the Palmetto Site.”

The SHPO Archaeologist will provide DOC and the chosen consultant a determination if archaeological resources identified meet the criteria for listing in the National Register of Historic Places and if additional archaeological investigations are warranted.

For the entirety of the MOU, please see:

[https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Programs/Programs/Review%20and%20Compliance/Site-Certification-MOU-2020.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Programs/Programs/Review%20and%20Compliance/Site-Certification-MOU-2020.pdf)

D. ENVIRONMENTAL REVIEW AND SECTION 106 CONSULTATION PROCESS

The SHPO has a role in advising federal and state agencies about historic properties in conjunction with activities that are subject to environmental review. SHPO internal procedures are intended to follow federal and state laws, regulations, and processes regarding historic properties. Additional information and guidance regarding review and compliance can be found at: [Review & Compliance | SC Department of Archives and History](#)

There are differences between federal law and regulations regarding historic properties and state laws and processes regarding cultural resources. Review of most federal undertakings is carried out pursuant to Section 106 of the National Historic Preservation Act. Section 106 states Federal agencies are required to take into account the effect of an undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places. The head of any such Federal agency shall afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment with regard to such undertaking.

The process for carrying out Section 106 of the NHPA is presented in the ACHP regulations found at 36 CFR 800: Protection of Historic Properties (<https://www.achp.gov/sites/default/files/regulations/2017-02/regs-rev04.pdf>). Compliance with the Act and regulations is the responsibility of the federal agency official. 36 CFR 800.2(c)(1)(i) identifies the SHPO as a consulting party whose responsibility is to advise and assist the federal agency in carrying out its Section 106 responsibilities and who cooperates with such agencies, local governments and organizations, and individuals to ensure that historic properties are taken into consideration at all levels of planning and development. The initiation of consultation is the responsibility of the federal agency official or an individual delegated by it to consult. The ACHP has prepared considerable additional guidance regarding archaeology in the Section 106 process. This guidance can be found at: https://www.achp.gov/Protecting-Historic-Properties/Section_106_Archaeology_Guidance.

There is no one distinct consultation process for state permitted, certified, or funded projects. State law and accompanying regulations, written policy and procedures, and/or interagency agreements relevant to the lead state agency determine the process and the SHPO’s role in it. As noted elsewhere, the SHPO reviews projects that are permitted, certified, or funded pursuant to the South Carolina Coastal Zone Management Act, the South Carolina Mining Act, and the Protection for State Owned or Leased Historic Properties law. Determinations of National Register eligibility, however, are always based on the criteria of significance and qualities of integrity found at 36 CFR 60.4.

Submittals to the SHPO will be considered as either compliance-related or as due diligence/anticipatory. The deciding factor is whether there is federal or state agency involvement at the time of submittal, that is, whether a project is federally or state funded or there has been application to a federal or state agency for permit, financial assistance, license, or approval. Submittals with clear agency involvement (i.e., agency letterhead, agency-assigned permit number, license number, etc.) will be considered compliance related. Submittals without clear agency involvement will be considered due diligence/anticipatory.

The SHPO will provide advisory comments only when a federal or state agency is involved. Comments

will be addressed to the agency and copied to the applicant or consultant. The SHPO will still respond to due diligence/anticipatory submittals, but the response will be considered preliminary and for informational purposes only. The response will be addressed to the person from whom the submittal was received unless the SHPO is directed otherwise. A preliminary response could change once a federal or state agency initiates consultation and final, complete documentation is received for review. Per 36 CFR 800.4.d, the SHPO examines compliance-related submittals within 30 days of receipt [of adequate documentation]. The SHPO attempts to examine the documentation of due diligence/anticipatory submittals within 45 days of receipt, and priority will be given to compliance-related submittals, that is, those with clear evidence of federal or state agency involvement. Registered Mail, Priority Mail, Express Registered Mail, or another form of traceable conveyance (e.g., FedEx with delivery notification) is recommended for all official communications. However, as of 2021, the SHPO does accept digital submissions for both archaeological and architectural surveys, *if necessary*. For the digital submission guidelines, please see the SHPO website: [https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Survey/Electronic Submission Requirements 2021.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Survey/Electronic%20Submission%20Requirements%202021.pdf). The SHPO provides telephone responses to inquiries as information only. These conversations, because of the potential for misunderstandings, do not constitute SHPO comment or opinion. In the majority of cases, the SHPO will write its response under the South Carolina Department of Archives and History letterhead. The SHPO will occasionally use email correspondence to accept final reports and to review minor projects when acceptable to the federal or state regulatory agency.

1. OVERVIEW

Projects submitted for SHPO review will generally follow this sequence, subject to the process described in the following sections of this chapter:

- a) Submittal of appropriate Project Review Form, available on the SHPO website, and supporting documentation.
- b) Completion of the Cultural Resource Report. Any artifact clusters meeting the definition of an Archaeological Site ***must*** receive a SCIAA Site Number prior to being submitted to the SHPO.
- c) Review of the Survey Report by the SHPO Archaeologist. Review will determine if methods used, evaluations, and management recommendations are appropriate. Archaeological sites should be evaluated within the framework of the NRHP eligibility criteria. Recommendations of effect should also be presented in the report based on survey results and specific construction plans.
- d) Determinations of Eligibility. The SHPO Archaeologist or Supervisor of Survey and Review & Compliance will draft a letter outlining eligibility determinations based on the results of the submitted report. These determinations may or may not concur with the findings of the report.
- e) Consultation. Discussions will be held among involved agencies and individuals to determine the treatment of any eligible historic property that will be affected by the undertaking.

2. DOCUMENTATION

The SHPO has developed a Section 106 Project Review Form; for the form, please see the SHPO website: [https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Programs/Programs /Review%20and%20Compliance/Section-106 Project Review Form.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Programs/Programs%20and%20Compliance/Section-106%20Project%20Review%20Form.pdf). There is no Project Review Form specific to SCDES – Mining or State Owned or Leased Historic Properties projects. For these projects, the information requested on the Project Review Forms is to be included in the cover letter that accompanies the submittal. SCDES – BCM permitted projects will be coordinated through their project managers to the SHPO Archaeologist. However, for the aforementioned projects not containing separate review forms, initial due diligence requests can be submitted to the SHPO Archaeologist through the Section 106 Project Review Form (Due Diligence must be checked upon the Section 106 Review Form).

A Project Review Form must be prepared for and included with supporting documentation for each submittal to the SHPO. Initial documentation for a project requires the entire Form to be completed. Subsequent submittals for an ongoing project require only the first page of the Form be included with the documentation. The federal or state agency and the number it has assigned to the project must be clearly

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identified on the Form or the submittal will be considered due diligence/anticipatory. The SHPO will assign a unique SHPO Project Number to each project when initial documentation is received. The SHPO Project Number is to be referenced on any subsequent submittals for an ongoing project.

Project Review Forms that are incompletely filled out or are lacking in supporting documentation will be returned without a response. Project Review Forms are to be sent to:

South Carolina Department of Archives and History
State Historic Preservation Office, Attention: Review and Compliance
8301 Parklane Road, Columbia, SC 29223

Facsimile or email submittals will not be accepted.

3. PROJECT REVIEW

SHPO reviewers examine each submittal's documentation and recommend a course of action based on the following factors:

- a) **Scope of undertaking.** The undertaking's potential for ground disturbance should play a role in research design (i.e. if no ground disturbance is anticipated to take place during the undertaking, there may be no need to shovel test, although the potential for sites to exist within the APE should still be documented)
- b) **Definition of APE.** The size and nature of the undertaking's APE may affect the feasibility of various types of survey.
- c) **Known archaeological site locations.** Consider the presence, density and types of sites within and near the project area. This information provides a contextual basis for the types of resources that may be present within the APE.
- d) **General environmental factors of site location.** Consider the larger patterns of site location relative to topographic features, stream courses, resource zones, soil types, etc.
- e) **Historic features.** Consider the influence of historic roads, navigable waters, and paths on site locations in the vicinity of the project area.
- f) **Past and present land use.** Consider the impacts of prior land use (i.e. historic urbanization, agriculture, land contouring, etc.) on site preservation, integrity, and visibility. [particularly in terms of site type probability, and potential ground disturbances]
- g) **Previous coverage.** Consider the amount and intensity of previous archaeological investigation in and near the project area. A lack of previous survey in the area, however, does not indicate low potential for cultural resources to be present.

4. RECOMMENDED ACTIONS

- a) **No action.** If no significant resources are recorded in the project area and the reviewer thinks such a probability is slight (see criteria a - g above), the SHPO will recommend no further action. A letter to this effect might include the caveat that should any archaeological materials be discovered, the SHPO will be informed immediately. If the SHPO receives such information, it will respond within 48 hours, specifying whether the archaeological resource that has been identified is eligible for the NRHP. If the SHPO cannot make this assessment, it may recommend an archaeological investigation.
- b) **Survey recommended.** Whether significant resources have been previously recorded in the project area or not, the SHPO may advise that some type of cultural resource investigation is necessary because of a moderate to high potential for such resources to be present. A letter to this effect will be sent to the federal and/or state agencies involved in the project and to the applicant. Upon request, the SHPO Archaeologist will also review a scope of work for any project. For large or complex projects, it is recommended that applicants provide a scope of work to the SHPO Archaeologist for review, prior to

the initiation of fieldwork.

5. PROPERTY EVALUATION

When the SHPO receives a report of a cultural resource survey, it reviews the results, recommendations, and adequacy of the report and applies the National Register criteria (36 CFR 60.4) to identified resources. The SHPO follows guidance provided by the National Park Service in National Register Bulletin 36: Guidelines for Evaluating and Registering Archeological Properties (2000) when considering the National Register eligibility of archaeological sites.

For federal undertakings, the federal agency official is responsible for determining National Register eligibility, however, eligibility is determined in consultation with the SHPO (36 CFR 800.4(c)). If the federal agency official and the SHPO cannot agree on the eligibility of an identified property, the federal agency official can obtain a determination from the Secretary of the Interior.

For state permitted, certified, or funded projects, including DES-BCM certification, the SHPO determines the National Register eligibility of historic and archaeological resources. The South Carolina Coastal Zone Management Act identifies National Register listed sites as Geographic Areas of Particular Concern (GAPCs) and National Register eligible sites as significant sites. The South Carolina Mining Act refers to significant cultural or historic sites; National Register listed or eligible properties meet this definition.

Although archaeological sites typically are considered eligible under Criterion D (information potential), they can also qualify under Criteria A, B, or C and should routinely be considered under all 4 criteria. For instance, a battlefield or historic home site might be associated with significant events (Criterion A) or people (Criterion B). Sites with earthworks or elaborate landscaping might be considered eligible as examples of the work of a master or the best existing example of a particular type or period of construction (Criterion C).

6. ASSESSMENT OF EFFECTS

If one or more historic properties are located within the APE, the federal or state agency will consult with the SHPO to determine the project's effect on these properties.

Federal Undertakings. The federal agency official must assess the effect of the undertaking on any property listed in or eligible for the NRHP, including any newly identified properties. A determination of effect is made by applying the criteria of effect and adverse effect (36 CFR 800.4(d), 800.5). As with determinations of eligibility, federal regulations require the federal official to make this assessment in consultation with the SHPO and other interested parties; failure to agree may be referred to the Advisory Council for resolution. One of three assessments is possible:

- 1) No Historic Properties Affected. If no eligible properties are located within the area of potential effects, or if there are historic properties present but the undertaking will have no effect upon them, the SHPO will recommend a finding of no historic properties affected (36 CFR 800.4(d)(1)) and that no additional work will be necessary (36 CFR 800.4[d][1]).
- 2) No Adverse Effect. If the undertaking will have an effect on properties eligible for the NRHP, but will not alter, directly or indirectly, any of the characteristics that qualify it for inclusion in the NRHP, then a finding of no adverse effect may be proposed. Alternatively, the undertaking may be modified or certain conditions imposed that would also allow a finding of no adverse effect (36 CFR 800.5[b]).
- 3) Adverse Effect. An adverse effect can be found "when an undertaking may alter, directly or indirectly, the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association"(36 CFR 800.5[a][1]). At that time, the federal agency official, the

SHPO, and any other consulting parties, will consult on ways to “avoid, minimize, or mitigate the adverse effects” (36 CFR Part 800.6[a]).

State Permitted, Certified, or Funded Projects. State permitted, certified, or funded projects also require a consideration of “significant adverse effects” (South Carolina Mining Act) or “the extent to which the development could affect the habitats for rare and endangered species of wildlife or irreplaceable historic and archeological sites of South Carolina's coastal zone” (South Carolina Coastal Tidelands and Wetlands Act - <https://www.scstatehouse.gov/code/t48c039.php>). The latter addresses “irretrievable loss of sites identified as significant by the SCDAH-SHPO or SCIAA without reasonable opportunity for professional examination and/or excavation, or preservation”.

7. TREATMENT OF ARCHAEOLOGICAL PROPERTIES

If consultation does not result in modifying the undertaking to avoid all historic properties, then the agency official, or an applicant who has been authorized by the agency, continues consultation among the parties involved. The goal of consultation is to develop a Memorandum of Agreement (MOA) that will specify the resolution of adverse effects to historic properties. Please note, Memorandums of Agreement only occur from federal undertakings under Section 106 consultation. However, the SHPO may choose to utilize a Memorandum of Understanding, mirroring an MOA, with other state agencies in lieu of federal consultation under Section 106. The three most common actions, which are not mutually exclusive, are:

- a) **Protection/Stabilization.** A finding of “no adverse effect” may be found if a project can use green-spacing and covenants or easements to protect a historic property. The SHPO will also consider proposals to obtain a finding of “no adverse effect” through burial of a site beneath a protective cap of sterile fill, or through other methods of protection.

Data Recovery. If an agreement to avoid or protect historic properties cannot be reached, it is possible to mitigate the adverse effects through data recovery. An executed Memorandum of Agreement always precedes a data recovery effort, with a stipulation of all MOAs being that a detailed data recovery plan is accepted by the SHPO prior to initiation of the data recovery. A DES-BCM Memorandum of Understanding may require that a restrictive covenant be recorded for protection of the GAPCs prior to the initiation of data recovery fieldwork. Data recovery should adhere to the professional guidelines given below. For additional guidance, also see the ACHP’s recommended approach to data recovery (Federal Register 64:27085-27087), which can be found at: [Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites | Advisory Council on Historic Preservation \(achp.gov\)](#)

- b) **Public Information.** The SHPO encourages the use of educational curriculum, exhibits, websites, etc. in conjunction with data recovery. Occasionally a public information component alone can be used as an alternative to data recovery. However, public information components should only be conducted after an archaeological site has been excavated and/or sufficiently protected. Media or press agencies ***should not*** be allowed on site during active archaeological excavations and/or data recoveries; news articles or public information components containing locational data of archaeological sites ***will not be*** published until any aforementioned excavations are completed. Please contact the SHPO Archaeologist if there are questions concerning which information concerning the active or completed excavations of an archaeological site may be published.

II. FIELDWORK STANDARDS FOR ARCHAEOLOGICAL SURVEY, EVALUATIVE TESTING, AND DATA RECOVERY

A. INTRODUCTION

The following guidelines are offered as a baseline for archaeological survey, evaluative testing, and data recovery. They are based on a working knowledge of South Carolina's archaeological resources and environments. These guidelines are specifically useful to field archaeologists, agency personnel, and the contracting agent (as appropriate). They can be used as a yardstick to ensure compliance with federal and state regulations, comparability of research results, and evaluation of research designs and project reports. Some agencies may have specific, and sometime contradictory guidelines so be sure to coordinate your efforts.

Consulting with the SHPO Archaeologist before starting fieldwork is highly suggested, especially if you are conducting a large or complex project, are proposing to use alternative field procedures, or are working in an urban or industrial setting where customary subsurface techniques and methods may not be appropriate. In the latter events, the SHPO will expect archaeologists to justify their proposals with sound scientific reasoning, especially if less effort, rather than an equal or greater effort is suggested. In such cases, the archaeologists' rationale must be presented in detail in the research design or report.

B. DOCUMENTARY RESEARCH

1. RECONNAISSANCE AND INTENSIVE SURVEYS

To help locate possible historic and prehistoric sites, map and documentary research should be undertaken before the field survey begins. Sources to consult may include:

- a) South Carolina State Site Files (SCIAA). SCIAA maintains the official archaeological site file repository and is the authorizing agency for state site number assignment, for further assistance please see SCIAA's website:
https://sc.edu/study/colleges_schools/artsandsciences/sc_institute_archeology_and_anthropology/divisions/state_archaeologist/index.php.
- b) Maps showing historic county or city surveys. The South Carolina Department of Archives and History (SCDAH) maintains an extensive collection of municipal and county maps. For additional assistance please contact SCDAH's Research Room:
<https://scdah.sc.gov/research-and-genealogy/resources/guide-research-room>
- b) Land Use Maps. Particularly relevant are aerial photographs, LiDAR data, and modern soil surveys that can be examined at the Department of Natural Resources, Land Resources, and Thomas Cooper Map Library. SCDNR has an ongoing LiDAR data acquisition process for each county in South Carolina; their current data is available for download at: <https://www.dnr.sc.gov/GIS/lidar.html>
- c) Predictive Models: Although not well represented in the state currently, it is expected that such documents when relevant to a particular project will be consulted. The SHPO Archaeologist or SCIAA can assist in identifying models that may be useful.
- d) ArchSite and USGS topographic maps. SCIAA and SHPO have made Geographic Information System (GIS) data on archaeological site locations available on line via SC ArchSite ([South Carolina ArchSite](#)

(scarchsite.org). For additional questions concerning the use of SC ArchSite please contact the ArchSite Administrator at SCIAA (noted in the Contact Us section on the website's front page).

- e) Historical Maps: Common historic map sources include Mills' Atlas (1825), the Mouzon Map of 1780, the Cook Map of 1773, the DeBrahms Map of 1758, 19th century coastal charts, Sanborn fire insurance maps, early 20th century soil surveys, early and mid 20th century USGS topographic maps, 20th century county highway maps, county timber maps, etc.; SCDAH and the South Caroliniana Library at USC maintain large historic map inventories: <https://scdah.sc.gov/research-and-genealogy/resources/sc-county-maps> & <https://digital.library.sc.edu/collections/south-caroliniana-library-map-collection/>

Many of these same maps are available online courtesy of the University of Georgia's Hargrett Map Collection: <https://www.libs.uga.edu/darchive/hargrett/maps/revamer.html>

The map library at USC's Thomas Cooper Library holds copies of early 20th century topographic and soil maps. The latter, as well as Sanborn Insurance maps are available online at USC's website: <https://digital.library.sc.edu/collections/sanborn-fire-insurance-maps-of-south-carolina/>

Cartographic surveys are currently available for Beaufort, Charleston, Georgetown, and Greenville Counties from SCDAH's Research Room (link above). Cartographic surveys often are a compilation of historic maps mentioned above.

2. EVALUATIVE TESTING

Evaluative testing assumes completion of survey level documentary research. For historic sites, additional documentary research at the testing level may consist of chain of title searches and examination of property plats, if available. SCDAH's Research Room has microfilmed copies of colonial plats and the McCrady Plat Collection. Others can be found at the county register of mesne conveyances, and other county-specific sources.

3. DATA RECOVERY

For historic sites, additional documentary research may also include census data, such as Agricultural, Population, and Industrial Censuses (SCDAH), slave schedules (SCDAH), family papers, wills, probate inventories, daybooks, etc. (SCDAH; the Caroliniana Library; SC Historical Society; county courthouses; local and regional libraries and repositories) and informant interviews (particularly for early 20th century sites).

C. USE OF PROBABILITY MODELING

Models and modeling applications have become commonplace in archaeology especially since the 1980s. The types of models and reasons for modeling are very diverse ranging from simple artifact distribution projections, to understanding regional site-settlement patterns to understanding complex landscape influences on site patterning. Models have been used in hypothesis testing regarding associations between environmental variables and site settlement, in development of theories regarding settlement and migration patterns and commonly in what are called "predictive" models to guide cultural resource management strategies and site protection.

Models generally are developed across a wide range of geographic regions and scales and are designed around specific goals and objectives or research questions. As a result, there cannot and should not be a single procedure for model development. The model parameters, analytical procedures, calibration and validation processes implemented are dependent on the conceptual and theoretical bases of the modeling initiatives and the researcher should be permitted to explore fully the data relationships. However, there

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are some general considerations that can facilitate the successful development or implementation of a model but because most archaeological models use existing digital data from a variety of Federal and State agency sources, some of these cannot be controlled. Just be aware of the potential errors or uncertainty when assessing the model results.

- Data scale and resolution should be constant or as close as possible. Extremely disparate data resolution may result in a level of uncertainty between data relationships that is not easily eliminated.
- A standard coordinate projection system should be used that is appropriate for the data type and the model focus region. Different projection systems “flatten” data using a variety of mathematical calculations that results in distortion of at least one of the following map characteristics - distance, direction, shape and/or area. Probability Models for official consultation must utilize UTM-NAD 1983 until a new NAD datum shift occurs.
- Spatial autocorrelation should be considered. SA assumes that objects close to each other in space are more similar than object further away. SA is useful for determining the relationship or clustering of objects across a landscape. But it also should be noted that when looking at variables in a model, these variables may not be fully independent because of their proximity to each other. There are standard statistical tests to assist with identifying spatial autocorrelation in data.

It is important to understand that models are generalizations and approximations of data relationships and, as such, are never 100% reliable. While they are extremely variable for understanding locational behavior, models should never be used to eliminate an area totally from archaeological survey or from having the potential for containing some loci of human activity. Instead, models should be used to help direct survey strategies and guide research. Some level of survey in low probability areas, even if less intensively than high probability areas, helps to validate and refine models as well as help understand the outliers or “residuals” that may indicate more about cultures and their location strategies.

With these considerations in mind and in lieu of formal standards for model development, once developed and tested, detailed documentation on the model and the procedural steps should be provided. This includes the purpose or goals of the model, detailed data parameters and data transformations, GIS, statistical or other automated procedures, calibration and validation procedures. The primary objective is to clearly define the model, the data and the conceptual and analytical procedures so that other modelers can replicate the analysis and confirm or refute model results or assess the model’s applicability to other geographic areas.

For required information within a probability model, please see Appendix F. Probability Model Checklist

D. FIELD METHODS FOR RECONNAISSANCE SURVEYS

Reconnaissance surveys are useful approaches for examining large tracts of land, or multiple project alternatives, to provide general predictions about the number and types of cultural resources in a project area. They are a way to begin the process of identifying and evaluating historic properties as required by Section 106 of the NHPA or to begin initial due diligence consultation with the SHPO.

Reconnaissance surveys include limited shovel testing in areas that are likely to contain archaeological resources. The results of a reconnaissance survey can be used to eliminate areas from further investigation or to make an informed evaluation of a project’s potential to impact historic properties. When reporting reconnaissance survey findings, the investigator should, minimally, explain predictive modeling, and document field methods, survey results, and the extent and types of groundcover and existing disturbances.

Reconnaissance surveys are intended as systematic sampling overviews to determine the distribution

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potential for significant archaeological assemblages, subsurface features and/or other historic properties to be located within a large project area where an initial intensive survey is not feasible. The intended goal of a reconnaissance survey is information acquisition to guide the planning of future intensive surveys. As such, a reconnaissance survey will include four separate parts.

a) Introduction:

An introduction describing historical documentary research, utilizing sources stipulated within B. Documentary Research, 1. Reconnaissance and Intensive Surveys.

b) Creation of a Probability Model:

The development of an archaeological probability model, compliant with the Site Occurrence Probability Categories stipulated within Intensive Surveys below. Multiple probability models are currently in use within South Carolina, tailored to specific physiographic sections of the state, utilizing soil map and LiDAR data. The South Carolina State Historic Preservation Office can assist in identifying a suitable probability model or review the development of a probability model, if necessary. Please see Section C. Use of Probability Modeling listed above and Appendix F. Probability Model Checklist for further guidance and specifications on probability models.

c) Fieldwork:

Field investigations will include a combination of pedestrian reconnaissance and exploratory judgmental shovel testing, to be inferred from the results of the historical documentary research and archaeological probability modeling. The intended goal of exploratory judgmental shovel testing is to clarify high and low probability portions of the archaeological probability model, specifically the ground truthing of these sections. Low probability areas should be judgmentally tested to confirm ground disturbances, disturbed stratigraphy, extensive soil erosion and/or high water tables. If low probability areas are not judgmentally shovel tested, the report *must* explain the factors preventing this, such as slope greater than 15 degrees, impassable terrain or standing water. High probability areas should be inversely ground truthed for their potential to contain intact stratigraphy and/or identifiable archaeological deposits. The report must include clear methodological reasoning for the performed fieldwork strategies performed in each separate probability area.

d) Conclusion:

The report must conclude with a succinct recommendation for further work, including, but not limited to, the elimination for further work in low probability areas (based on the previously described factors) and additional intensive surveys in select areas. If archaeological deposits and/or subsurface features are identified during the survey, while it is not necessary to fully delineate a site boundary, the recommendation for intensive survey must include a section describing the proposed delineation of said deposits. Should areas be recommended for additional intensive survey, the recommendation should include a section elaborating on the appropriate survey methodology to be utilized (surface collection, subsurface testing, metal detecting, GPR, etc.) and the nature of its appropriateness per specific types identified during the reconnaissance survey.

Additional Necessary Information:

-Positive shovel tests should still be carefully recorded in a nature similar to that of an intensive survey, including the depth of deposits, characteristics and contents of said deposits, etc.

-If archaeological deposits were identified, the methodology for field evaluation of the artifacts.

-Judgmental shovel tests should be recorded in a similar manner to those of an intensive survey, including photographic documentation and Munsell soil determination for general soil profiles within the project area.

-Full extent of the project area and precise extent of reconnaissance survey coverage.

-Any identified historic above ground structures within the project area and the need for an architectural survey in conjunction with an intensive survey.

-Please note, any cluster of artifacts meeting the definition of an archaeological site, must still be recorded as archaeological site and be assigned an archaeological site by SCIAA during the reconnaissance survey, however delineation of site boundaries may wait for an intensive survey. The State Historic Preservation Office ***will not*** accept any reconnaissance survey as final that does not include an assigned Archaeological Site Number for recorded artifacts clusters meeting the definition of an archaeological site.

-A reconnaissance survey ***is not*** an appropriate substitute for a Phase I intensive archaeological survey during Section 106 consultation. It is also advised to consult the South Carolina State Historic Preservation Office, and the lead agency during federal permitting, on proposed reconnaissance survey methodologies prior to the initiation of the aforementioned survey.

E. FIELD METHODS FOR INTENSIVE SURVEY

During an intensive survey, all land within the project boundaries requires inspection. By preliminarily inspecting the project area and reviewing documentary resources, investigators may be able to stratify the project area by general categories of site occurrence probability.

1. SITE OCCURRENCE PROBABILITY CATEGORIES

Site occurrence probability categories can be used to design survey strategies are divided into three probability categories below. The selected probability model should be justified in terms of its regional applicability as well as appropriately cited. Additionally, areas should not be automatically excluded because of poor drainage, plowing, or forestry activities. Intermediate and Low probability areas must not be ignored completely and still must be visited to confirm their lack of archaeological potential in the field. For example, a survey should still include pedestrian transects coupled with judgmental shovel testing and photographic documentation of a low probability area to demonstrate sufficient evidence indicating a lack of archaeological potential.

Indeterminate Probability. Areas that are permanently or seasonally inundated; tidal areas; and active floodplains (or other active depositional environments) where deposits are so deep that finding sites using conventional methods is unlikely.

Low Probability. Areas with slopes greater than 15 percent; areas of very poorly drained soil (as determined by subsurface inspection); and areas that have been previously disturbed to such a degree that archaeological materials, if present, are no longer in context. Documentation of disturbance can include recent aerial photographs, ground views, or maps showing the disturbance (e.g., recent construction).

High Probability. Areas that do not meet any of the foregoing criteria are considered to possess high probability.

2. SURVEY STRATEGIES

In most instances some type of subsurface investigations will be necessary to discover sites. Testing

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methods will depend on field conditions and the types of sites anticipated. Under most conditions, shovel testing is the preferred method. Alternative methods may be used at the investigator's discretion, but should be approved by both the lead agency and the SHPO. With systematic sampling, rigid adherence to fixed intervals may fail to yield optimal survey results, since fixed intervals may not uncover sites that would have been located using a judgmental technique. Thus, a combination of systematic and intuitive shovel testing is probably the most efficient method for site discovery in standard situations. When using a probability model for planning purposes, survey strategies should always be adjusted to on-the-ground conditions. SHPO may request additional survey coverage when documentation does not adequately discuss reasons for foregoing intensive survey.

- a) **Indeterminate probability strategies.** An alternative method of fieldwork may be necessary in areas of indeterminate probability (e.g., deep testing with a backhoe). Monitoring of such areas may be necessary during construction to ensure that no sites are destroyed.
- b) **Low probability strategies.** Field investigations of low probability areas should include a surface inspection of all areas where the slope is greater than 15 percent to look for sites including, but not limited to, rockshelters, caves, mines, quarries, and/or petroglyphs. In disturbed areas or in areas where the soil is very poorly drained, subsurface inspection (i.e., shovel testing or coring) is recommended to verify soil conditions at intervals no greater than 60 meters.
- c) **High probability strategies.** Systematic subsurface investigation through shovel testing is the standard approach for site discovery, but variations may be warranted. Generally survey of high probability areas should follow these guidelines:

Subsurface Survey. In most instances some type of subsurface investigation will be necessary to discover sites. Testing methods will depend on field conditions and the types of sites anticipated. Under most conditions, shovel testing is the preferred method. Alternative methods may be used at the investigator's discretion, but should be approved by both the lead agency and the SHPO.

- a) Shovel tests should measure 30 x 30 cm or greater and be placed at intervals no greater than 30 meters. All fill should be screened through 1/4-inch hardware cloth. Tests are to be excavated to at least 80 cmbs (depth), or until impenetrable substrate (i.e., bedrock or clay), a known sterile subsoil, or the water table is reached. Individual shovel tests are to be recorded on project field maps, but may be more generally described in the report. The total number of excavated shovel tests should be included in the report.
- b) Posthole diggers are not to be used as a survey technique, in most instances.
- c) Mechanical topsoil stripping should not be used as a survey technique, in most cases (see (e) below).
- d) Mechanical augers are not recommended, and should only be used with prior consultation with the SHPO. In some instances they can be used in areas that have impregnable ground cover (e.g., urban areas with concrete, brick rubble, etc.). They are to be placed at intervals not greater than 30 meters. Fill should be screened. Auger tests should be documented in the same manner as shovel tests, including stratigraphic details.
- e) Mechanical deep testing (e.g., backhoe trenches or coring) may be necessary in active depositional environments. All deep testing should comply with OSHA Standards for Excavation Safety (29 CFR 1926 Subpart P and appendices).

Surface Survey. Surface survey is a valid site discovery method, and can be used in areas where surface visibility exceeds 50 percent. Subsurface testing will supplement surface inspection.

- a) In general, surface survey should be systematic. The maximum interval between surveyors should not

normally exceed 30 meters.

- b) Shovel test intervals along transects may be up to 60 meters. Highly eroded areas, where subsoil is visible at or just below the surface, areas that have been mechanically site- prepped, plowed fire breaks, and recently plowed fields are the most common instances where such high visibility makes surface survey appropriate.
- c) If an area has good surface visibility, but is in a dynamic depositional environment (e.g., the foot of a slope or adjacent to an aggrading waterway), then 30-meter or closer interval subsurface testing is required.
- d) When surface survey locates a site, close interval subsurface testing will be necessary to determine the site's stratigraphy and boundaries.

3. RECORD KEEPING

Complete and accurate records are our legacy for future generations. If our work is not recorded, and properly preserved, then all of our efforts, and the resources in question, will be forever lost.

- a) **Responsibility.** The Principal Investigator or Project Archaeologist is responsible for maintaining daily notes and transferring survey data to master project maps.
- b) **Mapping of recovery units.** Each shovel test or test unit should be recorded, noting its location, depth, soil profile (including Munsell codes), artifact yield, general conditions, and other pertinent information. The location of ground disturbances, landscape features, and other pertinent features such as associated above-ground structures should also be recorded. Each shovel test or unit should be given a unique field designation, and materials recovered from it are to be analyzed and cataloged by discrete provenience. Location of a field datum should also be recorded.
- c) **Photography.** Photographs are to be taken of representative project environments and areas where different survey strategies were used, as well as of excavation unit profiles and features. A north arrow and photo scale should be included in photographs.

4. ARCHAEOLOGICAL SITE DEFINITION AND DELINEATION

When artifacts or features thought to be older than 50 years are discovered during field survey, the investigator will establish whether the resource is a site or an isolated find (see definitions in Section I-A). Site investigations should address physical integrity, horizontal and vertical boundaries, and the quantity and type of cultural materials present. Intensive survey methods may include:

- a) **Surface collection:** At the survey level, a complete surface artifact collection should not normally be made unless the site is subject to active looting or vandalism. Any collections made should be accurately shown on the site map. Random "grab" samples should not be made. If a surface collection is made, an appropriate sampling method should be based on the investigator's assessment of field conditions as well as the type and density of visible artifacts. Clear methodological reasoning of the investigator's chosen sampling method must be presented in the report. Alternatively, the investigator may choose not to collect material, but instead describe the material and its location on the project map. Surface visibility and topography alone do not sufficiently define a site. Although a surface collection may help to define horizontal site limits, more thorough delineation of the site is necessary through subsurface testing.
- b) **Subsurface testing:** Systematic subsurface testing, along with surface inspection, is necessary to establish both the horizontal and vertical extent of a site even when surface visibility is unrestricted, and topographic changes indicate a possible boundary. Site boundaries are to be established by excavating

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shovel tests in no less than four directions. SHPO recommends using close intervals when delineating sites; no more than a 10-15 meter testing interval is recommended. Site boundaries can be tentatively established when at least two consecutive negative shovel tests are excavated and there are no other related cultural materials within a 30-meter radius. A site is considered fully delineated only when each positive shovel test on the edge of the site is succeeded by two consecutive negative shovel tests. [see diagram] It is often advisable to excavate larger test units (e.g., 50x50 cm or 1x1 m) during intensive survey to assist in evaluating NRHP eligibility.

- c) **Site documentation and demarcation:** A South Carolina Archaeological Site Form (Site Inventory Record 68-1, Rev. 85) must be completed for all sites found within the project area and included within draft and final reports. Official SCIAA site numbers must be reported in draft and final reports. If a site has been previously recorded, a site revisit form will be completed, noting the current site conditions and any new site information. If no artifacts and/or subsurface features were noted in a revisit, a site revisit form still must be completed, documenting this. All site forms must be submitted to SCIAA before completion of the final report. Site boundaries are to be accurately located on project maps and USGS topographic maps. Site limits are to be recorded by either a licensed land surveyor or a Global Positioning System (GPS) receiver capable of at least 15-meter accuracy. For sites less than 1/4 acre in size that do not meet the previous criteria, or for sites mapped with a transit or total station from a properly documented datum, a single set of coordinates taken at the site's center (or datum) will suffice. Larger sites are to be recorded by obtaining a number of coordinates around the perimeter of the site.
- d) **Cemeteries:** SHPO and SCIAA recommend recording cemeteries on both a SHPO survey form and a SCIAA archaeological site form. Archaeological site forms and numbers can be obtained by contacting SCIAA. Cemeteries that are unmarked (no markers visible) or prehistoric should be recorded only on a SCIAA archaeological site form. Historic cemeteries with 1 or more grave markers should be recorded on a SHPO survey form, in addition to a SCIAA archaeological site form. This includes cemeteries that are partially marked and markers with no writing (for example, a field stone). Both the SHPO and SCIAA site form for a cemetery must be appended to a submitted survey report.

Further information on the SHPO Site Form section can be found in the *Survey Manual, South Carolina Statewide Survey of Historic Properties*:

[https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Survey/Survey_Manual_Dec2018_revised2.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Survey/Survey_Manual_Dec2018_revised2.pdf)

Consult the following publications for additional guidance:

South Carolina's Historic Cemeteries: A Preservation Handbook - Historical overview of eighteenth to twentieth century cemeteries (South Carolina SHPO):

[https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Programs/Programs/Technical%20Assistance/cemetery%20preservation%20handbook.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Programs/Programs/Technical%20Assistance/cemetery%20preservation%20handbook.pdf)

Cemetery Preservation (South Carolina SHPO):

<https://scdah.sc.gov/historic-preservation/technical-assistance/cemeteries>

National Register Bulletin 41: Guidelines for Evaluating and Registering Cemeteries and Burial Places:

[https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Survey/NRB41.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Survey/NRB41.pdf)

F. FIELD METHODS FOR EVALUATIVE TESTING

Sometimes it is impossible to make definitive site eligibility assessments using intensive survey methods. In these situations, sites are considered unevaluated in terms of their eligibility for inclusion in the NRHP, and

additional site testing is usually necessary. Site testing strategies should be designed to provide not only information about site eligibility, but also information that will help in mitigation planning (if ultimately necessary). Evaluative testing methods can include:

1. SITE MAP AND DATUM

The site map should depict site boundaries, datum, surface features, excavation units, and topography; a north arrow and scale should always be included. An easy-to-relocate, permanent datum should be established and clearly identified with the state site number.

2. CONTROLLED SURFACE COLLECTION

A systematic sampling scheme should be employed. Any such collections are to be provenienced according to a clearly defined coordinate system (which must be mentioned within the report).

3. REMOTE SENSING

Metal detectors are useful for investigating historic sites. Other forms of remote sensing, such as ground penetrating radar, electrical resistivity, and magnetometer are also useful for particular sites and settings.

Note-Remote sensing must still be conducted by an individual who meets the qualifications to be listed as an Archaeologist within Section V. Personnel Qualifications of this document (and the Secretary of the Interior's Professional Qualifications Standards). Additional remote sensing qualifications, such as the remote sensing course offered by the National Park Service's National Center for Preservation Technology and Training (NCPTT) are preferred certifications which demonstrates an individual's expertise in remote sensing methodologies.

Remote Sensing and Geophysics:

There are various types of remote sensing techniques, which can be used to help “gather background environmental data, plan more detailed field investigations, discover certain classes of properties, map sites, locate and confirm the presence of predicted sites, and define features within properties” (see the National Park Service’s notice regarding the Secretary of the Interior’s Standards and Guidelines for Archaeology and Historic Preservation). Remote sensing covers all techniques other than excavation and physical inspection methods to observe and record visual, electromagnetic, or other geophysical properties on or below the earth’s surface. Remote sensing techniques include soil resistivity, proton magnetometer, gradiometer, ground penetrating radar (GPR), and various photographic techniques (aerial, infrared, etc.).

Although remote sensing techniques are, under certain conditions, an effective and efficient means to obtain information about the size, frequency, and distribution of subsurface archaeological features, geophysical methods typically do not allow for the full characterization of anomalies without direct archaeological investigation, i.e., ground-truthing. By the same token, systematic surface collection and traditional subsurface testing (shovel-testing) are poor sampling techniques for identifying most types of archaeological features and determining their distribution. When used together, remote sensing and traditional archaeological survey techniques can provide a more robust approach to the Phase I survey and site identification process. The feasibility and applicability of remote sensing surveys should be seriously considered at all stages of archaeological investigation.

Although the operation of geophysical equipment is mostly standard across disciplines, considerable expertise is necessary to effectively design, conduct, and interpret geophysical surveys of cemeteries and archaeological sites. Interpretation of the data and classification of geophysical anomalies must be done by, or under the direct supervision of, a qualified professional with demonstrated experience applying this technique to archaeological resources in the southeastern United States.

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Whenever a generalized remote sensing survey is conducted, appropriate reporting should include documentation of the following:

- a) Semi-permanent datum points recorded using a GPS receiver with sub-decimeter accuracy that mark the geophysical grid corners or survey boundaries.
- b) Any anomalies selected for ground truthing. It is recommended that a representative sample of geophysical anomalies of archaeological interest be ground-truthed via soil coring and/or hand excavation (does not apply to cemetery contexts). Systematic ground truthing may be more appropriate during the Phase II testing phase or determined unnecessary in certain circumstances where previous testing has already occurred, or in historic contexts where detailed mapping/records may exist (e.g., Sanborn maps).
- c) Detailed discussion of the instruments used, how the data were collected, post-processing software used, and what specific processing steps were taken must be included in the report.
- d) Pertinent environmental, soil, and weather conditions during data collection, including dielectric value of the soil (or Relative Dielectric Permeability [RDP]) for GPR.
- e) Anomaly/target IDs, descriptions, and interpretations.
- f) Scaled maps with relevant site landmarks and/or datums visible and showing the distribution of anomalies and images/figures showing representative examples of survey results, including radargrams, amplitude slice maps, other gridded data, etc.

All ground penetrating radar surveys in cemeteries should involve the collection of radargrams and the later processing of that data into three-dimensional volumes for creating amplitude slice maps. Graves can appear in radar data as positive or negative (gaps in an otherwise strong reflector) anomalies. Real-time flagging of hyperbolas in radargrams visible on the radar system display screen is highly discouraged if it is the sole survey result because tree roots (among other things) look very much like graves in radar profiles; furthermore, grave shafts might be located between hyperbolas, which is only visible in amplitude/time slice maps. Historic graves can present as subtle reflections and identification requires careful analysis by experienced personnel who are familiar with both the cultural context of the cemetery and interpreting GPR results in a cemetery setting.

Because graves can be relatively small, radar data in cemeteries should be collected along transects spaced no more than 50 cm apart (25 cm spacing recommended). GPR survey transects should ideally be oriented to cross perpendicular to the long axis of observed graves (if graves are oriented east-west, GPR transects should run north-south, if possible). Radar antennas with central frequency ranges from 200-700 MHz are recommended. Lower frequency antennas may be too low in resolution to differentiate side-by-side graves. Most soils in South Carolina rapidly attenuate radar energy, so depth penetration typically does not exceed two meters, unless soils are sandy. Radar surveys in cemeteries typically detect grave shafts (the soil within the grave), roads/paths, building and wall (outer walls, plot boundaries) foundations, utility lines (e.g., irrigation), and burial containers (coffins and vaults) if the depth of penetration is sufficient. If possible, GPR surveys should include a minimum of 10 meters beyond the observable cemetery boundary to investigate the potential for unmarked burials.

4. SHOVEL TESTS

If additional shovel tests are necessary at this stage, they are to be at least 30 x 30 cm and screened through 1/4 inch (or smaller) mesh. Shovel test placement and interval will depend on the research design and the nature of the site. Although other approaches may be suitable in some cases, in general it is suggested that a grid be established and shovel testing be conducted systematically and at an appropriate interval.

5. TEST UNITS

Site characteristics and conditions will govern test unit size. “Test Units” may vary in size, but in general the term refers to excavations larger than the 30cm survey tests. Unit placement will depend on the results of shovel testing and, if applicable, the results of surface collection or landscape features (i.e., chimney bases, etc.). Test units should be excavated by natural or cultural strata, but can include arbitrary levels within strata. Although the plowzone may be excavated as a single vertical level, regardless of thickness, it is usually advisable to excavate the interface between plowzone and unplowed soils as a separate level.

6. SCREENING

Soil will be screened through hardware cloth no larger than 1/4 inch. Flotation or soil samples will require finer screens (see Appendix D). Because recovery rates for all classes of materials, particularly faunal and botanical, increase as screen size decreases, investigators are encouraged to estimate relative recovery rates by systematically using finer mesh to sample soils. The choice of dry screening, water screening, and mechanical screening depends on the research design and the specific factors at each site.

7. DISPOSITION OF ARTIFACTS

Different curation facilities have different requirements, so be sure to follow the appropriate procedures. At the basic level artifacts are to be bagged by discrete provenience (i.e., unit and level). Typically, all artifacts are collected. However, any material not collected - such as brick, mortar, shell, or fire-cracked rock - should be sampled by provenience, and then counted, measured (when appropriate), or weighed, and discarded in the field.

See Section III for further specification regarding the treatment of cultural materials.

8. FEATURES

Features identified during excavation are to be mapped, drawn to scale, and photographed. In order to reveal profiles and recover cultural materials, the default procedure should be excavation of all features after bisecting and profiling, but when there are a lot of the same small non-informative feature or when time does not allow for full excavation, a representative sample of features may be bisected. Upon bisection, the depth of the bisected portion is to be mapped and drawn to scale, in equivalent manner as likewise mentioned. Any soil variance of the bisected portion are to be recorded according a Munsell soil chart utilizing USDA soil texture classifications and any artifacts recovered within the bisected portion are to be clearly noted to have been recovered from the bisection within the report’s artifact table.

9. RECORDS

All above and below ground features and subsurface tests are to be mapped, drawn to scale, and photographed. Appropriate notes and forms will be maintained. These should include descriptions of the individual test units, features and local conditions. A Munsell chart will be used to record soil colors, and USDA soil texture classifications will be used to characterize soil texture.

10. SPECIALIZED STUDIES

If flotation, soil, radiocarbon, or other samples will be obtained, consultation with a specialist is recommended prior to retrieval. Consultation with a geomorphologist is recommended during evaluative testing to interpret site formation processes and help identify areas likely to contain intact archaeological deposits. Further guidelines for faunal, botanical, geomorphological, and geoarchaeological studies, as well as metal detecting survey, are presented in Appendices A through D. Consultation with SCIAA-MRD should occur in the instance where submerged cultural resources are a concern.

11. HEAVY MACHINERY

Stripping with heavy machinery is destructive, and is not recommended as a primary form of site discovery, or at the evaluative testing level in most cases. Site areas should not be stripped before a controlled surface collection is made and the deposit is adequately sampled with shovel tests and test units. Heavy machinery also should not be used to remove sub-plowzone cultural deposits. However, the use of heavy machinery for limited stripping of surface deposits within the plowzone is encouraged during evaluative testing and data recovery since this can often indicate whether subsurface cultural features are present.

G. FIELD METHODS FOR DATA RECOVERY

Data recovery plans require a great deal of flexibility, and researchers are encouraged to use creative and state-of-the-art methods. These may include representative sampling schemes, remote sensing techniques, and specialized analyses. A detailed description of all proposed field and laboratory methods should be included in all data recovery plans.

The following principles guide the SHPO Archaeologist's review of data recovery plans (see also Consulting About Archaeology Under Section 106 (Advisory Council on Historic Preservation 1990): (1) a clear statement of research potential and context, (2) specification of appropriate methods of excavation and analysis, and (3) adequate documentation and curation of recovered materials and notes.

Methods should be clearly linked to research questions and adequately justified; sampling strategies should be explained/ justified as well.

Treatment plans should include contingency procedures in the case of late discoveries, particularly for sensitive finds such as human burials.

I. GUIDANCE FOR ARCHAEOLOGICAL METAL DETECTING

*-Note, all archaeological metal detecting **must** be conducted by an individual who meets the qualifications to be listed as an Archaeologist within Section V. Personnel Qualifications of this document and the Secretary of the Interior's Professional Qualifications Standards.*

Coverage:

Generally, there are two levels of coverage for metal detecting efforts, including *reconnaissance* and *systematic* or *intensive* coverage.

Reconnaissance level efforts should be employed to discover sites, and to discern approximate site boundaries. The material recovered here will begin to characterize the components present on the site. While the information at this level is recommended to be judgmental rather than systematic, it must still be defined (i.e., the crest of a landform, or all of a plowed field). Methodologies should follow the aforementioned stipulations within II. B Field Methods for Reconnaissance Surveys.

In contrast, systematic metal detecting survey coverage must be tightly controlled. The data recovered in this phase is the ultimate goal of metal detecting projects, and as such, transects should be significantly close enough to integrate with data achieved from block excavations, remote sensing surveys, etc. Ideally, systematic metal detecting transect coverage will occur within a rectangular block or series of blocks employing the existing site grid, if any. At a minimum, the block(s) must be as accurately mapped as the artifacts recovered; the *window* of total coverage is essential to understanding the data.

Coverage within a block should be as intensive as is practical for local conditions. While 100% is a desired

minimum, it is not always possible due the presence of obstacles such as trees, logs, modern trash piles, etc. Systematic coverage is most easily maintained by a single operator working back and forth in parallel transects that are aligned with the block. Relatively narrow blocks (e.g., 10x40m) are desirable for accurate coverage, as it is much easier for the operator to maintain alignment on a short axis, particularly in woods. Transects should overlap by about 25% to insure thorough coverage. Ideally, a block should be covered 100% by one operator, then another 100% by a second operator working at right angles to the first.

Recovery:

It might be imagined that all metal detector signals should be excavated, but this is often neither practical nor useful. For each project, decisions must be made about what sorts of signals should be excavated, and what sorts of material should be collected. For example, a 19th century domestic site might be characterized by a cloud of hundreds of nails and nail fragments. Resources permitting, these nails could be individually excavated and plotted, but the level of effort could approach that of a conventional excavation block.

Alternately, with the limits of the nail concentration noted, the nails might be electronically selected out. The operator would still recover larger iron artifacts, and all non-ferrous artifacts. However, ferrous objects might excavated that are not pertinent to the undertaking's stated research goal. Examples of common non-pertinent modern ferrous artifacts include: 20th and 21st century small arms ammunition components (shotgun cartridges, pistol bullets, etc.), fragments of agricultural equipment (plow and disc fragments, tractor bolts, etc.), and modern food or drink trash. A protocol should be determined to govern the collection of such material prior to the initiation of a survey and must be clearly stated within a report's methodology section.

Conservation should be a significant factor in arriving at a collection protocol. Non-ferrous artifacts are generally not a problem, but iron artifacts usually require almost immediate stabilization, and eventually conservation. One solution can be to catalog the artifacts in the field, and re-bury them. This is an imperfect solution for a variety of reasons, including less than ideal data recording, and the loss of any notion of the conserved characteristics of the artifact, and its graphic potential. An inexpensive stopgap measure is to store un-conserved iron artifacts in a basic water solution - tap water with a small amount of sodium carbonate will arrest deterioration indefinitely, and is recommended until conservation can be undertaken. Un-conserved iron artifacts should not be allowed to dry completely, and should never be stored in a dry state – in most cases, dramatic degradation will result.

If a signal qualifies for investigation, it is most efficiently excavated by the detector operator at the time of discovery. However, many surveys require the detector operator to simply flag signals and move on, with excavation accomplished by the operator or other crew members as a separate phase. When an artifact is excavated that meets the criteria for collection, it should be bagged and marked with a pin flag at the original signal location. If artifacts are collected by the operator, then the bag and flag are marked with a unique, sequential FS number, and the artifact can be collected.

Depth is a significant variable which must be tracked, maintained and analyzed in the field. In the case of a plow zone, any depth within the zone can be treated as the same context; any signals that lie below typical plow zone depth may be in feature context, and must not be excavated by the detector operator at the time of discovery. In an unplowed topsoil horizon, a local determination should be made regarding maximum depth of penetration, again, to avoid disturbing features. Once an allowable excavation depth has been determined in-field, measuring of depth is not further required. This information must be clearly and explicitly methodologically reasoned within any report.

I. GUIDANCE FOR ARCHAEOLOGICAL SITE MONITORING

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As of 2020, the SHPO has published guidance on the formulation of archaeological monitoring plans, as listed below:

Monitoring is the observation of construction excavation activities by an archaeologist in order to identify, recover, protect and/ or document archaeological information or materials. An archaeologist who meets the Secretary of the Interior's Professional Qualification Standards must be present for all monitored excavations. The selection of a prehistoric or historic qualified archaeologist should be based upon the type of archaeological deposits that are anticipated to be encountered. During monitoring, excavation is not under the control of the archaeologist although the archaeologist may be given authority to temporarily halt construction work. Therefore, a protocol for construction work stoppages must be developed to enable the archaeologist's time for recordation and/or for any archaeological data recovery that may be needed. Our office recommends that a scope of work be prepared prior to construction to determine protocol. The scope should clearly state the following:

1. The authority of the archaeologist(s) to halt construction activities to allow for investigations. This authority should be conveyed to all levels of the contractor's on-site excavation team, including the equipment operator(s).
2. The amount of time during which construction excavations are to be made available for archaeological work and/or inspection. This should be specific with a formula appropriate to the nature and size of the project area (for example, a plan used for Pearl Street in Albany, New York specified the archaeologists could inspect the construction trench for 1 hour per every 20 linear feet of trench).
3. The nature of the archaeological recordation of the contractor's excavations (e.g., photography, drawing of profiles, screening of removed soil for artifacts, taking of soil samples, hand excavation, etc.) as well as the objectives of the archaeological work. Include the types of resources which may be encountered based on preliminary research or the results of prior excavations.
4. The actions to be taken by archaeologists, should resources requiring further study be encountered during construction. The action plan includes a protocol for consultation and decision making required in order to slow down or halt construction activities (e.g., consultations with construction, engineering and agency personnel), identification of specific persons to be contacted, and the amount of time that archaeologists will have to record and/or excavate resources.
5. The assumptions under which time estimates are made, both relating to physical site conditions and to archaeological situations. For example, if the monitoring plan assumes warm weather conditions, the plan may need to change under winter conditions. Include the need for a change in scheduling due to unanticipated archaeological finds.
6. Specifications for procedures if construction plans are changed during the course of the construction work. Include adequate time for the archaeologists to consider the sensitivity of the additional locations and/or depths of construction to be affected by the new plans and to enable all parties to consider and agree to any modification of the monitoring plan which may be necessary.
7. Treatment of artifacts, technical analysis of samples, curation, preparation of reports, etc., as specified in the South Carolina Standards and Guidelines for Archaeological Investigations. In the event human remains should be encountered during an archaeological monitoring project, work must stop immediately in the vicinity of the uncovered human remains. Immediate notice regarding the discovery should be made to the appropriate local law enforcement agency, the lead federal or state agency, and the State Archaeologist. The State Archaeologist will confer with the project's principal investigator and field supervisor, and direct them in the appropriate course of action. Priority will be given to preservation of the materials in place. No burial materials will be removed unless it is necessary for their survival."

These archaeological monitoring guidelines can be found on the SHPO Website:

J. GUIDANCE FOR ASSESSING DAMAGE TO ARCHAEOLOGICAL SITES

As of 2023, the SHPO has published guidance on appropriate methodologies to utilize while assessing damage to archaeological sites, as listed below:

The State Historic Preservation Office (SHPO) recommends the following when assessing damage to previously recorded archaeological sites to ensure the continuity of available archaeological data for future surveys and excavations. The recordation of site damage information is intended to be utilized by federal, state or local agencies as well as academic institutions in analyzing the current preservation status of known archaeological sites either in permitting processes for proposed undertakings/projects or research endeavors. This information may be utilized by the SHPO to analyze the effectiveness of any proposed mitigation techniques to preserve the integrity of archaeological sites. An archaeologist who meets the Secretary of the Interior's Professional Qualifications Standards must be present during the recordation of any information. The selection of a qualified archaeologist with a specific sub-specialty, if at all possible, should be based upon the type of archaeological deposits known. Site Damage may be defined as any physically direct or indirect impact to an archaeological site that has adversely affected its integrity including: looting pits (through conventional methods or metal detecting), mass grading, residential or industrial/commercial construction, erosion or natural disasters.

Guidance Methodology:

1. If the site is visited outside of an ongoing survey or excavation, please create an abbreviated letter report for the SHPO and the South Carolina Institute of Archaeology and Anthropology (SCIAA) including the following:

- a. A physical description of demonstrable site damage, including the specific type of damage(s), the vertical and horizontal extent of the site damage, an artifact inventory of surficial artifact concentrations now visible from the damage, subsurface cultural features now visible from the damage, any known information on how the site damage occurred and the remaining physical integrity of the site. If looting pits are present please note the exact number and the general vertical extent of the excavation(s). If erosion or a natural disaster has damaged the site, at minimum estimate the physical extent of the damage and/or percentage of the site now damaged. If kilns, indigo vats, etc.) please note if these remain and if they do, their remaining historic integrity.
- b. The creation of a site overview map indicating the precise locations of any damage within the site's boundaries; if feasible, in a similar style and scale as to any previously recorded maps. Also include the locations of any artifact concentrations or subsurface cultural features now visible from the damage.
- c. Written locational data of the damage(s) listed in UTM 1983; for extensive damage(s) please provide a representative UTM which could be utilized to re-locate the area in future surveys.
- d. If possible, please establish an identifiable site datum, represented in both the physical description, azimuth and the site overview map, which would allow a future survey to re-locate the site damage in diverse climatic conditions or foliage levels.
- e. Photographic documentation depicting representative images of the various types of site damage, various artifact types now present and visible subsurface cultural features.
- f. If possible and or feasible, please provide a recommendation of potential mitigation methodologies to prevent this damage from reoccurring.

2. If the site damage is noted during an on-going survey or excavation, please include all aforementioned aspects of the abbreviated letter report in your final report and provide a copy to the SHPO.
3. Please file an updated Site Revisit Form to SCIAA, available at:
https://sc.edu/study/colleges_schools/artsandsciences/sc_institute_archeology_and_anthropology/documents/2015_site_form.pdf.
4. If human remains are now visible and/or looting pits are present within a cemetery (as noted within the - Destruction or Desecration of Human Remains or Repositories Thereof; Penalties - 16-17-600, SC Code of Laws), immediate notice regarding the discovery should be provided to the appropriate local law enforcement agency, the lead federal or state agency (if during a survey requiring federal or state permitting), and the State Archaeologist.

These guidelines can be found on the SHPO Website:

[https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20\(SHPO\)/Programs/Programs/Review%20and%20Compliance/Guidance-Assesing-Damage-Archaeological-Sites.pdf](https://scdah.sc.gov/sites/scdah/files/Documents/Historic%20Preservation%20(SHPO)/Programs/Programs/Review%20and%20Compliance/Guidance-Assesing-Damage-Archaeological-Sites.pdf)

III. ARTIFACT PROCESSING, DATA ANALYSIS, AND CURATION

It is highly advisable to consult with the SHPO Archaeologist, the curation facility, and any specialists early in the planning process to insure the individual facility meets the curational standards set in 36 CFR Part 79. Selection of a facility is best made early in the project and, minimally, before the laboratory analysis has begun. The designated curation facility will be identified in the project report.

Processing, analyzing, and curating artifacts must occur in secure and safe environments to prevent loss of significant data. The Principal Investigator (PI) and Project Archaeologist (PA) are ultimately responsible for ensuring that artifact data and integrity are preserved. The laboratory staff responsible for basic artifact processing and analysis must have sufficient knowledge to do the job, have access to appropriate comparative collections, and have access to experts when needed.

A. FIELD TRACKING

The choice of a system for tracking artifacts in the field is at the discretion of the investigator. However, the tracking system should be consistently applied throughout the project. During fieldwork, the recorder will enter a preliminary description of the artifacts in field notes and forms before placing them in labeled containers that fully protect them from damage. Artifacts can then be brought back to the laboratory for cleaning, documentation, and analysis.

B. PROCESSING

Field specimens should be processed according to the guidance and standards of the chosen curation facility. The curation facility should meet the Secretary of the Interior's Standards:
<https://www.nps.gov/subjects/historicpreservation/upload/standards-guidelines-archeology-historic-preservation.pdf>

C. ANALYSIS

If detailed analysis of certain archaeological materials is planned, it is advisable to include appropriate specialists as early in the project as possible. Additional information on specialists is provided in Appendices A through D.

As most archaeological sites are valuable primarily because of their research potential, artifact analysis generally should follow well-established classification schemes and typologies. The choice of a specific system will depend on the investigator's goals and should be fully defined and referenced in the project report. Regardless of which classification system one uses, certain basic descriptions and analyses must be included in the report. These include: (1) Artifact identification number, (2) Material (e.g., lithic, ceramic, glass), (3) Class (e.g., projectile point, sherd, bead), (4) Count and weight (NOTE: Many artifacts, such as flakes and pottery sherds, need not be individually weighed; instead, they can be weighed as a group by provenience and type), (5) Dimensions, if appropriate, (6) Type (e.g., Clovis, Creamware, etc.), and (7) Noteworthy attributes (e.g., form, decoration, method of use, internal or external dating).

A laboratory or catalog sheet printed on archival paper with archivally sound, waterproof ink or pencil should be used to record the analyst's observations. In addition, the analyst may keep a diary of any observations, impressions, drawings, and any special analyses performed on the artifacts. Along with any digital data files, these will become part of the official record when the collection is curated.

D. CONSERVATION

Conservation is a necessary component of many archaeological projects. The American Institute for Conservation ([American Institute for Conservation & Foundation for Advancement in Conservation](#)) has a free referral service open to the public, as well as brochures to help investigators choose a conservation professional. SCIAA may also be contacted for advice and consultation.

Curation standards for federally owned collections & NAGPRA are stipulated within 36 CFR 79:

<https://www.ecfr.gov/current/title-36/chapter-I/part-79>

IV. REPORTING RESULTS

A summary of the minimum standards for archaeological reports appears below. For in-depth treatment of reporting standards, see Secretary of the Interior's Standards and Guidelines, Federal Register, 48:44734-44737; McGimsey and Davis 1977; and Bense et al. 1986. For matters of style refer to the Society for American Archaeology Style Guide (Updated 2023), available for download at:

[The SAA Press](#)

A. REPORTS AND DISTRIBUTION

Responsibility for submitting reports to the SHPO rests with a project's lead agency or its designee.

One (1) copy of a draft report (two [2] if standing structures are documented) is/are to be submitted for review and must be marked "DRAFT." Draft reports, along with an agency cover letter requesting comment or appropriate Project Review Form, should be forwarded to the SHPO at:

South Carolina Department of Archives and History
8301 Parklane Road
Columbia, South Carolina 29223

Per the [Microsoft Word - Electronic Submission Requirements 2021.docx](#) released by SHPO in 2017 (revised 2021), draft copies of reports may also be emailed to the appropriate SHPO reviewer. Upon receipt, the SHPO will review the draft report. The SHPO may also require additional copies for outside (peer) review. Outside reviewers are persons who have demonstrated a research interest or expertise that pertains to the report's content.

After SHPO has provided comments to the lead federal agency or independently to another state agency, at least three (3) hard copies of a final report are required to complete the consultation process: one (1) bound hard copy and a digital copy in ADOBE Acrobat PDF format for the SHPO; one (1) bound and one (1) unbound hard copies for SCIAA; including a digital copy in ADOBE Acrobat PDF format for SCIAA.

Investigators should send all copies directly to the SHPO. The SHPO will distribute the appropriate copies to SCIAA.

In most cases, the agency will also require report copies. The investigator is responsible for providing the agency with these copies.

It is encouraged to submit non-redacted and completed archaeology reports to the Digital Archaeological Record (tDAR): [Welcome to the Digital Archaeological Record](#). Questions concerning whether a report should be redacted or is applicable to submit to tDAR, please contact the SHPO Archaeologist and lead federal agency, if applicable.

B. MANAGEMENT SUMMARIES

Management summaries were developed to allow lead agencies and the SHPO to evaluate whether or not the field methods for data recovery followed the initial scope of work and/or research proposal. With increased land development in South Carolina, especially on our coast, many private developers now have to comply with various cultural resource regulations, and much of their funding depends on phased bank loans. To accommodate their needs, the SHPO will review management summaries for projects on a case-by-case basis. Final project approval, however, still requires submittal and acceptance of a final report. *There will be a "zero-tolerance" policy in place for contractors that abuse this privilege.* Two (2) hard copies and one (1) ADOBE Acrobat PDF of management summaries should be submitted to SHPO. The

SHPO will distribute the appropriate copies to SCIAA.

To ensure timely SHPO review, management summaries must include the following:

- a) Project title
- b) Agency requiring work
- c) Agency project number(s)
- d) Project location (include a 7.5-minute USGS topographic map and project planning maps)
- e) Field personnel and dates of excavation
- f) Brief statement of project goals and objectives
- g) Planned laboratory and specialist analyses
- h) Name and location of curation facility
- i) Summary of survey methodology (include total area excavated, number of excavation units, etc.)
- j) Summary of results – This section should include sufficient information to ensure the SHPO and regulatory agencies that the terms of the data recovery or treatment plan will be met. Helpful information includes sampling percentages, representative photographs, feature plans and profiles, and site plans. Unusual finds and possible implications should be noted. Any preliminary analyses are useful to include, as is a discussion and justification of any deviations from the approved treatment plan. Please also include any statements regarding whether additional work is deemed necessary.

C. REPORT CONTENT

The exact format and content of the report is usually a decision reached by the agency, client/applicant, and consultant, and may be determined by the nature of the investigation undertaken. SHPO at minimum requests the following information when sites are identified (see also Appendix E: Report Preparation Checklist and the Statewide Survey Manual when above-ground properties are also included):

1. TITLE PAGE

Report Title. Include type of investigation and project location.

Author(s).

Principal Investigator(s)'s Information. Include name, affiliation, address, telephone number, and signature.

Client Information. Provide name and address of client for whom report was prepared. Name of Lead Agency. Include contract number, permit or State Clearinghouse number.

Report Date.

Report Status. Examples would include “Draft,” “Revised Draft,” or “Final.”

2. ABSTRACT

Description of Project and Purpose.

Summarize Findings, Evaluations, and Management Recommendations.

3. TABLE OF CONTENTS

4. LIST OF FIGURES, PLATES, AND/OR TABLES

5. INTRODUCTION

Purpose of Report and Nature of the Undertaking.

Identify Legislation or Regulations Governing the Work.

Client Information. Provide name(s) of project sponsors, contract/permit numbers, and other appropriate agency-specific information.

Description of Undertaking. Include area of potential effect (APE), project footprint, and nature and extent of anticipated disturbance. Include as much detail as possible about anticipated ground-disturbing activities, such as dimensions of the corridor/ tract, depth of disturbance(s), types of machinery involved if working on archaeologically sensitive areas (like logging), location within APE of various types of disturbances, consideration of indirect effects including visual, auditory, vibrations, borrow/ haul areas, temporary workspaces, etc. Identify and describe the features or facilities associated with the undertaking. Give the size of the undertaking in acres/hectares or linear distance and width (e.g., road corridor). Be as precise as possible; be aware that indirect effects such as vibration may also affect archaeological sites. If the size of an area surveyed is different from the total undertaking, state the survey area in acres/hectares as well.

Location Maps. Depict project region and vicinity on an appropriate map. Illustrate relevant portions of 7.5' USGS topographic maps, clearly delineating the boundaries of the undertaking, as well as type of investigation done in each area (e.g., pedestrian survey, shovel testing, etc.). Figures should include quad name, bar scale, and north arrow.

Dates. List dates when work was conducted.

Personnel. List the names and project titles of the key personnel.

Project Documentation. Provide the location and disposition of field notes, artifacts, and other records.

6. ENVIRONMENTAL SETTING

Include physiographic province, landform type, nearby drainages and water sources, roads, dominant soil association, and current land use. This section should discuss the nature of potential environmental impacts upon cultural resources. Include a description of any known disturbances in detail (nature and extent, location, etc.); this may also include land-use history. If limiting factors (such as access to privately-owned parcels or flooding) affected the survey, describe and discuss them. Include representative photographs of the general project area; be sure to include representative photos of disturbances within the APE.

7. CULTURAL CONTEXT AND PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

This section includes an overview of the pertinent history of the project region, specifically tailored to the relevant cultural and temporal spans of occupations identified within the survey; the cultural context discussed should provide the reader, and ultimately the SHPO, with sufficient information to make an informed evaluation on archaeological site's eligibility for listing in the National Register of Historic Places. Length and detail of discussion should be appropriate to the level of investigation and materials recovered. This section should also include a review of previous archaeological investigations in the project area and its vicinity (e.g., drainage or county as appropriate), as well as a description of relevant archaeological sites within a reasonable distance from the project area. The expressed goal is to create a methodological analysis focused on interpreting the function of identified archaeological sites within a survey, i.e. if a survey only identifies a non-diagnostic pre-contact lithic scatter, the most relevant information to include with a cultural context is a discussion of nearby pre-contact lithic scatters; likewise, for historic archaeological sites, the most relevant information would be related to historical background research of the relevant temporal span, i.e. similar archaeological sites of this temporal period, historical maps/plats, historical writings referencing an area, etc. As aforementioned, the expressed goal here is create a methodological analysis which allows the SHPO to evaluate an archaeological site's eligibility for the National Register of Historic Places through the lens of pertinent cultural context related to a specific site. Authors may still wish to include an analysis or listing of all archaeological sites within a specific boundary, which still can provide relevant cultural context. As such, it is still deemed acceptable to create a separate section presenting a chronological listing of all archaeological sites within a specified boundary which might not be directly relevant to the site types

identified within a report.

8. RESEARCH DESIGN

Research designs present explicit statements of theoretical and methodological approaches followed in a particular cultural resource study, and, therefore, are to be included in nearly every type of report. The nature and level of detail in this discussion will be consistent with the undertaking and type of investigation. If a research design has been previously developed for a specific geographic region, type of investigation, or type of resource, the author(s) should reference and discuss this material.

9. FIELD METHODS

Field methods should be described in a way that lets reviewers and future researchers easily reconstruct what was done and why. The following suggestions should be considered when describing field methods:

Maps: Cartographic illustrations should depict where various survey strategies were used (e.g. locations of pedestrian survey areas versus locations of STP testing), subsurface tests and/or excavations, observed disturbances, and any relevant field descriptions (e.g., vegetative cover). Whenever possible, please include a map overview of the entire APE so that larger-scale maps may be better understood in context. All maps will include a north arrow (magnetic north, true north, or grid north), a map scale (e.g., 1:24000), and a bar scale.

GPS: Projection and datum, type of equipment, error range, and other appropriate metadata should be indicated.

Surface Survey: Specific techniques should be described and justified for both the general project area and for each individual site (if different from the general methodology). Describe locations examined, intervals between transects, surface visibility, and methods of collection.

Subsurface Survey: Techniques should be described, including shovel test and test unit dimensions, depths, transect intervals, and method of artifact recovery.

Remote Sensing: Techniques should be described and evaluated when used.

Constraints on Fieldwork. Factors such as limited access, ground disturbances, poor ground visibility, and adverse weather conditions should be discussed. Note which areas of the project area were not examined or received only limited investigation.

10. LABORATORY METHODS

Laboratory methods should be described sufficiently to permit reviewers and future researchers to easily reconstruct what was done and why.

- a) **Laboratory procedures:** Describe procedures employed to clean, stabilize/conserv, provenience, and classify artifacts. Provide a complete list of recovered artifacts by provenience. Detailed artifact descriptions, measurements, and attributes can be provided in tabular form in the body of the report or as an appendix. Typically, artifact descriptions should include material, class, and type of artifacts recovered, along with counts, weights, and any measured attributes of diagnostic material (e.g., projectile points, ceramics, beads, etc.).
- b) **Classification scheme:** Describe the classification systems deployed in the analysis of artifacts. If a previously defined typology is being used, provide a brief description along with a reference.

- c) Results of special studies: Describe any special analytical methods used. See Appendices A-D for accepted procedures for typical special studies. For radiocarbon dates please include the following information:
- 1) Site number and provenience.
 - 2) Laboratory number.
 - 3) Material dated.
 - 4) Method of dating. Examples include conventional, extended counting, AMS, etc.
 - Conventional C-14 age: express in radiocarbon years before present plus or minus one sigma error (e.g. 2420 +/-60 BP).
 - 1-Sigma calibrated C-14 age: express in calendar years (range) within one-sigma range of error. NOTE: Include all intercepts (e.g., cal BC 755 to 685 and cal BC 540 to 400).
 - 2-Sigma calibrated C-14 age: express in calendar years (range) within two-sigma range of error (e.g., cal BC 780 to 380).
 - Reference. Provide citation for calibrated results (e.g., Stuiver et al. 1993).
 - 5) Associations. List any associated artifacts and/or phase/period affiliations.

11. RESULTS

- a) Site description.
- 1) Narrative description: Describe each site in narrative form including dimensions, topographical setting, stratigraphy, condition, quantity of artifacts, and features. Include discussion of shovel tests, soil cores, and test units, as appropriate. Include drawings and photographs of representative wall profiles, as well as a written description of soil stratigraphy (including Munsell soil colors) for a representative sample of shovel tests and for each test unit. Describe the method used for site delineation if other than excavating two consecutive negative STPs off of each positive STP.
 - 2) Site maps: Individual site maps should depict general topographic characteristics, placement of subsurface tests, and features. These maps must include a north arrow, date, bar scale, legend, and site number.
 - 3) Associations: Enumerate, describe, and interpret artifacts. Representative and/or important artifacts should be illustrated either as line drawings or photographs. Describe and interpret features, including those above ground. Include drawings and photographs of representative features. Discuss results of any specialized studies. Detailed reports of specialized studies should be included, either in the body of the report or as appendices.
- b) Archival research: For historic archaeological sites, summarize results of the archival research. For larger projects, most of the archival research can be included as a separate background section, and only site-specific information needs to be presented in this section. All archival and oral history should be referenced in a systematic manner that lends itself to source relocation.
- c) Site significance.
- 1) Statement of significance: Statements of significance must be presented for each identified site, with reference to specific NRHP criteria listed at 36 CFR 60.4. Most archaeological sites are recommended as eligible under Criterion D, and in these cases evaluations should address the potential of sites to contribute information about specific research objectives; however, a site may be eligible, and should be evaluated, under all four criteria. This process should be documented in sufficient detail for the reader to judge how the investigator reached these conclusions.
 - 2) Recommendation of ineligible: If a site is recommended not eligible, state the rationale for this evaluation.

- 3) Recommendation of eligible: If a site is recommended eligible, present supporting evidence, including research topics that might be addressed. Discuss types of information known to be or thought to be present, how to recover this information, and the kinds of data that can be inferred from the information.
- 4) Insufficient information (or ‘remains unevaluated’): If there is not enough information to evaluate a site’s eligibility, state this explicitly, and why.

d) Site integrity: Identify and explain any factors that have or may have affected site integrity.

Project Impacts: If known, identify and describe potential project impacts for each site and evaluate potential effects.

Recommended Treatment: Describe any additional investigations or actions appropriate for the site.

Application and Evaluation of Stated Research Design: Discuss the results of the project in relation to the research design. Integrate and synthesize appropriate information to address research questions or issues. Consider how constraints on the investigation may have influenced the reliability and value of the information recovered.

12. SUMMARY AND RECOMMENDATIONS

List and review sites recommendations. If site eligibility is indeterminate and the archaeological work was conducted at a survey level, appropriate recommendations for further work might include site testing to determine NRHP eligibility. For evaluative testing, recommendations for further work might be to avoid a site or to mitigate adverse effects through data recovery. Please outline the nature and extent of any recommended additional work.

13. REFERENCES CITED

14. APPENDICES AND ATTACHMENTS

SHPO Concurrence Letter: SHPO’s concurrence with site eligibility letter should be included in the final report.

Analysis data generated as a consequence of a project should be contained in the appendices, including an artifact catalogue.

Specialist Reports as individual appendices.

Vitae of the Principle Investigator should be included at the back of the report if the individual is not RPA certified.

D. ABBREVIATED REPORTS

If no eligible sites have been identified during a cultural resource investigation, an abbreviated report is acceptable for submission, although the SHPO, THPO, or federal agency reserves the right to request additional documentation. The abbreviated report must include the following information:

Title Page

Introduction

Environmental Setting: Landform type, nearby drainages and water sources, roads, dominant soil association, and current land use. If limiting factors affected the survey, describe and discuss them. Include

representative photographs of the general project area.

Previous Archaeological Investigations: List or table of previously identified sites within 0.50 mile radius of the APE. Include a map of the APE and surrounding area showing the subscriber level view of ArchSite. If any sites were found, even if ineligible, sufficient cultural context should be included in order to inform the determination of eligibility.

Field Methods

Summary and Recommendations

References Cited

Appendices and Attachments

V. PERSONNEL QUALIFICATIONS

Archaeological projects require the services or input of professionals in archaeology and other related disciplines. It is essential that cultural resource surveys and evaluations be performed and supervised by qualified professional personnel. Agencies, institutions, corporations, associations, or individuals will be considered “qualified” when they meet the Secretary of the Interior’s Professional Qualifications Standards (36 CFR 61 and Federal Register 48:44738-44739). The qualifications for archaeologist, architectural historian, and historian are presented below.

ARCHAEOLOGIST

The minimum professional qualifications in archaeology are a graduate degree in archaeology, anthropology, or closely related field plus:

At least one year of full-time professional experience or equivalent specialized training in archaeological research, administration or management; At least four months of supervised field and analytic experience in general North American archaeology, and demonstrated ability to carry research to completion.

In addition to these minimum qualifications, a professional in pre-contact archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archeological resources of the prehistoric period. A professional in historic archaeology shall have at least one year of full-time professional experience at a supervisory level in the study of archaeological resources of the historic period.

PRINCIPAL INVESTIGATOR

The Principal Investigator (PI) is the individual responsible for planning and investigating cultural resources and for the validity of the material presented in cultural resource reports. All archaeological investigations must be carried out under the direction of the PI, who will minimally meet the standards outlined by the Secretary of the Interior (see above) and have at least 6 - 12 months of archaeological experience in South Carolina or the southeastern United States. A PI is presumed to meet these qualifications if he/she is certified with the Registry of Professional Archaeologists (RPA). If a PI is not RPA-certified, he/she must attach a vita detailing his/her professional experience as an appendix to the report.

PROJECT ARCHAEOLOGIST

The Project Archaeologist (PA) must spend at least 50 percent of the allocated project field time working in the field. The PA will minimally meet the standards for his/her area of expertise (see above). The SHPO recommends that a PA have at least 6 - 12 months of experience in South Carolina or the southeastern United States.

ARCHITECTURAL HISTORIAN

The minimum professional qualifications in architectural history are a graduate degree in architectural history, art history, historic preservation, or closely related field, with coursework in American architectural history, or a bachelor's degree in architectural history, art history, historic preservation or closely related field plus one of the following:

At least two years of full-time experience in research, writing, or teaching in American architectural history or restoration architecture with an academic institution, historical organization or agency, museum, or other professional institution; or\

Substantial contribution through research and publication to the body of scholarly knowledge in the field of American architectural history.

HISTORIAN

The minimum professional qualifications in history are a graduate degree in history or closely related field; or a bachelor's degree in history or closely related field plus one of the following:

At least two years of full-time experience in research, writing, teaching, interpretation, or other demonstrable professional activity with an academic institution, historic organization or agency, museum, or other professional institution; or\

Substantial contribution through research and publication to the body of scholarly knowledge in the field of history.

VI. LIST OF CONTACTS

Advisory Council on Historic Preservation (ACHP)

<https://www.achp.gov/>

American Institute for Conservation (AIC)

<https://www.culturalheritage.org/>

SC Department of Archives and History, State Historic Preservation Office (SHPO)

<https://scdah.sc.gov/historic-preservation/resources/archaeology>

SC Department of Environmental Services, Bureau of Coastal Management

<https://des.sc.gov/programs/bureau-coastal-management>

SC Department of Environmental Services, Bureau of Land and Waste Management

<https://des.sc.gov/programs/bureau-land-waste-management>

SC Department of Public Health, Vital Records

<https://dph.sc.gov/public/vital-records>

SC Department of Natural Resources (DNR), Heritage Trust

<https://heritagetrust.dnr.sc.gov/>

SC Department of Transportation, Environmental Services – Cultural Resources

<https://www.scdot.org/business/environmentalservices-culturalresources.html>

SC Institute of Archaeology and Anthropology (SCIAA)

[SC Institute for Archaeology and Anthropology - SC Institute for Archaeology and Anthropology | University of South Carolina](#)

SC State Library

[Contact | South Carolina State Library \(sc.gov\)](#)

SC State Parks

<https://southcarolinaparks.com/>

US Army Corps of Engineers, Charleston District

[Charleston District, U.S. Army Corps of Engineers](#)

US Army Corps of Engineers, Savannah District

[Savannah District, U.S. Army Corps of Engineers](#)

US Forest Service, Francis Marion and Sumter National Forests

<https://www.fs.usda.gov/scnfs>

US National Park Service, South Carolina

<https://www.nps.gov/state/sc/index.htm>

University of South Carolina (USC), South Caroliniana Library

[South Caroliniana Library - University Libraries | University of South Carolina \(sc.edu\)](#)

VII. REFERENCES CITED

Advisory Council on Historic Preservation

1980 Treatment of Archaeological Properties: A Handbook.

1990 Consulting about Archaeology under Section 106.

Bense, J. A., H.A. Davis, L. Heartfield and K. Deagan

1986 Standards and Guidelines for Quality Control in Archaeological Resource Management in the Southeastern United States. *Southeastern Archaeology* 5(1): 52-62

McGimsey, Charles and Hester Davis

1977 The Management of Archaeological Resources: The Airlie House Report. Society for American Archaeology, Washington, DC.

Society for American Archaeology

2003 The American Antiquity Style Guide, revised 2003.

APPENDIX A: GENERAL GUIDELINES FOR THE PERFORMANCE OF GEOARCHAEOLOGICAL WORK

J. Schuldenrein, GRA Geoarcheology Research Associates, Riverdale, New York

A. INTRODUCTION

Geoarchaeology refers to the application of geological methods to archaeological problems. In recent years, it has become clear to archaeological practitioners that it is impossible to interpret the context of archaeological remains without a comprehensive understanding of the landscapes and sediments with which these remains are associated. Moreover, since environments are dynamic, there is a need to reconstruct landscape histories in order to understand why certain components of the archaeological record are preserved while others are not. It follows that planners and managers working in preservation, conservation and regulatory settings must incorporate an understanding of landscape and geological systematics in order to effectively design preservation plans and to structure strategies for administering cultural resources.

Specifically, geoarchaeology is concerned with landforms, sediments, soils, and the processes explaining the interface between the natural and the cultural environments. As such, geoarchaeologists are trained in a variety of natural sciences ranging from soil science to geomorphology, sedimentology and hydrology. Because of the variability in their training, geoarchaeologists have particular research orientations that archaeological project leaders must take into account before selecting consultants for particular field problems.

It is critical that consulting geoarchaeologists have the archaeological experience necessary to answer questions that archaeologists pose. In many cases, the inability of the archaeologist to formulate a particular research question for investigation can result in misdirected advice and application of irrelevant earth science strategies. To eliminate such situations the archaeologist must be familiar with the consultant's archaeologically- oriented work. Second, the geoarchaeologist must be a part of a research team at the outset of a project.

Since most of the archaeological work undertaken in the US is performed under the aegis of the environmental compliance process, it is convenient to link the role of the geoarchaeologist to the widely accepted components of the compliance cycle. This is typically manifest in the identification, evaluation, and data recovery levels of investigation.

B. IDENTIFICATION: SURVEY, SITE LOCATION, AND GENERIC CONTEXT

Initial archaeological survey can be either areal or linear in scope. Systematic survey requires a field strategy that is, at the very least, sensitive to terrain gradients as well as the edaphic conditions of the terrain. The geoarchaeologist is helpful in designing the survey strategy by understanding the subsurface of the terrain and the potential for that terrain to house preserved artifact contexts.

Accordingly, before finalizing a survey strategy, the archaeologist should use the services of the geoarchaeologist to undertake the following:

- 1.1. Geological Dating. Identify the antiquity of the terrain to be traversed for survey.
- 2.2. Geological Mapping. Provide a map of the geology or geomorphology of the survey terrain to establish which components of the landscape may have significant accumulation of Late Quaternary sediment.
- 3.3. Interpreting Historic Maps. Examine land use maps, records, and aerial photos to assess which

components of the landscape have been substantially affected in the modern era, since these can thereby be eliminated from intensive surface survey.

4.4. Ground Truthing. Perform a “pre-survey” ground truthing walkover of the project area.

The geoarchaeologist should walk over the study terrain in conjunction with project leaders to refine the survey strategy. Ultimately, it is possible to formulate a detailed survey plan that is scientifically sound, comprehensive, and cost-effective for the identification of cultural resources.

C. EVALUATION: SURVEY, SITE TESTING AND INTEGRITY ASSESSMENTS

Once sites are selected for evaluative investigations, preliminary stratigraphic observations must be made. These must be performed initially by the geoarchaeologist in order to develop consistent protocol for stratigraphic designation. Following establishment of a sequence for a particular set of sites by the geoarchaeologist, the task of establishing stratigraphic designations can fall to the field director, or even crew chief until the next visit by the geoarchaeologist. Stratigraphic designations should never be made by more than one or two people. Otherwise, it is impossible to unravel inter-site or even intra-site stratigraphies, once the field records are in and more critical interpretations are required by the geoarchaeologist.

In most cases, sites are investigated as groups in similar settings (i.e. along a given reach of a floodplain). The application of uniform nomenclature for stratigraphy is therefore pivotal. Archaeological designations of strata are almost invariably misleading. The most critical infraction is the alphabetic assignments of strata as “A”, “B”, “C”, “D”, and “E.” In fact, “A”, “B”, and “C” are formally defined soil horizons, “D” means nothing, and “E” is a legitimate soil horizon, generally bracketed between the formal “A” and “B”. Moreover, the designation of horizons as soils is not necessarily relevant to all archaeological stratigraphies, as in the case of dynamic floodplain sequences when the depositional succession is more critical than the soil succession (see discussion on litho-stratigraphy and pedo-stratigraphy below).

For these reasons, it is recommended that a Master Stratigraphy be developed by the geoarchaeologist and followed by the archaeology team member who is responsible for reporting the site sequences back to the geoarchaeologist for assimilation and standardization.

Special samples should be collected when subsurface investigations are initiated. Minimally, two types of samples that should be taken here are (1) radiocarbon specimens for dating, and (2) anomalous sediments that are inconsistent with primary strata represented on site.

Formerly, the only radiocarbon samples taken from archaeological sites were the charred remains of cultural activity (i.e. burnt charcoal, hearth fills, pit fills). It is now recognized that the antiquity of the bracketing sediments, overlying and underlying the cultural materials, may be just as critical for site chronology. These sediments are often rich in composite organic matter, or specifically, disaggregated humic sediment that can now be dated by the accelerator method (AMS). Wherever possible such sediment should be taken from site profiles. Most archaeologists refer to humically enriched horizons as “the buried A”, typically a banded, black-gray horizon up to 20 cm thick, and offset from the more commonly encountered, browner sediment. A “brick” of the humic sediment should be excavated from the profile within “the buried A” and submitted for radiometric determinations.

Anomalous sediments often refer to events of a highly localized nature that disrupt the stratigraphic continuity of the general landform of the site. In many cases, they are the *raison d’être* for the site. For example, Archaic sites on floodplains may have discrete sandy lenses underlying them that have accounted for unique landform build-up and advantageous drainage, the main reasons for site selection. Mississippian sites are often characterized by clay linings signaling floors, and linear, darkened trench fills indicative of stockade lines. When discovered in isolation, these are signals of anthropogenic sedimentation that may ultimately reveal site structure. Such unique sediments should be sketched in stratigraphic or plan view and

then removed and submitted to the geoarchaeologist for more detailed analysis and interpretation.

Typically, however, the most detailed sampling is reserved for data recovery investigations. The procedures for data recovery are described below.

D. DATA RECOVERY: ENVIRONMENTAL RECONSTRUCTION AND SITE FORMATION STUDIES

The most rigorous geoarchaeological studies are applied during data recovery, when research objectives require the application of the most comprehensive inter-disciplinary skills available to the investigative team. Earth science strategies are often mobilized on a large scale at this juncture, although recent experience suggests that the application of some of the most critical methods, coring and deep testing, are generally even more relevant during earlier phases of the investigation. In the Northeast, for example, subsurface exploration is mandated during identification and evaluation to establish baseline stratigraphic relations early in the compliance process.

The following steps should be followed when attempting to explore subsurface relationships and to reconstruct site environments and site formation sequences.

1. Investigate the Site Landscape and Depositional Environment

In general, data recovery programs will require investigation of buried deposits and more significantly, landscapes. In these instances it can be assumed that site burial was caused by a variety of processes related either to flooding (alluviation), gravity (colluviation), wind movement (aeolian deposition), or most critically in the 20th century, land filling.

The task is performed in three stages: (a) reconnaissance and mapping of the contemporary landform surfaces; (b) subsurface investigations describing buried cultural horizons, soils, stratigraphic units and marker horizons; and (c) soil sediment and radiocarbon sampling to resolve more detailed issues of sedimentation and soil formation.

2. Systematic Subsurface Exploration

This is done to determine the macro-stratigraphy of a site setting, and in many cases that setting is a floodplain or terrace environment. These are really segmented environments that are vertically and laterally complex. It is necessary to break out active floodplains, terraces, levees, marsh edges, strand lines, etc. In most cases, these segments can be identified only by subsurface exploration. Excavations are performed with the use of backhoes, corers (manual or machine powered), or shovel probes.

In most cases, coring and backhoe equipment can be used to excavate to depth. Backhoes can be used for the most diagnostic locations or those for which extensive lateral exposure is necessary. Cores are used for bridging stratigraphic relations across landforms and situations where access for heavy equipment is impractical. Combinations of cores, backhoes, and shovel probes can be a valid strategy as well. When using heavy equipment, it is necessary to comply with OSHA standards.

3. Data Recording

The stratigraphy should be recorded as carefully as possible. When looking at an excavation trench (backhoe excavated), detailed and measured observations should be confined to one wall. Any stratigraphic variability exhibited in the other exposures should be carefully documented as well. Measurements should be done in meters, but English system conversions may be undertaken later, as necessitated by project report standards. Photographs should be taken of each profile using a meter scale and photo board, whenever possible. Do not under- or overexpose.

At all exposures, sequences should be recorded according to the following schemes:

- a. Lithostratigraphy. Reference is made to observable changes in depositional environments. Each parent material is given a separate successive Arabic numeral (“1”, “2”, “3”, etc.) beginning at the top of the sequence (youngest to oldest). An example of an extreme lithostratigraphic break would involve an unconformity separating two different, naturally occurring deposits (i.e. alluvial or aeolian). Since most archaeological contexts involve subtle fluvial and alluvial settings, it is important to separate litho-strata if a principal change in depositional type is recognized. This means that if you see a break between a channel and overbank sediment, assign each one a separate Arabic numeral. On the other hand, if a fining upward sequence is observed, a single litho-stratum will suffice. The geoarchaeologist must use his judgment here, but must be consistent. There is a space on the form for notes. If it does not suffice, use additional paper. Many basal strata will preserve high-discharge gravels. The practitioner should do the best he/she can in describing gravel morphometry, lithology, imbrication, coatings, etc. The most important element to note is that these types of sediments are preserved in the sequence.
- b. Pedostratigraphy. Reference here is made exclusively to soil environments. Terraces are more likely to have evidence of some weathering (or soil formation) than active floodplains. Along many of South Carolina’s rivers, Inceptisols and Entisols are common in floodplain contexts (i.e. “A-Bw-C” and “A-C” successions), especially in more laterally extensive flood belts. It is possible to encounter some well-weathered (“Bt”) horizons, but not very many on well-drained and older terraces. The most critical column on the form is “Stratum.” An example for a hypothetical deep section is “A-AB-C-2A-2Bw-2C-3Cox.” All of the other categories on the form are self-evident. Carefully note that the form identifies standard structure and boundary classifications, since these are the most likely to generate confusion.

4. Sampling

As noted earlier, the most critical samples that should be taken are radiometric. Take as many as there are organically enriched deposits. After excavation it is possible to submit selected specimens to determine which stratigraphic locations should be filtered out. Typical samples include charcoal, logs, and humate specimens. Our experience has shown that humate is dateable even from A-C or B horizons. One should be liberal in taking samples. Better safe than sorry.

At archaeological excavation or landform exposures, column samples should be taken for geochemical and sedimentological testing. This is preferably done by the geoarchaeologist, but if he/she is unavailable, the rule is to take “brick”-like samples (see procedures for evaluative testing) at 10 cm intervals within a single stratum or at evenly divided smaller increments in strata that are thinner than 20 cm. These samples are taken for analysis in soil/sediment laboratories as defined below.

5. Laboratory Analysis

Comprehensive granulometry and geochemical testing are typically performed on stratigraphic columns of natural, cultural, and mixed (natural and cultural) origin. The more standard tests are described below.

Composite granulometry or grain size analysis (three fraction: sand, silt, and clay) is usually used for sequences to determine changes in channel activity, sedimentation, and flooding regime. It is necessary, for example, to isolate lateral accretion from overbanking. Dry and/or wet sieving segregates size grades within the sand fraction, while the hydrometer method separates the broader sand, silt, and clay fractions. To isolate variability within the size frequency distributions, a series of statistical parameters are examined. In addition to standardized size grade fractionation, parameters of sorting (So), skewness (Sk), and kurtosis (Kg) are calculated using the method of moments (after Friedman and Sanders 1978).

A battery of quantitative geochemical tests are applied to soil horizons to obtain signatures of limited weathering on the floodplain (T-0) and evidence for human occupation in the form of disaggregated cultural residues. Varying contributions of organic and chemical elements are often associated with formerly stable surfaces that may have sustained prehistoric occupations. At many archaeologically dense sites, these tests are also critical for determining the degree to which colloids and clay-charged organics are mobilized vertically in the water table. Often, for example, intact Archaic and Woodland components can be preserved in sealed “Ab”, “AB” or even “Bw” horizons. It is possible to detect hidden cultural signatures geochemically.

The elements, or ions, most often tested to identify weathering and anthropogenic additions to a profile include calcium (Ca), magnesium (Mg) potassium (K) and phosphorous (P). The most common cultural residues isolated by these ion tests are bone, wood ash, excreta, and animal meat and tubers (Cook and Heizer 1965; Anderson and Schuldenrein 1985; Kolb et al., 1990; Schuldenrein 1989). To examine the degree of weathering and oxidation/ reduction in the sola (i.e., “Bw”, “Bwg”, or “Bcg”), relative concentrations of mobile iron (Fe) and Manganese (Mn) are measured, along with organic matter (OM) and pH. Covarying trends can help to determine if vertical or lateral changes in a profile are attributable to soil forming processes, human input into the sediments, or combinations of pedogenic and anthropogenic transformations to the matrix.

Finally, geochemical analyses of phosphates are often undertaken to infer human activity and behavioral patterns based on geochemical analysis of features. The extent and performance of specific activities at the site may be determined by measuring concentrations of inorganic phosphates and assessing fractionation patterns. This method facilitates reconstruction of the types of activities, duration, and even the relative antiquity of particular feature types. Techniques in this study followed the methodology initially outlined by Eidt (1984) for phosphate fractionation and subsequently refined by Schuldenrein (1995) for North American hunter-gatherer sites.

REFERENCES CITED

- Anderson, David G., and Joseph Schuldenrein
1985 Prehistoric Human Ecology along the Upper Savannah River: Excavations at the Rucker’s Bottom, Abbeville, and Bullard Site Groups. *Russell Papers 1985, Vol. I and Vol.II*. National Park Service, Archeological Services Branch, Atlanta.
- Cook, S. F. and R. F. Heizer
1965 Studies on the Chemical Analysis of Archaeological Sites. *Publications in Anthropology* No. 2. University of California Press, Berkley.
- Eidt, Robert C.
1984 *Advances in Abandoned Settlement Analysis: Application to Prehistoric Anthrosols in Colombia, South America*. The Center for Latin America, University of Wisconsin-Milwaukee, Milwaukee.
- Friedman, G. M. and J. E. Sanders
1978 *Principles of Sedimentology Rocks*. John Wiley & Sons, New York.
- Kolb, M. F., N. P. Lasca, and L. Goldstein
1990 A Soil-Geomorphic Analysis of the Midden Deposits of the Aztalan Site, Wisconsin. In *Archaeological Geology of North America*, edited by N. P. Lasca and J. Donahue, pp. 199-218. Centennial Special Vol. 4. The Geological Society of America, Boulder, Colorado.
- Schuldenrein, Joseph
1989 Soil Phosphate “Prints” and the Detection of Activity Loci at Prehistoric Sites. Paper presented at the 54th Annual Meeting of the Society for American Archaeology, Atlanta.

1995 Geochemistry, Phosphate Fractionation, and the Detection of Activity Areas at Prehistoric North American Sites. In *Pedological Perspectives in Archeological Research*, edited by Mary E. Collins, Brian J. Carter, Bruce G. Gladfelter, and Randal J. Southard, pp. 107-132. Soil Science Society of America Special Publication 44, Madison, Wisconsin.

APPENDIX B: PALEOETHNOBOTANICAL ANALYSIS AND REPORTING OF FLOTATION SAMPLES

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A. ANALYSIS

The more information you supply the analyst, the better the report they will be able to write for you. Generally, paleoethnobotanists clean, identify, count, and weigh everything 2.0 millimeter (mm) in size and larger from both the light and heavy flotation fractions. Identifications must be based on a modern comparative collection or on morphological comparison with specimens in an herbarium. Reference books may be used as secondary sources.

Most paleoethnobotanists scan all light and heavy fraction plant remains less than 2.0 mm in size, noting the presence/absence of all plant taxa and pulling out seeds and other interesting items such as squash (*Cucurbita* rind). Sometimes a particular type of plant remain, such as acorn shell, may be sorted, counted, and identified to a size smaller than 2.0 mm. Generally, analysts identify up to 30 pieces of wood per flotation (light and heavy combined) sample. As a rule of thumb, it is better to analyze parts of many samples rather than only a few entire samples if time/money are limiting considerations (see Toll 1988). The best way to subsample is to use a geological riffle sorter.

The analyst will be able to do a better job reporting if the archaeologist cooperates in sharing information about the site. The analyst expects at least the following minimal information: (1) a map showing the location of the site within the state, (2) a map of the site showing the excavation units, features, (3) information about the features, midden, or other sampled proveniences (e.g., maps of features, cultural association/age, sampling strategies, size of samples), (4) details about the sampling strategies, recovery methods, and size of samples, and (5), the common name, if any, and the tripartite site number for the site.

The value of your report will be enhanced if you involve your analyst in the project while you are still in the field. The analyst may advise you on sampling strategies, sample sizes, and recovery methods, and may even be able to give you fast feedback on individual samples so you may revise any of the above. In general, the analyst will appreciate samples from ALL of the different contexts at the site, not just from features (Lennstrom and Hastorf 1995). In general, single component contexts give the most valuable information. If your sherds and/or lithics are of mixed time periods within a context, your charcoal will also be of mixed time periods. The analyst may prefer to process the flotation heavy fractions rather than have your lab crew do so.

Make sure that you send the paleoethnobotanist a copy of the final report. The analyst needs to be able to refer to the report in any follow-up correspondence. It is also critical to make the paleoethnobotanist a part of your final edit team, since you may change the paleoethnobotanical report in ways that are botanically incorrect.

B. MINIMAL STANDARDS OF REPORTING

Paleoethnobotanical studies are an investment in time and effort. Basic information must be supplied in the report for the study to be accurately evaluated and used in future research. Seven points are provided below to ensure that at the very least a minimum acceptable level is reached in the report.

1. RECOVERY TECHNIQUE

Recovery methods and screen sizes used must be detailed. What type of flotation system was used? How

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was the light fraction recovered and with what size mesh? Specify what size mesh was used to capture the heavy fraction. The common use of window screen or 1/16th inch mesh [1.0 - 1.5 mm] by field archaeologists is not recommended by paleoethnobotanists. Instead, it is strongly recommended that one use 0.8 mm mesh or smaller (Wagner 1988). Specify how the heavy fraction was sorted - was it sorted entirely by hand, or was some or all of it refloats (and in what type of liquid). It is important to note that while hand sorting is common, it is not recommended. Refloating is the preferred technique. Make sure that you specify whether the dirt was screened before it was floated. Again, screening before floating is not a recommended practice. If the plant remains were recovered by screening, specify wet or dry and give the screen size(s), (Overall reference: Wagner 1988).

2. FIELD SAMPLING STRATEGY

The sampling strategy for recovery contexts should be fully documented and detailed. Consult Lennstrom and Hastorf (1995) and Pearsall (1989) for a discussion of this topic.

3. VOLUMETRIC MEASUREMENT

The amount of dirt in liters should be listed with each sample. Also the measurement device should be noted along with when the sample was taken.

4. ANALYTICAL STRATEGY

What fragment sizes were completely sorted and identified? What sizes were scanned? What sizes were not scanned, if any? What numbers are presented in the report --actual counts and weights (recommended) or have the numbers been inflated by figuring the ratios of those plant remains only scanned but not counted/weighed (not recommended). How were identifications made?

5. TABULAR DATA REPORTING

The analysis for each sample or each feature/stratigraphic unit should be listed in a table or tables. Samples should be grouped by time period and/or by other criteria (i.e., for plantation site: main house vs. outhouse vs. slave quarters). To be fully comparable with other reports, counts and weights of each taxon should be listed. Generally, at least all items 2.0 mm in size and larger should be quantified. Both scientific and common names should be given.

6. COUNT AND WEIGHT DATA

The count and weight should be given for each category of plant taxa for each sample (at least for all items 2.0 mm in size and larger). If the samples were unusually small, samples may sometimes be grouped by time period or other category rather than listed individually.

7. INCLUDE ONLY ACTUAL MEASUREMENTS

Only actually measured numbers should be presented: do not count/weigh the above -2.0 mm material but then inflate your figures by adding in a similar ratio for each taxon from the scanned but unsorted less-than 2.0 mm split.

C. MINIMAL STANDARDS FOR CURATION

1. PLANT REMAINS

The plant remains should be divided into their analytical categories and curated inside of hard, protective containers with labels. In this manner, the analysis can be checked by others at a later date should any

questions arise.

2. LABORATORY TRACKING

The analyst should include a note inside each bag/container giving their name and the date that the analysis was performed.

3. BOTANICAL REPORT

A copy of the botanical report should be kept with the collection.

REFERENCES CITED

Lennstrom Heidi A. and Christine A. Hastorf

1995 Interpretation in Context - Sampling and Analysis in Paleoethnobotany. *American Antiquity* 60(4):701-721.

Pearsall, Deborah M.

1989 *Paleoethnobotany: A Handbook of Procedures*. Academic Press, NY.

Toll, Mollie S.

1988 Flotation Sampling: Problems and Some Solutions, with Examples from the American Southwest. In *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains*, edited by C. Hastorf and V. S. Popper, pp. 36-52. University of Chicago Press, Chicago.

Wagner, Gail E.

1988 Comparability Among Recovery Techniques. In *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains*, edited by C. A. Hastorf and V. A. Popper, pp. 17-35. University of Chicago Press, Chicago.

APPENDIX C: GUIDELINES FOR APPLICATION OF PHYTOLITH ANALYSIS IN HERITAGE MANAGEMENT

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A. INTRODUCTION

The single most compelling reason to employ phytolith analysis in any of the wide range of archaeobotanic contexts and research problems in heritage management is simply this: there are phytoliths in your site. Opal (i.e. silica-based) phytoliths are fully mineralized, microscopic cell particles produced in living plants. They are impervious to organic decay and, as a result, are well-known for unsurpassed preservation in archaeological and geological sediments. Phytoliths are not a perfect plant fossil system. They may be altered or destroyed by pedochemical agents, mechanical breakage, corrosion and abrasion. Not all members of the plant kingdom produce them and not all of the myriad morphological forms produced have taxonomic distinctiveness. Nevertheless, phytolith analysis is the most reliably preserved set of floral proxy data available in archaeological research. Site after site, which failed to provide preserved pollen, bone and/or flotation macroremains, have produced substantial assemblages of preserved phytoliths. Phytolith analysis is an excellent partner used in conjunction with other systems, and it presents a powerful stand-alone capability as well.

Development of plant opal phytolith analysis has progressed rapidly in recent years and is now used virtually worldwide. However, many areas of paleoecological and archaeobotanical research are still relatively new, underdeveloped and underutilized. Archaeology of the eastern United States is one such area where interest and application is fortunately increasing. Phytoliths can provide paleoclimatic data in a format similar to a pollen profile including at sites and in regions where lack of pollen preservation is notorious. However, phytoliths do not duplicate pollen data; rather, the two systems are powerfully complementary. Pollen is strong in identifying trees where phytoliths are relatively weak; phytoliths are strong in identifying grasses where pollen is relatively weak. Moreover, phytolith taphonomy often differs from that of pollen in many positive ways. This is predicated on the fact that phytoliths are not actively dispersed by a plant, but often represent a decay-in-place botanical signature. Thus, distributional study of phytolith assemblages within a paleosol horizon or a cultural layer can provide landscape patterns at a much finer scale than typically provided by pollen. In natural settings, phytolith concentrations can show marked shifts of floral cover between ecotonal boundaries, e.g. forest-grassland edge, agricultural field boundaries, etc., at the scale of 10's of meters or even meters. Unlike pollen, phytoliths can separate grasses below the family level. Classification of grass phytoliths into three major grass tribes: Festucoid (cool, moist regimes), Panicoid (warm, moist regimes) and Chloridoid (warm, dry regimes) provides clear potential for more precise and accurate reconstruction of the climatic history of grasslands. In any ecological context, the relative frequencies of this "grass tribe triad" are very sensitive to climatic shifts of temperature and rainfall at both the macro-environmental and micro-environmental levels.

In cultural contexts, phytolith concentrations often result from specific ethnobotanical activities - food processing areas, in food residues on potsherds, on surfaces tools used in plant processing, from locations of mat and mattress placement or thatch, as vegetable temper in pottery and adobe, in human and animal feces, in animal and human tooth tarter deposits, in refuse disposal features, etc. The recognition of such point specific-data, like a floral snapshot contemporary with an individual animal, a feature, a structure, etc., has occurred frequently as a spin-off of pollen-like paleoenvironmental studies using phytoliths, but in special contexts.

In terms of taxonomic identification, all grasses produce distinctive phytoliths, including virtually all the cultivars (wheat, oats, barley, rye, millet, maize, rice, etc.); yet, separation between domesticates and close wild relatives is still problematic. Distinctive phytoliths likewise occur in beans and squash providing great

potential for investigation of the New World Agricultural Complex.

Phytolith analysis, then, is a double-edge sword. It is an excellent complement to pollen analysis in regional paleoecology as well as an avenue to identify ecological parameters at a more detailed localized scale. It is also a powerful partner with the study of flotation samples from point specific contexts in archaeological sites. The latter, an emerging application of phytolith analysis, is still experimental, especially with regard to appropriate sampling strategies and research designs. More experience with the potential of this line of research in more archaeological contexts is needed, especially where parallel studies, e.g. flotation, is being conducted allowing for comparative assessment of results. A CRM project is an outstanding context in which to conduct a robust, development study of this new avenue of archaeobotanic research into the history of the human interaction with and exploration of their ecological context at both the general and specific levels.

B. PREREQUISITES FOR PHYTOLITH ANALYSIS

Two prerequisites are essential for effective application of phytolith analysis: Phase I testing and reference taxonomy.

A Phase I determination, very simply, is an initial test for the existence of adequate phytoliths in contexts of interest. Availability of good phytolith data is a positive factor in determining the significance of a site, just as is the presence of artifacts, features, bones, or any other conventional data system. As a site is tested during a Phase I test, soil samples should be collected for preliminary testing and assessment. The number of samples collected is determined by the complexity of the site and the extent of archaeological testing, but normally a set of 1-2 from each major context of interest should be sufficient at this stage. Small sites may need only two or three samples tested, and larger sites perhaps as many as 6 to 12. The purpose is to determine the nature of phytolith evidence to aid in the evaluation of site significance and to design an appropriate strategy for incorporating phytolith analysis in the research plan should the site be selected for mitigation/excavation. Any site, large or small, with six or more samples taken from a variety of critical contexts which prove sterile is not a candidate for phytolith analysis.

Extraction of phytoliths from soil samples at this stage should address basic planning questions. Are phytoliths present? Are they well preserved? Are phytoliths morphologically diverse, indicating that significant taxonomic groups are represented? In general, what plant taxa were observed? Are the significant phytoliths sufficiently abundant to provide the data needed to address more complex, strategic archaeobotanic and paleoecological research problems? No actual archaeobotanic data or interpretations are usually provided since this requires considerably more intensive scanning, counting, etc. at obviously greater cost.

A reference taxonomy is essential to interpretation of phytolith assemblages from an archaeological site. Having abundant, well-preserved phytoliths with no idea of their taxonomic origin renders them virtually worthless. Unfortunately, there is no comprehensive reference database for identification of flora in this region. This task is monumental, and expensive. It cannot be realistically accomplished as part of any given project. However, every project can contribute to alleviating this project by supporting study of a small number of reference plants for phytolith content. If each project included support for selecting some 6 to 10 plants of specific interest to the project that have not been tested previously for phytoliths, the result will enhance both the specific value of data from a given project as well as the general development of phytolith analysis in archaeological research.

C. DETERMINING RESEARCH STRATEGIES FOR INCORPORATING PHYTOLITH ANALYSIS IN PHASE II/III EXCAVATIONS

A standard or universal sampling strategy for all sites does not exist for phytolith analysis. Pollen profiles are vertical, and specific location of that profile, given the reliance of regional pollen rain, is not

significant. Such a strategy does not utilize the capabilities of phytoliths effectively. Given the local to extremely local patterns of deposition possible with phytoliths, sampling profiles should be both vertical and horizontal. Plant deposition patterns will likely be very different inside and outside a feature. A grass lining along the sides and bottom of a storage pit will not be present in a sample taken from the middle. Samples from a house structure that intrude on fallen roof thatch, or straw bedding or a plant processing area may produce huge numbers of phytoliths while a sample taken two meters in lateral distance in the same level may produce nothing. Specific location is fundamentally important in a phytolith sampling strategy requiring that it be custom designed for each site. Given the nature of discovery during archaeological investigations, it will most often be necessary to determine the sampling strategy in the field during the course of excavation. Generally speaking, many small individual samples are better than a few big ones. Advance planning for phytolith sampling should focus on raising the level of awareness of field supervisors and excavators, rather than on promulgating fixed rules for the number and pattern of phytolith samples to be taken.

D. TAKING PHYTOLITH SAMPLES IN THE FIELD

Taking phytolith samples is relatively straightforward, essentially following pollen protocols. The surface to be sampled should be freshly exposed to avoid airborne contamination. Tools for taking samples should be wiped clean, rinsed and dried before taking the next sample. Tap water, river or lake water should never be used as biosilica contamination is highly likely from diatoms and sponge spicules (as well as phytoliths). Diatoms and sponge spicules are mineralogically similar to phytoliths and appear in phytolith extracts. Their presence often adds significant information; thus, contamination should be avoided. Distilled water or water filtered to remove particles of less than 5 microns (less than 1 or 2 microns is better but takes longer to process) should be used for cleaning sampling tools. For the overwhelming majority of phytolith samples, a size equivalent to a 35mm film can is sufficient and film cans are, in fact, excellent containers for this purpose. Sealing, double-bagging, etc., as necessary is warranted to avoid contamination and/or spillage. Waterlogged samples should be dried to avoid growth of spores if they are to be curated. Otherwise samples not sent for laboratory processing may be curated indefinitely without requiring any further special ambient conditions.

ANNOTATED SUGGESTED READINGS

Brown, Dwight A.

1984 Prospects and limits of a phytolith key for grasses in the central United States. *Journal of Archaeological Science* 11(4):345-368. [Still one of the most complete catalogues of grass phytolith morphological variation available.]

Middleton, William D. and Irwin Rovner

1994 Extraction of opal phytoliths from herbivore Dental Calculus. *Journal of Archaeological Sciences* 21:469-473.

Pearsall, Deborah M.

1989 *Paleoethnobotany: A Handbook of Procedures*. Academic Press, Inc., San Diego [A lot of basic practical information on field and laboratory methods, but protocols for taxonomic identification, i.e. for maize, are unreliable and fraught with explicitly contradictory and non-supporting data and assessment.]

Pearsall, Deborah M. and Dolores R. Piperno, editors

1993 Current Research in Phytolith Analysis: Applications in Archaeology and Paleoecology, Volume 10. *MASCA Research Papers in Science and Archaeology*, Philadelphia [A serendipitous collection of interesting papers.]

Rapp, George R. Jr., and Susan C. Mulholland

1992 *Phytolith Systematics: Emerging Issues*. Plenum Press, New York. [More for the phytolith specialist,

but considerable information on non-grass phytoliths and more.]

Rovner, Irwin

2000 Phytolith Evidence for Large-Scale Climatic Change in Small-Scale Hunter-Gatherer Sites of the Middle Archaic Period, Eastern USA. *Proceedings of the Second European Phytolith Research Conference*, Aix-en-Provence, France. [Good example of phytolith analysis in small prehistoric sites with big implications, the volume will have variety of useful papers.]

1994 Floral History by the Back Door: Phytolith Analysis of Two Residential Yards at Harpers Ferry. *Historical Archaeology* 28(4) 37-48. [Good example of phytolith analysis in very specific local contexts, historic archaeology.]

1990 Fine-tuning Floral History with Opal Phytolith Analysis. In *Earth Patterns, Essays in Landscape Archaeology*, W. Kelso and R. Most, editors. The University Press of Virginia, Charlottesville.

1983 Major advances in Archaeobotany: Archaeological uses of opal phytolith analysis. *Advances in Archaeological Method and Theory*, Vol. 6, M. Schiffer, Editor. Academic Press, New York. [Becoming increasingly out-of-date, but short summary overviews are hard to find.]

APPENDIX D: GENERAL GUIDELINES FOR FAUNAL STUDY

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A. INTRODUCTION

Archaeofaunal collections begin in the field, continue in the laboratory, and are curated in perpetuity. Personnel involved at all stages of the process should give thoughtful, constant, and early consideration to collection management. Many problems arise as a result of poor management of archaeofaunal materials as they are excavated. Many subsequent misunderstandings could be avoided by some remarkably obvious and simple procedures. This section is written not to belittle the intelligence of archaeological crews, but because zooarchaeologists must routinely deal with the consequences of poor, probably hasty, decisions in these areas. The urgency of these admonitions is underscored by the fact that these collections, curated in perpetuity, will be revisited by future researchers long after the primary parties have gone. Collections should be arranged at all times in such a way that they can be understood without consulting individuals who may be unavailable.

1. IN THE FIELD AND ARCHAEOLOGICAL LABORATORY

Some zooarchaeologists excavate and study their own materials, but most are depend upon others to excavate and send samples to them. Field and archaeological laboratory personnel can help the zooarchaeologist in several ways. While these may seem obvious to some readers, in our experience it is not obvious to many, especially as they hasten to leave the field at the end of a long, difficult season. These steps should begin with the first sample bag so that treating them carefully will be habitual when the last bags flood in from the field. Faunal remains should be given at least the same care as lithics and ceramics. Field personnel should never determine what is identifiable and what is not; all faunal remains should be sent for study in a well-lighted laboratory with a reference collection.

Animal remains are fragile and they do break when handled even gently. They should be carefully cleaned and dried, unless they are from a damp context. The condition of excavated faunal remains should be carefully monitored, and they should never be exposed to quick or extreme changes, such as drying wet bone under high heat and light or exposing dry bone to water. Many of the spiral fractures attributed to marrow extraction are actually the result of “weathering” processes that occur after excavation.

Specimens should be placed in sturdy containers that are firmly sealed and labeled with an indelible pen. Computer-generated labels should be checked for durability; many are not waterproof. Labels should also be placed inside the container. When the outside of a plastic bag becomes damp, labels made with even “permanent” magic markers become smudged and the interior label becomes the only way to identify the bag. If the materials are not dried before the container is sealed, mold will render the interior label illegible. When both “accidents” happen, as they do more times than seems credible, the provenience information for the sample is almost always irretrievable. If boxes are used, they should be taped closed even if the lid is a full one.

Each container should be numbered sequentially and a packing list with these numbers should be kept with the materials at all times; but especially when the materials are transferred to the zooarchaeologist. These numbers have a variety of names, such as inventory number, catalogue number, field number, lot number, sample number, accession number, and bag number. By whatever name, these numbers are important

organizing tools. Some researchers assign multiple numbers with various meanings to artifacts; each such number increases the likelihood that errors and misunderstandings will occur. All specialists who will work with the samples would appreciate a single, sequential reference number that is used by everyone.

Usually faunal remains will be transferred from the field to another location. This may be a very short distance but sometimes the materials will be shipped several times over long distances. Such moves, however, are essential for proper study. Rough handling during shipping damages biological remains. Shipping containers should not weigh more than a normal individual can carry comfortably. Specimens on the bottom of the box bear the weight of the ones on top. Boxes receive a great deal of rough handling; well-padded samples should be sent in well-taped, sturdy

Boxes. Aluminum foil is not padding and, however appropriate it may be for ^{14}C samples, should not be used for botanical or faunal specimens that will not be dated. If it is anticipated that appropriate supplies may be difficult to acquire in the field, they should be taken into the field along with other necessary field materials at the start.

Records for the site should be sent with the samples. A list of the proveniences; their catalogue, accession, or field number; and a summary of the artifacts found in each context should be sent with the faunal materials. Site maps showing where the site is and the site's relationship to physiographic features such as lakes and mountains are essential. Records should include maps of the excavated areas and profile records. Field methods should be described in detail. This includes whether arbitrary (metric) or natural levels were used or a combination of the two; definitions for zones, features, areas, etc.; and whether the depths were measured below surface or below datum. Volumetric information for the excavated units is important. While the analyst should endeavor to become familiar with the excavation and recording technique used (and should consult with the field personnel whenever there is a doubt), field personnel can help by keeping records such as maps and catalogues in such a way that they are self-explanatory. A copy of the grant proposal or a preliminary field report will help the zooarchaeologist understand the site and the research objectives. The names and addresses of the archaeobotanist, soil scientist, and biological anthropologist should also be provided. Obtaining this information is just one of many reasons zooarchaeologists prefer to be involved in the planning and excavation stages.

Sometimes worked specimens are removed from samples sent to the zooarchaeology laboratory. This limits exploration of the full range of human uses of animals, and particularly hampers the study of modifications and element distributions. Arrangements should be made for the zooarchaeologist to examine tools and ornaments so they can be integrated into the faunal study. With the end-product of the production sequence in hand, the zooarchaeologist may see evidence of on-site manufacturing that would not be recognized if the final product is unknown to the zooarchaeologist. This also provides an opportunity to diplomatically remove from the "worked" category specimens that appear worked to the untrained eye but that actually are not.

2. IN THE ZOOARCHAEOLOGY LABORATORY

Remains from different archaeological contexts should never be mixed. One of the primary goals of fieldwork is to find artifacts in situ. This means artifacts are removed from the site while maintaining their relationship with each other as well as with the strata in which they are found. It is important to keep materials from different temporal, spatial, and behavioral contexts separate. In the field, however, the significance of a slight change in soil is often unclear, and the field crew segregates artifacts into separate samples whenever they are unsure about contextual relationships. This conservative field procedure produces a large number of very small samples that must not be mixed during subsequent handling without the explicit authorization and instruction of the project director.

At one time it was common for archaeofaunal assemblages to be separated into subgroups along phylogenetic lines. An avian paleontologist would receive the bird specimens; a herpetologist the reptile and amphibian specimens; a malacologist the mollusks; etc. This approach is now much less common. Every

effort should be made to see the relationship between humans and other animals as a living system rather than along phylogenetic lines. Only when faunal assemblages are evaluated as a whole can data be integrated and a unified pattern of site formation processes and human behavior be observed. On the other hand, it is not possible to be equally skilled in identifying all classes of animals and it is important to consult people with expertise in particularly difficult identifications whenever necessary. It is also important to consult ecologists and statisticians.

Zooarchaeologists should begin their work by establishing procedures to keep samples physically separate. Numbering specimens is a common way to do this, but it is prudent not to rely upon this procedure. Numbering specimens in the 3 mm fraction may be impractical and is impossible for specimens in the 1.5 mm fraction. If the specimens are not numbered, it is important to work with only one sample at a time. For some procedures it is necessary to have materials from more than one sample on the lab bench at the same time. In these cases, the specimens should be numbered if at all possible. Gummed colored dots are not acceptable substitutes except as the most temporary marker. If colored paint is used, the code for the color scheme should be kept with the materials at all times.

Study involves curation. As the specimens are sorted, they should be placed into vials, bags, or boxes depending upon arrangements for final curation. Each of these containers should be labeled with the sample's provenience information. By the end of the study, these labels will also contain the identification for the taxon whose remains are contained therein and whatever additional information the curating facility requires. Groups of containers from a single sample should be segregated from similar groups of containers in other samples. Under no circumstances should studied materials be discarded or returned to a common container as was once advocated. Invariably archaeological samples contain non-faunal objects, as well as some mystery items. Arrangements should be made to reunite these with other non-faunal materials.

Most specimens will be fragments of elements and in some cases these cross-mend. In general, it is preferable not to re-glue these fragments. Doing so creates a weak joint that will probably break again, causing further damage to the specimen. Glue is also a contaminate that precludes some future studies. Some research questions, however, require reassembly of specimens; in which cases the type of glue used should be recorded on the specimen tag so future conservators will know which chemicals were used.

The materials may require further conservation treatments. This is particularly the case for specimens recovered from wet sites; but many specimens may be badly weathered and require stabilization as well. Many products are available; the choice of which one to use will depend on the type of tissue involved and its condition. Bone, shell, enamel, and ivory all have different conservation requirements, as do wet, leached, burned, and worked specimens. Ideally, it would be possible to remove the chemical in the event future studies of modifications, isotopes, DNA, trace elements require it. The curational facility should be consulted beforehand and a record of the treatment should be kept with the materials at all times.

Identification is so important that the methods employed should be part of the permanent record. Some argue identifications should be accompanied by notes specifying the basis for the identification. While it might not be necessary, or even possible, to publish these criteria, the basis for each identification should be clearly articulated some place and consistently applied. It is good practice for laboratories to have specific, written procedures that everyone in the lab follows.

Primary data may be recorded in many ways; but it is most important that the results be clear. Only procedures that are simple and replicable should be used and none of these should be left to memory. Arcane codes or personal abbreviations should be avoided. If codes are used, the key should be kept with the notes at all times. Nor is it a good practice to alter established protocols casually because this makes it difficult to duplicate them later. In some cases, the project or the laboratory may have established procedures and the curational facility may have additional guidelines; these should be followed closely. Records of primary data should be curated in a public repository with the same care as the faunal specimens themselves.

Many differences in recording techniques reflect whether the data will be computerized or not. Although computers are common in zooarchaeology labs, they are not universal, and, unfortunately, rapid advances in computer technology occasionally mean data entered on one system can be accessed by another only with difficulty, if at all. Several computer programs are specifically designed for zooarchaeology data; but as more general commercial programs become more powerful and flexible many find it satisfactory to use these instead. The computer field is rapidly changing and zooarchaeologists must consult the most current references when making decisions about computer applications. Data should not be stored only in computer files; at least one copy should be kept on archival-quality paper.

B. LONG-TERM CURATION

Zooarchaeologists are strong advocates for long-term, professional curation of modern reference collections, archaeofaunal samples, and the associated data. The biases associated with collection management and curation decisions have been frequently encountered and are particularly distressing.

More questions may be asked of zooarchaeology data than the initial researcher may have the time, funding, expertise, or interest to explore. Although it is desirable for the published report to be sufficiently complete to encourage further analysis from the publication itself, restrictions on space may preclude including all the details. Papers, posters, and published articles cover only a limited amount of the primary data obtained through a zooarchaeology study. Refereed journals tend to publish papers devoted to method and theory rather than to the presentation and interpretation of primary or secondary data. Therefore, much data remains unpublished. This is further compounded by the realities of Cultural Resource Management. At the same time, future researchers may have new questions or want to compare data from several sites. They will need access to both the studied and unstudied archaeofaunal materials as well as the unpublished data in order to pursue their research objectives. As archaeology grows in sophistication and new techniques are applied to faunal samples, many of the remains once thought to provide little information are more interesting.

Although discarding parts of the assemblage may preclude new studies in the future, keeping an entire excavated assemblage has logistical and economic implications. Museums and libraries are repositories where the samples and data can receive permanent care. Notes should be curated for future reference in the same facility as the samples. If they are not in the same facility, it should be clear where they may be found. Reports and publications must include the location of notes and materials used in the analysis. Storage should be in areas where environmental conditions such as temperature, light, humidity, and insects are controlled. In many parts of the world it is difficult to obtain acid-free containers, air-conditioning, and secure storage cases; but every effort should be made to place the materials in as secure a condition as possible.

C. CONCLUSION

Each faunal collection is different, as is each archaeological project. It will be necessary to modify the procedures suggested here to accommodate these settings. However, every effort should be made to ensure that the materials are subjected to as little additional loss as possible and to facilitate their survival in the years to come. Every zooarchaeologist and archaeologist must be an advocate for the responsible management of collections and dissemination of as much data as widely as possible.

APPENDIX E: REPORT PREPARATION CHECKLIST

Please note that this checklist is meant only as a general guide: it is not exhaustive and there are some items that may pertain only to certain types of investigations (e.g., survey reports). It is the responsibility of the Principal Investigator and the lead agency to ensure the accuracy and adequacy of all information contained in the report.

CHECKLIST FOR INTRODUCTORY SECTION:

- Project name.
- Federal or state agency requiring the work.
- Agency project number(s).
- Description of the undertaking, including project location, size, anticipated impacts, etc.
- Map showing project location on a 7.5-minute USGS topographic map.
- List of applicable federal and state laws and regulations.
- Names of principal investigator, project archaeologist/field director, and crew members.
- Dates of investigation (including the total number of person-hours).
- Brief statement of field methods and results.
- Recommendations, including NRHP eligibility and assessment of effect.

CHECKLIST FOR ENVIRONMENTAL BACKGROUND:

- Discussion of current and paleo environments. This section should consider topographic setting, geology, hydrology, climate, flora, and fauna relevant to the archaeological investigation.
- Types of land use within project/undertaking area, including a map delineating these areas. Include estimates of the acreage associated with each land use type.
- Other environmental factors considered relevant by the investigator.

CHECKLIST FOR ARCHAEOLOGICAL AND HISTORICAL BACKGROUND:

- General overview of prehistory and history of the study area.
- Summary of previous archaeological investigations and results. Include a brief discussion of all sites within a reasonable distance from the project area.
- Predictions concerning anticipated site locations and types, if appropriate.

CHECKLIST FOR METHODOLOGY:

- Site definition utilized.
- Field methods used, including variations in technique due to different field conditions, such as ground cover, alluviation, erosion, development, etc.
- Laboratory methods utilized and curational facility selected.
- Map showing areas where different survey methods were used (e.g., pedestrian survey, shovel testing, areas not tested due to steep slope or heavy disturbance).
- Exact number and type of shovel tests, test units, and excavation units.

CHECKLIST FOR FIELD RESULTS:

- Individual site maps and descriptions, including site setting, cultural affiliation, settlement types, soil descriptions, artifact analyses, features, etc.
- 7.5-minute topographic map(s) showing the location of all recorded sites and isolated finds.

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- Evaluation and justification for each sites eligibility according to the criteria for inclusion in the NRHP.
- Assessment of potential project affect for each site.
- Recommendation(s) for additional testing, no additional work, or site avoidance.
- Description of the type and amount of additional work recommended (if appropriate).

CHECKLIST FOR CONCLUSIONS AND RECOMMENDATIONS:

- NRHP eligibility recommendations for each site.
- Assessment of project effect (i.e., no historic properties affected, no adverse effect, or adverse effect).
- Recommendation(s) for additional work, if necessary.
- Summary of information gained by the investigation.
- Recommended procedures for post-review site discovery.

CHECKLIST FOR BIBLIOGRAPHY:

- Are all references cited in the text must be present in the bibliography
- Are citations complete and consistent with American Antiquity format.

CHECKLIST FOR APPENDICES AND OTHER ATTACHMENTS:

- Artifact catalog.
- Appendices for each specialist analysis, including radiocarbon and OCR.
- Vitae of Principal Investigator, if not RPA-certified.

CHECKLIST FOR SITE FORMS:

- Submit new site forms and updated site forms to SCIAA for each site identified during the investigation, these must be appended to submitted survey reports.

APPENDIX F: PROBABILITY MODELING CHECKLIST

Model Summary

- Model Name, if applicable:
- Developer & Institution:
- Type and Purpose of the Model:
- Relevant cultural time-period:
- Model Description (Detailed):

Model Data

Individual data layers employed in the model - **(please duplicate as many times as required):**

- Source:
- Program:
- Source Date:
- Source Scale:
- Data type:
- Format:
- Source Resolution:
- Characteristic(s)/Relevant Attributes:
- Transformation(s):
- Detailed explanation of how data layer was used in the model:

Computational Processes

- Software Name & Version:
- Computer Operating System and Version:
- Relevant Computer Architecture:
- Describe in detail, each analytical or computational step in the model development process in the sequence implemented. Define specific function names and any parameters that may affect the outcome.
- Describe any iterative data processes that result in an output layer that becomes an input layer to the model.
- **Include a model flowchart if possible.**

Statistical Analysis

- Describe the statistical analysis procedures used to assess the model results if applicable. Include the rationale and justification for the implemented procedures, critical values, and statistical test results.
- Describe your conclusions regarding the model results.
- Include any formulas and scanned/digital output results that support the conclusions.

Calibration and Validation (if appropriate)

- Describe in detail any procedures to calibrate the model parameters.
- Describe and compare the model result following parameter calibration.

- Describe in detail any model validation procedures including statistical control sample, site sample subset, regional comparison, etc.
- Describe any residual analysis results.

Conclusions

- Provide an assessment of the model results. Include model applicability and/or restrictions, proposed methodological changes or additional data with potential to improve results.