Draft Historic Properties Management Plan
Waco Lake, McLennan County, Texas
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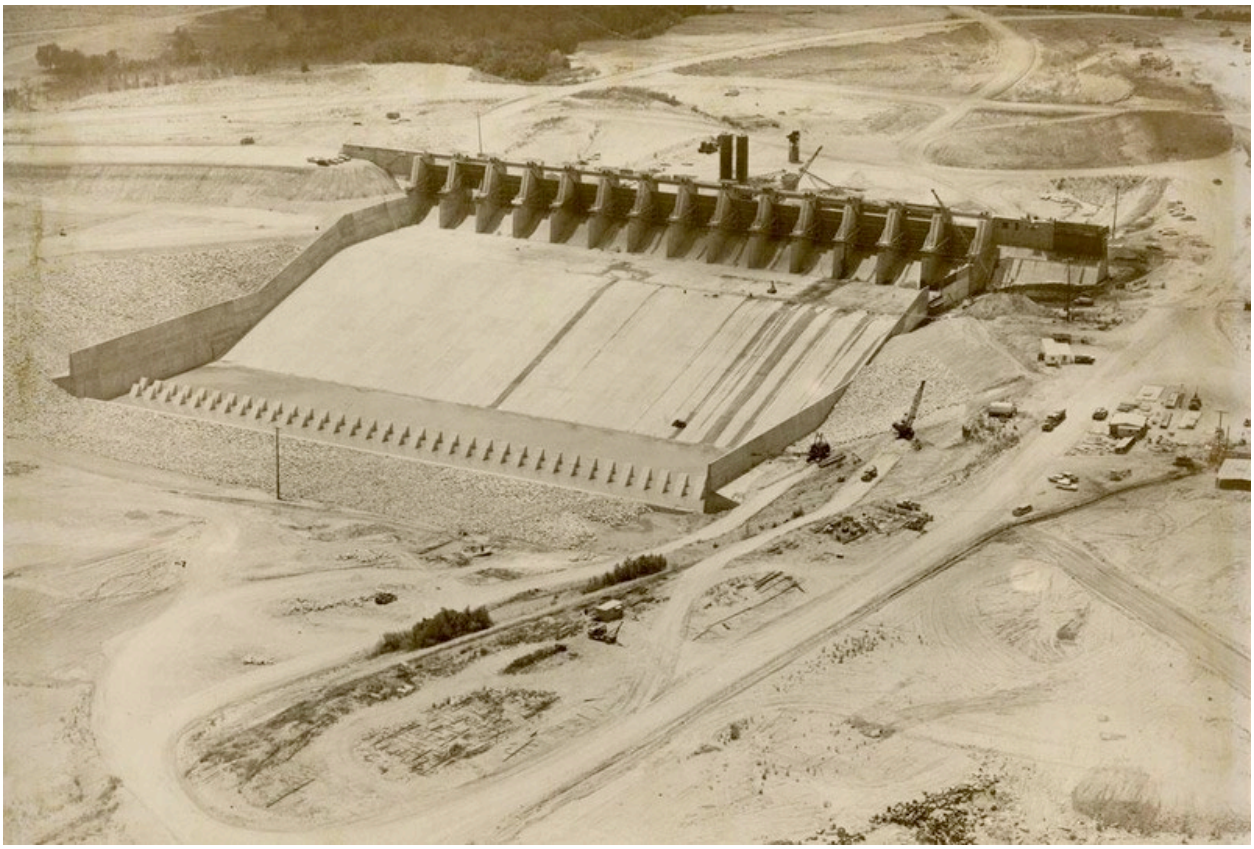

U.S. Army Corps of Engineers

Fort Worth District

2023 - 2028

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LIST OF ACRONYMS			
ACHP	Advisory Council on Historic Preservation	MACOM	Major Command
AIRFA	American Indian Religious Freedom Act	MOA	Memorandum of Agreement
APE	Area of Potential Effect	NAGRPA	Native American Graves Protection and Repatriation Act
ARPA	Archeological Resources Protection Act	NEPA	National Environmental Policy Act
BLM	Bureau of Land Management	NHPA	National Historic Preservation Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	NPS	National Park Service
CFR	Code of Federal Regulators	NRHP	National Register of Historic Places
CRM	Cultural Resource Manager	PA	Programmatic Agreement
DA	Department of the Army	SHPO	State Historic Preservation Act
DOD	Department of Defense	SOP	Standard Operating Procedure
EA	Environmental Assessment	TARL	Texas Archeological Research Laboratory
EIS	Environmental Impact Statement	TCP	Traditional Cultural Properties
EO	Executive Order	THC	Texas Historical Commission
EPA	Environmental Protection Agency	USACE	United States Army Corps of Engineers
FY	Fiscal Year	U.S.	United States
GIS	Geographic Information System	USC	United States Code
HQDA	Headquarters, Department of the Army	USDI	United States Department of the Interior
HPMP	Historic Properties Management Plan	USGS	United States Geological Survey

Executive Summary

The mission of Waco Lake is to supply water to the city of Waco and surrounding areas, to provide flood control, and to allow the public to benefit from recreation opportunities in and around the lake. The project provides 553,300 acre-feet of flood storage, enough capacity to control the maximum flood recorded within the watershed, and 104,100 acre-feet of water conservation for municipal use. With 13,857 acres of accessible lake and fee lands, Waco Lake hosts over 1 million visitors annually.

Engineer Regulation (ER) 1130-2-438 (*Project Consultation and Operation Historic Preservation Program*), ER 1130-2-540 (*Environmental Stewardship Operations and Maintenance Policies*) and Engineer Pamphlet (EP) 1130-2-540 (*Environmental Stewardship and Maintenance Guidance and Procedures*) for the U.S. Army Corps of Engineers (USACE) specify USACE policy for cultural resource management, including the development of an Historic Property Management Plan (HPMP) for each operational USACE project. The Fort Worth District Commander has direct responsibility for the inventory, evaluation, and management of historic properties on USACE controlled lands. They are also responsible for ensuring the integrity of archaeological collections and associated records, and for the encouragement of public use and enjoyment of historic properties under their jurisdiction.

The Fort Worth District Operations Archaeologist is the designated cultural resource manager (CRM) for Waco Lake. The Waco Lake Operations Project Manager is responsible for the budget, planning, and review of all new construction, routine maintenance, real estate actions, emergency response, and other activities associated with lake operations. While not a decision-making document, this plan provides the Lake Manager and those responsible for implementing the decisions of District Command with the data needed to make informed decisions regarding the treatment of historic properties in the course of their regular duties.

This document includes recommendations and standard operating procedures which will allow the fulfillment of the following cultural resource management goals:

- Conduct timely and cost-effective investigation and inventory of cultural resources including historic structures and infrastructure, archaeology sites, historic districts and landscapes, and traditional cultural properties.
- Maintain compliance with applicable cultural resource laws and regulations.
- Ensure good stewardship of historic properties by monitoring their condition and maintenance needs.
- Consult with appropriate federally recognized tribes and other stakeholders with a customary or historical association with USACE controlled lands.
- Educate lake staff and the visiting public to improve their understanding and protection of cultural resources.

1. INTRODUCTION

This HPMP is a planning tool intended to ensure legal compliance for activities conducted under federal authorization, and to assist in the inventory, evaluation, and mitigation of impacts to historic properties at Waco Lake. According to EP 1130-2-540, the USACE is responsible for "the management of collecting, preserving, and curating archaeological and historical materials at civil works water resource projects, as well as establishing a Historic Preservation Program for construction, operations, and maintenance activities at these locations" (EP 1130-2-540).

Section 110 of the National Historic Preservation Act (NHPA) (16 U.S.C. 470), added as an amendment in 1980, makes explicit the responsibilities of federal agencies to identify, evaluate, and protect historic properties on agency lands. The 1992 amendment to the NHPA further expanded Section 110 requiring federal agencies to fully consider impacts to historic properties that may be affected by agency actions, even when those properties are not under the agency's jurisdiction or control. Agencies are required to establish a preservation program to identify, evaluate, and nominate historic properties for listing in the National Register of Historic Places (NRHP), and protect those properties potentially eligible for, eligible for, or listed on the NRHP.

1.1. Purpose and Organization

The purpose of this HPMP is to promote timely and cost-effective historic preservation activities at Waco Lake. The recommendations, guidelines, and standard operating procedures (SOPs) provided in this plan will help integrate the management and protection of cultural resources with overall mission goals and maintain compliance with federal laws and regulations. It is a living document and should be revised as new data are collected and management needs change. This HPMP is not a decision-making document, but rather a guidance document that provides the Lake Manager, those responsible for implementing the Lake Manager's decisions, and the Cultural Resource Manager (CRM) with the information needed to take appropriate actions regarding the management of cultural resources at Waco Lake.

The HPMP begins with an overview of roles and responsibilities, internal and external coordination procedures, and strategies for public involvement. Although the identification and management of paleontological resources is outside the purview of this document, recommendations for treatment in accordance with federal law are also provided. Chapters 3 and 4 of this HPMP contain a series of policies and SOPs concerning the day-to-day management of cultural resources on USACE lands at Waco Lake. The guidelines and SOPs presented within these two chapters will enable USACE personnel to ensure compliance with appropriate Federal laws and implemented regulations. Waco Lake personnel should be versed in HPMP Section 106 protocol and SOPs and integrate them into their regular duties.

Chapters 5 and 6 provide environmental and cultural contexts that give provenance to the natural and cultural resources at Waco Lake. This is followed by an overview of the archaeological work that has thus far been conducted at Waco Lake and an inventory of known cultural resources on USACE lands. The cultural resource inventory provided in Chapter 8 is intended both for accountability purposes and as a reference for lake personnel to use in conjunction with carrying out the duties and procedures set forth in this document. Because intensive cultural resources investigations meeting current professional standards have not been conducted on all USACE lands, the cultural resources inventory provided in this HPMP is not complete or exhaustive.

Chapter 9 contains recommendations for the monitoring and management of previously recorded historic properties, as well as a proposed plan for cultural resources investigations to achieve full compliance with the NHPA and to streamline cultural resource compliance reviews for future activities on USACE lands. Although the identification and management of paleontological resources is outside the purview of this document, recommendations for treatment in accordance with federal law are also provided in Section 2.6.

In brief overview, the guidelines discussed within the Section 106 guidance and additional SOPs are as follows:

- All actions, including new construction, maintenance projects, alteration, renovation, or demolition of buildings, and any ground-disturbing action should be reviewed for their potential effect on historic properties by a USACE archaeologist prior to any undertaking occurring. **Activities for which the agency has a Categorical Exclusion under NEPA must still be reviewed for impacts to historic properties and compliance with Section 106 of the NHPA.**
- Design efforts for new actions should avoid historic properties, if possible.
- Active preservation measures, such as the use of chain-link fencing or other physical protection, should be initiated to ensure that historic properties on USACE lands within the domain of public knowledge or located within a “Recreational Use” designated area will not be destroyed through benign neglect or inadvertent vandalism.
- Lake personnel are responsible for proactively preserving and protecting all known archaeological resources and must enforce the prohibition of vandalism of archaeological sites.
- Historic properties should be inspected with a degree of regularity, annually, if possible, in order to document their condition and to evaluate the need for active preservation measures.

- If cultural material is discovered unexpectedly, all work in the area of the discovery should be immediately suspended and the Lake Manager or appropriate personnel will contact the appropriate USACE archaeologist as soon as possible to examine and evaluate the material. The discovered material shall be left undisturbed as much as possible until the USACE archaeologist makes a determination that the material can be removed.
- If human remains are discovered during the course of any undertaking, work shall cease, and the Lake Manager shall be notified immediately. The Lake Manager, in turn, shall notify the appropriate personnel, including the District Archaeologist and law enforcement personnel, to determine the age of the remains. If the remains are recent, the county sheriff and/or coroner's office shall assume investigative authority. If the remains are not contemporary, the USACE district archaeologist shall make an appropriate determination as to a course of action at that time.

It must be noted that the information contained within this document pertaining to Waco Lake's cultural resources, specifically site locations and descriptions, are to be considered Controlled Unclassified Information (CUI) and **not to be released to the public.**

1.2. Methodology

Several research methods have been employed to prepare this document including field investigation, literature review, solicitation of information from appropriate federally recognized tribes and relevant public historical societies and entities, issuance of a public notice and public comment period, review of existing USACE documents pertaining to the operations and maintenance of Waco Lake, review of similar plans for other areas and USACE facilities, and consultation with the Texas SHPO.

The Environmental Context section and the majority of the precontact components of the Cultural Context section were derived from Hunters and Gatherers of the North Bosque River Valley: Excavations at the Baylor, Britton, McMillan, and Higginbotham Sites, Waco Lake, McLennan County, Texas, Report of Investigations, Number 156 written by Gemma Mehalchick and Karl W. Kibler of Prewitt and Associates for USACE. Published in July 2008, the field work for these investigations was performed intermittently between October 2002 and January 2005 followed by extensive research into the precontact era that was cross-checked with the data recovered from these excavations. Additional contextual references have been added to include Meier et al. 2014, Goebel et al. 2008, Waters et al. 2011, and Jenkins et al. 2012.

The Historic Period section of this document was written through background research of reputable databases and published works, with a focus on the City of Waco and the surrounding communities and area rather than a broader approach to the region. The SHPO, relevant Native American Tribes and historical societies with a connection to

Waco Lake, the City of Waco, and the surrounding area were solicited for input into the historical components of this document. Copies of correspondence to the following groups is included in Appendix B of this document.

- Texas State Historical Association
- Texas Historical Commission
- Apache Tribe of Oklahoma
- Comanche Nation of Oklahoma
- Coushatta Tribe of Louisiana
- Tonkawa Tribe of Oklahoma
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco, and Tawakonie)
- Mayborn Museum
- McLennan County Historical Commission

The Texas Historical Commission's Archeological Sites Atlas, with data provided by the Texas Archeological Research Laboratory, reports of previous archaeological investigations, and historic maps and site records maintained by the USACE Fort Worth District Archaeologist were the primary references for documented cultural resources at Waco Lake. Site descriptions and spatial data contained in the Atlas were cross-referenced with USACE records and were found to be complete and accurate.

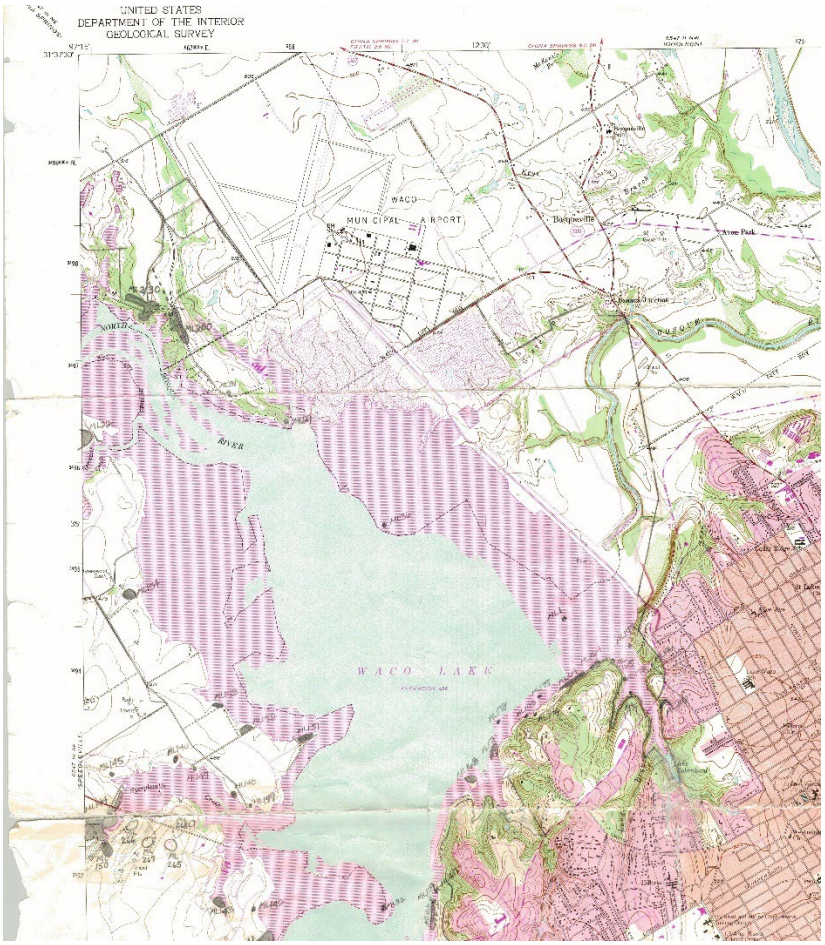


Figure 1: Site map maintained by the USACE Fort Worth District Archaeologist.

The site forms for each archaeological site have been analyzed for accuracy of location, documented integrity, cultural components, and NRHP eligibility. These documents were cross-referenced with the current land use classifications of Waco Lake as well as the physical conditions in which each resides. Land use classifications, typically a component of Master Plans and Shoreline Management Plans, were included in this analysis for cultural resource management purposes, specifically to alert the Lake Manager and staff of cultural resources that are at risk of adverse effect either through human interaction (i.e., a resource in a “recreational” area) or through the raising and lowering of the lake level (i.e., a resource in a “shoreline” area). Where possible, the site’s condition and/or more specific location was noted as well (i.e., inundated, cutbank, heavily damaged, at risk of erosion, etc.).

In conjunction with this HPMP, the Joint Engineer Common Operating Picture (JECOP) software is also being employed to aid in cultural resource management practices. This encrypted, limited access program is available both on desk-top and mobile devices. Data layers pertaining to cultural resources at select USACE-managed lakes are

available through authorized-access only. The JECOP has not been widely utilized for the purpose of long-term cultural resource management. Therefore, the standard operating procedures presented for the JECOP system in this should be expanded and altered in the future as the use of this system is streamlined.

1.3. Waco Lake Project Authority and Description

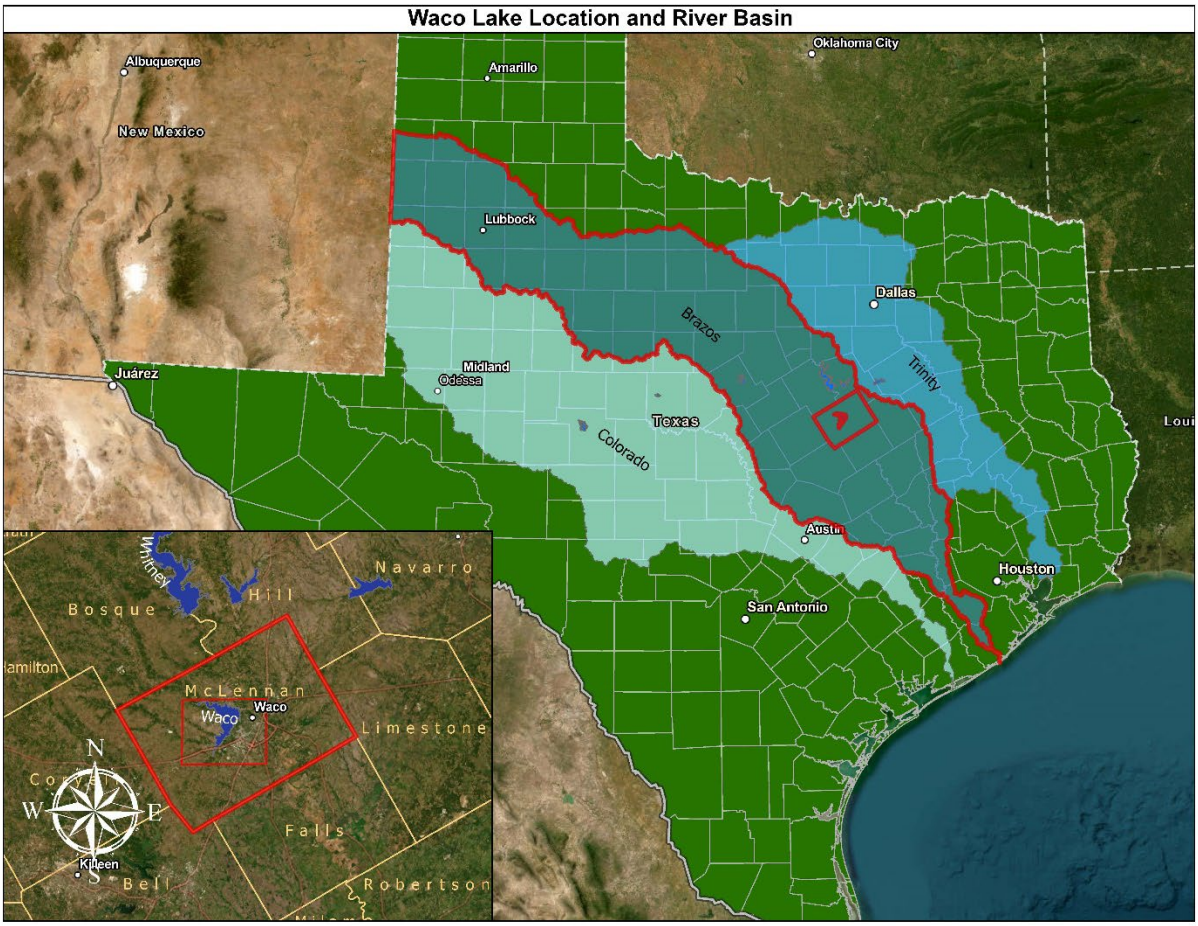


Figure 2: Project Location Map of Waco Lake

Waco Lake is located wholly within McLennan County, approximately 4 miles west-northwest of the city center of Waco, Texas, in the southeastern portion of the Bosque River Watershed, Brazos River Basin. The Lake's mission is to provide flood control and water supply to the City of Waco and surrounding areas. Authority for construction of Waco Lake was granted by Congress in the Flood Control Act of 1954. Other uses include the recreational program, authorized by the Flood Control Act of 1944, and the fish and wildlife conservation program, authorized by the Fish and Wildlife Coordination Act of 1958.

Construction of Waco Lake began in June 1958 and the deliberate impoundment of water began in 1965. The dam is an earthen-fill embankment consisting of compacted soils and measuring 24,618 ft in length. Its maximum height is 140 ft above the streambed, with 24 inches of riprap protecting the upstream side from wave action. The spillway is an ogee gate controlled, reinforced concrete weir located in the left abutment, with 14 tainter gates measuring 40 ft wide by 35 ft high mounted on the crest. The outlet works include a reinforced concrete structure located on the upstream side of the dam and a 20-ft diameter conduit which passes under the dam into the Bosque River channel.

The current storage capacity of Waco Lake is 657,400 acre-feet, which includes 104,100 acre-feet allocated to municipal water conservation and other beneficial uses up to an elevation of 462 ft above mean sea level (AMSL), and 553,300 acre-feet allocated to flood control between the elevations of 462 ft and 503 ft AMSL.

2. MANAGEMENT PRACTICES AND POLICIES

2.1. Waco Lake Manager's Responsibilities

The Waco Lake Manager and the CRM shall ensure that this HPMP and any other agreement documents prepared to meet cultural resources management responsibilities, are adhered to and updated as necessary. The Waco Lake Manager's other cultural resource responsibilities are summarized here and include:

- Establishing a process that involves the CRM in the early stages of the planning of projects.
- Establishing funding priorities for cultural resource compliance.
- Assist in developing future HPMP revisions, PAs, MOAs, and, as necessary, National Register of Historic Places nominations and coordinate such documents with the Fort Worth District, the Southwestern Division, and Headquarters, U.S. Army Corps of Engineers, as appropriate.
- Serving as the "Agency Official" as defined in 36 CFR Part 800 (Protection of Historic Properties) with responsibility for the operating project's compliance with the National Historic Preservation Act (NHPA).
- Serving as the "Federal Agency Official" as defined in 43 CFR Part 10 with responsibility for the operating project's compliance with the Native American Graves Protection and Repatriation Act (NAGPRA).
- Serving as the "Federal land manager" as defined in 32 CFR Part 229 with responsibility for installation compliance with the Archeological Resources Protection Act (ARPA).

- Negotiating and implementing a Programmatic Agreement (PA) to streamline future cultural resource compliance at Waco Lake.

2.2. Waco Lake Cultural Resource Manager's Responsibilities

USACE lakes may have a designated Cultural Resource Manager (CRM) identified to serve as a liaison between project staff and district office cultural resources personnel on historic preservation matters. A designated CRM must be appropriately trained, consistent with federal standards, to understand federal responsibilities in identification and preservation of cultural resources. Accordingly, the CRM should be capable of managing cultural resources data; conducting basic identification and recordation of cultural resources; and identifying and assessing threats to cultural resources such as erosion, vandalism, and looting. It is important to note that application of the Section 106 process, including evaluation of cultural resources, is by law and regulation reserved for Secretary of the Interior (SOI) qualified individuals, generally archaeologists; anthropologists; historians; or historic architects; with an advanced degree or commensurate experience. Furthermore, the District Archaeologist must approve the selection of an individual to the role of CRM in order to ensure they meet the qualifications and expertise required to fulfill that role.

At the time of writing this document, Waco Lake does not have a separate designated CRM and the role is fulfilled by the District Archaeologist.

The Waco Lake CRM's review, compliance, and coordination responsibilities include:

- Reviewing all undertakings (including job order contracts, work orders, operational management plan (OMP) items, outgrant and right of way requests, to make a preliminary determination if the work to be performed has the potential to effect cultural resources;
- Conducting and reviewing appropriate studies, as necessary;
- Coordinating proposed projects or activities with the District Archaeologist to determine additional compliance requirements and the applicable laws and regulations;
- Determining the applicable standard operating procedure (SOP) (contained in this HPMP), and other applicable consultation or regulatory requirements, as appropriate;
- Coordinating cultural resources management activities and requirement with outgranted lessee/licensee tenants or other parties proposing projects within or across Waco Lake fee lands;
- Serving as the primary point of contact for Native American tribal consultation on any issues of concern to the tribe(s);

- Serving as the primary point of contact for consultation with the SHPO;
- Serving as the Waco Lake point of contact for enforcement of applicable cultural resource laws and regulations with criminal and/or civil penalties;
- Serving as the Waco Lake point of contact for briefing Ranger and maintenance staff on cultural resource requirements and issues;
- Assisting the Waco Lake Manager with developing funding priorities for all cultural resources program and compliance activities, as identified by the RRAD Commanding Officer;
- Ensuring that all current cultural resources management data is updated in the geographic positioning system (GPS) data files produced utilizing ArcGIS®; and
- Ensuring that the current HPMP is operational at all times and that all procedures of the HPMP and stipulations of applicable PAs, MOAs, and other agreement documents applicable to Waco Lake, are implemented, as required.

2.3. NAGPRA Compliance

In compliance with NAGPRA, if Native American human remains are inadvertently found at Waco Lake during project undertakings, where no such remains were previously known to exist, further work in the vicinity will cease for 30 days to allow for consultation as required by NAGPRA and as defined in the procedures found in the applicable SOP. Coordination shall be with the any and all Federally recognized Native American tribes that possess an historic association with the region of Waco Lake.

The policy for remains discovered that are not associated with any undertaking by Waco Lake, or other activity permitted by Waco Lake, shall include immediate notification of any and all Federally recognized Native American tribes that possess an historic association with the region of Waco Lake according to the consultation and coordination procedures found in Section 2.4 (immediately below). A list of the relevant Native American tribes with an historic connection to Waco Lake can be found in the Appendix A of this document.

2.4. Public and Native American Involvement and Consultation

Public consultation for Section 106 of the NHPA can be effectively completed by promptly informing interested parties of potential impacts to historic properties. Timely notification of project scope and potential impacts will significantly reduce the potential for project controversy and delays. A proactive approach to all consultation is best. Preparation of letters to identified interested parties asking if they would desire to be

kept informed of any adverse impacts to historic properties will allow Waco Lake to keep a list of those names that respond for quick coordination on significant projects.

The CRM should develop a list of interested persons, historic preservation groups, Native American Indian tribal groups, and other interested parties with a potential interest in the outcome of the treatment of historic properties at Waco. Dependent on the nature and complexity of proposed projects, the Waco Lake Manager should seek the views of any party on this list during the planning phase of undertakings that might meet a scale of complexity likely to have far-reaching impacts or effects. Waco Lake will have to exercise best judgment on the need to coordinate every Section 106 action and may find it appropriate to begin involved public coordination only if the undertaking has the potential to be significant or controversial.

The use of the National Environmental Policy Act (NEPA) public involvement process is acceptable and recommended as an approach whenever NEPA is being complied with at Waco Lake because it will allow for the combination of the two authorities into a single set of review and comment periods. However, the NEPA documents, notifications, newspaper announcements, and any public meetings must specifically identify that NRHP issues and/or Section 106 compliance is part of the subject matter. Any public involvement or public notice should be coordinated with the Fort Worth District Public Affairs Office.

Consultation with Native American Indian tribal groups can be involved and may require considerable planning and an allowance for time to complete. While the NHPA and NAGPRA have specific requirements for consultation and notification, the American Indian Religious Freedom Act (AIRFA) and the Executive Order (EO) 13007 on Sacred Sites, do not, and it is primarily up to the tribal group to notify an agency of concerns with regard to AIRFA practices or Sacred Sites access issues. For a best management practice however, the Waco Lake Manager should coordinate closely with the CRM on any potential projects with the potential to affect these types of resources and the CRM should provide timely notification to any and all Federally recognized Native American Indian tribe that identifies an historic association with the region of Waco Lake. Additionally, all contact should consider and follow the procedures for coordination and consultation found in Appendix G of this HPMP as applicable to the requesting tribal group.

Public involvement and consultation on permits issued for the Archeological Resources Protection Act (ARPA) relates to overlapping areas of legal authority. The regulations for issuing permits note a specific requirement to notify Native American Indian tribal groups regarding potential impacts to properties of significance to them and also requires coordination with Section 106 requirements when the permit could impact properties eligible for, or listed on, the NRHP. Such coordination with Section 106 responsibilities would require that the procedures for consulting with the TXSHPO and other interested and consulting parties per the requirements of 36 CFR Part 800 be met. While not explicitly stated, it is also appropriate that public involvement including

notifying regionally recognized archeological groups regarding the permit's scope and purpose be undertaken.

Appropriately, consultation on issues of identified importance to Native American Indian tribal groups (whether NAGPRA, Sacred Sites, NHPA, NEPA, or ARPA) should provide timely notification to any and all Federally recognized Native American Indian tribe that identifies an historic association with the region of Waco Lake.

While one should not expect tribal groups to readily identify areas where burials have occurred, where sacred sites are located, or where traditional properties are located, consultation can provide Waco Lake with enough baseline information that will indicate major areas of concern and where issues will be of critical importance to accomplishing a project in a timely manner. All coordination and consultation should be conducted according to the 29 April 1994 Presidential Memorandum on Government-to-Government Relations with Native American Tribal Governments.

2.5. Review, Monitoring, and Reporting

Copies of all documents pertaining to cultural resource management at Waco Lake must be kept on file by the Waco Lake CRM, including, but not limited to, correspondence, memoranda to file, published and unpublished technical reports, annual compliance reports, maps, site records, and lists of properties. The Waco Lake Manager will maintain additional copies of these documents as appropriate.

2.6. Procedures for Paleontological Resources

Paleontological resources fall under the authority and protection of the Bureau of Land Management (BLM) and while they are not included in the scope of EP-1130-2-540, paleontological resources are protected under 36 CFR 327 and 43 CFR 3 wherein the former explicitly states that "destruction, injury, defacement, removal, or any alteration of…paleontological resources…is prohibited except when in accordance with written permission from the district commander."

While these paleontological resources are extraneous to cultural resources, they will be encountered in similar groupings on USACE lakes. No guidelines for the recording of these resources exist as of the publication of this document. As such, avoidance should be the primary objective of lake staff. If avoidance is not possible due to mission goals, it is strongly recommended that the resource either be removed intact and placed at a discreet location on fee lands, or recorded in detail including photographs, measurements, and GPS location prior to the resource being negatively impacted. This data shall thenceforth be maintained by the lake manager until such time as the appropriate paleontological support systems and personnel are made available and the previously gathered data can be properly cataloged. If a large, unique, and/or potentially

significant paleontological resource is identified on fee lands, a local district geologist shall be notified of the finding, and they are to coordinate in a timely manner with both the district archaeologist and the HQ geologist on the next steps. Work in the immediate vicinity of the resource is to halt until further instruction is received from that chain of contacts.

3. UNDERTAKINGS AT WACO LAKE: THE SECTION 106 PROCESS

There are currently no programmatic agreements (PA) or memoranda of understanding (MOU) regarding the treatment of historic properties at Waco Lake. Therefore, USACE must follow the process provided by Section 106 of the NHPA (36 CFR § 800) to avoid, minimize and mitigate adverse effects to historic properties. This section describes the process for compliance with Section 106 of the NHPA to provide a working understanding of the law for USACE personnel.

NOTE: The procedures covered herein apply to both in-house, permitted, and contracted work.

The general policies governing cultural resources on USACE lakes are as follows:

1. The avoidance of adverse effects to known and unknown historic properties shall be incorporated into the planning process and a systematic effort applied to identify such properties.
2. The avoidance or mitigation of adverse effects to any identified historic properties at Waco Lake shall be proactively incorporated into the design and planning process, rather than deferred until archeological deposits are discovered during actual construction.
3. All machine-aided excavations or other earth-moving projects shall be designed to avoid damage to historic properties unless deemed unavoidable due to mission goals, in which case an MOA will be necessary.
4. Until such time as the TXSHPO has concurred with our determination that a cultural resource is ineligible for inclusion on the NRHP, it will be treated as eligible.

These policies are explained in further detail below.

3.1. Standard Exclusions from CRM Review

The District CRM has determined that the following undertakings have No Potential to Affect Historic Properties and will not require a Section 106 review:

1. Installing fence posts less than three inches in diameter with no vegetation clearing/heavy machinery.
2. Standard lawn care.
3. Bush hogging areas of previously cleared lands.
4. Herbicide activities that kill the top layer of foliage without rutting.

5. Repair to existing sewage systems excluding the lines (i.e., replacing pumps, spray heads, etc.)
6. Emergency plumbing repair on water and sewage lines in times of failure (i.e., waterline break in a park).
7. Chip and seal existing roadways in parking lots and roadways.
8. Repairing/replacing rip rap on existing rip-rap surfaces (i.e., embankments with previously installed erosion control in the parks).
9. Landscaping in existing flower beds at parks/offices.
10. Repairing existing structures less than 50 years old (i.e., restrooms, pavilions, screened shelters, gatehouses, picnic table covers, etc.)
11. Replacing grills, fire rings, and lantern holders.
12. Replacing benching, tables, and signage less than 50 years old.

NOTE: Some undertakings not mentioned on the above list may be excluded from the need for archaeological review if explicitly noted in a currently active PA pertaining to Waco Lake. Unless the action is covered by a PA or an activity on the predetermined *No Potential to Affect* list above, the lake staff must contact the CRM who must initiate the Section 106 process.

3.2. Establishing an Undertaking

Undertakings at Waco Lake will typically fall under one or more of the following three categories:

- New construction.
    - Buildings, roadways, transmission lines, pipelines, docks, boat ramps, etc.
- Repairs, maintenance, alteration, and demolition of existing structures and infrastructure.
    - Building demolition (total or partial), renovations, alterations, etc.
- Ground disturbing activities.
    - Timber harvest, mechanical vegetation clearing, shoreline erosion countermeasures, etc.

It is the role of the CRM to determine whether any proposed federal action is an undertaking as defined by 36 CFR § 800.16(y) and whether that activity has the potential to cause effects to historic properties. Every federal activity has the potential for an adverse effect on historic properties. As such, all planned undertakings shall be reviewed by the CRM beginning in the planning phase. The review materials necessary for this include, but are not limited to, preliminary plans, architectural drawings, and specifications for new construction; plans, specifications, work orders for maintenance, repair, alterations, and demolition of any building or structure; and archaeological permits, research designs, work requests, Operations and Maintenance Plans (OMPs), scopes of

work, and right-of-way requests that may result in disturbance to the ground. After an undertaking is initiated, the CRM must identify any consulting parties and these parties must be invited to participate in the Section 106 process. The subsequent Section 106 process is summarized in the following four steps.

Step 1: Establishing the APE and Identifying Historic Properties

After the action is determined to be an undertaking, the CRM must then determine the "area of potential effect" (APE). The APE is defined in 36 CFR Part 800 as "the geographic area or areas within which the undertaking may cause changes in the character of or use of historic properties, if any such properties exist." It is important to remember that the APE is defined in consultation with the TXSHPO before the identification of NRHP properties itself begins, so it may not be known whether any historic properties exist there.

Important issues to remember regarding the APE are listed below:

1. The APE is defined before the identification of historic properties.
2. The APE is not based on land ownership and, thus, is not necessarily confined to the operating project fee lands.
3. All alternative locations under consideration for the project must be included as well as any borrow, disposal, access routes, or stockpiling areas.
4. All locations from which the project may be visible and where there might be changes in traffic patterns, land use, or public access must be included.
5. The APE may not be the same area of effect as defined under NEPA.
6. The APE may not be a single area and may not have hard and fast boundaries.
7. The definition of the APE does not dictate what must be done to identify, avoid, or mitigate effects within the APE.
8. The APE includes effects that are caused by the undertaking that are later in time or farther removed in distance but are still reasonably foreseeable.

The CRM must also seek information from consulting parties and other knowledgeable sources regarding any potential historic properties in the area and identify any issues related to potential impacts to those properties. Consultation with federally recognized Native American tribes with historic associations to the geographic region is a critical step in the process. The CRM must then make a good-faith effort to locate and identify all historic properties that might be affected by the undertaking. Based on this information, the CRM decides on the most appropriate course of action and seeks concurrence with this course of action from the consulting parties.

Any identified cultural resources must then be evaluated for NRHP eligibility, and the CRM must submit those evaluations to the consulting parties (36 CFR § 800.4(c)). An agreement between the CRM and TXSHPO on identified properties as being ineligible or eligible for the NRHP are usually termed concurrence determinations. Properties that have insufficient information available to make eligibility concurrence determinations ('unknown eligibility') are to be treated as if eligible for the NRHP until such time as additional information can be obtained. Disagreements regarding eligibility on cultural resources with adequate information from which to make a determination of eligibility are referred to the Keeper of the National Register, who acts on behalf of the Secretary of the Interior.

If the identification effort finds that there are no historic properties present or that the planned undertaking will have no effect on properties identified, the CRM notifies the TXSHPO and consulting parties that the undertaking shall result in "*No Historic Properties Affected*", providing appropriate documentation of the fact and allows for a thirty (30) day review process (36 CFR § 800.11(d)). If the identification effort finds one or more historic properties that will be affected, either positively or negatively, in accordance with 36 CFR § 800.4(d)(2) the CRM proceeds to Step 2.

Step 2: Assessment of Adverse Effects

An adverse effect is determined when the undertaking alters any of the characteristics of the property in such a way as to affect the qualities that make the property eligible for the NRHP (36 CFR § 800.5(a) (1-2)). The best course of action is to avoid or minimize adverse effects to historic properties. This is most commonly accomplished through a redesign of the undertaking. If an undertaking can be altered in some way so that historic properties are not affected by the undertaking, a determination of "*No Adverse Effect*" may be proposed by the CRM with notification to the consulting parties, providing appropriate documentation of the fact, and again allowing for a thirty (30) day review process (36 CFR § 800.5(b)).

If historic properties are identified and the property's eligible qualities will be unavoidably altered, in accordance with 36 CFR § 800.5(d)(2), the project shall have the finding of an "*Adverse Effect*" to historic properties, and the CRM proceeds to Step 3.

Step 3: Resolution of Adverse Effects

If an adverse effect is found, then the CRM must consult to seek ways to minimize or mitigate the adverse effects of the undertaking on historic properties. Again, appropriate documentation must be provided (36 CFR § 800(11(e). The ACHP is to be notified of the adverse effect consultations and a determination obtained from the ACHP if they will participate in the process. Usually, this consultation can be completed without

participation by the ACHP. However, the ACHP, the Agency (USACE), the TXSHPO, or any consulting party, may request that the ACHP join the consultation.

Typically, a Memorandum of Agreement (MOA) is prepared for an undertaking with an adverse effect determination that stipulates how the undertaking will be carried out in order to minimize or mitigate adverse effects to historic properties (36 CFR § 800.6(c)). If an agreement is reached on how to mitigate the adverse effects, the USACE will sign the MOA with the TXSHPO and the ACHP (if participating). The USACE may also invite additional parties to be signatories to the agreement, particularly Native American tribes that have religious or cultural associations with the historic property. The Agency may also invite consulting parties to concur in the agreement. However, a refusal to sign the MOA either as an invited signatory or concurring party does not invalidate the agreement.

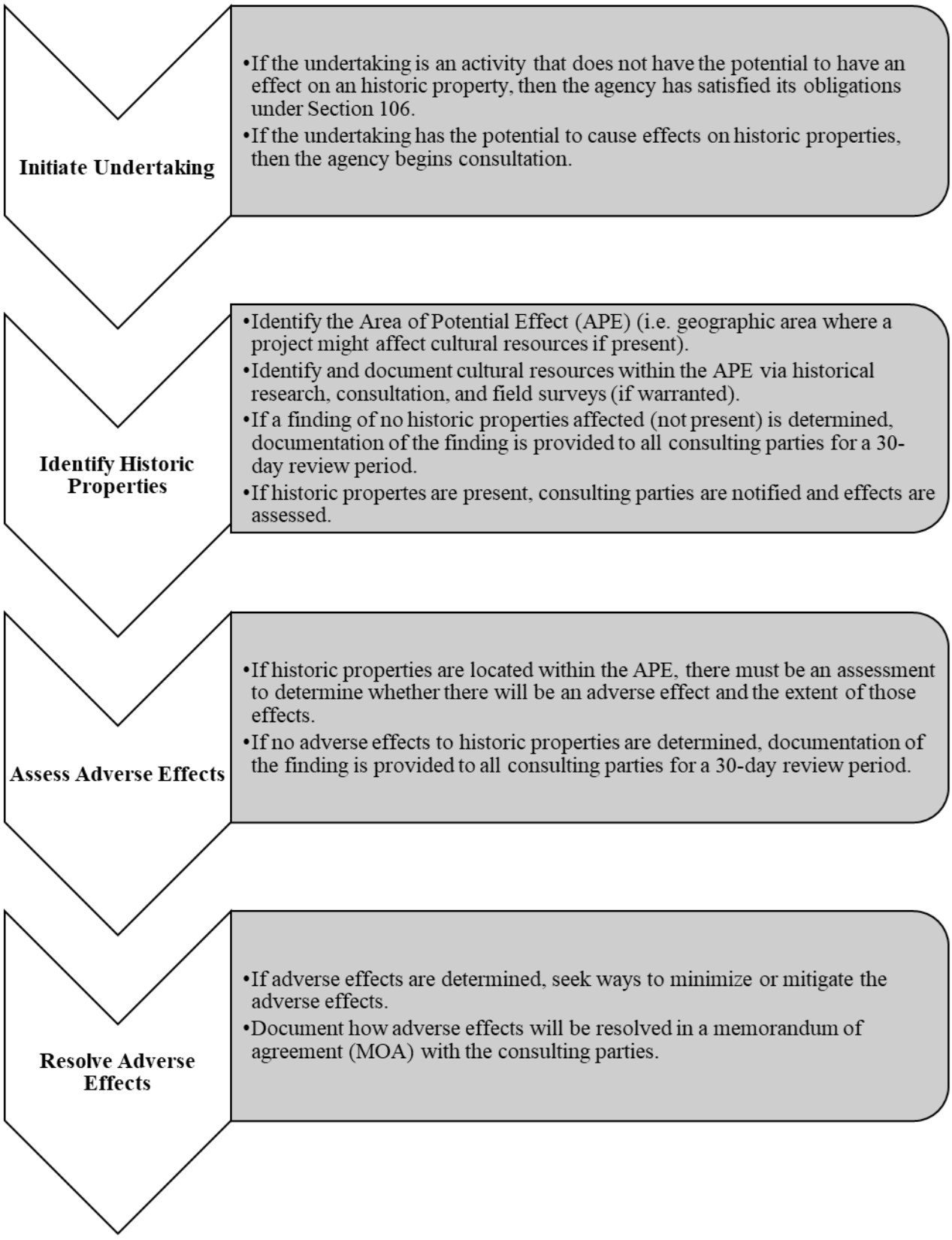
If the USACE or TXSHPO fail to agree on the terms of the MOA, the agency must invite the ACHP into the consultation process. If agreement still cannot be reached, and termination of consultation is the only remaining alternative, the procedures found at "*Failure to resolve adverse effects*" (36 CFR § 800.7) will be employed as outlined in Step 4.

Step 4: Failure to Resolve Adverse Effects

If consultation fails to reach an agreement, and consultation has been terminated by the agency, the Fort Worth District will request the Chief of Engineers (CECG) to seek formal comment from the ACHP ((36 CFR § 800.7(a)(1)); 36 CFR § 800.7(c)). This request is submitted through the Southwestern Division, to the USACE Federal Preservation Officer (FPO) (CECW-PG), and then through the Director of Civil Works (CECW-ZA), The Chief of Engineers will review the ACHP comments and prepare a final summary response (36 CFR § 800.7(c)(4)).

If the TXSHPO terminates the consultation, the USACE and ACHP may continue to consult and execute an MOA without TXSHPO participation (36 CFR § 800.7(a)(2)). If the ACHP terminates consultation (36 CFR § 800.7(a)(4)), the ACHP will notify the agency (USACE), the agency FPO, and all consulting parties of the termination and proceed to comment (36 CFR § 800.7(c)). As before, the Chief of Engineers (CECG) will review the ACHP comments and prepare a final summary response (36 CFR § 800.7(c)(4)).

3.3. Flow Chart of the Standard Section 106 Process



4. ADDITIONAL STANDARD OPERATING PROCEDURES

The following standard operating procedures (SOPs) outline the actions USACE lake personnel should take to ensure compliance with federal laws pertaining to the treatment of cultural resources and human remains including AIRFA, ARPA, NAGPRA, and NEPA.

1. Unanticipated Discovery of Archaeological Deposits
2. ARPA Compliance and Preventing Vandalism to Archaeological Sites
3. Human Skeletal Remains, Funerary Objects, and Sacred Items
4. Cultural Resources Inventory and NRHP Nomination
5. Guidelines, Use, and Limitations of the Joint Engineer Operating Picture (JECOP) Software

4.1. Unanticipated Discovery of Archaeological Deposits

Regardless of whether or not a surface inventory has been completed, and regardless of whether or not a planned undertaking has been assessed for its effect on known historic properties, every undertaking which disturbs the ground surface has the potential for the discovery of buried and previously unknown archeological deposits. This SOP outlines the policies and procedures to be followed in such cases.

Policy

- Archeological deposits which are newly discovered during the construction of any undertaking shall be evaluated for their NRHP eligibility.
- Until the TXSHPO has concurred with our determination that an archeological site is ineligible, all known sites will be treated as potentially eligible for the purposes of Section 106 and protected from impacts.
- Nothing in Section 106 or other federal regulations requires Waco Lake to stop work on an undertaking. However, if the TXSHPO indicates that the property is significant and the effects of the undertaking on the property are serious, then Waco Lake shall make reasonable efforts to minimize harm to the property until the Section 106 process is completed.

Procedure

When notified of the possible discovery of unexpected buried archeological material, the CRM will arrange to have appropriate personnel visit the excavation as soon as possible to examine and evaluate the recovered material and any in situ deposits. All work in the area of the discovery should be suspended until an appropriate

determination is made. If the unexpected discovery of associated human remains is made, SOP 4.3 shall be utilized.

I. If fossils, natural stones, or concretions, or other such items that are sometimes mistaken for archeological materials are recovered, refer to Section 2.6.

II. If, upon examination, the recovered materials are clearly of human origin the CRM or appropriate personnel must make a field evaluation of the primary context of the deposit and its probable age and significance, record the findings in writing, and document the materials with photographs and drawings as warranted.

A. If disturbances to the deposit have been slight and the excavation can be relocated to avoid the buried site, the CRM shall file site forms, if appropriate, with the Texas Archeological Research Laboratory (TARL), and report the discovery and avoidance measures to the TXSHPO per 36 CFR § 800.13 (post-review discoveries).

B. If the construction or excavation cannot be relocated, the CRM shall notify the TXSHPO, any consulting parties and Native American Indian tribes that might attach significance to the site, and the ACHP, within 48 hours to report the discovery and initiate consultation per 36 CFR § 800.13 (post-review discoveries). Because unexpected discoveries do not usually allow sufficient time to coordinate NRHP eligibility determinations, Waco Lake should assume the discovery to be NRHP eligible early in the notification process.

1. If both the TXSHPO and the CRM concur that the deposits are ineligible for inclusion on the NRHP, and there are no objections from consulting parties, then the CRM will prepare a memorandum for record and the project may proceed. The CRM shall advise the construction team and any quality assurance personnel of the possibility of additional discoveries that would require immediate notification to the CRM.

2. If, in the opinion of either the TXSHPO or the CRM, the existing information is deemed insufficient to make a determination of eligibility, then an emergency testing plan will be developed by Waco Lake in coordination with the TXSHPO and consulting parties. Further excavation in the vicinity of the site will be suspended until an agreed testing

procedure has been carried out and sufficient data have been gathered to allow a determination of eligibility.

a. If the TXSHPO and CRM agree after testing that the site is ineligible for inclusion on the NRHP, then work on the project may resume. Disagreements on eligibility will be forwarded to the Keeper of the National Register for determinations of eligibility.

b. If the site appears to be eligible for inclusion on the NRHP, or if the CRM and the TXSHPO cannot agree on the question of eligibility, then Waco Lake shall implement the following alternative actions, depending on the urgency of the action being delayed by the discovery of cultural material.

i. Waco Lake may relocate the project to avoid adverse effect.

ii. Waco Lake may proceed with mitigation or a data recovery plan under an MOA developed in consultation with the TXSHPO and ACHP. The MOA shall specify the scope and level of effort of data recovery required to mitigate the adverse impact of the project on the site in question.

iii. Waco Lake may request comments from the ACHP and may develop and implement actions that take into account the effects of the undertaking and the comments of both the TXSHPO and the ACHP. If the TXSHPO and the ACHP both indicate that the property is significant and the effects of the undertaking on the property are serious, then Waco Lake shall make reasonable efforts to minimize harm to the property until the Section 106 process is completed.

III. If at any time human remains, funerary objects, or Native American Indian sacred objects are discovered as part of the original unexpected discovery or during any

subsequent assessment of the property, Waco Lake and the CRM will ensure that the provisions of SOP 4.3 are implemented.

IV. If the construction or excavation activity can be shown to have identified the unexpected discovery of archeological or other items and knowingly not notified Waco Lake, the CRM, or other appropriate personnel, and proceeded to further destroy the site, then the construction personnel and operating company may be charged with the criminal provisions of the Archeological Resources Protection Act (ARPA) (SOP 4.2).

Applicable Laws and Regulations

- National Historic Preservation Act
- National Environmental Policy Act
- Native American Graves Protection and Repatriation Act
- Engineering Regulation 1130-2-540

4.2. ARPA Compliance and Preventing Vandalism to Archaeological Sites

The Archeological Resource Protection Act of 1979 provides for civil and criminal penalties for persons who excavate, remove, damage, or otherwise deface any archeological resource located on federal lands unless with a specific federal permit. Where an ARPA related activity, whether permitted or not, impacts an NRHP eligible or unknown eligibility resource, the TXSHPO and any consulting parties must be coordinated with as outlined in Section 2.4 of this HPMP. Additionally, any excavation of human remains, or other items associated with NAGPRA must have an ARPA permit for the excavation issued and consultation with the affected Native American Indian tribe completed. ARPA permits are issued by the Fort Worth District Real Estate Division for Waco Lake. This SOP implements the law and the implementing regulations issued for ARPA by the Department of Defense (32 CFR Part 229).

Policy

- The excavation or removal of archeological artifacts is prohibited, except as conducted under a valid permit (such as mitigation program conducted under the supervision of a professional archeologist). Paleontological resources are not covered by ARPA unless found in an archeological context. However, they are protected under 36 CFR 327 as outlined in Section 2.6 of this HPMP.
- The Waco Lake Manager is responsible for enforcing the prohibition of vandalism of archeological sites and ensures that all Waco Lake personnel are aware of enforcement responsibilities.
- The Waco Lake Manager, CRM, and Waco Lake Rangers will proactively preserve and protect all known archeological sites.
- Persons apprehended as a result of an ARPA violation will be charged appropriately with a misdemeanor for crimes less than $500.00 in damage and a felony for crimes over $500.00 in damage. Equipment and vehicles used during the criminal activity may be subject to *in rem* seizure.
- If a construction or excavation activity such as a lessee / licensee request or right of way permit, whether with or without an ARPA permit, can be shown to have knowingly destroy an archeological resource, or go beyond the provisions of an existing ARPA permit, then the construction personnel, operating company, or general permittee may be charged with the criminal provisions of ARPA. Equipment and vehicles used during the criminal activity may be subject to *in rem* seizure.
- Nothing in ARPA prevents the collection of “arrowheads” from the surface of the ground unless within an archeological context or site. Also excluded from ARPA are coins, bullets, unworked minerals, and paleontological resources ground unless within an archeological context or site. Collection and/or possession of any such resource may still result in the issuance of a citation prepared as part of the U.S. Army Corps of Engineers regulation 36 CFR § 327.14(a) for public property.

Procedure

I. An ARPA permit is not required for excavation, survey, etc., in direct support of Waco Lake mission requirements such as construction or timber harvests on the behalf of the U.S. Army Corps of Engineers or for activities that are conducted exclusively for purposes other than the excavation and/or removal of archeological resources (e.g., excavation of a building foundation), even when such activities may result in the disturbance of such resources. However, in such cases, Waco Lake must comply with the requirements for Section 106 consultation (Chapter 3).

II. Applications for ARPA permits for efforts at Waco Lake must be submitted to the Waco Lake Manager for review and comment.

a. Applications must include a clearly written proposal that documents the information required under 32 CFR 229.6 and 32 CFR 229.8. Applicants must be in accordance with ER 405-1-12, ER 1130-2-540 and EP 1130-2-540. The CRM may request an Environmental Assessment prepared as part of the U.S. Army Corps of Engineers responsibility to meet the provisions of the National Environmental Policy Act. The written proposal must contain a research proposal, identification of prime personnel, a schedule for completion, an agreement to coordinate all findings and conclusions with the CRM, an agreement for long term curation of archeological materials in an approved facility, a hold harmless agreement, TXSHPO coordination, Section 106 consulting party coordination, and proof of consultation with any Native American Indian tribal group with significant associations to the region or resource.

b. Upon review and approval by the CRM, applications will be forwarded to the Fort Worth District Operations Division (OD), OD will review and forward to the Real Estate Division. The District Real Estate Office is responsible for coordination and issuance of ARPA permits, including the Report of Availability.

c. A permit may be denied for reasons of technical inadequacy or incompatibility with lake operation programs. The applicant will be advised of the reason for the denial and may resubmit the application.

d. The CRM shall monitor work conducted under ARPA permits to ensure compliance with the terms of the permit.
    i. A permit may be revoked if it is determined:

1. The applicant has not complied with the terms of the permit;

2. The applicant has misrepresented the work to be accomplished, failed to meet a set schedule without justification, or failed to coordinate results;

3. Continuance of the work is a hazard to public health or safety;

4. Continuation of the work impairs any lake operation function; or

5. The permittee has violated the terms and provisions of the permit by knowingly destroying an archeological resource or going beyond the provisions of an existing ARPA permit.

ii. Appeals resulting from a revocation will be forwarded to the District Engineer by Waco Lake. The appeal determination will be signed by the District Engineer.

III. Waco Lake shall proactively protect and preserve archeological sites and enforce ARPA within and on fee lands of Waco Lake.

a. Waco Lake personnel will periodically monitor the condition of known archeological sites for evidence of vandalism. Sites identified as of special significance by Native American Indian tribes will be monitored on both a periodic and random basis.

i. Evidence of potential ARPA violations will be investigated appropriately through the use of existing law enforcement agreements and as guided by the implementing regulation for ARPA, 32 CFR Part 229. If sufficient evidence exists from which to apprehend and prosecute suspected violators, and supporting restoration, damage assessment, and evidence collection actions have been undertaken by authorized law enforcement, the appropriate U.S. Assistant District Attorney's office will be contacted for further investigation and/or prosecution as warranted. The CRM other authorized personnel will assist in preparing the restoration, damage assessment, and evidence collection actions.

ii. If an ARPA violation occurs where the apprehension of the violator(s) occurs during the commission of the crime, and sufficient evidence exists to support an arrest, the participating law

enforcement personnel are authorized to arrest. The appropriate U.S. Assistant District Attorney's office will be contacted for further investigation and/or prosecution as warranted. As part of any such prosecution, sufficient evidence will be required for the prosecution of suspected violators, and supporting restoration, damage assessment, and evidence collection actions will be required to be undertaken by authorized law enforcement. The CRM or other authorized personnel will assist in preparing the restoration, damage assessment, and evidence collection actions.

IV. Archeological resources determined to have NAGPRA applicability must have an ARPA permit issued, and consultation with the affected Native American Indian tribe completed, before any excavation.

Applicable Laws and Regulations

- Archaeological Resource Protection Act
- National Historic Preservation Act
- Native American Graves Protection and Repatriation Act
- Engineering Regulation 1130-2-540

4.3. Human Skeletal Remains, Funerary Objects, and Sacred Items

The Native American Graves Protection and Repatriation (NAGPRA) requires the inventory of human remains and funerary and sacred objects recovered from federal lands which may be subject to claim by Native American Indian tribal groups and the active consultation with such groups to determine the disposition of such remains and objects. In compliance with the provisions of NAGPRA, the U.S. Army Corps of Engineers, Fort Worth District has compiled an inventory and assessment of archeological collections, including Waco Lake that may be subject to repatriation. Additionally, NAGPRA mandates that the inadvertent discovery of remains and/or associated objects, as well as the intentional removal of either remains or objects, be coordinated with the affected Native American Indian Tribal group. This SOP outlines the policies and procedures to be followed to ensure future compliance.

Policy

- No Native American Indian human remains, funerary objects, or sacred objects from Waco Lake will be knowingly kept in government possession without initiating preparation of an inventory and initiating consultation.
- Consultation regarding the disposition of Native American Indian human remains, funerary objects, or sacred objects shall be initiated as soon as feasible.
- The Waco Lake Manager, CRM, and Waco Lake Rangers will proactively preserve and protect all identified Native American Indian burial locations through active monitoring, preservation, and protection.
- Illegal activities which disturb or remove Native American Indian human remains, funerary objects, or sacred objects will be the subject of an ARPA investigation per SOP 4.2 and coordination/consultation with the appropriate Native American Indian or tribal group shall be initiated as soon as feasible.
- As part of the management of Native American Indian tribal remains located on Waco Lake fee lands, Waco Lake will treat any such burial areas identified by the tribe as of religious or sacred to the tribe and ensure that access and tribal practices are not intentionally interfered with per the provisions of the American Indian Religious Freedom Act (AIRFA) and the Executive Order (EO) 13007 on Sacred Sites.

Procedure

I. The CRM will review, in advance, all archeological permits, research designs, work requests, OMPs, other scopes of work, and/or any lessee/licensee or right-of-way requests to ensure that activities at Waco Lake comply with the implementing regulations (43 CFR Part 10) for NAGPRA and to ensure any activity will not impact known Native American Indian tribal remains.

   a. If no such remains are known within the project area, and adequate information regarding the project area has been previously compiled, no

consultation is required subject to the provisions of Section 2.4 and Chapter 3.

b. If information about the project area is incomplete, the CRM will initiate the procedures in Chapter 3 of this HPMP. The CRM will also consult as necessary with Native American Indian tribes on the potential for the presence of properties considered significant to the tribes as outlined in Section 2.4 of this HPMP.

II. If human remains are discovered during the course of any undertaking, including inventory efforts meant to discover cultural and historic properties, the following procedures will apply.
    a. Work will immediately cease in the vicinity of the human remains.
    b. The project construction team, quality assurance, or other site supervisor will immediately notify the Waco Lake Manager, CRM, or other authorized personnel of the discovery.
        i. The Lake Manager, CRM, or other personnel with appropriate training will examine the discovery to make an early determination of the age of the remains, if obvious as to human or not, and concurrently notify the appropriate county Sheriff office and coroner.
        ii. If the Lake Manger, CRM, or other personnel with appropriate training, including representatives of the county Sheriff or/and coroner's office, determine that the remains are of recent origin and not related to a Native American Indian tribe, then one of the following actions is required:
            1. Implement SOP 4.1 to treat the remains as of historic period and potentially subject to Section 106 consultation per Chapter 3 of this HPMP.
            2. The county Sheriff or/and coroner's office will assume investigative authority.
        iii. If the remains are not recent, the CRM will continue with a determination of Native American Indian association or arrange for appropriate personnel to examine the site in a timely manner and evaluate the recovered material for such association.

            1. If the remains are not of human origin, then no further action is necessary by Waco Lake and the activity may proceed. If the remains are determined to be paleontological, consult guidelines outlined in Section 2.6 of this HPMP.

2. If the remains are not of Native American Indian origin, then the site will be treated as stipulated under NAGPRA (Section 2.3) subject to the understanding that not all human remains and/or historic cemeteries are NRHP properties.

3. If the remains are of Native American Indian origin, then further work in the vicinity will be suspended for 30 days to allow for consultation, as required by NAGPRA. Tribal notification of the discovery should be within 24 hours of the discovery. If any photographs are taken of the undertaking, only general photographs of the site area are to be taken unless specifically requested by the associated Native American Indian descendants or tribal group. Prior to removal of any remains, the CRM will prepare an inventory of the recovered remains and will immediately initiate emergency consultation procedures with the appropriate Native American tribes and with other tribes as may be recognized under NAGPRA definitions.

    a. If consultation allows the remains to be removed, then the Waco Lake CRM will cause the remains to be treated in accordance with the consultation and after the issuance of an ARPA permit (SOP 4.2).

    b. Notwithstanding the results of consultation, the CRM will cause the site to be treated as stipulated under SOP 4.1 as necessary.

4. If the activity can be relocated so as to avoid any further impacts to the remains, the CRM will consult with the affected Native American Indian descendants or tribal group and the TXSHPO (as applicable) as outlined in Section 2.4 and Section 4.1 (II.A) of this HPMP on such avoidance measures.

III. If human remains are discovered as a result of any non-intentional action such as groundwater or wave-induced erosion the following procedures will apply.

    a. The discoverer will immediately notify the Waco Lake Manager, CRM, or other authorized personnel of the discovery.

i. The CRM or other personnel with appropriate training will examine the discovery to make an early determination of the age of the remains, if obvious as to human or not, and concurrently notify the appropriate county Sheriff office and coroner, if appropriate.

ii. If the CRM or other personnel with appropriate training, including representatives of the county Sheriff or/and coroner's office, determine that the remains are of recent origin and not related to a Native American Indian tribe, then part II.B.2. of this SOP above is applicable.

iii. If the remains are not recent, the CRM will continue with a determination of Native American Indian association and/or arrange for appropriate personnel to examine the site in a timely manner and evaluate the recovered material for such association.

1. If the remains are not of human origin, then no further action is necessary by Waco Lake. However, if the remains are determined to paleontological, consult the guidelines in Section 2.6 of this HPMP.

2. If the remains are not of Native American Indian origin, then the remains will be collected, and the potential site will be investigated per SOP 4.1 subject to the understanding that not all human remains and/or historic cemeteries are NRHP properties.

3. If the remains are of Native American Indian origin, then tribal notification of the discovery should be performed within 24 hours of the discovery. If any photographs are taken of the undertaking, only general photographs of the site area are to be taken unless specifically requested by the associated Native American Indian descendants or tribal group. Remains and possible associated items such as pottery sherds and other artifacts will be collected for inventory and will be secured in an appropriate place.

    a. Consultation between the CRM and the affected Native American Indian descendants or tribal group will determine the treatment of the remains and any requested analysis or reburial requirements.

b. The CRM will notify the TXHPO of any consultation determinations and will coordinate any activities resulting from the foregoing which could affect an historic property.

Applicable Laws and Regulations

- Native American Graves Protection and Repatriation Act
- Archeological Resource Protection Act
- National Historic Preservation Act
- American Indian Religious Freedom Act
- Engineering Regulation 1130-2-540

4.4. Cultural Resource Inventory and NRHP Nomination

Policy

- Waco Lake should establish a program to inventory and evaluate historic properties that are potentially eligible for listing on the NRHP as personnel and budgeting constraints permit.
- All inventory, evaluation, and nomination activities shall be conducted by persons meeting the Secretary of the Interior's guidelines for professional qualifications (36 CFR Part 61) or by qualifications as developed by the Office of Personnel Management (as applicable).
- Exceptionally significant eligible historic properties should be nominated to the Keeper of the Register as personnel and budgeting constraints permit.
- Waco Lake will consult with Native American Indian tribes on the presence of properties of religious and/or sacred significance to the tribe(s) that may meet the criteria for nomination to the NRHP.

Procedure

The Waco Lake CRM will annually review the status of inventory, testing, and nomination, and shall develop priorities for these programs based on integration with Section 106 responsibilities and funding availability. The Waco Lake CRM will annually prepare funding requirements for further submission through appropriate chain of commands for inclusion in the congressional appropriations requests for upcoming fiscal years.

I. Historic property inventories, both associated with undertaking (Section 106) and planning level (Section 110) efforts, shall be conducted utilizing an appropriate methodology as a good faith effort to locate all cultural resources, including properties of potential significance to traditional groups and Native American Indian tribes as traditional, cultural practice, or religious properties, that may be eligible for the NRHP.

    1. Properties of potential significance to traditional groups and Native American Indian tribes as traditional, cultural practice, or religious properties, that are not eligible for the NRHP shall be the subject of consultation separate from Section 106 and/or Section 110 of the NHPA responsibilities as discussed in SOP 4.3 of this HPMP.

II. Archeological inventories, whether conducted utilizing in-house resources, contracted services, through volunteer services, or by a lessee/licensee or right-of-way requesting party, shall meet the methodological standards stipulated by the Texas Historical Commission (Archeological Survey Standards for Texas) and be conducted as a good faith effort to locate all cultural resources, and be

conducted by personnel meeting the appropriate professional standards for such investigations.

1. The intensity and tactics of proposed inventory methodologies conducted utilizing in-house resources, contracted services, through volunteer services, on Waco Lake fee lands may vary by landform and potential for intact buried deposits but should be coordinated by the Waco Lake CRM with the TXSHPO prior to execution as a field effort.

2. The intensity and tactics of proposed inventory methodologies conducted by a lessee/licensee or a right-of-way requesting party on Waco Lake fee lands shall be reviewed by the Waco Lake CRM prior to execution as a field effort.

3. Resulting studies and reports of investigations will be prepared which support the field methodologies utilized, the analyses, and any evaluation presented with regards to potential eligibility for inclusion of any property on the NRHP.

    i. Inventory reports of investigations conducted by Waco Lake utilizing in-house resources, contracted services, through volunteer services, or in support of a lessee/licensee or a right-of-way requesting party, will be coordinated by the Waco Lake CRM with the TXSHPO and consulting parties with a determination letter signed by the Waco Lake Manager, or the Waco Lake CRM as appropriate.

    ii. Inventory reports conducted by a lessee/licensee or a right-of-way requesting party will require review by the Waco Lake CRM prior to the submission to the TXSHPO.

        1. The report will be returned to the lessee/licensee or a right-of-way requesting party with a comment and determination letter signed by the Waco Lake Project Manager, the Waco Lake Manager, or the Waco Lake CRM as appropriate. The report may then be coordinated with the TXSHPO and consulting parties.

III. Architectural / engineering inventories, whether conducted utilizing in-house resources, contracted services, through volunteer services, or by a lessee/licensee or right-of-way requesting party, shall meet be conducted as a good faith effort to identify all resources, and be conducted by personnel meeting the appropriate professional standards for such investigations.

1. Architectural / engineering inventories will be prepared according to forms for submission as requested by the TXSHPO and conforming to the Secretary of the Interior's standards and guidelines for such inventory submissions.

2. Architectural / engineering inventories shall be designed to ensure collection of sufficient architectural and historical information with which to make a determination of eligibility for inclusion on the NRHP.

    i. Architectural / engineering inventories conducted by Waco Lake utilizing in-house resources, contracted services, through volunteer services, or in support of a lessee/licensee or a right-of-way requesting party, will be coordinated by the Waco Lake CRM with the TXSHPO and consulting parties with a determination letter signed by the Waco Lake Project Manager, the Waco Lake Manager, or the Waco Lake CRM as appropriate.

    ii. Architectural / engineering inventories conducted by a lessee/licensee or a right-of-way requesting party will be require review by the Waco Lake CRM prior to the submission to the TXSHPO.

IV. Cultural resources which are identified during inventories but do not have a concurrent determination of ineligibility, eligibility, or unknown eligibility for the NRHP, shall be further investigated to determine their eligibility. All properties identified as potentially eligible for, or of unknown status for, the NRHP, will be treated as eligible.

1. Archeological properties in which inadequate information exists to make a concurrent eligibility determination should be the subject of additional subsurface excavation ("testing") to determine horizontal and vertical site boundaries, to assess integrity of deposits, and to recover a representative sample of cultural remains.

    i. Archeological testing, whether conducted utilizing in-house resources, contracted services, through volunteer services, or by a lessee/licensee or right-of-way requesting party, shall be conducted through a research design developed in consultation with the TXSHPO to determine archeological data potential and by personnel meeting the appropriate professional standards for such investigations.

ii. Reports of archeological test investigations conducted by Waco Lake utilizing in-house resources, contracted services, through volunteer services, or in support of a lessee/licensee or a right-of-way requesting party, will be coordinated by the Waco Lake CRM with the TXSHPO and consulting parties with a determination letter signed by the Waco Lake Project Manager, the Waco Lake Manager, or the Waco Lake CRM as appropriate.

iii. Reports of archeological test investigations conducted by a lessee/licensee or a right-of-way requesting party will require review by the Waco Lake CRM prior to the submission to the TXSHPO.

1. The report will be returned to the lessee/licensee or a right-of-way requesting party with a comment and determination letter signed by the Waco Lake Project Manager, the Waco Lake Manager, or the Waco Lake CRM as appropriate. The report may then be coordinated with the TXSHPO and consulting parties.

iv. Disagreements over the results of archeological testing studies between Waco Lake and the TXSHPO will be submitted to the Keeper of the (National) Register for a determination of eligibility.

2. Architectural / engineering properties in which inadequate information exists to make a concurrent eligibility determination should be the subject of additional documentation (“recordation”) to determine the presence or absence of integrity or other elements, including historical association, with which to evaluate the property with regards to its eligibility for inclusion on the NRHP.

i. Additional architectural / engineering recordation, whether conducted utilizing in-house resources, contracted services, through volunteer services, or by a lessee/licensee or right-of-way requesting party, shall be conducted through a research design developed in consultation with the TXSHPO to determine integrity or historical association by personnel meeting the appropriate professional standards for such investigations.

ii. Reports of architectural / engineering recordation conducted by Waco Lake utilizing in-house resources, contracted services, through volunteer services, or in support of a lessee/licensee or a right-of-way requesting party, will be coordinated by the Waco Lake

CRM with the TXSHPO and consulting parties with a determination letter signed by the Waco Lake Project Manager, the Waco Lake Manager, or the Waco Lake CRM as appropriate.

iii. Reports of architectural / engineering recordation conducted by a lessee/licensee or a right-of-way requesting party will require review by the Waco Lake CRM prior to the submission to the TXSHPO.

1. The architectural / engineering recordation report will be returned to the lessee/licensee or a right-of-way requesting party with a comment and determination letter signed by the Waco Lake Project Manager, the Waco Lake Manager, or the Waco Lake CRM as appropriate. The report may then be coordinated with the TXSHPO and consulting parties.

iv. Disagreements over the results of architectural / engineering recordation between Waco Lake and the TXSHPO will be submitted to the Keeper of the (National) Register for a determination of eligibility.

V. For historic properties determined to be of exceptional significance in a concurrence determination between Waco Lake and the TXSHPO as eligible for inclusion on the NRHP, the Waco Lake CRM will ensure that NRHP nomination forms are prepared and submitted to the Keeper of the Register. Waco Lake will staff all such nominations through the Waco Lake Project manager, the OD Division at Fort Worth District, the Southwestern Division, and the U.S. Army Corps of Engineers Federal Preservation Officer (FPO) (CECW-PG) for submission to the Keeper of the (National) Register. The NRHP nomination form shall be accompanied with a concurring letter from the TXSHPO.

1. Nominations will follow the guidelines and format requirements specified in National Register Bulletin 16A - Guidelines for Completing National Register of Historic Places Nomination Forms (USDI 1997).

VI. All historic properties with a concurrence determination of eligible for inclusion on the NRHP will be treated as if they are actually so listed, regardless of the status of the nomination procedure. Similarly, properties with a concurrence determination of unknown eligibility for the NRHP will be treated as if they are actually so listed, regardless of the status of the nomination procedure.

Applicable Laws and Regulations

- National Historic Preservation Act
- Engineer Regulation 1130-2-540

4.5. Guidelines, Use, and Limitations of the Joint Engineer Common Operating Picture (JECOP) Software

The Joint Engineer Common Operating Picture (JECOP) is an ESRI-based software program that "serves as a collaborative knowledge management tool that depicts network information on a map in order for end-users to quickly gather and analyze location data for purposes ranging from data summary and trend analysis to infrastructure planning and decision support. The portal provides authorized users access to real-time authoritative data linked to strategic direction via map-based displays and user-defined views" (Griffin 2015). The CAC-enabled program is available both on desk-top and mobile devices. Data layers pertaining to cultural resources at select USACE-managed lakes are available through authorized-access only.

Procedure

When used in conjunction with cultural resources and this HPMP, the JECOP is intended to assist lake personnel with periodic site monitoring via Global Positioning System (GPS) locations, brief site descriptions, and photographs accessed through the program. Authorized lake personnel can use the JECOP software to physically verify the location of cultural resources as well as to determine if the resource has been disturbed in any way through photograph comparison. Lake personnel can subsequently upload a current photograph and brief description of the site into the JECOP system at the time of their inspection to maintain a record of monitoring. Lake personnel employing the JECOP system for cultural resource monitoring must be aware that:

- The JECOP program cannot be used by lake personnel in the determination of whether or not a planned action will affect a documented cultural resource. This determination can only be made by a qualified USACE archaeologist. Planned construction must still follow complete cultural resource protocols in accordance with Section 106 of the National Historic Preservation Act, other federal laws, and USACE policies.
- Lake personnel are not permitted to add a previously undocumented cultural resource location on to the JECOP program. If a previously unknown site is encountered, the Lake Manager should contact the USACE District Archaeologist.
- Site locations within the JECOP are approximate.
- Sites with significant intact subsurface deposits may not be visible at ground level.

5. ENVIRONMENTAL CONTEXT

Waco Lake lies at the eastern edge of the Grand Prairie, a large natural region in north-central Texas that extends south from the Red River to the Llano Uplift and northern end of the Balcones Canyonlands in central Texas. From its eastern boundary to its western reaches, the Grand Prairie landscape rises over 1,000 ft (305 m) in elevation. The Grand Prairie varies in size and composition, depending on how it is defined. Hill (1901) subdivided it, as a geomorphic province defined by the underlying bedrock and the landscapes formed on it, into three sub-provinces: the Fort Worth Prairie, the Lampasas Cut Plain, and the Western Cross Timbers. Hayward et al. (1996) later modified these geomorphic subdivisions by renaming the southern portion of Hill's Fort Worth Prairie to Washita Prairie (due to the north-to-south outcrop gradation from Duck Creek and Fort Worth to Washita limestones), and by separating landscapes formed on the Glen Rose limestone (Glen Rose Prairie) from Lampasas Cut Plain. In total, Hayward et al. (1996) recognized four sub-provinces of the Grand Prairie, including the Washita Prairie, Lampasas Cut Plain, Glen Rose Prairie, and Western Cross Timbers—based on different underlying lithological units.

5.1. Geomorphology, Quaternary Geomorphology, and Hydrology

The Grand Prairie is separated from the Blackland Prairie to the east by the Balcones Fault Zone (Hill 1901:72). The Grand Prairie landscape is associated with Comanchean or lower Cetaceous rocks (Hayward 1988a), while the Blackland Prairie to the east is associated with Gulfian or upper Cretaceous rocks (Hayward 1988b). These rocks reflect a dynamic history of transgression as shallow marine waters from the ancestral Gulf of Mexico covered the vast Comanche shelf and craton (i.e., the stable continental interior) in central Texas. The sandstones, mudstones, and other sedimentary rocks reflect periods of regression as marine waters retreated and shorelines prograded basinward. The rocks lie across a homoclinal hinge that separates the craton and the subsiding Gulf basin. This zone has witnessed a series of orogenic, or mountain building, events in the geologic past as continents collided and separated. Fracturing and faulting along this hinge in the Miocene resulted in the formation of the White Rock escarpment that forms the eastern edge of Waco Lake.

Geomorphic subdivisions within the Grand Prairie reflect differences in the lower Cretaceous substrate across the province (Hayward et. al 1996). The mostly horizontal beds of limestone substrate—with lesser exposures of sands, marls, and shales—dictate the development of landforms and unique floral communities that comprise the subdivisions within the Grand Prairie. From east to west, Hayward et al. (1996) divide the Grand Prairie into four geomorphic subdivisions: the Washita Prairie, the Lampasas Cut Plain, the Glen Rose Prairie, and the Western Cross Timbers. The Washita Prairie is composed of mixed-grass prairies overlaying limestones and shales of the Washita Group (Georgetown and Del Rio Formations). The Lampasas Cut Plain, a highly dissected remnant of the northeastern margin of the Edwards Plateau, is a more rugged

landscape than the Washita Prairie. It is comprised of broad valleys underlain by the Walnut Formation, which are divided by flat-topped mesas and buttes of the Edwards and Comanche Peak Formations. West of the Lampasas Cut Plain and within some of the broad valleys of the Cut Plain itself, the hard limestone of the Glen Rose Formation is exposed, upon which the mixed grasslands and savannas of the Glen Rose Prairie are present.

The Western Cross Timbers subregion lies along the western edge of the Grand Prairie and represent the outcrop of the basal Trinity Group sands (Twin Mountain and Antlers Formations). The wooded landscape of the Western Cross Timbers is a sharp contrast to the grasslands, prairies, and savannas that make up most of the other sub-provinces of the Grand Prairie. In general, though, all the landscapes of the Grand Prairie are dissected by stream valleys that support narrow riparian woodlands. These woodlands divide the region's more xeric broad, flat areas and rolling uplands and serve as corridors westward from the Blackland Prairie. The streams and rivers, which are part of the Brazos River basin, are entrenched in narrow valleys and often bordered by limestone cliffs.

Waco Lake is dissected by the Blackland Prairie and Cross Timber Region (Figure 3). The lake itself is a reservoir behind a dam on the Bosque River, which forms from the merger of the North Bosque and South Bosque Rivers. Also feeding Waco Lake are the Middle Bosque River and Hog Creek. The eastern shore of Waco Lake is bordered by the westward-facing White Rock escarpment or cuesta, consisting of outcrops of the upper Cretaceous South Bosque, Lake Waco, and Austin Chalk Formations (Hayward 1988b:332; Hill 1901: 331-332); Bureau of Economic Geology, 1970). The first two formations consist of limestone and shale, while the third is composed of chalk and marl. This escarpment, which rises ca. 60 m above Waco Lake, constitutes the western edge of the Balcones Fault Zone (Burket 1965: 158). The west side of Waco Lake and the inundated valleys of the North Bosque River, Hog Creek, Middle Bosque River, and South Bosque River are set in lower Cretaceous marls, shales, and limestones of the Grayson, Main Street, Pawpaw, Weno, Denton, Fort Worth, and Duck Creek Formations (Bureau of Economic Geology 1970).

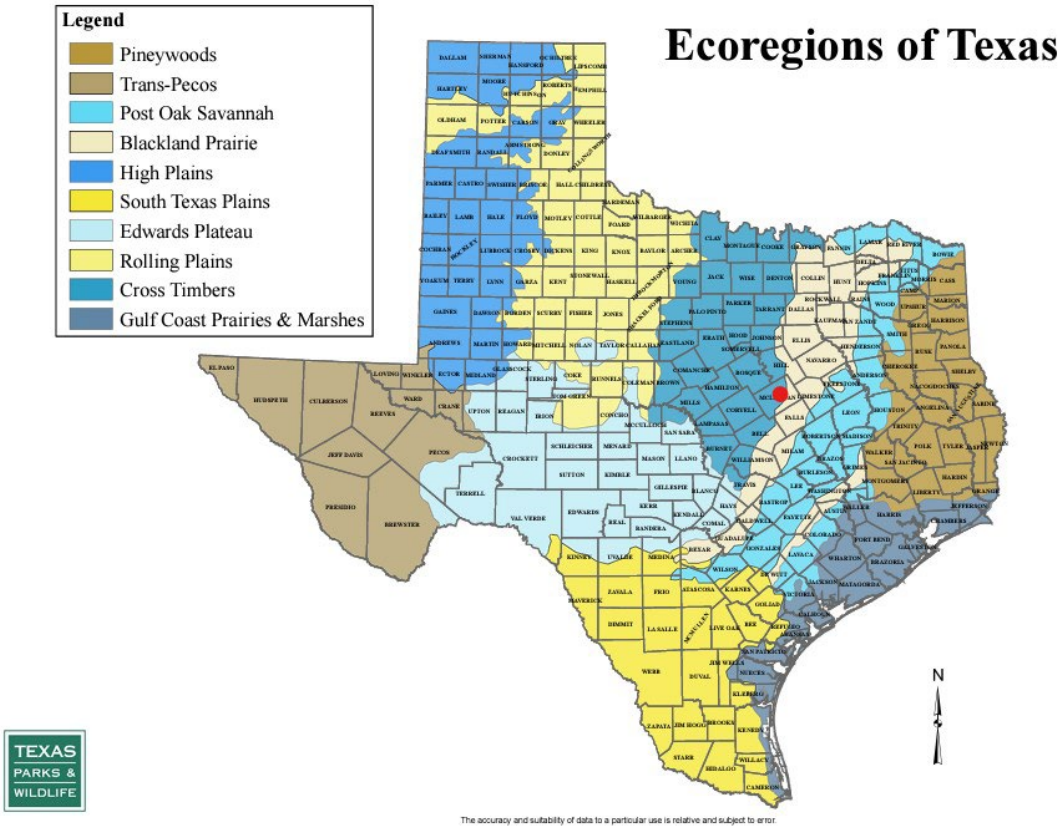


Figure 3: Ecoregions of Texas, project location marked in red at the border of the Blackland Prairie and Cross Timbers Regions.

The streams of the larger valleys, such as the North Bosque, Hog Creek, Middle Bosque River, and South Bosque, are flanked by terraces and floodplains of late Quaternary alluvium. In addition, late Quaternary deposits of colluvium flank some of the lower slopes of these valleys, interfingering with the alluvial deposits. In 1984 and 1985, Collins and Holliday (1985) conducted a geomorphological reconnaissance of Waco Lake. The primary thrust of this study was to identify the archaeological potential of various landforms around the margins of the lake of varying ages and in geomorphic contexts. Three basic settings were identified: lower alluvial surfaces, higher alluvial surfaces, and colluvial slopes.

Lower alluvial surfaces composed of Holocene alluvium are well represented along North and South Bosque Rivers at the upper ends of the lake. The deposits tend to be comprised of silty and clayey sediments and reflect a variety of depositional changes, including natural levees, point bars, and floodplains (Collins and Holliday 1985:36). These deposits can be several meters thick, and while in many exposures they look at least moderately youthful (i.e., no older than Holocene), it is almost certain that the older

sediments are encompassed within these landforms. Mapped soils on the lower alluvial surfaces belong to the Frio and Bosque series, which consists of dark loamy to clayey calcareous cumulic Mollisols (Miller and Greenwade 2001). The lower alluvial surfaces are known to contain stratified archaeological deposits with the capacity to yield abundant valuable information.

Higher alluvial surfaces are extensive along the west and north sides of the lake. They consist of weathered, often gravelly deposits that usually are considered to be of Pleistocene age, but it has been suggested that in some places these deposits could be young enough to host Paleoindian archaeological materials (Collins and Holliday 1985:36). While it appears that these sediments are associated primarily with the North Bosque River (Collins and Holliday 1985:36), some contribution from the Brazos River is possible north of the lake. Mapped soils belong mostly to the Branyon, Burleson, and Payne series, which consist of dark clayey Vertisols and loamy Alfisols (Miller and Greenwade 2001). Archaeological sites on these landforms are uniquely thin (50 cm or less) and often multicomponent.

Colluvial slopes occur most consistently along the eastern side of the lake, where Cretaceous rocks crop out. Where slopes are steep, little sediment accumulation occurs. In places, however, substantial Holocene colluvial deposits are present in certain places. These deposits are likely the result of complex depositional situations, with colluvium perhaps interfingering with alluvium deposits from the North Bosque River, South Bosque River, and small streams that drain the slopes east of the lake. Thick Holocene colluvium deposits have not been mapped as distinct soils. However, these soils have potential to contain stratified archaeological deposits in good geomorphic contexts. Unfortunately, as observed by Kvernes et al (2000), parts of the eastern lakeshore with Holocene colluvial deposits have suffered from severe erosion.

Between the stream valleys, the upland divides generally support thin or shallow soils of the Aledo, Bolar, Crawford, Denton, Eckrant, and Purves series formed on limestone substrates (Miller and Greenwade 2001). The Crawford soils are dark clayey Vertisols, while the other soils are stony, dark loamy to clayey Mollisols. Archaeological sites on upland landforms tend to be shallow, multicomponent, and often disturbed due to agricultural and ranching activities.

5.2. Climate

Waco has a humid, subtropical climate characterized by wide annual temperature range. Winters are mild with brief cold fronts and infrequent wintery precipitation. Summers are hot with daytime temperatures consistently in the 90s and often reaching or exceeding 100 degrees Fahrenheit. Annual precipitation for Waco comes almost entirely in the form of rainfall with annual mean between 2012 and 2022 being 36.9 inches. Precipitation is unevenly distributed throughout the year, typically favoring the spring and fall seasons with conversely dry summer and winter seasons (National Oceanic and Atmospheric Administration 2023).

5.3. Flora and Fauna

As aforementioned, the ecological region referred to as Grand Prairie is subdivided differently than its geomorphic counterpart. Diggs et al. (1999:3-7) divide the Grand Prairie into the Fort Worth Prairie and the Lampasas Cut Plain, and the current project area is located entirely within the latter. The Lampasas Cut Plain exhibits the most diverse vegetation in north-central Texas and contains important microhabitats due to its topographic variability and deeply incised stream valleys (Diggs et al. 1999:53-54).

Early descriptions of the Fort Worth Prairie note a striking absence of trees except on the floodplains (Dyksterhuis 1946; Hill 1887; Kendall 1845). Typical bottomland trees are elm, oak, and pecan (Hatch et al. 1990). The prairie is composed of a little bluestem—big bluestem—Indiangrass community (Diamond and Smeins 1993), with little bluestem and sideoats grama dominant (Dyksterhuis 1946). Portions of this grassland still exist because its shallow soils were uncultivated.

Surrounded by prairies, the Cross Timbers are an abrupt and noticeable physiographic region of the landscape. Here, the hallmarks are post and blackjack oak, but cedar elm, hackberry, pecan, mesquite and juniper are also present. The environment can vary from open savanna primarily composed of little bluestem to a dense understory of grapevine and greenbriar. Today, the Cross Timbers contain significant remnants of old growth forest, although they continue to be impacted.

Generally, the animal communities found in the Grand and Blackland Prairies are similar and have affinities with eastern woodlands, the Great Plains, and the Southwest (Diggs et al. 1993; Schmidly et al. 1993). Historic documents and early fur-trader records note that several types of large animals, including elk, bison, white-tailed deer, pronghorn antelope, coyote, bobcat, black bear, wolf, mountain lion, jaguar, and ocelot, roamed the area (Bailey 1905; Brooke 1848; Kendall 1845; Oberholser 1974; Roemer 1849; Strecker 1926). Extinct and now-endangered birds including the greater and lesser prairie chicken, Carolina parakeet, passenger pigeon, and ivory-billed woodpecker, were viable before 1900. Accounts indicated the occurrence of trout, perch, catfish, and alligators in several waterways (Dixon 1987; Kendall 1845).

From the mid-to late 1800s, an increase in Native American and Anglo settlements modified the flora and fauna of the Grand Prairie. Kendall (1845) observed that animal populations, particularly of bison and deer, were reduced, and Roemer (1849) describes a Caddo village (near the present-day Hill-Bosque County line) as having “about one thousand horses and cultivated maize and watermelons.” Ranching had a dramatic effect on the ecosystem between 1850 and 1860, and subsequent cattle trails, fencing, and droughts caused overstocking and overgrazing, both of which had a substantial impact on the vegetation (Dyksterhuis 1946).

5.4. Paleoenvironments

Paleoenvironmental data is important for understanding the nature of precontact human adaptations. Such data provide an understanding of the environmental contexts in which cultures interacted, as well as an understanding of the natural processes responsible for the formation and preservation of the archaeological record. A variety of proxy evidence, such as pollen records, isotopic chemistry, and fossil vertebrae remains, is used to interpret past environments and climates of the Grand Prairie. Overall, these data indicate that the late Quaternary environment of the region has been dynamic, witnessing shifts between cooler and warmer, and wetter and drier, periods.

At the peak of the Last Glacial Maximum (ca. 18,000 years ago), Texas was much cooler and wetter than it is today. Vertebrate faunal and pollen records from central Texas suggest that summer temperatures were at least 5 degrees Celsius cooler than those of today, and effective moisture was considerably higher (Toomey et al. 1993:305, 311). Pollen data from Boriack Bog in Lee County suggest that a woodland environment was in place between 16,500 and 12,500 BP (Bousman 1994:79). The beginnings of a gradual warming trend at ca. 15,000 BP are interpreted by Holloway and Bryant (1984), based on a decrease in spruce pollen in the Boriack Bog pollen record. Toomey et al. (1993:306) note that mean summer temperatures were within 2-3 degrees Celsius of modern values by ca. 13,000 BP. Stable carbon isotope analysis of soil organics at the Fort Hood Military Reservation in central Texas reveal a gradual increase in C4 plants (warm season grasses) between 11,000 and 8,000 BP, which Nordt et al. (1994) interpret as a shift to warmer and drier climatic conditions. Further analysis of soil morphology and micromorphology, stable isotopes of soil organic matter and pedogenic carbonate, and optically stimulated luminescence conducted at Owl Creek also reflect a warming transition (Meier et al. 2014).

Between ca. 10,000 and 7,000 years ago, the late Pleistocene plant communities of the Lower Pecos region were gradually replaced by expanding scrub grasslands, as suggested by decreases in pine pollen and increases in grass pollen (Bryant and Holloway 1985:57). In central Texas, brief oscillations between grasslands and woodlands occurred between 12,500 and 7,500 B.P. (Bousman 1994:80). Although there is not complete correspondence, Toomey et al (1993:306) note fluctuations between moist and dry periods on vertebrate faunal remains recovered from Hall's Cave on the Edwards Plateau between 14,000 and 10,500 B.P. However, both Bousman (1994:80) and Toomey et al (1993:306) suggest that the drier intervals (12,500—11,800 B.P. [Bousman 1994] and 12,500-10,500 B.P. [Toomet et al. 1993] may be a response to increased meltwater discharge from the Gulf of Mexico (Broecker et al. 1988; Fairbanks 1989), effectively decreasing surface water temperatures, evaporation rates, and subsequent inland transport of Gulf moisture.

By 7,500 BP an expansion of grasslands occurred, as inferred by a dramatic increase in grass pollen in the Boriack Bog record (Bousman 1994:80). Grassland environments were dominant from 7,000 to 4,000 BP based on pollen records from Boriack and

Weakly Bogs in eastern central Texas (Bousman 1998:210). In central Texas stable carbon isotope ratios reveal that mixed C3/C4 plant communities were almost completely replaced by C4- dominant plant communities between 6,000 and 5,000 BP (Nordt et al. 1994:117). At this time, upland soil mantles in central Texas were severely stripped (Kibler 1999; Toomey et al. 1993:309). Toomey et al (1993:309) note that the influx of sediment into Hall's Cave increased by a factor of two after 8,000 BP. Localized eolian deposits dating to this period have been documented on the Pleistocene terrace and upland interfluve settings withing the Denton Creek watershed in the northern Grand Prairie (Ferring 1995:31). Other areas of Texas also experience severe drought conditions, which may have been a manifestation of Antevs's Altithermal (Altey 1948, Holliday 1989; Meltzer 1991). Throughout central Texas downcutting of stream channels occurred between 7,000 and 5,000 BP—a probable response to the severe middle Holocene drought conditions. The same climatic conditions had a slightly different effect in the upper Trinity River basin in the northern Grand Prairie where floodplains stabilized and pedogenesis took place due to reduced rainfall and sediment yields (Ferring 1995:30). It should be noted that not all scholars concur with the mid-Holocene timing of peak warm and xeric conditions. Toomey et al. (1993:309) believe the gradual warming and drying trend that commenced at the end of the Pleistocene culminated between ca. 5,000 and 2,500 BP based on the demise of certain environmentally sensitive species. Johnson and Goode (1994) see no gradual post-Pleistocene drying and warming trend but note a sudden shift to more xeric conditions at ca.4,250-2,550 BP Regardless of the timing, more mesic conditions returned in the late Holocene.

The return to moister conditions is inferred from increases in arboreal pollen in the Boriack Bog record after 5,000 BP (Bousman 1994:80). Nordt et al. (1994:118) interpret a similar shift to cooler and wetter conditions at ca. 4,000 BP, as the abundance of C4 plant biomass decreased. Faunal remains from Hall's Cave also indicate a return to more mesic conditions by ca. 2,500 BP (Toomey et al. 1993:310). Other parts of Texas also experienced a shift to more mesic conditions in the late Holocene. Carbon isotope ratios of soil humates from southern Texas depict an environment dominated by C3 plants (Bousman et al. 1990:94-95). The pollen record for the lower Pecos region indicates a mesic interval ca. 2,500 BP, as suggested by increases in pine and grass pollen at Bonfire Shelter and Devil's Mouth sites (Bryant and Larson 1968).

Climatic conditions over the last 2,000 years have varied and appear to have oscillated between moist and dry periods, but the timing of these shifts is tenuous. Nordt et al. (1994:117) note a slight but brief increase in C4 plant biomass at ca. 2,000 BP Bousman (1998:216) interprets spikes in grass pollen in the Weakly Bog record at 1,500 and 500-300 BP as representative of drier climatic intervals. Floodplain stabilization and subsequent soil formation throughout the Leon River drainage basin at Fort Hood at ca. 1,300-1,000 BP are interpreted as a shift to drier conditions (Mehalchick et al. 1999). Floodplain stabilization and subsequent soil development occurred in the lower North Bosque River valley as well at this time (Scott et al. 2002). Other lines of evidence, such

as channel entrenchment, lower local water tables expansion of grasslands, and increased eolian activity, suggest that at ca. 1,000 BP climatic conditions became increasingly arid across central Texas, as well as other parts of Texas (Blum and Valastro 1989; Frederick 1998; Hall 1982, 1988, 1990; Huebner 1991; Kibler 1998). Toomey et al. (1993:315) characterize the climatic conditions of the last 1,000 years as being prone to frequent short-term droughts.

6. CULTURAL CONTEXT

6.1. Precontact Cultural Sequence and Chronology

The middle Brazos River Valley traditionally has been viewed as part of the central Texas archaeological region (e.g., Prewitt 1981; Suhm 1960), which is based on decades of investigations at various stratified sites throughout areas of the Edwards Plateau, its highly dissected eastern and southern margins, and the margins of physiographic regions to the west and south (Collins 1995). Waco Lake is on the periphery of the central Texas archaeological area, and the archaeological record and projectile point style sequences contain elements that suggest influences with areas to the east and northeast (cf., Collins 1995; Johnson and Goode 1994). An understanding of the area's archaeological record has been obtained through several large-scale projects, including those at Waco Lake (Collins and Holliday 1985; Duffield 1959; Prikryl and Jackson 1985; Prikryl and Prewitt 1984; Story and Shafer 1965). Other nearby large-scale projects, primarily reservoir salvage projects, include Whitney Lake and Aquilla Lake to the northwest and north; Hog Creek Reservoir to the west; and Stillhouse Hollow Reservoir, Belton Lake, and Fort Hood to the southwest. Kvernes et al (2000:7-12) provide summaries of these projects, which helped to establish the precontact cultural sequence of the area that we understand and recognize today. Generally, this cultural sequence is divided into three periods: Paleoindian, Archaic, and Late Precontact.

6.1.1. Paleoindian

A handful of sites across the Americas, including the Buttermilk Creek Complex in neighboring Bell County, Texas, indicate human occupation as early as 15,000 BP, which corresponds with current genetic evidence and observed warming paleoenvironmental conditions (Goebel et al.). Tool assemblages at these sites exhibit extensive use wear, resharpening, and a variety of edge modified tools. Artifacts are smaller in overall size and show only minimal similarity in style to the later, more widely known Clovis tradition (Jenkins et al. 2012, Waters et al. 2011). Paleoindian (11,500-8,000 BP) occupations of the central Texas region are represented by superficial and deeply buried sites, rock shelter sites, and isolate artifacts. The period is often described as having been characterized by small but highly mobile bands of foragers who were specialized hunters of Pleistocene megafauna. However, a more accurate

view of Paleoindian lifeways probably includes the utilization of a much wider array of resources.

Collins (1995) divides the Paleoindian period into early and late subperiods. Two projectile point styles, Clovis and Folsom, are included in the early subperiod. Clovis chipped stone artifact assemblages, including the diagnostic fluted lanceolate Clovis point, were produced by bifacial, flake, and prismatic-blade techniques on high-quality and oftentimes exotic lithic materials (Collins 1990). Along with chipped stone artifacts, Clovis assemblages include engraved stones, bone and ivory points, stone bolas, and ochre (Collins 1995: 381; Collins et al. 1992). Analysis of Clovis artifacts and site types suggest that Clovis peoples were well-adapted, generalized hunter-gatherers with the technology to hunt larger game but not solely rely on it. In contrast, Folsom tool kits, consisting of fluted Folsom points, thin unfluted (Midland) points, large thin bifaces, and end scrapers, are more indicative of specialized hunting, particularly of bison (Collins 1995:382).

6.1.2. Archaic

The Archaic period for central Texas dates from ca. 8,800 to 1,300—1,200 BP (Collins 1995). The Archaic period is generally believed to represent a shift toward the hunting and gathering of a wider array of animal and plant resources and a decrease in group mobility (Willey and Phillips 1958:107-108). In the eastern and southwestern United States and on the Great Plains, the Archaic period is succeeded by the development of horticulture-based, semisedentary to sedentary societies. In these areas, the Archaic truly represents a developmental stage of adaptation as Willey and Phillips (1958) define it. For central Texas, this notion is problematic. An increasing amount of evidence suggests that Archaic-like adaptations were in place prior to the Archaic and that these practices continued into the succeeding Late Precontact period (Collins 1995:381-385; Collins 1998; Collins et. al. 1990; Prewitt 1981:74). In a real sense, the Archaic period of central Texas is not a developmental stage but an arbitrary chronological construct and projectile point style sequence. Collins (1995) and Johnson and Goode (1994) have divided this sequence into three parts, Early, Middle, and Late, based on perceived (though not fully agreed upon by all scholars) technological, environmental, and adaptive changes.

Early Archaic (8,800-6,000 BP) sites are small, and their tool assemblages are very diverse suggesting that populations were highly mobile and densities low (Prewitt 1985:217; Weir 1976: 115-112). Early Archaic projectile point styles include Angostura, Gower, Wells, Martindale, and Uvalde. Manos, metates, hammerstones, Clear Fork, Guadalupe bifaces, and a variety of other bifacial and unifacial tools are common to Early Archaic assemblages. The use of rock hearths and ovens reflects a specialized subsistence strategy during the Early Archaic, perhaps based on the exploitation of roots and bulbs. These burned rock features most likely represented the technological predecessors of the larger burned rock middens that developed extensively later in the Archaic period (Collins 1995:383).

During the Middle Archaic period (6,000—4,000 BP) the number, distribution, and sizes of sites as well expanded due to probable increases in population densities (Prewitt 1981:73); Weir 1976: 124, 135). Macrobands may have formed at least seasonally, or an increased number of small groups may have used the same sites for longer periods of time (Weir 1976:130-131). A greater reliance on plant foods is suggested by the presence of burned rock middens towards the end of the Middle Archaic, although tool kits still imply a strong reliance on hunting (Prewitt 1985:222-226). Middle Archaic projectile point styles include Bell, Andice, Taylor, Baird, Nolan, and Travis. Bell and Andice points reflect a shift in lithic technology from the preceding Early Archaic Martindale and Uvalde point styles (Collins 1995:384). Johnson and Goode (1994:25) suggest that Bell and Andice darts are parts of a specialized bison-hunting tool kit. They also suggest that the beginning of the Middle Archaic is marked by an influx of bison and bison-hunting groups from the Eastern Woodland margins during a slightly more mesic period. Bison disappeared or were reduced in number as more xeric conditions returned during the latter part of the Middle Archaic. At the same time, a shift to more xeric conditions bore witness to the development of burned rock middens, the masses of burned rocks left over from multiple episodes of baking and cooking with hot rock hearths and ovens. Johnson and Goode (1994:26) believe that the dry conditions promoted the spread of xerophytic plants such as yucca and sotol, and that it was these plants that were collected and cooked in large rock ovens by late Middle Archaic peoples.

During the succeeding Late Archaic period (4,000 to 1,300—1,200 BP) populations continued to increase (Prewitt 1985:217). The establishment of large cemeteries along drainages suggests strong territorial ties by certain groups (Story 1985:40). A variety of projectile point styles appear throughout the Late Archaic period. Johnson and Goode (1994:29-35) divide the Late Archaic into two parts, Late Archaic I and Late Archaic II, based on increased population densities and perceived evidence of Eastern Woodland ceremonial rituals and religious ideological influences. Middle Archaic subsistence technology, including the development of burned rock middens, continued into the Late Archaic period. Collins (1995:384) states that, at the beginning of the Late Archaic period, the construction and use of burned rock middens reached its zenith and declined during the latter half of the Late Archaic. However, there is mounting evidence that midden formation and use culminated much later and that this high level of use continued into the early Late Precontact period (Black et al. 1997:270-284; Kleinback et al. 1995 795). This scenario parallels the widely recognized occurrence of post-2,000 BP middens in the western reaches of the Edwards Plateau (Goode 1991). The use of rock hearths and ovens and subsequent development of burned rock middens appears to have been a major part of the subsistence strategy, as a decrease in the importance of hunting, as inferred from the low ratio of projectile points in relation to other tools in site assemblages, may have occurred (Prewitt 1981:74).

6.1.3. Late Precontact

The Late Precontact period (1,300—1,200 to 300 BP) is marked by the introduction of the bow and arrow into central Texas. Population densities dropped considerably from their Late Archaic peak (Prewitt 1985:217). Subsistence strategies did not differ greatly from the preceding period, although bison became an important economic resource during the latter part of the Late Precontact period (Prewitt 1981:74). The use of rock hearths, ceramics, and ovens for plant food processing and the resulting development of burned rock middens continued throughout the Late Precontact period (Black et al. 1997; Kleinbach et al. 1995:795). Horticulture came into play very early in the region but was of minor importance to overall subsistence (Collins 1995:385)

In central Texas, the Late Precontact period is generally associated with the Austin and Toyah phases (Jelks 1962; Prewitt 1981:82-84). Austin and Toyah phase markers, Scallorn-Edwards and Perdiz arrow points, respectively, are distributed across the state. The introduction of Scallorn and Edwards projectile points into central Texas is often marked by evidence of violence and conflict, as many excavated burials contain these point tips in contexts indicating that they were the cause of death (Prewitt 1981:83). Subsistence strategies and technologies (other than arrow points) did not change much from the preceding Late Archaic. This continuity is recognized by Prewitt's (1981) use of the term "Neoarchaic." In fact, Johnson and Goode (1994:39-40) and Collins (1995:385) state that the break between the Late Archaic and the Late Precontact could be easily and appropriately represented by the break between the Austin and Toyah phases.

Around 1,000—750 BP, slightly more xeric or drought-prone climate conditions returned to the region, and bison returned in large numbers (Huebner 1991; Toomey et al. 1993). Using this vast resource, Toyah phase peoples were equipped with Perdiz point-tipped arrows, end scrapers, four-beveled-edge knives, and plain bone-tempered ceramics. The technology and subsistence strategies of the Toyah phase represent a completely different tradition than the preceding Austin phase. Contact with Caddo groups to the east and northeast is represented by the presence of Caddo ceramics in site assemblages, particularly in the eastern peripheral areas of central Texas (e.g., Stephenson 1970). Collins (1995:388) states that burned rock middens fell out of use, as bison hunting, and group mobility attained a level of importance not witnessed since Folsom times.

6.2. Historic Period

A local history was developed for the Waco Lake project area during previous investigations by Jackson (1984) and Prikryl and Jackson (1985). It focused on the history of settlement and development in the Bosque River valley during the years 1700–1984. In addition to these works, various scholarly sources have been drawn from to generate a narrative history of the area and its people. As the required age of historic properties begins at 50 years, this narrative will stop just following the completion of the Waco Dam.

6.2.1. Early Settlement

Until the mid-1830s, the area was dominated by Native Americans with a village of up approximately 600 people located on the present-day site of the city of Waco. This particular group, called the “Wi-iko,” were affiliated with the Wichita Tribe and it was from them that the city of Waco would later get its name. How long the Wi-iko were in the area is unknown, but the written encounter with them dates to 1772 when Athanase de Meisere noted two villages during his trek up the Brazos River. The Wi-iko were an agrarian people who planted and harvested a variety of crops such as melons, pumpkins, lima beans, and corn. The Wi-iko resided in a permanent village consisting of dwellings constructed with poles and thatched grasses during the spring and summer seasons, but during the fall and winter they transitioned to semi-nomadic peoples traveling to the plains and living out of temporary teepee shelters while hunting deer and buffalo (Sawyer 2023).

Figure 4: Example of a permanent Wi-iko dwelling.

Tensions rose in the early nineteenth century as the first settlers began to encroach upon the land in the region. The Wi-iko (and likely Native Americans affiliated with other tribes) were known to raid the new settlements stealing horses and other goods and occasionally killing settlers. In 1824, Stephen F. Austin sent a delegation to meet with the Wi-ikos and negotiated a peace treaty. The village at the present-day City of Waco site, however, was abandoned after 1830 for reasons that are not entirely clear with possibilities ranging from a smallpox epidemic to a raid by a band of Cherokee from East Texas (Sawyer 2023).

The area containing the abandoned village and Waco Lake was part of an 1825 Mexican colonization grant given to Robert Leftwich. However, the constant threat of Native American raids kept Euro-American settlement largely at bay. Attempts at pacification included the establishment of Fort Fisher in 1837 by Texas Rangers, but it

was abandoned after only four months. The years 1844 and 1845 saw further attempts with formal talks between the Republic and Native American tribes (Smryl 1996a:431). It was during this time that George Barnard opened a branch of the Torrey Trading Posts in the area approximately eight miles distant from the abandoned Wi-iko village on Tehuacana Creek. The trading post developed a large fur trade handling 75,000 deer hides between 1844 and 1853 in addition to buffalo, bear, and beaver (Kelley 2015).

Euro-American population was generally sparse during this period, considering that only 17 percent of the land in the area had been surveyed by 1845, and no permanent habitations were established until Texas achieved statehood (Prikryl and Jackson 1985:28–29). A U.S. Army outpost at Fort Graham was established a few miles up the Brazos River in March 1849 that greatly aided in settlement efforts (Myres 1996:1101–1102; Prikryl and Jackson 1985:29). However, settlers did not move to the Waco area in great numbers until the removal of indigenous populations, first to a reservation in Texas in 1854 and then on to present-day Oklahoma in 1859 (Smryl 1996a:431).

Under the governments of the Republic of Texas and the State of Texas, the location of surveys in the Waco area were carried out at a slow but regular pace. The principal surveyors in the region around present-day Waco were George Bernard Erath and Neil McLennan, both of whom later returned and established residences on the land they had surveyed. Erath was a native of Vienna, Austria who immigrated to the New Orleans area in 1832 and left for the Robertson Colony in 1833. He was a member of ranger companies in 1835 and the early 1840s, working to control Indian activities. Erath had also served during the Texas Revolution at the Battle of San Jacinto and would later command a regiment of the Confederate Army during the United States Civil War. Jacob De Cordova, a Texas politician and colonizer, acquired a large amount of land in the area in 1846 and his surveyor, George B. Erath convinced him to establish a town on the site of the former Wi-iko village in 1849 and helped to lay out the plots of land that would become first block of the new town (Burke 2014).

When a new county was established on January 20, 1850, named McLennan in honor of the first permanent settler, Waco became the county seat (Kelly 1972:174; Smryl 1996a:431). The population of Waco grew to around 750 people in 1859 and the city quickly became incorporated due to the explosion of the cotton industry along the Brazos River (Fair 2009). Neil McLennan built a cabin and took up residency in the area in 1845. McLennan, a native of the Scottish Isle of Skye, immigrated with his extended family and a group of friends in 1801, first to North Carolina and then to Florida. They left Florida for Texas in 1834 and settled initially at Pond Creek in the Robertson Colony. In 1836, McLennan's brother (Laughlin), sister-in-law, and mother were killed by Native Americans, who also captured Laughlin's three children. The survivors moved to a safer location, but despite this effort, McLennan's other brother, John, was killed by Native Americans in 1838. It was after these tragedies that Neil McLennan joined George B. Erath in surveying the Waco area. In 1845, McLennan exchanged his land at Pond Creek for land in the Waco area and relocated his family. McLennan died in his family home in 1867 (Smryl 1996a:430). The Neil McLennan cabin survived until 1934 when it burned down. Its location was threatened by the expansion of Waco Lake in

1961, and when archeologists revisited the site in 1985, they found that extensive gravel mining had disturbed the area (Prikryl and Jackson 1985:30).

The home of Duncan McLennan, Neil's son, also was identified within the project area and designated as 41ML140. The site was reported by local informants to have been occupied by George B. Erath as well. Archival research confirms this association. By 1851, George B. Erath and three enslaved individuals had established a 600-acre farm on the Farnash Survey consisting of a house and 2 horses. By 1860, his operation had expanded to include 11 slaves, 19 horses, 740 cattle, and 260 sheep. In 1868 and 1869, Duncan McLennan bought this property from George B. Erath (Prikryl and Jackson 1985:30–31).

Another early settler in the Bosque valley was Israel Washington Speegle. Speegle was born in North Carolina in 1813 and moved from Missouri to Texas with his wife, Susanna, and family in 1849. Once in the Waco area, he started farming and set up shop as a blacksmith. In 1859, Speegle was a successful sheep farmer. The Speegle family also maintained peach and apple orchards. During the 1860s, wheat, corn, and oats were of principal importance to the needs of settlers in general and their livestock. Israel Speegle's blacksmithing shop served as a focal point for the community. As the community began to develop in the ante-bellum period, a store, the Speegleville Cemetery, and several churches already had been established (Speegle 1985). During the post-bellum era, the area continued to develop into a small town. In 1879 Speegleville got its first post office, and Israel Speegle became its first postmaster. A cotton gin was built in 1885, which was the same year that Israel Speegle died (Buice 1985; Prikryl and Jackson 1985:34–38, 195; Smryl 1996b:24). Some evidence of Israel Speegle's early occupation in the Waco Lake area was identified at site 41ML150.

African Americans were among the first settlers of Waco, living as chattel and servants of the McLennans, the Eraths, and other affluent landowners. Two of the original 21 settlers of the area were Armstead and Lucindy who arrived in 1849 with the family of Shapley P. Ross, a ranger, Indian agent, and the town's first hotelier. The 1836 Constitution of the Republic of Texas restricted free Blacks from entering Texas; those already living in Texas were subject to a volley of constantly changing laws and ordinances allowing the capture and sale of any free Black person into slavery unless they were given Congressional exemption, and alternatively allowing those present before the 1936 Declaration of Independence to remain. By 1860, the enslaved population of McLennan County was recorded as 2,404 and the white population was 3,799 (Price 2007).

6.2.2. The U.S. Civil War, Economic Decline, Rise, and Reconstruction

In January 1861, a representative from McLennan County voted for secession, and he was overwhelmingly supported by the population in the county. During the Civil War, 1,500 men (including 6 generals) from McLennan County joined the Confederate Army. Following the South's defeat, the City of Waco was occupied by U.S. troops for a short period during Reconstruction. Friction between troops and local residents was common during this time (Smryl 1996a:431).

After the war, veterans returned to their homes and farms to resume their lives as best they could. However, McLennan County suffered a great economic decline during the initial years of Reconstruction. The wealth once gained from agricultural production was now lost due to a variety of factors. The emancipation of enslaved African Americans equated to a loss of both their labor and their value to their former owners. U.S. census reports that African Americans represented 37.1 percent of the county's population in 1860 (Fair 2009). This suggests that at the cessation of the U.S. Civil War, approximately 37.1 percent of McLennan County's manpower was no longer contributing to the economy through unpaid labor. This combined with a trend toward smaller farm size, as well as a devaluation of acreage and livestock. Without these valuable agricultural assets, tax revenues for McLennan County decreased sharply and an inadequate transportation infrastructure exacerbated the problem (Prikryl and Jackson 1985:34). As a result, sharecropping became a new way of life for African Americans and whites alike during Reconstruction and beyond wherein landowners who were either unable or unwilling to pay fair wages to former slaves and lower-income whites rented pieces of their land for farming and accompanying housing in exchange for a portion of the crop and profit at the end of the growing season (Sawyer 2023b).

An economic boost came in form of cattle and the Chisholm Trail in the late 1860s. At the cessation of the U.S. Civil war, Texas's only real assets were its countless longhorn bovines, but there was not a reliable transportation network to capitalize on them. The Kansas Pacific Railroad opened a spur line in 1867 in Abilene, Kansas that catered specifically to cattle and that year 35,000 head of cattle were driven north to this line for transportation. This number doubled every year reaching 600,000 by 1871. Although Abilene ceased as a cattle hub in that year, the Chisholm Trail remained and had terminations at Ellsworth, Junction City, Newton, Wichita, and Caldwell. The Chisholm Trail was not a single, defined route, but rather a general area stretching north from San Antonio into Kanas with common milestones along the way. The Shawnee Trail, which stretched from Austin, to Waco, to Dallas, was used to drive cattle prior to the U.S. Civil War on a small scale and was unofficially absorbed as a spur of the Chisholm Trail. Approximately 700,000 cattle had been driven through Waco by 1871 (Conger 2023).

Figure 5: Map illustrating the extent of the Chisholm Trail and its spurs.

The economic hardships of post-U.S. Civil War Waco and the McLennan County area began to abate into the 1870s and beyond. Although the cattle industry initiated this shift, the primary force behind the growth was cotton. Prior to the U.S. Civil War, cotton production in the area was relatively small. There was no local cotton mill meaning the time consuming, tedious work of sewing and spinning the fibers had been done entirely by hand. Additionally, there were no means to easily transport the product in large quantities with ease. The step forward in the area's cotton industry occurred during the U.S. Civil War when John Baylis Earle purchased cotton mill machinery in England and smuggled it into the besieged Texas via Mexico and subsequently established a mill. The location of this mill is unclear, but it is theorized to have been somewhere in east Waco. The construction of the Waco Suspension Bridge and the Waco Tap Railroad in 1870 increased the flow of commerce exponentially and the economy for the area boomed. Waco was reincorporated officially at this time as "The City of Waco."

The isolated Sneed homestead is a good representative of typical Reconstruction settlement. It was identified during survey in 1984 and designated 41ML179 (Prikryl and Jackson 1985:38). Nicholas Sneed was born in Williamson County, Tennessee, in 1826. He was educated in Alabama and then returned to his home state to become a teacher (Lewis Publishing Co. 1893:788). Sneed moved to Texas in 1850 and continued to ply his trade as a teacher, first in Navarro County and then in Waco, where he established the town's first school in 1851. Sneed taught in Waco until 1853 but then returned to Navarro County until called away for duty at the advent of the Civil War. Sneed was commissioned as a lieutenant and later promoted to captain. Although Nicholas Sneed survived the war, he returned to Texas not only as a veteran but also a widower. His wife had died while he was away (Prikryl and Jackson 1985:38–39). By October 1865, Sneed had met and married Jennett Hubby, the widow of a Waco merchant. Upon her previous husband's death, Jennett had inherited 80 acres of land located on Hog Creek. In 1866, Sneed and his new wife moved to the property and established a farm. Jennett died shortly after, in 1868, but Nicholas continued to raise Jennett's children on the farm until 1877. In that year, the Sneed house burned down, and Nicholas sold the property and moved to a new location. The property was never reoccupied. Instead, it became grazing land as part of a large cattle operation owned by the McLennan family (Prikryl and Jackson 1985:230–231).

Upon emancipation, a large number of formerly enslaved African Americans stayed in McLennan County. Some remained as laborers on plantations, some sought work in Waco, and some moved to their own farms and established communities. Willow Grove (cemetery established in 1874) was one such community, located approximately 2 miles west of Waco Lake. The Bureau of Refugees, Freedmen, and Abandoned Lands, more commonly known as the "Freedman's Bureau", was established by Congress in March 1865 (notably before the official end of the U.S. Civil War) as a temporary branch of the U.S. Army intended to provide relief to both African- American and white refugees whom had been left homeless by the war, to supervise the affairs of newly freed saves in the southern states, and to administer all land abandoned by Confederates or confiscated from them during the war. The Freedman's Bureau operated in Texas from late September 1865 until July 1870 and was of notable assistance to newly emancipated African Americans during this time. As the Freedman's Bureau was an extension of the U.S. Army, it was generally met with the same disdain as the occupation force from the local population in addition to the already existing tension toward them as a result of their work toward racial equality. Efforts of the agency were frequently hindered with some agents even being murdered (Harper 2020).

The primary successes of the Freedman's Bureau in Texas fell within the areas of education and politics (albeit with determined opposition on both counts). At the end of 1865, sixteen schools were educating just over 1,000 African American pupils. At the disbandment of the Freedman's Bureau in July of 1870, these numbers had grown to 150 schools enrolling approximately 9,086 African American students, which is an approximate 800% increase of both in less than five years. Politics, however, was much steeper slope to surmount. Texas and much of the rest of the south refused to ratify the

thirteenth and fourteenth amendments to the U.S. Constitution, and instead passed a series of “Black Codes” restricting the freedoms of former slaves and denying political participation. Congress subsequently passed the Reconstruction Acts in March 1867 that, in part, charged the U.S. Army with politically reconstructing each southern state. The Freedman’s Bureau assisted with this endeavor by supplying the Army with information on the population of the counties, convenient polling locations, and trustworthy individuals who could serve as voter registrars and election judges, as well as ensuring that the right of African Americans to register and vote was not impeded (Harper 2020). This resulted in the election of numerous African Americans throughout Reconstruction, 52 of which were at the state level. One of these state-level electees was Shep Mullins.

Shepart Mullins was born into slavery in Lawrence County, Alabama in 1828. His owners moved to Texas and eventually settled in Waco by 1860 where Mullins remained after his emancipation. Shepart Mullins registered to vote on McLennan County on August 23, 1867, and later that same year General Charles Griffin, who worked for the Freedman’s Bureau, appointed Mullins as McLennan County Commissioner and Voter Registrar. Voters elected him to the Constitutional Convention of 1868-1869. There he filled the seat of a recently deceased member who represented McLennan, Falls, and Bell Counties and served as a member of the Public Lands, Commerce, and Manufacturers Committees. In 1869 Mullins was appointed as the Republican Party leader of McLennan County and was voted to a seat in the Texas House of Representatives. He served on the Privileges and Elections Committee, the Federal Relations and Immigration Committee, he advocated for state-funded public education, and sought to establish the Texas State Police. Shepart Mullins passed away unexpectedly in 1871 at the age of 42 and was buried in the First Street Cemetery in Waco (Roberts 2023).

Figure 6: Gravestone of Shepart Mullins

Closed-door deals and negotiations in the wake of the controversial presidential election of 1876 and subsequent selection of Rutherford B. Hayes as President of the United States directly led to the Compromise of 1877; an unwritten, informal agreement wherein the Southern Democrats accepted the results of the election and ascendency

of Hayes in exchange for the removal of occupying Federal troops in states of the former Confederacy effectively ending reconstruction (Texas State Library and Archives Commission). Approximately 2,000 African American men held positions in state, local and federal levels throughout reconstruction, but those numbers dropped dramatically following the end of the Reconstruction in 1877. By 1883 there were no African Americans in office, and it was not until 1966 that Texas would be represented by another African American (Roberts 2023).

6.2.3. King Cotton, Bridge Street, and the Legacy of Jesse Washington

By the 1880s, horses and mules replaced sheep and oxen, and cotton was the primary cash crop. The average farm size in the Waco Lake area was 144 acres, but by 1900 the average farm size had dropped to 89 acres for landowning farmers (Prikryl and Jackson 1985:39). Access to markets and railroad transportation allowed for a transition from subsistence farming to a single commercial cash crop: cotton. Farmers slowly shifted from growing subsistence crops and began to rely more heavily on goods supplied by the railroads. Five major rail lines were constructed in McLennan County, one of which was named “The Cotton Belt Route” as an homage to its primary cargo and overall purpose (Sawyer 2023b). The city itself became unofficially known as “King Cotton” and by 1885 the city could rightfully claim to be the largest inland cotton market in Texas. This upward growth in cotton continued toward and into the 20th century (Conger 2023). A semi-annual fair and exposition was held to celebrate and promote the product with a large building, the “Cotton Palace,” built for the purpose in 1894. Unfortunately, this building was destroyed by fire the next year, but it was rebuilt and expanded upon in 1910 marking the beginning of an uninterrupted 21-year stretch of Cotton Palace expositions (Sawyer 2023b).

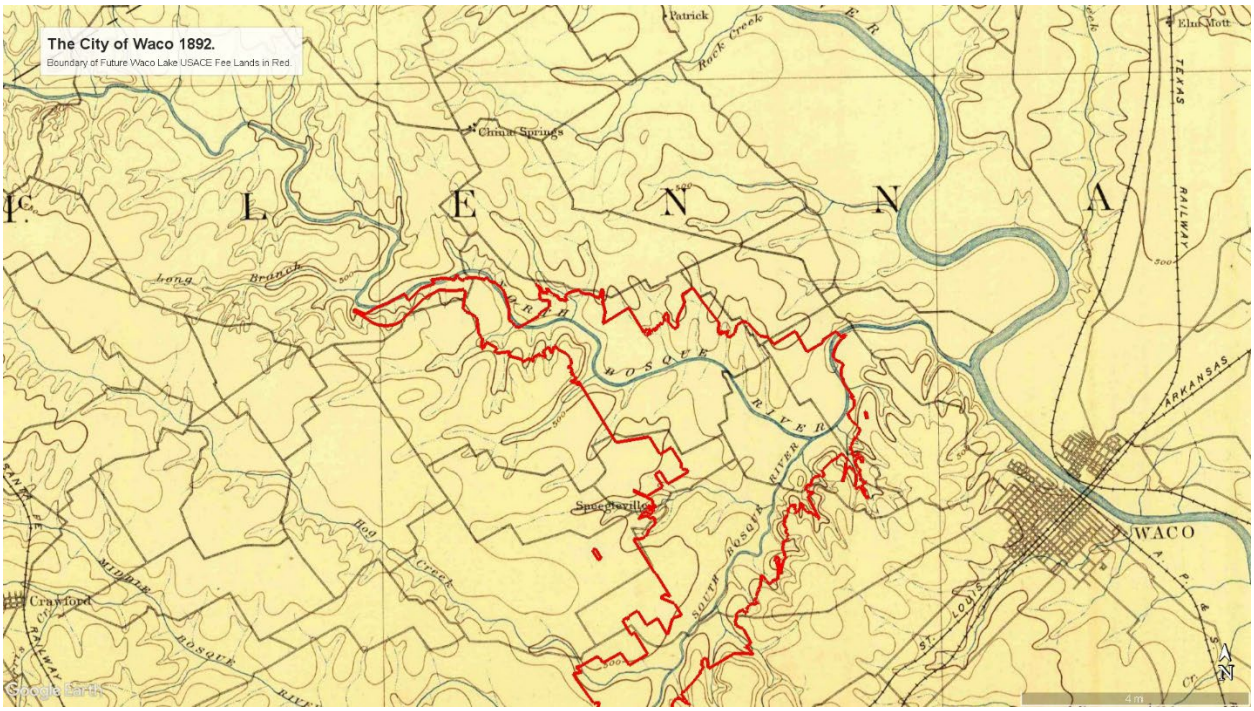


Figure 7: Waco and surrounding area circa 1892. Current fee boundary is in red.

By the turn of the 20th century, Waco had grown to a city of 20,000 and was a center of commerce with farmers, merchants, and residents from the outlying areas flocking to the city to conduct business. Waco had six banks and 163 factories including ice plants, grain elevators, flour mills, foundries, boiler plants, and bottling works. Two artesian wells were drilled, and two natatoriums were built thus advertising the city as a health resort (Conger 2023). The city also boasted four institutions for higher learning which gave way to the nickname, “The Athens of Texas” (Fair 2009). Paul Quinn College, the oldest historically black college in Texas, was located in Waco from 1877 to 1990 when the campus was relocated to Dallas.

Beginning in the late 1800s and continuing into the Civil Rights Era of the 1960s, laws requiring racial segregation, poll tax, prohibiting interracial marriage, and barring African American participation in Democratic party primary races were passed throughout Texas. This led to the formation of ethnic enclaves like Second and Bridge Street in Waco, where Hispanic, Black, and immigrant business owners ran grocery stores, insurance agencies, bars, barber shops, and restaurants (Sawyer 2023). Sandtown and Calle Dos were home to a large, close-knit Mexican community where locals enjoyed La Pila spring and workers from surrounding farms brought their families to participate in festivals and dances. These neighborhoods provided respite from prejudice at a time when any perceived infraction against the law, including segregation, could be met with vigilante violence. Often condoned or even promoted by news media at the time, at least 131 casualties of mob violence are documented to have occurred in central Texas between 1860 and 1922 (Carrigan 2004). The 1916 lynching of Jesse Washington in Waco’s town square, which was captured in horrific imagery and widely publicized,

galvanized national support for the newly formed National Association for the Advancement of Colored People's (NAACP) anti-lynching campaign.

6.2.4. World War I: Camp MacArthur, the 32nd Infantry Division, and Rich Airfield

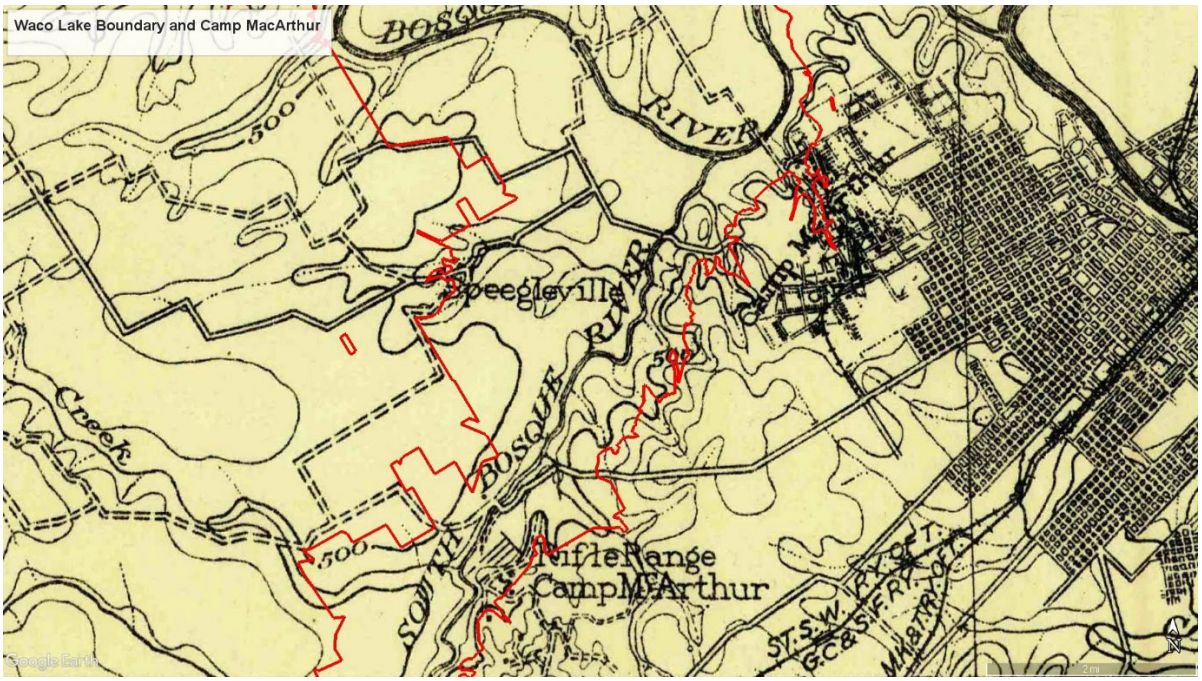


Figure 8: Map illustrating the location of Camp MacArthur in relation to the City of Waco. Current fee boundary is in red.

Ten weeks after the United States declared war on Germany in 1917, the U.S. Army purchased land to the west of Waco near the edge of the Bosque valley and built a training camp for American efforts in World War I. Construction began July 20, 1917, with 18,000 troops from Wisconsin and Michigan arriving in September 1917 to begin their training. The camp covered approximately 10,700 acres of former cotton fields and farms and cost some $5 million to build. It was named Camp MacArthur in honor of the Lieutenant General Arthur MacArthur Jr., Medal of Honor recipient and veteran of the U.S. Civil War, Spanish-American War, and Philippine-American War and father of Douglas MacArthur, future five-star general Medal of Honor recipient. The camp consisted of administrative offices, a tent city (which alone covered 1,377 acres), a base hospital, and a variety of other buildings (Sawyer 2023).

Figure 9: Tent City at Camp MacArthur

Figure 10: Troops training for trench warfare at Camp MacArthur

The troops trained at Camp MacArthur formed the 32nd Infantry Division and deployed to France joining the American Expeditionary Force on the Western Front in February 1918. Enroute, the unit suffered its first casualties when one of the vessels transporting them across the Atlantic was sunk by a German U-Boat. The 32nd Infantry Division would go on to fight in the Battle of the Marne, the Battle of the Oise, and the battles of the Meuse-Argonne Offensive. They were the first allied troops to penetrate the formidable German defensive position known as the Hindenburg Line during the Meuse-Argonne Offensive, which gave birth to their shoulder patch: an arrow piercing a perpendicular line all in red signifying the breaking of an enemy line. Thereafter they were known as the "Red Arrow Division." The tenacity of their fighting ability earned them the French moniker "*Les Terribles*" (the terrors). This tenacity, however, came at a high price. While they began the war with 18,000 men, reinforcements and replacements of losses constantly fluctuated that number making the actual figure of those who had been in the division during the war slightly higher. Ultimately, the 32nd Division suffered 13,951 casualties: 2,682 soldiers were killed, 104 were missing in action, 352 non-battle casualties (disease, drowing, accidents, etc.), and 10,813 wounded making it the third highest number of battlefield deaths suffered by a U.S. Army Division (32nd-divison.org).

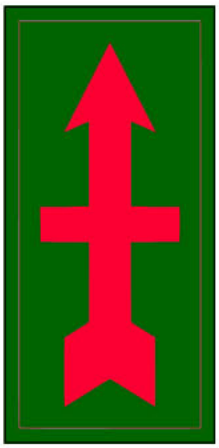


Figure 11: Insignia of the 32nd Infantry Division

After the deployment of the 32nd Infantry Division in early 1918, Camp MacArthur transformed into an infantry replacement training camp as well as an officer candidate school with recruits from Texas, Arkansas, Missouri, and New Mexico. Camp MacArthur was demobilized following the Armistice in November 1918 and was officially closed on March 7, 1919 (Sawyer 2023). Much of the area where Camp MacArthur once existed is now residential neighborhoods of Waco with site 41ML108 (just outside of Fee Boundaries) is the sole archaeological site connected to Camp MacArthur near or on the USACE property that has thus far been identified. It is likely that the materials observed represent a dump for the military camp (Prikryl and Jackson 1985:43).

The U.S. Army also established a 690-acre airfield just west of the City of Waco in addition to Camp MacArthur. Boasting sixteen hangers, Rich Field Army Air Base was

named after Second Lieutenant C. Perry Rich who had been killed when his aircraft crashed in the Philippines in 1912. Some 400 pilots were trained at Rich Field throughout the war with only eight aircraft-related fatalities occurring, remarkable considering the comparatively primitive equipment. Those that completed training were shipped to France into combat. Unlike Camp MacArthur, Rich Field remained in service long after World War One (albeit to a limited capacity as aerial technology quickly surpassed the capabilities and size of the facility) and officially ceased flight operations at the close of World War Two. The land that was once Rich Field is now home to the Extracto Events Center, Waco High School, and Lions Park (Burke 2023).

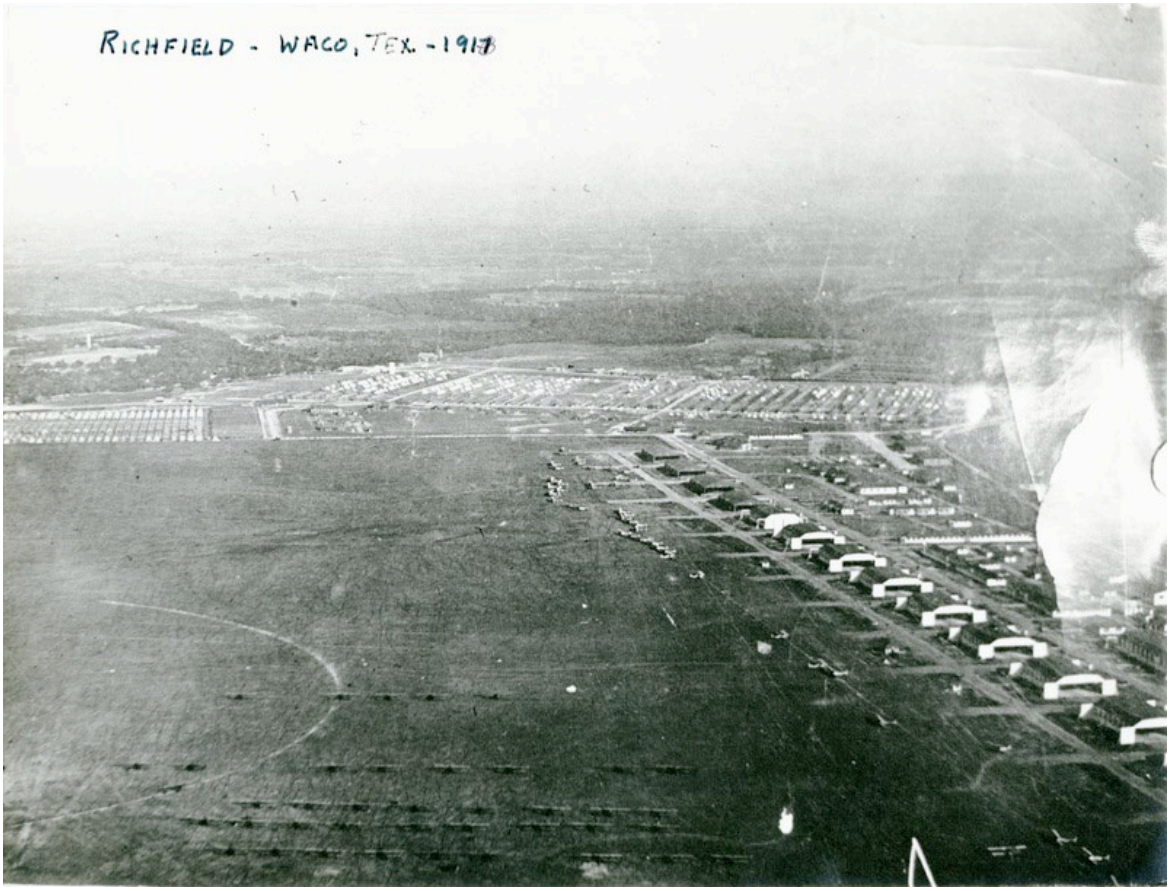


Figure 12: Aerial Photo of Rich Field Army Air Base in 1917

Camp MacArthur and Rich Field Army Air Base altered the City of Waco and the surrounding area significantly. One of the first changes was brought about by a requirement set forth by the U.S. government that Waco abolish its red-light district, known as “The Reservation”, ahead of the establishment of the military facilities. This is most likely as a precaution to stem the possibility of a venereal disease outbreak that could subsequently diminish the number of able-bodied men in uniform. Red-light districts, or sporting districts as they were often called, were common across the U.S. until the early 1900s; Texas had several famous districts including those in Galveston, Fort Worth, and San Antonio. Waco’s “Reservation” generated revenue of up to $12,000 a year for the city through licensing, regulatory fees, etc. The city immediately moved to

shut down the district, leaving its workers either destitute or operating outside of the law (Sawyer 2023). The loss of revenue to the city, however, was made good as the population more than doubled with Camp MacArthur and Rich Field bringing in approximately 35,000 soldiers and their families ready to spend their wages at stores in the city. The construction of both facilities boosted the economy with the construction of Rich Field alone providing for 3,400 jobs clearing trees, constructing roads and buildings, etc. After the war and demobilization, many of the military personnel who had been stationed at the camp during the war chose to remain in Waco, which helped to continue economic growth in the region. Industrial ventures became an increasingly important part of the economy alongside agriculture (Smryl 1996a:432).

6.2.5. The 1920s Onward

The Ku Klux Klan (KKK) had a heavy influence in the local politics and commerce of Waco throughout the 1920s by seeing their members elected to public offices and requiring their membership to only shop in businesses owned by Klansmen denoted by a white card with black bars displayed in the windows of KKK-friendly establishments. Founded in Tennessee in the immediate wake of the U.S. Civil War as a social club of former Confederate soldiers, the KKK evolved to be a nation-wide organization fundamentally based on a racial and religious ideology aimed at white, protestant supremacy and a Democrat-controlled government and are most commonly associated with their use of violence toward non-whites and non-protestants ranging from verbal and physical intimidation to arson and murder as ways of enforcing their agenda. The KKK had chapters throughout the United States with the first Waco chapter, the “Saxet Klan Number 33”, being founded around 1921 (Burke 2023). This was by no means met with uniform acceptance though, as on July 24, 1921, over 100 Waco citizens banded together signing a petition declaring their opposition to the KKK and its practices in Waco (Fair 2009). This did little to slow or deter the organization as the initial induction ceremony that same year brought in 937 founding members with more than 200 turned away as the building in which the ceremony occurred was beyond capacity (Burke 2023).

Figure 13: Ku Klux Klan Members Parade During July 4th Celebrations in 1924.

Outside of the obvious racial and religious injustices, the influence of the KKK handicapped the growth of Waco and the surrounding areas during an important, nation-wide economic boom. It can be argued that the stunted free commercial growth exasperated the hardships that the Great Depression was to bring about in the 1930s. However, the KKK's power in Waco during the early to mid-1920s began to wither on the vine by the latter part of the decade as a result of both internal disagreement within the chapter (and organization as a whole) and the fact that communities were becoming apprehensive in the rise of mob violence that accompanied the Klan's ideology and activities. By 1927 their dominance in Waco had all but ended and their political and economic grip would not return. Still, the KKK in Waco and the surrounding area never fully dissolved and occasionally made its presence known through to the present (Fair 2009).

By 1930, Waco had a population of approximately 53,848 and the uptrend of growth continued until the onset of the Great Depression (which technically began with the Wall Street Crash of October 24, 1929). Farmers began by reducing their spending and speculation in the market while businesses began by laying off employees. Unemployment skyrocketed and the layoffs gave way to numerous businesses closing (Conger 2023). For the small farmers of central Texas, the Great Depression was preceded by a severe drought in 1925. Cotton farmers suffered dramatic losses as a result of this, and they came into the new era of economic decline with a preexisting degree of hardship. Farmers began to sell acreage to make up for these losses at a fraction of their previous value. Blackland Prairie cotton land that had sold for $150 per acre in 1920 sold for $25–30 per acre during the 1930s (Poage 1981:117). Fortunately, Federal New Deal programs initiated by the President Roosevelt administration began to alleviate the hardships for the area. The Works Progress Administration under the New Deal legislature began to infuse money into the economy and created numerous employment opportunities for the populace.

6.2.6. Waco Dam and Speegleville

The Brazos River Basin flooded with a degree of frequency through the centuries. In the historic era, this aided cotton farmers via the deposit of nutrients into their fields. As urban development expanded, however, these floods proved not only destructive, but deadly to those that lived within the flood plain. Frequent rains in the fall of 1913 culminated with an especially heavy downpour on the morning of December 5, 1913, which caused the river to overflow into east Waco destroying numerous houses and businesses and killing two people in the city and another 172 downriver. This disaster facilitated the creation of the Brazos River and Valley Improvement Association in 1915. This was the first step that ultimately led to the construction of the first Waco Dam (Sawyer 2023a).

The construction of the Waco Lake Dam was aimed primarily at providing the nearby city of Waco with a reliable water source, but also offered a degree of flood control. Workmen began clearing land in December 1928 and construction officially began on January 2, 1929, by the Callahan Construction Company. Two thousand eight hundred

acres of land were cleared for the dam and accompanying lake resulting in an estimated 25,000 cords of wood and the construction of a concrete plant, wood mill, camp houses and a dining hall for purpose of the project. Work on this first dam was completed in April 1930 (Scott 2021).

The town of Speegleville, which gradually grew around Israel Speegle's settlement beginning in 1849, was home to an estimated 111 people by the year 1900. The primary occupation in the area was stock raising and by 1938, the town had grown to include 39 homes, three grocery stores, a cotton gin, a blacksmith shop, two churches, and a school (Sawyer 2014). One family that worked as sharecroppers on a small farm in Speegleville was that of Connery and Henrietta Miller. Their third son Doris attended A.J. Moore High School and would go on to join the Navy and become the head cook on the *USS West Virginia*. On December 7, 1941, the Japanese launched a preemptive attack on the U.S. Naval base and Pacific Fleet at Pearl Harbor, Hawaii with several hundred aircraft. During the attack, Doris Miller came across an anti-aircraft machine gun mount whose crew had been killed. Miller subsequently manned the weapon alone and was credited with shooting down several Japanese aircraft. He only left this position when orders came to abandon USS *West Virginia.* For his heroic actions, Miller was awarded the Navy Cross, the first for any African American. The Navy leveraged Miller's fame to persuade new African American recruits to join the service and he is credited as being a driving force toward desegregation of the military. A memorial in Doris Miller's honor was dedicated on the river in downtown Waco on December 7, 2021, eighty years after the attack.

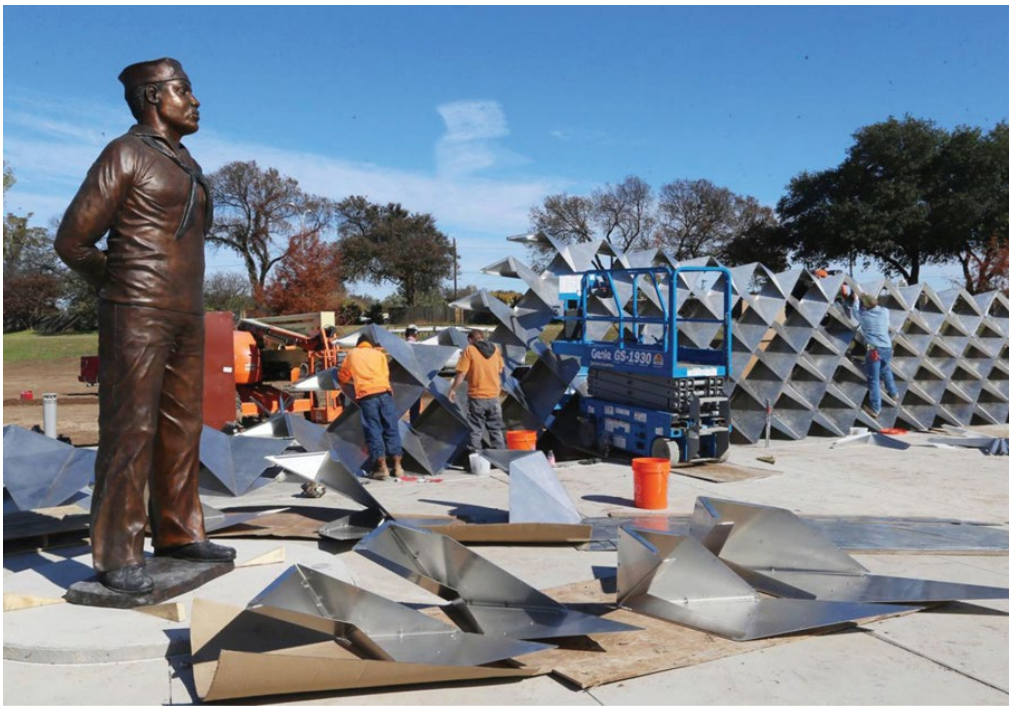


Figure 14: The Doris Miller Memorial in Waco, Texas. Photo courtesy of Baylor University

It quickly became apparent that the original dam was insufficient. Extended periods of heavy rainfall in 1936 was coupled with an additional torrential downpour in September of that year raised the Brazos River to a record crest of 41 feet. Much of east Waco was flooded and although thankfully no lives were lost, approximately $1.5 million in damages was recorded. The existing system was obviously insufficient. A 1937 feasibility study conducted by the U.S. Army Corps of Engineers and a year later in 1938 they recommended that a new Waco dam and lake be constructed. WWII, however, interrupted these efforts and it was not until 1954 that the new Waco Lake was authorized for construction under the Flood Control Act. In 1957 a serious drought left the original reservoir all but dry and was followed by a catastrophic flooding event renewed efforts for the dam and construction of the new lake began in June 1958 with deliberate impoundment of water began February 1965 via a modern earthen dam. The new dam enlarged the surface area of the lake from a modest approximately 2,700 acres to approximately 19,400 acres (Sawyer 2023b).

Figure 15: Aerial photo of the Old Waco Dam (left) and the New Waco Dam (right) ca. 1965

Further development of the Waco Lake area was halted with the expansion of the lake. The Corps of Engineers purchased most of the shoreline property and removed, and in some cases relocated, any structures that were standing after purchasing the lakeshore property as they would either be inundated, or their habitation made impossible due to

the proximity to the lake. Most prominent of these was the entire community of Speegleville.

7. PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

Avocational archaeologists associated with the Central Texas Archaeological Society conducted investigations in the vicinity of Waco Lake prior to its construction. The first known investigations were conducted in 1936 and 1937 by geologist Frank Bryan, who was particularly interested in identifying deeply buried sites along the local streams. Between the late 1930s and late 1970s, Frank H. Watt conducted several investigations, publishing articles on several important sites including Aycock Shelter (41BL28), the Chupik Site (41ML44), Clark Site (41ML39), the Asa Warner Site (41ML46), and Horn Shelter 2 (41BQ46), all of which are located within 5 to 20 miles of the Waco Lake project area. Following the passage of the Reservoir Salvage Act of 1960 and the NHPA of 1966, numerous investigations on federal lands throughout the region have been conducted. Open camp sites, rock shelters containing stratified deposits, expansive midden sites, and historic homesteads and settlements are common site types at surrounding USACE reservoirs and nearby U.S. Army Fort Cavazos, née Fort Hood.

The first professional archaeological survey for Waco Lake was conducted in 1959 by the University of Texas at Austin (UTA), resulting in the identification of 23 archaeological sites. Follow-up investigations by UTA conducted in 1963 and 1964 identified 8 additional sites, two of these, (41ML35 and 41ML37), were partially excavated. In 1984, cultural resources investigations were conducted by Prewitt and Associates, Inc. (PAI) in anticipation of raising the lake elevation from 455 ft to 462 ft AMSL. These investigations covered 1,250 acres between the existing and proposed pool elevations, as well as an additional 476 acres of fee lands located above 462 ft AMSL.

The lake level was not raised until 2003; in 1999 USACE contracted with PAI to revisit 44 previously identified sites to evaluate them for NRHP eligibility. Phase II testing was conducted at nine sites. Concurrence was reached between the USACE and the SHPO regarding the eligibility of numerous sites, however the SHPO expressed concern regarding impacts to sites caused by USACE operations including park facilities and all-terrain vehicle use. In 2001, a 95-acre tract was surveyed for the proposed development of what is now Speegleville Park. Four sites that would be impacted by that project were determined to be ineligible for the NRHP; some resources associated with the town of Speegleville that were not located within this 95-acre tract have not yet been evaluated for NRHP eligibility.

In 2004, 40 acres acquired by USACE as natural resource mitigation for the pool raise were surveyed by PBS&J, leading to the identification of the NRHP-eligible Badger Land and Cattle Co. Grain Barn. Areas of three sites (Baylor/41ML35, Britton/41ML37, McMillan/41ML162, and Higginbotham/41ML195) that would be impacted by the pool

raise were subject to data recovery between 2002 and 2005. Four additional surveys are represented on the Atlas Database, these include reconnaissance level survey conducted in 2002 and an investigation by Texas Department of Transportation conducted the same year. Additional information for these investigations could not be obtained.

While early investigations were successful in identifying numerous archaeological sites, they relied heavily on inspection of ground surfaces and cutbanks and employed limited shovel testing. Some later surveys that included more rigorous field investigations lack geospatial data and are not included in the Atlas Database. Because of these limitations, graphics showing previously surveyed areas and areas left to survey are not included in this document. Previous survey areas should be plotted using the JECOP and submitted to TARL for curation to avoid duplication of efforts. Areas that have not been subject to intensive, systematic survey using modern standards and methodology should be resurveyed. These and other recommendations are included in Chapter 9 of this document. The table below provides a list of reports on previous cultural resource investigations at Waco Lake.

Reports of previous investigations at Waco Lake

Year	Author	Title
1959	Duffield, Lathel F.	Appraisal of the Archeological Resources of Waco Lake, McLennan County, Texas
1965	Story, Dee Ann and Harry J. Shafer	1964 Excavations at Waco Reservoir, McLennan County, Texas: The Baylor and Britton Sites
1984	Prikryl, Daniel J. and Elton R. Prewitt	An Overview of the Native American Cultural Resources at Waco Lake, McLennan County, Texas
1985	Prikryl, Daniel J. and Jack M. Jackson	Waco Lake, McLennan County, Texas: An Inventory and Assessment of Cultural Resources
2000	Kvernes, Kimberly K., Marie E. Blake, Karl W. Kibler, Jennifer K. McWilliams, E. Frances Gadus, and Ross C. Fields	Relocation and Updated Recordation of 44 Archeological Sites at Waco Lake, McLennan County, Texas
2002	Blake, Marie E. And Amy E. Dase	Archeological Survey of 95 Acres at Waco Lake, McLennan County, Texas
2002	Scott, Ann M., Karl W. Kibler, and Marie E. Blake	National Register Testing of Nine Archeological Sites at Waco Lake, McLennan County, Texas
2005	Nash, Michael A. and Eugene R. Foster	An Assessment of Cultural Resources within Mitigation Tracts MX-8 and MX-9 at Waco Lake, McLennan County, Texas
2008	Mehalchick, Gemma and Karl W. Kibler	Hunters and Gatherers of the North Bosque River Valley: Excavations at the Baylor, Britton,

Year	Author	Title
		McMillan, and Higginbotham Sites, Waco Lake, McLennan County, Texas
2023	Chapman, Thomas et al.	Survey of the Ridgewood Country Club Project, City of Waco

8. INVENTORY OF CULTURAL RESOURCES

8.1. Introduction to Waco Lake Cultural Resources

Archeological sites recorded at Waco Lake have been given a trinomial designation in the form: 41ML##. The first number is the state number for Texas in an alphabetical list (excluding Alaska and Hawaii), the letters stand for the particular county, in this case McLennan County, and the last digits refer to the sequential order in which the site was recorded within that county. Archeological sites recorded before the use of the trinomial

numbering system was utilized, such as the sites recorded by the Texas Archeological Salvage Project (TASP) at Waco Lake, were subsequently given trinomial designations.

A total of 101 archeological sites have been recorded within the fee boundaries of Waco Lake as of the end of 2022. The below section provides a complete listing of all of these resources. Archeological site locations are available to authorized Waco Lake and Fort Worth District personnel. These files are CUI and should be handled with the appropriate discretion.

It must be noted that errors in plotting the precise location and extent of many sites recorded prior to the introduction of the GPS system is not uncommon. As such, all site locations and their extent must be considered as *approximate*.

The majority of archeological sites identified at Waco Lake have not been coordinated with the TXSHPO regarding NRHP eligibility. The status of these determinations is listed in the table below as Eligible, Ineligible, Undetermined, and Unevaluated. Eligible and Ineligible listings indicate that the resource evaluation has been completed and the USACE's NRHP eligibility determination has received concurrence from the TXSHPO. Undetermined listings indicate that the resource underwent a review for eligibility, but concurrence on that determination has not yet been reached. Unevaluated indicates that the process for reviewing that resource for inclusion into the NRHP has not yet been initiated. Sites that are considered eligible or are of unknown eligibility for the NRHP should be protected from disturbance as if included into the NRHP as per compliance with Section 106 of the NHPA.

8.2. Archaeological Resources List

The table below lists the known sites on fee lands (with a single exception which will be explained in the "Archaeological Sites of Note" section). Of the 101 recorded archaeological sites at Waco Lake, 53 are unevaluated, 32 are ineligible, 10 are undetermined, and 6 have been found eligible for inclusion in the NRHP. The table expounds upon each site through six columns of information: date recorded, type, brief description, NRHP eligibility status, land use classification, and comments. The dates in the table reflect the most recent official documentation of the site as per the TXSHPO database. The type denotes a general time period from which the resource originates (i.e., precontact or historic eras), The brief description offers a designation of the material documented (i.e., lithics, or lithic surface scatter (found on the surface)). NRHP eligibility status denotes the status of the resource in terms of its evaluation for the NRHP. Land use classification denotes what current land classification the resource resides. The comments, where possible, afford general observations of the resource's integrity. Of note, cultural resources located on the shoreline are more at risk of damage through erosion and human interaction.

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML1	3/19/1959	Precontact	Lithics	Unevaluated	Lake	Inundated.
41ML2	8/13/1999	Precontact	Surface Scatter-Lithics	Ineligible	Recreation	Site Heavily Damaged.
41ML3	3/19/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Inundated.
41ML4	3/19/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Inundated
41ML10	3/20/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	
41ML11	10/9/1984	Precontact/Historic	Surface Scatter-Lithics and Historic	Unevaluated	Recreation	Shoreline. Heavily Damaged by Erosion and roadway construction.
41ML12	8/13/1999	Precontact/Historic	Cemetery Site and Lithics	Ineligible	Multiple Resource Management	Graves Removed. Site Heavily Damaged.
41ML13	8/13/1999	Precontact/Historic	Lithics	Ineligible	Lake	Possibly Destroyed by Erosion.
41ML14	8/13/1999	Precontact	Surface Scatter-Lithics	Ineligible	Multiple Resource Management	Heavily Damaged.
41ML15	3/22/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Environmentally Sensitive Area	
41ML17	3/22/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Environmentally Sensitive Area	

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML18	3/24/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	Site Likely Destroyed by Construction.
41ML19	3/24/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	Site Likely Destroyed by Construction.
41ML20	3/24/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	Site Likely Destroyed by Construction.
41ML21	3/24/1959	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	Site Likely Destroyed by Construction.
41ML22	8/13/1999	Precontact	Lithics	Ineligible	Recreation	Site Heavily Damaged by Erosion and Construction
41ML29	8/13/1999	Precontact	Surface Scatter-Lithics	Ineligible	Recreation	Shoreline. Site Likely Destroyed.
41ML31	8/13/1999	Precontact	Surface Scatter-Lithics	Ineligible	Recreation	Site Likely Destroyed.
41ML32	11/4/1963	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Inundated
41ML33	10/22/1964	Precontact	Lithics	Unevaluated	Recreation	
41ML35	8/13/1999	Precontact	Lithics	Eligible	Multiple Resource Management	"Baylor Site"
41ML36	10/1/1963	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Site Likely Destroyed. Inundated.

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML37	9/2/1999	Precontact	Lithics	Eligible	Environmentally Sensitive Area	"Britton Site" Shoreline. At Risk of Damage by Erosion.
41ML64	9/2/1999	Precontact	Lithics	Ineligible	Lake	Shoreline. Presumed Destroyed.
41ML109	10/25/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Multiple Resource Management	
41ML131	9/6/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Multiple Resource Management	Portion of Site Not on USACE Lands.
41ML132	9/6/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	
41ML133	10/9/1984	Historic	Homestead	Unevaluated	Recreation	Shoreline. At Risk of Damage by Erosion.
41ML134	12/10/1984	Historic	Industrial Oil Site with Two Drilling Rigs	Unevaluated	Lake	
41ML135	10/9/1984	Precontact/Historic	Surface Scatter-Lithics	Undetermined	Multiple Resource Management	
41ML136	10/17/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML137	10/11/1984	Historic	Surface Scatter-Historic Glass	Unevaluated	Lake	
41ML138	10/11/1984	Historic	Homestead	Unevaluated	Multiple Resource Management	
41ML139	10/11/1984	Historic	Homestead	Unevaluated	Lake	

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML140	6/1/1999	Historic	Homestead	Ineligible	Recreation	Homestead of Duncan McLennan, Neal McLennan's son
41ML141	9/2/1999	Precontact	Surface Scatter-Lithics	Ineligible	Recreation	
41ML142	10/17/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	
41ML143	6/1/1999	Historic	Homestead	Ineligible	Recreation	
41ML144	9/2/1999	Historic	Multiple Historic Structures	Ineligible	Environmentally Sensitive Area	Community of Speegleville schoolhouse, cemetery, and other structures.
41ML145	9/2/1999	Historic	Surface Scatter-Glassware	Ineligible	Recreation	
41ML146	9/2/1999	Historic	Homestead	Ineligible	Multiple Resource Management	Shoreline.
41ML147	9/2/1999	Historic	Homestead	Ineligible	Lake	Shoreline. Heavily Damaged by Erosion.
41ML148	9/2/1999	Historic	Homestead	Ineligible	Multiple Resource Management	
41ML149	9/2/1999	Historic	Homestead	Ineligible	Lake	Shoreline.
41ML150	9/2/1999	Historic	Homestead	Undetermined	Environmentally Sensitive Area	Connected to Israel Speegle
41ML151	9/2/1999	Historic	Homestead	Ineligible	Lake	Shoreline.

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML152	9/2/1999	Historic	Homestead	Ineligible	Multiple Resource Management	
41ML153	9/2/1999	Historic	Homestead	Ineligible	Lake	Shoreline.
41ML154	10/26/1984	Historic	Homestead	Unevaluated	Multiple Resource Management	
41ML155	10/30/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Mitigation	
41ML156	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Undetermined	Multiple Resource Management	Shoreline. At Risk of Damage by Erosion. Possibly Inundated.
41ML157	10/31/1984	Precontact	Lithics	Unevaluated	Lake	
41ML158	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Ineligible	Mitigation	
41ML159	11/1/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Mitigation	
41ML160	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Eligible	Lake	Shoreline. At Risk of Damage by Erosion.
41ML161	9/2/1999	Precontact	Surface Scatter-Lithics	Undetermined	Lake	Shoreline.
41ML162	9/2/1999	Precontact	Lithics-Possible Camp	Eligible	Lake	Shoreline. At Risk of Damaged by Erosion.
41ML163	9/2/1999	Precontact	Lithics and Burned Rock	Ineligible	Lake	Heavily Damaged.

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML164	10/8/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML165	10/11/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML166	10/11/1984	Historic	Multiple Homesteads	Unevaluated	Lake	Shoreline. At Risk of Damage by Erosion. Possibly Inundated.
41ML167	10/10/1984	Historic	Homestead	Unevaluated	Lake	Shoreline.
41ML168	10/10/1984	Precontact/Historic	Homestead and Lithics	Unevaluated	Lake	Shoreline. At Risk of Damage by Erosion.
41ML169	10/10/1984	Precontact	Surface Scatter-Lithics	Ineligible	Lake	
41ML170	10/15/1984	Precontact	Lithics	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML171	10/15/1984	Historic	Multiple Historic Foundations. Scattered glassware and Metal	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML172	10/16/1984	Historic	Surface Scatter-Glassware and 20th century metal artifacts	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML173	10/16/1984	Historic	Surface Scatter-Concrete	Unevaluated	Lake	Shoreline. Possibly Inundated.

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML174	10/16/1984	Historic	Trash Dump	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML175	10/16/1984	Historic	Homestead.	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML176	10/16/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Shoreline. Possibly Destroyed by Erosion.
41ML177	10/16/1984	Historic	Homestead	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML178	10/16/1984	Precontact/Historic	Surface Scatter-Lithics and Homestead	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML179	9/2/1999	Historic	Homestead	Ineligible	Multiple Resource Management	Sneed Homestead
41ML180	9/2/1999	Precontact/Historic	Cemetery Site and Lithics	Ineligible	Multiple Resource Management	Graves Removed.
41ML181	10/18/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Heavily Damaged by Erosion. Possibly Inundated.
41ML182	10/19/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Multiple Resource Management	
41ML183	10/25/1984	Historic	Homestead	Unevaluated	Lake	Possible Dairy Farm. Shoreline. At Risk of Damage by Erosion.
41ML184	10/26/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Multiple Resource Management	Shoreline. Heavily Damaged by Erosion

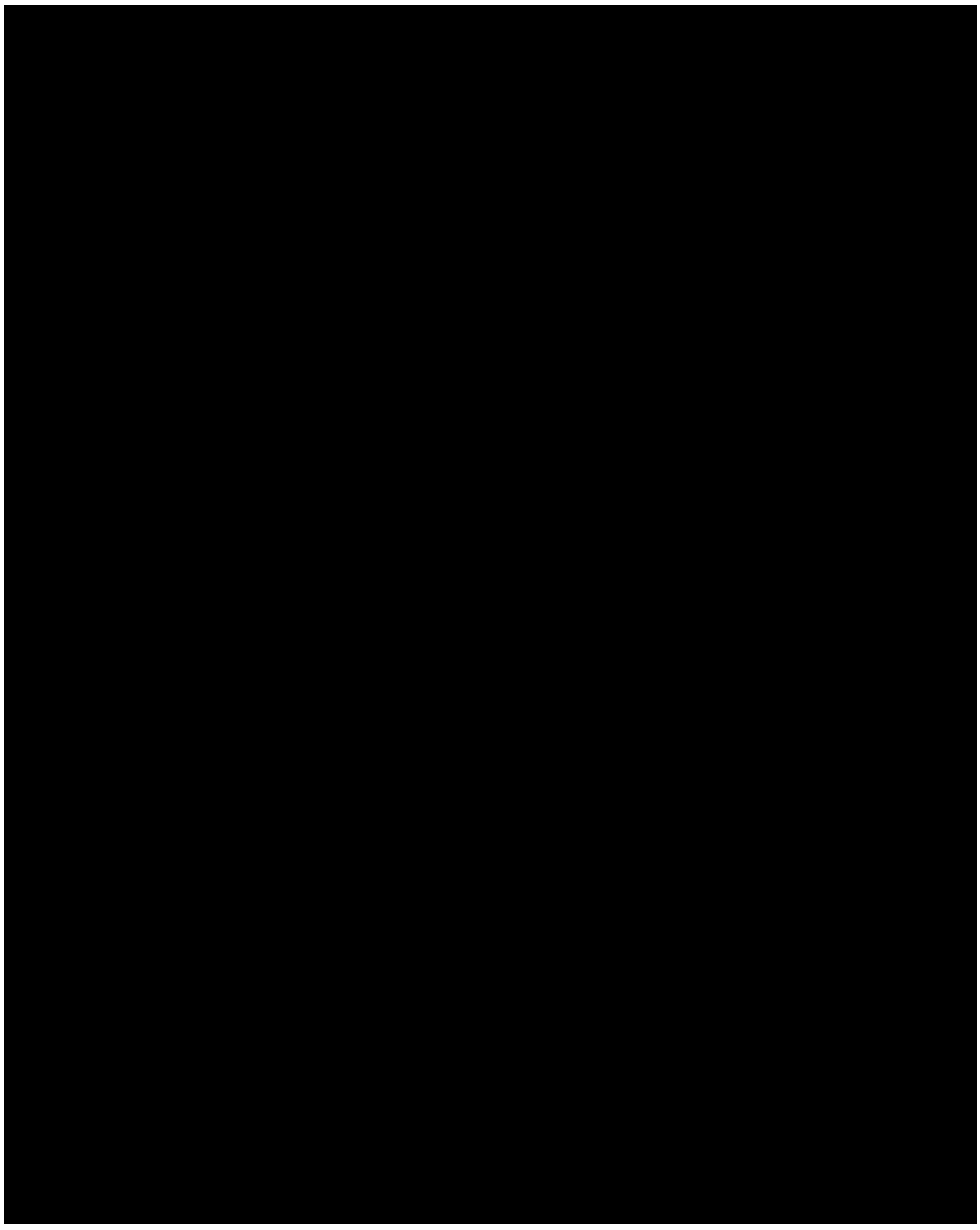
KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML185	9/2/1999	Precontact	Lithics-Possible Camp	Eligible	Lake	Site Damaged by Bridge Construction
41ML186	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Undetermined	Environmentally Sensitive Area	Shoreline
41ML187	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Undetermined	Environmentally Sensitive Area	Shoreline. Possibly Inundated.
41ML188	10/26/1984	Precontact	Surface Scatter. Lithics and Bones (non-human)	Unevaluated	Lake	Shoreline
41ML189	10/29/1984	Historic	Possible Trash Dump	Unevaluated	Lake	Shoreline
41ML190	9/2/1999	Precontact	Lithics-Possible Camp	Undetermined	Lake	Shoreline. Site Damaged by Erosion.
41ML191	10/31/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Lake	Shoreline. At Risk of Damage by Erosion.
41ML192	6/3/1999	Precontact	Lithic Material Deposit in Cutbank	Ineligible	Recreation	Shoreline. Heavily Damaged by Erosion.
41ML193	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Undetermined	Multiple Resource Management	Riverbank. At Risk of Damage by Erosion.

KNOWN CULTURAL RESOURCES ON FEE LANDS AT WACO LAKE						
Site Number/ Resource	**Date Recorded**	**Type**	**Brief Description**	**NRHP Eligibility Status**	**Land Use Classification**	**Comments**
41ML195	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Eligible	Mitigation	Shoreline. At Risk of Damage by Erosion.
41ML196	11/9/1984	Precontact/Historic	Brick and Lithics	Unevaluated	Lake	Shoreline. Possibly Inundated.
41ML197	9/2/1999	Precontact	Lithics	Ineligible	Multiple Resource Management	
41ML199	9/2/1999	Precontact	Lithic Material Deposit in Cutbank	Undetermined	Multiple Resource Management	Riverbank. At Risk of Damage by Erosion.
41ML200	11/31/1984	Precontact	Surface Scatter-Lithics	Unevaluated	Recreation	Site Likely Damaged by Construction.
41ML201	9/2/1999	Precontact	Deeply Buried Deposits of Lithic Material	Undetermined	Mitigation	
41ML202	1/10/1985	Precontact	Surface Scatter-Lithics	Unevaluated	Multiple Resource Management	
41ML265	10/17/2001	Historic	Multiple Historic Structures	Ineligible	Recreation	
41ML266	10/18/2001	Historic	Homestead	Ineligible	Environmentally Sensitive Area	
41ML267	10/18/2001	Historic	Possible Homestead	Ineligible	Multiple Resource Management	
41ML268	10/18/2001	Historic	Homestead	Ineligible	Recreation	
41ML273	1/9/2002	Historic	Possible Root Cellar and Glassware	Unevaluated	Mitigation	
41ML279	6/10/2004	Historic	Homestead	Ineligible	Mitigation	

8.3. Archaeological Sites of Note

The sites listed below have been found as Eligible for the NRHP.

8.3.1.



8.3.2.

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[redacted]

8.4. Architectural Resources

In general, properties eligible for listing in the NRHP are at least 50 years old, although properties of exceptional cultural significance that are less than 50 years old may also be considered. There is currently one previously recorded structure, the Badger Land & Cattle Co. Grain House that was considered by the SHPO to be eligible for listing in the NRHP in 2003. Structures which are more than 50 years old but have not been evaluated for NRHP eligibility are also described below. Additional structures aged 50 years or more that are not included here may exist at Waco Lake. It is recommended that these resources be recorded and evaluated for NRHP eligibility as soon as possible in order to avoid adverse effects to historic properties and expedite future mission-critical activities.

8.4.1. Badger Land & Cattle Co. Grain House

The Badger Land & Cattle Co. Grain House is an agricultural processing and storage structure that generally falls into the category of Grain Property Types identified in A Field Guide to Industrial Properties in Texas (Dase 2003). The structure was built in 1948 using milled lumber framing and siding on a concrete foundation. It is one of few surviving elements of the former Badger Land and Cattle Company headquarters that once contained numerous buildings and improvements. Although the grain processing systems integral to the barn's custom-built purpose are no longer functional, the barn is distinctive in its design, materials, and methods of construction. In 2003 the barn was determined to be eligible for listing on the NRHP under Criterion C for its embodiment of the distinctive characteristics of a type, period, and method of construction. USACE staff visited the barn in July 2023 and found that while the barn is still largely in good condition, some damage to the roof and support structures has occurred. Recommendations to stabilize the structure and avoid causing an adverse effect through neglect are included in Chapter 9 of this document.

Figure 20: Badger Land and Cattle Co. Grain House

8.4.2. Lake Waco Dam (1929)

The original Lake Waco Dam was constructed between 1929 and 1930 by the Callahan Construction Company and remains submerged below the current lake

surface. Submerged for over sixty years, it is considered an engineering ruin and potentially eligible for the National Register of Historic Places (NRHP). If it is anticipated future undertakings could impact the submerged structure, it should be evaluated for NRHP eligibility to avoid mission critical delays.

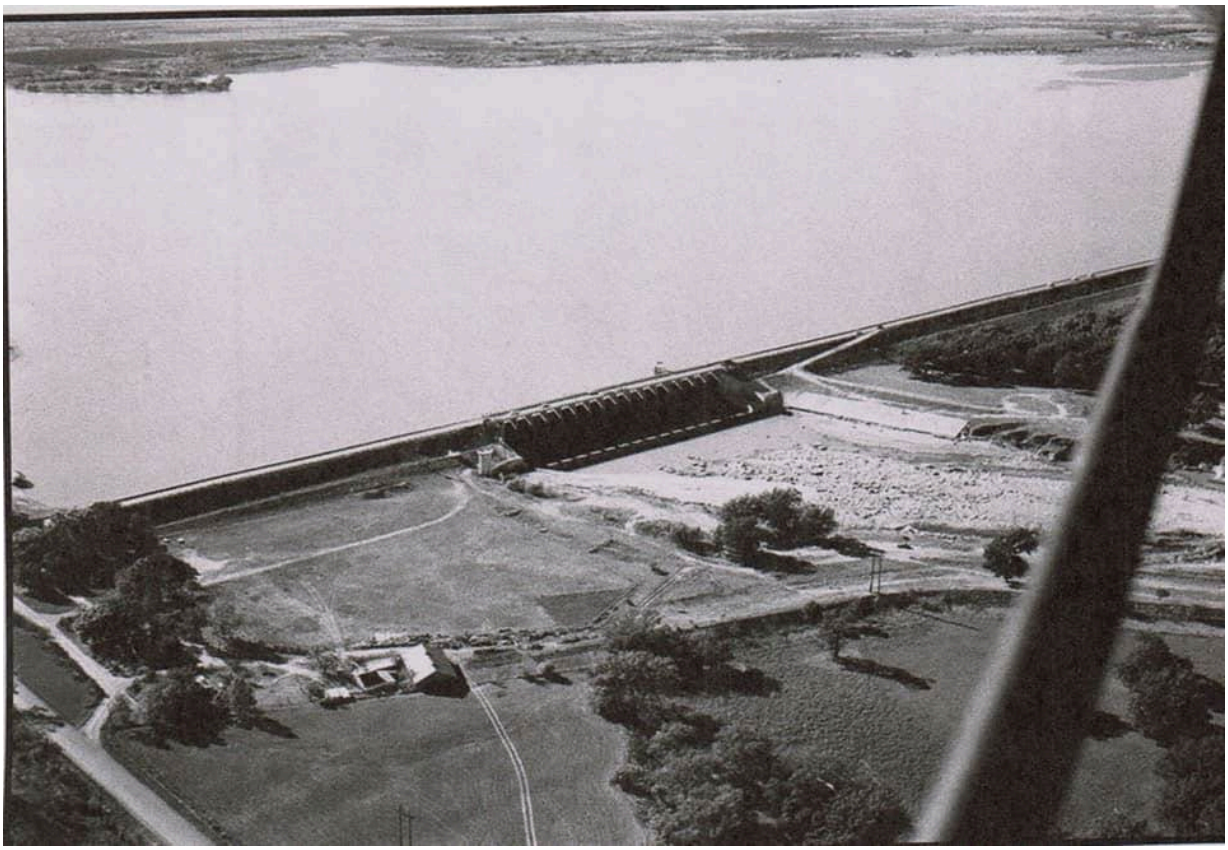

Figure 21: Aerial photo of original Waco Dam ca. 1940s

8.4.3. Lake Waco Dam (1958-1960)

The existing Lake Waco Dam is an earthen filled embankment with a concrete outlet works and a concrete gate-controlled spillway with twenty-four inches of riprap on the upstream face. As a structure greater than 50 years old, any federal undertaking (including operations and maintenance) that may affect it will require its assessment for eligibility for the NRHP and if determined eligible, a consultation processes with agencies and stakeholders to seek ways to minimize, avoid or mitigate adverse effects must take place should the undertaking be determined adverse.

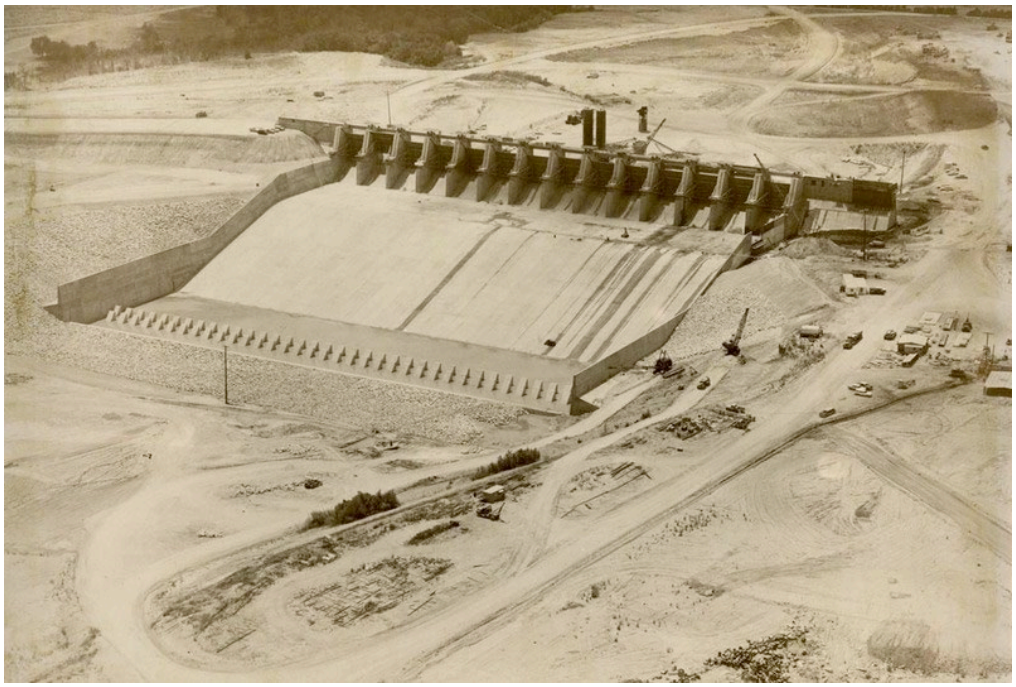

Figure 22: The “new” Waco Lake Dam under construction.

8.4.4. Eichelberger Crossing Bridge

The Eichelberger Crossing Bridge runs adjacent to the modern bridge that permits Baylor Camp Road to span the North Bosque River. Built in 1925 and abandoned in 1987, it is a wooden-decked, pony-truss style bridge that has partially collapsed on the southern end and has also suffered damage from fire. The local fire department removed the abutment on the northern side as well as the wooden decking in order to deter loitering on the structure. It is recommended that this structure be evaluated for inclusion in the NRHP in the near future before the structure is further adversely affected or destroyed.

Figure 23: Eichelberger Crossing Bridge ca. 1959

Figure 24: North Abutment of Eichelberger Crossing Bridge (View Looking South).

Figure 25: Eichelberger Crossing Bridge (View looking Southeast)

8.5. Cemeteries

According to a 1962 report for the USACE by Jim Phipps Memorial Co., eight cemeteries were relocated prior to the 1965 impoundment of the newly enlarged lake. It is believed that all graves were relocated to nearby cemeteries including China Springs, Chapel Hill, Oakwood, Waco Memorial Park Crawford, and Bosqueville. However, it is not uncommon for unmarked graves to exist within and outside of known cemetery boundaries. It is recommended to avoid new ground disturbing impacts in and around these locations. If impacts cannot be avoided the District CRM should be contacted to determine whether additional survey or coordination is necessary. One additional cemetery with an unverified location exists on or near flowage easement lands on the left bank of the North Bosque River. It is reported to contain three unmarked burials dating to the early 1900s which are associated with a locally prominent family. It is recommended to request right of entry to conduct intensive cultural resource investigations in this location in order to identify historic properties which may be adversely affected by lake operations. Figure 23 below is an excerpt from the 2022 McLennan County Cemeteries Map.

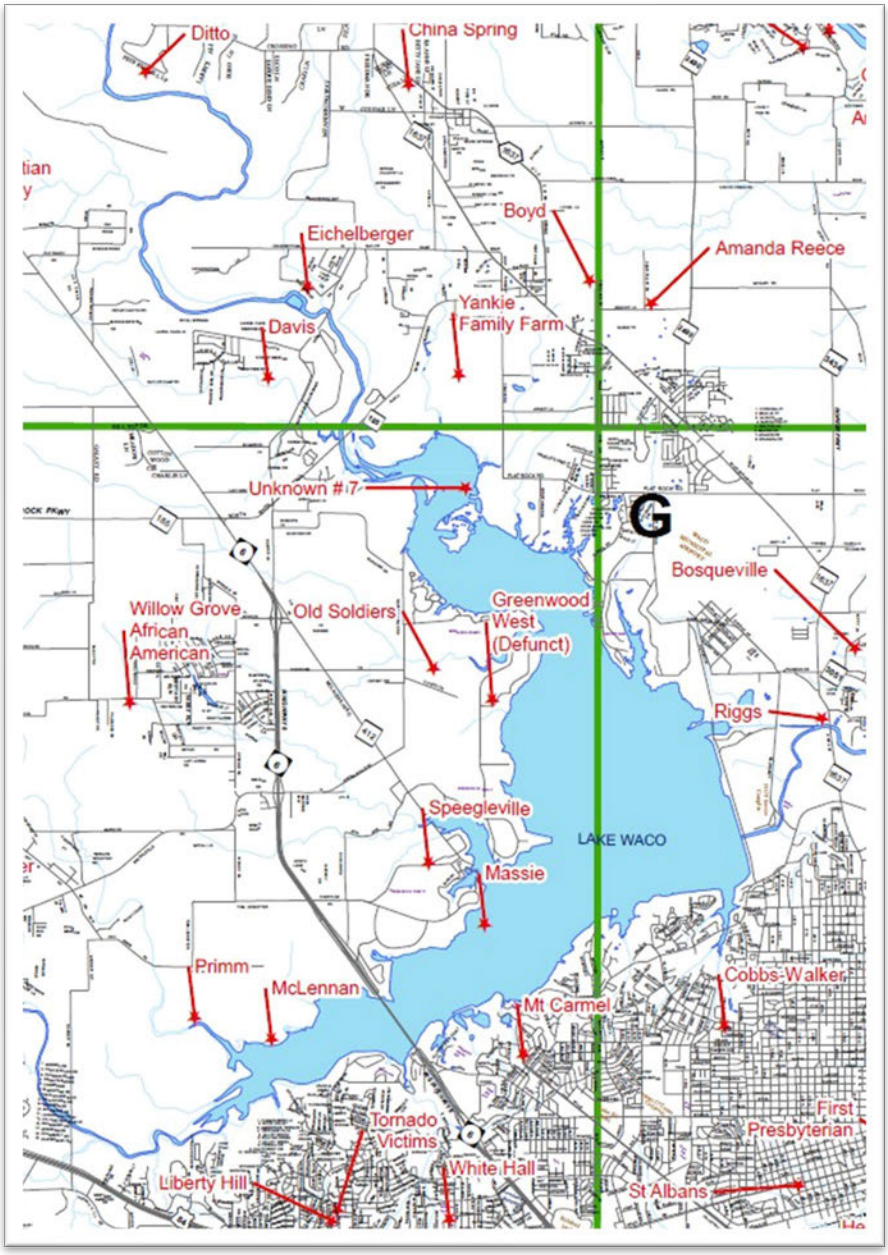

Figure 26: Excerpt of the 2022 McLennan County Cemetery Map

8.5.1. McLennan Cemetery-Cemetery ID Number ML-C063-Archaeology Site Number 41ML12

The McLennan Cemetery covered an area of approximately 100 square meters. It consisted of 58 graves, 35 of which were marked with the earliest dating to the 1850s. The former cemetery area is noted as now being an “Off Road Vehicle Area” and as such has been heavily impacted. McLennan Cemetery is identified

in the 1962 Phipps report as well as the Texas Historical Commission's Atlas Database.

8.5.2. Primm Cemetery-Archaeology Site Number 41ML180

Primm Cemetery was located on Hog Creek and measured approximately 40 meters by 30 meters. The site was a residence and cemetery used by Mexican tenants who worked for the Badger family. The earliest dates of the cemetery are unknown, but the residence is shown on the 1931 Valley Mills 15 min USGS quad. The cemetery is now considered to be vacant. A description of the site including the relocated cemetery is provided in the archaeology site form for 41ML180, but a cemetery site number and polygon are not included in the Atlas Database cemetery data.

8.5.3. Greenwood West Cemetery-Cemetery ID Number ML-C050

Greenwood West Cemetery was visited by Waco Lake personnel and USACE archaeologists during a preliminary field visit on November 15, 2022, related to the development of this document. Several large oak trees and what appear to be the remains of a wrought-iron fence, or a series of benches denote the location of the cemetery, an area estimated to be approximately 50 meters by 50 meters. One memorial marker and several footstones were noted within this boundary. Greenwood Cemetery is identified in the 1962 Phipps report as well as the Texas Historical Commission's Atlas Database.

Figure 27: Memorial Marker Located in Greenwood Cemetery

8.5.4. Eichelberger Cemetery

Eichelberger Cemetery was located on the left bank of the North Bosque River near Eichelberger Crossing and what is now Baylor Camp Rd. This cemetery is identified in the 1962 Phipps report and in the 2022 McLennan County Cemeteries map but is not identified in the Texas Historical Commission Atlas Database.

8.5.5. Massie Cemetery

Massie Cemetery was located approximately 1 mile southeast of Speegleville and is now submerged. This cemetery is identified in the 1962 Phipps report but is not identified in the Atlas Database.

8.5.6. Old Soldiers Cemetery

Old Soldiers Cemetery is identified on the McLennan County Cemeteries map near the right bank of Tennant Branch and what is now Classic Dr. This cemetery is identified in the 1962 Phipps report but is not identified in the Atlas Database.

8.5.7. Speegleville Cemetery

Speegleville Cemetery was located near what is now Speegleville Park and Overflow Rd. The 1962 relocation resulted in a new cemetery off Interstate 35 south of Waco. A description of Speegleville Cemetery is included in the Phipps report, but the location and boundaries of the cemetery are not identified in the Atlas Database.

8.5.8. Unknown #7

This cemetery is identified in the 1962 Phipps report and in the McLennan County Cemeteries Map. The site is located at the far north end of the lake on the channel of the North Bosque River and is now fully submerged. The site is not included in the Atlas Database.

8.5.9. Ditto Cemetery

The Ditto family cemetery is depicted on the 2022 McLennan County Cemeteries Map on the left bank of the North Bosque River near what is now Pete Russell Loop. The site is reported to contain three unmarked burials dating to the early 1900s which are associated with a locally prominent family. The exact location of the cemetery is not known, and the site is not included in the Atlas Database. If impacts from inundation or other lake operations are anticipated on flowage easement lands in the vicinity of this location, it is recommended to conduct intensive cultural resources survey to identify and avoid impacts to historic properties.

9. RECOMMENDATIONS FOR CULTURAL RESOURCES MANAGEMENT

The Waco Lake staff is directly responsible for ensuring the protection of the cultural resources located on fee lands. Incorporating cultural resource components in each fiscal year's planning and budgeting is crucial for compliance with federal law. Sites included in the NRHP are to be afforded maximum protection in the form of limiting and mitigating any disturbance to the site via human visitation and activities as well as naturally occurring impacts. Sites determined as eligible, undetermined, and unevaluated must be afforded the same level of protection as if they were included in the NRHP. The recommendations provided in this section offer guidance to the Lake Manager and the District CRM on specific management tasks and work items that will allow USACE to meet its stewardship goals. A sample site monitoring form is included as Appendix A.

9.1. Prioritization of Archaeological Sites

Eligible Sites

Of the 101 previously recorded archaeology sites at Waco Lake, 6 have been formally evaluated and determined eligible for listing in the NRHP. Two of these sites (41ML35 and 41ML37) have undergone data recovery to mitigate impacts from the current lake elevation. These sites should be routinely monitored to document the site condition. If new impacts are observed or anticipated, or if a new undertaking is planned in the vicinity of these sites, additional investigations and consultation by the CRM will be necessary. The four remaining eligible sites (41ML160, 41ML162, 41ML185, and 41ML195) have not been subject to data recovery and have been documented as having impacts from erosion, and in one case, from road construction. Impacts to these sites from new undertakings should be avoided and the site condition in these areas should be routinely monitored and inspected. If impacts from erosion or other regular operations and maintenance are observed, a memorandum of agreement to mitigate any adverse effects should be executed.

Undetermined and Unevaluated Sites

There are currently 63 undetermined and unevaluated sites at Waco Lake, many of which are either partially or fully inundated and impacted by erosion. Site boundaries have not been determined for many of these sites and it is likely that intact deposits extend inland and below the area of erosion. Phase two testing to determine the NRHP eligibility of these sites should be conducted as budgeting allows. Sites located in upland settings on the west side of the lake including 41ML11, 41ML15, 41ML17-21, 41ML131-135, 41ML150, 41ML154-156, and 41ML273 have site components recorded at elevations above 460' AMSL. Most are at risk of impact from erosion and/or activities associated with recreation lands including construction and looting. Because these sites are more easily accessible, likely to have intact deposits, and at risk of imminent harm, they should be prioritized for NRHP testing. Site 41ML150 is of particular interest as it

contains precontact as well as historic era deposits and has been linked with early settler Israel Speegle.

Numerous other unevaluated and undetermined sites are located below the current lake elevation of 462’ AMSL. Although some of these sites are also likely to extend inland, some site degradation is anticipated, and remaining site components will be more difficult to access due to inundation. Sites including 41ML164-178, 41ML181-184, 41ML186-191, 41ML196, and 41ML199-202 should be revisited when the pool elevation is low, approximately 440-450’ AMSL.

These geographic site groupings are intended to help the Lake Manager and the District CRM make planning and budget decisions based on accessibility and observed impacts. The selection of specific sites for testing and level of effort needed will be determined by the District CRM.

Ineligible Sites

Although sites determined to be ineligible should not necessarily be given the same priority of protection, inadvertent discoveries may cause a previously ineligible site to be reevaluated as eligible. Therefore, sites determined to be ineligible should still be monitored and protected so long as those efforts still fall within mission guidelines. Working directly with the district archeologist and concurrently following the SOPs of this document will ensure compliance with federal laws regarding the cultural resources under the care of Waco Lake staff.

9.2. Future Archaeological Surveys

It is recommended that a percentage of funding be set aside each year for cultural resource surveys and inventories prioritizing areas in which cultural resources are potentially the most at risk of adverse effect and locations where undertakings which have the potential to affect historic properties are planned. Of the list of previous survey reports provided in Table 1 of this document, only three investigations were conducted using modern standards and methodology. The majority of the land affected by lake operations needs to be surveyed for archaeological resources. It is recommended to conduct the survey of the four Waco Lake management areas in the following order, based on their risk of potential impact from recreation, erosion, construction, and other activities, previously recorded cultural resources, and potential to identify intact deposits.

1. Central Bosque Management Area West – This location has several unevaluated/undetermined sites and is highly accessible to the public as a recreational park area. There is a high likelihood of construction and maintenance activities which require cultural resources compliance to occur in these areas. Ongoing erosion is moderate in this location but less severe than the North Bosque area or the Central Area East shore.

2. North Bosque Management Area – This location contains sites which have been determined eligible for the NRHP as well as several undetermined/unevaluated sites. It is anticipated that more unidentified sites with stratified deposits could be located along the North Bosque River. This location is also subject to erosion and looting. Although data recovery has taken place at some of the sites in this management area, systematic survey meeting modern standards has not been conducted.

3. South Bosque Management Area – This location also has numerous previously identified archaeology sites and high probability for additional unidentified sites to be present. Ongoing erosion has also been observed in this management area, but the area is not as developed meaning there are less impacts from human activities and less erosion due to presence of intact riparian vegetation.

4. Central Bosque Management Area East – This management area is subject to the most pronounced erosion and has not undergone systematic survey using modern methods. Although numerous sites have been recorded in this area and there are likely additional unidentified sites, the shoreline is generally steep, leaving a lesser likelihood of intact deposits.

Considerations for prioritization of survey needs:

- Fee lands designated for “Recreational Use”, especially those constantly affected by human activity.
- Areas in which future infrastructure projects can be predicted that previously have not been surveyed to modern archaeological standards.
- Areas in which cultural resources may be adversely affected as a result of rising and lowering lake levels, erosion, and flooding (i.e., shoreline areas of the lake, creeks, and rivers).
- Waco Lake leased lands, especially those that may be adversely affected by the activities that they are being leased for (i.e., offroad vehicle trails, etc.) that previously not been systematically surveyed to modern archaeological standards.

- All other fee and easement lands that have not been systematically inventoried (i.e., areas not previously surveyed) which may be impacted by lake operations or subject to USACE permission.
- Areas where past surveys were not conducted to modern archaeological standards.

Purely pedestrian surveys (i.e., the absence of subterranean testing) should not be accepted as an accurate survey for cultural resources.

9.3. Recommendations for Above Ground Resources

The following actions are priorities for the treatment of historic structures at Waco Lake:

The Badger Land & Cattle Co. Grain House

1. Straighten and stabilize wood post and concrete bases of roof support posts. Restore at least two of these support structures with matching wood posts and concrete bases where missing.
2. Repair/cover all roof openings with in-kind materials such as corrugated sheet metal.

Waco Lake Dam

1. Evaluate the existing dam for NRHP eligibility.

Other

1. Survey fee lands, as well as flowage easement lands where accessible, to identify structures greater than 50 years old which may be impacted by lake operations.

9.4. Recommendations for Updating JECOP and this HPMP

Filling certain data gaps will improve the quality and function of the JECOP and this HPMP as management tools for cultural resources. The following updates are recommended as budgeting allows:

1. Digitize previous survey area data for inclusion on JECOP and Atlas.
2. Separate site spatial data by NRHP eligibility status.
3. Determine site ownership (fee/easement) and management of sites not on Corps land that are affected by lake operations.

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APPENDIX A: Sample Site Monitoring Form

SITE NUMBER:

DATE:

Site Monitoring Form

Primary Inspector Name:

Primary Inspector Credentials/Role/Job Description:

Secondary Inspector Name(s):

Site Name (if any):

Time of Day:

Weather Conditions:

Description of Site Setting (i.e., wetland, shoreline, terrace, vegetation, proximity to structures, etc.):

Have the horizontal and vertical boundaries of the site been fully delineated? ---------Y ☐ N ☐

Is site fully or partially inundated? ----------Y ☐ N ☐

Is site periodically inundated? ----------Y ☐ N ☐

Is site permanently inundated? ----------Y ☐ N ☐

Is this site located in a cutbank? ----------Y ☐ N ☐

Was inspector able to access full extent of site? ----------Y ☐ N ☐

If not, why:

Describe previous site condition:

Is there evidence of impacts to the site? ----------Y☐ N☐

If so, describe:

Does it appear these impacts have accelerated since previous site inspection? ----------Y☐ N☐

If so, describe:

Attach photos at end of this document. Photos should be taken looking toward the site from North, South, East, and West (if possible). Evidence of impacts as well as any diagnostic components the recorder deems relevant should also be documented. If a previous inspection documented impacts, photos should be taken from approximately same location for comparison.

Further Comments:

APPENDIX B: Consultation Letters

The enclosed consultation letters were sent out for the initial scoping regarding input into the crafting of this HPMP.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Chairman Durrell Cooper
Apache Tribe of Oklahoma
Post Office Box 1330
Anadarko, Oklahoma 73005

Dear Chairman Cooper:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating Historic Properties Management Plans for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

USACE recognizes that Native American Tribes are sovereign nations and are to be consulted on federal undertakings through government-to-government consultation rather than as the general public, and we wish to provide every opportunity for Tribal input and encourage your participation in the development of the Historic Properties Management Plans for Waco Lake and Navarro Mills Lake. All information you choose to provide will remain confidential.

USACE is currently seeking information regarding sites and resources of cultural significance to Native American Tribes that will aid in the development of this document. In addition to seeking your input on existing or potentially unidentified resources, we welcome the opportunity to answer any questions you may have regarding this undertaking.

Please send any comments or requests for additional information to Jack "Gus" Adamson, Archeologist, Regional Planning and Environmental Center, via email at Jack.Adamson@usace.army.mil or by telephone at (501) 324-5018.

Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Ms. Martina Minthorn / Mr. Theodore Villicana
Tribal Historic Preservation Officer
Comanche Nation of Oklahoma
Post Office Box 908
Lawton, Oklahoma 73502

Dear Ms. Minthorn and Mr. Villicana:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating Historic Properties Management Plans for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

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Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Mr. Kristian Poncho
Tribal Historic Preservation Officer
Coushatta Tribe of Louisiana
Post Office Box 10
Elton, Louisiana 70532

Dear Mr. Poncho:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating Historic Properties Management Plans for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

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Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Ms. Lauren J. Norman-Brown
Tribal Historic Preservation Officer
Tonkawa Tribe of Oklahoma
1 Rush Buffalo Road
Tonkawa, Oklahoma 74653

Dear Ms. Norman-Brown:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating Historic Properties Management Plans for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

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Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Mr. Gary McAdams / Ms. Mary Botone
Tribal Historic Preservation Officer
Wichita and Affiliated Tribes
Post Office Box 729
Anadarko, Oklahoma 73005

Dear Mr. McAdams and Ms. Botone:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating Historic Properties Management Plans for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

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Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Sherry DeHay
Mayborn Museum
2801 W. Waco Drive
Waco, Texas 76707

Dear Ms. DeHay:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating an Historic Properties Management Plan for Waco Lake, situated in McLennan County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

USACE is currently seeking information regarding sites and historical resources of cultural significance that will aid in the development of this Historic Properties Management Plan for Waco Lake and we encourage your participation in this process. All information you choose to provide will remain confidential. In addition to seeking your input on existing or potentially unidentified resources, we welcome the opportunity to answer any questions you may have regarding this undertaking.

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Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Texas State Historical Association
Post Office Box 5428
Austin, Texas 78763

To Whom it May Concern:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating an Historic Properties Management Plan for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

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Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT
P.O. BOX 17300
FORT WORTH, TX 76102-0300

December 14, 2022

Mark Wolfe
Executive Director
Texas Historical Commission
1511 Colorado Street
Austin, TX 78701

Dear Director Wolfe:

The U.S. Army Corps of Engineers, Fort Worth District (USACE), is creating Historic Properties Management Plan for Waco Lake, situated in McLennan County, Texas, and Navarro Mills Lake, situated in Navarro County, Texas. Historic Properties Management Plans provide a comprehensive program to direct historic preservation activities and objectives in order to effectively manage and protect each historic property and cultural resource. Historic Properties Management Plans are designed to be working documents for USACE personnel who have the responsibility to coordinate and integrate cultural resources management with the operational goals of a lake in a timely, cost-efficient, and ethical manner.

USACE is currently seeking information regarding sites and historical resources of cultural significance that will aid in the development of this Historic Properties Management Plan for Navarro Mills Lake and we encourage your participation in this process. All information you choose to provide will remain confidential. In addition to seeking your input on existing or potentially unidentified resources, we welcome the opportunity to answer any questions you may have regarding this undertaking.

Please send any comments or requests for additional information to Jack "Gus" Adamson, Archeologist, Regional Planning and Environmental Center, via email at Jack.Adamson@usace.army.mil or by telephone at (501) 324-5018.

Sincerely,

Kenneth Shingleton

Kenneth L. Shingleton
Chief, Environmental Branch
Regional Environmental and Planning Center

APPENDIX C: Glossary

This appendix gives brief explanations of several key terms and concepts common to cultural resource laws and regulations that are used in this ICRMP. Other terms and concepts are also applicable and are defined in the relevant laws and regulations.

Adverse Effect: An undertaking has an adverse effect on a historic property when it diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, association, or information content. Adverse effects include:

- Physical destruction, damage, or alteration to all or part of the property;
- Isolation of the property from its setting;
- Introduction of elements that alter the setting or that are out of character;
- Neglect of a property resulting in its deterioration or destruction; and
- Transfer, sale, or lease of a property.

Advisory Council for Historic Preservation (ACHP): This council was established by the NHPA of 1966 to advise the President and Congress, to encourage private and public interest in historic preservation, and to comment on Federal agency action under Section 106 of the NHPA.

Area of Potential Effect (APE): The APE is a geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist there. This area always includes the actual site of the undertaking but may also include other areas where the undertaking will cause changes in land use, traffic patterns, or other aspects that could affect historic properties.

Artifacts: Discrete and generally portable, artifacts are any objects used or manufactured by humans. Individual isolated artifacts are a class of cultural resource generally not eligible for inclusion on the NRHP, with the exception of specific objects of great historical importance.

Consulting Party: Consulting parties are identified in the current 36 CFR Part 800 as the Agency, Native American Indian tribes, the ACHP, the SHPO, local governments, permit applicants, and the public. Certain individuals and organizations with a demonstrated interest in the undertaking may participate as consulting parties regarding the outcome of any treatment of historic properties due to the nature of their legal or economic relation to the undertaking or affected properties, or their concern with the undertaking's effects on historic properties.

Council Comment: The ACHP (Council) participates in the Section 106 process reviewing agency and SHPO determinations of adverse and/or no adverse effect, by assisting in dispute resolution, and by signing memorandum or programmatic agreement documents reached as the result of formal consultation. In cases where no agreement can be reached as the consultation process is terminated, the ACHP has the opportunity to issue final comments to the participating parties.

Criteria of Effect: An undertaking has an effect on a historic property when it alters characteristics of the property that qualify the property for inclusion to the NRHP. These characteristics may include a property's location, setting, or use (see Adverse Effect).

Cultural Resource: A cultural resource is any place, site, building, object, or collection of these, that was built or fashioned by people. Fossils and naturally occurring geological specimens are not cultural resources (unless found within an archeological context). Not all cultural resources are considered significant under the NHPA (see Historic Property).

Cultural Resource Manager (CRM): A CRM is someone appointed to coordinate a facility's management of cultural resources. The CRM must coordinate with other staff early in the planning of projects and activities that may affect cultural resources. There is no directive for the US Army Corps of Engineers to create nor appoint such positions and it is only recommended as a best management approach.

Determination of Eligibility: Under the NHPA, a property is evaluated for eligibility for inclusion on the NRHP by determining if it:

● is associated with significant historical events;

● is associated with significant historical persons;

● embodies the distinctive characteristics of a type, period, or method of construction, or is the work of a master, or has high artistic values; or

● has yielded, or is likely to yield, important information about history or prehistory.

Eligibility must be determined solely on the historical, architectural, cultural, or scientific importance of a property. Management issues and mission requirements are to be considered as a priority, but the treatment of the resource must be fair and balanced. Ordinarily, a property that has achieved significance within the last 50 years is not eligible unless it is of "exceptional importance". Importantly, an "eligible" property is treated as if it were already listed on the NRHP and is afforded the same protection as a listed property.

District: An historic district is a geographically definable area with a concentration of cultural resource properties that are united by past events or aesthetically by plan or physical development. Districts are defined by an historic context or theme. A district always contains contributing elements, which are the individual buildings and structures that contribute to the District's historic theme. Districts may also contain non-contributing

elements. These are buildings and/or structures which are physically located within the boundaries of the district, but which do not contribute to the theme that makes the district eligible for the NRHP.

Historic Context: Historians, architectural historians, folklorists, archaeologists, and anthropologists use different words to describe historic context (e.g., trend, pattern, theme, affiliation), but they all refer to the same concept. The means by which the significance of a cultural resource is understood is through its historic context. An historic context can refer to either prehistory or history. For purposes of the NRHP, historic context is information about historic trends grouped by an important theme in the prehistory or history of a community, state, or nation during a particular period of time. A premise fundamental to all these approaches to historic context is that resources, properties, and events in history do not occur in a vacuum but are part of larger trends or patterns. To evaluate a property within its historic context, it is necessary to determine the following:

1) what facet of local, state, or national prehistory or history is represented;

2) whether that facet is significant;

3) whether the property has relevance and importance in illustrating the historic context;

4) how the property illustrates that historic context; and

5) whether the property possesses the physical features necessary to convey the aspect of prehistory or history with which it is associated.

Historic Property: As defined by the NHPA, a historic property is any district, site, building, structure, or object that is included on the NRHP or is eligible for inclusion on the NRHP. Historic properties may be associated with either precontact and/or historic time periods. Historic properties include those already listed on the NRHP, as well as those not yet listed, but determined eligible. Ordinarily, historic properties are defined as more than 50 years old.

Historic properties include the following:

● A **district** is a geographically definable area with a concentration of cultural resource properties that are united by past events, or aesthetically by plan or physical development.

● A **site** is the location of a precontact or historic event or occupation, or a structure that contains historical or archeological value.

● A **building** is a structure created to shelter human activities such as a house, jail, church, barn, or factory.

● A **structure** is an engineering edifice designed to aid human activities, such as a road, bridge, or canal.

● An **object** is a moveable artifact of functional, aesthetic, cultural, historic, or scientific value, such as a cannon, a church bell, or a precontact basket.

In addition, historic properties may also be real property as in the case with Traditional Cultural Properties (TCP). Examples of TCP's include sacred locations associated with Native American religious beliefs (hilltops, ridges, rivers, etc.), rural communities whose buildings or landscapes reflect cultural traditions valued by long-term residents, or urban neighborhoods that are the home of, and reflect the beliefs and practices of, a particular cultural group. Even if these properties are not eligible under NHPA, they may still have a consideration under various statutory authorities such as AIRFA.

Interested Parties: “Interested parties” was utilized in the previous versions of 36 CFR Part 800 to include local governments, Indian tribes, or organizations that may have an interest in the specific activity and its effects on historic properties. Interested parties that specifically request to be included in consultations on these effects and have demonstrated their legitimate interest in a specific undertaking(s) or an historic property(s), is further identified as a “consulting party” (see Consulting Party). Their comments are provided to federal agencies and the SHPO.

Isolated Occurrences: Places where one or only a few artifacts of a single artifact class (e.g., stone tool, faunal remains, pottery) are present are termed isolates or isolated occurrences (IO). These may represent either redeposited archeological material, the remains of which was once a site which has been disturbed, or the location of some past activity which has left sparse material remains. Examples of the latter include a single arrow point which missed its target, a camp occupied for a very short time, or an object which was lost. Because of their minimal information content, isolated occurrences are rarely eligible for inclusion on the NRHP.

Keeper of the (National) Register: The individual who has been delegated authority by the NPS, on behalf of the Secretary of the Interior, to list properties and to determine their eligibility for the NRHP is called the Keeper of the Register.

Localities: Archeological places that have been identified on the basis of collections or documentary research but have not been checked in the field by professionals are referred to as localities. Examples are places where artifact collectors have found archeological specimens, or the sites of past structures as indicated on historic maps. Because most localities have not been subjected to additional research, they typically have not been evaluated for their eligibility for inclusion on the NRHP and may need additional research.

Memorandum of Agreement (MOA): An MOA is a formal agreement containing the results of discussions between a federal agency, SHPO, the ACHP, and, sometimes, interested persons. It documents mutual agreement of facts, intentions, procedures, and parameters for future agency actions.

Mitigation: Lessening the adverse effects an undertaking may cause to historic properties is considered mitigation. The procedures and parameters for mitigation are stipulated in an MOA and can include:

● avoiding the effect altogether by not taking an action or by relocating the action;

● reducing or eliminating the effect over time by preservation and maintenance;

● limiting the magnitude of the undertaking;

● repairing, rehabilitating, or restoring the property;

● recovering and recording information from properties that may be destroyed or damaged; and

● compensating for effect by providing substitute resources.

National Register Nomination Form: This form is a legal document submitted to the Keeper of the Register and prepared following the technical requirements of the NPS. The form includes data, text maps, and photographs and must be prepared according to standards generally accepted by academic historians, architectural historians, and archaeologists.

National Register of Historic Places (NRHP): Created by the NHPA, the NRHP is the master inventory of the nation's known historic properties, maintained by the NPS on behalf of the Secretary of the Interior. Listings include buildings, districts, structures, sites, and objects that possess historic, architectural, engineering, archeological, or cultural significance.

Programmatic Agreement (PA): The PA is a formal agreement between a federal agency, the SHPO, and, sometimes, the ACHP to modify and/or replace the Section 106 consultation process for numerous undertakings in a large or ongoing program.

Section 106 Consultation: Section 106 consultation is the procedure for compliance with the NHPA in which the federal agency requests the comments of the SHPO and/or the ACHP when an undertaking may affect a historic property.

Site: Archeological sites are the locations of past human activity, defined according to local standards by state or federal agency archaeologists. Sites may contain artifacts (i.e., things made, modified, or used by humans), features (i.e., relatively immovable remains of human activity, such as a fire hearth), and other evidence of occupation (e.g., chemical alteration of the soil). If these archeological materials are found in the place where their original users left them, they are said to be in situ and the site has not been disturbed. If they have been disturbed by natural processes (e.g., erosion) or human activity (e.g., construction, deliberate vandalism), they are said to have been redeposited. Sites which have not been disturbed have the greatest scientific value because the relationship between associated archeological materials and their vertical and horizontal position can yield important information about the past.

State Historic Preservation Officer (SHPO): Appointed by the Governor, the SHPO is an official who represents state interests in Section 106 review. In Texas, the SHPO is attached to the Texas Historical Commission.

Undertaking: As defined by the NHPA, an undertaking is any project, action, activity, or program (or any element of the above) that is under the direct or indirect jurisdiction of a federal agency, or its leases, and that has the potential to have an effect on a historic property. Included are construction, rehabilitation, repair projects, demolition, planning, licenses, permits, loans, loan guarantees, grants, federal property transfers, and many other federal activities.

APPENDIX D: Research Themes

Research themes assist in guiding archaeological professionals both with field work and post-project analysis in answering pertinent questions that fill the gaps in our understanding of human history. These themes should be modern concepts generated through compounded research on a particular subject or facet. No research theme is ever completely answered, and so when this document is updated in the future, the themes listed below should not be removed but kept, expounded upon if pertinent, and the list itself added to.

Chronology

Chronology is the foundation of archaeological investigation, providing order over the materials and features identified at a site and the events and activities that are interpreted from them.

Research Questions:

Where are stratigraphically discrete cultural deposits located at Waco Lake?

What are the calendrical ages or intervals of the occupations?

Data Needs:

A. Radiocarbon dates from defined cultural and natural contexts.
B. Geormorphic study and stratigraphic description of terrace, floodplain, and upland deposits.
C. Documentation of vertical artifact distribution including analyses of diagnostic artifact types.

Subsistence Strategies

Subsistence strategies are the means by which people procure and utilize resources including nutrition, shelter, and water. These strategies change with time and geographic location and are often linked to discrete cultural groups.

Research Question:

As the use of rock hearths for plant processing increased between the Late Archaic and Late Precontact periods, was there also a change in the type of plants being processed and consumed?

Data Needs:

A. Organic residue of burned rock features, grinding stones, and other tools.
B. Radiocarbon dates from burned rock features.

C. Microwear and dental cary analysis of adult humans.
D. Macrobotanical remains from defined cultural and natural contexts.

Paleoenvironments

Paleoenvironmental data provide an understanding of the environmental context in which human societies lived and interacted. Data from the region indicate a dynamic late Holocene environment with shifts between cooler/wetter and warmer/drier periods, to which humans had to adapt.

Research Question:

How do observed changes in climate relate to resource use and availability?

Data Needs:

A. Stable isotopic analysis of buried soils to document changing plant communities.
B. Documentation of soil stratigraphy including particle size and chemical data.
C. Taxa of faunal remains.
D. Organic residue of burned rock features, grinding stones, and other tools.
E. Macrobotanical remains from defined cultural and natural contexts.
F. Taxa of wood charcoal recovered from cultural features.

Technological Organization

Changes in tool production and use often signal a shift in subsistence strategy or resource availability. The study of changes in activities carried out in the riparian zone of the North Bosque River throughout the late Holocene hinges on the systematic establishment of the function or functions of various tools recovered from precontact era sites at Waco Lake.

Research Questions:

What kinds of tool manufacturing, maintenance, and use activities are occurring at upland/wetland/terrace sites?

What is the diversity of tools present?

Is there evidence of food processing?

Data Needs:

A. Types and diversity of lithic artifacts including tools and debitage.
B. Types and diversity of faunal remains and other artifacts and features.
C. Organic residue of burned rock features, grinding stones, and other tools.

Settlement Patterns and Residential Mobility

Settlement patterns and residential mobility are reflected in the chronological and spatial relationships between archaeology sites.

Research Questions:

Are certain site types concentrated on certain landforms?

Does site use intensify or show evidence of longer occupation between the Late Archaic and Late Prehistoric periods?

What is the relationship of sites at Waco Lake to comparable sites in the region?

Data Needs:

A. Comparison of assemblage diversity, richness, and evenness.
B. Detailed stratigraphic profiles of geomorphic context.
C. Regional synthesis of information regarding temporally comparable sites.

World War I

This was the first conflict for which U.S. troops were trained and sent abroad to defend foreign lands. Artifacts and features representing cultural practices at Camp MacArthur may exist at Waco Lake.

Research Question:

Are culturally significant structures or archaeological sites related to Camp MacArthur present at Waco Lake?

Data Needs:

A. Background research to include historic maps, archival records, diaries, and other primary resources related to Camp MacArthur.
B. Intensive cultural resources survey to include above ground resources, subsurface investigations, and remote sensing.

APPENDIX E: Preservation Laws and Regulations

This section contains brief summaries of the scope and intent of cultural resource laws and regulations relevant to USACE lakes.

Federal Laws

Antiquities Act

- The Antiquities Act of 1906 (16 United States Code [USC] □431 et seq.) allows the President of the United States (U.S.) to set aside federally owned land as historic landmarks. It also allows the Federal government to acquire private land for historic preservation. The Act requires that excavation of archeological sites on Federal land be conducted by qualified individuals under federally issued permits and requires that artifacts and objects recovered from these excavations be preserved permanently in museums.

  The Act establishes penalties for any person who excavates, injures, or destroys any historic property or monument on Federal land without permission from the appropriate Federal department. Instructions for seizure of illegally acquired archeological objects are provided in implementing regulation 43 Code of Federal Regulations (CFR) Part 3. The procedure for issuing Federal permits has largely been given over to the permits issued under the ARPA (see below).

National Historic Preservation Act (NHPA)

- The NHPA of 1966 as amended through 1992 (Public Law [PL] 89-665 et seq.) is the cornerstone of Federal preservation law and is the most important piece of legislation for the Waco Lake. The Act sets forth a general policy of preserving historic properties by the Federal government for the benefit and education of the people of the U.S. The Act directs the Secretary of the Interior (SOI) to maintain a list of NRHP properties composed of districts, buildings, sites, structures, and objects deemed significant in American history, architecture, archeology, engineering, or culture. Although the NHPA did not create the NRHP, it has expanded it. The Secretary is also directed to establish criteria for nominating properties and making determinations of eligibility.

  The Act establishes a State Historic Preservation Officer (SHPO) to identify and inventory historic properties within each state and to ensure that NRHP eligible properties are taken into account during planning and development. The Act further establishes the ACHP as an independent

Federal agency to advise the President, Congress, and other Federal agencies on concerns of historic preservation.

Section 106 of NHPA forms the basis for most of the cultural resources work conducted at Waco Lake. Federal agencies are required to consider the effect of their undertakings on any properties eligible for inclusion on the NRHP, and the ACHP must be given an opportunity to comment on the undertaking's effects on historic properties. Federal agencies must take into account the effects of undertakings during the planning stage and must take into account the effect on eligible or listed properties and provide the ACHP an opportunity to comment. This process is detailed in implementing regulation 36 CFR Part 800 (Protection of Historic Properties). Section 106 does not require that an undertaking be stopped, but reasonable efforts must be made to minimize harm to eligible properties until the consultation process is completed.

Section 110 of the Act sets broad, affirmative responsibilities with respect to historic properties. Federal agencies are required to assume responsibility for the preservation of historic properties located on lands owned or controlled by the respective agency. Federal agencies are required to locate, inventory, and nominate all properties that appear to qualify for inclusion on the NRHP. Federal agencies are required to manage historic properties in compliance with Section 106 and must comply with NAGPRA. The articulation with the National Environmental Policy Act (NEPA) process is clarified. The transfer or sale of surplus federally owned properties must be pursuant to review and approval of a preservation plan. Costs of preservation may be included in the planning efforts of agency undertakings.

Section 111 of the Act requires that Federal agencies implement alternatives for historic properties, including their adaptive use, when they are not needed for current or projected purposes. Agencies may also lease or exchange historic properties if these actions are compatible with preservation.

Section 112 of the Act requires that all research, preservation, and protection activities be conducted by persons meeting professional standards developed by the Secretary of the Interior, including both agency and contractor personnel.

Section 304 allows the head of a Federal agency to withhold from disclosure information concerning the location or character of historic resources. It should be noted, however, that a Freedom of Information Act

(FOIA) filing could be used to obtain such information if withheld by citation of Section 304 of the NHPA alone. See also the discussion regarding FOIA in the section on ARPA (below).

National Environmental Policy Act (NEPA)

- The NEPA of 1969 (42 USC 4321 et seq.) establishes a national policy that encourages harmony between humans and the environment. The policy states that the Federal government shall use all practicable means to preserve the productive harmony of the environment while fulfilling the social, economic, and other requirements of generations of Americans. Included in preserving the environment is the preservation of important historic and cultural aspects of national heritage.

  Unless specifically excluded from consideration (Categorical Exclusion), the NEPA requires all Federal agencies to prepare a document, most commonly an Environmental Assessment (EA), which assesses the potential impacts of any proposed action on the environment. If impacts are judged potentially significant, an Environmental Impact Statement (EIS) must be prepared. An EIS identifies any unavoidable adverse environmental effects, as well as alternatives to the proposed action, prior to its implementation. The statement shall be prepared as early in the planning process as possible and shall accompany the action's proposal through the agency review process.

  NEPA's implementing regulations (40 CFR Part 1500-1508) clarify that the Act in no way directs, replaces, or supersedes NHPA. NHPA studies are conducted to determine the effect on historic properties for any Federal undertaking, while NEPA requires a full EIS only on some Federal undertakings.

Archaeological Resource Protection Act (ARPA)

- The ARPA of 1979 (PL 96-97), as amended, establishes that archeological resources on public lands are part of the Nation's heritage and should be preserved for the benefit of the American people. Unauthorized excavation, removal, damage, or alteration of any archeological resource on public lands is prohibited. The law provides criminal and civil penalties for such violations. Qualified individuals who want to excavate or remove archeological resources from federally owned land may obtain permits from the appropriate Federal agency. The proposed work must be undertaken strictly for the purpose of furthering archeological knowledge.

Permits are not necessary for archeological work conducted in support of mission requirements (e.g., in compliance with NHPA Section 106). However, a permit might be necessary for work in support of NAGPRA (e.g., recovery of human remains from a vandalized burial site). Under ARPA, all archeological artifacts and resources recovered from Waco Lake are to remain the property of Waco Lake and the U.S. Army Corps of Engineers.

Federal agencies may withhold any information pertaining to the location of archeological sites if the agency determines that disclosing such information would put the resource at risk. ARPA specifically excludes such information against a FOIA filing which includes all archaeological resources, not just those that are NRHP eligible/listed.

In addition, ARPA states that Federal agencies must develop plans for surveying lands not scheduled for specific undertakings, record and report archeological violations, and develop public awareness programs.

The Act's implementing regulations for the Department of Defense (DOD) (32 CFR Part 229) specify that protected resources must be at least 100 years old and of archeological interest. Rocks, coins, bullets, and minerals are excluded from protection, as are paleontological items not found in an archeological context. Arrowheads (as defined by ARPA) are also excluded from protection when found lying on the surface. The regulations also outline the process for granting excavation permits.

Native American Graves Protection and Repatriation Act (NAGPRA)

- The purpose and intent of the NAGPRA (PL 101-601) is to acknowledge the ownership of certain human remains, funerary objects, and sacred artifacts by Native American tribes. In addition, the Act requires these objects be treated in a way that is agreeable to these tribes. The Act's implementing regulations are found in 43 CFR Part 10.

  For remains or objects discovered on Federal lands after enactment of the Act (1990), the Federal agency must notify Native American Tribes of the discovery and must provide them with an opportunity to claim affiliation with the remains or objects. For remains or objects already in the possession of Federal institutions or agencies, the agency must inventory the remains or objects and provide the inventory to Native American tribes. The Tribe determined to have right-of-ownership may then consult with the agency to determine disposition of the remains or objects, and the agency is responsible for complying with these determinations. It should

be noted that the NAGPRA Section 5 inventory for Waco Lake has been completed.

American Indian Religious Freedom Act (AIRFA)

- The American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341) preserves for Native Americans their inherent right to believe, express, and exercise their traditional religions. This right includes access to archeological sites and other sacred places under Federal jurisdiction.

Curation of Federally Owned and Administered Archaeological Collections

- The effective and efficient care of archeological collections generated by public projects is a responsibility of many Federal and other public agencies. These regulations, found in 30 CFR Part 79, establish the definitions, standards, procedures, and guidelines to be followed in preserving collections of precontact and historic remains.

Executive Orders and Presidential Memoranda

Executive Order 11593

- Executive Order (EO) 11593, dated 13 May 1971, establishes a national policy to preserve and maintain the historic and cultural environment of the U.S. The EO directs Federal agencies to administer historic properties under their control so as to preserve the resources for future generations. This EO was essentially incorporated into the 1980 amendments to the NHPA as Section 110 and was further revised during the 1992 amendment to the NHPA.

  Federal agencies must locate, inventory, and nominate all potentially eligible sites, buildings, districts, and objects under their control to the Secretary of the Interior for listing on the NRHP. The Federal agencies must also take precautions to prevent historic properties from being sold, transferred, or demolished. Any property that will be damaged as a result of a federal undertaking must be fully assessed and documented before it is impacted. The agencies must report their efforts to the Secretary of the Interior.

  EO 11593 incorporated a date of 1 July 1973 as a date by which all Federal agencies were to have located, inventoried, and nominated to the NRHP. This date was not met.

Executive Order 13007

- EO 13007, dated 24 May 1996, establishes the responsibility of Federal agencies to allow access to and the ceremonial usage of sacred Indian sites on Federal land by Indian religious practitioners. Agencies shall maintain confidentiality as to the location of such sacred sites and shall avoid adversely affecting their integrity.

Presidential Memorandum Concerning Eagle Feathers

- A Presidential Memorandum dated April 29, 1994, establishes U.S. Policy with regards to the collection and distribution of eagle feathers for Native American religious purposes. Among other stipulations, agencies and installations must recover salvageable eagle carcasses and eagle feathers found on Federal lands and ship these to the National Eagle Repository located in Denver Colorado.

Presidential Memorandum Concerning Government-to Government Relations

- Also dated April 29, 1994, a second Presidential Memorandum establishes U.S. Policy with regards to conducting relationships with Native American tribes. Consultation with Native American tribes must be conducted as government-to-government relations.

Department of Defense Policy and Directive

- The DOD issued American Indian and Alaska Native Policy, dated 20 October 1998, establishes principles for interacting and working with federally recognized Native American Indian and Alaskan Native governments. DOD components are expected to consult with tribes when a proposed action may have the potential to impact Indian lands, treaty rights, or other tribal interests protected by statute, regulation, or executive order. DOD components must meet their trust obligations to the tribes and recognize that there is a unique political relationship between the United States and tribes. Consultation should be consistent with government-to-government relations, provided in a timely manner, and completed in good faith.

Department of Defense Directive 4710.1

- The DOD Directive 4710.1 dated 21 June 1984, states that it is the policy of the DOD to integrate archeological and historic preservation requirements of various laws with the planning and management of DOD activities. The Directive assigns specific responsibilities to the heads of departments. It briefly lists management responsibilities that mirror the Federal laws for archeological and historic resources. The Directive reinforces the DOD's responsibility to comply with these laws and regulations.

US Army Corps of Engineers Regulations, Pamphlets, and Policies.

Engineer Regulation 200-2-2

- ER 200-2-2 (Procedures for Implementing NEPA) covers environmental protection and enhancement and provides guidance for implementation of the procedural provisions of the NEPA for the Civil Works Program of the U.S. Army Corps of Engineers. It supplements Council on Environmental Quality (CEQ) regulations 40 CFR 1500-1508, in accordance with 40 CFR 1507.3, and is intended to be used only in conjunction with the CEQ regulations.

  ER 200-2-2 establishes criteria for determining what actions are categorically excluded from requirements to prepare an EA or EIS and lists applicable categorical exclusions. Appendix A of ER 200-2-2 provides guidance on processing NEPA documents except for those concerning regulatory actions. Appendix C (formally ER 200-2-1) has been added to provide guidance on preparing and processing a notice of intent to prepare an EIS for publication in the Federal Register for all types of Corps actions.

Engineer Regulation 200-2-540

- ER 200-2-3 (Environmental Compliance Policies) establishes policy, procedures, and responsibilities for the management of environmental compliance-related operations and maintenance (O&M) activities at U.S. Army Corps of Engineers civil works projects and facilities. The environmental compliance mission is to assure that all facilities and associated lands (including outgrants) meet environmental standards contained in relevant Federal, state and local laws and regulations, including, but not limited to, natural and cultural resource management, air and water quality management, and for compliance with other environmental Acts such as the Comprehensive Environmental Response Compensation and Liability Act (CERCLA).

Engineer Regulation 1130-2-540

- ER 1130-2-540 (Environmental Stewardship Operations and Maintenance Policies) establishes land management policy for U.S. Army Corps of Engineers administered project lands and water, based on various authorizing legislation and the principles of good environmental stewardship. It is U.S. Army Corps of Engineers policy to apply principles of good environmental stewardship to the natural and cultural resources occurring on U.S. Army Corps of Engineers administered and/or managed lands and waters. The ER notes that both passive and proactive management to sustain healthy ecosystems and biodiversity, and such

that those natural and cultural resources are available to serve the needs of present and future generations. Management plans will be prepared for all U.S. Army Corps of Engineers administered lands and waters requiring such plans.

Engineer Pamphlet 1130-2-540

- EP 1130-2-540 (Environmental Stewardship Operations and Maintenance Guidance and Procedures) establishes guidance for the management of environmental stewardship-related operations and maintenance activities at USACE civil works water resource projects and supplements ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies. It applies to all USACE commands having a responsibility for civil work functions.

Engineer Policy Letter 57

- The U.S. Army Corps of Engineers issued interim policy guidance letter number 57, Indian Sovereignty and Government-to-Government Relations with Indian Tribes, on 18 February 1998. This policy letter implements the 29 April 1994 Presidential Memorandum on Government–to-Government relations with Native American Indian tribes and states that all U.S. Army Corps of Engineers Commands adhere to the principles of respect for Indian tribal governments and honor any applicable trust responsibilities.