

ARKANSAS RIVER CORRIDOR
Appendix C: Cultural Resources

ARKANSAS RIVER CORRIDOR, TULSA COUNTY, OKLAHOMA

Introduction

The Arkansas River is a water resource serving numerous nationally significant purposes. The river has historically served as a nationally significant resource for aquatic and terrestrial habitat of the nation's wildlife that live, breed, and migrate through the Arkansas River ecosystem. This includes federally endangered Interior Least Tern (Least Tern, *Sterna antillarum*), a nationally significant resource, and one federally threatened bird species, the Piping Plover (*Charadrius melodus*) as well as a plethora of native species and migratory waterfowl that support a healthy and functional riverine ecosystem. Keystone Lake and its dam located along the Arkansas River play vital roles in supporting the continued provision for these species, as well as many other purposes. In particular, the lake and dam provide flood risk management benefits, contribute to the eleven reservoir system operation of the McClellan-Kerr Arkansas River Navigation System, provide clean and efficient power through the associated hydropower plant, and provide a source of water for municipal and industrial uses. However, construction, operation, and maintenance of the Keystone Dam, lake, associated hydropower operations and other multi-purposes have significantly degraded the riverine ecosystem structure, function, and dynamic processes below Keystone Dam on the Arkansas River within Tulsa County, Oklahoma.

Purpose

This study is in response to the Section 3132 authorization of the 2007 WRDA. The purpose of this study is to evaluate the aquatic ecosystem restoration components of the October 2005 Arkansas River Corridor Master Plan (ARC Master Plan) and determine if there is a Federal Interest that aligns with the Corps of Engineers' ecosystem restoration mission.

Study Authority

The Arkansas River Corridor study is authorized in the Water Resources Development Act (WRDA) of 2007, Section 3132.

Section 3132. Arkansas River Corridor.

- (a) IN GENERAL. – The Secretary is authorized to participate in the ecosystem restoration, recreation, and flood damage reduction components of the Arkansas River Corridor Master Plan dated October 2005. The Secretary shall coordinate with appropriate representatives in the vicinity of Tulsa, Oklahoma, including representatives of Tulsa County and surrounding communities and the Indian Nations Council of Governments.
- (b) AUTHORIZATION OF APPROPRIATIONS. – There is authorized to be appropriated \$50,000,000 to carry out this section.

Non-Federal Sponsor

Tulsa County is the non-federal sponsor for the Arkansas River Corridor feasibility study. An amended feasibility cost-sharing agreement was executed in May 2015.

Recommended Plan

Alternative 5 is the National Ecosystem Restoration (NER) Plan and includes construction of a pool structure at River Mile 530 to regulate flow in the Arkansas River, a rock riffle feature associated wetland plantings at Prattville Creek, and construction of a sandbar island near Broken Arrow, OK. With the implementation of the NER plan, more natural river flow would return to 42 river miles of the Arkansas River within the study area. The NER plan would provide approximately 2,144 acres of additional riverine habitat, nearly doubling the amount of currently available habitat under low flow conditions. Also five acres of restored wetlands, and three acres of reliable sandbar island habitat where none currently succeed, would be restored as part of the NER plan. Shoreline, river, backwater, slackwater, wetland, and sandbar island habitat quality would all be improved generating an overall increase in the ecosystem quality and carrying capacity of the corridor. Current operation of Keystone Dam would not be changed. Additional water and flow would remain within the existing banks of the river and would not increase the flood elevation, nor downstream or backwater flooding.

Cultural Resources

Federal laws including the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act (NHPA), require that federal agencies “take into account the effects of their undertakings on historic properties” [(36 CFR 800.1(a)]. In order to identify historic properties which may be impacted by the proposed undertaking, USACE has conducted background research and consulted with the Oklahoma State Historic Preservation Officer (SHPO), Oklahoma Archaeological Survey (OAS), and requested input from nine federally-recognized Native American Tribes. Two of the nine Tribes contacted have elected to consult with USACE on the proposed undertaking. Consultation and coordination with these groups is ongoing and will continue to inform the feasibility study and project design.

Physiography and Culture Chronology

Tulsa, Oklahoma is located on the Osage Plain, within the Central Lowlands of North America. Underlying geological formations consist of shale, limestone, sandstone, and thin coal beds. Loess, or windblown glacial sand, blankets the region and is bisected by the interfingering alluvial deposits of the Arkansas River (Holliday and Mandel, 2006; USGS, 2015). Previously dominated by tallgrass prairie, the project area and much of the surrounding region have been transformed in recent history by urban development and agricultural production (USDA, 1993; Oklahoma Historical Society, 2009).

Archaeological evidence from across Oklahoma indicate humans migrated to the area at least 11,000 years ago. Bison bone beds like those discovered at the Cooper and Jake Bluff sites, demonstrate coordinated hunting methods used by Paleoindians and are deeply buried in the alluvium that has accumulated in the arroyos and gullies of the late Pleistocene and early Holocene (Holiday and Mandel, 2006). Several earthworks and mound complexes associated with later pre-contact cultures have also been identified in eastern Oklahoma. These have provided important evidence regarding ceremonial and burial practices, landscape use, and vast trade networks that extended from the Great Lakes to central Mexico (Vogel, 2005).

Following the initial Spanish envoys of Coronado and Onate during the proto-historic period, French explorers entered the region and made contact with the Tawakoni peoples living along the Arkansas River. The Lasely Vore site, which sits on a bluff on the south side of the river, may be the location of a village described by Jean-Baptiste Benard, Sieur de La Harp in 1719, as he made his way through the region in hopes of establishing trade with the Caddo. Lasely Vore is one of the most intensely studied sites in the region and has yielded a wealth of information about labor organization, intercommunity trade, tool maintenance, woodworking technologies, and other lifeways practiced during the time of early European contact (Odell, 1999).

By the 1870s, Tulsa County consisted of dispersed small farms and ranches, mostly occupied by a mix of Creek Indians, newly arrived Anglo-American pioneers, or people of mixed race. Tulsa grew slowly until the first discoveries of oil occurred at Red Fork in 1901 and Glenn Pool in 1905 (Nardone, 1967). In 1909, the Sand Springs industrial community was incorporated by local oilman Charles Page. Glass manufacturing, canning, rock mining, textile production, zinc smelting, and other industrial facilities soon populated the shores of the Arkansas River, along with civic amenities like schools, libraries, churches, and hospitals. Throughout the 1900s, Sand Springs remained an industrial city. The oil boom led to a population boom and Tulsa quickly became a place of prosperity. The area of Greenwood was known by many as the “Black Wall Street of America” but it was besieged by the National Guard, bombed by U.S. airplanes, looted,

and burned in the 1921 Tulsa race riot (Gates, 2004). Since the beginning of the 21st Century, manufacturing and industry in Tulsa have significantly declined. The downstream suburb of Jenks is currently one of the fastest growing cities in Oklahoma. Two sectors currently experiencing significant gain are the finance and insurance industries (Evans, 2017).

Previous Cultural Resource Surveys

Eleven previous cultural resource investigations involving survey, with a total survey coverage of 157.4 hectares (389 acres), have taken place within some part of the study area. Previous investigations involving survey or subsurface testing are summarized in Table 1 below.

Table 1. Cultural resource Surveys intersecting the project area.

Project	Date	Type	Area (Acres)	Report	Resources Recorded	Author
A Cultural Resources Investigation of Three Low Water Dams Along the Arkansas River	October 2014	Pedestrian Survey, Subsurface Testing	46.18	Yes	34TU200	R. Feit, B. Darnell
Archaeological Survey Report for the Creative Educational Media Corp Keystone Dam Tower Site	6/24/2014	Pedestrian Survey, Subsurface Testing	0.91	Yes	None	J. R. Holt
Oklahoma Department of Transportation Cultural Resources Survey Report	1/7/2011, 1/20/2011	Pedestrian Survey, Subsurface Testing	1.54	Yes	4 pre-1966 buildings, 1 pre-1966 structure	L. O'Shea, A. Eddings
Oklahoma Department of Transportation Cultural Resources Survey Report	1/7/2011	Pedestrian Survey, Subsurface Testing	1.75	Yes	None	A. Eddings
Cultural Resources Survey of Proposed Bridge Repair on U2-64 Over Euchee Creek	4/13/2010	Pedestrian Survey	2.37	Report Card	None	S. Sundermeyer
Archaeological Survey Report on the Cingular Wireless West Fisher Cellular Tower Project	3/30/2005	Pedestrian Survey	1.38	Report Card	None	J. Briscoe
Emergency Bank Protection Survey by USACE	1/7/1993	Unknown	0.97	No Record	Unknown	Unknown
INCOG CAP Survey	7/30/1992	CAP	8.07	No Record	Unknown	Unknown
Indian Electric Cooperative CAP Survey	6/12/1991	Unknown	2.45	No	None	Unknown
A Subsurface Survey [...] Conducted for Indian Electric Cooperative of [...] Oklahoma	3/21/1988	Pedestrian Survey	4.67	Yes	34PY69	D. N. Brown
Shenandoah Development Sand Springs CAP Survey	1/25-1/28/1983	Random Pedestrian Survey	318.72	Report Card	34TU60, 34TU61, 34TU62, 34TU63	C. Neel, L. Neal

Historic Properties within the Area of Potential Effect

Federal regulation 36 CFR 800.16(d) defines the area of potential effect (APE) as the geographic area(s) within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. Currently, two previously recorded archaeology sites and one historic levee system are known to exist near the proposed low water pool structure. One of these sites has been determined ineligible for listing in the National Register of Historic Places (NRHP); the other two have an undetermined eligibility status. The three resources are briefly described below.

34TU200

Site 34TU200 is a historic artifact scatter located on the north bank of the Arkansas River, immediately downstream from the Highway 97 Bridge. Artifacts recovered at the site include domestic and industrial refuse, and may represent ongoing use of the area as a dump site for local manufacturers and residents. The context of the materials was found to be highly disturbed and the site has been determined ineligible for listing in the NRHP.

34TU197

Site 34TU197 is a bison skull with an embedded Calf Creek spear point; radiocarbon dates indicate the age of the skull is 5,100 BP. The artifact was recorded on a sand bar near the south shore of the Arkansas River, immediately downstream of the Highway 97 Bridge. No other features or artifacts were recorded and it is believed that the skull may have washed downstream from its original location. Water wear and damage are minor, and it is possible that associated intact deposits are located nearby. Although the artifact was found in an isolated, likely secondary context, the NRHP eligibility status remains undetermined because of the artifact's age and condition, and the potential for nearby, associated, intact deposits.

Sand Springs Levee

The levee at Sand Springs is part of Tulsa County Levee District 12 and was constructed in 1945 under the direction of USACE. Although the levee has not been evaluated for NRHP eligibility, it can be described as a significant piece of historic infrastructure, which has helped shape the physical landscape, and contributed to the economic development of Tulsa. The proposed pool structure would have no direct impacts on the Sand Springs levee. Potential indirect impacts, including visual impacts, will be assessed and resolved as described in the recommendations section below.

Recommendations

Because significant tracts of land within the study area have not been previously surveyed and the areas of potential ground disturbance have not been finalized, USACE cannot fully determine the effects of the undertaking on historic properties at this time. Per 36 CFR 800.14, USACE, Oklahoma SHPO, OAS, and the non-federal sponsor are developing a programmatic agreement (PA) to resolve adverse effects to historic properties. Per the enclosed Draft PA, the APE for cultural resources will be finalized in consultation with the signatories of the PA and systematic cultural resource survey will be conducted prior to construction. Impacts to historic properties will be resolved per the stipulations of the final, executed PA and 36 CFR 800.6.

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**PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT,
THE OKLAHOMA STATE HISTORIC PRESERVATION OFFICER, THE
OKLAHOMA ARCHEOLOGICAL SURVEY,
AND TULSA COUNTY, OKLAHOMA
REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL
HISTORIC PRESERVATION ACT FOR
THE ARKANSAS RIVER CORRIDOR FEASIBILITY STUDY
IN
TULSA COUNTY, OKLAHOMA**

WHEREAS, the Arkansas River Corridor Ecosystem Restoration Study was authorized by the Water Resources Development Act of 2007, Section 3132, allowing the U.S. Army Corps of Engineers (USACE) to participate in the ecosystem restoration, recreation, and flood damage components of the Arkansas River Corridor Master Plan dated October 2005; and

WHEREAS, Tulsa County is the non-Federal sponsor (NFS) with the USACE for construction and maintenance of this undertaking, and is providing the necessary lands, easements, relocations and rights-of-way; and

WHEREAS, the USACE proposes to implement the ecosystem restoration measures described in the attached Cultural Resources and Project Summary for the Programmatic Agreement, in order to restore the overall aquatic habitat and significant aquatic-related terrestrial resources within the Arkansas River Corridor in Tulsa County; and

WHEREAS, the Area of Potential Effects (APE) includes all areas of direct impacts and a 1,500-foot buffer for indirect impacts; and

WHEREAS, the SHPO and Oklahoma Archeological Survey (OAS) have entered into a cooperative agreement under which the State Archaeologist at the OAS provides special services to the SHPO in the Section 106 review process. OAS maintains the inventory of Oklahoma's archaeological resources and provides professional services to the SHPO in pre-contact archaeology. The State Archaeologist at the OAS reviews federal undertakings for possible impacts on pre-contact archaeological resources and provides written comments as the SHPO's official representative. Accordingly, the OAS has been invited to sign this Programmatic Agreement (PA); and

WHEREAS, USACE, has determined that ecosystem restoration proposed for the Arkansas River corridor within Tulsa County, Oklahoma (hereinafter, "undertaking") may have an effect on historic properties eligible for listing in the National Register of Historic Places (NRHP) (hereinafter, "historic properties"), and has consulted with the Oklahoma State Historic Preservation Officer (SHPO) pursuant to Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108) (NHPA), as amended, and its implementing regulations (36 CFR § 800); and

WHEREAS, the USACE, OAS and the SHPO concur that additional cultural resource surveys are needed in proposed areas of ground disturbance, prior to project construction; and

WHEREAS, the USACE held a public meeting on February 27, 2017 in Tulsa, Oklahoma and no comments regarding cultural resources were received from the general public; and

WHEREAS, the USACE contacted nine Federally-recognized Native American Tribes during the feasibility study, resulting in two Tribes, the Seminole Nation of Oklahoma and the Osage Nation, expressing interest and thereby being invited to participate as concurring parties and neither Tribe electing to participate; and

WHEREAS, in accordance with 36 CFR § 800.6 and 36 CFR § 800.14(b)(1)(ii), execution of a PA is appropriate for this undertaking because effects on historic properties cannot be fully determined or resolved prior to the approval of the undertaking; and

WHEREAS, the USACE has invited the Advisory Council on Historic Preservation (ACHP) to participate and on September 29, 2017 the ACHP declined to enter into the Section 106 process.

NOW, THEREFORE, the USACE, Tulsa County, OAS, and the SHPO concur that the USACE will ensure that the following stipulations are implemented in order to account for the effects of the undertaking on historic properties, and to satisfy the USACE's Section 106 responsibilities for all individual aspects of the undertaking.

Stipulations

The USACE will ensure that the following measures are carried out:

I. Identification, Evaluation, Effect Determination, and Resolution

- A. **Scope of Undertaking.** This PA shall be applicable to all excavation, bank modification, planting areas, and any other ground disturbing activities related to the proposed Arkansas River Corridor Ecosystem Restoration project. The APE shall be established by the USACE in consultation with the OAS and SHPO, and shall include all areas to be directly and indirectly affected by the undertaking.
- B. **Qualifications and Standards.** The USACE shall ensure that all work conducted in conjunction with this PA is performed in a manner consistent with the Secretary of Interior's "Standards and Guidelines for Archeology and Historic Preservation" (48 FR 44716-44740; September 23, 1983), as amended, or the Secretary of the Interior's "Standards for the Treatment of Historic Properties" (36 CFR 68), as appropriate.

- C. Definitions. The definitions set forth in 36 CFR § 800.16 are incorporated herein by reference and apply throughout this PA.
- D. Identification of Historic Properties. Prior to the initiation of construction, the USACE shall identify historic properties located within the APE. These steps may include, but are not limited to, background research, consultation, oral history interviews, sample field investigations, and field survey. The level of effort for these activities shall be determined in consultation with the SHPO, OAS, and any Native American Indian Tribe or Tribes (Tribes) that attach religious and cultural significance to identified properties. All draft scopes of work and reports of survey or site testing investigations shall be submitted to the SHPO, OAS, and Tribes for review and comment. If previously recorded archaeology sites are revisited during cultural resource investigations, USACE will provide updated site forms to SHPO and OAS for those sites. If comments are not received by the USACE within thirty (30) days of receipt, the reports and their recommendations shall be considered adequate and the reports may be finalized. Comments received by the USACE from the SHPO, OAS, or Tribes shall be addressed in the final reports, which shall be provided to all consulting parties. If no historic properties are identified in the APE, the USACE shall document this finding pursuant to 36 CFR § 800.11(d), and provide this documentation to the SHPO and Tribes.
- E. Evaluation of National Register Eligibility. If historic resources are identified within the APE, the USACE shall determine their eligibility for the NRHP in accordance with the process described in 36 CFR § 800.4(c) and criteria established in 36 CFR 60. All draft reports of NRHP site testing or other NRHP investigations shall be submitted to the SHPO, OAS, and Tribes for review and comment. If comments are not received by the USACE within 30 days of receipt, the reports or investigations and their recommendations shall be considered adequate and the reports may be finalized. Comments received by the USACE from the SHPO, OAS, or Tribes shall be addressed in the final report, which shall be provided to all consulting parties. The determinations of significance shall be conducted in consultation with the SHPO, OAS, and Tribes. Should the USACE, SHPO, and OAS agree that a property is or is not eligible, then such consensus shall be deemed conclusive for the purpose of this PA. Should the USACE, SHPO, and OAS not agree regarding the eligibility of a property, the USACE shall obtain a determination of eligibility from the Keeper of the National Register pursuant to 36 CFR 63. For historic properties found not eligible for the NRHP, no further protection or consideration of the site will be afforded for compliance purposes.
- F. Assessment of Adverse Effects.
1. No Historic Properties Affected. The USACE shall evaluate the effect of the undertaking on each historic property in the APE. The USACE may conclude that no historic properties are affected by an undertaking if no historic

properties are present in the APE, or the undertaking will have no effect as defined in 36 CFR § 800.16(i). This finding shall be documented in compliance with 36 CFR § 800.11(d) and the documentation shall be provided to the SHPO, the Tribes and OAS and retained by the USACE for at least seven (7) years. The USACE shall provide information on the finding to the public upon request, consistent with the confidentiality requirements or 36 CFR § 800.11(c).

2. Finding of No Adverse Effect. The USACE, in consultation with the SHPO, OAS, and Tribes shall apply the criteria of adverse effect to historic properties within the APE in accordance with 36 CFR § 800.5. The USACE may propose a finding of no adverse effect if the undertaking's effects do not meet the criteria of 36 CFR § 800.5(a)(1) or the undertaking is modified to avoid adverse effects in accordance with 36 CFR 68. The USACE shall provide to the SHPO, the Tribes and OAS documentation of this finding meeting the requirements of 36 CFR § 800.11(e). The SHPO, OAS and Tribes shall have 30 days in which to review the findings and provide a written response to the USACE. Failure of the SHPO, OAS, or Tribes to respond with 30 calendar days of receipt of the finding shall be considered agreement with the finding. The USACE shall maintain a record of the finding and provide information on the finding to the public upon request, consistent with the confidentiality requirements of 36 CFR § 800.11(c).
3. Resolution of Adverse Effect. If the USACE determines that the undertaking will have an adverse effect on historic properties as measured by criteria in 36 CFR § 800.5(a)(1), the USACE shall consult with the SHPO, OAS and Tribes to resolve adverse effects in accordance with 36 CFR § 800.6.
 - a) For historic properties that the USACE, the Tribes and the SHPO agree will be adversely affected, the USACE shall:
 - (1) Consult with the SHPO to identify other individuals or organizations to be invited to become consulting parties. If additional consulting parties are identified, the USACE shall provide them copies of documentation specified in 36 CFR § 800.11(e) subject to confidentiality provisions of 36 CFR § 800.11(c).
 - (2) Afford the public an opportunity to express their views on resolving adverse effects in a manner appropriate to the magnitude of the project and its likely effects on historic properties.
 - (3) Consult with the SHPO, OAS, Tribes, and any additional consulting parties to seek ways to avoid, minimize or mitigate adverse effects.
 - b) If the USACE, OAS, and the SHPO fail to agree on how adverse effects will be resolved, the USACE shall request that the Advisory Council on

Historic Preservation (the Council) join the consultation and provide the Council and all consulting parties with documentation pursuant to 36 CFR § 800.11(g).

- c) If the Council agrees to join the consultation, the USACE shall proceed in accordance with 36 CFR § 800.9.
- d) If, after consulting to resolve adverse effects, the Council, the USACE, OAS, or the SHPO determines that further consultation will not be productive, then any party may terminate consultation in accordance with the notification requirements and processes prescribed in 36 CFR § 800.7.

II. Post Review Changes and Discoveries

- A. Changes in the Undertaking. If construction on the undertaking has not commenced and the USACE determines that it will not conduct the undertaking as originally coordinated, the USACE shall reopen consultation pursuant to Stipulation I. D-F.
- B. Unanticipated Discoveries or Effects. Pursuant to 36 CFR § 800.13(b)(3), if historic properties are discovered or unanticipated effects on historic properties are found after construction on an undertaking has commenced, the USACE shall immediately halt work in the affected area and notify the SHPO, OAS, and Tribes of the discovery. Comments received from the SHPO and Tribes within 48 hours of the notification shall be taken into account by the USACE in the assessment of NRHP eligibility of affected properties, and in the development and implementation of a mitigation strategy to resolve any adverse effects. The USACE may assume SHPO concurrence in its eligibility assessment and treatment plan unless otherwise notified by the SHPO, OAS, or Tribes within 48 hours of notification. USACE shall provide the SHPO and Tribes a report of the USACE actions when they are completed.

III. Curation and Disposition of Recovered Materials, Records, and Reports

- A. Curation. The USACE shall ensure that all archeological materials and associated records owned by the State of Oklahoma or the NFS, which result from identification, evaluation, and treatment efforts conducted under this PA, are accessioned into a curation facility in accordance with the standards of 36 CFR 79, except as specified in Stipulation IV for human remains. The curation of items owned by the State of Oklahoma or the NFS shall be maintained in perpetuity by the NFS. Archeological items and materials from privately owned lands shall be returned to their owners upon completion of analyses required for Section 106 compliance under this PA.
- B. Reports. The USACE shall provide copies of final technical reports of investigations and mitigation to the consulting parties and the SHPO, as well as

additional copies for public distribution as appropriate. All consulting parties shall withhold site location information or other data that may be of a confidential or sensitive nature pursuant to 36 CFR § 800.11(c).

IV. Treatment of Native American Human Remains

- A. **Prior Consultation.** If the USACE's investigations, conducted pursuant to Stipulation I of this PA, indicate a high likelihood that Native American Indian human remains may be encountered, the USACE shall develop a treatment plan for these remains in consultation with the SHPO, OAS, and Tribes. The USACE shall ensure that Tribes indicating an interest in the undertaking are afforded a reasonable opportunity to identify concerns, provide advice on identification and evaluation, and participation in the resolution of adverse effects in compliance with the terms of this PA.

- B. **Inadvertent Discovery.** In accordance with the NHPA, the ACHP policy statement regarding treatment of burial sites, human remains, and funerary objects, and State of Oklahoma statutes protecting human skeletal remains, procedures for inadvertent discovery of human remains during historic properties investigations or construction activities conducted pursuant to this PA are as follows:
 - 1. Prior to construction, USACE shall provide a communication plan identifying points of contact and procedures to follow in the event of an inadvertent discovery to the contractor and to the USACE construction field representative.

 - 2. If human skeletal remains, funerary objects, or items of cultural patrimony are encountered during construction, the USACE shall ensure that all ground disturbing activities cease in the vicinity of the discovery. A buffer zone shall be established and reasonable effort shall be made to ensure that the site is secured from further disturbance or vandalism.

 - 3. The USACE shall immediately notify local law enforcement officials via telephone, and within 48 hours of the discovery, shall initiate consultation with the SHPO, OAS, and appropriate tribal personnel to develop a strategy to resolve adverse effects.

- C. **Dispute Resolution.** If, during consultation conducted under paragraphs A and B of Stipulation IV, all consulting parties cannot agree upon a consensus plan for resolving adverse effects, the matter shall be referred to the Council for resolution in accordance with the procedures outlines in 36 CFR § 800.9.

V. PA Amendments, Disputes and Termination

- A. Amendments. Any party to the PA may propose to the other parties that it be amended, whereupon the parties will consult in accordance with 36 CFR § 800.6(c)(7) to consider such an amendment.

- B. Disputes. Disputes regarding the completion of the terms of this agreement shall be resolved by the signatories. If the signatories cannot agree regarding a dispute, any one of the signatories may request the participation of the Council in resolving the dispute in accordance with the procedures outlined in 36 CFR § 800.9. The USACE shall forward to the Council and all consulting parties within fifteen (15) days of such a request all documentation relevant to the dispute, including the USACE's proposed resolution of the dispute. The Council will respond to the request within thirty (30) days of receiving all documentation. The USACE will take any recommendations or comments from the Council into account in resolving the dispute. In the event that the Council fails to respond to the request within thirty (30) days of receiving all documentation, the USACE may assume the Council's concurrence with its proposed resolution and proceed with resolving the dispute.

- C. Termination of PA. Any party to this PA may terminate it by providing a sixty (60) day notice to the other parties, provided that the parties will consult during the period prior to the termination to seek agreement on amendments or other actions that will avoid termination. In the event of termination of this PA the USACE shall comply with the provisions of 36 CFR § 800, Subpart B.

VI. Term of this Agreement

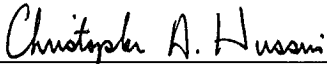
- A. This PA remains in force for a period of ten (10) years from the date of its execution by all signatories, unless terminated pursuant to Stipulation V.C. Sixty (60) days prior to the conclusion of the ten (10) year period, the USACE shall notify all parties in writing of the end of the ten year period to determine if they have any objections to extending the term of this PA. If there are no objections received prior to expiration, the PA will continue to remain in force for a new ten (10) year period.

Execution of this PA and implementation of its terms evidences that the USACE has afforded the Council an opportunity to comment on the undertaking and its effects on historic properties, and that the USACE has taken into account those effects and fulfilled Section 106 responsibilities regarding the undertaking.

Signature Page for the U.S. Army Corps of Engineers

**PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT,
THE OKLAHOMA STATE HISTORIC PRESERVATION OFFICER,
THE OKLAHOMA ARCHAEOLOGICAL SURVEY,
AND TULSA COUNTY, OKLAHOMA
REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL
HISTORIC PRESERVATION ACT FOR
THE ARKANSAS RIVER CORRIDOR ECOSYSTEM RESTORATION
PROJECT
IN
TULSA COUNTY, OKLAHOMA**

Signatory:



**Colonel Christopher A. Hussin
District Engineer, USACE Tulsa District**

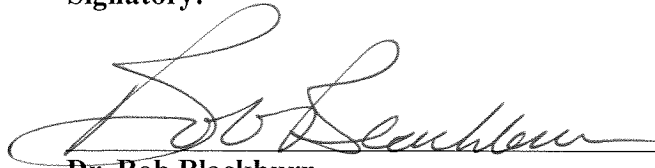
12 MARCH 2018

Date

Signature Page for State Historic Preservation Officer

**PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT,
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REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL
HISTORIC PRESERVATION ACT FOR
THE ARKANSAS RIVER CORRIDOR ECOSYSTEM RESTORATION
PROJECT
IN
TULSA COUNTY, OKLAHOMA**

Signatory:



**Dr. Bob Blackburn
State Historic Preservation Officer**

Feb. 15, 2018
Date

Signature Page for Oklahoma Archeological Survey

**PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT,
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HISTORIC PRESERVATION ACT FOR
THE ARKANSAS RIVER CORRIDOR ECOSYSTEM RESTORATION
PROJECT
IN
TULSA COUNTY, OKLAHOMA**

Signatory:



**Dr. Kary L. Stackelbeck
State Archaeologist, Oklahoma Archeological Survey**

2/22/2018

Date

Signature Page for Tulsa County, Oklahoma

**PROGRAMMATIC AGREEMENT
AMONG
THE U.S. ARMY CORPS OF ENGINEERS, TULSA DISTRICT,
THE OKLAHOMA STATE HISTORIC PRESERVATION OFFICER, THE
OKLAHOMA ARCHAEOLOGICAL SURVEY,
AND TULSA COUNTY, OKLAHOMA
REGARDING COMPLIANCE WITH SECTION 106 OF THE NATIONAL
HISTORIC PRESERVATION ACT FOR
THE ARKANSAS RIVER CORRIDOR ECOSYSTEM RESTORATION
PROJECT
IN
TULSA COUNTY, OKLAHOMA**

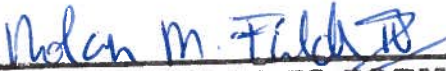
Signatory:



**John Smaligo, Chair, Tulsa County Board of Commissioners
Tulsa County, Oklahoma**

3/5/18

Date



**APPROVED AS TO FORM
ASSISTANT DISTRICT ATTORNEY**

Attest:

MICHAEL WILLIS, Tulsa County Clerk



County Clerk



**The Arkansas River Corridor Ecosystem Restoration Project
Tulsa County, Oklahoma**

**Cultural Resources and Project Summary for the Programmatic Agreement
U.S. Army Corps of Engineers, Tulsa District**

Study Purpose and Authorization

The U.S. Army Corps of Engineers (USACE) has prepared an Integrated Feasibility Report and Environmental Impact Statement (IFR_EIS) that presents the results of a feasibility study, which was authorized by the Water Resources Development Act of 2007, Section 3132, allowing USACE to participate in the ecosystem restoration, recreation, and flood damage reduction components of the Arkansas River Corridor Master Plan dated October 2005. The authorization for this effort allows for study of solutions for ecosystem restoration, recreation, and flood-risk management along the Arkansas River within the study area, based on the Tulsa Master Plan.

Early in the study process the scope was narrowed to only include analysis for potential ecosystem restoration opportunities. Flood-risk management within the study area is being addressed by local governments, non-government organizations, professional organizations, and other federal programs. The existing Keystone Dam and lake provide flood-risk management benefits, provide clean and efficient hydropower, and a source of water for municipal and industrial uses. Despite these important benefits, the construction, operation, and maintenance of the Keystone Dam, the lake, and associated hydropower operations have significantly degraded the riverine ecosystem structure, function, and dynamic processes below Keystone Dam on the Arkansas River within Tulsa County, Oklahoma.

The proposed ecosystem restoration measures are intended to restore the overall aquatic habitat and significant aquatic-related terrestrial resources within the project area by restoring river flow and downstream floodplain connectivity. Additional benefits of project implementation include wetland restoration at the confluence of Prattville Creek and the Arkansas River, and constructing a sand bar island to support Least Tern nesting.

Cultural Background

Several sites across the Americas, suggest that the earliest human inhabitants of the area arrived as long as 14,000 years before present (BP). Included among these early Paleoindian sites are megafauna kill sites in Oklahoma, which are radiocarbon dated to between twelve and thirteen thousand years BP, and the Debra L. Friedkin site in central Texas, which contained over 15,000 artifacts and was radiocarbon dated to approximately 14,000 BP (Miller et al. 2013; Waters et al. 2011). Over many thousands of years, highly mobile hunters and gatherers utilized a variety of subsistence strategies and kinship arrangements to develop complex social structures and cross-continent trade networks that archaeologists are still working to understand.

Some of the most remarkable archaeological features associated with later pre-contact cultures (1200-500 BP) are large earthen mounds, built in some cases as elements of ceremonial architecture, and in other cases as cemetery mounds, or platform foundations. Eastern Oklahoma has the greatest number of earthwork complexes surrounded by smaller mound centers and settlements, which are also numerous in Missouri and Arkansas (Vogel, 2005). The people who built and lived around these eastern Oklahoma mound complexes are thought to be ancestral Caddoans. Mound sites have yielded copper originating from around the Great Lakes, marine shell from the Gulf Coast, and a tool made of obsidian from a source in central Mexico.

The ProtoHistoric Period (500 BP-1800 AD) brought rapid and far-reaching change, with envoys from competing European interests arriving to establish colonial outposts in the form of forts and missions. In response to pressure from increasing European settlement, Tribes from northern and eastern North America also moved increasingly into the area. While the adoption of many types of European goods was both early and gradual (such as glass beads and metal tools), the total replacement of native stone, clay, and bone technologies was not common until the 1800s. The Lasley Vore site, which is situated above the Arkansas River in the vicinity of the Kimberly-Clark paper manufacturing facility, is one of the most intensely studied protohistoric sites in the region, and has yielded a wealth of information about labor organization, tool maintenance, spatial organization, woodworking technologies, and other lifeways (Odell, 1999).

Tulsa and its vicinity has its roots in the many Native-American tribes who settled in the region following the passage of the Indian Removal Act of 1830. In the 1830s and 1840s the Creek people were relocated to the Tulsa area (Hunt, 2004). From 1836 to 1840 the Lochapokas and Talasee Creeks settled the community that became present-day Tulsa. The relocation of the Native Americans living in the American southeast forced them to follow the “Trail of Tears” that terminated at Fort Gibson, east of Tulsa. With the conclusion of the Civil War, the Five Civilized Tribes in the area signed treaties transferring their western lands to the U.S. government to allow railroad right of way. After the Civil War, the Creeks reoccupied the area around Tulsa and rebuilt their settlement and the cattle trade returned to the area.

By the 1870s, Tulsa County consisted of dispersed small farms and ranches, mostly occupied by a mix of Creek Indians, newly arrived Anglo-American pioneers, or people of mixed race. Tulsa grew slowly until the first discoveries of oil occurred at Red Fork in 1901 and Glenn Pool in 1905 (Nardone, 1967). In 1909, the Sand Springs industrial community was incorporated by local oilman Charles Page. Glass manufacturing, canning, rock mining, textile production, zinc smelting, and other industrial facilities soon populated the shores of the Arkansas River, along with civic amenities like schools, libraries, churches, and hospitals. Throughout the 1900s, Sand Springs remained an industrial city. The oil boom led to a population boom and Tulsa quickly became a place of prosperity. The area of Greenwood was known by many as the “Black Wall Street of America” but it was besieged by the National Guard, bombed by U.S. airplanes, looted, and burned in the 1921 Tulsa race riot (Gates, 2004).

Since the beginning of the 21st Century, manufacturers have increasingly utilized less expensive labor in countries with fewer worker protections; as a result, manufacturing and industry in Tulsa have significantly declined. The downstream suburb of Jenks is currently one of the fastest growing cities in Oklahoma. Two sectors currently experiencing significant gain are the finance and insurance industries (Evans, 2017).

Existing Project

The Arkansas River has been subject to flooding for its entire recorded history, with destructive high-water events occurring approximately every ten years, according to U.S. Geological Survey records. In 1943, a levee was constructed along the north side of the Arkansas River, which protected Sand Springs from frequent flooding. In 1956, construction began on the Keystone Dam, with flood control operations beginning in September 1964, and Keystone Power Plant operations beginning in the spring of 1968.

The impacts on the aquatic and riparian ecosystem within the study area from Keystone Dam and hydropower operations is substantial. The dam houses two hydropower-generating turbines with a full-power discharge from the reservoir of 12,000 cubic feet per second (cfs). Southwestern Power Administration (SWPA) markets the hydroelectric power in the area from the USACE-operated multipurpose dam. The power discharge schedules are tentative and subject to change at any time to meet power demands. As a result of the on-demand hydropower generation, the current flow regime within the study area exhibits daily bouts of brief 6,000-12,000 cfs river flow followed by extended periods of near zero river flow from Keystone Dam. This creates an incredibly disruptive, unnatural flow regime impacting all aquatic and riparian habitat types as well as the flora and fauna throughout the study area.

Recommended Plan

Pool structure at River Mile 530 (Below Hwy. 97 Bridge)

The purpose of the low-water pool structure is to maintain river flow and habitat connectivity during times of no water release by Keystone Dam. The design of the proposed structure would capture and slowly release peaking hydropower releases from the Keystone Dam, and, with design input and advice from resources agencies, provide sediment passage, and at least seasonal fish passage. At a maximum elevation of 638 feet, the pool volume capacity is approximately 6,730 acre-feet with a pool surface area of 1,321 acres. This full volume could provide downstream flows of 1,000 cfs for 3.4 days, 750 cfs for 4.5 days, or 500 cfs for 6.8 days.

This elevation does not exceed current river elevations during times of peak flow and no new lands would be inundated. Ground disturbing elements would include tie-in walls on the north and south banks of the river, temporary placement of a coffer dam in order to divert river flows during dam construction, and excavation for dam footings and sluiceway. The overall visual character of the Arkansas River will remain unchanged and

because of the topography and vegetative buffers surrounding the area, the low-water pool structure will be visible from limited vantage points, including the Highway 97 Bridge and the southern shore of the river.

Prattville Creek Wetland Restoration

Prattville Creek is a right-bank tributary to the Arkansas River downstream of the Highway 97 Bridge at Sand Springs, Oklahoma. The fundamental measure consists of a rock riffle, with an approximately 640-ft elevation, at the current confluence of Prattville Creek with the Arkansas River to restore a 5.34-acre wetland area. The structure would impound flows from Prattville Creek, and would be over-topped by high flows in the Arkansas River. Ground disturbing activities in this area would include placement of large rocks across the confluence of Prattville Creek and wetland plantings within the perimeter of the wetland. The visual character of the area will be unchanged.

Constructed Sandbar Island

This management measure increases nesting habitat for the Least Tern. Ideal nesting habitat for Least Terns consists of sandbar islands isolated by river flows. The constructed sandbar would be approximately five acres in size. Approximately three acres of which would sustain nesting habitat during flows reaching 20,000 cfs. The sandbar island would be circular to oblong in shape, with maximum surface area and a surface height above water to exceed 18 inches at nest initiation that is usually in May or June. The nesting substrates for the constructed island consist of well-drained particles ranging in size from fine sand to small stones. The anticipated design would be similar to that developed by Oklahoma State University for the USACE-Tulsa District in May 2003. The Oklahoma State University design consists of placement of a rectangular riprap structure and a downstream chevron riprap structure to promote mid-stream sediment deposition resulting in habitable sandbar development. Ground disturbance associated with the sandbar island are minimal, and include placement of riprap within the river channel and temporary parking/equipment storage in the agricultural field located at the north end of South 161st Avenue.

Previously Recorded Surveys and Historic Properties

A review of the Oklahoma Archaeological Survey (OAS) maps and existing information was conducted in support of the project feasibility study. The study area included all of the lands within 1 kilometer of the Arkansas River, along the 42-mile stretch between Keystone Dam in Tulsa, and the town of Leonard, Oklahoma. Eleven previous cultural resource investigations involved survey, with a total survey coverage of 157.4 hectares (389 acres) within the study area. Previous investigations involving survey or subsurface testing are summarized in Table 1 below.

Table 1. Cultural resource Surveys intersecting the project area.

Project	Date	Type	Area (Acres)	Report	Resources Recorded	Author
A Cultural Resources Investigation of Three Low Water Dams Along the Arkansas River	October 2014	Pedestrian Survey, Subsurface Testing	46.18	Yes	34TU200	R. Feit, B. Darnell
Archaeological Survey Report for the Creative Educational Media Corp Keystone Dam Tower Site	6/24/2014	Pedestrian Survey, Subsurface Testing	0.91	Yes	None	J. R. Holt
Oklahoma Department of Transportation Cultural Resources Survey Report	1/7/2011, 1/20/2011	Pedestrian Survey, Subsurface Testing	1.54	Yes	4 pre-1966 buildings, 1 pre-1966 structure	L. O'Shea, A. Eddings
Oklahoma Department of Transportation Cultural Resources Survey Report	1/7/2011	Pedestrian Survey, Subsurface Testing	1.75	Yes	None	A. Eddings
Cultural Resources Survey of Proposed Bridge Repair on U2-64 Over Euchee Creek	4/13/2010	Pedestrian Survey	2.37	Report Card	None	S. Sundermeyer
Archaeological Survey Report on the Cingular Wireless West Fisher Cellular Tower Project	3/30/2005	Pedestrian Survey	1.38	Report Card	None	J. Briscoe
Emergency Bank Protection Survey by USACE	1/7/1993	Unknown	0.97	No Record	Unknown	Unknown
INCOG CAP Survey	7/30/1992	CAP	8.07	No Record	Unknown	Unknown
Indian Electric Cooperative CAP Survey	6/12/1991	Unknown	2.45	No	None	Unknown
A Subsurface Survey [...] Conducted for Indian Electric Cooperative of [...] Oklahoma	3/21/1988	Pedestrian Survey	4.67	Yes	34PY69	D. N. Brown
Shenandoah Development Sand Springs CAP Survey	1/25-1/28/1983	Random Pedestrian Survey	318.72	Report Card	34TU60, 34TU61, 34TU62, 34TU63	C. Neel, L. Neal

The review, and subsequent discussions with the Oklahoma State Historic Preservation Office (SHPO) and OAS indicated that significant tracts of land within the study area remain un-surveyed. Known cultural resources include artifact scatters, deeply buried deposits, historic homesteads, farms, missions, and cemeteries. While there are sites located within the floodplain, the majority are located on ridges and bluffs, thus having a low potential for disturbance by any of the proposed ecosystem restoration measures.

There are two previously recorded sites located in areas where ground disturbing activities are proposed (Figure 1). Site 34TU200 is a historic artifact scatter located on the north bank of the Arkansas River, immediately downstream from the Highway 97 Bridge. Artifacts recovered at the site include domestic and industrial refuse, and may represent ongoing use of the area as a dump site for local manufacturers and residents.

Site 34TU197 is a bison skull with an embedded Calf Creek spear point; radiocarbon dates indicate the age of the skull is 5,100 BP. The artifact was recorded on a sand bar near the south shore of the Arkansas River, immediately downstream of the Highway 97 Bridge. No other features or artifacts were recorded and it is believed that the skull may have washed downstream from its original location. Water wear and damage are minor, and it is possible that associated intact deposits are located nearby.

The overall visual character of the Arkansas River will be unchanged, with the exception of the low water dam, which will be visible from the Highway 97 Bridge and the south shore of the river. Additionally, no above-ground historic properties exist within the viewshed of the project, so no effects to historic structures are anticipated.

Recommendations

Based on the current information, there is a potential to affect historic properties in the vicinity of the proposed Arkansas River Corridor Ecosystem Restoration. The effects include direct impacts from earth moving and excavation activities related to construction of a low-water dam, a rock riffle and wetland vegetation planting at Prattville Creek, and construction of a sand bar island via placement of a chevron-shaped sediment control structure. The USACE recommends cultural resource survey be conducted to identify and evaluate any historic properties within proposed construction areas. The scope of these investigations will be determined in concert with the Oklahoma State Historic Preservation Officer, the Oklahoma Archaeological Survey, and Native American Tribes, in accordance with the Programmatic Agreement for this project.

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