106 Tracking Sheet

Tracking Number: **202001060**

Project Name: Bullhead Camp Cemetery

Description: New Permit - Data Recovery - DNA Analysis, Genealogical research, Isotopic research and public outreach pertaining to the individuals exhumed.

Agency Name: Fort Bend ISD Permit: **9105**

Second Agency:

Email: catrina_whitley[redacted] Phone: [redacted]

Address: Bullhead camp Cemetery City: Sugar Land Zip:

Date Received: 9/20/2019 Date Entered: 9/25/2019

Date Due: 10/20/2019 Date Responded: 9/20/2019

Jurisdiction: State County: Fort Bend

Other Counties: 0

1st Reviewer	2nd Reviewer	3rd Reviewer
Bill Martin		

Sites				Structures				Acres
Eligible		Ineligible		Undetermined		Ineligible	Eligible	

AD Comments

T2

T5

HPD Comments

DOA Comments

Notes

TEXAS HISTORICAL COMMISSION

ANTIQUITIES PERMIT APPLICATION FORM
ARCHEOLOGY

GENERAL INFORMATION

RECEIVED
SEP 20 2019

I. PROPERTY TYPE AND LOCATION

Project Name (and/or Site Trinomial) DNA Analysis, Genealogical Research, Isotopic Research, and Public Outreach Pertaining to the Individuals Exhumed from Bullhead Camp Cemetery
County (ies) Fort Bend
USGS Quadrangle Name and Number Sugar Land (2995-312)
UTM Coordinates Zone _____ E _____ N _____
Location _____
Federal Involvement ☐ Yes X No
Name of Federal Agency _____
Agency Representative _____

II. OWNER (OR CONTROLLING AGENCY)

Owner _____
Representative _____
Address _____
City/State/Zip _____
Telephone (include area code) _____ Email Address _____

III. PROJECT SPONSOR (IF DIFFERENT FROM OWNER)

Sponsor Principal Research Group
Representative Reign Clark
Address P O Box 341174
City/State/Zip Lakeway, Texas 78734
Telephone (include area code) [redacted] Email Address [redacted]

PROJECT INFORMATION

I. PRINCIPAL INVESTIGATOR (ARCHEOLOGIST)

Name Catrina Banks Whitley
Affiliation Principal Research Group
Address PO Box 122
City/State/Zip Midlothian, Texas 76065
Telephone (include area code) [redacted] Email Address [redacted]

(OVER)

ANTIQUITIES PERMIT APPLICATION FORM (CONTINUED)

II. PROJECT DESCRIPTION

Proposed Starting Date of Work 27 September 2019

Requested Permit Duration 10 Years 0 Months (1 year minimum)
Scope of Work (Provided an Outline of Proposed Work) Please find Scope of Work attached

III. CURATION & REPORT

Temporary Curatorial or Laboratory Facility Principal Research Group
Permanent Curatorial Facility Texas Archeological Research Laboratory

IV. LAND OWNER'S CERTIFICATION

I, _____, as legal representative of the Land Owner, _____, do certify that I have reviewed the plans and research design, and that no investigations will be preformed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Owner, Sponsor, and Principal Investigator are responsible for completing the terms of the permit.
Signature _____ Date _____

V. SPONSOR'S CERTIFICATION

I, Reign Clark, as legal representative of the Sponsor, Principal Research Group, do certify that I have review the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Sponsor, Owner, and Principal Investigator are responsible for completing the terms of this permit.

Signature Reign Clark Date 9/20/2019

VI. INVESTIGATOR'S CERTIFICATION

I, Catrina Banks Whitley, as Principal Investigator employed by Principal Research Group (Investigative Firm), do certify that I will execute this project according to the submitted plans and research design, and will not conduct any work prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Principal Investigator (and the Investigative Firm), as well as the Owner and Sponsor, are responsible for completing the terms of this permit.
Signature Catrina Banks Whitley Date 9/20/2019

Principal Investigator must attach a research design, a copy of the USGS quadrangle showing project boundaries, and any additional pertinent information. Curriculum vita must be on file with the Archeology Division.

FOR OFFICIAL USE ONLY

Reviewer B.M. Date Permit Issues 9/20/19
Permit Number 9105 Permit Expiration Date 9/20/29
Type of Permit Data Recovery Date Received for Data Entry _____

PRINCIPAL RESEARCH GROUP

PO Box 341174
Lakeway, Texas 78734

20 September 2019

Bill Martin
Texas Historical Commission
1511 Colorado Street
Austin, TX 78711

Re: Scope of Work for DNA Analysis, Genealogical Research, Isotopic Research, and Public Outreach Pertaining to the Individuals Exhumed from Bullhead Camp Cemetery Sugar Land, Fort Bend County, Texas

Dear Mr. Martin:

Principal Research Group is pleased to submit this Scope of Work pertaining to the long-overdue study of the population exhumed from the Bullhead Camp Cemetery found on the James Reese Campus owned and operated by the Fort Bend Independent School District (FBISD) that will result in the identification of individuals and their descendants. This Scope was generated for submission to the Texas Historical Commission (THC) in association with a Texas Antiquities Committee (TAC) Permit Application.

This Scope of Work covers planned studies that will be funded by a variety of sources. The studies will be conducted by the principal researchers with fund-raising assistance from the project proponent, Principal Research Group, of which all of the principal researchers are members of the Board of Directors. The principal researchers are a group of individuals who are qualified to perform the tasks proposed within their specific facilities and within their regular fields of study. Each member of the research group came forward to volunteer their time, effort, and considerable skill to the creation of this plan of work that will, at the very least, result in a greater understanding of the individuals who died and were buried at Bullhead Camp Cemetery. At best, the study will result in the identification of many of the individuals and, hopefully, their living next of kin.

The Research Group is Composed of:

Dr. Catrina Banks Whitley, owner of Bioarcheological Support, Research Associate at the Museum of New Mexico, and Principal Investigator for the project

Dr. Helen Graham, Chair of Philosophy, Humanities, and Library Sciences at Houston Community College and Lead Genealogist and Ethnographer for the project

Dr. Deborah Bolnick, Associate Professor of Anthropology at University of Connecticut and geneticist responsible for DNA extraction and analysis for the project

Dr. David Mittelman, Chief Executive Officer of Houston-based Genomics firm Othram, Inc and geneticist responsible for DNA sequencing and analysis, and public outreach

Dr. Chester Walker, Owner of Austin-based Archaeo-Geophysical Associates, LLC and geophysicist responsible for mapping and creation of other imagery for the project

Reign Clark, Chairman of the Board of Directors for Principal Research Group, responsible for logistics, agency consultation, fundraising, and public outreach

Importance of the Study

The only method to positively identify the individuals exhumed from Bullhead Camp Cemetery is to conduct DNA analysis. Bioarchaeological analysis of the skeletal remains, including stature, age, sex, pathologies, and cause of death provide information about the individuals and can narrow down possible matches to individuals buried at the cemetery, but cannot confirm identity. By combining the results of comprehensive bioarchaeological, isotope, genealogical, and DNA studies, we can narrow down possible identities and compare data to local populations to find relatives, thus, confirming the identities of at least some of the individuals from the sample group.

Data from the isotope study may allow us to identify regions where the individuals spent their early childhood through their mid to late teens. Combined with the bioarchaeological and genealogical data, we can focus the areas we need to search for each individual's family. It will also narrow the number of tests needed to compare a possible family line with the individuals of the sample group, reducing costs and increasing the possibility we will positively identify individuals.

By identifying individuals, we will have a greater understanding of the lives of the individuals that died and were buried at Bullhead Camp. We will ascertain a greater depth of understanding of the trials of living in Texas in the mid to late 1800s. We can gain a better understanding of their lives regarding health, injury, childhood disease and malnutrition, physical occupation during slavery and emancipation, and incarceration at the outside labor camps. In the journey for freedom, emancipation resulted in a devastating plague of diseases and malnutrition due to extremely limited access to health care and nutritious food (Downs 2015). DNA analysis and identification of individuals will give the unprecedented opportunity to identify detailed health impacts on children of the emancipation and Jim Crow eras. In turn, we may see how traumatic life experiences, during slavery and after emancipation, are passed to living descendants through genetics.

Just as during slavery, families were torn apart as African Americans were sent off to prison labor farms, sometimes never to be heard from or seen again. After emancipation, families spent enormous efforts to find lost relatives (Williams 2016). This study is a chance to continue those efforts and reunite the families with their lost ancestors.

Scope of Work

DNA Analysis

Deborah Bolnick, Samantha Archer, and David Mittelman

The extraction and analysis of DNA from the remains of individuals interred in the Bullhead Camp Cemetery offers an unprecedented opportunity to learn more about the identities, familial connections, and life experiences of the convict laborers who were buried at this site. In particular, DNA analysis will make it possible to shed light on (1) the genetic makeup and biological ancestry of these individuals, (2) patterns of genetic variation and relatedness among the convict laborers buried there, (3) familial relationships with members of the local community today, and (4) the biological impacts of forced prison labor and the ways that traumatic life experiences may have become embodied by the laborers and passed on to their living descendants. Genetic analysis will be carried out in conjunction with osteological, isotopic, archaeological, genealogical, archival, and ethnographic research. This approach will allow us to contextualize the genetic findings, to better reconstruct the identities and experiences of these individuals, and to identify the closest living relatives of the those that died and were buried at Bullhead Camp Cemetery.

In order to undertake DNA analysis, we will collect a sample from tooth and/or bone that has been collected from each individual. Posterior teeth (molars/premolars) will be preferentially targeted because previous research has shown that they are particularly good sources of ancient DNA (Adler et al. 2011; Pinhasi et

al. 2015; Hansen et al. 2017). The samples are currently curated as part of the collections at the Texas Archaeological Research Laboratory (TARL) at the University of Texas at Austin. The samples will be loaned to the Ancient DNA Laboratory at the University of Connecticut for analysis by Deborah Bolnick and her team. This newly constructed, state-of-the-art, restricted access cleanroom facility is designed specifically for studies of ancient DNA and is dedicated to ancient DNA research, using only laboratory procedures that have been optimized for the study of degraded ancient DNA. Extensive contamination controls are also employed to minimize contamination and detect/exclude it as present (Pääbo et al 2004; Shapiro and Hofreiter 2012).

To eliminate any surface DNA contamination that may have been introduced from external sources during excavation and handling, each sample will be submerged in Chlorox bleach for 10 minutes, rinsed twice with DNA-free water, and irradiated with 254 nm ultraviolet light for 5-10 minutes per side. DNA will then be extracted using procedures that have been optimized for the maximal recovery of ancient DNA (Bolnick et al. 2012; Dabney et al. 2013; Rohland et al. 2018). Approximately 100-200 mg of tooth or bone powder will be collected using a dental drill for each DNA extraction.

To make an initial assessment of DNA preservation in each sample and to identify the mitochondrial DNA (mtDNA) lineages present in the individuals buried at this location, we will sequence a portion of the first hypervariable region of the mtDNA following the protocol given in Bolnick et al. (2012). Each cell contains many copies of the mtDNA, making it more likely to be preserved in aDNA samples (Willerslev and Cooper 2005). Mitochondrial DNA can also be used to trace matrilineal relatedness and maternal ancestry because it is maternally-inherited. DNA sequences will be compared to the Cambridge Reference Sequence (Andrews et al. 1999) and mtDNA lineages will be identified by diagnostic genetic differences from that reference sequence.

Genomic DNA libraries will then be prepared for each sample using a protocol developed specifically for samples containing degraded ancient DNA (Rohland et al. 2015). DNA libraries will be prepared in the Ancient DNA Laboratory at the University of Connecticut, and then sent to the Othram laboratory for genome sequencing by David Mittelman and his team. DNA libraries will be first sampled using the iSeq platform in order to check the quality of the DNA libraries, assess contamination from non-human sources of DNA, and ensure successful sequencing on the high-throughput Novaseq instrument that will be used for Illumina whole genome sequencing.

The sequence data from these DNA libraries will be used to assess nuclear DNA preservation, identify and exclude any external contamination, determine the genetic sex of each individual, characterize the overall genetic ancestry of each person, evaluate patrilineal and biparental relatedness among the cemetery group, and assess familial relationships with members of the local community living today. This dataset will also allow us to determine the sequence of the complete mitochondrial genome and confirm our initial assessment of the mtDNA lineage of each individual. Othram has curated historical and genetic data for all known 5,500 human mtDNA lineages, which will allow us to precisely identify the lineage of each individual and establish the ancestral and familial connections of that person. Othram has also curated a database of human Y-chromosome genetic lineages that will be used to help trace recent and historical familial relationships along the father's line. Othram will further utilize its pairwise kinship analysis algorithm to confirm intrafamilial relationships. Dr. Mittelman has previously used this algorithm in missing persons cases to confirm or establish relationships between remains and living relatives.

For samples with well-preserved nuclear DNA, we will also analyze epigenetic markers in order to assess the biological impacts of forced prison labor and the ways that traumatic life experiences may have become embodied by the laborers and passed on to their living descendants. *Epigenetics* refers to the study of

chemical markers that get attached to a person's DNA over the course of their lifetime. The presence or absence of these markers can be influenced by environmental factors, such as trauma or diet, and new methods for studying epigenetic marks in ancient DNA samples have been developed over the past decade. By combining epigenetic studies with osteological, isotopic, archaeological, genealogical, archival, and ethnographic evidence about the cause of a person's death, their diet and lifestyle, and the environment in which they lived, we will better understand the convict lease era of Texas history and how it impacted both individuals and communities.

This epigenetic analysis, and its integration with the other forms of data to be collected, will be undertaken as part of Samantha (Sam) Archer's dissertation research. As a native Texan and Houstonian, Sam is deeply interested in the history of convict leasing in Texas and hopes her research will help us better understand the relationship between the convict lease system, the reproduction of slave labor under various systems in the post-Reconstruction era, and the rise of the modern prison-industrial complex. She is also interested in assessing the biological impacts of forced prison labor and the ways that traumatic life experiences may have become embodied by the laborers and passed on to their living descendants. To help contextualize her findings, Sam would be interested in speaking with community members and potentially recording oral histories and employing ethnographic methods to help understand the impact of her findings on local communities today.

Funding for DNA Analysis:

Bolnick and Archer have funds already in hand from the University of Connecticut to analyze a portion of the sampled individuals. Additional funds will be sought from the National Science Foundation and the Wenner-Gren Foundation for Anthropological Research, as well as from private funding through the efforts of Principal Research Group. Othram has secured funding to conduct feasibility studies on a portion of the samples. Othram is working to secure funding from private high-net worth individuals who want to contribute to help us tell the story of these individuals.

Genealogical Research

Dr. Helen Graham

Genealogy is a scholarly endeavor of tracing lineages and studying families and family histories. According to the National Genealogical Society (2007), "documentary evidence of each generational bloodline connection can be proven with evidence and records." To determine relations, genealogists use a myriad of tools such as archival and historical records, genetic DNA analysis, and oral interviews. To identify the individuals exhumed from the Bullhead Camp Cemetery and potential living descendants, we conducted historical research, interviewed an historian, examined archives, and conducted genealogical research.

Our process for identifying the individuals began by conducting historical research pertaining to the cemetery discovered on the James Reese Campus. We determined that the property was used as a convict labor camp and that the camp underwent several name changes during its existence. We then conducted historical research of convict leasing in Texas and pinpointed a date range that convict leasing and labor camps were operated in the vicinity of the campus.

After we verified our findings, we identified and conducted an interview with an historian whose maternal grandfather supervised the cotton gin at this labor camp. As a child, our historian spent her summers at the camp and was able to shed light on the daily operations of the camp, the prisoners and their roles, the punishments (state sanctioned and illegal), and the "normality" of the convict lease system. She provided timelines and her knowledge of the life experiences of the laborers at this camp. We then began scouring archives for the identities of persons sentenced to this particular labor camp, under its various names, between the years of 1871 and 1912.

We visited the Texas Department of Criminal Justice (TDCJ) in Huntsville, TX and spent hours researching, locating, and copying intake records of persons convicted of crimes and sentenced to this labor camp. These records provided names of persons convicted, their offenses, the length of sentences, the location of the labor camp, physical traits, marital status, number of children if any, addresses at time of conviction, and parental data. Many records were transferred to the Texas State Library and Archives Commission and were unavailable to examine during these visits.

Based on our research at the TDCJ, we scheduled a visit to the Texas State Library and Archives Commission in Austin, TX. A team of researchers spent a week examining the archives for persons sentenced to our labor camp. We mined and extracted data from archives such as, but not limited to, commissioners' reports, physicians' reports, monthly reports on camps, superintendents' reports, committee reports, and mortality reports. While reviewing a committee report, we identified a physician assigned to our labor camp. We searched Newspapers.com and located several articles about this physician, including his death and burial location. A brief search on Findagrave.com resulted in the identities of some family members. We then searched for this physician in FamilySearch.org and located a living descendant. We contacted the descendant to obtain information about his relative and are awaiting a reply.

Following our research at the Texas State Library and Archives Commission, we began our search for digital archives of these records. We directed our search to conduct registers located in Ancestry, the largest for-profit genealogy company in the world. We were successful in locating several conduct registers related to the individuals exhumed. After documenting our findings, we returned to the TDCJ to find intake records related to our findings.

After retrieving intake records and identifying persons who were sentenced to and died at this camp, we began tracing those buried at Bullhead Camp Cemetery and possible descendants forward in time and recorded our findings in standard genealogical formats. We recruited a team of genealogists to help in this endeavor. The lead genealogist has more than 25 years of genealogical research experience and has traced her maternal African-American lineage to the 1700s and her paternal Native-American lineage to the 1600s. Aside from the independent genealogists, the team consisted of genealogists from The Afro-American Historical and Genealogical Society, The Church of Jesus Christ of Latter-Day Saints, and FamilySearch – a genealogical society founded in 1894 with 4,600 local family history libraries around the world.

To date, 64 names of individuals who died in the Bullhead Camp have been identified and possible living descendants of three of the individuals. However, without genetic DNA analysis, we are unable to ascertain the identity of an individual or their possible living descendant. We plan to conduct more archival research and oral interviews with local historians and persons familiar with the labor camp in an effort to identify the individuals exhumed from the Bullhead Camp Cemetery, to locate living descendants, and to reconstruct the narratives of the lives ended at Bullhead Camp.

Funding for Genealogical Research:

Graham has secured funding to continue archival research and in-kind donations to conduct the oral interviews and genealogical research. Additional funding will be provided through the fund-raising efforts of Principal Research Group.

Isotopic Research

Abigail Eve Fisher, Catrina Banks Whitley, and Reign David Clark

The proposed stable isotope research will provide additional dietary and migration data to enhance the ongoing bioarchaeological study of the historic population exhumed from Bullhead Camp Cemetery and help identify possible descendants. Between June and September of 2018, archaeologists excavated an African-American cemetery in Sugarland Texas, recovering nearly 100 individual burials. Based on the sex and ancestry profile of the individuals, those buried at this cemetery were probably inmates from the nearby

convict-leasing camp. Thus, the discovery and excavation of these individuals presents a unique and important opportunity to study a population of convict-lease inmates and to shine a light on the history of convict-leasing.

We propose isotopic analyses of samples collected from 87 of the individuals exhumed from Bullhead Camp Cemetery. Isotopic analyses of teeth will allow us to explore several important questions about this population, including: 1) How did diet change from slavery to post-emancipation to the convict-leasing program? 2) Were the inmates from local populations or were they brought in from other areas of the state? 3) Were the inmates born in Texas or did they arrive after adolescence?

This research will not only inform the growing narrative of the lives of freed slaves in the southern United States, but also on the lives of the individuals who were interred at the site. This will aid in the telling of their stories and in their possible identification.

The proposed research will use stable isotope analyses to test hypotheses related to changes in diet (carbon and nitrogen) and migration (oxygen and strontium) in association with post-emancipation and convict leasing lifeways. The study will utilize two teeth from each of the 87 individuals exhumed from the Bullhead Camp Cemetery, one developed in early life such as an incisor or canine, and one developed later in life, such as a second, or preferably third molar. From the "early" tooth, strontium and oxygen isotope analyses of the enamel will inform on where the individual was brought up, and carbon (organic and inorganic) and nitrogen isotopes will inform on their diet during childhood. From the "later" tooth, oxygen isotope analysis will inform on geographic movement from childhood to adolescence, and carbon and nitrogen analyses will inform on changes in diet. As tooth roots and tooth enamel develop at different stages, this approach allows for several "snapshots" into the dietary and migration history of a single individual. Once the individual life histories are established, the population will be studied looking for changes in dietary trends through time. Temporal changes will be established using coffin hardware (nails) and general population demographic trends observed in the bioarcheological study.

Diet

The use of stable isotope analysis in dietary and life-history reconstruction is well established (e.g., DeNiro and Epstein 1978, 1981; Montgomery et al. 2007b; Schwarcz et al. 1991; Vogel and van der Merwe 1977; White et al. 1998), based on principles of enrichment and depletion derived from the processes of plant photosynthesis and respiration (carbon; DeNiro and Epstein 1978) and trophic level enrichment (nitrogen; DeNiro and Epstein 1981). As such, δ13C is a useful tool in evaluation of certain plant inputs (e.g., corn, millet, sorghum) and δ15N may be used to reconstruct diet complexity (e.g., fish consumption, meat). Malnutrition may also be apparent in both δ13C and δ15N. People acquire their organic collagen δ13C signature (δ13Ccoll.) from ingested protein (Ambrose and Norr 1993; DeNiro and Epstein 1978), so that δ13Ccoll. primarily reflects the fish and meat (see Wilson 1924). Enriched δ13Ccoll. will be reflect instances of high meat consumption. Corn is only 10.3% protein by dry weight (Ambrose and Norr 1993:30), so that variation in its consumption may not be apparent in δ13Ccoll. In contrast, δ13C in enamel and bone apatite reflects cumulative diet (δ13Capa.)., and not preferentially protein (Ambrose and Norr 1993), so that ingested plant materials reflect in relative abundance to protein. Apatite in tooth enamel is set at childhood and rarely is subject to diagenetic alteration due to it being essentially non-porous and largely composed of stable crystals of hydroxylapatite (less than 2% organic). It is thus a useful medium for studies of total diet (Driessens and Verbeeck 1990:106), especially in short-lived species. δ13Capa. thus may reflect the degree to which corn contributed to the diet, and changes in corn dependence will be apparent by comparative analysis (e.g., Beaumont and Montgomery 2016; Cook and Schurr 2009; Tykot et al. 2009). δ15N undergoes enrichment through trophic level increase, such that due to the increased complexity of

marine and fresh-water ecosystems, those who consume fish have more enriched δ15N than those who eat terrestrial mammals, etc. (DeNiro and Epstein 1981). Enrichment in δ15N is thus associated with dependence on fish or general access to meat. Further, δ15N and δ13C may be altered by malnutrition and starvation (Beaumont and Montgomery 2016; Mekota et al. 2006; Neuberger et al. 2013). δ15N enrichment is caused by a slow-down of catabolism of body proteins during gluconeogenesis (Mekota et al. 2006), and a depletion of δ13C is caused by a lack of energy in the consumed diet (Neuberger et al. 2013). Diet in the south was likely consistent through time: meat, cornbread, vegetables. It is the amount and ratios of these food which possibly changed through time for those who were slaves, then freed, and then incarcerated.

Generally, slaves were seen as an investment, which needed to be fed to work (Covey and Eisnach 2009:12). However, malnutrition was enough of an issue for the issuance of laws requiring adequate food and care. After AD 1845, laws in Texas required slaves be provided "... a sufficient quality of wholesome food." Generally, slave diets largely consisted of meat from domesticated livestock, but wild species such as raccoon, snapping turtle, and opossum also contributed (Samford 1996). Fish and aquatic resources likely also contributed, but wild resources were likely a small component of the slave diet. The slave diet in Texas generally included bread, molasses, beef, chicken, pork sweet potatoes, and hominy (Barr 1996:18). There were also occasional contributions of turkey, opossum, and deer. From a dietary perspective, slave and owner likely shared a similar diet (Barr 1996:20). On a Texas plantation, typical rations included bacon or dried beef, sometimes supplemented with milk, butter, and molasses, along with sweet potatoes or cornmeal, and possibly flour and vegetables (Covey and Eisnach 2009:23). Plantation owners also likely encouraged slaves to grow their own vegetables for personal use and/or sale (Covey and Eisnach 2009:73). This would add legumes such as beans and root and green vegetables to the slave diet. A traditional slave diet provided about 4000 calories per day for an adult field hand, albeit this could vary greatly (Ransom and Sutch 2001:20).

The privilege of being free was restricted by poverty (Ransom and Sutch 2001:12). Post emancipation diet was probably more varied than a slave diet, but likely still consisted primarily of pork and corn (Ransom and Sutch 2001:11). In terms of nutrition, however, these diets were imbalanced, with insufficient protein from meat and an excess in carbohydrates from corn to support a laborer's workload. This would present isotopically as a comparative depletion in δ15N and enrichment in δ13C.

Convict meals were generally beans, cornbread, molasses and sometimes vegetables (Mancini 1996:64). The rules for convict leasing required "good food" consisting of corn bread, beef or bacon, soup, and vegetables (Mancini 1996:172). From its description, the convict diet may mirror the slave diet. However, convict laborers were not seen as an investment; if one died, they were replaced at the expense of the state, not the lessee (Mancini 1996:3,31). Between 1878 and 1880, approximately 256 prisoners of the 2157 (~12%) leased or subleased by Cunningham and Ellis died (Mancini 1996:176). By AD 1880, Cunningham and Ellis had 1440 convicts working their sugar plantations and had subleased an additional 1113 convicts (Mancini 1996: 177-178). Housing facilities were squalid, attracting vermin and pestilence (Hill and Pye 2012). As the state abdicated welfare responsibility when leasing convicts, a typical lease camp population was under-fed, poorly clothed, and not given proper medical care or rest (Walker 1983). The conditions in Sugarland were such, it led to it being called "the hellhole of the Brazos" (Mancini 1996:175).

We hypothesize that:

Malnutrition and starvation increase through time (slavery verses post-emancipation), as well as through life (pre- verses post- internment).

1. From the presumably earlier section of the site, there are highly robust individuals with indications of heavy labor throughout their lives. We hypothesize that these are former slaves and their diets will be higher in protein (δ15N)

2. From the later section of the site, there are gracile individuals with evidence of heavy labor only later in life. We hypothesize that these are individuals who grew-up post emancipation. We hypothesize that their diets will be richer in carbohydrates (δ13C) and relatively depleted in protein (δ15N)

3. While bone samples would be needed to assess the most recent dietary intake for most individuals, there were several younger individuals at the cemetery, with tooth roots still in formation. They will represent diet under convict labor.

Migration

Another unknown aspect of the population exhumed from the Bullhead Camp Cemetery is where these individuals were born and raised. While DNA analyses can reveal biological origins (e.g., West Africa), they cannot necessarily indicate where an individual grew up. For this population, there is an underlying assumption that many were freed slaves, but were they originally slaves in Texas? Further, as the number of individuals incarcerated increased, how far afield did they come? To address these questions, we propose using oxygen and strontium isotope analyses. Geographic isotopic variation in groundwater (oxygen) and minerals (strontium) may be used to track migration of populations through generations or people through their lifetime (e.g., Dupras and Schwarcz 2001; Evans et al. 2006; Schwarcz et al. 1991), especially in conjunction with DNA analyses (e.g., Bentley et al. 2003). Oxygen isotopes (δ18O) in body tissues and bone are derived from body water which is acquired through drinking (meteoric water) and food (White et al. 1998). The isotopic composition of water is subject to enrichment and depletion as part of the water cycle and is thus regionally distinctive. Generally, δ18O depletes with increasing distance from large bodies of water, increasing elevation, increasing relative humidity, and decreasing temperature (Craig 1961; Yurtsever and Gat 1981). As such, δ18O of an individual reflects the δ18O composition of their local water source and can thus be used in the determination of "local" verses "foreign" in a comparative study of a population (Dupras and Schwarcz 2001; White et al. 1998), and possibly place of origin (Schwarcz et al. 1991). Strontium isotope composition (δ87Sr) varies in rocks based on lithology and age and is incorporated into human bone through soil, water, and plants (Bentley 2006; Montgomery et al. 2007a). As such, δ87Sr may be used to characterize migration and mobility for individuals and populations using bone or tooth enamel (Bentley 2006; Montgomery et al. 2007a, b).

We hypothesize that origin distance from Sugarland will increase over time.

1. Initially, inmates sent to sugar plantations in Sugarland were local, with previous sugar plantation experience.

2. As demand increased and time since slavery passed, selectiveness decreased with individuals from other parts of Texas and different expertise (e.g., mining, railroad) brought in to work the sugar fields.

An example of selectiveness, in AD 1878, Cunningham and Ellis leased 1738 inmates, of which 916 were subleased to plantations, 182 for railroad work, 299 for wood chopping, 18 for a saw mill, and 323 to various jobs within the prison such as blacksmithing and working in cotton production (Walker 1983:104).

Funding for Isotopic Research:

Fisher, Whitley, and Clark are discussing a research partnership with Flinders University in Adelaide, South Australia with Dr. Ian Moffat to accomplish the proposed isotopic study. In the case that a state-side laboratory is selected for research, additional funding will be sought from the National Science Foundation, as well as from private funding through the efforts of Principal Research Group.

Project Timeline, Permit Duration, and Reporting Efforts

The project proponent requests a Texas Antiquities Committee permit of a ten (N=10) year duration. The reason for this request is that the initial DNA work will require a minimum of one year to complete after the samples are sent to University of Connecticut on loan from TARL. Isotope research will require at least that duration to complete. After these analyses are complete, the data will be compared to existing available libraries in search of matches to living individuals. Samples will be collected from living individuals that believe they may have some family connection to the population of the Bullhead Camp Cemetery. A potentially daunting genealogical research effort will then be required to prove relatedness and make a definitive identification of remains.

Principal Research Group will produce an interim report of finding at the fifth (5th) anniversary of the issuance of the permit. This interim report will include the names of any identified persons from the population of the Bullhead Camp Cemetery as well as family histories compiled to that date. In addition to identities of individuals and descendant data, the final report will provide a comprehensive analysis of data resulting from DNA analysis, genealogical research, and isotopic research. This report will be submitted to THC for review and publication. Upon receipt of report acceptance, Principal Research Group will produce 20 copies of the final report for submission in accordance with the requirements of the TAC permit.

References

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Adler C, Haak W, Donlon D, Cooper A, Dersarkissian C

2011 Survival and recovery of DNA from ancient teeth and bones. J Archaeol Sci 38:956–964.

Bolnick DA, Bonine HM, Mata-Míguez J, Kemp BM, Snow MH, LeBlanc SA

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PRINCIPAL RESEARCH GROUP

20 September 2019

Bill Martin
Texas Historical Commission
1511 Colorado Street
Austin, TX 78711

Re: DNA Analysis, Genealogical Research, Isotopic Research, and Public Outreach Pertaining to the Individuals Exhumed from Bullhead Camp Cemetery

Dear Mr. Martin:

Principal Research Group is pleased to submit this Scope of Work and Texas Antiquities Committee Permit Application pertaining to the long-overdue study of the population exhumed from the Bullhead Camp Cemetery found on the James Reese Campus owned and operated by the Fort Bend Independent School District (FBISD). This study is designed to identify individuals among the subject group, as well as their descendants through the use of DNA analysis, Isotopic Research, Genealogical Research, and Public Outreach.

The only method to positively identify the individuals exhumed from Bullhead Camp Cemetery is to conduct DNA analysis. Bioarchaeological analysis of the skeletal remains, including stature, age, sex, pathologies, and cause of death provide information about the individuals and can narrow down possible matches to individuals buried at the cemetery, but cannot confirm identity. By combining the results of comprehensive bioarchaeological, isotope, genealogical, and DNA studies, we can narrow down possible identities and compare data to local populations to find relatives, thus, confirming the identities of at least some of the individuals from the sample group. Data from the isotope study may allow us to identify regions where the individuals spent their early childhood through their mid to late teens. Combined with the bioarchaeological and genealogical data, we can focus the areas we need to search for each individual's families. It will also narrow the number of tests needed to compare a possible family line with the individuals of the sample group, reducing costs and increasing the possibility we will positively identify individuals.

Just as during slavery, families were torn apart as African-Americans were sent off to prison labor farms, sometimes never to be heard from or seen again. After emancipation, families spent enormous efforts to find lost relatives. This comprehensive study is a chance to continue those efforts and reunite the families with their lost ancestors.

Please call me on my cell (512-419-8424) or contact me by email (reignclark@gmail.com) for any discussion, clarification, or further requests for information regarding the Scope of Work for this project.

Sincerely,

Reign Clark

Chairman, Board of Directors, Principal Research Group

PO Box 341174
Lakeway, Texas 78734

Laney Fisher

From: Bill Martin
Sent: Wednesday, September 25, 2019 10:51 AM
To: Laney Fisher
Subject: FW: DNA analysis permit

From: Bill Martin
Sent: Friday, September 20, 2019 4:44 PM
To: rclark@goshawkenv.com
Cc: Pat.Mercado-Allinger@thc.texas.gov; Mark Wolfe <Mark.Wolfe@thc.texas.gov>
Subject: DNA analysis permit

Reign,

Your permit for DNA and Isotope analysis and genealogical research for the individuals recovered from the Bullhead Camp Cemetery is 9105.

TEXAS HISTORICAL COMMISSION
REAL PLACES TELLING REAL STORIES

Bill Martin
Team Lead, Review and Compliance
Archeology Division
[redacted]
thc.texas.gov

TEXAS HISTORICAL COMMISSION
real places telling real stories

Thursday, October 10, 2019

Catrina Banks Whitley
Principal Research Group
PO Box 122
Midlothian, TX 76065

Re: Project review under the Antiquities Code of Texas
Final Report: Bullhead Camp Cemetery
Texas Antiquities Permit # 9105

Dear Colleague:

Thank you for your Antiquities Permit Application for the above referenced project. This letter presents the final copy of the permit from the Executive Director of the Texas Historical Commission (THC), the state agency responsible for administering the Antiquities Code of Texas.
Please keep this copy for your records. The Antiquities Permit investigations requires the production and submittal of one printed copy of the final report, a completed abstract form submitted via our online system, two copies of the tagged PDF final report on CD (one with site location information & one without), and verification that any artifacts recovered and records produced during the investigations are curated at the repository listed in the permit. The abstract form maybe submitted via the THC website (www.thc.state.tx.us) or use url:
http://xapps.thc.state.tx.us/Abstract/login.aspx
Additionally, you must send the THC shapefiles showing the boundaries of the project area and the areas actually surveyed via email to archeological_projects@thc.texas.gov.

If you have any questions concerning this permit or if we can be of further assistance, please contact the reviewer, Bill Martin at (512) 463-5867.

Sincerely,

Nick Barrett:
Antiquities Permit Coordinator
(512) 463-1858

Enclosures

Cc :Private
Principal Research Group

State of Texas

TEXAS ANTIQUITIES COMMITTEE

ARCHEOLOGY PERMIT 9105

This permit is issued by the Texas Historical Commission, hereafter referred to as the Commission, represented herein by and through its duly authorized and empowered representatives. The Commission, under authority of the Texas Natural Resources Code, Title 9, Chapter 191, and subject to the conditions hereinafter set forth, grants this permit for:

Data Recovery

To be performed on a potential or designated landmark or other public land known as:

Title: ***Bullhead Camp Cemetery***
County: ***Fort Bend***
Location: ***Sugarland TX***

Owned or Controlled by: (hereafter known as the Permittee):

Private

Sponsored by (hereafter known as the Sponsor

Principal Research Group
PO Box 341174
Lakeway TX 78734

The Principal Investigator/Investigation Firm representing the Owner or Sponsor is:

Catrina Banks Whitley
Principal Research Group
PO Box 122
Midlothian, TX 76065

This permit is to be in effect for a period of:

10 Years and 0 Months

and Will Expire on:

09/20/2029

During the preservation, analysis, and preparation of a final report or until further notice by the Commission, artifacts, field notes, and other data gathered during the investigation will be kept temporarily at:

Principal Research Group

Upon completion of the final permit report, the same artifacts, field notes, and other data will be placed in a permanent curatorial repository at:

Texas Archeological Research Laboratory

Scope of Work under this permit shall consist of:

Data Recovery, see attached scope for detail.

This permit is granted on the following terms and conditions:

1) This project must be carried out in such a manner that the maximum amount of historic, scientific, archeological, and educational information will be recovered and preserved and must include the scientific, techniques for recovery, recording, preservation and analysis commonly used in archeological investigations. All survey level investigations must follow the state survey standards and the THC survey requirements established with the projects sponsor(s).

2) The Principal Investigator/Investigation Firm, serving for the Owner/Permittee and/or the Project Sponsor, is responsible for insuring th specimens, samples, artifacts, materials and records that are collected as a result of this permit are appropriately cleaned, and cataloged for curation. These tasks will be accomplished at no charge to the Commission, and all specimens, artifacts, materials, samples, and original field notes, maps, drawings, and photographs resulting from the investigations remain the property of the State of Texas, or its political subdivision, and must be curated at a certified repository. Verification of curation by the repository is also required, and duplicate copies of any requested records shall be furnished to the Commission before any permit will be considered complete.

3) The Principal Investigator/Investigation Firm serving for the Owner/Permittee, and/or the Project Sponsor is responsible for the publication of results of the investigations in a thorough technical report containing relevant descriptions, maps, documents, drawings, an photographs. A draft copy of the report must be submitted to the Commission for review and approval. Any changes to the draft report requested by the Commission must be made or addressed in the report, or under separate written response to the Commission. Once a draft has been approved by the Commission, one (1) printed, unbound copy of the final report containing at least one map with the plotte location of any and all sites recorded and two copies of the report in tagged PDF format on an archival quality CD or DVD shall be furnish to the commission. One copy must include the plotted location of any and all sites recorded and the other should not include the site location data. A paper copy and an electronic copy of the completed Abstracts in Texas Contract Archeology Summary Form must also b submitted with the final report to the Commission. (Printed copies of forms are available from the Commission or also online at www.thc.state.tx.us.)

4) If the Owner/Permittee, Project Sponsor or Principal Investigator/Investigation Firm fails to comply with any of the Commission's Rules Practice and Procedure or with any of the specific terms of this permit, or fails to properly conduct or complete this project within the allott time, the permit will fall into default status. A notification of Default status shall be sent to the Principal Investigator/Investigation Firm, and the Principal Investigator will not be eligible to be issued any new permits until such time that the conditions of this permit are complete or applicable, extended.

5) The Owner/Permittee, Project Sponsor, and Principal Investigator/Investigation Firm, in the conduct of the activities hereby authorizes, must comply with all laws, ordinances and regulations of the State of Texas and of its political subdivisions including, but not limited to, th Antiquities Code of Texas; they must conduct the investigation in such a manner as to afford protection to the rights of any and all lessee or easement holders or other persons having an interest in the property and they must return the property to its original condition insofar a possible, to leave it in a state which will not create hazard to life nor contribute to the deterioration of the site or adjacent lands by natural forces.

6) Any duly authorized and empowered representative of the Commission may, at any time, visit the site to inspect the fieldwork as well a the field records, materials, and specimens being recovered.

7) For reasons of site security associated with historical resources, the Project Sponsor (if not the Owner/Permittee), Principal Investigato Owner, and Investigation Firm shall not issue any press releases, or divulge to the news media, either directly or indirectly, information regarding the specific location of, or other information that might endanger those resources, or their associated artifacts without first consulting with the Commission, and the State agency or political subdivision of the State that owns or controls the land where the resour has been discovered.

8) This permit may not be assigned by the Principal Investigator/Investigation Firm, Owner/Permittee, or Project Sponsor in whole, or in p to any other individual, organization, or corporation not specifically mentioned in this permit without the written consent of the Commissior

9) Hold Harmless: The Owner/Permittee hereby expressly releases the State and agrees that Owner/Permittee will hold harmless, indemnify, and defend (including reasonable attorney's fees and cost of litigation) the State, its officers, agents, and employees in their official and/or individual capacities from every liability, loss, or claim for damages to persons or property, direct or indirect of whatsoever nature arising out of, or in any way connected with, any of the activities covered under this permit.The provisions of this paragraph are solely for the benefit of the State and the Texas Historical Commission and are not intended to create or grant any rights, contractual or otherwise, to any other person or entity.

10) Addendum: The Owner/Permittee, Project Sponsor and Principal Investigator/Investigation Firm must abide by any addenda hereto attached.

Upon a finding that it is in the best interest of the State, this permit is issued on 09/20/2019.

Pat Mercado-Allinger

Pat Mercado-Allinger,
Archeology Division Director

Mark Wolfe

Mark Wolfe,
Executive Director