



Archaeological Monitoring of Utilities Installation at Borglum Studio, Brackenridge Park, San Antonio, Bexar County, Texas

by

Cynthia M. Dickey, Kristi Miller Ulrich, and Jennifer Thompson

Texas Antiquities Permit No. 6282

Principal Investigator
Steve A. Tomka

Restricted

Prepared for:
James Roschek
Municipal Golf Association San Antonio
Brackenridge Golf Course
2315 Avenue B
San Antonio, Texas 78215



Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
One UTSA Circle
San Antonio, Texas 78249-1644
Technical Report, No. 48

© 2013

**Archaeological Monitoring of Utilities Installations
at Borglum Studio, Brackenridge Park,
San Antonio, Bexar County, Texas**

by
Cynthia M. Dickey, Kristi Miller Ulrich, and Jennifer Thompson

Texas Antiquities Permit No. 6282

Principal Investigator

Steve A. Tomka

Restricted



Prepared for:
James Roschek
Municipal Golf Association San Antonio
Brackenridge Golf Course
2315 Avenue B
San Antonio, Texas 78215

Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
One UTSA Circle
San Antonio, Texas 78249-1644
Technical Report, No. 48

Abstract:

The Center for Archaeological Research was contracted by the Municipal Golf Association San Antonio-Brackenridge Golf Course to monitor trenching for the installation of waterlines connecting to Borglum Studio in Brackenridge Park in the vicinity of the golf course clubhouse. Borglum Studio is listed as a historic building on the Texas Archaeological Site Atlas and is a contributing resource to Brackenridge Park, which is listed on the National Register of Historic Places. The excavation of two trenches was monitored over several days for the presence of potential cultural materials and features. Trench excavations revealed substantial subsurface disturbances resulting from prior construction activities. No intact soils were noted during the trenching, and no features were identified.

No artifacts were collected during the project and all records, including field notes, digital photographs, photo logs, maps, and plan-view drawings, pertaining to monitoring were prepared for curation and are permanently stored at the Center for Archaeological Research facility.

Table of Contents:

Abstract.....	i
Table of Contents.....	ii
List of Figures.....	iii
Acknowledgements.....	iv
Chapter 1: Introduction.....	1
Archaeological Services Provided.....	4
Chapter 2: Historic Background and Previous Archaeology.....	5
Culture History.....	5
History of Brackenridge Park Including Pump House No. 2.....	9
Previous Archaeology.....	16
Chapter 3: Field and Laboratory Methods.....	23
Field Methods.....	23
Laboratory Methods.....	23
Chapter 4: Results of Monitoring.....	25
Chapter 5: Summary and Recommendations.....	29
References Cited.....	31

List of Figures:

Figure 1-1. Borglum Studio on the Southton (2998-132) USGS 7.5-minute series quadrangle map.....	2
Figure 1-2. The original planned construction activities for the Borglum Studio	3
Figure 1-3. Large trees along the original alignment of the drainpipe.....	4
Figure 2-1. The location of pre-channelized river and site of the Second Water Works building.....	9
Figure 2-2. 1905 map showing the location of two <i>acequias</i>	10
Figure 2-3. A series of steps in Borglum’s production of Mount Rushmore models	15
Figure 2-4. The location of previous archaeological work at 41BX1396	17
Figure 2-5. The location of backhoe trenches and pipeline within the Brackenridge Golf Course	18
Figure 2-6. The Water Works canal cross-section, north of the APE as recorded by Miller et al. 1999.....	20
Figure 4-1. Excavated area to the north of the Borglum Studio building showing entrance to garage. Looking east-southeast.....	25
Figure 4-2. Excavation of Trench 1. Left side is prior to trench monitoring. Right side is hand excavated ...	26
Figure 4-3. The excavation of Trench 2 near the southeast corner of Borglum Studio.....	27
Figure 4-4. View of Trench 2 extending from near the structure to the Catalpa Pershing Channel in the background.....	27

Acknowledgements:

The author wishes to extend sincere thanks to James Roschek of the Municipal Golf Association for sponsoring the archaeological monitoring opportunity at Borglum Studio. Gratitude is extended as well to SBM General Contractor Shawn Mulvhill for coordinating the project with the CAR. Thanks also to Kay Hinds, City Archaeologist for the City of San Antonio, and Mark Denton from the Texas Historical Commission. Special appreciation and thanks also go to Dean Gary of Bee Busters of San Antonio for rescuing the operation from calamity and enabling the completion of work during the plumbing excavation.

Thanks are also sincerely extended to Rick Young for this report's graphics and Kelly Harris for manuscript editing. Very special thanks to Kristi Miller Ulrich and Jennifer Thompson for contributing the historical background and previous archaeology sections of this report. Also, the curation of all records pertaining to the project was carried out by Marybeth Tomka and Melissa Eiring, Curator and Laboratory Coordinator, respectively, and their work is much appreciated. Lastly, the guidance, advisement, and patience of Director and Principal Investigator Dr. Steve Tomka are highly valued, and the author's thanks go out to him. Dr. Tomka conducted the in-house review of the manuscript.

Chapter 1: Introduction

In June of 2012, the Center for Archaeological Research (CAR) of The University of Texas at San Antonio (UTSA) was contracted by the Municipal Golf Association San Antonio-Brackenridge Park Golf Course to provide archaeological services associated with the planned installation of waterlines in the vicinity of Borglum Studio. The waterline installation will provide adequate drainage around the building. This effort was part of a more extensive project of repairs and improvements to internal and external features of this historically significant structure, which is individually listed on the National Register of Historic Places and is a contributing element to the Brackenridge Park National Register District. The structure will be the home of the Texas Golf Hall of Fame Museum.

Because the subsurface impacts occurred in the vicinity of several significant previously documented archaeological sites, the monitoring was required by the City of San Antonio's Office of Historic Preservation. In addition, because the planned impacts occurred on land owned by the City of San Antonio, the project also falls under the jurisdiction of the Antiquities Code of Texas. The monitoring was carried out under the Texas Antiquities Committee Permit No. 6282 with Dr. Steve A. Tomka serving as the project's Principal Investigator and Cynthia M. Dickey as Project Archaeologist.

Borglum Studio is located near the southern edge of Brackenridge Park, just south of the Brackenridge Golf Course Clubhouse and at the end of Mill Race Road. Figure 1-1 shows the Area of Potential Effect (APE; the black square in the center of the highlighted area) on the Southton (2998-132) USGS 7.5-minute series quadrangle map.



Figure 1-1. *Borglum Studio on the Southton (2998-132) USGS 7.5-minute series quadrangle map.*

Renovations to the interior of Borglum Studio encompassed the conference room, lounge, restrooms, upper level doors, and plumbing facilities. It is the CAR's understanding that these improvements were coordinated separately by the project sponsor with the Architecture Division of the Texas Historical Commission. Improvements to the plumbing facilities required the excavation of two drainage trenches that were designed to drain into the Catalpa Pershing Channel located east of the building.

The first and shorter trench began near the northwest corner of the structure and ran westward to a fire hydrant approximately 3 m (10 ft.) from the corner. The second trench ran from the northeast corner of the building to the south-southeast and the Catalpa Pershing Channel, located some 55 m (180 ft.) away (Figure 1-2). Because the portion of the APE facing the golf course was archaeologically more sensitive than the eastern side of the tract, the trench leading to the fire hydrant was to be excavated by hand. In contrast, the drainpipe trench on the northeast corner of the studio was to be machine excavated. The original plans called for routing the drainpipe trench directly east from the northeast corner of the building



Figure 1-3. *Large trees along the original alignment of the drainpipe.*

Archaeological Services Provided

Five principal archaeological services were provided as part of the contract:

- 1) preparation of a construction monitoring Texas Antiquities Committee permit application;
- 2) construction monitoring;
- 3) writing and production of the draft and final technical report summarizing the result of the monitoring;
- 4) the preparation of the project documents for curation; and
- 5) coordination between the project Sponsor, the City of San Antonio's Office of Historic Preservation, and the Texas Historical Commission's Archeology Division.

Chapter 2: Historic Background and Previous Archaeology

Culture History

The project area is situated on the edge of Central and South Texas archaeological regions. Therefore, the archaeological record derived from sites located in the area possesses characteristics of both regions. Since San Antonio is at the northern edge of South Texas and in a riverine zone that is more typical of the rest of Central Texas, the following cultural history emphasizes Central Texas although reference is made to trends in South Texas as well. The discussion is based primarily on the chronologies developed by Black (1989a), Collins (1995), Johnson and Goode (1994), and Prewitt (1981) for Central Texas with observations from Hester (1995) for South Texas. Four major time periods define South Central Texas: Paleoindian, Archaic, Late Prehistoric, and Historic. These periods are further divided into sub-periods that are based on particular subsistence strategies and material culture. A brief description of each period follows to illustrate the archaeological potential of the region.

Paleoindian Period

The Paleoindian Period, 11,500-8800 BP, is divided into early and late portions characterized by particular projectile point styles and subsistence patterns (Collins 1995). The period begins at the close of the Pleistocene with the earliest evidence of humans in the Central Texas region. Clovis and Folsom point types, bifacial Clear Fork tools, and finely flaked end scrapers characterize the early Paleoindian (Black 1989a). The first stemmed points (i.e., Wilson), as opposed to lanceolate points (i.e., Angostura and Golondrina), begin to appear during the late Paleoindian. In the past, Paleoindian populations have generally been characterized as hunter-gatherers who ranged over wide areas in pursuit of now extinct megafauna, such as mammoth and bison (*Bison antiquus*). However, research from the Wilson-Leonard site in Central Texas (Collins 1998) and other perspectives on Paleoindian adaptations (Tankersley and Isaac 1990) indicate that the diet of these early inhabitants may have been much broader. Although exploiting Late Pleistocene megafauna may have constituted a part of Paleoindian subsistence, these peoples are perhaps better characterized as more generalized hunter-gatherers who exploited a wide variety of plants and animals including large herbivores, like deer and bison, and small animals, such as turtles, alligators, rabbit, and raccoons (Collins 1995; Nickels 2000).

In South Central Texas, many of the sites containing Paleoindian materials are found on high terraces, valley margins, and upland locations (Black 1989a). This seems to fit with a broader pattern of Paleoindian site distributions where sites are located on landforms providing views of the surrounding

landscape, are centered on critical resource zones, or are found in highly productive resource areas (Tankersley and Isaac 1990). Paleoindian artifacts are commonly recovered as isolated finds or from lithic scatters lacking good stratigraphic context, including kill, quarry, cache, camp, ritual, and burial sites (Collins 1995). No mammoth kill or butchering sites attributable to the Paleoindian period have been found in South Texas (Hester 1995).

Archaic Period

The Archaic Period, 8800-1200 BP, is marked by intensification of hunting and gathering of local resources, changes in projectile points, and a broadening array of material culture (Collins 1995; Prewitt 1981; Weir 1976). A change in food processing is evident from a widespread increase in hearth, oven, and midden features. During this period, large cemeteries were formed indicating an increasing population and the subsequent establishment of territories (Black and McGraw 1985). Collins (1995) and Johnson and Goode (1994) subdivided the Archaic into Early, Middle, and Late sub-periods. These sub-periods are distinguished by variances in climate conditions, resource availability, subsistence practices, and diagnostic projectile point styles (Collins 1995; Hester 1995).

Early Archaic

In Central Texas, the Early Archaic dates from 8800 to 6000 BP (Collins 1995). Changing climate and the extinction of megafauna appear to have initiated a behavioral change by the prehistoric peoples of Texas. Because of the necessary economic shift away from some level of dependence on big game hunting, local resources, such as deer, fish, and plant bulbs, were more intensively exploited. This adaptive change is indicated by greater densities of ground stone artifacts, burned rock cooking features, and more specialized tools, such as Guadalupe bifaces and Clear Fork gouges (Turner and Hester 1993). Projectile point styles found in sites from this period include Angostura, Early Split Stem, and Martindale-Uvalde (Collins 1995). Open campsites, including Loeve, Richard Beene, Wilson-Leonard, Jetta Court, Sleeper, Camp Pearl Wheat, Youngsport, and Landslide, and a cave site, Hall's Cave, contain notable Early Archaic components (Collins 1995).

Weir (1976) concludes that Early Archaic groups were highly mobile and small. He bases this inference on the fact that Early Archaic sites are sparsely distributed and that projectile points are widely distributed across most of Texas and northern Mexico. The decline in bison numbers on the Central and Southern Plains suggested to Hurt (1980) that the inhabitants were forced expend the same or slightly more effort to broaden their diets to include animals and plants that produce equivalent amounts of calories and protein. Story (1985) concurs with Weir that population densities were low during the Early Archaic and suggests that groups were made up of small bands of related individuals with "few constraints on their

mobility” (Story 1985:39) subsisting on a broad range of resources, such as prickly pear, lechugilla, rodents, rabbits, and deer.

Middle Archaic

The Middle Archaic, 6000 to 4000 BP (Collins 1995), appears to have been a period of increasing population, based on the large number of sites documented from this time in South and Central Texas (Story 1985; Weir 1976). Projectile point variation at the Jonas Terrace Site suggests a period of “ethnic and cultural variety, as well as group movement and immigration” (Johnson 1995:285). Point styles from this period include Bell, Andice, Calf Creek, Taylor, Nolan, and Travis (Collins 1995). Exploitation of broadly scattered, year-round resources, such as prickly pear, deer and rabbit, continued (Campbell and Campbell 1981) with the addition of seasonal nut harvests from the riverine settings of the Balcones Escarpment (Black 1989a, b). Weir (1976) posits that the expansion of oak on the Edwards Plateau and Balcones Escarpment resulted in intensive plant gathering and acorn processing that may have been the catalyst for the merging of the widely scattered bands prevalent in the Early Archaic into larger groups. These larger groups likely shared the intensive labor involved with the gathering and processing of acorns. Some investigators believe that burned rock middens resulted from acorn processing (Creel 1986; Weir 1976) although others (e.g., Black et al. 1997; Goode 1991) question this argument. Black et al. (1997) suggest that the burned rock middens of Central Texas accumulated as a result of the baking of a relatively broad range of resources in rock/earth ovens. These resources potentially included carbohydrate laden nuts, bulbs, roots, and pads as well as various vertebrate and invertebrate animals.

Late Archaic

The Late Archaic sub-period in Central Texas dates from 4000 to 1200 BP (Collins 1995). There is not a consensus among researchers as to population size in this sub-period. Prewitt (1985) posits an increase, while Black (1989a) believes population remained the same or decreased. There is also disagreement as to the continuing use of burned rock middens. Prewitt (1981) suggests the near cessation of the midden construction, whereas excavations at a number of sites document large cooking features up to 15 m (49.2 ft.) in diameter (Black and Creel 1997; Houk and Lohse 1993; Johnson 1995; Mauldin et al. 2003). Bison reemerge during this sub-period in Central Texas (Mauldin and Kemp 2010) after evidence of a definitive decrease during the Middle Archaic (Dillehay 1974). Points from the Late Archaic sub-period are generally smaller than those of the Middle Archaic and include Bulverde, Pedernales, Kinney, Lange, Marshall, Marcos, Montell, Castroville, Ensor, Frio, and Darl types (Collins 1995; Turner and Hester 1993). During this period, large cemeteries were formed indicating an increasing population and the

subsequent establishment of territories (Black and McGraw 1985). The earliest occurrences are at Loma Sandia (Taylor and Highley 1995), Ernest Witte (Hall 1981), Hitzfelder Cave (Givens 1968), and Olmos Dam (Lukowski 1988).

Some researchers have referred to the last 1,000 years of the Late Archaic as the Transitional Archaic (Turner and Hester 1993) or Terminal Archaic (Black 1989a) because selected dart point forms, such as Darl, Ensor, Fairland, and Frio, are similar in morphology to early arrow point forms, and it is thought they may have overlapped. It corresponds with Johnson and Goode's (1994) Late Archaic II. This designation is not universally recognized. More commonly, researchers extend the dates of the Late Archaic and add additional style intervals (Collins 1995).

Late Prehistoric Period

The Late Prehistoric Period, 1200-350 BP, in Central Texas marks a distinctive shift from the use of the atlatl and dart to the use of the bow and arrow (Black 1989a; Collins 1995; Hester 1995; Story 1985). The Late Prehistoric is subdivided into early and late sub-periods termed Austin and Toyah Phases, respectively. Temporal diagnostics, including Scallorn and Edwards arrow points, define the Austin Phase (1200-650 BP; Prewitt 1981). Burned rock midden use may have reached a peak during this phase (Black and Creel 1997). The subsequent Toyah Phase spans 650-350 BP and includes the first occurrence of pottery in South Texas (Black 1989a). Characteristic artifacts of this phase include Perdiz and Clifton arrow points (Black 1986). Material culture associated with the Late Prehistoric period suggests increasing complex subsistence patterns and large prehistoric populations (Black 1989a; Collins 1995).

Historic Period

The Historic Period in Texas begins with the arrival of Europeans. Although the Historic Period theoretically begins in Texas with the shipwreck of the Narvaez expedition along the Texas coast in 1528, the majority of the inhabitants of Texas were Native Americans until the late eighteenth century. From AD 1550 to the late 1600s, European forays into South and Central Texas were infrequent. René Robert Cavelier, Sieur de La Salle, established a French settlement, Fort St. Louis, along Matagorda Bay on the Texas coast in 1685. Hunger, disease, and escalating hostilities between the French and the Karankawas, subsequently resulted in the destruction and abandonment of the colony. In 1690, as a result of the discovery of the remains of the La Salle colony, the Spanish began securing the northern border of New Spain and expanding their interests in East Texas to counter any French expansion across the Mississippi River (Foster 1998). The first Europeans settled in the region in early AD 1700 (Taylor 1996). The southward incursion of the Comanche and Apache and the northward expansion of Spanish influence led

to the displacement of many of the area's indigenous groups. Decimated by disease brought by Europeans, many of the remaining groups sought refuge in the numerous Spanish missions established early in the eighteenth century. The move to the missions significantly impacted the hunter-gatherer way of life and the material culture. Artifacts from the Historic period reflect European influences and include metal, glass, and ceramics along with pre-Hispanic Goliad wares and lithic arrow points, tools, and gunflints (Taylor 1996; Wade 2003).

History of Brackenridge Park Including Pump House No. 2

The APE falls within the boundaries of Brackenridge Park, a 343-acre green-space in central San Antonio just south of the headwaters of the San Antonio River. The park is rich in historic and prehistoric cultural resources (Figure 2-1).

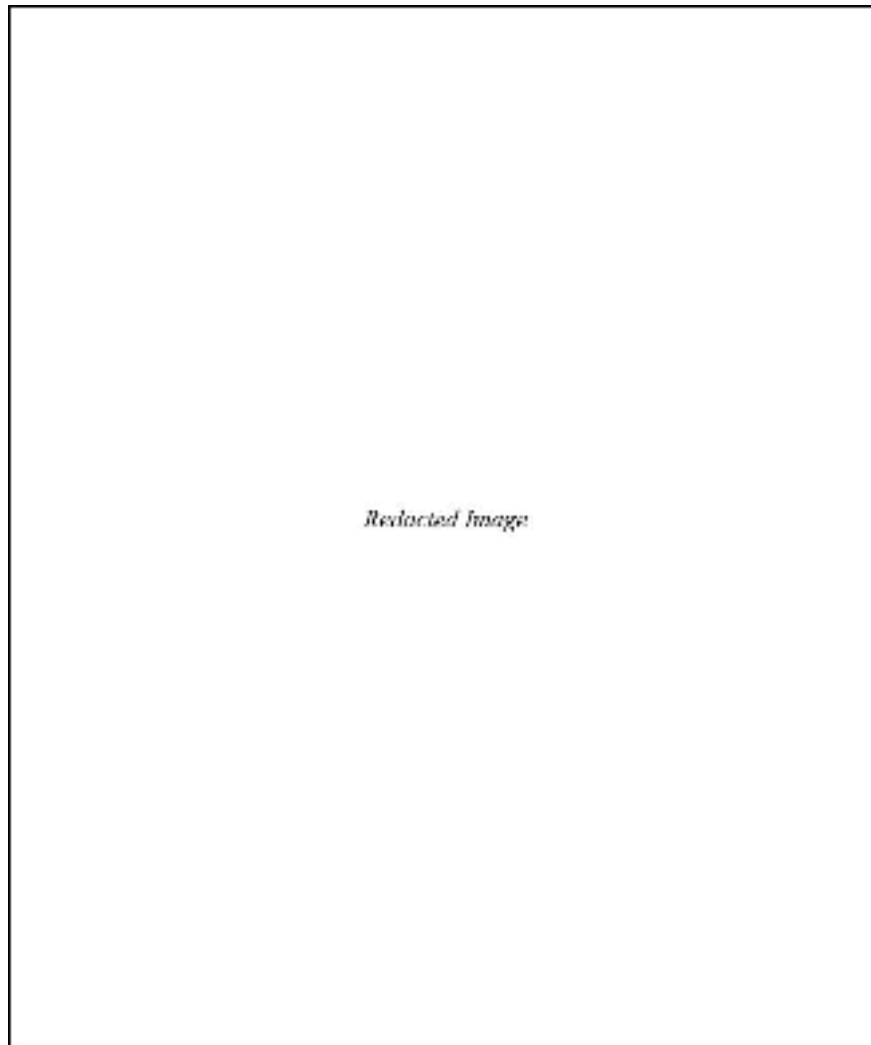


Figure 2-1. *The location of pre-channelized river and site of the Second Water Works building.*

Many of the historic features of the park are related to the river. During the early years of San Antonio de Bexar, the property was owned and managed by the Spanish Missions. Two *acequias* started near the headwaters of the river and flowed through the modern boundaries of the park. The first *acequia* constructed was the *Acequia Madre* (1719-1720). It was located on the east bank of the San Antonio River in the vicinity of the present location of the Witte Memorial Museum (Figure 2-2). A large dam was constructed to divert the water from the river into the *acequia*, which flowed to the south, following the path of Broadway Road, and returned to the river south of Mission San Antonio de Valero (Figures 2-1). The water from the *acequia* was used to irrigate the Mission Valero croplands (Cox 2005). Recent investigations there have uncovered part of the dam and two channels of the *acequia* (Ulrich 2011).

The second *acequia* was built much later and is known as the Upper Labor *Acequia* (ca. 1776). This *acequia* was constructed closest to the headwaters of the San Antonio River with its beginning located south of Hildebrand Avenue and north of the San Antonio Zoo (Figures 2-1). The Upper Labor Dam was constructed to divert the water from the river into the *acequia*. The *acequia* flows along the west side of the San Antonio River and re-enters the river north of Mission Valero (Cox 2005). The Spanish Colonial dam was found in 1996 during excavations near Hildebrand Avenue (Cox et al. 1999). The limestone dam had been repaired in the nineteenth century by German masons.



Figure 2-2. 1905 map showing the location of two acequias.

Brackenridge Park remained a rural, agricultural area with scattered dwellings until after Texas joined the Union in 1846. The river and Spanish-built *acequias* continued to provide water for farmers and households. Travelers passed east and west of the park on roads leading to Austin and Fredericksburg, and land to the north was used for farming and ranching (Pfeiffer n.d.).

San Antonio grew from 3,488 to 12,256 residents between 1850 and 1870 (Pfeiffer n.d.). The demands of this growing population ultimately led to the park's transformation from irrigated farmland to industrial and commercial uses. This process began in the early 1850s and accelerated during and after the Civil War. Limestone bluffs on the western edge of Brackenridge Park were quarried by German stonemasons for rock in order to construct many of San Antonio's earliest buildings in the 1880s. As the city's population grew, demand for stone grew to the point that the city began to lease quarries. Rock Quarry Road (now North St. Mary's) connected the city to the quarries. The limestone quarry business increased again with the invention of Portland cement. William Lloyd and George Kelteyer founded the Alamo Roman and Portland Cement Company in 1880, which leased the city's quarry until 1908 (Pfeiffer n.d.). This was the first cement company of its kind west of the Mississippi River. The operation included the cement business, but it also sold lime and building stone. The facility included stone quarries, kilns, mills, and houses for the workers. The location in Brackenridge Park served as the company's headquarters until 1908, when it moved to Alamo Heights. The quarries were later incorporated into the park's Sunken Gardens, and between 1917 and 1947, they were the site of a Mexican market (Katz and Fox 1979).

In the early years of statehood, the City Council planned to sell surplus tracts of city-owned property to meet its growing budgetary needs. Because records of the original town tract boundaries had been lost, the City entered into a lawsuit to re-establish its claims and hired Francois Giraud to complete a new survey of the town tract. Land sales finally began in 1852 (Pfeiffer n.d.).

The majority of land in Brackenridge Park was already privately owned, but the 1852 land sale included property immediately to the north and east where springs forming the San Antonio River were located. The "head of the river," as it came to be called, was purchased by City alderman James Sweet in 1852 at a public auction (BCDR K2:506-509). This sale put the source of the city's water supply under the control of a private enterprise where it would remain for several years.

During the American Civil War, 78 acres of Brackenridge Park was sold to the Confederate States of America for \$5,000 (Katz and Fox 1979:18). The confederates built a tannery to "fill footwear, harness and saddlery needs of the South" (marker text). Unlike many tanneries, this facility operated year round

and was able to treat 6,000 hides at a time. A cotton and woolen mill, run by water power from the San Antonio River, was also built at this location. After the Civil War, the land was given to the Freedman's Bureau. In 1868, the land went up for auction and was purchased by the City of San Antonio for \$4,500 (Figure 2-1).

The park's namesake, George Brackenridge, moved to San Antonio in late 1865. His success as a cotton trader during the Civil War and connections with political and business leaders both statewide and nationally served him well. In early 1866, Brackenridge established the San Antonio National Bank that became the foundation of his extensive business holdings. Three years later, he purchased a 108 acre tract and antebellum home at the head of the San Antonio River from J.R. Sweet. Because the word "bracken" was the Scottish word for "fern," Brackenridge named his new home "Fernridge" (Sibley 1973:91). The property acquired by Brackenridge contained springs that fed the river and the city's two major *acequias* located a short distance to the south.

The issue of a privately held water source came to the forefront when, in the aftermath of the cholera epidemic of 1866, local physicians argued for construction of a safe municipal water system. Progress on this issue was slowed by Reconstruction politics and an overall lack of public support (Pfeiffer n.d.). Years later, a local newspaper began to campaign for repurchase of the head of the river property in 1872, leading the City to begin negotiations with Brackenridge. A \$50,000 contract was accepted by the City Council. After public outcry over Brackenridge's potential profit, the sale was eventually voided in April 1872, and he retained control of the headwaters (Sibley 1973:128-130; CCM D:36-37).

The City had failed to reacquire the headwaters and was making no progress in establishing a public water system. It was in this context that Brackenridge began to purchase additional riverfront land. The acquisition of the river front property would play an important role in the City's water management in future years (Pfeiffer n.d.). Brackenridge acquired four of the upper five riverfront lots when the City placed ten lots from the Confederate Tannery property up for auction in 1875. These included lands in Kohler Park, Allison Park, and the Polo Field. He purchased the fifth lot in 1881. Brackenridge made his most significant purchase in June 1876, when he and his brother, John, paid Mary A. Maverick \$25,000 for a wooded 200-acre tract on the east side of the river that ran from the head-gate of the *Acequia Madre* south to the property of Francois Guilbeau. The land was bounded on both the west and north by the river and on the east by the *Acequia Madre* (BCDR 4:473; BCDR 25:612).

After constructing a pump house and canals in 1877-1878, J.B. LaCoste began the privately owned San Antonio Water Works Company 0.8 km (0.5 mi.) from the Blue Hole on land leased from Brackenridge in the northern section of Brackenridge Park (Figure 2-1). The facility pumped water into a reservoir in Mahncke Park at the current site of the Botanical Garden. The company did not do well and controlling interest went to Brackenridge in lieu of rent in 1883 (Pfeiffer n.d.). Brackenridge expanded the facility, building a second pump house at the south of the park near the current Golf Course Clubhouse and an additional canal to connect both pump houses. The city's growing water need outpaced Brackenridge's ability to supply enough water, despite additional drilling. The original springs on his Fernridge property dried up by the turn of the century, but he continued to run the water works until 1906.

Brackenridge donated 199 acres of riverfront land to the City of San Antonio for use as a park in 1899. The gift, accepted by the City Council on December 4, 1899, was celebrated in both the *San Antonio Light* and *Daily Express*.

This place [sic] of property is one of the loveliest pieces of land of Texas and for beauty is unrivaled. It is the largest natural park in the south controlled by a city, its scenery back on the river bank being unsurpassed (San Antonio *Light* November 7, 1899).

Outside of Fairmount Park in Philadelphia, there is probably no city park that is in any way comparable to it (San Antonio *Daily Express* November 11, 1899).

The gift of the Water Works property was generous but tightly constrained by reservations and restrictions. These caveats were at least partially attributable to years of distrust between Brackenridge and the city over financial dealings. The Water Works Company retained a 76.2 m (250 ft.) wide strip running the length of the property along the west side of River Avenue and a 7.6 m (25 ft.) strip along each side of the river and the east bank of the Upper Labor ditch. The company retained full control of ingress and egress to the park as well as the banks of the river and *acequia*. A fence was built around the park and access was restricted to two locations. The issue of access remained unresolved until after Brackenridge sold the Water Works in 1906. Perhaps most notably, the bequest was restricted by its prohibition of the sale or consumption of alcoholic beverages in the park (BCDR 185:183; CCM N:284, 291, 304-305).

Brackenridge also donated land that is Mahncke Park and the former Polo Field. The Polo Field was created ca. 1952 when the San Antonio Polo Club leased the field from the City for five years. After the

Polo Club's lease expired, the field was then leased as a driving range. The field is now home to the Polo Field Golf Center.

Other donors to Brackenridge Park include Emma Koehler, who donated lands west of the river, the site of the Confederate Tannery, and Bexar County, which donated 10 acres west of the river and south of Mulberry Avenue in honor of Judge James Davis (Pfeiffer 2010).

History of Borglum Studio

In 1885, Pump Station No. 2 was built within Brackenridge Park, San Antonio, Texas, as part of the San Antonio Water Works System (Huddleston 2011). Located in the southern portion of the 343-acre park from land acquired by Brackenridge in 1883, a transaction was made to resolve Jean Baptiste LaCoste's debts to Brackenridge in association with pipe works construction (Gaul n.d.).

First created as the second of two millraces, the building was constructed primarily of cut limestone blocks and measured approximately 9.1-x-16.5 m (30-x-54 ft.). Standing two stories high, the original buildings' interior had two walls that separated rooms and offered 396.2 m² (1,300 ft.²) of usable space. The Pump Station transferred water from a canal abutting the building to turbines that shuttled the water east to Mahncke Park, providing approximately 3 million gallons of water daily to the City of San Antonio's local population.

Following transactions involving the City of San Antonio and the Sisters of Charity of the Incarnate Word, Pump Station No. 2 became part of the San Antonio Water System when Brackenridge eventually sold the property to George Kobusch in 1905. The millrace continued to be used until 1915 when a new water system, which used artesian wells, was established. The building suffered from disuse as a result and fell into a state of disrepair until the mid-1920s (Gaul n.d.).

In 1924, John Gutzon de la Mothe Borglum, a sculptor and painter originally from Idaho, came to San Antonio to pursue interest in a commission by the Texas Trail Drivers Association to produce a large-scaled sculpture reflecting pioneers driving cattle herds (Remy n.d.). Borglum moved into the Menger Hotel in downtown San Antonio prior to renting the Pump Station No. 2 building from the City of San Antonio for his studio. With a personal investment of \$7,000, Borglum improved his studio with an addition of 198 m² (650 ft.²) of space to the original structure, a skylight, and other necessary repairs (Gaul n.d.).

In the years leading up to Borglum's move to San Antonio, many noteworthy pieces of art were accredited to him that were produced within the mediums of paint, pencil, clay, and stone. One of his earliest paintings, *Stagecoach*, is on display at the Menger Hotel, where he stayed when he first came to San Antonio (Remy n.d.). Some of his more widely recognized pieces are a bronze statue of Lincoln, statues of Philip H. Sheridan, and the North Carolina Memorial (Gaul n.d.; Remy n.d.).

While working at his renovated studio, Borglum produced the models for which he was to become most widely remembered. Working from 1927 until 1941, Borglum practiced and perfected in small- and medium-scale sculpture the ideas to be recreated in stone on a mountain near present day Rapid City, South Dakota (Huddleston 2011; Gaul n.d.; Remy n.d.). On the side of Mount Rushmore, Borglum sculpted the faces of the presidents George Washington, Abraham Lincoln, Thomas Jefferson, and Theodore Roosevelt (Gaul n.d.; Remy n.d.).



Figure 2-3. *A series of steps in Borglum's production of Mount Rushmore models.*

In the meantime, while the full-scale production of Mount Rushmore was advancing along, Borglum left the San Antonio area in 1937. Borglum moved to Chicago, Illinois, where he died on March 6, 1941, before the monument was finished; however, Borglum's son, Lincoln oversaw the completion of the massive, 18.3 m (60 ft.) high faces of the former presidents (Huddleston 2011; Gaul n.d.). The monument was dedicated on August 10, 1927, and the last day of work finished on October 31, 1941 (Remy n.d.). The legacy of Borglum was completed, and the old Pump Station No. 2 in San Antonio gained notoriety from the artist's years of occupation (Huddleston 2011).

Upon leaving the San Antonio area, Borglum released his studio to Ellen Quillin from the Witte Museum, who used the space as a place to offer art classes (Gaul n.d.). Two of the first artists to teach classes at the studio were Henry Lee McFee and Boyer Gonzales (Remy n.d.). During the Second World War, the San Antonio Art League struggled to fund its community programs, including the art classes at Borglum's

Studio; however, by 1946, the studio was once again offering classes in traditional and commercial art to the public (Remy n.d.).

The use of Borglum Studio was largely discontinued after 1960, and although there were sporadic attempts to utilize the building, the Borglum Studio once again fell into disarray. A group known as the Friends of the Parks leased the building in 1980 in an attempt to secure funding for the Studio's renovation (Gaul n.d.). Keeping the lease at the lowest possible price of one dollar per year, the group collected money for four years, raising a small sum of only \$14,000. At that time, Richard Mogas and Joe Stubblefield were contracted as an architectural firm by the Friends of the Park with the understanding that the firm would finance the remainder of the cost (Gaul n.d.). The benefit to the firm included that they be allowed to locate their own offices at the Studio upon completion while allowing the Friends office space for the group's purposes. The architects also secured the building's inclusion into the National Register of Historic Places (NRHP) in 1981 (Gaul n.d.). Although the architectural group remained for several years, it discontinued occupation there after some time, and Borglum Studio was again largely abandoned.

Soon, the city and park leaders began to discuss what should be done with the abandoned historical site. Running parallel to these discussions, the Brackenridge Municipal Golf Course also proposed ideas to see the Studio potentially used as a museum due to its close proximity to the Clubhouse. However, there were some people, including Borglum's granddaughter Robin Borglum Carter, who wanted to preserve the legacy of the studio by using the building as a space for artists to work (Gaul n.d.) As a result, in a 2007 meeting, San Antonio City Council leaders and Municipal Golf Association members combined both ideas arriving at a multi-million dollar proposal for renovations and allowing the Borglum Studio to rise again (Gaul n.d.).

Previous Archaeology

41BX1396

In 2002, SWCA conducted archaeological investigations in Brackenridge Golf Course for SAWS Water Recycling Program (Barile et al. 2002). This work involved shovel testing and monitoring along a water line running parallel to the cart path at the ninth hole in the vicinity of two Collecting Localities (CL1 and CL3) recorded by Katz and Fox (1979; Figure 2-4). Barile et al. (2002) formally recorded 41BX1396 after observing an area dense with lithic materials including stone tools around two of Katz and Fox's CLs 1 and 3 (1979).

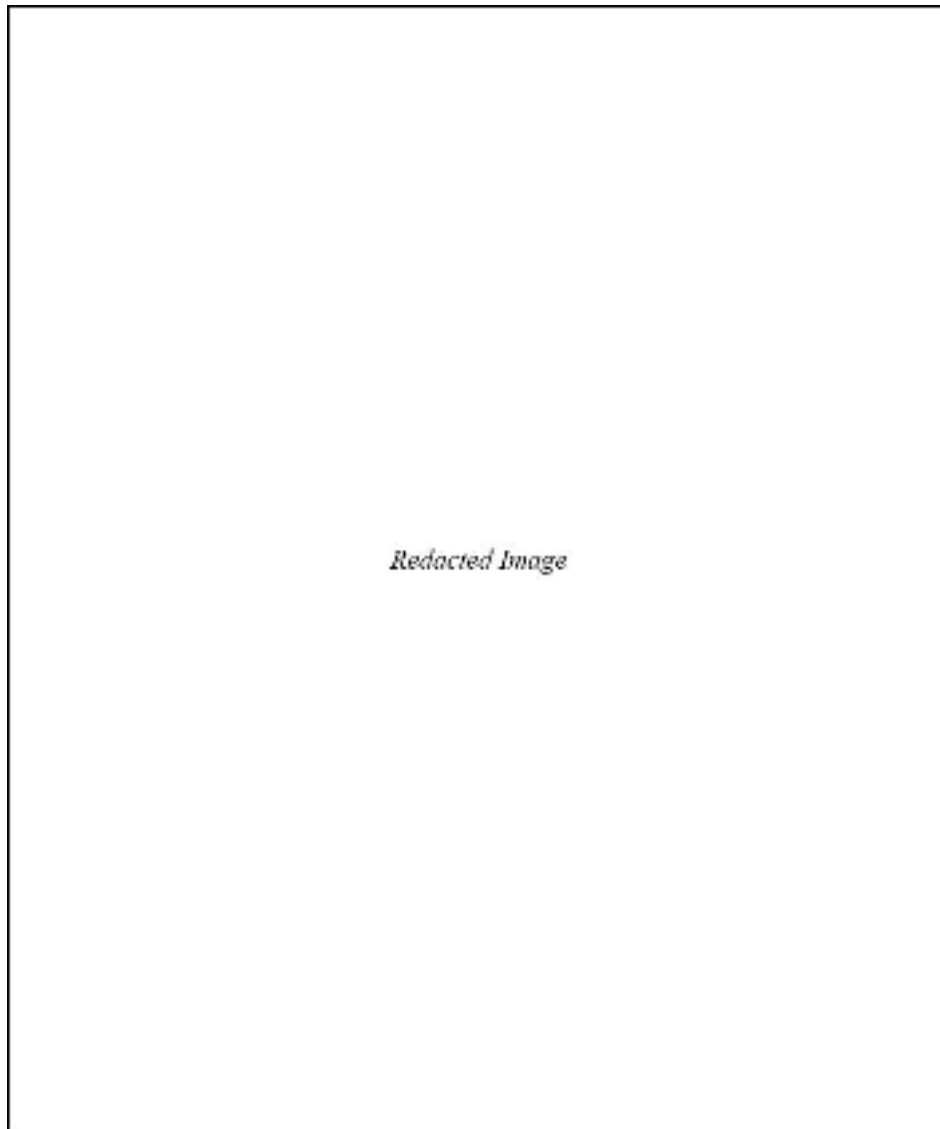


Figure 2-4. *The location of previous archaeological work at 41BX1396.*

In 2002, SWCA performed an intensive archaeological pedestrian survey of the site ahead of the installation of a 40.6 cm (16 in.) SAWS water main (Houk 2002). The pipeline began west of the San Antonio River on East Mulberry and was bored under River Road and the River (Figure 2-5). On the east side of the San Antonio River, the pipeline was bored beneath large trees on the north edge of the golf course (and through the current APE and 41BX1396) and exited near the Catalpa-Pershing Drainage Ditch at the northeast corner of the golf course. The pipeline turned south through the golf course, parallel to the ditch, and passed through site 41BX321. At the southern extent, the pipe crossed the ditch,

paralleled it to the eastern side of Mill Race Road, and finally turned into the parking lot of the Brackenridge Golf Course Club House. SWCA did not recommend any archaeological work along the pipeline segment that ran through the current study area along Mulberry Avenue east of the river. They did excavate one backhoe trench west of the river on Mulberry and a series of backhoe trenches along the pipeline parallel to the ditch within the golf course (Figure 2-5). Cultural materials related to both 41BX264 and 41BX321 were observed in backhoe trenches. Houk (2002:10) found the paucity of materials, lack of buried features, and disturbed subsoil (in the case of 41BX321) did not warrant eligibility status as a SAL or NRHP listing for either site.

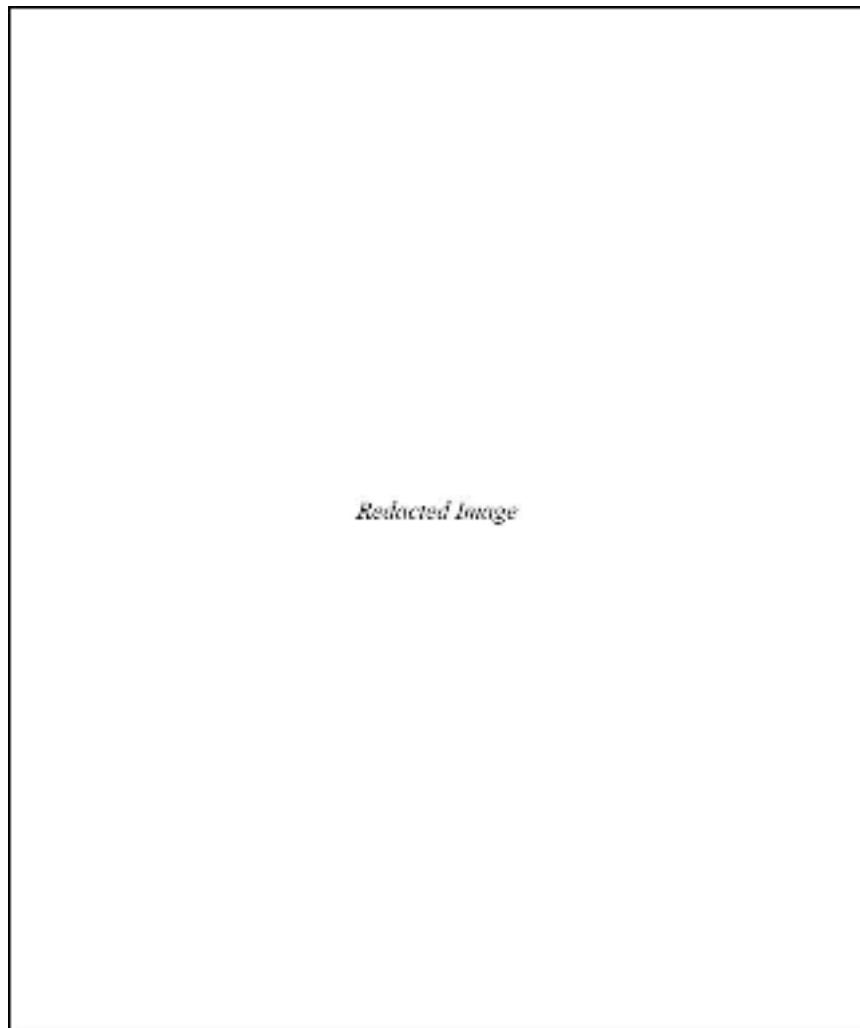


Figure 2-5. *The location of backhoe trenches and pipeline within the Brackenridge Golf Course.*

The site was investigated by SWCA again in 2008 in conjunction with restoration of the golf course to its original design (Carpenter et al. 2008). This project involved a complete assessment of cultural resources in the golf course, including sites 41BX1396, 41BX13, and 41BX321, and consisted of a pedestrian survey, shovel testing, and data recovery. Backhoe trenches exposed cultural material (burned rock, debitage, tools, and bone) from the surface to approximately 70 cm below the surface (cmbs; 27.6 in.); the upper portions of these deposits had been impacted by previous projects on the golf course. Data recovery excavations occurred to explore deeper deposits (Figure 2-4). Carpenter et al. (2008) recommended the site eligible for designation as a State Archeological Landmark (SAL).

41BX13

Site 41BX13 was recorded in 1966 by Witte Museum staff. No other work is noted until SWCA's investigation in 2008 ahead of the golf course restoration project noted above (Carpenter et al. 2008). At this time, the site boundaries were redefined based on surface inspection and backhoe trenching (Figure 2-5). Most cultural materials were found in a buried stratum 60-100 cmbs (23.6-39.4 in.) of the T2 terrace, though scattered burned rock and debitage were also noted eroding out of the surface of the T1 terrace in disturbed areas. The integrity of the deeper deposits contributed to the site's SAL eligibility.

41BX321

Katz and Fox (1979) recorded 41BX321 in their survey of Brackenridge Park in 1976 on the eastern edge of the golf course (Figure 2-5). They noted the site was damaged by the large drainage ditch and sewer line, but they observed artifacts 30 cmbs (11.8 in.). The site was mentioned again in 2002 during backhoe trenching for the water main (Houk 2002). Cultural materials seen in BHTs 5 and 6 of this work were attributed to 41BX321, though the site boundaries were not revised (Figure 2-5). A few artifacts were noted 80-100 cmbs (31.5-39.4 in.) in these trenches. The quality of the deposits and the quantity of artifacts were not sufficient to recommend further testing. Houk (2002) did not recommend SAL eligibility for 41BX321.

Site boundaries were explored in 2008 when SWCA returned for the golf course restoration project (Carpenter et al. 2008). Three backhoe trenches excavated here revealed 20-50 cm (7.9-19.7 in.) of fill, some debitage and burned rock. The burned rock was found in Trench 3, at a depth of 110 cmbs (43.3 in.). Carpenter et al. (2008) concurred with Houk's (2002) previous recommendations that the site did not warrant formal designation as a SAL.

Second Water Works and Canal

The historic Mill Race or Second Water Works Canal is a long linear earthen canal that extends from Tuleta Drive south through the park to Mulberry Avenue where it is exposed as it crosses into the golf course, heads to the site of the Second Water Works building, and then re-enters the San Antonio River (Figure 2-5). The width of the canal varies from 10-30 m (32.8-98.4 ft.) with 2-3 m (6.6-10 ft.) high berms on each side in a section north of Mulberry Avenue (Figure 2-6; from Miller et al. 1999:3).

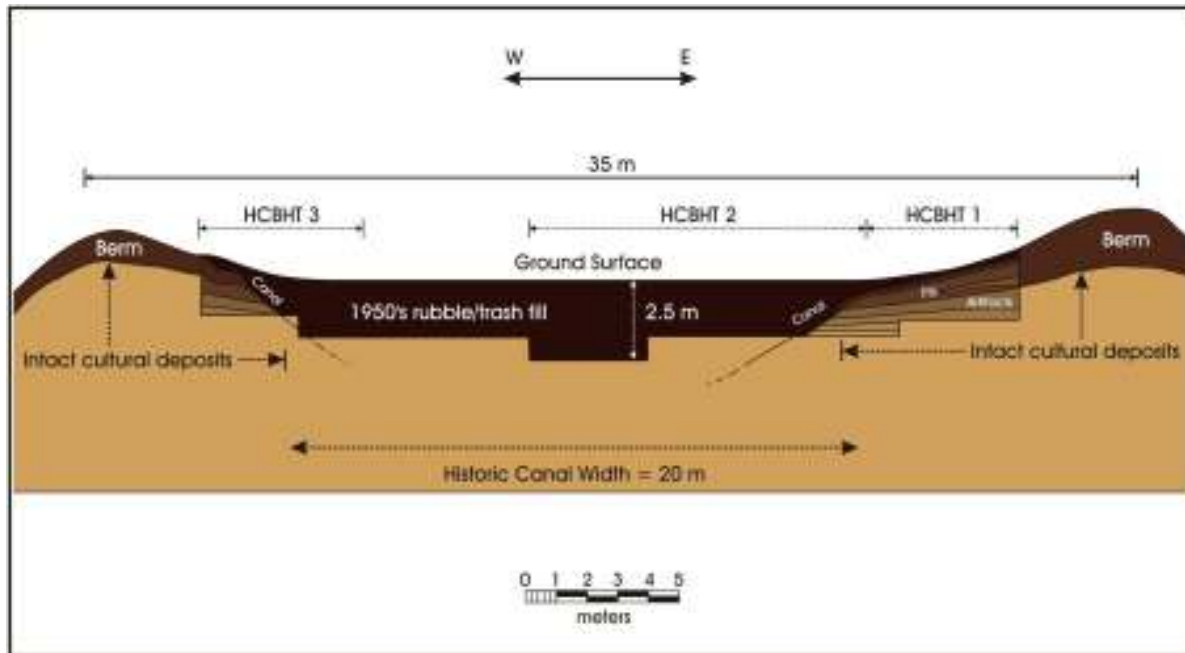


Figure 2-6. *The Water Works canal cross-section, north of the APE as recorded by Miller et al. (1999).*

The first water works system built in 1877-1878 included a pump house and series of canals that pumped water to a reservoir in Mahncke Park. The berms were likely constructed from intact deposits within the canal. Wing walls of this canal are exposed within the current APE just south of Mulberry Avenue on the northern edge of the golf course. A good view of the canal route appears on a 1905 map of the area (Figure 2-2). The canal is associated with the Second Water Works that was started in 1886 after the previous water works system failed. Water flowed downhill through cast iron mains to customers. The first water works system failed to attract enough customers, so ownership transferred to Brackenridge, who successfully ran the Second Water Works from 1883 until the turn of the century. Brackenridge expanded the system by constructing a two-story limestone structure and canals that connected the original pump house in the north to this new structure in the south. The second pump house, which temporarily became the Borglum Studio, stands south of the golf course. Demand eventually outpaced the Second Water

Works capacity, and the entire operation closed at the turn of the twentieth century (Katz and Fox 1979:14). The city purchased the water works in 1925. Though the feature is sometimes referred to as a “mill race,” it was not connected to a mill.

SWCA conducted archaeological investigations of the Second Water Works Canal in 1997 (Miller et al. 1999). This was to record the structure and to assess its preservation. Three backhoe trenches were excavated in the northern end of the canal near its juncture with the San Antonio River. Two more trenches were placed near Mulberry Avenue. These provided a cross-section view of the canal and berms between Mulberry Avenue and Tuleta Drive (Figure 2-6). Miller et al. (1999:43) reported the canal narrows from 20-10 m (65.6-32.8 ft.) as it approaches Mulberry and reaches depths below 2.5 m (8.2 ft.). The ground surface on which the berms were constructed was evident in the berm profiles as were intact prehistoric deposits beneath the berms along the canal (Miller et al. 1999:43). Furthermore, the canal was found to be filled in the 1950s or 1960s with modern concrete, limestone blocks, asphalt, gravels, and recent trash (Miller et al. 1999:45).

Chapter 3: Field and Laboratory Methods

Field Methods

During the trench excavations, a CAR staff member was present to observe the process, ensure that historic or prehistoric features would be immediately identified if encountered, and inspect the backdirt removed from the trenches. Backhoe and hand-excavations were performed by the Air-Jireh Company with the understanding that if prehistoric or historic cultural materials were encountered, the construction activities would be stopped to determine their nature and extent. If features were found, excavation would be discontinued until the feature was documented through photographs, measurements, and sketch drawings. During this documentation phase, if it was determined that the feature was intact and could provide significant information to understanding the history or prehistory of Brackenridge Park, representatives of the Texas Historical Commission (THC) and City of San Antonio's Office of Historic Preservation (COSAOHP) would be notified. The Principal Investigator would review the assessment of the feature with the THC and COSAOHP and develop a plan for further action, including the possibility of additional investigations to determine whether the find warranted listing to the National Register of Historic Places and formal designation as a State Archeological Landmark. No screening of soils removed by trenching was conducted during the monitoring.

Laboratory Methods

Upon completion of the construction monitoring, all project records were provided to the CAR laboratory staff for curation preparation. All field forms were completed in pencil. Any soiled forms were placed in archival-quality page protectors. In the laboratory, field notes, forms, photographs, and drawings were placed in labeled archival folders. Digital photographs were printed on acid-free paper, labeled with archive-appropriate materials, and placed in archival-quality sleeves. The digital files are stored in the project files and also are backed up on digital media. Ink-jet-produced maps and illustrations also were placed in archival-quality page protectors to prevent against accidental smearing due to moisture. All project related documentation is permanently housed at the CAR.

Chapter 4: Results of Monitoring

Subsurface disturbances began on the north side of the building on October 3, 2012, prior to notification of the CAR staff. When the CAR monitor arrived the next day, a large area between the curb, the parking lot, and the ground-floor garage to the Borglum Studio structure was excavated. The area had at one point served as the driveway to a garage. Judging from aerial photographs of the vicinity, however, the driveway leading to the garage may have been filled in since at least 1995. According to the Air-Jireh Plumbing Company foreman and backhoe operator, Alex Longoria, the mechanical excavation that took place on October 3 consisted of trenching on the north side of the building where the cleanout valve was known to be buried. The excavations reached the valve at a depth of 1.8 m (6 ft.) below the surface. Figure 4-1 shows crews breaking up the former concrete driveway surface using a jackhammer. The cleanout valve which was re-discovered is also shown in front of the garage door.



Figure 4-1. *Excavated area to the north of the Borglum Studio building showing entrance to garage. Looking east-southeast.*

Archaeological monitoring of trench excavations took place on October 4 and 5, 2012. Two trenches were excavated as part of the improvements made to the Borglum Studio (Figures 4-1 and 4-2). The trenches were excavated by staff of Air-Jireh Company who utilized hand-tools (Trench 1) as well as a JBC-8030 ZTS mini-backhoe (Trench 2).

Trench 1, the shortest of the trenches, began at a fire hydrant near the northwest corner of the structure and proceeded south-southeast toward the steps at the front of the building (Figure 4-2). Before arriving at the steps, it turned east and continued to the stone wall of the structure. A hole was drilled through the stone foundation to accept the pipe that was laid in the trench. The trench was to house the main waterline. Trench 2 was mechanically excavated from the northeast corner of the structure toward the Catalpa Pershing Channel (Figures 4-3 and 4-4). This trench was intended for a drainpipe to lead water from the low-lying area in front of the garage to the nearby Catalpa Pershing Channel. As the excavations continued, the backdirt and the interiors of both trenches were carefully inspected for diagnostic artifacts and to discern soil stratigraphy and scan for buried features.



Figure 4-2. Excavation of Trench 1. Left side is prior to trench monitoring. Right side is hand excavated.



Figure 4-3. *The excavation of Trench 2 near the southeast corner of Borglum Studio.*



Figure 4-4. *View of Trench 2 extending from near the structure to the Catalpa Pershing Channel in the background.*

Trench 1 was 0.46 m (1.5 ft.) deep and 10.7 m (35 ft.) long. The matrix derived from the trench appeared to be landscaping fill in the upper 30.5 cm (12 in.) and, thereafter, clay loam mixed with construction debris to the bottom of the trench. While recent construction materials (i.e., pieces of concrete and limestone) were noted in the fill, no artifacts were collected from this trench.

Trench 2 began underneath the access ramp at the northeast corner of the structure (Figure 4-3) and continued east for approximately 2.4-3.28 m (8-10 ft.) before it turned at a 45 degree angle and continued southeast towards a canebrake and the Catalpa Pershing Channel. The trench had a total length of 54.9 m (180 ft.) and reached a depth of 2-2.6 m (6.5-8.5 ft.) below the surface. It contained a mixture of broken concrete, brick, sand, gravel, and other construction materials. A pile of natural limestone cobbles was noted at the beginning of the trench excavations near the access ramp. The pile appeared to be natural stone that may have been cleared during the 1920s when the addition to the original Water Works Pump House was constructed with Borglum's own funds.

Figure 2-1 shows that the Second Water Works Canal abutted the building and led water to turbines that shuttled the water to Mahncke Park. The trench that cut through this portion of the APE ran approximately 2.4-3 m (8-10 ft.) east of the structure before turning to the south-southeast toward the Catalpa Pershing Channel. No evidence of the canal was noted in any segment of the trench, which was 2.4-3 m (8-10 ft.) deep in places. However, nowhere along its length did the excavation penetrate below the construction fill that was present along the entire length of the trench. It is therefore possible that the original trench was demolished after the Pump House was decommissioned or that the canal is buried even deeper than the subsurface impacts generated during this project.

Chapter 5: Summary and Recommendations

During the summer of 2012, the Center for Archaeological Research (CAR) of The University of Texas at San Antonio (UTSA) was contracted by the Municipal Golf Association San Antonio-Brackenridge Park Golf Course to provide archaeological services associated with the installation of waterlines in the vicinity of Borglum Studio. The Borglum Studio is individually listed on the National Register of Historic Places and is a contributing element to the Brackenridge Park National Register District.

Archaeological monitoring of the Borglum Studio improvements occurred over a period of two days in October 2012. Prior to the initiation of the monitoring, the plumbing contractor had already excavated a large area north of the Borglum Studio. The matrix in this area was soil that had washed in and had re-deposited in the low-lying area that was formed by the driveway leading to the built-in basement garage.

During monitoring, two trenches were excavated to accommodate pipes associated with plumbing improvements. The shortest of trenches, Trench 1, was excavated by hand using shovels. Trench 2 was mechanically excavated, and the installed pipe served to drain the low-lying area in front of the garage toward the Catalpa Pershing Channel. The trench began near the northeast corner of the building and headed east for a short distance before turning southeast and continuing to the ditch. Its final trajectory was different than that shown on the original project schematic depicted in Figure 1-2. However, no “as-built” blue-line schematics could be obtained to show the final orientation of the trench and drain line.

Overall, no artifacts or prehistoric or historic features were discovered during the archaeological monitoring. However, CAR does recommend that archaeological monitoring should occur for any future construction activities in the vicinity of the building to identify the remnants of the mill race canal that at one time connected to the structure. Finally, it is our understanding that in addition to the plumbing and drainage improvements reported on herein, there were plans to renovate the interior of Borglum Studio. CAR staff encouraged the representatives of Brackenridge Park Golf Course to work with the City of San Antonio’s Office of Historic Preservation and the Architectural Division of the Texas Historical Commission to insure that the renovations were completed within guidelines for historic structures.

References Cited:

Barile, K.S., B.A. Houk, and K.A. Miller

- 2002 *A Cultural Resource Survey of the San Antonio Water System's Customer Distribution Line Project, City of San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 02-304, SWCA, Inc. Environmental Consultants, Austin.

Bexar County Deed Records (BCDR)

<http://www.countyclerk.bexar.landata.com/>

Black S.L.

- 1986 *The Clemente and Herminia Hinojosa Site, 41JW8: A Toyah Horizon Campsite in Southern Texas*. Special Report, No. 18. Center for Archaeological Research, The University of Texas at San Antonio.

Black, S.L.

- 1989a Central Texas Plateau Prairie. In *From the Gulf Coast to the Rio Grande: Human Adaptation in Central, South and Lower Pecos Texas*, edited by T.R. Hester, S.L. Black, D.G. Steele, B.W. Olive, A.A. Fox, K.J. Reinhard, and L.C. Bement, pp. 17-38. Research Series No. 33. Arkansas Archeological Survey, Fayetteville.

- 1989b Environmental Setting. In *From the Gulf Coast to the Rio Grande: Human Adaptation in the Central, South, and Lower Pecos Texas*, edited by T.R. Hester, S.L. Black, D.G. Steele, B.W. Olive, A.A. Fox, K.J. Reinhard, and L.C. Bement, pp. 5-17. Research Series No. 33. Arkansas Archeological Survey, Fayetteville.

Black, S.L., and D.G. Creel

- 1997 The Central Texas Burned Rock Midden Reconsidered. In *Hot Rock Cooking on the Greater Edwards Plateau: Four Burned Rock Midden Sites in West Central Texas*, edited by S.L. Black, L.W. Ellis, D.G. Creel, and G.T. Goode, pp. 446-515. Studies in Archeology 22. Texas Archeological Research Laboratory, The University of Texas at Austin.

Black, S.L., and A.J. McGraw

- 1985 *The Panther Springs Creek Site: Cultural Change and Continuity in the Upper Salado Creek Drainage, South-Central Texas*. Archaeological Survey Report, No 100. Center for Archaeological Research, The University of Texas at San Antonio.

Black, S.L., L.W. Ellis, D.G. Creel, and G.T. Goode

- 1997 *Hot Rock Cooking on the Greater Edwards Plateau: Four Burned Rock Midden Sites in West Central Texas*. Studies in Archeology 22. Texas Archeology Research Laboratory, The University of Texas at Austin; Texas Department of Transportation Environmental Affairs Department, Archeology Studies Program, Report 2, Austin.

Campbell, T.N., and T.J. Campbell

- 1981 *Historic Indians of the Choke Canyon Reservoir Surrounding Area, Southern Texas*. Choke Canyon Series, No. 1. Center for Archaeological Research. The University of Texas at San Antonio.

- Carpenter, S., K. Miller, and M.R. Chavez
 2008 *Cultural Resource Investigations in Brackenridge Golf Course, Bexar County, Texas*. Draft report on file, Center for Archaeological Research, The University of Texas at San Antonio.
- City of San Antonio City Council Minutes (CCM)
 Copies on file at the Witte Museum.
- Collins, M.B.
 1995 Forty Years of Archeology in Central Texas. *Bulletin of the Texas Archeological Society* 66:361-400.
 1998 *Wilson-Leonard: An 11,000 Year Archeological Record of Hunter-Gatherers in Central Texas*. Studies in Archeology 31. Texas Archeological Research Laboratory. The University of Texas at Austin.
- Cox, I.W.
 2005 *The Spanish Acequias of San Antonio*. Maverick Publishing Company. San Antonio.
- Cox, W.I., E.D. Johnson, and C.B. Bousman
 1999 *Excavations for the Upper Labor Dam Site, Brackenridge Park, San Antonio, Bexar County, Texas*. Archaeological Survey Report, No. 268. Center for Archaeological Research, The University of Texas at San Antonio.
- Creel, D.G.
 1986 Study of Prehistoric Burned Rock Middens in West Central Texas. Ph.D. dissertation, The University of Arizona, Tucson.
- Dillehay, T.
 1974 Late Quaternary Bison Population Changes on the Southern Plains. *Plains Anthropologist* 19(64):180-196.
- Foster, W.C.
 1998 *The La Salle Expedition to Texas: The Journal of Henri Joutel 1664-1687*. Texas State Historical Association, Austin.
- Gaul, A.
 n.d. Pump Station No. 2: Brackenridge, Borglum, and Beyond. *The Journal of the Life and Culture of San Antonio*, University of the Incarnate Word, Electronic document, <http://www.uiw.edu/sanantonio/pumphouse.html>, accessed November 21, 2012.
- Givens, R.D.
 1968 A Preliminary Report on Excavations at Hitzfelder Cave. *Bulletin of the Texas Archeological Society* 38:47-50.
- Goode, G.T.
 1991 Late Prehistoric Burned Rock Middens in Central Texas. In *The Burned Rock Middens of Texas: An Archaeological Symposium*, edited by T.R. Hester, pp. 71-93. Studies in Archeology 13. Texas Archeological Research Laboratory. The University of Texas at Austin.

- Hall, G.D.
1981 *Allens Creek: A Study in the Cultural Prehistoric of the Brazos River Valley*. Research Report 61. Texas Archeological Survey. The University of Texas at Austin.
- Hester, T.R.
1995 The Prehistory of South Texas. *Bulletin of the Texas Archeological Society* 66:427-459.
- Houk, B.A.
2002 *An Archaeological Survey of a Proposed 16-Inch Water Mail in Brackenridge Park, San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 02-300, SWCA, Inc. Environmental Consultants, Austin.
- Houk, B.A., and J.C. Lohse
1993 Archaeological Investigations at the Mingo Site, Bandera County, Texas. *Bulletin of the Texas Archeological Society* 61:193-247
- Houk, B.A., K.A. Miller, R.K. Meadows, and C.W. Ringstaff
1999 *Archaeological Excavations at 41BX323, Brackenridge Park, San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 99-67, SWCA, Inc. Environmental Consultants, Austin.
- Huddleston, S.
2011 Borglum Studio Renovation Nearing Completion. San Antonio *Express News* Electronic document, http://www.mysanantonio.com/news/local_news/article/Borglum-Studio-renovation-nearing-completion-1716039.php#ixzz2F1IMIEek, accessed October 7, 2012.
- Hurt, R.D.
1980 Archeological Investigations of Portions of the Middle Concho Valley. Master's thesis, Texas Tech University, Lubbock.
- Johnson, L.
1995 *Past Cultures and Climates at Jonas Terrace, 41ME29, Medina County, Texas*. Office of the State Archeologist, Report 40. Texas Department of Transportation and Texas Historical Commission, Austin.
- Johnson, L., and G. Goode
1994 A New Try at Dating and Characterizing Holocene Climates, as well as Archaeological Periods, on the Eastern Edwards Plateau. *Bulletin of the Texas Archeological Society* 65:1-15.
- Katz, S.R., and A.A. Fox
1979 *Archaeological and Historical Assessment of Brackenridge Park, City of San Antonio, Texas*. Archaeological Survey Report, No. 33. Center for Archaeological Research, The University of Texas at San Antonio.
- Lukowski, P.D.
1988 *Archaeological Investigations at 41BX1, Bexar County, Texas*. Archaeological Survey Report, No. 135. Center for Archaeological Research, The University of Texas at San Antonio.
- Mauldin, R.P., and L. Kemp
2010 Appendix C Late Archaic and Late Prehistoric Bison Remains from South and Central Texas. In *Archeological Testing and Data Recovery at 41ZV202, Zavala County, Texas*, by R.P. Mauldin, R.G., Greaves, J.L. Thompson, C.M. Munoz, L. Kemp, B.A., Meissner, B.K. Moses and S.A.

- Tomka, pp. 205-211. Archeological Studies Program, Report No. 121, Environmental Affairs Division, Texas Department of Transportation. Archaeological Report, No. 409. Center for Archaeological Research, The University of Texas at San Antonio.
- Mauldin, R.P., D.L. Nickels, and C.J. Broehm
2003 *Archaeological Testing to Determine the National Register Eligibility Status of 18 Prehistoric Sites on Camp Bowie, Brown County, Texas*. Archaeological Survey Report, No. 334. Center for Archaeological Research. The University of Texas at San Antonio.
- Miller, K.A., S. Carpenter, L.C. Nordt, C. Howell, and C. Ringstaff
1999 *Archaeological Testing of 41BX323 and Portions of the Historic Second Waterworks Canal, Brackenridge Park, San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 98-62, SWCA, Inc. Environmental Consultants, Austin.
- National Register of Historic Places (NRHP)
2012 TEXAS -Bexar County Electronic document,
<http://www.nationalregisterofhistoricplaces.com/TX/Bexar/state3.html>, accessed October 5, 2012.
- Nickels, D.L.
2000 *The Beisenbach Site (41WN88): A Case Study in Diet Breadth*. Master's thesis, The University of Texas at San Antonio.
- Pfeiffer, M.W.
n.d. The History of Brackenridge Park. Unpublished manuscript.
- 2010 Brackenridge Park: An in Depth Historical Review. Electronic document,
<http://www.sanantonio.gov/sapar/brackhistory.asp?res-1280&ver=tru>, accessed December 15, 2010.
- Prewitt, E.R.
1981 Culture Chronology in Central Texas. *Bulletin of the Texas Archeological Society* 52:65-89.
- Remy, C.
2012 John Gutzon De La Mothe Borglum: The Handbook of Texas Online. Texas State Historical Association, Austin. Electronic document,
<http://www.tshaonline.org/handbook/online/articles/fbo31>, accessed October 5, 2012.
- San Antonio *Express News*
Copies on file at Witte Museum.
- San Antonio *Light*
Copies on file at Witte Museum.
- Sibley, M.M.
1973 *George W. Brackenridge: Maverick Philanthropist*. University of Texas Press, Austin.
- Story, D.A.
1985 Adaptive Strategies of Archaic Cultures of the West Gulf Coastal Plain. In *Prehistoric Food Production in North America*, edited by R.I. Ford, pp. 19-56. Anthropological Papers No. 75. Museum of Anthropology. University of Michigan, Ann Arbor.

- Tankersley, K.B., and B.L. Isaac
1990 *Early Paleoindian Economies of North America*. JAI Press, Greenwich, Connecticut.
- Taylor, A.J., and C.L. Highley
1995 *Archaeological Investigations at the Loma Sandia Site (41LK28): A Prehistoric Campsite in Live Oak County, Texas*. Studies in Archeology No. 20. Texas Archeological Research Laboratory. The University of Texas at Austin.
- Taylor, R.
1996 *The New Handbook of Texas in Six Volumes*. The Texas State Historical Association, Austin.
- Turner, S.E., and T.R. Hester
1993 *A Field Guide to Stone Artifacts of Texas Indians*. 2nd ed. Gulf Publishing, Houston.
- Ulrich, K.M.
2011 *Intensive Survey and Testing Associated with the Rediscovery of the Acequia Madre and Alamo Dam, San Antonio, Bexar County, Texas*. Archaeological Survey Report, No. 417. Center for Archaeological Research. The University of Texas at San Antonio.
- Wade, M.
2003 *The Native Americans of the Texas Edwards Plateau, 1582–1799*. The University of Texas Press, Austin.
- Weir, F.A.
1976 *The Central Texas Archaic*. Ph.D. dissertation, Washington State University, Pullman.