

Cultural Resources Monitoring for the Carnahan Canal Wall Stabilization Project, San Antonio, Bexar County, Texas

by
Antonia L. Figueroa

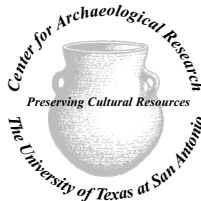


REDACTED

Texas Antiquities Permit No. 8735

Principal Investigator
Paul Shawn Marceaux

Prepared for:
City of San Antonio
Office of Historic Preservation
1901 South Alamo Street
San Antonio, Texas 78204



Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
One UTSA Circle
San Antonio, Texas 78249
Technical Report, No. 83

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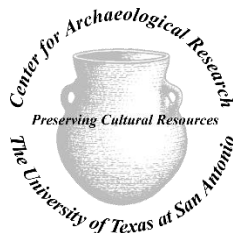
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Abstract:

In January of 2019, The University of Texas at San Antonio (UTSA) Center for Archaeological Research (CAR), in response to a request from the City of San Antonio, Office of Historic Preservation (COSA-OHP), conducted archaeological monitoring for the Carnahan Canal Stabilization Project in San Antonio, Bexar County, Texas. The project area is located on Brackenridge Park, which is owned by COSA, and the work is subject to the Texas Antiquities Code. The archaeological monitoring was conducted under Texas Antiquities Permit No. 8735, and the COSA-OHP and the Texas Historical Commission (THC) reviewed the project. Paul Shawn Marceaux served as the Principal Investigator, and Antonia L. Figueroa served as Project Archaeologist.

The project area measures 0.57 hectares (1.4 acres). The project was conducted in two stages. Stage 1 included the removal of the collapsed portions of the canal wall and the vegetation that had fallen into the canal. Stage 2 involved the stabilization of the canal bank with a combination of soil, gabion rock, and concrete powder. During this stage, the bank was graded, dressed with topsoil, and covered with grass seed and fertilizer.

No cultural material was collected during the project. CAR recommends no further work for the project. However, if any future impacts occur along the canal banks, archaeological monitoring should be required. All records generated during the project were prepared in accordance with Federal Regulations 36 CFR Part 79 and THC requirements for State Held-in-Trust collections.

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Chapter 1: Introduction

On January 23 and 24, 2019, The University of Texas at San Antonio (UTSA) Center for Archaeological Research (CAR), in response to a request from the City of San Antonio (COSA), conducted archaeological monitoring for the Carnahan Canal Wall Stabilization Project in San Antonio, Bexar County, Texas (Figure 1-1). The project area is within the public lands of Brackenridge Park; therefore, the project falls under the review authority of the COSA Office of Historic Preservation (OHP), under the COSA Historic Preservation and Design Section of the Unified Development Code (Article 6, Sections 35-630 Designated Archaeological Sites to 35-634 Cemeteries). Projects conducted on public lands are subject to the Texas Antiquities Code and require review by the Texas Historical Commission (THC). The work was conducted under Texas Antiquities Permit No. 8735 with Paul Shawn Marceaux serving as the Principal Investigator and Antonio L. Figueroa serving as the Project Archaeologist.

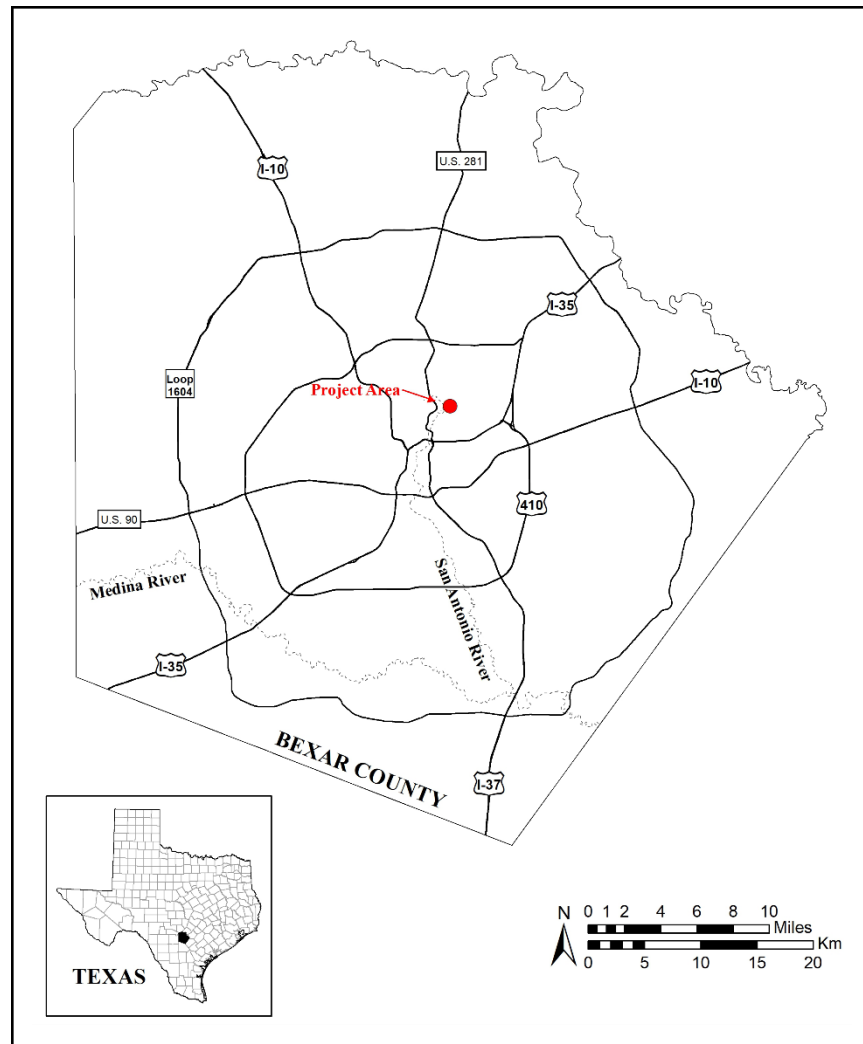


Figure 1-1. Location of the project area within Bexar County.

Project Description and Area of Potential Effect

The project area is located within Brackenridge Park and on the San Antonio East (2998-133) USGS topographic map, and it measures 0.57 hectares (1.4 acres). The project consists of clearing the fallen portions of the wall and stabilizing a section of the Carnahan Canal (north of the Witte Museum) within the park (Figure 1-2). The canal connects runoff and drainage from Broadway Street and distributes it into the San Antonio River. The Area of Potential Effect (APE) was the southern bank of the canal. This area measured 30 m (98 ft.) long and 5 m (23 ft.) wide.



Figure 1-2. The project area depicted on an Esri topographic map.

In September 2018, COSA had determined that parts of the historic wall canal had collapsed and that the remaining canal walls were deteriorating. The COSA planned to stabilize a section of the Carnahan Canal (located north of the Witte Museum) within the Brackenridge Park boundaries. Brackenridge Park is listed on the National Register of Historic Places (NRHP; Pfeiffer and Tomka 2011), and the canal walls were determined eligible for listing in a subsequent study (Anderson 2015).

The stabilization efforts for the canal occurred in two stages. Stage 1 consisted of the removal of the collapsed portions of the wall and the clearing of vegetation overgrowth from the canal. Stage 2 was the stabilization of the canal wall with a combination of soil, gabion rock, and concrete powder. The bank was graded, dressed with topsoil, and covered with fertilizer and grass seed during the second stage. The principal goal of the archaeological monitoring was to identify and document any prehistoric and/or historic archaeological sites that may be impacted by mechanical excavations along the banks adjacent to the canal during the proposed stabilization efforts. No cultural material or archaeological sites were observed during monitoring, and CAR recommended no further work.

Report Organization

This report consists of five chapters. Following this introduction, Chapter 2 reviews the project setting, which includes the physical environment of the project area, a brief history of Brackenridge Park and the Witte Museum, and a review of the previous archaeology conducted within 500 m (1,640 ft.). The field, laboratory, and curation methods used on the project are presented in Chapter 3. Chapter 4 documents the results of the archaeological investigations, while Chapter 5 provides a summary and recommendation based on the project findings. At the request of the COSA-OHP, a comprehensive bibliography of archaeological projects in Brackenridge Park was compiled, and it is presented in Appendix A.

Chapter 2: Project Setting

This chapter presents a brief description of the physical environment of the project, including soils and climate. It provides a brief history of the project area and concludes with the previous archaeological investigations that have been conducted within 500 m (1,640 ft.) of the project area.

Environmental Setting

The project area is located in an urban setting northeast of downtown San Antonio, Texas. The San Antonio River connects to the Carnahan Canal from the west. The headwaters of San Antonio River originate at the San Antonio Springs (the Blue Hole; Brune 1981). The spring is located 0.6 km (0.4 mi.) north of the project area.

The San Antonio region has a moderate, subtropical, humid climate with generally cool winters and hot summers (Norwine 1995; Taylor 1991). The average high temperature reported in San Antonio for 2017 was 69.6° F, and the average low was 45.5° F (United States Climate Data 2019). The mean annual precipitation for the region is between 79-97 cm (31-38 in.; Norwine 1995). The soil type present in the APE consists of Lewisville silty clay. This soil type typically occurs along stream terraces and consists of silty clays (Natural Resources Conservation Service [NRCS] 2018)

The project area is located in the northern portion of the Blackland Prairies ecoregion (NRCS 2018). This ecological zone is described as temperate grassland, and historically, it was a tallgrass prairie with deciduous woodlands along waterways. Grasses that dominated the tallgrass prairie included big bluestem (*Andropogon gerardii*), Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), eastern gamagrass (*Tripsacum dactyloides*), and little bluestem (*Schizachyrium*). Trees that are native to the region include live oak (*Quercus virginiana*) and hackberry (*Celtis* spp.; NRCS 2018).

History and Previous Archaeology

This section presents a brief history of Brackenridge Park, the Witte Museum, and the previously recorded archaeological sites in the area. Consequently, a cultural history of the area will not be provided. The interested reader is referred to Collins (2004) for a general overview of the prehistoric sequence and to Figueroa and Dowling (2007), Katz and Fox (1979), McKenzie (2017), Pfeiffer and Tomka (2011), and sources in Appendix A for more detailed information on the history of the park and the San Antonio region.

History of the Project Area

The headwaters of the river have attracted people to the area since the prehistoric period. Several prehistoric sites are within the park boundaries that represent Late Paleo-Indian, Early Archaic (ca. 8800 BP) through Late Prehistoric (350 BP) occupations of the parklands (Miller et al. 1999). During the Spanish Colonial period, the San Antonio River and other local springs were a focus of early settlement and the San Antonio mission system. Don Martin del Alarcón established Presidio San Antonio de Bexar and Mission San Antonio de Valero near San Pedro Springs in 1718. Both the presidio and the villa were relocated to the east side of the San Antonio River in 1722 (Chipman 1992). The other four San Antonio missions were all established by 1731. The Spanish constructed an intricate system of *acequias* (irrigation ditches) and dams along the San Antonio River and San Pedro Creek (Cox et al 1999). Remnants of this system are still present in the park, such as the diversion dam, located north of the Witte Museum (Cox et al. 1999; McKenzie 2017; Ulrich 2011).

George Brackenridge originally donated 80.5 hectares (199 acres) for the Brackenridge public park space in 1899. The park officially opened to the public in 1901 (Pfeiffer and Tomka 2011). The City eventually incorporated other portions of land to the park that were originally parcels from Spanish land grants. Today, Brackenridge consists of 139 hectares (344 acres). The park is located immediately south of the headwaters of the San Antonio River.

The Witte Museum is located within Brackenridge Park and just south of the APE. The museum opened in 1926 with funds donated by Alfred G. Witte (Fisher 1996; Pfeiffer and Tomka 2011; Witte Museum 2017; Woolford and Quillin 1966). It served as San Antonio's first public museum and housed the Attwater collection. The Attwater collection consisted of flora and fauna that was originally housed at the Main Avenue High School (Witte Museum 2017; Woolford and Quillin 1966). The museum aimed to educate and "preserve the culture of its region" (Woolford and Quillin 1966:48).

The canal retaining walls that are the focus of this project were constructed in 1939-1940 by the National Youth Administration (NYA Project number 780-66-4-2). The NYA was one of the many "administrations" created under President Franklin Delano Roosevelt's Works Projects Administration (WPA) pursuant to Executive Order No. 7086, June 26, 1935, as authorized by the Emergency Relief Appropriation Act of 1935 (49 Stat. 115), April 8, 1935 (Roosevelt 1938:283-287; United States National Archives 2016). The primary focus of the NYA was the employment of persons aged sixteen to twenty-five (Roosevelt 1938:284). The NYA constructed the canal with funding from both the Federal and Municipal governments, with the City of San Antonio appropriating \$3,000 for the work on June 1, 1939 (City Council Ordinance Number 20-1216; COSA 1939). During the period 1935-1940, the NYA and WPA constructed numerous

projects within both Brackenridge Park as well as on the City-owned Witte Museum property (Fisher 1996; Pfeiffer and Tomka 2011). The NYA Canal is also referred to as the Carnahan Canal as the property on which it was constructed was the former street and right-of-way for Carnahan Street that now terminates on the east side of Broadway Avenue directly across from the APE.

Previous Archaeology

According to the Texas Archaeological Sites Atlas, 10 archaeological sites have been recorded within 500 m (1,640 ft.) of the APE (Figure 2-1; THC 2019). Brackenridge Park is listed on the NRHP due to several contributing cultural resources that include architectural elements and archaeological sites (Pfeiffer and Tomka 2011). The sites within a 500 m (1,640 ft.) radius of the project area, which range from the prehistoric to the historic period, are presented in Table 2-1. The table includes the time period represented, site type, eligibility status of sites as NRHP or State Archaeological Landmarks (SAL), and a reference to the work.

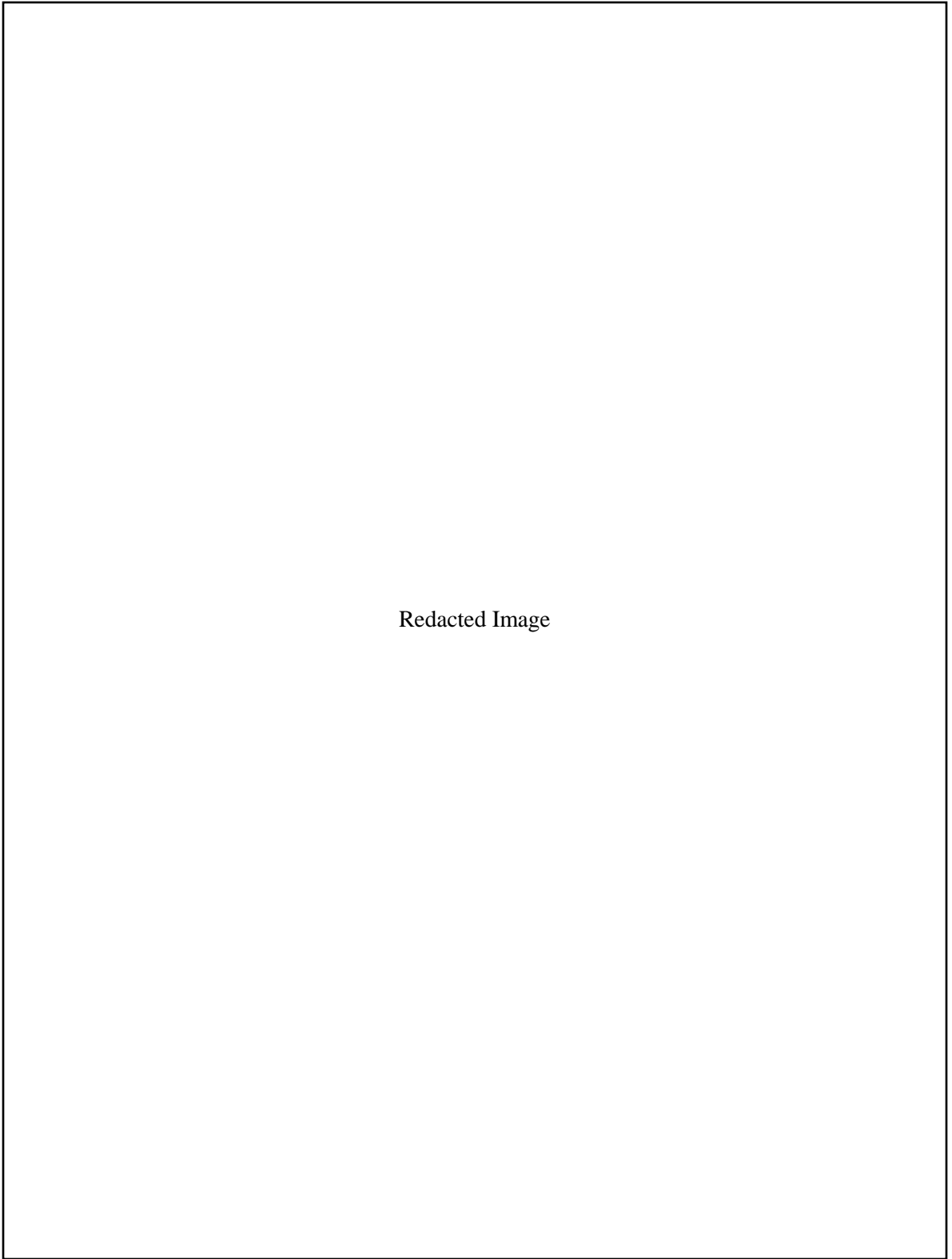


Figure 2-1. Previously recorded sites within 500 m (1,640 ft.) of the project area.

Table 2-1. Previously Recorded Sites within 500 m (1,640 ft.) of the Project Area

Site Trinomial	Time Period	Site Type	NRHP/SAL Status	Reference
41BX283	Historic	historic quarry	N/A	THC 2019
41BX323	Prehistoric	midden/occupation	NRHP/SAL	Figueroa and Dowling 2007; Miller et al. 1999
41BX1273	Spanish Colonial/Prehistoric	Upper Labor Dam	N/A	Ulrich 2011
41BX1425	Prehistoric/Historic	campsite/historic scatter	N/A	Houk 2002
41BX1754	Prehistoric/Historic	Miraflores Park	SAL	Ulrich 2008
41BX1773	Prehistoric	lithic scatter	N/A	Figueroa 2008
41BX1798	Prehistoric	lithic scatter	N/A	Hartnett and Bonine 2008
41BX2007	Prehistoric	lithic scatter	N/A	THC 2019
41BX2043	Spanish Colonial	Upper Labor Ditch	N/A	McKenzie 2017
41BX2056	Spanish Colonial	Alamo Dam	N/A	Ulrich 2011

In 1975, Anne Fox (THC 2019) recorded 41BX283 in 1975 as part of an archaeological survey of Incarnate Word University. Site 41BX323 was recorded in 1979 (Katz and Fox 1979) and was designated as an NRHP and SAL in 2000 after Early Archaic and Late Prehistoric deposits were encountered at the site (Miller et al. 1999). CAR conducted further work on the site in 2007 as part of the Brackenridge Parking Facility project, and Late Prehistoric materials were found (Figueroa and Dowling 2007). Spanish Colonial period water management features, such as 41BX1273, 41BX2043, and 41BX2056, were investigated by the CAR (McKenzie 2017, Ulrich 2011). Several of the archaeological sites, including 41BX1773 (Figueroa 2008), 41BX1798, (Hartnett and Bonine 2008), and 41BX2007 (THC 2019), were recorded as lithic scatters. Site 41BX1425 (Houk 2002) had both historic and prehistoric material present. Finally, 41BX1754 (Miraflores Park) contained both historic and prehistoric materials. The site was investigated by CAR in 2009 (Dowling 2009). For detailed information on the archaeological investigations conducted in Brackenridge Park, the reader is referred to Appendix A.

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Chapter 3: Field and Laboratory Methods

Field Methods

The project was conducted in two stages. During Stage 1, CAR staff monitored the removal of limestone wall material, vegetation, and soil that had fallen into the canal. Stage 2 monitoring consisted of the stabilization of the wall using a combination of soil, gabion rock, and concrete powder followed by the grading and laying of topsoil, fertilizer, and grass seed upon the bank. CAR staff documented project activities on standard daily logs. Photographs taken during the project were recorded in a photographic log. A Trimble handheld unit was used to collect GPS data.

Laboratory Methods

All field notes, forms, photographs, and drawings were placed in labeled archival folders. Digital photographs were printed on acid-free paper and placed in archival-quality page protectors. All records generated during the project were prepared in accordance with federal regulations 36 CFR Part 79 and THC requirements for State Held-in-Trust collections. All project related materials, including the final report, will be permanently stored at the CAR curation facility.

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Chapter 4: Results of the Field Investigations

On January 23 and 24, 2019, CAR conducted monitoring for the Carnahan Canal Wall Stabilization Project (Figures 4-1). The wall along the southern portion of the canal was in poor condition and portions had collapsed into the canal channel (Figure 4-2). The work was completed in two stages, and both were monitored by CAR staff. During monitoring, no cultural material or archaeological sites were encountered.



Figure 4-1. A photograph showing the collapsed canal prior to stabilization (looking southeast).

Stage 1

This stage began with the removal of vegetation from the canal banks by a COSA crew. The majority of the work required the use of an extended boom, track grade-all positioned above the canal. Figure 4-2 shows the crew manually and mechanically removing vegetation. Figure 4-3 shows the canal after the removal of the vegetation.



Figure 4-2. COSA crew manually and mechanically removing vegetation from the canal.



Figure 4-3. The canal after the removal of vegetation (facing west).

After clearing the vegetation, the collapsed wall debris and associated soils along the southern portion of the canal were mechanically removed. The work began on the east end of the canal and ended on the west end. The wall pieces consisted of limestone. As stated in the methods section of the report, the stone was collected and stored by the COSA for future use (Figure 4-4).



Figure 4-4. Limestone wall material removed from the canal and placed on wooden pallets.

Figures 4-5 and 4-6 show the canal after the first stage was completed. CAR staff inspected the bank for cultural material that might be impacted by the stabilization of the bank. No cultural material or archaeological sites were encountered.



Figure 4-5. The southern bank profile of the canal after Stage 1 (facing southeast).

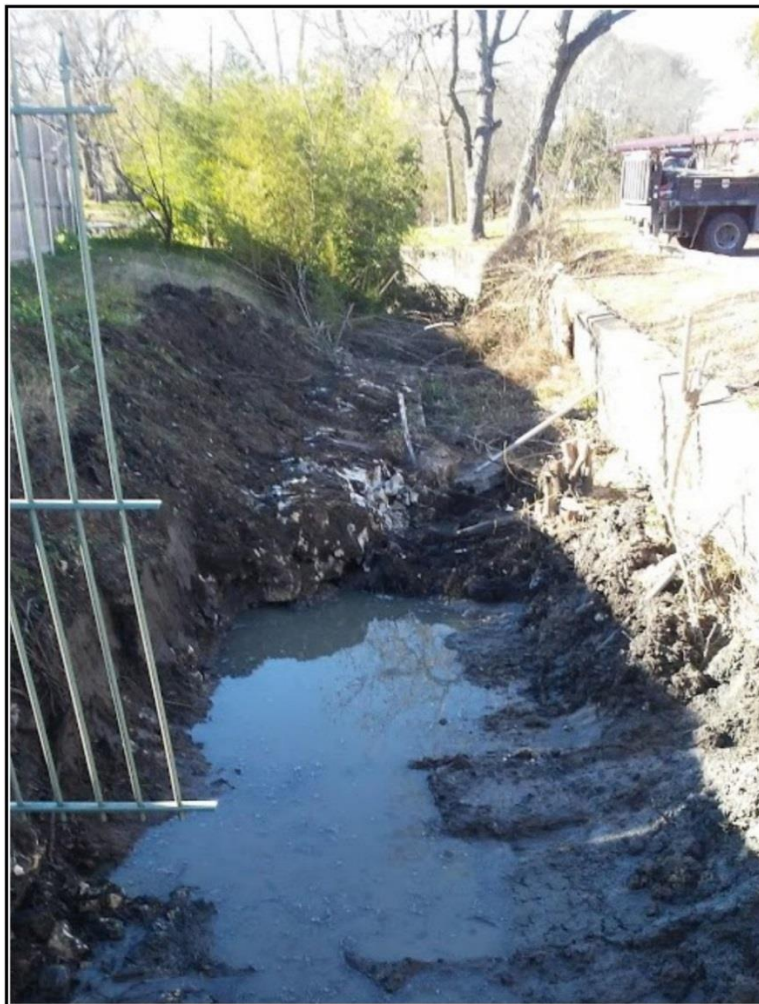


Figure 4-6. The canal after Stage 1 (facing west).

Stage 2

Stage 2 of the project was begun after the removal of material from the canal was complete. The remaining soils on the bank were stabilized. Stabilization included grading soils, and the area was then dressed with topsoil, grass seed, and fertilizer. Figure 4-7 shows the canal banks after some minor grading and application of topsoil. In Figure 4-8, the banks are shown covered in grass seed and fertilizer, which was the final part of Stage 2.



Figure 4-7. The canal banks after the application of topsoil (facing southeast).



Figure 4-8. Canal banks treated with grass seed and fertilizer.

Chapter 5: Summary and Recommendations

On January 23 and 24, 2019, CAR staff monitored the removal of a collapsed wall for the Carnahan Canal Stabilization Project at the request of the COSA-OHP. The canal is located just north of the Witte Museum and connects to the San Antonio River that runs through Brackenridge Park, and the project area measures 0.57 hectares (1.4 acres). The park has been listed on the NRHP (Pfeiffer and Tomka 2011), and the canal walls were determined eligible for listing in a subsequent study (Anderson 2015). The Area of Potential Effect (APE) was the southern bank of the canal, and it measured 30 m (98 ft.) long and 5 m (23 ft.) wide.

The project was completed in two stages. During the Stage 1, mechanical excavations were conducted to remove the collapsed limestone wall from the southern portion of the canal. Stage 2 of the project consisted of stabilizing the banks of the canal using a combination of soil, gabion rock, and concrete. Once the stabilization was complete, the banks were graded, topsoil was added, and the area was covered with fertilizer and grass seed.

No cultural material or archaeological sites were identified or documented during monitoring. CAR recommends no further work. However, any future improvements to the canal should be monitored by an archaeologist.

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References Cited:

Anderson, N.

2015 *Historic Resources Reconnaissance Survey of the Witte Drainage Project, Bexar County, Texas*. Prepared for the Witte Museum by Pape-Dawson Engineers, Inc. Austin.

Brune, G.

1981 *Springs of Texas*. Branch-Smith, Inc., Fort Worth.

Chipman, D.E.

1992 *Spanish Texas, 1519-1821*. University of Texas Press, Austin.

City of San Antonio (COSA)

1939 City Council Minutes of June 1, 1939. Documenting funding for National Youth Administration projects on the grounds of the Witte Museum. Municipal Archives. Electronic document, <https://webapp9.sanantonio.gov/ArchiveSearch/Viewer2.aspx?Id={35529DB1-D875-4213-B5D6-9949036157B3}&DocTitle=Meeting%20of%20the%20Commissioners%20of%20the%20City%20of%20San%20Antonio&PageNo=&TotalPages=&MimeType=application/pdf&RelatedDocs=>, accessed November 20, 2019.

Collins, M.B.

2004 Archeology in Central Texas. In *The Prehistory of Texas*, edited by T.K. Perttula, pp. 205-265. Texas A&M University Press, College Station.

Cox, I.W., 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.

Dowling, J.J.

2009 *Data Recovery at 41BX1798: The Miraflores Park Bridge Project, San Antonio, Bexar County, Texas*. Archaeological Report No. 405. Center for Archaeological Research, The University of Texas at San Antonio.

Fisher, L.F.

1996 *Saving San Antonio: The Precarious Preservation of a Heritage*. Texas Tech University Press, Lubbock.

Figueroa, A.

2008 *Archaeological Investigations of the City of San Antonio Nursery and San Antonio Zoo Eagle Railroad Tract Realignment Project, Bexar County, Texas*. Archaeological Survey Report, No. 385. Center for Archaeological Research, The University of Texas at San Antonio.

Figueroa, A., and J. Dowling

2007 *Additional Phase II Testing at 41BX323 in Brackenridge Park, San Antonio, Bexar County, Texas*. Archaeological Survey Report, No. 377. Center for Archaeological Research, The University of Texas at San Antonio.

Hartnett, C., and M. Bonine

- 2008 *Cultural Resources Investigations at Voelcker Park, City of San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 08-373. SWCA, Inc. Environmental Consultants, Austin.

Houk, B.A.

- 2002 *Brackenridge Park Rehabilitation Project: Data Recovery at 41BX323 and Testing at 41BX1425, San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 01-357. SWCA, Inc. Environmental Consultants, Austin.

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.

McKenzie, C.M.M.

- 2017 *Archaeological Investigations of the Alamo Dam and Upper Labor Dam, Brackenridge Park, San Antonio, Bexar County, Texas*. Archaeological Report, No. 444. Center for Archaeological Research, The University of Texas at San Antonio.

Natural Resources Conservation Service (NRCS)

- 2018 Web Soil Survey. United States Department of Agriculture. Electronic document, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, accessed October 22, 2018.

Norwine, J.

- 1995 The Changing Climate of South Texas: Patterns and Trends. In *The Changing Climate of Texas: Predictability and Implications for the Future*, edited, J. Norwine, J.R. Giardino, G.R. North, and J.B. Valdes, pp.138-155. Texas A&M University, College Station.

Pfieffer, M.W., and S.A. Tomka

- 2011 Brackenridge Park National Register Nomination. Brackenridge Park Conservancy. Electronic document, <https://www.brackenridgepark.org/files/download/6bef161c8b5ec8c>, accessed May 9, 2019.

Roosevelt, F.D.

- 1938 *The Public Papers and Addresses of Franklin D. Roosevelt: With a Special Introduction and Explanatory Notes by President Roosevelt*. Random House, New York.

Taylor, F.B., R.B. Hailey, and D.L. Richmond

- 1991 *Soil Survey of Bexar County*. Soil Conservation Service. United States Department of Agriculture, Washington D.C.

Texas Historical Commission (THC)

- 2019 Texas Archaeological Sites Atlas. Electronic document, <http://nueces.thc.state.tx.us/view-archsite-form/>, accessed September 30, 2019.

Ulrich, K.M.

- 2008 *Archaeological Services Associated with Improvements to Miraflores at Brackenridge Park, San Antonio, Bexar County, Texas*. Archaeological Survey Report, No. 387. Center for Archaeological Research, The University of Texas at San Antonio.

- 2011 *Archaeological Investigations at the Lily Pond in Brackenridge Park, San Antonio, Bexar County, Texas*. Technical Report, No. 35. Center for Archaeological Research, The University of Texas at San Antonio.

United States Climate Data

- 2019 Climate San Antonio-Texas. Monthly. Electronic document, <https://www.usclimatedata.com/climate/san-antonio/texas/united-states/ustx1200>, accessed February 2019.

United States National Archives

- 2016 Records of the National Youth Administration [NYA]. United States National Archives and Records Administration. Electronic document, <https://www.archives.gov/research/guide-fed-records/groups/119.html>, accessed November 20, 2019.

Witte Museum

- 2017 Collection Plan. Witte Museum. Electronic document, <https://www.witemuseum.org/wp-content/uploads/2018/05/Collection-Plan-Approved-09-20-2017.pdf>, accessed May 10, 2019.

Woolford, B.C., and E.S. Quillin

- 1966 *The Story of the Witte Memorial Museum (1922-1960)*. San Antonio Museum Association, San Antonio.

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Appendix A: Archaeological Investigations in Brackenridge Park

Anderson, N., M. Pfeffer, and B. Harris

2012 *Archaeological Monitoring of the Catalpa-Pershing Channel Improvements*. Document #120058. Atkins, Austin.

Brune, G.

1981 *Springs of Texas*. Branch-Smith, Inc., Fort Worth.

Dickey, C.M, K.M. Ulrich, and J. Thompson

2013 *Archaeological Monitoring of Utilities Installation at Borghum Studio, Brackenridge Park, San Antonio, Bexar County, Texas*. Technical Report, No. 48. Center for Archaeological Research, The University of Texas at San Antonio.

Dowling, J.J.

2009 *Data Recovery at 41BX1798: The Miraflores Park Bridge Project, San Antonio, Bexar County, Texas*. Archaeological Report, No. 405. Center for Archaeological Research, The University of Texas at San Antonio.

2011 *Archaeological Investigation of the Bed and Banks Modifications Project at Brackenridge Park in San Antonio, Bexar County, Texas*. Ecological Communications Corporation, Austin.

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.

Cox, I.W., 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.

Figueroa, A.

2008 *Archaeological Investigations of the City of San Antonio Nursery and San Antonio Zoo Eagle Railroad Tract Realignment Project, Bexar County, Texas*. Archaeological Survey Report, No. 385. Center for Archaeological Research, The University of Texas at San Antonio.

Figueroa, A., and J. Dowling

2007 *Additional Phase II Testing at 41BX323 in Brackenridge Park, San Antonio, Bexar County, Texas*. Archaeological Survey Report, No. 377. Center for Archaeological Research, The University of Texas at San Antonio.

Fox, A.A., and E.C. Frkuska

1978 *Archaeological Monitoring and Testing at the Catalpa-Pershing Storm Drainage Project in San Antonio, Texas*. Archaeological Survey Report, No. 48. Center for Archaeological Research, The University of Texas at San Antonio.

Houk, B.A.

2002a *An Archaeological Survey of a Proposed 16-Inch Water Main in Brackenridge Park, San Antonio, Bexar County, Texas*. SWCA Cultural Resource Report No. 02-300. SWCA, Inc. Environmental Consultants, Austin.

2002b *Brackenridge Park Rehabilitation Project: Data Recovery at 41BX323 and Testing at 41BX1425, San Antonio, Bexar County, Texas.* SWCA Cultural Resource Report No. 01-357. SWCA, Inc. Environmental Consultants, Austin.

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

2001 *Brackenridge Park Rehabilitation Project Archaeological Survey, San Antonio, Bexar County, Texas.* SWCA Cultural Resource Report No. 00-331. SWCA, Inc. Environmental Consultants, Austin.

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.

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.

McKenzie, C.M.M.

2017 *Archaeological Investigations of the Alamo Dam and Upper Labor Dam, Brackenridge Park, San Antonio, Bexar County, Texas.* Archaeological Report No. 444. Center for Archaeological Research, The University of Texas at San Antonio.

Meskill, F.H., and C.D. Frederick

1998 *Archaeological Testing at the Witte Museum Science Facility Construction Site: An Archeological and Geoarchaeological Study on the East Bank of the San Antonio River.* Technical Series 48. Texas Archeological Research Laboratory, The University of Texas at Austin.

Meskill, F.H., L.C. Shaw, and S.L. Black

2000 *Excavations at 41BX323, The Witte Museum Parcel: Archaic Period Occupations on the Banks of the San Antonio River, Bexar County, Texas.* Technical Series 50. Texas Archeological Research Laboratory, The University of Texas at Austin.

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

2002 *Archaeological Investigations at the Brackenridge Driving Range, City of San Antonio, Bexar County, Texas.* SWCA draft report on file, 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.

Miller Ulrich K., J.L. Thompson, S. Ahr, and J. Blomquist

2012 *Intensive Pedestrian Survey and Construction Monitoring along a Portion of Trail 11 in Brackenridge Park, San Antonio, Bexar County, Texas.* Archaeological Report, No. 416. Center for Archaeological Research, The University of Texas at San Antonio.

Nordt, L.C.

- 1999 Geoarchaeology of Site 41BX323. In *Archaeological Excavations at 41BX323, Brackenridge Park, San Antonio, Bexar County, Texas*, by B.A. Houk, K.A. Miller, R.K. Meadows, and C.W. Ringstaff, pp.47-66. SWCA Cultural Resource Report No. 99-67. SWCA, Inc. Environmental Consultants, Austin.

Smith, S.

- 2016 *Cultural Resource Monitoring for Brackenridge Park River Wall Replacement Project, San Antonio, Bexar County, Texas*. Technical Report, No. 66. Center for Archaeological Research, The University of Texas at San Antonio.

Tomka, S.A., and C.S. Smith

- 2014 Interim Report on Archaeological Investigations within Brackenridge Park, San Antonio, Bexar County, Texas. San Antonio River Improvement Project—Museum Reach. On file, Center for Archaeological Research, The University of Texas at San Antonio.

Uecker, H. G., D.H. Molineu, and J.K. Wagner

- 2004 *Archaeological Investigations for the former Brackenridge Polo Field for Golf San Antonio's First Tee Development Project, San Antonio, Bexar County, Texas*. Report of Investigations No. 1. South Texas Archeological Services, Bulverde, Texas.

Ulrich, K.M.

- 2008 *Archaeological Services Associated with Improvements to Miraflores at Brackenridge Park, San Antonio, Bexar County, Texas*. Archaeological Report, No. 387. Center for Archaeological Research, The University of Texas at San Antonio.
- 2011a *Archaeological Investigations at the Lily Pond in Brackenridge Park, San Antonio, Bexar County, Texas*. Technical Report, No. 35. Center for Archaeological Research, The University of Texas at San Antonio.
- 2011b *Intensive Survey and Testing Associated with the Rediscovery of the Acequia Madre and Alamo Dam, San Antonio, Bexar County, Texas*. Archaeological Report, No. 417. Center for Archaeological Research, The University of Texas at San Antonio.