

Archaeological Monitoring of the Urban Reach Section of the San Antonio River Improvement Project:



San Antonio, Bexar County, Texas

by

Kristi M. Ulrich, Barbara A. Meissner and Maria Watson Pfeiffer

Texas Antiquities Permit No. 5377

Prepared for:
Ford, Powell and Carson
1138 East Commerce Street
San Antonio, Texas 78205



Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
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Abstract:

Between May of 2007 and February of 2009, archaeologists monitored the removal of soil from the banks of the San Antonio River in preparation for the Riverwalk expansion between the Lexington Avenue Dam to Josephine Street Bridge. The project was part of the Museum "Urban" Reach portion of the San Antonio River Improvements Project. The Center for Archaeological Research at the University of Texas at San Antonio was contracted by Ford, Powell and Carson Architects & Planners, Inc. This work was complete under Texas Antiquities Permit No. 5377, issued by the Texas Historical Commission. Several features were uncovered during the excavations. Two new sites were recorded. Site 41BX1817 is the Alamo Mills Dam located just north of the VFW Post #76. Site 41BX1818 is the Lexington Avenue Dam. A series of features were located on the west bank of the San Antonio River in the vicinity of the Lone Star Brewery (present day San Antonio Museum of Art), with remnants of these features likely still located within the river bank. Other features identified during the monitoring were documented and removed. A small number of artifacts were collected and are curated at the CAR facility.

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It should be noted that this report made full use of the research conducted in previous phases of the project, specifically by S. Christopher Caran, I. Wayne Cox, Antonia Figueroa, Anne Fox, Charles Speer, and Rick Young. The authors wish to acknowledge the work these people completed that was incorporated into this report.

Management Summary

During the course of the archaeological monitoring of the San Antonio River for the Museum "Urban" Reach portion of the San Antonio River Improvements Project, eleven cultural features were recorded. Of these eleven recorded features, two were designated archaeological sites. The banks of the San Antonio River between Lexington Avenue and Josephine Street were monitored as the construction of the new section of the Riverwalk progressed.

The project was conducted under THC Permit #5377. Steve A. Tomka served as Principle Investigator and Kristi Ulrich served as the Project Archeologist. Below is a management summary of the findings.

- Feature 1: A possible cistern that was located on the east bank of the San Antonio River. The cistern likely dates to after 1877, due to the bricks utilized in its construction. The feature was removed during the Riverwalk expansion.
- Feature 2/Site 41BX1817 (The Alamo Mills Dam): The dam was uncovered in several stages over the course of the project. The dam spans the river and composed of cut large limestone blocks fit together with relatively little use of mortar. A portion of the dam was removed to allow for river barges to move up and down the channel. The remainder of the dam has been incorporated into the Riverwalk landscape. The site is potentially eligible for NRHP listing.
- Feature 3: Remnants of railroad trusses were observed between the Camden Street Bridge and the overpass of IH-35. The tracks would have led to the Pearl Brewery. The trusses were removed during the project.
- Features 4 through 8, The Lone Star Brewing Company complex: Five features were identified along the west bank of the San Antonio River, behind the

Lone Star Brewing Company. Feature 4 was a glass bottle midden. Feature 5 was a cinderblock and brick wall. Feature 6 was a yellow brick wall. Feature 7 was a glass lens. Feature 8 was another bottle dump. All five features appear to be related to the use of the complex as a brewery and later as a soft drink manufacturer during prohibition. One beer bottle recovered from the area retained its contents. The bottle was curated after the contents were removed. Portions of the features possibly remain within the river bank. The area, as well as the Lone Star Brewing Company complex, should be recorded as an archaeological site and is potentially eligible for listing on the NRHP. The building is already listed as a Historic Structure.

- Feature 9: A yellow brick wall that is reminiscent of Feature 6. Beneath the wall is a lens of glass. It is likely that the feature has been removed from the river bank during construction activities.
- Feature 10: The stone wall located south of the Alamo Mills Dam adjacent to the VFW Post #76 appears to have been constructed circa 1909. The wall was removed during the construction of the Riverwalk.
- Feature 11/Lexington Avenue Dam: The dam was designed by Robert H. H. Hugman as an architectural feature of the Riverwalk that marked the end of the improved section and the beginning of unimproved area between downtown and Brackenridge Park. The dam was constructed of cut stone and cement. A portion of the dam has been removed to allow river barge passage. Interpretive signage has been placed on the west bank of the river. The dam was recorded as an archaeological site, and is potentially eligible for listing on the NRHP.

Chapter 1: Introduction

Between May 2007 and February 2009 the Center for Archaeological Research (CAR) of the University of Texas at San Antonio (UTSA) provided archaeological monitoring services, under a contract with Ford, Powell and Carson Architects & Planners, Inc. (FPC), during the construction phase of part of the San Antonio River Improvements Project (SARIP) within an area of the San Antonio River from Josephine Street to Lexington Avenue (Figure 1-1). In 2006 CAR completed an archaeological reconnaissance and survey of the project area. CAR recommended that archaeological monitoring should occur when the construction of the Riverwalk commenced. The Texas Historical Commission (THC) concurred with these recommendations. Monitoring occurred between 2007 and 2009 under Texas Antiquities Permit No. 5377, issued by the THC.

The San Antonio River Improvements Project is described as “a \$279 million on-going investment by the City of San Antonio,

Bexar County, the U.S. Army Corps of Engineers and the San Antonio River Foundation in flood control, amenities, ecosystem restoration and recreational improvements along 13 miles of the San Antonio River from Hildebrand Avenue south to Loop 410 South” (San Antonio River Improvement Project 2009a). The SARIP is divided into three sections or “reaches”: The Museum Reach, a four mile segment of the river from Hildebrand Avenue south to Lexington Avenue; the Downtown Reach, a segment of the original Riverwalk from Houston Street to Lexington Avenue (see Cox and Tennis 2000) and the Mission Reach, a nine-mile section of the river extending from Alamo Street south to Loop 410 South. Funding, as well as details of the work to be completed, is different for each of these areas. The Museum Reach section of the project is divided into two parts: the northern “Park Reach” which runs from Hildebrand Street, through Breckinridge Park to Josephine Street; and the area from Josephine Street to Lexington Avenue, known as the “Urban Reach”. Plans for the Urban Reach portion of the SARIP project include an extension of the



Figure 1-1. Location of the Project Area within San Antonio, Texas.

Riverwalk, nearly doubling its length, while stabilizing the river banks and creating a linear park setting along the river that links major cultural and commercial centers north of downtown (San Antonio River Improvement Project 2009b).

Project Area

The project area for the Urban section is a narrow corridor along the rechannelized San Antonio River between Josephine Street and Lexington Avenue in north-central

San Antonio (Figure 1-2). This section of the SARIP is approximately 1.25 miles long.

The Area of Potential Effect (APE) in the Urban Reach of the project consists of the active river channel and narrow strips of bank and floodplain along both sides of the channel (Figure 1-2). The active channel does not run down the center of the APE, creating situations where the majority of the dry-land portion of the APE occurs either on the east- or west-descending bank of the river rather than being evenly distributed on both banks. At its widest point, immediately south of Grayson Street, the project



Figure 1-2. Map of the Urban segment of the Museum Reach superimposed over a 2005 aerial photograph of downtown San Antonio.

APE is approximately 46 m (150 ft) wide. At its narrowest point, in the vicinity of the Hops Building (the San Antonio Museum Art [SAMA]), the APE measures approximately 24 m (75 ft) (Figure 2; Figueroa et al. 2006).

If the widths of surviving, unaltered segments of the San Antonio River channel are representative of the original width of the river, the channelization undertaken between the 1930s and the 1960s has destroyed most historic or prehistoric archaeological resources that were originally located along the lower terrace of the river. Channelization activities have

also impacted potential resources located on the immediate margins of the upper terraces, although the nature and degree of such impacts vary a great deal. In addition, prehistoric and historic resources located along the path of the rerouted sections of the river would also have been impacted, though they were originally some distance from the river.

Figure 1-3 compares the original river channel with the modern channel, and includes the two dams in the project area as well as the acequia *desaguas*, or outflows, that entered the river in this area. Figure 1-4 shows the San Antonio



Figure 1-3. Map of the Urban segment project area showing current and original river channels, acequias and desaguas (acequia outflows), and dams.



Figure 1-4. *The San Antonio River near the VFW Post #76 prior to construction.*

River near the VFW Post #76 building (10th Street) before construction began.

At the time of the intensive pedestrian survey conducted by CAR in 2005, the landforms within the APE consisted of: a) a low terraces between 1.4 and 1.8 m (4 to 6 ft) above the normal water level of the river; b) slopes, usually fairly steep, rising to the upper terraces; and . c) the upper terraces, 2.4 to 5 m (8 to 17 ft) above the lower terraces, which represent the original ground surface of the flood plain (Figueroa et al. 2006:35-36). Throughout the project area these land forms have been heavily impacted by:

- the rechannelization of the river as well as widening of the river channel in those areas not rechannelized;
- shaping of the terraces adjacent to the river in an effort to enhance rapid flow during flood events (see Figueroa et al. 2006:35, Figure 4-3);
- the building of concrete or stone walls to stabilize the river channel, some of which extend from the river channel to the upper terrace levels, eliminating the lower terrace landforms;

- extensive deposition of fill materials intended to heighten and stabilize the upper terraces, as well as incidental filling in conjunction with urbanization along the river (Caran and Speer 2006:44);
- construction of other water management structures, beginning with the acequias in the Spanish Colonial period, and including dams;
- other construction, in particular the 10 bridges that currently span the river within the Urban Reach, six of which have been designated as Historical Resources (see Figueroa et al. 2006:5-10).

In order to perform the needed construction for this project, the prime contractor, Zachary Construction Corporation, piped river water from behind a temporary dam structure north of Grayson Street, around the construction zone (Figure 1-5a) and returned the water to the river at the Lexington Avenue Dam (also known as the Hugman dam, now site 41BX1818; Figure 1-5b), a structure built by the Works Progress Administration (WPA) between 1940 and 1941 as part of the original river beautification project that created the Riverwalk (see Chapter 2).



Figure 1-5. Piping river-water around the construction zone: a) river-water bypasses construction in pipes seen on the right; b) returning the water to the river at the Lexington Avenue (Hugman) Dam.

Previous Research

As mentioned above, the San Antonio River was focus of habitation long before the arrival of the Spanish. However, the fact that the project area has been heavily impacted by the urban development of San Antonio, and especially by the re-channelization of the river (Figure 1-3), is partially responsible for the fact that no prehistoric sites have been previously recorded within or near the APE and none were found during the survey conducted by CAR in 2005 (Figueroa et al. 2006:54).

The majority of archaeological survey projects in the vicinity of the Urban Reach have covered only areas of Brackenridge Park, north of the APE of the project. Several archaeological surveys of the Brackenridge Park area have occurred since the early 1970s, though not early enough to fully document many sites that were destroyed due to the construction of Olmos Dam. Amateur archaeologist, C.D. Orchard recorded locations of sites and collected artifacts during the 1920s and 30s. Orchard published much of his findings during the 1960s and 70s (Fox 1975). More in depth discussions of the previous excavations in the area can be found in Stothert (1989), Cox et al. (1999), Miller et al. (1999), and Houk and Miller (2001).

Professional archaeological excavations were conducted north of the current project area by the Center for Archaeological Research in 1975 (Fox 1975). This survey focused on documenting recorded and reported sites on the grounds of Incarnate Word College (known today as the University of the Incarnate Word). During the course of the project, twelve recorded sites were visited: 41BX289, 41BX282, 41BX283, 41BX284, 41BX285, 41BX286, 41BX287, 41BX288, 41BX24, 41BX290, 41BX291, and 41BX292. In addition to the twelve sites, Orchard identified the location of five areas that had contained cultural remains prior to the construction activities at the Olmos Dam and Incarnate Word. These sites were not issued trinomials, but their locations were recorded on a sketch map of the area. Of the twelve sites recorded, eleven are located within a half mile radius of the current project area. Site 41BX288 is a prehistoric open campsite consisting of a scatter of burned rock and chert flakes. Site 41BX290 is a prehistoric open campsite characterized by the presence of burned rock, cores, and chert flakes. Site 41BX291 is a prehistoric open campsite that produced cores, debitage, and biface fragments, as well as a few historic artifacts. Site 41BX292 is a prehistoric open campsite exhibiting cores, debitage, burned rock, and biface fragments.

Near Olmos Dam, a number of prehistoric middens was identified and designated as 41BX24. The site is an open

camp with a large midden, which produced faunal remains, debitage, scrapers, gouges, and fragments of projectile points, as well as a couple fragments of historic ceramics. The site is approximately 250 meters in diameter and is suspected to extend to the southern end of a crescent mound observed by Orchard and Campbell (1954). The majority of the site has been disturbed (Fox 1975).

Site 41BX283 is a historic quarry located on the University of the Incarnate Word grounds. The quarry is rumored to have been first used during the Colonial Period, though no artifacts were noted to support the claim. The quarry doesn't appear to have been used prior to 1890, and it was abandoned by 1938. On the site, a metal frame bridge was located and recommended for preservation (Fox 1975).

Also located on the University of the Incarnate Word grounds during the 1975 survey is 41BX285. This site consists of the remains of a stone foundation. There were likely several structures present at the site. C. D. Orchard recalled that he helped to tear down several rock houses in that location during the early 1900s. The stone foundation at the time of the recording of the site was partially obscured by a trash dump.

Site 41BX282, the San Antonio Springs (the Blue Hole), consists of an unidentified metal structure and pipes, as well as a concrete casing around the top of a natural spring located on the University of the Incarnate Word grounds. The spring is at the headwaters of the San Antonio River, west of Brackenridge Villa. The surrounding land was likely used as a campground prior to European contact, though the periodic flooding has washed away evidence of this type of occupation. Historic military encampments were located in the vicinity of the springs during the early 19th century according to historical records, though no cultural remains dating to this period have been located at the site (Fox 1975).

Site 41BX284 is a cut-stone structure across an un-named tributary of the San Antonio River on the grounds of the University of the Incarnate Word. According to local tradition, the structure was part of a mill, though the building would be considered very small at 18 feet across, and the flow of the tributary would not provide enough energy.

Site 41BX287 is a possible historic dump located on the University of the Incarnate Word grounds. No sign of house remains is present at the site, but the dump contained glass, ceramic, burned rock, bricks, and metal fragments. The majority of the artifacts indicate a late 19th century temporal affiliation.

Site 41BX289, also known as Fernridge, is a historic house located on the ground of the University of the Incarnate Word.

The property was purchased by J. R. Sweet who constructed the east wing in 1852. George W. Brackenridge later purchased Sweet's holdings and built a three story addition to the structure in 1886. Each building episode is typical of the styles of the period. Brackenridge offered the City the Sweet property, along with his other holdings which totaled 217 acres, for a sum of \$50,000 in 1872. The city considered the offer for approximately two years before finally rejecting it due to the inability to negotiate a better price (Dunn 1975). In 1897, the Sisters of Charity of the Incarnate Word petitioned Brackenridge to sell them the parcel of land that contained the Fernridge structure. Brackenridge agreed, but only under the condition that they purchase his entire holdings, approximately 300 acres, for the sum of \$125,000. This was an amazing sum of money to the order, but they accepted and utilized Fernridge as the convent until they were able to construct the Mother House (Ramsdell 1959: 213). Today, the structure is known as Brackenridge Villa, and is used by the University as meeting space.

In 1976, the Incarnate Word College Archaeological Field School conducted test excavations at 41BX291. The field school ran for 23 days during July and August. Ten 2x2 meter units were set up and two backhoe trenches were excavated. The excavations indicated that it is a multi-component site with two major occupation episodes. The earlier episode dates to the Terminal Archaic Period (ca. 1750-1250 BP) and the later dates to the Late Prehistoric Period (ca. 1250-200 BP). Both occupations of the site were characterized by artifacts relating to short-term, repeated, hunting and gathering activities (Katz and Fox 1979; Katz and Katz 1982).

During the last few weeks of December 1976, the Center for Archaeological Research conducted an archaeological and historical survey within the boundaries of Brackenridge Park. Four prehistoric sites were recorded over the course of the survey. These included 41BX321, 41BX322, 41BX264, and 41BX323. Site 41BX323, known as the Paddle Boat Site, is located within a half mile radius of the current project area. The site exhibits a prehistoric component with debitage, burned rock, and a projectile point. The prehistoric component of the site was recorded as being "Neo-American", or Late Prehistoric in age. Recent excavations produced Leon Plain ware pottery from the upper levels of deposits. Site 41BX264, also located within a half mile of the current project area, is a prehistoric lithic scatter that may have contained a burned rock midden. The construction of the Polo Field at Brackenridge Park likely destroyed the majority of the site. The area has been leveled and covered with grass, though there is a possibility that parts of the site remain. Artifacts noted included cores, flakes, choppers, scrapers, burned rock, bifacial blanks and several projectile points indicating an Early to Middle Archaic period. All four of the

identified sites were partially destroyed and were deemed to be in danger of further destruction at the time of the survey in 1976. In addition to the recorded sites, eleven "collection localities" were noted that contained prehistoric material but not enough to warrant a site designation.

Additional archaeological work on the grounds of the University of the Incarnate Word encountered 41BX261, a multi-component site. The prehistoric portion of the site is a possible lithic workshop dating to the Late Archaic. Artifacts encountered relating to the prehistoric period included biface fragments, chert flakes, blanks, pre-forms, cores, a fragment of Leon Plain ware, and two Late Archaic projectile points. The historic component of the site is a dump, possibly dating to the 1880s, that contained fragments of glass, metal, and historic ceramics (Stothert 1989).

In June 1977, the Center for Archaeological Research conducted a pedestrian survey in the vicinity of Olmos Dam. The survey was conducted to evaluate the cultural deposit that might be affected by two proposed alternate roads through the Olmos Basin. It was recommended that archaeological testing occur along the proposed routes (Brown 1977).

During November of 1977, the Center for Archaeological Research conducted archaeological testing just south of the Olmos Dam at 41BX291. The project resulted with the delineation of the northern boundary of the site, which extended north of the Incarnate Word property into the Olmos Dam right-of-way. The site produced Paleoindian through European-aged deposits.

In December of 1977, UTSA-CAR conducted test excavations at 41BX322. One unit was excavated in order to determine the extent of the site located during a previous survey. The test unit indicated that the area was utilized as a temporary campsite. No temporally diagnostic materials were recovered and therefore no further investigations were recommended (Fox and Frkuska 1978).

The Center for Archaeological Research conducted archaeological investigations at portions of 41BX1 during December 1979 to May 1980. The project consisted of the excavation of backhoe trenches, block excavations, and documentation of *in situ* burials. Excavations revealed Middle Archaic and Late Archaic components, with one Paleoindian point recovered from one excavation area. The excavation of the burials provided much information on the people and burial practices of the Late Archaic Period (Lukowski et al. 1988).

In October of 1997 and March of 1998, SWCA, Inc. Environmental Consultants conducted cultural resource

investigations within Brackenridge Park. The purpose of the project was to test 41BX323 and investigate the Second Waterworks Canal prior to the installation of a proposed pipeline. SWCA recommended that 41BX323 be avoided or construction impacts mitigated because it had the potential for producing information concerning the paleoenvironment, prehistoric technology and subsistence patterns of the region. Also, because the proposed pipeline was to cross a portion of the Upper Labor Acequia further investigations were recommended in that area. Cultural materials recovered during the SWCA investigation included lithic debitage and tools, ceramics, and faunal remains (Miller et al. 1999).

SWCA returned to 41BX323 in the fall and winter of 1998 to conduct additional archaeological excavations. Excavations were carried out along the proposed pipeline footprint. The investigation produced Archaic deposits with intact burned rock features, and a shallow Late Prehistoric deposit along one terrace location. The cultural deposits at the site appear to date primarily to the Early Archaic, with evidence of occupation in the Late and Transitional Archaic periods.

In 2001, SWCA returned to Brackenridge Park to conduct a survey of a portion of the park that was to be rehabilitated. The survey was conducted along 28.3 acres of Brackenridge Park. The western portion of the survey focused on 41BX323. Much of the site produced sparse cultural materials, though a concentration of burned rock, debitage and mussel shell was located along one section. The potential for the site to produce additional information about the prehistoric occupation of the area was once more recognized. Again, 41BX323 was recommended for further testing if impacts were to occur within the site boundaries. In addition to visiting 41BX323, a previous unrecorded site was located along the eastern portion of the project area. Site 41BX1425 was identified as a prehistoric campsite, with a Transitional Archaic and historic component. The prehistoric component consists of an Enser point, burned rock, and debitage. The historic component is at or near the surface, and consists of historic ceramics, glass fragments, and metal objects that date to the 19th and 20th centuries (Houk and Miller 2001).

In September 2007, CAR conducted archaeological investigations consisting of pedestrian survey and controlled excavation of test units and trenched. Two components were noted during the investigations along the eastern margin of the site. One component is Late Prehistoric in age, while the deeper deposit may be Early Archaic, though not enough evidence was produced that would positively assign it to this time period (Figueroa and Dowling 2007).

Site 41BX170, according to the Texas Archeological Site Atlas, is a historic site consisting of the outline of a lime

kiln and remnants of stone foundations. Historic artifacts including fragments of a large ceramic pot and glass were noted when the site was recorded in 1994.

Meskill and Frederick (1995) conducted archaeological testing at the Witte Museum. The work was conducted prior to the construction of the new science building that was to be located on an area previously recorded as part of 41BX323. Two backhoe trenches were excavated in the area to the water table. No diagnostic material was recovered from the trenches, though debitage, charcoal and burned rock were encountered. Historic material was also noted within the trenches and consisted of white earthenware fragments, stoneware fragments, porcelain fragments, wire nails, window glass, bottle caps and other metal artifact fragments. A hearth-like feature was encountered in one of the trenches.

Additional testing was recommended prior to the construction of the HEB Treehouse. In 2000, twenty-three test units were excavated to examine the prehistoric component of the site. During the fieldwork, three Archaic Period features were encountered in the test units. Natural erosion and bioturbation affected the integrity of the deposits, though the site provided insights into the utilization of the San Antonio River during the Archaic Period (Meskill et al. 2000).

In 1996, a portion of the Upper Labor Acequia was exposed in Brackenridge Park prompting the Parks and Recreation Department of the City of San Antonio to contract with CAR to investigate the feature. During the course of the investigation, 41BX1273 was identified and documented. This site is the location of the Upper Labor Dam, a dam constructed of limestone blocks in 1776 by the Spanish colonists to divert water from the river to the Upper Labor Acequia. The dam was modified during the 19th century with dressed stone and set at a slightly different angle. A prehistoric component was also revealed during the investigation, located approximately 120 cm below the current surface (Cox et al. 1999). The prehistoric component consisted of lithic debitage.

In 1999, CAR contracted with PBS&J, Engineering and Environmental Consulting to provide archival research and assessment of the Downtown Reach segment of the SARIP, which extended from Houston Street to Lexington Avenue (Cox and Tennis 2000). In 2002, CAR contracted with Ford, Powell, and Carson (FPC) to provide background research on the known historic and prehistoric cultural resources within the Museum Reach segment of the SARIP, so that the historic and prehistoric cultural resources that might be impacted by or incorporated into the vision of the project could be identified and considered at the concept design

stage of the project. The report generated by CAR at this time (Cox et al. 2002b), which was presented to FPC but never published, included a historic background of the river, and edited version of which is now published in Chapter Two of this report. The archival research found that along the "Urban" portion of the SARIP 11 known prehistoric sites, 28 known historic sites, 5 acequia returns were identified and discussed. The most significant of the cultural resources identified were the acequia outflows, the Lone Star Brewing Company (currently houses SAMA), the Pearl Brewing Company, the Molino Blanco gristmill location, and the Lexington Avenue Dam. The project resulted in the recommendations that a survey of the entire length of the project area should be conducted to determine if intact prehistoric and historic deposits exist within the project ROW, and that known archaeological sites be revisited and examined to determine if construction activities would negatively impact the sites.

During the spring of 2005, CAR conducted reconnaissance and an intensive pedestrian survey of the Museum "Urban" Reach portion of the SARIP. In addition to the survey, several backhoe trenches and boreholes were excavated to investigate the possibility of deeply buried archaeological deposits as well as the geoarchaeology of the area. The reconnaissance and survey of the SARIP right-of-way (ROW) revealed that sections of the river bank were heavily altered by modern construction in the form of concrete embankments, bridges, and landscaping. No surface archaeological deposits were noted on the surface of the ROW during the course of the project. Backhoe trenching concluded with no significant cultural deposits. Soil samples taken from the backhoe trenches were analyzed to determine phytolith preservation and for radiocarbon dating. The analysis found that phytolith preservation was extremely poor and could not provide enough information for a reconstruction of the paleoenvironment (Figueroa et al. 2006).

Chapter 2: Historic Background

From its very conception, the City of San Antonio has been irreversibly linked with the wealth of water from the Edwards Aquifer. This aquifer, which pulses throughout the porous limestone beneath the city, is the source of the abundant springs that first attracted the indigenous peoples—and later the Spanish—beginning more than 10,000 years ago. The unique geological setting of the city has been both a blessing and a bane to inhabitants throughout its occupation, for the same geography that makes the springs and rivers possible has also make for devastating floods that arise with alarming frequency. Throughout its history, San Antonio has engaged in a constant struggle to control and make use of its water resources. That same struggle continues in the present; it is not now just a question of control of the water, but the necessity of rational management that occupies the public conscience.

Most of this chapter consists of an edited and somewhat updated version of the historic background section of the report created by CAR for Ford, Powell, and Carson in 2002 (Cox et al. 2002b), published here for the first time.

Prehistoric San Antonio

Though one prehistoric artifact was observed as an isolated find in disturbed context during the monitoring of the Urban Reach construction, no prehistoric sites were located. However, it should be noted that there are large prehistoric sites known in Brackenridge Park, just north of the project area. It is likely that most such sites that were once along this part of the river have been either destroyed by the rechannelization or now lie buried, as is large areas of the original course of the river itself. As will be discussed in Chapter Five, much of the river bank in the Urban Reach area has been seriously impacted by construction activities, beginning in the Spanish Colonial Period and continuing to the present (Caran and Speer 2006). However, some areas where sediments have not been seriously impacted were located and future construction of any kind in the Urban Reach area may find prehistoric sites, especially in those areas that are immediately adjacent to the original, natural course of the river. Thus a very bare outline of what is known of prehistoric San Antonio is included here.

Presumably drawn to the San Antonio River, the numerous springs, and the multiple creeks that drain the edge of the

Edwards Plateau in northern Bexar County, just as the Spanish were, Native Americans lived along the many water sources in the area for at least 10,000 years. The earliest known sites in Bexar County date to approximately 11,500-10,000 before present (BP), at the end of the Pleistocene (Black 2003; Figueroa and Frederick 2008). The following is a very brief list of the prehistoric cultural periods seen in sites in Bexar County.

- **Paleoindian** (11,500-8800 BP). This period corresponds with the end of the Pleistocene and the earliest beginnings of the Holocene, a period of significant climate change as the last Ice Age came to an end. Subsistence practices in the early part of this period focused on the large “megafauna”, but as these became extinct, Native Americans began to focus more on bison, deer, and plant foods (Collins 2004).
- **Archaic** (8800-1200 BP). This long period is divided into Early, Middle and Late subperiods, distinguished by differences in climate conditions, resource availability, subsistence practices and diagnostic projectile points (Collins 2004).
- **Late Prehistoric** (1200-350 BP). The Late Prehistoric period, which is divided into two phases, Austin (ca. 1200 to ca 700 BP) and Toyah (ca. 700 to 350 BP), is marked by major changes in technology. Beginning in the Austin phase the use of the bow replaced the darts and spears that had been in use for thousands of years. Beginning in the Toyah phase bone tempered ceramics came into use in the area around San Antonio, though the Caddo people and related groups of northeast Texas had been using pottery since around 2200 BP (Perttula 2004:376).
- **Protohistoric** (CA. 1528-1700 C.E.). Protohistoric is a term typically used to describe the transition between the Late Prehistoric and the Historic period. The period is defined as beginning with the Cabeza de Vaca's accidental visit to Texas in 1528 and ending with the establishment of a strong Spanish presence in the region in the late 1600s and early 1700s (Hester 2004:151). During this period, which is very poorly understood, the combination of epidemic disease and the increasing Spanish presence resulted in changes in the cultural practices of the Native Americans in Texas.

San Antonio and Its River

I. Wayne Cox

The Early Days

The area we now know as Texas was considered a portion of New Spain from the conquest of Mexico in 1540, but there was extremely limited interest in the area after early probes failed to find the rumored riches of gold and silver (Steen 1948:1-9). It was not until nearly the end of the seventeenth century, when concerns about French encroachments led to attention finally being paid to the vast territory beyond the Rio Grande in the northeast part of New Spain, that Europeans encountered the river valley that would become San Antonio (de la Teja 1995:6-7).

On the 13th of June, 1691, the *entrada* of Domingo de Terán recorded the first known description of the San Antonio River:

We marched five leagues over a fine country with broad plains—the most beautiful in New Spain. We camped on the banks of an arroyo adorned by a great number of trees, cedars, willows, cypress, osiers [a kind of dogwood], oaks and many other kinds. This I called San Antonio de Padua, because we reached it on his day” (Hatcher 1932:14).

It would appear from this description that their route was to the south of the present site of Mission Concepción, for they failed to discover either San Pedro Creek or the springs at the head of the river.

Early in April of 1709, two zealous Franciscan Priests, Fray Isidro Felix de Espinosa and Fray Antonio de San Buenaventura y Olivares, escorted by a small cadre of Spanish soldiers under the command of Captain Pedro de Aguirra, crossed the Rio Grande with the intent of re-establishing contact with the Tejas Indians of East Texas after the failed attempt to begin missions there the decade before (de la Teja 1995:6). On April 13, Fray Espinosa recounted their arrival at a lush valley and a profuse spring, a sharp contrast to the arid terrain they had traversed:

We named it Agua de San Pedro, and at a short distance we came to a luxuriant growth of trees, high walnuts, poplars, elms, and mulberries watered by a copious spring which rises near a populous rancheria of Indians...numbering in all about 500 persons, young and old. The river, which is formed by this spring, could supply

not only a village, but a city, which could easily be founded here because of the good ground and the many conveniences, and because of the shallowness of said river (Tous 1930a:5).

The padres' observation concerning the shallowness of the river is not directed toward its depth, but an approval of the lack of steep banks, an essential quality to facilitate drawing forth the water for irrigation. The necessity of a practical method for distribution of water to produce crops in an arid to semi-arid environment was ingrained in the minds of the Spanish colonizers, due to the nature of agriculture in their home country. In the reports of exploration dispatched to the viceroy and the King, the ability to irrigate was always a major consideration, even when they ventured into areas where this was not a limiting factor (Cox 2005:7).

The Aguirra *entrada* produced no tangible results, but it did leave Father Olivares with a deep desire to found a mission where he had seen so many Native Americans and such wonderful quantities of water. In 1716, Captain Diego Ramon was dispatched to re-occupy the lands of the Tejas and establish four new missions. The tireless Fray Espinosa, San Antonio's first spokesman, again recounted the wonders of the prolific springs:

This river is very desirable and favorable for its pleasantness, location, abundance of water and multitude of fish. It is surrounded by very tall nopals [prickly pear cactus], poplars, elms, grapevines, black mulberry trees, laurels, strawberry vines and genuine fan-palms. There is a great deal of flax and wild hemp, an abundance of maiden-hair fern and many medicinal herbs. Merely in that part of the density of its grove which we penetrated seven streams of water meet. These, together with others concealed by the brushwood, form at a little distance its copious waters which are clear, crystal and sweet (Tous 1930b:9-10).

One of the few areas of agreement between the viceroy and the clergy was that the earlier mission effort in East Texas had failed, in part, due to the difficulty of transporting supplies from the distant settlements along the Rio Grande. Therefore, a new presidio was required to serve as a way-station to the mission effort further east. Governor Don Martín de Alarcón, accompanied by Fray Olivares and seven families of settlers, crossed the Rio Grande on April 9, 1718 to fulfill this purpose (de la Teja 1995:7). Because of disagreements between the Governor and the priest, they traveled separately but arrived at the San Antonio River

on April 25. Father Olivares explored the vicinity and independently founded a mission, San Antonio de Valero, "...near the first spring [San Pedro], half a league from a high ground and adjoining a small thicket of live oaks" (Hoffman 1938:318). Shortly thereafter he moved the mission to the east bank of the river, south of its present location. On May 5, 1718, Alarcón, "fixing the royal standard with the requisite solemnity," established the Villa de Béjar, near San Pedro Springs, named in honor of the brother of the viceroy (Céliz 1935:49). Leaving the settlers and a contingent of troops, he proceeded onward to the East Texas settlements. Upon his return, in January of the following year, he found "nothing unforeseen what so ever had happened" (Céliz 1935:22). He ordered supplies, livestock, and munitions for the villa and issued instructions to "begin with all assiduity the construction of canals for both the villa and the mission of San Antonio de Balero (*sic*)" (Céliz 1935:22), thus beginning the San Antonio acequia system. As four more missions, a presidio, and the Villa de San Fernando were established along the river, more acequias were dug. In the end, this irrigation system included more than 50 miles of these ditches (Cox 2005:1).

Water and Politics

In 1852, when the city of San Antonio acquired the right to sell its public lands, the city conveyed lots 30 and 31, Range 1, District 2, to James R. Sweet for \$1,475 (Bexar County Deed Records [BCDR], K2:506, 508) (Bexar County Deed Records 2009). This twenty-four acre tract, located approximately two and one-half miles to the north of the city, was purchased by Sweet with the understanding that it contained Worth Spring, an artesian spring not far from "the Blue Hole", the head spring of the San Antonio River. However, upon survey of the property, it was determined that the spring was partially located on the lot just to the north. Sweet sued the city and was compensated by recovering \$85 of his purchase price (*Sweet vs. City of San Antonio*, Bexar County Court Records #1039). In April of 1854, Sweet contracted with J. H. Kampmann to "erect for him at the head of the San Antonio River a dwelling house" for \$5,200, to be completed by November of that year (BCDR M1:50). In 1859, while he was mayor, Sweet sold himself the three adjacent lots, bringing his total holdings at the springs to approximately sixty acres (BCDR R1:187). He occupied the "Sweet Homestead" until the fall of 1859 when he sold the spacious cottage and the land to George W. Barnes for \$10,000 (BCDR R1:189). Barnes sold the property, in September of 1869, to Isabella Helena Brackenridge, mother of banker George Washington Brackenridge, for \$4,500 (BCDR V1:220).

The Brackenridge family had arrived in San Antonio in 1866. During the Civil War, three of the Brackenridge sons served

with the Confederate Army, but George favored the Union and remained a merchant in old Texana, enraging many of his clients by insisting on bartering for cotton rather than dealing for Confederate dollars (Sibley 1973:51). It is possible that he used the deaths of his father and a partner along with the confusion inherent in war time to bolster his growing fortune (Sibley 1973:80).

Brackenridge enlarged the Sweet cottage into a home for his mother and sister, Eleanor, and added the surrounding property bringing the total acreage of the estate to over two hundred acres on both sides of the river. In late 1871, the city raised the dam at the Upper Labor acequia and flooded portions of his property. The mayor appointed a special committee to "arrange the matter concerning the water and the removal of the dam." Ten days later, on January 23, 1872, the committee reported their recommendation to purchase "his property at the head of the San Antonio River, as it controls nearly all the water of the ...river" (City Council Minutes[CCM] D:36). The terms offered by Brackenridge were to convey his entire estate to the city for \$50,000, at eight percent interest over fifty years. He further offered to rent the land for \$4,000 per annum, the exact amount of interest involved (Corner 1890:53). The San Antonio Express concluded their report of the recommendation with congratulations "upon the purchase of property which, ten or twenty years hence would cost ten times as much, and which will be indispensable to the future public as light and air, sunshine and rain" (San Antonio *Express*, January 28, 1872). The City Council, however, disagreed with the newspaper's enthusiasm and rejected the purchase (Sibley 1973:149).

The need for a water supply not dependent on the shallow wells that provided most households in the city was becoming more and more obvious. The water table that fed these wells was not the Edwards Aquifer, but consisted of rainwater sitting above the clay and limestone cap that sealed the Edwards Aquifer below. On April 3, 1877, a long-awaited report on a waterworks proposal was presented to the City council by a special committee. Their report began: "we deem it unnecessary to discuss the importance or general utility of waterworks and will, therefore, pass to the immediate advantages to be derived by their construction in this city" (CCM D: 288). They then proceeded to present an astute analysis of the sanitary conditions that existed at the time.

It is generally conceded that the well water which is being used by three-fourths of our population is entirely unfit for—in a sanitary point of view—the purpose of life. The experience of all cities proves that water derived from shallow wells steadily deteriorates until it becomes unfit for use

by the percolating of sewage matter and privy filth when after long usage the soil becomes so impregnated that the water is absolutely poisonous. To this fact we must attribute the prevalence in past years of epidemic cholera." (CCM D: 288-289).

The committee then made mention of the benefits to be derived through the reduction of fire hazards and losses.

"...it is estimated that on a total of \$4,500,000 insurance at an average of 1 1/2 percent that the saving will be at least 1/4 of 1 percent which will of itself amount to over \$11,000 saving to the general public, but who cannot estimate the value as well as the comfort and convenience to the inhabitants of this city by the regular sprinkling of the streets and plazas?" (CCM D: 288-289).

The report recounted a brief history of previous proposals; first the offer by T. W. Mahan, President of the New York Water Works Company, who offered to construct the works in exchange for city bonds. Second, it recounted the offer of T. Daniel, engineer of the Dallas Water Works, to build the works, excluding the required reservoir, for \$95,000. There then followed the offer of Kampmann and Wall, "to construct waterworks under certain conditions under a franchise granted to the city"; and lastly, the present offer from LaCoste and Associates. They then pointed out that the first two proposals "would be the most expensive plan ultimately that could be adopted to secure the end in view." While they cite the Kampmann and Wall proposition as being the most economical, they objected to the problems inherent to the design. They noted that the plan placed the works at the "Abat ford" which they deemed to be too near the populated district of the city to insure a pure water source. The "Abat ford" was located on the sharp bend of the river at Jones Avenue. They further objected that the plan had no provision for a reservoir, rendering the works useless except "in the event of high water." With these considerations they felt that the LaCoste plan offered the most effective system at the lowest possible cost, and "we should not neglect the opportunity here presented to interest public spirited citizens of our own city in an enterprise of so much importance" (CCM D:288-289).

On June 19, 1877, after considerable controversy, the City Council approved the contract with La Coste, and work commenced on the waterworks almost immediately under the direction of the Secretary and Engineer for the project, W. R. Freeman. The contractors began with the excavation of a raceway canal from behind the Upper Labor Dam to a pump

station located at what is now Lambert Beach, the swimming area of the present Breckenridge Park. This provided a fall of nine feet, sufficient to power a large turbine which drove the plunger of a huge force pump. While the original design called for a reservoir to be located near the dam of the Upper Labor, which supplied water for the raceway, the company decided to relocate it to the summit of the hill behind Fort Sam Houston. Located in what is now the San Antonio Botanical Center, the reservoir was eighteen feet deep, lined with limestone, and had a planned capacity of 5,000,000 gallons. The water, lifted by water-powered pumps to this elevated position, was distributed to the users by gravity flow through cast iron mains (Baker 1978:7). The reservoir is today the outdoor amphitheater for the Botanical Center.

Banker G. W. Brackenridge was initially against the idea of the waterworks, though he was willing to lease his property to the city, but realizing that it had the potential to establish itself as a sound investment, he freely extended loans to LaCoste and his other investors. Within a year of the completion of the water works, he held a majority of its stock and had become its president (Sibley 1973:131-132).

On November 6, 1899, the stockholders of the San Antonio Water Works Company took action that was of momentous benefit to the city of San Antonio: "A resolution was passed authorizing the directors of the company to make a deed of gift to the city for park purposes of the magnificent natural park embracing upward of 200 acres and taking in all of the headwaters of the San Antonio river from Josephine Street northward as far as the property of the Sisters of Charity, formerly the private grounds of Col. Geo. W. Brackenridge." The idea of creating a great natural park within the heart of the city had long been a dream of Brackenridge, "but its consummation was attended with difficulties that it has taken time and labor to remove" (San Antonio *Express*, November 7, 1899). Although the deed was directly from the Water Works Company, there was no doubt in anyone's mind that it was from the director and chief stockholder, George Brackenridge. The restrictions of the deed clearly reflected his bias and his unwillingness to allow the city to establish the park contrary to his principles. These restrictions were four in number: first, that the city shall at all times allow the Water Works the use of the water and will not drill any wells or construct any dams on the property; second, the land could be used in no manner except as a public park; third, "it shall never permit any beer or intoxicating liquor of any kind to be sold, given away or drunk on any part of said premises"; and lastly, it could never "convey, alienate or encumber" the land (BCDR 185:183-188). It would appear that these restrictions would be sufficient to insure his desires, but Brackenridge was never one to leave matters to the whims of municipal government. To ensure that the city respected

his wishes he retained 200 feet frontage the entire length of River Avenue (later Broadway), a distance of over a mile, and 25 feet around the remainder of the property, allowing the prerogative of restricting access to the park to his discretion. Two weeks later the city council made an inspection of the property. "The place was a revelation to the gentlemen, many of whom had never set eyes on a spot of such natural beauty" (San Antonio *Express*, November 23, 1899).

At the following session of Council a resolution was introduced by Alderman Barker to authorize the mayor to accept "this valuable piece of land by one of our wealthiest citizens as a manifestation of philanthropy and public spirit, for which the citizens of San Antonio should be profoundly grateful." In presenting the motion, Barker commented that he was surprised and astonished at its beauty, and predicted

that this park was destined to rival in beauty the far-famed Central Park of New York, Fairmount Park of Philadelphia and the Forest Park of St. Louis. Nature has beautified it with a masterful hand and it only remains for the city government to make its grandeur and beauty accessible for it to become one of the most delightful places for our visitors who may come to us in the future in quest of health or pleasure, and a 'joy forever' to our own citizens now living and to those who may come after us" (San Antonio *Express*, December 5, 1899).

Alderman Davis was much more pragmatic about the gift. He pointed out that the land was surrounded by private lands through which the city would be required to open a street, that the Water Works Company would have the right to all water and improvements, and there still remained a mortgage on the property. He stressed that he voiced his objections without prejudice toward the donor, but did not feel that the Council should act in haste. Despite these objections, the Council voted to accept the property (San Antonio *Express*, December 5, 1899).

In August of 1917, bids were requested by the San Antonio Water Supply Company for the construction of an auxiliary water plant to be constructed in Brackenridge Park. The increased capacity was designed to provide for the increased demand anticipated by residential growth (San Antonio *Express*, August 1, 1914). The following year, San Antonio Water Supply Company offered to sell to the city the narrow strip of land that Brackenridge had retained along the frontage of the park. After considerable negotiations, the city eventually bought the property at a total cost of \$30,000, paid in annual installments of \$6,000 (San Antonio *Express*, May 26, 1916).

Park Commissioner Ray Lambert had already begun what would become a monumental effort to enhance the park system of the city. One of the strongest attributes the Park Commissioner brought to the park system was vision. He took the scars that time and utilitarian alteration had made to the land and converted them into special wonders. The old waterworks channel that bisected the lower portion of the park became a delightful feature of the golf course, as well as a challenging water hazard. The old quarry that the Alamo Portland and Roman Cement Company had gouged from the hillside became the tasteful and beautiful "Japanese Lily Pond." Above this he introduced a scenic road along the highest point of the park, which he named Alpine Drive. His improvements proved successful and apparently what the public wanted from their park system: "More than 100,000 persons enjoyed the privileges offered the public by Brackenridge Park last week..." (San Antonio *Express*, June 10, 1917).

Floods and the Changing Face of the River

The geo-physiographic location of Texas and modern weather systems combine to make flooding a common occurrence in the state. Six of the known twelve worst short-term (48 hours or less) flood events in the world occurred in Texas (Flood Safety Education Project 2009). The Balcones Escarpment in Central Texas is one of the most flash-flood prone areas in North America due to a combination of factors (Caran and Baker 1986; Eckhardt 2009). Rainfall in Bexar County is often intense, though usually of short-duration, in an area (the edge of the Edwards Plateau) where clay soils and limestone outcrops result in massive runoff into the many creeks draining the Balcones Escarpment in northern Bexar County. These water courses converge in and near downtown San Antonio (Jarboe 1921). The result is devastating floods, often in the form of flash-floods. One of the earliest recorded was in 1724, when the buildings of Mission San Antonio de Valero, recently moved from San Pedro Creek to the banks of the San Antonio River, were destroyed, resulting in another relocation of the mission, this time to its current location, where it later became known as the Alamo (Habig 1968:44; Ramsdell 1959:16-17). As mentioned in Chapter One, one a flood in 1845 caused so much damage that the city council voted to move the town (Eckhardt 2009; Jarboe 1921:496). Popular opinion prevented this, but beginning in the early twentieth century, increased population led to increased concern about the loss of life and damage to property inherent in these flood events. A series of floods in the second decade of the twentieth century convinced city officials that action must be taken, if possible, to prevent such disasters. In particular the two major floods in 1913, both of which devastated down town San Antonio (Metcalf and Eddy 1920:i; San Antonio *Express*, October 3, 1913; December 5, 1913), had emphasized the dilemma facing the city. Some improvements were

accomplished, such as the “sea walls” constructed in the “Big Bend” area of downtown, and the restrictions that had been placed upon construction along the river between Josephine and Mitchell Streets (Cox and Tennis 2000:12). In fact, the dictatorial placement of the Municipal Auditorium along the river (just south of the Urban Reach project area) was to a great extent a flood control measure; by using bonded river improvement funds they planned to eliminate a major bend of the river to create the construction site, thus solving two problems with the single expenditure of bond revenues (Cox and Tennis 2000:11). Yet all of these measures were merely partial fixes to a very complex problem. It had been obvious to those involved with the aftermaths of every major flood since 1865 that a final solution entailed straightening the river and removing all impediments to the free flow of water; but this was not an easy or popular solution. A majority of the citizens were too much in love with the picturesque, winding stream to have it converted into a widened concrete canyon slashing through the heart of the city. In addition, several of the major restrictions to the flow, the dams along its course, were still commercially important to several industries (Cox and Tennis 2000:12).

On June 9, 1920, the city council approved a contract with the firm of Metcalf and Eddy of Boston, Massachusetts, to make a careful study of the situation and offer an unbiased evaluation, and the firm's chief engineer immediately began a nine-day on-site evaluation of the existing river conditions, working in conjunction with city engineer (Metcalf and Eddy 1920:1). The subsequent report was both well-researched and insightful in regard to the past history of river and creek flooding, with a realistic awareness of the actions that must be taken to correct the situation. It recognized previous efforts of the city, but recommended against the Auditorium cut-off construction until further studies had been completed. It also addressed the necessity of removing all obstruction from the river channel, including not only both Guenther Mill dams, but also the remaining structures on the upper mill complex. It suggested that the city should undertake the construction of six cuts across bends of the river in the downtown section. The first cut-off suggested was just below Josephine Street where flooding had first begun in 1913; the second cut was between 8th and 10th Streets at the intersection of Oakland, Arden Grove and 9th Street; the third was the large bend at Trenton Street; and the fourth was suggested at the Romana Street bend where the Municipal Auditorium site was planned. The two remaining cuts were suggested for the bend at Martinez Street, near what is now the Durango Street crossing, and the final cut-off was proposed to shallow the curve at the Guenther Lower Mill (now Pioneer Flour). In addition, further river work was suggested along the “Big Bend” area: the raising of three bridges and the adjustment of the abutments on a fourth (Cox and Tennis 2000:16-17). Their overall planning factors were directed at enabling the channel

to “safely carry 12,000 cubic feet per second through the heart of the city,” the figure they anticipated would be required to handle a “hundred year flood.” Contrary to popular opinion, the Riverwalk bypass channel cutting off the “Big Bend” was not recommended by this study. The estimated cost of the recommended construction was placed at \$4,000,000; that figure included \$950,000 for a detention basin on Olmos Creek. The firm acknowledged that discussions with the city government had already indicated that the expenditure of this amount of money was not considered possible at the time due to “other urgent needs of the city.” Therefore, they recommended the immediate expenditure of \$2,500,000 for what they considered the most critical needs within the period of the next five years (Metcalf and Eddy 1920). They concluded their study with a rather dire prediction concerning the next major flood:

When such a flood will recur, no man can say. But that it will recur is certain. Therefore, with the rapid growth in value of property in the city, particularly in the congested value and commercial districts, it is imperative that this danger be recognized and that the work necessary to prevent serious injury from flooding be undertaken as rapidly as the financial resources of the city shall permit—lest when the flood comes it shall find the city unprepared and do ruinous damage” (Metcalf and Eddy 1920:ii).

The city was soon to witness just how prophetic those words were. The first eight months of 1921 promised no respite from the dry spell that had lasted all the previous year, with rainfall in those months only 17.84 inches, a full inch below normal. Finally on September 9th, there was news of a break in the drought: “The most timely showers since 1919 have fallen over Southwest Texas in the past two days, coming just as stockmen were facing the prospect of buying feed or shipping their cattle to other pastures from the depleted range” (San Antonio *Express*, September 9, 1921). The rainfall that was beginning to break the drought in West Texas was the result of a tropical disturbance that had formed in the western Gulf of Mexico and had crossed the Mexican coast south of Tampico on September 7th. Weakening slightly after contact with the landmass, the storm took up a northeasterly direction from Mexico into Texas (Jarboe 1921). In San Antonio a light shower of 0.53 inches occurred on September 8th as a result of the moisture from the leading edge of the air mass, but the main thrust of the storm did not reach the city until between midnight and 1 a.m. on the 9th. At that time, steady rains began to pummel the city and continued throughout the night. The rainfall began to intensify throughout the day and continued into the next day. The storm was manifest as an entire series of intense thunderstorms, with driving sheets

of rain and deafening thunder that passed over the town one after the other in what is called "training," and continued with no relief until mid-morning of the 10th (Ellsworth 1923:8-10). The actual amount of rain varied considerably within the San Antonio River basin but over eight inches was recorded within the downtown area with over seventeen inches reported in the upper Olmos Creek basin (Jarboe 1921). At first it appeared that the improvements to the river would be adequate to contain the deluge, for the initial level was scarcely a foot above normal, but then

a wave from the Olmos, down the valley northwest of Brackenridge Park, struck the headwaters of the river and forced it beyond banks. So quick was the rise, more than one hundred tourists camping in Koehler Park barely had time to save their lives, and many lost their effects" (San Antonio *Express*, September 11, 1921).

It was then hoped that the water had crested at the level of the 1913 flood, but within minutes the water was flowing down the street, and

...in 20 minutes College Street was flooded as far as Navarro. In 10 minutes more, it had reached the flooring of the Navarro Street bridge at Crockett Street. By 1 o'clock it was impossible to leave the Express Building with any assurance of safety, in a torrent sweeping east to Presa Street. The crest of the flood apparently was reached about 1:45 o'clock when the water was between 5 and 6 feet deep on Crockett Street...and was more than 8 feet deep at Houston and St. Mary's" (San Antonio *Express*, September 11, 1921).

The toll of the flood was 51 lives lost with property damage in excess of \$4,000,000 (Jarboe 1921). It had become clear that if the citizens of San Antonio did not want to move the town, they needed to do something about the flooding. On November 22, the Committee on Flood Prevention presented its conclusions to a mass meeting of the citizens at City Hall. They first defined the extent of the problem confronting the city, pointing out that problem was in reality twofold: one consideration was the San Antonio River and its tributaries, while the other was the Alazan, Martinez, Apache, and San Pedro Creeks. In the case of the San Antonio River the major contributing factor was Olmos Creek. This intermittent stream flowed from its upper reaches through a canyon with a straight channel and steep grade, while the river in contrast meandered through the city along "a torturous channel and a comparatively flat grade of about one foot per thousand."

The watershed of these two combined streams drained approximately 30 square miles, while the western creeks had a combined watershed of 46.7 square miles. Situated on the Alazan was West End Lake (Woodlawn Lake) formed by an earthen and rock dam 800 feet long and 90 feet high; on Apache Creek was located Elmendorf Lake, one-half mile long and 400 feet wide, formed by a 175 foot dam. The committee then presented the various options that they had considered. The first suggestion concerned widening and straightening the entire river; it was generally agreed that this would require a channel 300 feet wide with all bends of the river cut-off to achieve minimum resistance, this would cost \$9,000,000. The second consideration was the construction of a parallel channel through the city that was estimated to cost as much, or more, than the straightening. A third project would be the diversion of the water of the Olmos to several of the western creeks, the cost of which was estimated at from \$6,000,000 to \$40,000,000. A fourth suggestion called for the diversion of the Olmos into the Salado Creek basin; however, it was felt that "legal obstructions would prevent this project if it were practical from an engineering standpoint." A fifth consideration was the construction of a large number of small storage reservoirs along the Olmos, with the number required estimated at 48, the cost was proposed to be \$5,000,000. A sixth project called for a retention dam alone with no modifications to the river below, but this would require a storage area in excess of the land available. After careful deliberation of the various projects, a combination plan was adopted. The primary consideration was "the construction of a detention or dry reservoir on the Olmos by raising a massive concrete dam at a site selected, after very careful examination, opposite the Argyle Hotel." The point was stressed that the reservoir must always be kept empty and ready for the next rain. To accommodate the rainfall below the dam they proposed several alterations to the river channel; these included deepening the channel in selected areas and construction of several cut-offs to straighten the path of the river (San Antonio *Express*, December 4, 1921).

The major new suggestion for a cut-off was

across the neck of the Great Bend and from a point just above Nueva Street to a point below, taking out the sharp bank at Bowen's Island. For this proposed Great Bend cut-off, it is recommended that a strip 100 feet wide be acquired by the city but that is in view of the capacity of the existing channel around the bend, a channel 70 feet wide be cut through, this channel to be arranged as to not interfere with the summer flow in the existing channel. The cross section to be adopted by the river through the business section to be the present very pleasing arrangement of vertical

stone walls, with a grassed berm and a small channel at the bottom for the summer flow” (San Antonio *Express*, December 4, 1921).

The cut, which was designed to be dry until flooding occurred, would allow the shortening of the channel from 4,000 feet to 600 feet and allow for a better slope. The total cost of these modifications was estimated at \$5,500,000 (San Antonio *Express*, December 4, 1921).

After considerable discussion, on October 25, 1923, the city commission voted unanimously to present the taxpayers with a bond issue of \$4,350,000 the first week in December. Along with \$2,800,000 for the dam on the Olmos were eight other proposals: \$200,000 for the new auditorium, \$100,000 for fire and police services, \$250,000 for streets, \$100,000 for bridges, \$250,000 for storm sewers, and \$100,000 for additional sanitary sewers (San Antonio *Express*, October 26, 1923). On the eve of the election, Mayor Tobin reminded the public of the importance of the issue: “This election for flood prevention is the turning point in San Antonio’s history, I hope everyone turns out and votes for greater San Antonio. If we don’t vote the bonds, we don’t go ahead”(San Antonio *Express*, December 4, 1923). The total votes counted were the largest for any bond election up to that time; however, the flood prevention bonds carried by a majority of only 1,638 of a total of 15,904 ballots cast. Mayor Tobin expressed his pleasure that the issue had passed but stated “he felt a ‘little blue’ that the victory was not bigger for the bond issue...I am sure that when this great work is finished, the public will be sorry that all voters were not for it all along” (San Antonio *Express*, December 5, 1923).

One of the steps in the river channelization project was intended to be the elimination of the two sharp bends above the downtown sector, below Josephine Street and between 6th and 9th Streets. However, initial negotiations with the landowners indicated that the prices proposed would be excessive, so the route of the new channel was redesigned to place it twenty feet farther to the west, thus allowing the property to be purchased cheaper. This reduced the cost of the right-of-way from \$200,000 to \$60,000. This action didn’t meet with the approval of the landowners and it was necessary for the city to undertake condemnation proceedings (San Antonio *Express*, October 16, 1928). This brought an instant protest from other property owners south of the 9th Street cut who feared that this would endanger their property before the downtown cut-off was completed. The mayor was quick to reassure them that the Big Bend cut-off would be completed before further flood prevention would be undertaken. “Little work can be accomplished in any of the flood prevention work until the city’s last bond issue of \$4,750,000 is sold, for the money on hand for this

program is practically exhausted” (San Antonio *Express*, October 17, 1928). While few disputed the need, the other river cuts would have to wait for more funding. The Olmos Dam, built to confine flood waters to the Olmos Basin, north of Brackenridge Park, so that they could be released slowly, was completed in 1926 (Eckhardt 2009) as was the cutoff at the Municipal Auditorium (Cox and Tennis 2000:11). The cutoff at the “Big Bend” was completed in early 1930 (San Antonio *Express* March 18, 1930). More major work on flood control had to wait for a war and another flood.

River Beautiful

The beautification of the city’s little river had long been a reoccurring dream of visionaries who realized the potential of attracting tourists to San Antonio. However, it took a man of imagination and specific training like Robert Hugman to develop these ideas into concrete plans. After his graduation from the University of Texas School of architecture in 1925, he married and located in New Orleans where he began his practice. By his own admission it was during his three years in that city that he became impressed with their preservation of the *Vieux Carré*, and “the old world charm, beauty, local color and character of it all”(Hugman 1968:3). Upon his return to his hometown, in 1929, he attempted to transfer these qualities to the waterway of San Antonio.

In June 1929, Mayor Chambers was presented with a scheme concerned the Big Bend area, submitted by Hugman, to “divert all water of the river up to a certain level into the new flood channel and permit construction of walks and Spanish type architecture along the banks of the stream” (San Antonio *Express*, June 27, 1929). In reality, the Hugman plan was far more visionary and complex. His vision would create a “miniature Old World Street” along the river lined with shops, artists’ quarters, cafes, and apartments at the rear of all the present buildings (San Antonio *Express*, June 27, 1929).

Though the city council liked the plans, prosperity that the nation had been experiencing came to an abrupt end on October 24, 1929. For much of the nation the financial crash of 1929 created instant panic and economic chaos, though for San Antonio the depression did not become a major factor until much later, money was no longer available for Hugman’s plan.

This was, of course, during the construction of the cutoff at the “Big Bend”, which was to be filled like the bend at the Municipal Auditorium had been. The San Antonio Conservation Society led the fight to prevent this (Eckhardt 2009; Handbook of Texas Online 2008; Smyrl 2008). Through the encouragement of the Conservation Society, Hugman was

able to present his vision to about one hundred of the city's prominent people who endorsed its development for future planning on the river. Despite their support there were only funds for flood prevention and his dream of development and beautification had to be shelved.

The upcoming Texas Centennial provided impetus even during the Depression, to complete the planned beautification projects. In mid-1935, the Alamo Chapter of the Daughters of the American Revolution (DAR) voted to direct their efforts for the upcoming Texas Centennial toward the beautification of the San Antonio River. Upon hearing of this request, Robert H. H. Hugman again presented his design for the beautification, first proposed by him in 1929, to the DAR committee.

We have a priceless beauty spot in our river and could easily make it so that homes and even business places would be remodeled to face the river instead of turning their back doors toward it. The plan drawn up proposes to build stairways down to the riverbank in the downtown section, and to place benches there for the use of the public. The natural beauty could be enhanced by planting flowers and shrubbery" (San Antonio *Express*, October 1, 1935).

Hugman suggested that \$1,000,000 be applied for from the WPA, the Federal Works Progress Administration, with the added benefits of flood and malaria control being achieved. While everyone was supportive of his concept, the price was considered too great and the time too short to coordinate the massive project with the Centennial; instead, an alternate plan for improvement and beautification financed by a grant of \$730,000 from the WPA was undertaken beginning January 8, 1936, at Concepción Park to divert some of the river's flow into an old section of the channel to "eliminate accumulation of stagnate, mosquito-breeding pools" (San Antonio *Express*, January 8, 1936).

In January 1937, the city officials made formal application for federal funds for one \$50,000 portion of the river beautification program. Park Commissioner Rubiola also applied for WPA assistance in construction of a retaining wall along the river in Brackenridge Park to prevent the flow of the stream from cutting into the banks. He planned to first wall the east bank in the vicinity of the Witte Museum; he hoped eventually to wall both sides of the river from there south for a quarter of a mile (San Antonio *Express*, January 14, 1939). In order to obtain funds for the remaining portions, a public bond election had been approved by the property owners along the river (San Antonio *Express*, October 26,

1938). Finally, in mid-March, the city was able to announce that ground-breaking ceremonies for what would become the Riverwalk would be held on Friday, March 24, on the river bank opposite the Smith-Young Tower (San Antonio *Express*, March 19, 1939). In October, the city officials were notified, by a telegram from Senator Tom Connally, that an additional \$483,395 had been approved for the second phase of the river beautification (San Antonio *Express*, October 15, 1939). This allowed the project to extend up the river beyond the Big Bend to the Municipal Auditorium. This also allowed them to include the adjacent parks, surface drainage facilities, walks, stairs, and retaining walls. "With costs of operating the first unit in the downtown area running approximately 20 percent below estimates, it will be possible to extend the beautification program beyond the Municipal Auditorium point, WPA officials believe" (San Antonio *Express*, October 15, 1939).

As the first phase of the river beautification drew to a dazzling conclusion, the visionary who had made it possible was summarily discharged from the project. On March 19, 1940, the commissioners met in council and enacted Ordinance 1568: "It is declared that the contract entered into, by, and between the City of San Antonio and R. H. H. Hugman, entered into, and approved by ordinance dated December 15, 1938, is terminated" (CCP, March 19, 1940, Vol. Q: 520, Ordinance Book J: 89). On Thursday March 13, 1941, the last remaining work on the river project was completed and the gates were opened and water returned to the entire downtown channel. Since the Spring of 1939, the project had improved twenty-one blocks, some 8,500 feet of river bank, stretching from the South St. Mary's Street bridge to the 4th Street (Lexington Avenue.) bridge. "Construction included 17,000 feet of river walls and sidewalks, 11,000 cubic yards of masonry and 3,200 yards of concrete. Thirty-one stairways from the street level to the river were built with each stairway of a different design" (San Antonio *Express*, March 14, 1941).

More Floods, More Changes

Another major flood in 1946 showed that the improvements made in the previous two decades had not been enough and spurred more flood control projects. This time the city had major Federal funding and the scale of work was far greater. In 1954, Congress authorized the Army Corps of Engineers to continue rechannelization (San Antonio River Authority 2009). The purpose of the project was to finally make some of the cutoffs that had been recommended in the 1920s (Metcalf and Eddy 1920), to widen and straighten the San Antonio River in the downtown area, and to continue this process south. The project, which took place over twenty years, covered 31 miles of the river and turned the meanders of the river into a more or less straight channel. Most of the

old river meanders were filled, but a few remain as oxbows to collect storm water runoff that is fed into the new river channel (see Meissner et al. 2007).

Although rechannelization of the river undoubtedly improved flood control in the downtown area, a further improvement was begun in 1995 (Eckhardt 2009). This was two 24.5 ft (7.5 m) tunnels, one beneath San Pedro Creek and the other beneath the San Antonio River. The entrance to the San Antonio River Tunnel begins near Josephine Street. During heavy rainfall events the excess river water flows into the tunnel entrance, drops more than 30 m to the tunnel and is carried beneath the city approximately 5 km to an outlet near Lone Star Blvd., south of downtown (Eckhardt 2009). The project, costing more than 111

million dollars, was completed, with the exception of some controls, in December 1997. On the evening of October 18, 1998, a flow of warm moist air from the Gulf of Mexico, a plume of saturated air from a hurricane on the west coast of Mexico and a cold front from the west met over South Texas (Harned et al. 1999:1-5). The result was a flood event in which between 15 and 22 inches (25.4 to 55.9 cm) fell in a period of less than 36 hours, over the watershed of the San Antonio and Guadalupe Rivers (Harned et al. 1999:6-8). The resulting flood was the worst in recorded history in most of the affected areas (Harned et al. 1999:8). Though large areas of the south and western part of the city were badly flooded and 31 people died, downtown San Antonio was not flooded. It is estimated that the tunnel system paid for itself in this single event, which took place within a year of the completion of the project (Eckhardt 2009).

Chapter 3: Field and Laboratory Methods

The methodologies used for the monitoring of the expansion of the Riverwalk were very similar to other projects conducted within the downtown area. Projects conducted in the vicinity of the Convention Center (Tennis and Cox 1998; Tennis et al. 1998; Ulrich 2007) followed guidelines set forth by THC. These guidelines acted as a basis for this project. The guidelines allowed for the investigation of post-1850s features and deposits with minimal interference with the construction start. Guidelines required that a cessation of work was necessary should deposits and/or features that predated 1850s be encountered.

Field Methods

The construction of the newest portion of the Riverwalk was a massive undertaking that spanned almost two years. During this time period, the section of the San Antonio River between the Lexington Dam and Josephine Street was altered to allow for pedestrian use along the banks, and passage for the barges within the channel. Prior to construction of the walkway, the banks of the river had to be graded and the river channel was excavated for the installation of the concrete retaining and channel walls. CAR was requested to perform archaeological monitoring along the banks of the San Antonio River in areas that were to undergo intensive backhoeing and grading.

Importance was placed on unearthened cultural deposits/features that predated 1850. If a pre-1850s deposit was encountered, the CAR archaeologist was required to halt backhoe excavations and uncover the feature through the use of hand excavated units. For features post-dating 1850 encountered during the backhoe excavations, the CAR archaeologist was required to document the feature sufficiently prior to its removal. The portions of the post-1850s features that fell within the APE were removed after their locations and characteristics were recorded. Portions of these features potentially remain in the banks of the river. Identified cultural features exposed during the backhoe trenching were recorded in daily notes, listing the location, dimensions, depth, and artifact materials encountered. Photographs were taken to record the nature of the features. Artifacts were not to be collected from features that post-dated 1850, so a detailed description was made in the field of the types of materials noted.

Site Recording

For the purposes of the archaeological monitoring, the minimum requirements for what constitutes an archaeological

site has been altered to fit the needs of the project. The minimum requirements for site definition include: 1) Five or more surface artifacts within a 15-m radius or; 2) a single cultural feature that was exposed during the course of cutting back the river bank that meets the minimum age requirement according to THC. Though several features were encountered that would typically meet the minimum requirements for definition as a site, most of these features were removed during the course of the construction of the Riverwalk expansion. It would appear to be unconstructive to define these as sites when they will not be able to be revisited or investigated further. Rather, for the purposes of this project, archaeological sites are defined as cultural features and deposits that remain in intact, or partially intact, forms.

Sites were recorded according to THC guidelines. Locations of the sites were recorded with a Trimble GPS. Photographs of the features were recorded with a digital camera. Locations of the sites were recorded in the daily notes and plotted on aerials of the project APE. Archaeological site forms were completed and submitted to THC.

Laboratory Methods

The only artifacts that were to be collected over the course of the project were those that pre-dated 1850. No artifacts were encountered that met this criterion. Archaeologists present during the removal of the banks along the river noted several features consisting mainly of bottle dumps. Many of these bottles were collected and returned to the CAR laboratory. The intention was to examine the bottles and preserve them as part of a type collection. Upon return to the laboratory, the bottles were washed, air dried, and organized for a type collection. Each bottle was examined for maker's marks, and duplicates were discarded. These bottles will be permanently housed at CAR as part of a comparative type collection.

Several unique items of interest were also collected and remain at the lab. These included a whole stoneware jar, a kerosene pot, and a beer bottle that had contained beer. Both the kerosene pot and the beer bottle retained their contents when collected. In both cases, UTSA-Hazardous Materials was asked to dispose of the fluid. The kerosene was disposed of in the proper manner by the Hazardous Materials representatives. The beer bottle was uncorked, and a sample of the fluid was retained for later testing. The remaining beer was disposed of by UTSA-Hazardous Materials. Once the fluids were removed from these containers, the artifacts

were processed at the laboratory. These items were also washed, air dried, catalogued and curated according to current THC guidelines.

Field notes, forms, photographs, and drawings were placed in labeled archival folders. Digital photographs were printed on acid-free paper, labeled with archivally appropriate materials, and placed in archival-quality sleeves. All field forms were completed with pencil. Any soiled forms were placed in archival quality page protectors. Ink-jet produced maps; illustrations, etc. were also placed in archival quality page protectors to provide against accidental smearing due to moisture. All collected materials and documents are housed at CAR.

HABS Documentation

During the course of the archaeological monitoring along the banks of the San Antonio River, a large stone feature was uncovered in the vicinity of the VFW Post #76. This feature was identified as a dam constructed for the Alamo Mills and Flour Company. The history of

the dam was researched by Maria Watson Pfeiffer during 2008 in preparation of the Historic American Building Survey (HABS) Level I documentation. Information was gathered from local repositories including the San Antonio Central Library's Texana/Genealogy Department and the Daughters of the Republic of Texas Library. Sources consulted included the Sanborn's Fire Insurance Maps, local newspaper articles, various books and pamphlets, and vertical files relating to milling and ice manufacturing in San Antonio. In addition to these sources, the Bexar County Archives were examined, specifically property, marriage, probate, and district court records. These materials are housed at the Bexar County Courthouse. The San Antonio River Authority (SARA) archives and corporate filings maintained by Texas Secretary of State in Austin were also utilized.

Prior to re-discovery of the feature in 2007, there was no comprehensive history of the structure. Portions of the feature were visible only during times that the San Antonio River was low. The millrace had been filled circa 1904, and the associated buildings located approximately 2 blocks from the dam were razed during the 1920s.

Chapter 4: Results

Historic Features

A total of 11 historic features were encountered during the monitoring of the Urban Section of the Museum Reach (Figure 4-1). Three of these were trash dumps; four were stone walls of varying kinds, including two dams; three were brick features, including a wall, a cistern and one brick feature, the purpose of which was not ascertained; and one was the remains of a wood-trestle railroad bridge. One dam,

the Alamo Mills Dam, will be discussed in greater detail in the next chapter. There was a great deal of trash in what can be considered a sheet midden wherever the banks of the river were not constrained with concrete walls throughout the project area. There is no way to determine how much of the trash along the river was deposited primarily (i.e. disposed of where it was found) or had been washed to its current location from upstream during one of the many flood events described in Chapter II. Therefore, unless the

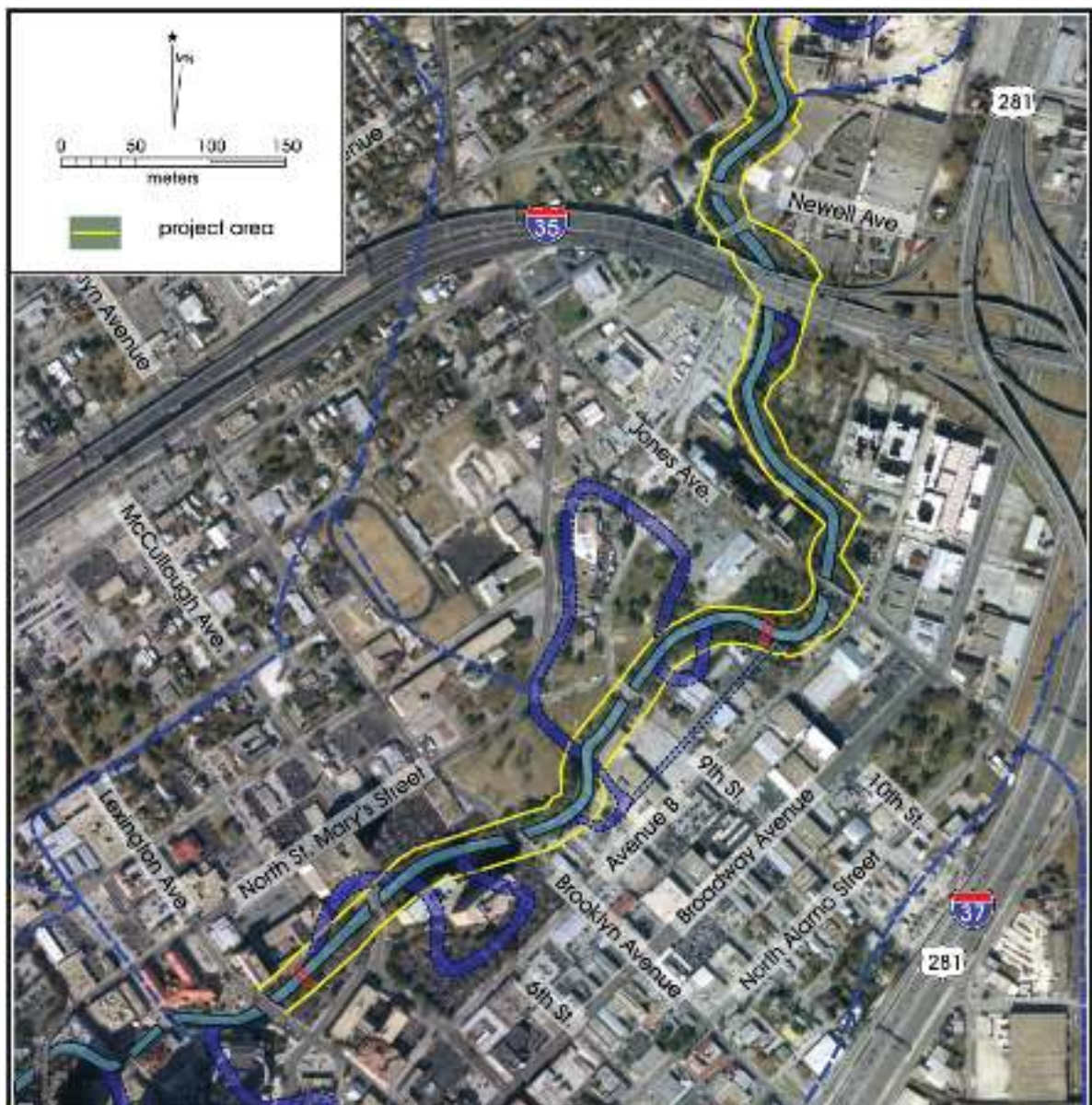


Figure 4-1. Map of features recorded during the course of the project within the APE. Feature locations not shown.

trash was found within a clearly delineated area, it was not given a Feature number. Features will be discussed in the order they were encountered.

Feature 1

Feature 1 was a brick structure, probably a cistern, found on the east bank of the river south of the Eighth St. Bridge (Figure 4-2). The cross-section of the cistern measured approximately 95 cm in width. Only about 1.5 m of the structure remained. It is likely that the part of the cistern that was observed was only the lower part of a much deeper structure, with a substantial portion of the upper part having been removed previously. The bricks were primarily yellow, with some red bricks. This structure dates to some time after the railroads reached San Antonio in 1877, as it is made of bricks not available in San Antonio until then. It should be noted that this part of the river has been rechannelized, so at the time the cistern was constructed it was not located on the river bank.

Feature 2, Site 41BX1817

Feature 2 was a limestone dam and associated limestone retaining wall built to bring the surface of the San Antonio River to a level that would allow for water to enter a mill race on the east side of the river, leading to a mill constructed downstream, at the corner of 8th Street and Avenue B (Figure 4-3 and Figure 4-4).

Examination of the deed records available online from the Bexar County Clerk (Bexar County Deed Records 2009) recovered the following deed in Book W1, pp. 534-535.

*G. M. Maverick Deed to David J. Geddes.
State of Texas
County of Bexar*

Know all men by these presents that I, G. M. Maverick, of the County and State aforesaid, for and in consideration of a note for twelve hundred



Figure 4-2. Feature 1, a remnant of a brick structure, most likely a cistern (see Figure 4-1).



Figure 4-3. Alamo Mills Dam (41BX1817) when first encountered.

[illegible] dollars with twelve per centum per annum interest from date and payable at anytime within three years with aforesaid interest up to date of payment, said note executed by David J. Geddes to me, the receipt of which note in present satisfaction I hereby acknowledge, have granted, bargained, sold and conveyed and by these presents do grant bargain sell convey and deliver unto the said David J. Geddes of County and State aforesaid, to his heirs and assigns, all that tract or parcel of land lying and being in the County of Bexar & City of San Antonio described as follows. To wit: (Beginning in the middle of the San Antonio River — thence S 45° E along the north line of 8th street to the junction of said street with Avenue "B" — thence N 45° E (68) sixty eight varas East to the east corner of this lot — thence N 45° W one hundred (100) varas to the north corner of this lot — thence S 45° W to the middle of the river — thence down the river to the place of beginning)— Containing about one acre, more or less. Also a right of way across my land above said lot

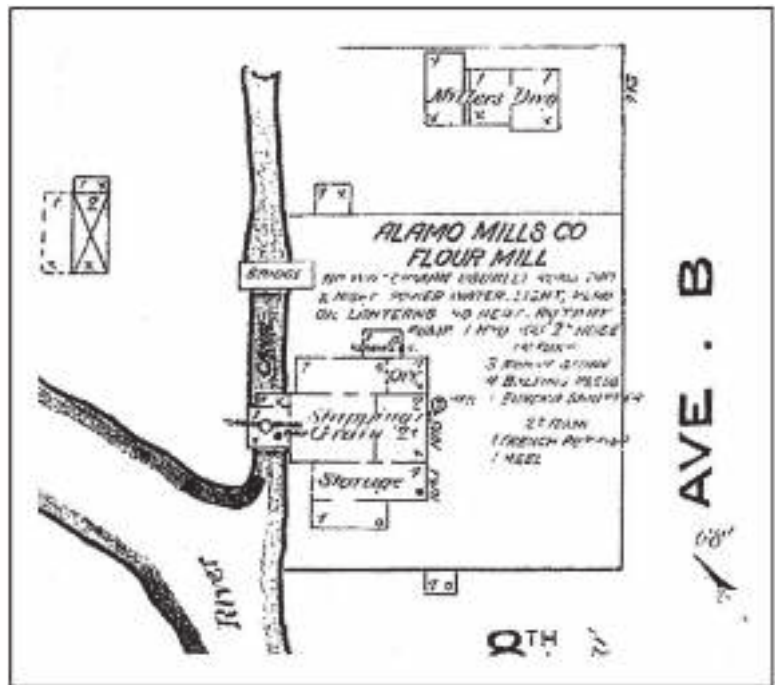


Figure 4-4. Portion of the 1885 Sanborn's Fire Insurance Map showing the location of the Alamo Mills Co. on 8th Street and Ave. B.

for a mill race commencing on the left bank of the San Antonio River at a point 125 feet from Avenue "B", thence S 45° W about 270 varas more or less down to the lot above mentioned. Said right of way not to interfere with my title to the property over which the canal is to be run, but is merely for the purpose of conducting a sufficient quantity of water to run a first class mill – for which purpose I make the width of way eighteen (18) feet as follows: 1st two feet on the east bank, 2nd the width of the canal & 3rd the remaining distance on the west bank of said canal which may be used for passing up and down by the owner of the mill or may be used up and consumed in widening the canal at some later day. This right of way however is granted on the condition that the grantee will plant and grow a row of trees on each bank of the canal and keep a good substantial bridge over said canal at the projected crossing of 9th Street...

to the massive size of the dam (Figure 4-9). Adjacent to the dam, a retaining wall was uncovered under a concrete apron on the east bank of the San Antonio River. When the apron was removed, it was noted that the retaining wall was located where the mouth of the raceway was supposed to have been (Figure 4-10). The purpose of the retaining wall is unknown, but two possible ideas of its use include: 1) the retaining wall was to guide water into the race way at the 45° angle located below the dam; 2) the retaining wall was constructed at a later date when the raceway was no longer needed and filled in. The second idea appears to be more plausible when considering the nature of the river flow. It is not common to

The deed goes on to enumerate rights concerning fencing, access to the property by the grantee and his heirs and assigns, and the grantor's right to bridge the canal wherever he chooses. The millrace was eventually dug and ran past the current location of the VFW Post #76 towards Avenue B (Figure 4-5). A Bird's Eye map of San Antonio drawn in 1886 clearly shows the mill race, the "substantial bridge" over 9th Street, and the mill buildings (Figure 4-6). A photograph, taken about 1893, shows the dam (Figure 4-7). The entrance to the mill race can be seen at the center of the right edge of the photograph.

As the dam was uncovered during the course of the project, it was found that the remaining portions spanned the river channel (Figure 4-8). A portion of the center of the dam appeared to have been removed to allow for better flow of the river (Figure 4-8b). The limestone blocks used for the dam were quarried and well fit together with minimal amounts of mortar used in comparison

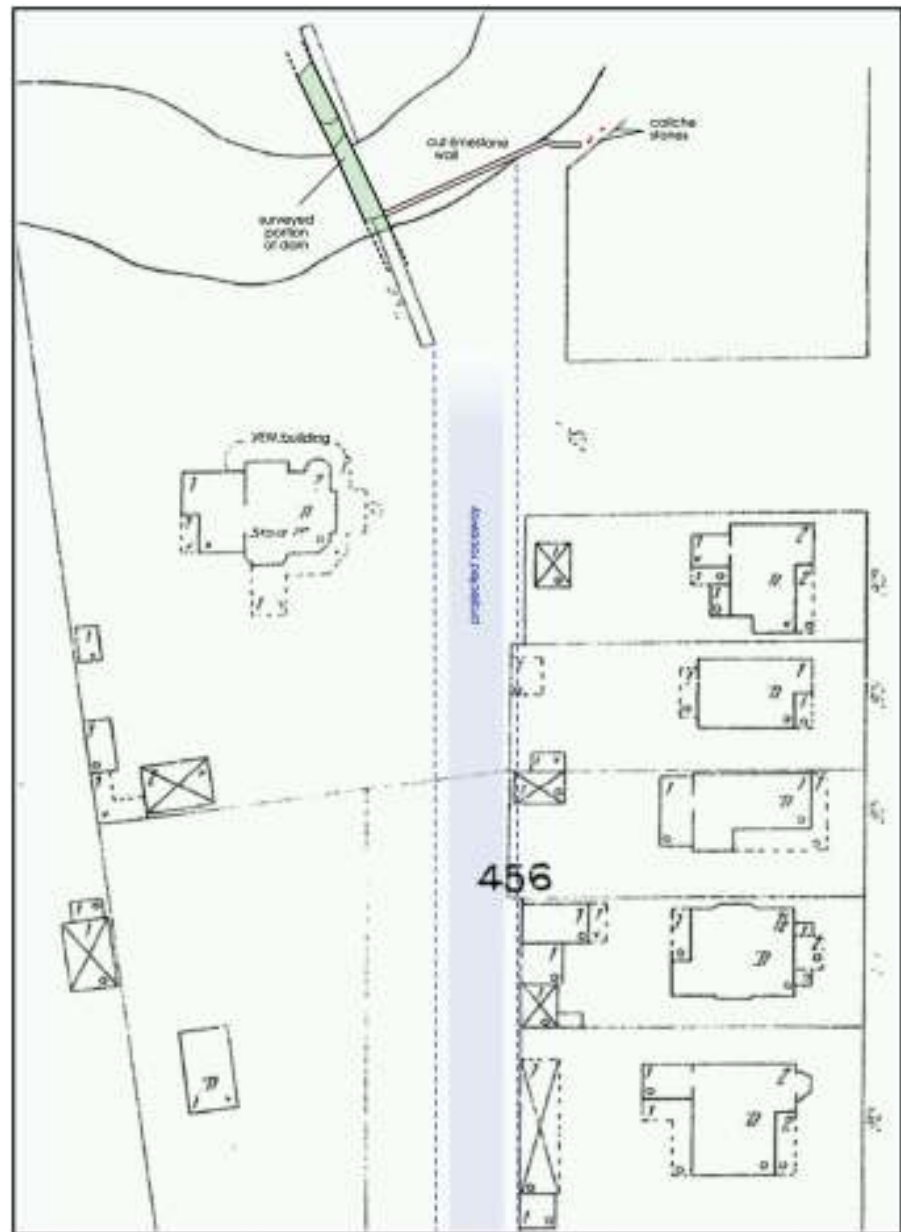


Figure 4-5. 1904 Sanborn's Fire Insurance Map, with relocated mill dam and the estimated course of mill race superimposed.



Figure 4-6. A section of the 1886 Bird's Eye Map of San Antonio showing mill race.



Figure 4-7. Circa 1893 photograph of the Alamo Mills Dam. Note Grand Avenue (later Jones Street) Bridge in the background. Facing NE.



Figure 4-8. The Alamo Mills Dam after it was uncovered in 2008: a) protruding from the east bank; b) coming from the west bank.



Figure 4-9. *Detail of limestone blocks used to complete the Alamo Mills Dam.*



Figure 4-10. *View of Alamo Mills Dam and adjoining retaining wall.*

get water to flow around an impediment to get to the raceway. Rather, if the millrace was no longer needed, as was the case of the Alamo Mills raceway, the water flow would need to be stopped so the raceway could be filled in. Further discussion of the historic background of the Alamo Mills Dam is in the following chapter.

Feature 3

Feature 3 was located along the San Antonio River between the Camden Street Bridge and IH-35 (Figure 4-1). The feature consists of several railroad trusses in the east bank and the river channel. These would have been parts of a track that ran to the Pearl Brewery. Feature 3 was located during the initial reconnaissance of the Museum "Urban" Reach section of the San Antonio River Improvements Project (Antonia L. Figueroa et al. 2006). They were again noted during the monitoring of the construction of the Riverwalk expansion (Figure 4-11). Currently, no evidence of the trusses is visible in the river channel or along the bank. It appears the trusses were removed from the channel as to not be an impediment to the river barges. Landscaping of the east bank removed any signs of the wooden trusses.

The Lone Star Brewing Company

Several features were located along the west bank of the San Antonio River north of Jones Avenue (Figure 4-12). These features are all within the vicinity of the San Antonio Museum of Art (SAMA), previously known as the Lone Star Brewing Company. After reviewing the location of the features, their proximity to SAMA, and the nature of the artifacts associated with the features it was deemed that these should be combined into one. All the features appear to have connection to the use of the Lone Star Brewing Company. The Brewing Company was founded by John H. Kampmann in 1884. It should be noted that this Lone Star Brewing Company should not be confused with the Lone Star Brewery, which produced Lone Star Beer, located near Mission Concepción. The company was in operation until 1892. Kampmann sold the business to Adolphus Busch and the complex was used to produce beer until 1918 when prohibition laws went into effect. Business continued, though the company produced soft drinks rather than beer. Busch promoted a soft drink called "Tango" that was supposed to make "palate dance with joy" during the Prohibition period (Jennings 1998). After production of the soft drink ceased, the complex was used for milling cotton (Jennings 1998). In 1925, the buildings were occupied by



Figure 4-11. Railroad trusses located near Camden Avenue and Newell Street.



Figure 4-12. Aerial view of the features located adjacent to the Lone Star Brewing Company. Feature locations not shown.

the Lone Star Ice and Food Company prior to their closure that year. The complex was preserved by the San Antonio Conservation Society and converted into the San Antonio Museum of Art which opened in 1981 (Cox et al. 2002a).

The property underwent expansion over the years as was noted when reviewing the Sanborn's Fire Insurance maps. In the early years of the brewery, the complex was centered

around a main building that consisted of the brewing area, and several working areas. Additions initially centered around expanding the main structure, but also noted several new workshops by 1888. A few years later, by 1892, the Lone Star Brewing Company expanded dramatically with the addition of railroad track leading to loading docks, storage facilities, and several new structures closer to the San Antonio River. The complex was fronted by Jones Avenue (Grand Avenue), and contained the property from the Jones Avenue Bridge

west to the bend in the River. Again, the complex expanded by 1904. Located closest to the Jones Avenue Bridge on the property was a Beer Garden.

Below is a discussion of each of the features noted.

Feature 4

Feature 4 was recorded just north of the Jones Street Bridge along the west bank (Figure 4-12). Down cutting of the bank uncovered a midden of glass bottles that had previously been covered by a concrete slab. The deposit of bottle was approximately 4 meters wide and two meters thick. The bottles noted in the deposit varied in colors, though the most common were aqua and olive (Figure 4-13). Makers marks noted on the bottles in the deposits included "Risches" and a triangle with an "R" inside. Many of the bottles retained their loop-wire closures. Within the glass deposit were metal straps that appear to have been from wooden kegs/casks. Fragments of cut bone and stoneware were also noted in the deposit. Just below the glass deposit appears a burned red

matrix that was 25 cm thick and extended 4.5 meters. The matrix is reminiscent of brick material. It did not appear to have any burned glass in this level.

The Rische Brothers Bottling Company, located at 1117 Avenue B, at the intersection with 12th Street, appears to have been in operation beginning sometime after 1892, when the property was sold to Rische Brothers, a partnership of Charles A. and Edward Rische, Jr. by G. A. Maverick (BCDR 91: 354). The Rische Brothers Bottling works was located directly across the river from the Lone Star Brewing Works, very near the Ochs and Ashbacher Weiss ("white", that is, wheat) Beer Brewery, and just a few blocks south of the Pearl Brewery (Figure 4-14). In 1907, the Rische Brothers Bottling Works was put up for auction, by court order (*San Antonio Light*, August 7, 1907, page 8). Deed records show that the works was purchased by Ulrich Rische, another of the sons of Edward Rische, at that time. He paid \$1503 dollars, with a further \$3000 in two notes due in one and two years, respectively (BCDR 269: 256). The next year, after Ulrich had paid off both notes, he received a release from Charles (BCDR 284: 348-349) and a quit-claim release from Edward (BCDR 284: 350).



Figure 4-13. Glass bottles and fragments noted in Feature 3 (see Figures 4-1 and 4-12).

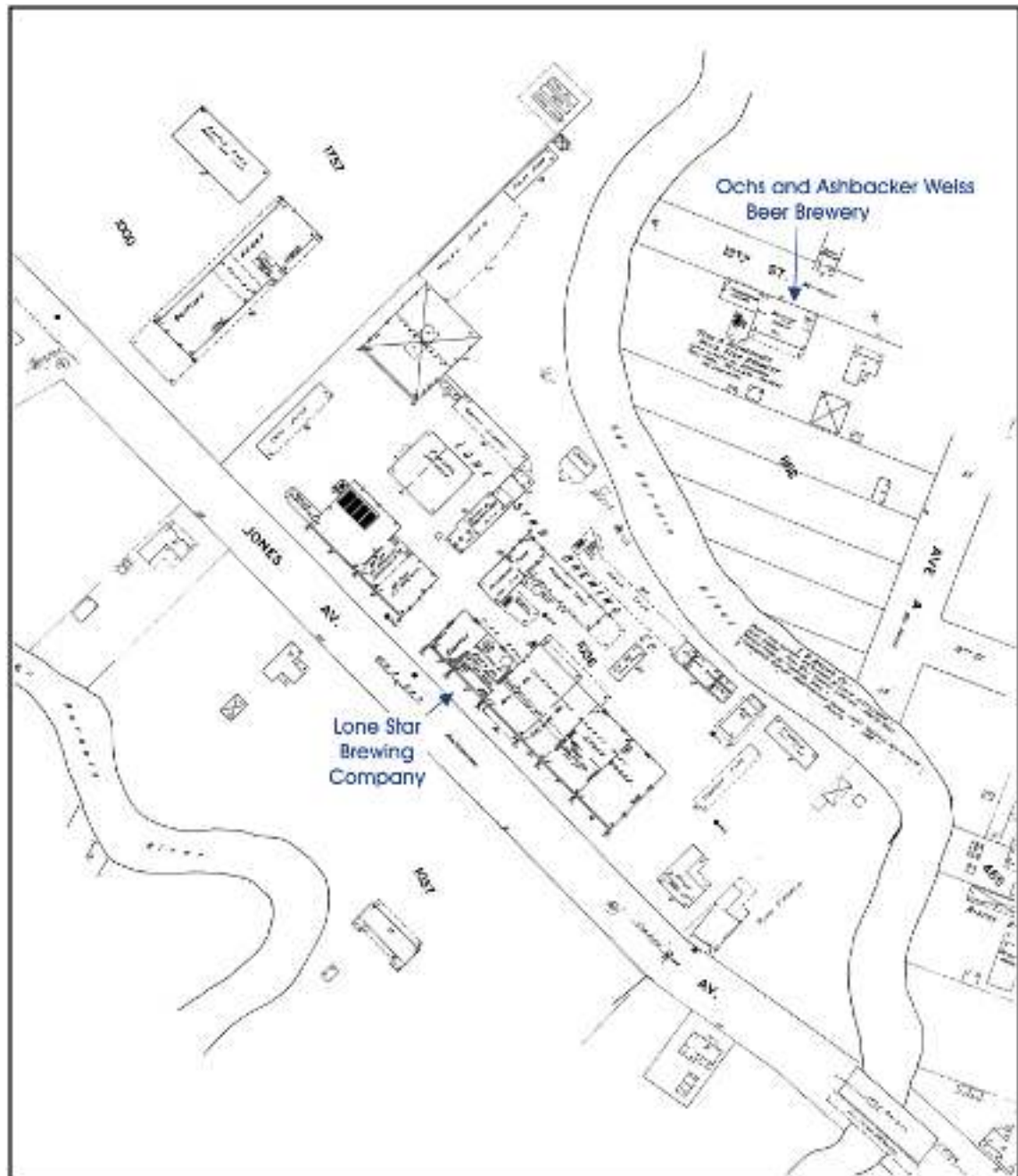


Figure 4-14. Sanborn's Fire Insurance Map from 1904, showing Lone Star Brewing Company and Ochs and Ashbacker Weiss Beer Brewery. Feature locations not shown.

Ulrich Rische is listed in the 1914 edition of Johnson's (1914) *The History of Texas and Texans*. This work mentions that he was appointed alderman for the 5th Ward in 1912 and was later reelected to that post. At that time, he remained the sole proprietor of the Rische Bottling Works, bottling soda water and other soft drinks (Johnson et al. 1914: 2006).

The five Rische's bottles recovered during the project represent transitions seen in the technology associated with

soda water bottles in the late nineteenth and early twentieth centuries. One (Figure 4-15a) is a round-bottomed bottle that had to be stored on its side. These bottles were designed not to be stood on the base so that the cork would not dry out and let the carbon dioxide gas out of the bottle (Lindsey 2009a). This bottle was made with an applied "blob" top, intended for a wired cork closure. It has the single word "Rische's" embossed lengthwise on the body. There is no bottle maker's mark.



Figure 4-15. Rische bottles: a) early Rische bottle with round bottom; b) Blob-top Rische bottle made for a Hutchinson stopper (still in place); c) Rische bottle made in a post mold, showing maker's mark on base; d) same Rische bottle, showing plate embossing; e) base of Rische bottle made in a cup mold showing maker's mark.

Another “blob” top Rische’s bottle was designed for a Hutchinson stopper and, indeed, that stopper is still in place (Figure 4-15b). The Hutchinson stopper, first patented in 1879, was such an improvement over previous closure types that it quickly became the standard for soda and beer bottle (Lindsey 2009c). The “blob” top is tooled suggesting a date after 1885 for the manufacture of the bottle. The bottle maker’s mark, an R in a triangle, appears three times, on the bottom and twice on the shoulder. This mark is that of the Reed Glass Company (Lockhart 2001), which operated between 1889 and 1927 (Mechow 2008). The bottle is also embossed “Risches Bottling Works/San Antonio/Texas”.

The other three bottles all have tooled crown cap closures (Figure 4-15 c and d). This type of closure, a variety of which is still used today on some soda and beer bottles, was patented in 1892 and became fairly common by the turn of the century (Lindsey 2009c). All three bottles were blown into molds and the crown finish tooled. Thus all probably date before 1910-1915, by which time almost all utility bottles were made on Owens machines. All three bottles have the same embossing: “Rische’s/Bottling Works/San

Antonio/Tx.”. Unlike the embossing on the bottles shown in Figure 4-15 a and b, the embossing on these bottles was done with a plate, though each plate was slightly different. This was a brass or iron metal plate that could be interchanged easily, allowing custom embossing of bottles in the same mold (Lindsey 2009b). Two of the bottles were blown in post-molds (see Figure 4-15 c and d), and have the Reed Glass Company’s R in a triangle mark on their bases. The bottle in Figure 4-15e was blown in a cup mold (see Lindsey 2009a), and has an R in a diamond maker’s mark that has not been identified (Figure 4-15d). It is tempting to assume this is another Reed mark, however, the R is not in the same font or style as those seen in the R in a triangle marks. Lindsey (2009a) has noted that most cup-mold soda and beer bottles probably date after 1900, and are more likely to be seen with crown cap finishes.

It is likely that most the Rische bottles discussed above were from Ulrich’s tenure as the owner. The possible exception is the round-bottomed bottle, since it is designed for a wired cork closure that had become more or less obsolete by the time Ulrich purchased the bottling works.

The end date of the Rische Bottling Works has not been determined, however, no Rische bottle has been found that was machine-made, making it possible that the company went out of business before the machine-made bottles took over the bottle-making industry. The business appears in the 1891 San Antonio City Directory. Rische sold the property in 1928, but the deed does not mention the bottling works, or any other buildings or other improvements on the property and it is likely that the buildings had been torn down by that time (BDCR 1057: 451).

The majority of the feature was removed during the construction phase of the expansion. A small portion of the deposit may remain buried under the current landscaping.

Feature 5

Northwest of Feature 4 is a brick wall located on the west bank of the San Antonio River (Figure 4-12). The wall is composed of bricks and cinderblocks (Figure 4-16). The upper portion of the wall is approximately 6 meter wide and contained Portland cement within the seams of the blocks. The cement served as a veneer to the stacked cinderblocks and bricks. Around the wall were historic trash deposits.

Aqua and amber glass bottles and fragments were noted in the deposit. Other artifacts noted include horseshoes, undecorated white earthenware fragments, and a metal spike. The feature was located near the building labeled on the 1904 Sanborn's Fire Insurance Map as the Wash Shed and Cooper/Carpenter Shop (Figure 4-14).

A portion of this feature may remain in the banks of the river, though the majority was removed to make way for the retaining wall and landscaping of the Riverwalk expansion.

Feature 6

Feature 6 is a yellow brick "wall" that is located along the west bank of the San Antonio River just south of the IH-35 overpass (Figure 4-12 and Figure 4-17). The wall may be the outside of a cistern, though not round in form. The feature consisted of yellow bricks 21-x-10-x-6 cm in dimension laid to form a wall approximately 185 cm wide and 210 cm tall. Some fragments of bone and glass were found adjacent to the brick wall. The base of the feature exhibits stepped bricks, in which each course of brick is laid approximately 3 cm off center from the previous course (Figure 4-18). This occurs



Figure 4-16. Feature 5, brick wall (see Figures 4-1 and 4-12).



Figure 4-17. Feature 6, yellow brick wall (see Figures 4-1 and 4-12).



Figure 4-18. Base of Feature 6 noting the stepped bricks.

for at least six courses of brick. The feature may remain in the bank of the San Antonio River, covered with a concrete retaining wall and landscaping. A structure was not noted in the vicinity of the feature on the 1904 Sanborn's Fire Insurance Map, but a storage area was noted in that location on the 1924 map.

Feature 7

Feature 7 is a lens of glass located along the west bank of the San Antonio north of Feature 5 (Figure 4-12). The feature was noted in the bank below one of the SAMA buildings located closest to the river. The feature consists of a fairly thick layer of broken aqua, clear, brown bottles (Figure 4-19). Several intact bottles appeared to have been present, though backhoe trenching broke most of the bottles. The concentration of bottles was approximately 70 cm thick, and spanned approximately 4 meters. A portion of the bottle concentration may remain in the river bank, though most was removed by the backhoe and grader. Currently, this area has been landscaped and appears to have a stairway leading to the new entrance of SAMA. The 1904 Sanborn's Fire Insurance Map notes that a well is located in the vicinity of Feature 7 (Figure 4-14). Further inland from the river bank

in the vicinity of Feature 7 was also a Bottle Storage facility in 1904 (Figure 4-14). It is possible that unused bottles, or bottles needed to be disposed of during Prohibition, were discarded behind the facility, along the river bank.

Feature 8

Feature 8 is another bottle dump located along the west bank of the San Antonio River. The feature is located south of Feature 6 and north of Feature 7 (Figure 4-12). The bottle dump appears to be approximately 1 meter thick and spans approximately 5 meters (Figure 4-20). Clear, brown/amber, and aqua bottles were deposited in this dump. Much of the dump consists of broken fragments of the bottles, though there were quite a few intact bottles. Unique specimen bottles of this dump were returned to the CAR laboratory to be added to the type collection. Many of the intact bottles are molded, with applied lips. The feature lay directly beneath the road base and asphalt that was used in the construction of the parking lot that was along the west bank of the river. According to the 1904 Sanborn's Fire Insurance Map, the feature is located within the vicinity of underground fuel and oil tanks (Figure 4-14). Also, it is located a few short distance to the south of the storage



Figure 4-19. Feature 7, bottle dump (see Figures 4-1 and 4-12).

area that appears on the 1924 map. It is possible that the bottle are related to the later storage facility, and were discarded along the bank of the river.

A portion of the feature was removed during the Riverwalk expansion, though it appears that some remained under the parking lot. Currently, a concrete retaining wall was constructed and the upper portion has been landscaped. The parking lot remains adjacent to the river.

These features all appear to have connections to the use of the Lone Star Brewing Company. The bottles encountered in the deposits are consistent with the use of the complex during the years that the brewery was functioning. One bottle collected was curated at the Center for Archaeological Research laboratory. When encountered, the bottle retained its sealed stopper and contents (Figure 4-21). The bottle was brought to the lab, and the contents were removed prior to curation.

The bottle was about 4/5ths full of yellow liquid. A small amount of dark brown sediment was at the bottom of the bottle. When opened, there was a distinct smell of yeast and vinegar. The ph level of the liquid was recorded as 4. The UTSA Safety Office tested for bacteriological and organics and found that the liquid was not hazardous. Three samples were saved by CAR for further testing opportunities, including the sediment. The bottle had the name William Esser embossed on its surface. William Esser was a brewer and had purchased the property today known as the San Antonio Museum of Art. He owned and operated the brewery from 1875 until it was purchased by Adolphus Busch in 1884 (Hennech and Etienne-Gray Tx Handbook online). Esser remained as the proprietor of the Lone Star Brewing Company until 1891. The type of closure on the bottle used is the Hutchinson Spring Stopper (Figure 4-21). The stopper was patented in 1879 and was very quickly adopted as the preferred method of closing soda and beer bottles. Due to the time period that Esser owned the brewery, and the type of stopper used, the beer and bottle were likely manufactured between 1879 and 1884.



Figure 4-20. Feature 8, glass bottle deposit (see Figures 4-1 and 4-12).



Figure 4-21. Esser bottle recovered from behind the Lone Star Brewing Company complex on the west bank of the San Antonio River.

Feature 9

Feature 9 is a yellow brick wall similar to Feature 6 that has a lens of glass at its base (Figure 4-22). The Feature was noted in the east bank of the San Antonio River, approximately 200 feet north of the Brooklyn Street Bridge. The top of the feature was noted approximately 50 cm below the surface of the bank. The yellow brick wall was approximately 90 cm in height, and 80 cm in width. Just below the brick wall was



Figure 4-22. Feature 9, a brick wall with glass at the base (see Figure 4-1).

a layer of aqua glass fragments and partially intact bottles. The glass appeared to have been dumped into wet cement at the time of construction. No intact bottles were able to be removed due to the fact that they were encased in the cement. The layer of cement and aqua glass was approximately 30 cm in thickness below the wall.

It is unknown if a portion of the feature is present in the current bank of the river. The location of the feature is now where the lock-dam system has been constructed for the river barges. The feature was documented, most likely removed due to the extensive nature of the amount of soil removed in the immediate area.

Feature 10

Feature 10 a stone wall that was uncovered adjacent to the VFW Post #76, just south of the Alamo Mills Dam. This feature was located on the east bank of the San Antonio River. The stone wall was constructed of cut limestone and mortar (Figure 4-23). The stone wall was approximately 15 meters in length, and 50cm thick. Backhoe excavations



Figure 4-23. Feature 10, the stone wall located near the VFW Post #76 (see Figure 4-1).

around the wall revealed one stone in the wall that exhibited the initials "P.F." and a date of 1909 (Figure 4-24). Several openings were noted that at one time allowed drainage pipes to empty into the river, though the amount of sediment that had accumulated prevented that in recent years. The stone wall could not be incorporated into the architecture of the Riverwalk like the Alamo Mills Dam. And due to the more recent age of the wall, it did not meet the qualifications of further investigations or preservation. The stone wall was documented and removed to allow for the construction along the Riverwalk to occur.

Feature 11/Site 41BX1818

Feature 11 is the Lexington Avenue Dam. This feature was constructed according to the Robert H. H. Hugman architectural master plan of the Riverwalk (Figure 4-25). The dam was built along sometime between 1939 and 1941. The dam was constructed to maintain the water level in the unimproved part of the river. Original plans drawn up by Hugman in 1939 reveal that the dam was to keep the water at 632.6 feet, which was approximately 0.6 feet above the improved channel portion of the river. The *San Antonio Express* reported that the dam had been constructed by March of 1941 (Cox et al. 2002a). It marked the location of the end of the Riverwalk as designed in 1938.

The concept of the Riverwalk originated from the need of the city to deal with the troublesome flood issues that threatened to wash away downtown during heavy rain episodes. Engineering firms recommended that the San Antonio River be straightened, bypassing the Great Bend. The idea was that the Great Bend could then be filled in and be sold as prime, downtown real estate properties. City preservationists protested and started a movement to save the Great Bend. In 1924, the San Antonio Conservation Society was able to stall Mayor Tobin's decision to fill in the river channel of the Great Bend. It wasn't until five years later that the next mayor, Mayor C.M. Chambers, took into consideration plans to beautify the section of the San Antonio River. Mayor Chambers met with up-and-coming architect H.H. Hugman who presented a plan that would create an area reminiscent of old Spain. He entitled the plan "The Shops of Aragón and Romula" and hoped to keep the balance between public park, living areas, and commercial business. Work commenced on the Riverwalk, which is also referred to as Paseo del Rio, at the height of the Depression



Figure 4-24. Cement in Feature 10 with notation "P.F. 1909".

in 1939. Funding for the project was received through public bonds as well as the Works Progress Administration (WPA) (Jennings 1998).

For several decades the Lexington Avenue Dam was obscured by silt from flooding episodes and brush overgrowth. During the construction of the new section of the Riverwalk, the dam was uncovered to reveal that planters had been built into the top of the structure. This dam is just one of the many architectural features Hugman had designed for the Riverwalk. He envisioned an urban park reminiscent of old Spain and Venice. His plan would allow for commercial businesses and restaurants to front the



Figure 4-25. Feature 11, the Lexington Avenue Dam, prior to being cut. The feature was recorded as Site 41BX1818 during the project.

river while walkways provided visitors access to the area. He suggested that boat rides be offered in gondola style vessels, while music drifted along producing the atmosphere of the old world. Visitors could traverse the pathways and footbridges, and access the urban park through stairways from the street level. Hugman spent years developing plans to convert the portion of the San Antonio River at the great bend into his vision of an idyllic haven for tourists and San Antonio residents. He was eventually rewarded with the task of making his vision take form.

Hugman had barely completed a year of the contract the city had awarded him before he encountered opposition from the public and certain city officials. Members of the Conservation Society objected to the use the stark white limestone because they felt it contrasted unfavorably with the previous naturalness of the river banks. In addition, they argued that they saw no progress because the river channel had been drained, plantings had been removed, and there tended to be a disheveled nature of the project area during the construction process. The Conservation Society condemned Hugman for ruining the natural beauty of San Antonio by

using too much stonework in their eyes. The mayor quickly concurred with them and diverted supplies slated for the Riverwalk to other projects in order to force Hugman into focusing more on landscaping.

In the meantime, Hugman realized that his supply of stone was finding its way to LaVillita. He collected documents to prove misuse of the materials, and found that there was some mishandling of the finances associated with the project. Instead of receiving support from the River Project Board, they unanimously discharged him from the project. The rest of the completion of the Riverwalk was overseen by J. Fred Buenz. Much of what Hugman had designed was not finished, but still the Riverwalk was impressive with 17,000 feet of sidewalk, 31 stairways, 3 dams, 4,000 trees, plants, and shrubs, and various benches constructed of stone, cedar and cement. Though the opening ceremonies of the Riverwalk saw a large turnout, it was quickly forgotten and mostly deserted. The Riverwalk was first revitalized in 1968 during the preparations for the Hemisfair. After this point, the Riverwalk became a main attraction for the City of San Antonio.

The middle of the dam has been removed to allow for river barges to access the newly improved portion of the river. The remaining portion has been recoded as site 41BX1818.

Isolated Finds

Three artifacts were collected for curation due to their unique nature. Two of these artifacts are considered isolated finds, and appear to not to be associated with features recorded. These two artifacts are: a stoneware jug with a wire handle (Figure 4-26), and a kerosene smudge pot (Figure 4-27). The Stoneware jug is approximately 19 cm in diameter at the base. The vessel is glazed on both the inside and outside with an Albany glaze. The vessel has two loop holes that a wire handle has been threaded through. The jug is approximately

18 cm in height. The kerosene smudge pot was full when brought to the lab. The UTSA Safety Office emptied the vessel and properly disposed of the remaining kerosene. The smudge pot is very similar to those that are on display at the Bastrop County Historical Society Museum in Bastrop, Texas. These kerosene pots were used as road flares to warn other drivers of vehicle break downs. Additionally, similar pots were used in orchards during the winter to ward off frost. The kerosene smudge pot recovered from the Museum Reach monitoring resembles the Dietz #87-1940 version (<http://home.earthlink.net/~traffigard/Torch-info.htm>). This model exhibits the same wick cover that would have prevented wind from immediately extinguishing the flame. Similar highway torches are made today and are marketed for use on patios and campsites with citronella oil to ward off mosquitoes.



Figure 4-26. Stoneware jug recovered from the project area.



Figure 4-27. Kerosene pot recovered during monitoring. The kerosene was still in the pot when it was recovered.

Chapter 5: The Alamo Mills Dam

Maria Watson Pfeiffer

The dam was illustrated on the 1904 Sanborn's fire insurance map and was referenced as a landmark in some early property transactions. Local business histories included Alamo Mills and its successor, Crystal Ice Company, but provided few details about the construction and operation of these facilities. Archival research was therefore required to understand the construction of the dam, mill and millrace, and to assemble a comprehensive timeline for their operation.

Summary: The Alamo Dam, Raceway and Mill: 1872 -2007

The limestone dam spanning the San Antonio River near Tenth Street north of the city center was constructed in 1883 to provide water that powered the Alamo Flour Mill located two blocks to the south at the corner of Eighth Street and Avenue B. The dam impounded water and channeled it through a 750-foot raceway that joined the ends of a meander in the San Antonio River.

Alamo Flour Mill was established by David J. Geddes in 1872 or 1873. Geddes purchased a one-acre tract of land from George Maverick in April 1872, and was also granted an easement to construct a millrace. The mill was placed in operation sometime between April 1872 and December 1873, the date of the first published account located in the local press.

A structure was required to divert river flow into the head of the millrace and carry it to the lower end at the mill where it was returned to the river. It is therefore assumed that a dam was constructed at the north end of the millrace in 1872-73 at the same, or approximately the same, location as the dam that was discovered in 2007. Based on period documents, the recently-excavated dam is known to date to 1883 when a survey of land on the opposite bank labels the structure, "new dam." This same survey illustrates a second dam a short distance up-river near Grand Avenue (today Tenth Street). However, the location of that dam and the fact that the adjacent property was not owned by Alamo Mills in 1872-73 when the mill was constructed makes it unlikely that this dam would have been part of the mill operations.

Alamo Mills operated as a grist mill until 1889, when the plant was converted to an ice factory known as the Crystal Ice Company. As spring flow feeding the San Antonio River diminished during the 1880s due to population growth and drought, efforts were begun to drill deep wells into the

Edwards Aquifer. The city's first successful Edwards' artesian well was completed by Crystal Ice in 1889, and the company was no longer dependent on the river to supply water.

The dam and millrace were no longer essential to the ice plant after completion of the artesian well. The raceway was at least partially, if not totally, filled by 1904 and the millrace right-of-way was sold in 1907. The dam remained in the river and survived numerous major flood events, notably in 1913, 1921 and 1946. After the 1946 flood, studies were conducted to develop flood control measures to supplement earlier work in the San Antonio River channel.

In the middle 1950s, the San Antonio River Authority straightened the river channel to remove meanders from Lexington (formerly Fourth Street) on the south to Josephine Street on the north. The impact of this project on the Alamo Mills dam is not fully understood as project drawings have not been located. While the majority of the dam structure is thought to have remained intact, its east and west ends as well as the millrace inlet were likely impacted by bank stabilization.

Recent excavations have also revealed a low stone wall extending upstream from the east end of the dam. This wall appears to have been part of the upper end of the millrace. Additional structural elements of the mill and millrace have not been ascertained because excavation has been limited to the publicly owned channel right-of-way.

It is thought that the dam was one, or possibly two, courses higher than it stands today, but no documentation of its original height or changes in configuration has been located. The dam is constructed with coursed quarry-faced limestone blocks with grouted joints. It is approximately sixty-five feet wide and six-feet tall. The dam was rediscovered during construction of improvements to the San Antonio River channel in 2007. A thorough archaeological investigation was completed and a mitigation plan formulated including HABS Level I documentation.

Alamo Mills: Historical Context- San Antonio in the Early 1870s

San Antonio experienced little building and development during and immediately after the Civil War. By the time Reconstruction ended in 1874, the economic and political

environment had stabilized. The improved business climate brought new residents and investors to San Antonio. North and east of downtown, the United States government established its new Army post in 1876, and the city's first rail connection opened in 1877.

The city had begun to grow north of its historic center well before the introduction of the railroad and Fort Sam Houston. In 1852, Anthony Dignowity and James Campbell platted a subdivision named the "Alamo City." Located north of the Alamo, east of the river, and south of Eighth Street, the Alamo City was intended to be "an industrial town." In reality, it developed largely as a residential community of small vernacular homes. The Alamo City was bisected by the Spanish irrigation ditch, the *Acequia Madre*, which flowed from the San Antonio River in today's Brackenridge Park south through town, and rejoined the river below the King William neighborhood (BCDR J2:173; BCDR P1:69).

The large tract north of the Alamo City was owned by Samuel Augustus Maverick. Maverick had purchased riverfront *suertes* originally granted to the de la Garza and Baca families. The large bend of the river looping northwest near what later became the Ninth Street crossing was known at various times as "Milam Bend," for the nearby campsite of Benjamin R. Milam during the 1835 Siege of Bexar and "Maverick Grove" for its mid-nineteenth century owners.

Samuel Maverick owned this undeveloped land at the time of his death in 1870. His widow, Mary, gave a portion of the property to the couple's recently-married son, George Madison Maverick. Though George Maverick and his wife, Mary Elizabeth Vance, did not live in San Antonio permanently until 1896, they visited often and engaged in business in the city. Maverick subdivided the property north of Seventh Street and east of the San Antonio River and began selling lots (Tyler et al. 1996: 572-73).

Alamo Mills: 1872-1883

On April 8, 1872, George Maverick sold David J. Geddes a one-acre tract of land east of, and adjoining, the San Antonio River at the corner of Eighth Street. Geddes had recently arrived in San Antonio from Presidio County in West Texas. He was enumerated at Presidio del North in August 1870 as a thirty-three year old, Scottish-born miller with \$100 in assets (BCDR W1:533-34; Federal Census 1870; Federal Census 1880).

It is not known if David Geddes was acquainted with George Maverick prior to purchasing land from him in April 1872.

Though purely speculative, it is possible that Maverick became interested in milling through his father-in-law, John Vance, who had sold land on the Medina River for construction of a gristmill (Tyler et al. 1996: 58, 697).

David Geddes' property extended to the middle of the San Antonio River, ran east along Eighth Street to the corner of Avenue B, then north 68 varas (189 feet) and west 100 varas (278 feet) to the river and back to the point of beginning. Maverick also granted Geddes the right-of-way to construct a millrace "across my land above said lot." The millrace was to begin on the left bank of the river 125 feet from Avenue B and run south about 270 varas (750 feet) to the one acre lot (BCDR W1:533-34).

George Maverick conveyed only an easement to the millrace right-of-way. The easement was "merely for the purpose of conducting a sufficient quantity of water to run a first class mill." Maverick stipulated, "I make the right of way eighteen feet." The right or way consisted of two feet on the east bank, the width of the canal, and the balance on the west bank which could be "used for the purpose of passing up and down by the owner of the mill or may be used up and consumed in widening the canal at some future day" (BCDR W1:533-34).

David Geddes was required to "plant and grow a row of trees on each bank of the canal and keep a good, substantial bridge over said canal at the projected crossing of Ninth Street." Purchasers of adjoining land were allowed to erect fences running back to the millrace, but were required to allow Geddes to pass up and down the canal. Maverick also reserved the right to bridge the canal at any point (BCDR W1:533-34).

No accounts of the mill, raceway and dam construction have been located in the San Antonio newspapers, and the exact date of their completion has therefore not been determined. David Geddes executed a \$1,200 deed of trust when he purchased his property from George Maverick in April 1872. In March 1873, he executed another deed of trust for \$1,900, extinguishing the first note. The purpose of this transaction is not known, but it is assumed that Geddes needed additional capital to complete his project (BCDR W1:533-34; BCDR V3:483-84; San Antonio *Daily Express* 1883).

It is possible that the mill and its related millrace and dam were in operation by late 1872 or early 1873, though the earliest mention found in the local press is dated December 16-17, 1873, when D.J. Geddes and Company placed a "new advertisement" in the San Antonio *Daily Express* and San Antonio *Daily Herald* (Figure 5-1).

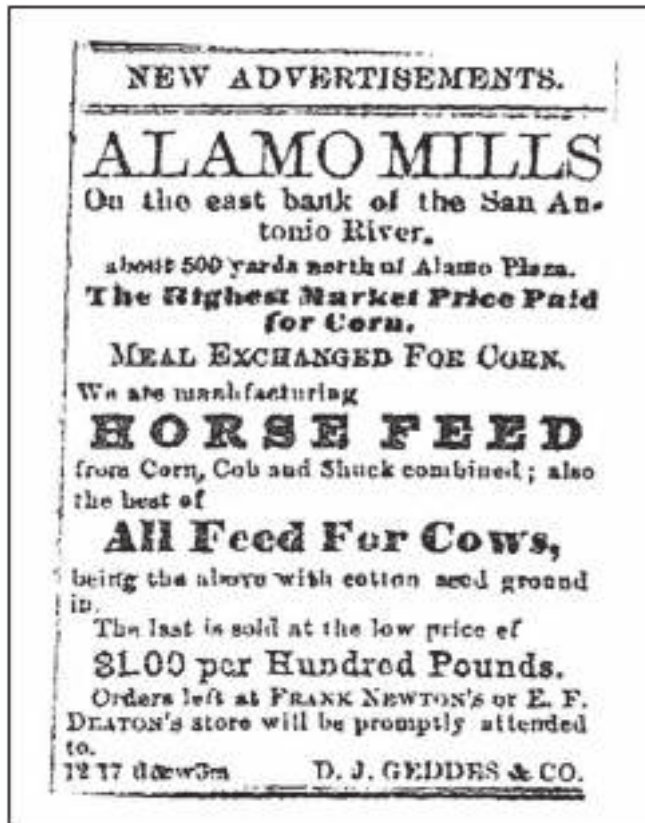


Figure 5-1. Advertisement for the Alamo Mills found in the *San Antonio Daily Express* December 16-17, 1873.

The day after the advertisement was published, the following article appeared in the *Express*.

We are always glad to pay a compliment to local enterprise. Competition is the life of trade and experience furnishes the true knowledge of the wants of a community. See the advertisement of Geddes and Company who own the Alamo Mills and offer feed for horse and cattle at a price that ought to encourage our neighboring farmers to establish a dairy and keep their cattle all winter in stable. (*San Antonio Daily Express*, Dec. 18, 1873).

No specific mention of the mill dam has been located during the 1872-73 period. Unfortunately, the 1873 Augustus Koch birds' eye view map of San Antonio stops just short of the mill location. The mill's existence at that time is based only on the fact that a structure of some type was needed to divert water into the millrace. The first mention of the dam that has been located is found in a deed dated June 4, 1877 (BCDR 8:404).

David and Margaret Geddes lived in a small house just north of the mill. They had several partners during the eleven years that they owned Alamo Mills Company. In June 1877, the

Geddes sold two-thirds of the mill's assets, including the millrace, dam and water power, to George Stahl and Newell Jones. It is assumed that this sale was made to generate capital for the business (BCDR 8:404).

The Geddes' choice of partners remains unexplained. George Stahl was an Indiana-born, Harvard-educated lawyer. He traveled throughout Europe, settled in Memphis, Tennessee, and in April 1875, came to San Antonio to improve his health. Less is known about Newell Jones who was enumerated as a twenty-one year old farm worker on the 1870 Federal census for Macon County, Illinois. By June 1877, Jones was in San Antonio.

During their brief partnership, Geddes, Stahl and Jones invested in real estate and promoted their business (Figure 5-2).



Figure 5-2. Advertisement for the Alamo Mills showing the partnership of Geddes, Stahl and Jones.

In October 1878, George Maverick deeded the property at the head of the millrace as well as the millrace right-of-way to Geddes, Stahl and Jones for \$300. Maverick reserved the rights-of-way to extend Ninth and Tenth Streets across the raceway and dedicated the streets to public use. He also required Geddes, Stahl and Jones to "erect a good and substantial bridge over their millrace in the middle of Ninth Street suitable for wagons during the spring of 1879 or at any time whenever requested by the grantor [Maverick]." Adjoining property owners were entitled to use water from the millrace (San Antonio City Directory, 1878-79, XXXVII; BCDR 14:10).

Though Maverick conveyed the lot adjoining the head of the millrace to Geddes, Stahl and Jones, he still owned the property below that lot, and retained the right to:

...run a partial dam from such lot below the dam included in the second lot above, in order to catch the water escaping and raise same to the height of the water above the main dam for the purpose of securing a water power on said adjacent lot...but such right shall not be used in such manner as to injure the rights and privileges of the owner of the mill (San Antonio City Directory, 1878-79, XXXVII; BCDR 14:10).

It is not known if Maverick or any subsequent owner exercised the right to construct such a dam.

Stephen Gould's *Alamo City Guide*, published in 1882, described the Alamo Mills. The mill produced all grades of flour as well as corn meal and feeds, and was

...run by water power, driving a sixty-inch iron turbine water wheel, of about forty-horse power, which can be increased to one hundred and twenty-five horse power, and is said to be the finest water power now in use within the city limits. The present capacity of the mill is about fifty barrels of flour per day... The mill has been doing an increasing business, and improved machinery has been added since its commencement. No flour is better thought of than the products of the Alamo Mill, and the machinery is kept running day and night, with orders ahead (Gould 1882).

The partnership of Geddes, Stahl and Jones lasted only one year. In July 1878, Newell Jones left the mill which was subsequently called Stahl and Geddes. By the middle of the following year, George Stahl was dead. Stahl's health had improved during the four years he lived in San Antonio, but he became ill and died in April 1879. It is assumed that Newell Jones left the partnership for health reasons. Jones died sometime before July 1879, when his parents sold his one-third share of the mill property to Edward J. Jones of Macon County, Illinois. Jones' share was then sold to a miller, William B. Asten of San Antonio. The following month, Asten sold one-half of his one-third interest to D.J. and Margaret Geddes (San Antonio *Daily Express*, July 7, 1878; San Antonio *Daily Express*, April 12, 1879; BCDR 13:463-65; BCDR 13:493).

D.J. Geddes and William Asten continued their partnership until April 3, 1883, when they sold the mill property, equipment and business to Charles H. Merritt and Charles Bain for \$20,000. Geddes remained in San Antonio and

operated a grist mill on the city's west side during the early 1890s. He later moved to California where he continued in the milling business (BCDR 27:283; San Antonio City Directory 1892-93; US Federal Census 1900 and 1910).

Alamo Mills: 1883-1886

Charles H. Merritt and Charles Bain brought both expertise and new capital to Alamo Mills. Merritt was born in Virginia, but left for New Mexico about 1846. He became a trader and contractor, and after helping to build the New Mexico statehouse, moved to El Paso and then to Chihuahua, Mexico. Merritt set up a milling operation below El Paso at a place called Molino (mill) where he and another miller, Oscar Blakesley, were enumerated for the 1860 Federal census. Before the Civil War, Merritt moved to San Antonio, married, and prospered in the grocery business (US Federal Census 1860).

Merritt and Bain, operating under the name of C.H. Merritt and Company, purchased Alamo Mills on April 4, 1883. The day after purchasing the mill, they bought land at the southwest corner of Grand Avenue and the river, as well as lots along Ninth Street. The tract south of Grand Avenue included "all rights and claims to water power" in that bend of the river. The deed referred to the river passing "two dams." A survey of property west of the river completed in June 1883, and filed on August 15, 1883, illustrates a dam just below Grand Avenue, as well as a second dam a short distance to the south. The second structure, labeled "new dam," is the dam that remains today in the San Antonio River (see Figure 5-3) (BCDR 27:283, Abat Place Plat 1883).

Construction of the "new dam" was noted in the local press. The *Freie Presse* reported on August 22, 1883, "A new dam is being built at the Alamo Mills which will increase water power to 150 horse power." The same day, the San Antonio *Daily Express* reported:

A dam, which will cost \$7,000, is being put in the river at the Alamo mills, which will increase the power of the machinery there to 150 horsepower which is sufficient to run other machinery for manufacturing ice, paper or woolen goods, but the proprietors have not determined what additional manufacturing enterprise they will adopt (*Freie Presse* August 22, 1883; San Antonio *Daily Express* August 22, 1883).

The cost of this dam, as well as its period of construction, is consistent with the well-built and carefully finished stone

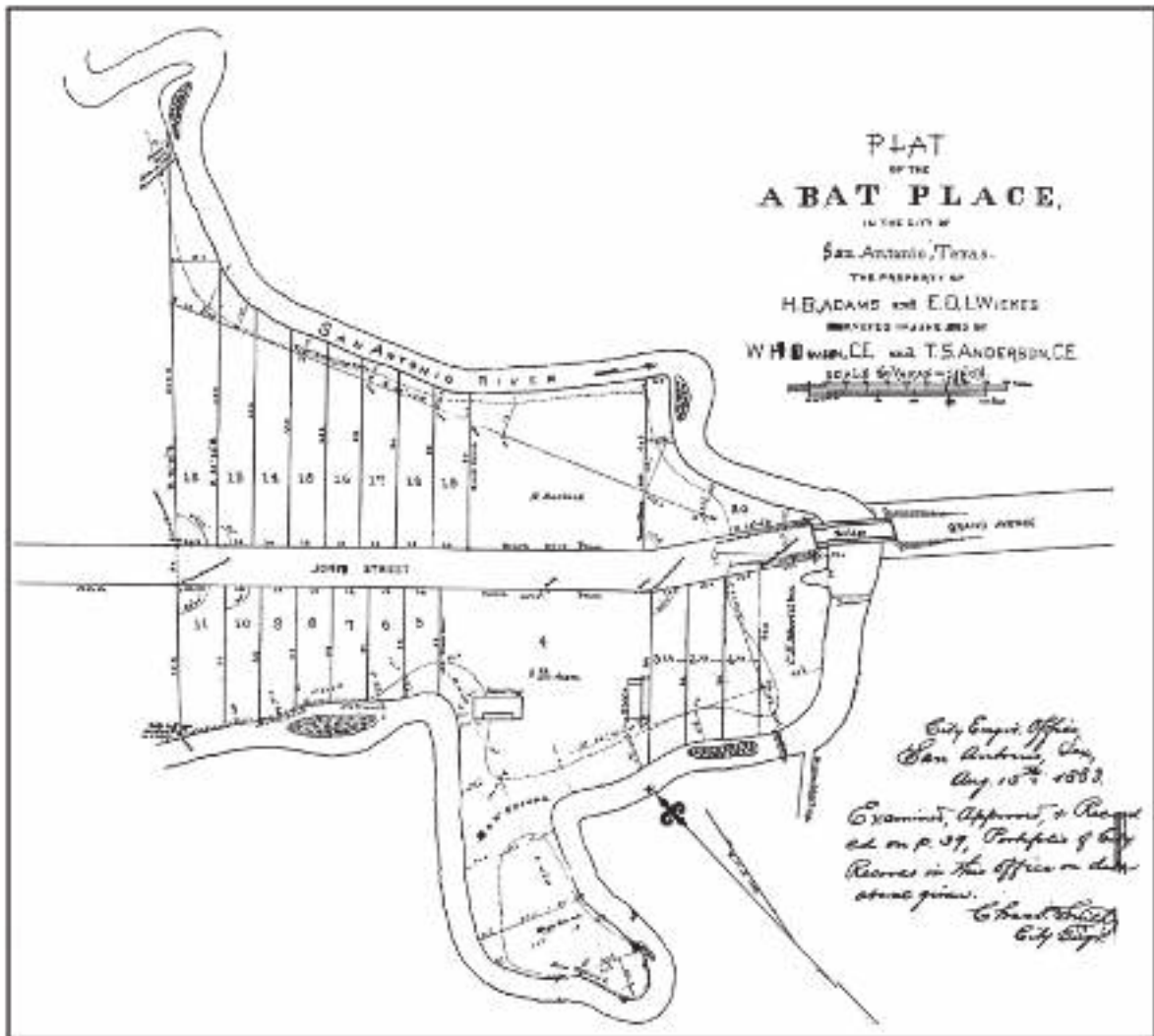


Figure 5-3. Plat of the Abat Place showing the location of the Alamo Mills Dam uncovered during the archaeological monitoring.

dam discovered in 2007 in the San Antonio River channel. Because of its location just below the inlet to the millrace, it is assumed that an earlier structure spanned the river at approximately this same location. The city was in a drought period in 1883, and a new, higher dam might have been needed to impound a larger pool of water to increase milling power (San Antonio Light, December 20, 1883).

Merritt and Bain advertised in the 1883-84 San Antonio city directory that Alamo Flour Mills was the manufacturer of “the best grades of flour made in Texas, also corn meal and mill stuffs” (Figure 5-4) (San Antonio City Directory 1883-84). The 1885 Sanborn’s fire insurance map illustrates the one and two-story flour mill as well as the miller’s house just north of the mill. Both structures are adjacent to, and east of, the millrace. A small footbridge spanned the canal between the mill and miller’s house (Figure 4-4).

When C.H. Merritt and Charles Bain incorporated Alamo Mills Company in March 1886, Merritt’s health was already failing. His doctors advised him to retire, and in June 1886, the partners sold the mill to Joseph S. Lockwood and Hermann D. Kampmann. Charles Merritt died the following year (San Antonio Daily Express, September 2, 1887; BCDR 49:480).

The Crystal Ice Company: 1886-1900

Joseph Lockwood and Hermann Kampmann were wealthy local businessmen who purchased Alamo Mills as an investment. Two days after they bought the property, the local press speculated about the partners’ plans.

There may be something grand in store for San Antonio through the purchase of the Alamo mill



Figure 5-4. Advertisement for the Alamo Mills found in the San Antonio City Directory (1883-84).

property by a syndicate of rich men, as reported. It is one of the finest water powers in this section, and the manufacturing possibilities are great. There is an immense power going to waste there now, and men with capital will certainly reap the benefit of it. Our people will await developments with no little interest. (*San Antonio Daily Express*, June 24, 1886).

Six months after purchasing Alamo Mills, Lockwood, Kampmann, and another partner, Joseph Muir, incorporated their business, stating several purposes for their corporation.

- the manufacture of flour, shorts, cracked wheat and bran from wheat, rye and barley, oat meal from oats, corn meal from corn and manufacturing of every sort and kind of products from grains and cereals of every description as usually done in grist and flouring mills.
- The manufacture of ice by any and all kinds of chemical processes, or otherwise, and the supplying the same to the inhabitants of this and other states and countries, for their use.
- The manufacture of electricity into electric light, and for heating, and for motor power, and the distributing the same in the supplying same to the city of San Antonio and the inhabitants thereof, and the inhabitants of adjoining towns, whenever and wherever permitted to do so by the authorities of such municipalities.

The capital stock of Alamo Mills was valued at \$100,000—1,000 shares valued at \$100. Lockwood and Kampmann each held 450 shares and Muir held 100 shares. The partners continued to operate the business as a grist mill for at least

two years and advertised in the 1887-88 San Antonio city directory. The 1886 Augustus Koch bird's eye view map of San Antonio illustrates the mill and millrace, though the dam is not visible in the river (Figure 4-6) (Articles of incorporation, December 29, 1886, State of Texas, Secretary of State, file 316100).

At the time Lockwood and Kampmann purchased the mill, San Antonio was experiencing below average rainfall. The city received 26.22 inches of precipitation in 1886 and 20.13 inches in 1887, well below the annual average of about thirty-two inches. In July 1887, presumably in response to the drought and the need to increase water power, Lockwood and Kampmann entered into an agreement with all of the property owners adjoining the millrace and river. The agreement stated that Alamo Mills Company "...desires to enlarge its millrace and increase its water power which may necessitate the raising of its dam..." The adjoining owners agreed to assign the mill all rights to water of the river except the "...flow over dam of not less than three inches deep and the full width of the present weirs being a width of seventy-nine feet." The mill was not allowed to reduce or restrict the three-inch flow. The agreement also allowed the mill company to raise the height of the dam as long as the three-inch flow was preserved. The agreement does not clarify how the entrance to the raceway was controlled, or whether the seventy-nine foot measurement refers to the full length of the dam (<http://www.srh.noaa.gov/ewx/html/cli/sat/samonpcpn.htm>; BCDR 61:173-75).

No documentation has been located to prove that this work was undertaken. What is known is that in February 1888, the mill's articles of incorporation were amended and the business was renamed the Crystal Ice and Manufacturing Company.

The amended charter lists five stockholders—Lockwood and Muir, as well as Ben T. Cable, Marshall Freeborn and C.E. Arnold (Articles of incorporation as amended, February 28, 1888, State of Texas, Secretary of State, file 316100).

The Production of Ice in San Antonio: The River and Artesian Wells

Ice production in San Antonio dated to the Civil War period when blockade runners successfully brought an early Carre ice machine into Texas from Mexico. After the war ended, Daniel Livingston, a pioneer in mechanical ice technology, installed another Carre machine in San Antonio. Livingston's improvements in the Carre method expanded local production. Early ice manufacturing had been dependent on the then-abundant flow of the San Antonio River and San Pedro Creek. Water was drawn from these sources, purified, and converted to ice (Zilker n.d.). As a consequence, the quantity and quality of the ice supply varied with periodic floods and droughts, resulting in ice "famines" that were reported in the local press (San Antonio *Daily Express*, August 5, 1883).

Increased demand for ice in San Antonio in the 1880s was due both to population growth and expansion of local brewing operations. In 1884, Adolphus Busch's Lone Star Brewery opened just four blocks north of Alamo Mills. The same year, City Brewery, later known as Pearl Brewery, began operating a short distance up-river (Nelson 1976). These large breweries, together with smaller brewing operations, commercial establishments and private households relied on local manufacturers to provide ice for refrigeration (BCDR 53:348).

San Antonio's Artesian Water Supply

A reliable supply of water became problematic in San Antonio by the late 1880s. Creeks and shallow wells were increasingly polluted, and real estate developers began to promote residential areas far from established water supplies. New ranching and agricultural interests in the surrounding area also required water. In response, there were attempts to drill deep wells, but it was not until 1889 that the area's vast underground Edwards Aquifer was successfully penetrated.

San Antonio's first Edwards' artesian well was dug on the Crystal Ice Company's property at the corner of Eighth Street and Avenue B using equipment provided by company shareholder, Ben T. Cable. Cable was the son of Philander L. Cable, who had made his fortune in railroads and coal in Rock Island, Illinois. In 1885, the elder Cable purchased land and built an impressive home northwest of San Antonio

where he died the following year. Cable's widow, Mary, and their children, Ben Cable and Lucie Cable Castleman, continued to spend time and entertain at their 10,000-acre ranch. In 1888, Ben Cable, joined Joseph Lockwood, Joseph Muir, Marshall Freeborn and C.E. Arnold, in reorganizing Alamo Mills as the Crystal Ice Company (San Antonio *Light*, October 27, 1940, September 3, 1911).

Ben Cable and Lucie Castleman, the company's largest shareholders, brought not only substantial capital to Crystal Ice, but an oil rig that their father had used to drill for water at their home outside the city. When diminished river flow threatened the company's ability to produce ice, Cable brought his workers and machinery to the Crystal Ice site and began to drill. By early 1889, the company had drilled through sulphur water and gas layers at shallower depths to approximately 600 feet where they encountered a steady flow of good water (San Antonio City Directory 1887-88).

The San Antonio *Daily Express* reported on April 18, 1889:

The new well at the Crystal Ice Company has now reached a depth of 700 feet, and there is now an unusually heavy flow of pure artesian water, which comes to the surface and spouts up six feet.

Mr. Glaze, the manager of the company, estimates the flow at 1,000,000 gallons a day.

Three additional wells were dug on the property at the corner of Avenue B and Eighth Street, giving Crystal Ice Company a supply of five and a half million gallons of water daily. The company's artesian wells greatly expanded both the quantity and quality of its product. Production was further increased in 1890 when the company acquired J.R. Tendick's San Antonio Ice Factory located just north of Commerce Street between Losoya and the San Antonio River (BCDR 64:273). The plant at Avenue B and Eighth Street was illustrated in Andrew Morrison's *The City of San Antonio* published c. 1891 (Figure 5-5) (Morrison 1891).

The Alamo Mills Dam and Head of the Millrace: 1890

The neighborhood surrounding the Crystal Ice plant was fully developed in 1890 when the company expanded its production using artesian water and the capacity of San Antonio Ice Factory. Lots along the west side of Avenue B running back to the millrace were occupied by one and two-story residences. The property at the head of the millrace

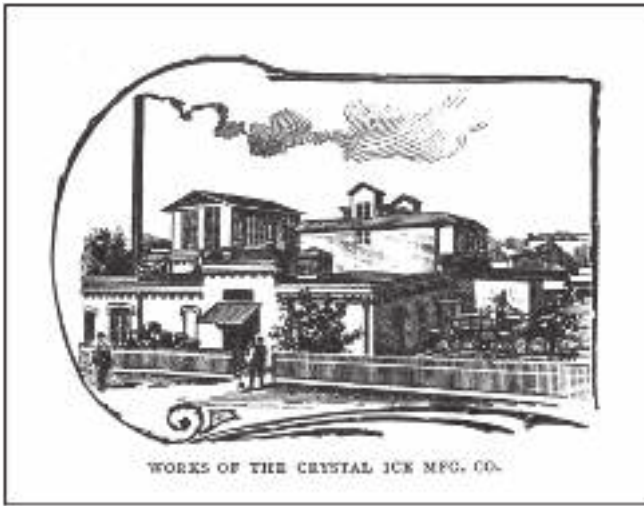


Figure 5-5. Illustration by Andrew Morrison of the Crystal Ice Manufacturing Co (ca. 1891).

near Tenth Street was sold by Crystal Ice Company to Mary Francis Drake in 1894. The site, later referred to as #10 Tenth Street, overlooked the millrace and ran back to the San Antonio River (BCDR 139:137).

Mary Francis Drake deeded the land at the head of the millrace to her daughter, Mabel, shortly before her marriage to Frederick Dewey. The Sanborn's fire insurance map for 1896 illustrates a two-story house with double galleries on the site (Figure 5-6).

It is assumed that Frederick and Mabel Dewey constructed the house. No documentation has been located to determine if water was flowing through the millrace when the Frederick and Mabel Dewey lived at #10 Tenth Street. It likely that spring flow and drought had dropped the river level to the point that the millrace was no longer functioning. The millrace right-of-way remained the property of Crystal Ice Company (BCDR 139:138).

Artesian Ice Company and its Property: 1899-1909

Crystal Ice Company experienced unexplained financial difficulties in the late 1890s. The firm was placed in receivership and sold at public auction in November 1900, to the Ben Cable and his sister, Lucy Cable Castleman, the company's largest shareholders. Cable and

Castleman sold Crystal Ice and its assets several months later to a group of investors headed by prominent local lawyer, Charles Ogden. Edward Glaze, the plant's long-time manager, continued to operate the facility that was renamed the Artesian Ice Company (San Antonio city directories, various years; 37th District Court, November 2, 1899, 181; June 30, 1900, 451-54, 499-500; 516; BCDR 199:301; Rock Island *Argus*, December 14, 1923).

Artesian Ice Company immediately divested itself of the old San Antonio Ice Company property on Losoya Street, but retained all of the real estate associated with the ice plant at Eighth Street and Avenue B, including the millrace property. City directory listings from 1903 until 1909 indicate that the company continued to do business at the Eighth Street location (BCDR 196:594).

In November 1901, five months after Artesian Ice Company took control of Crystal Ice, the Drake house at the head of the millrace was acquired by wealthy lumberman and investor, Van A. Petty and his wife, Cordelia, who had recently moved to San Antonio from East Texas (Daniell 1917; Davis and Grobe 1929). Noted

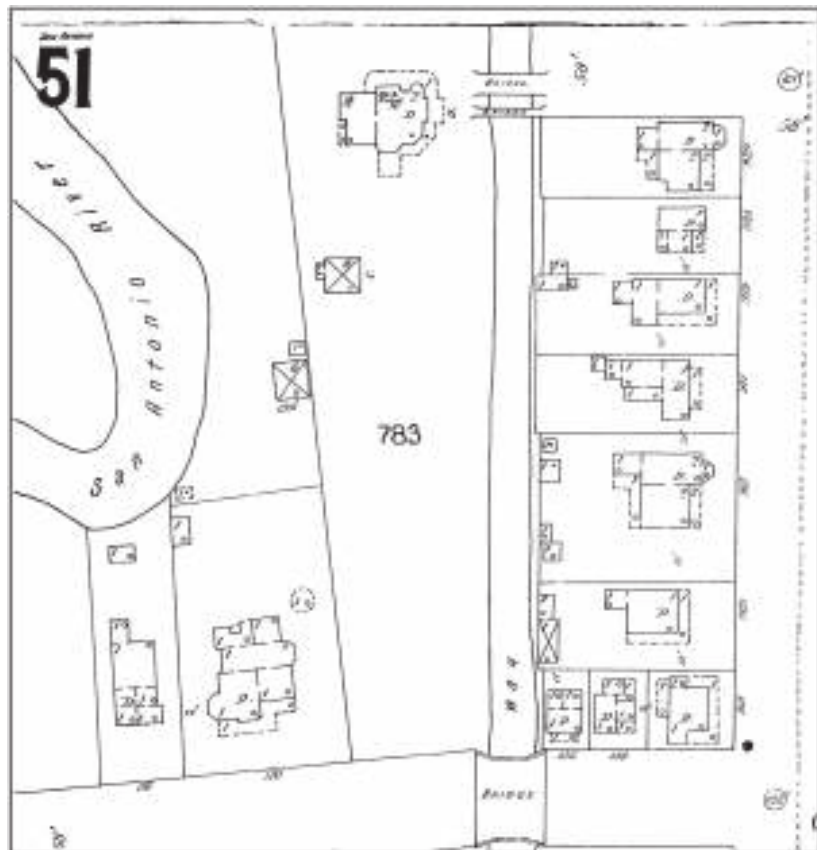


Figure 5-6. Portion of the 1896 Sanborn's Fire Insurance Map showing the Dewey/Petty House (the current site of the VFW Post #76).

local architect, Atlee B. Ayres, drew plans to enlarge and remodel the house. The Petty house was described in the local press as "...one of the most picturesque places of this city, being located on the banks of the San Antonio River, with great pecan trees towering around the home" (BCDR 205:173-75; BCDR 194:152; *San Antonio Daily Express*, May 19, 1929).

The millrace right-of-way in front of the Petty home remained the property of Artesian Ice Company until 1907. It is thought that the millrace was at least partially filled by 1904. While the Sanborn's fire insurance map for that year illustrates the mill, it does not show the raceway. At least one structure had been built in the millrace right-of-way below Ninth Street. In October 1907, Van Petty paid Artesian Ice Company \$4,000 for the strip of land that ran from the river near Tenth Street south to Ninth Street (BCDR 273:372). He constructed a one-story frame house at 128 Ninth Street and several outbuildings on other parts of the site (Figure 5-7) (Digital Sanborn Maps 2001).

Artesian Ice Company was sold to Charles Zilker in 1909, and operated briefly as Zilker Ice Company. In 1910, Zilker sold the facility to another company he owned, Southern Ice and Cold Storage, and a new corporation was formed under the name of Artesian Ice Company for the purpose of "carrying on the business of buying and selling ice." Artesian Ice continued to operate at the Eighth Street and Avenue B site until about 1920 when it was replaced by Alamo Ice Delivery which did business there until 1928 (BCDR 322:481; BCDR 302:568; BCDR 851:81; Articles of incorporation, May 27, 1910, State of Texas, Secretary of State, file 31859).

All water and ice-related use of the property bounded by Eighth and Tenth Streets and Avenue B and the San Antonio River ceased by 1929. The Petty house at the head of the old millrace and the millrace right-of-way property was sold to the Sam Houston Post #76, Veterans of Foreign Wars (V.F.W.) in 1947. The post continues to maintain the Petty house as its headquarters in 2008 (BCDR 2395:509).

In 2008, the millrace right-of-way north of Ninth Street is vacant and used for parking. Its open expanse provides a clear illustration of the extent of the former channel. No excavations of the millrace have been conducted. The Alamo dam, previously visible only during times of low water, was excavated in 2007-08 during construction of improvements

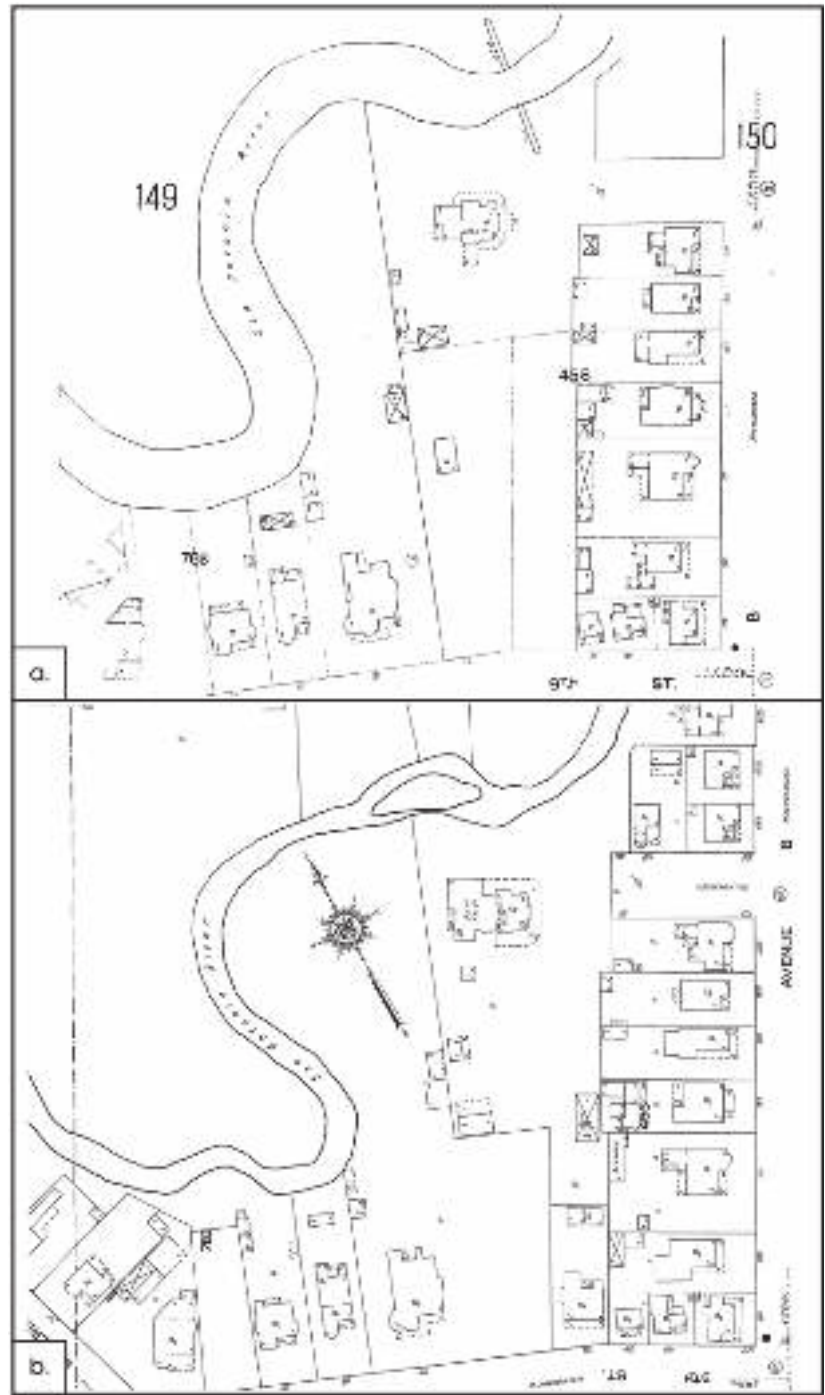


Figure 5-7. Portions of the Sanborn's Fire Insurance Maps a) 1904 showing Dewey/Petty House and the location of the Alamo Mills Dam; b) 1911 showing the Dewey/Petty House, but the dam is no longer present.

to the north channel of the San Antonio River. Ongoing excavation revealed a low all extending upstream from the east end of the dam. This was likely the upper part of the millrace structure.

Chapter Six: Summary and Recommendations

Although the water of the San Antonio River was an important resource and the nature of the sedimentary deposits on flood terraces near the river would have tended to preserve archaeological sites, the degree of disturbance by urban development and flood control engineering, as well as the difficulty of finding previously undisturbed sediments, explain why no prehistoric sites have been recorded in the Urban Reach area.

Over the course of the archaeological monitoring of the project APE a total of 11 features were identified. Of these features, two areas along the San Antonio River retained enough of the cultural deposit or architectural structure to qualify as an archaeological site. The two sites are architectural features. One is the Lexington Avenue Dam (41BX1818). The second architectural feature is the Alamo Mills Dam (41BX1817) located just behind the VFW Post #76.

The Alamo Mills Dam was constructed ca. 1870s to divert water from the San Antonio River into a raceway that lead to the Alamo Mills and Flour Company. The Alamo Mills and Flour Company later converted into the Crystal Ice and Manufacturing Company. This Mill was located at the intersection of Avenue B and Eighth Street. By 1904 the raceway was filled and no longer supplying water to the Crystal Ice Manufacturing Company, who had drilled an artesian well. Within the next decade or so, the Alamo Mills Dam fell off the maps of the area.

After the river was drained in the area slated for the expansion of the Riverwalk, one of the top remaining courses of stone was visible in the river channel. As removal of the river banks continued, the massiveness of the feature was revealed. The dam spans the river channel, and extends to a depth of approximately 2 meters below the top course of stone. Due to the unique nature of the dam in the San Antonio region and its age of construction, it was decided that the dam needed to be preserved. Portions of the dam were incorporated into the Riverwalk landscape. The remainder has been covered by the pathways and retaining walls constructed for the expansion of the Riverwalk. Little damage was done to the feature to ensure that it remains intact under the current landscaping, while ensuring that the construction of the Riverwalk remained sound. Information on the feature was collected for HABS Level I documentation by another contractor of the client.

The second site recorded during the course of the project is the Lexington Avenue Dam. The dam was constructed

between 1939 and 1941. The dam was designed by Hugman, who drew up the architectural plans of the San Antonio Riverwalk, and a similar style feature along Walnut Branch Creek in Seguin, Texas. This structure was built to keep the water level of the improved section of the river at a lower elevation. To accommodate the passage of the river barges, the dam has been cut and removed. Approximately two-thirds of the dam remains intact.

A series of features have been documented on the west bank of the San Antonio River adjacent to the former Lone Star Brewing Company. The brewery was first opened by William Esser in 1875. Adolphus Busch purchased the property from Esser in 1884. The features uncovered during the monitoring all appear to be related to the use of the complex as the brewery. Three features were deposits of bottles, two features were brick walls. Within the vicinity of the features, one bottle was recovered that was still sealed. The bottle had the markings of William Esser and likely was manufactured between 1879 and 1884. The contents of the bottle were removed and are believed to have been the original beer.

Though portions of the five features (Features 4, 5, 6, 7, and 8) recorded have been removed for the construction of the Riverwalk, it is believed that portions of each feature remain buried further in the bank. One diagnostic artifact was recovered from the area and is curated at the CAR laboratory. The remaining features (Feature 1, 3, 9, and 10) discussed in the report have been removed from the river bank and channel.

The artifacts collected for curation during the course of the project include the Esser glass bottle, one kerosene smudge pot/road flare, and once stoneware crock. The glass bottles that were collected during the project have been incorporated into a type collection and are not curated with project materials.

Recommendations

At the completion of this report the new portion of the Riverwalk was constructed and opened to the public. Features 1, 3, 9 and 10 have been removed from the river bank and channel. These features were documented and photographed. The ages of the features did not warrant further investigations as per the guidelines set out for the archaeological monitoring. No further recommendations are made for these features, or the area in the vicinity of these features.

During the course of the monitoring, two sites were recorded. Site 41BX1817, the Alamo Mills Dam has been partially capped by the construction of the new portion of the Riverwalk. In addition to the dam, the raceway wall that was found adjacent to the dam was also capped by the new construction. A portion of the center of the dam was removed to provide clearance for the passage of river barges (Figure 6-1). A small portion of the dam is visible on either bank and is marked by interpretive signage. CAR recommends that the feature continue to be preserved, and if future construction should occur in the area, impact to the feature should be avoided. The dam is potentially eligible for listing on the National Register of Historic Places (NRHP) and as a State Archeological Landmark (SAL).



Figure 6-1. *The Alamo Mills Dam as it is seen today.*

Site 41BX1818, the Lexington Avenue Dam, has also been recorded as a site as a result of the project. The dam has already been altered following coordination with the City of San Antonio and the THC. Approximately one-third of the dam has been removed to allow the passage of river barges to the newly improved section of the Riverwalk (Figure 6-2). The remaining two-thirds of the dam is visible to the public, and is marked by interpretive signage. CAR recommends that no additional segments of the dam be removed.



Figure 6-2. *The Lexington Avenue Dam after the portion was removed to allow for river barges to pass to the newly improved section of the Riverwalk.*

Along the bank behind the Lone Star Brewing Company, a series of features were encountered along the west bank of the San Antonio River. Portions of these features were removed during the course of the project, but remnants of each feature can be found under the current landscaping and concrete retaining walls. These features appear to be related to the use of the Lone Star Brewing Company during the late 1800s through the 1920s. Prohibition in the 1920s led to the shut down of the business, and likely is the reason for the amount of bottles found along this portion of the river bank. CAR

recommends additional archaeological monitoring, and potentially more intensive archaeological investigations, be conducted if future construction activities will have subsurface impacts within the vicinity. Only the area within the project's APE was monitored during the course of the project. CAR recommends that the entire complex should be defined as an archaeological site. The Lone Star Brewing Company buildings are already recorded as a Historic Structure on the Texas Archaeological Site Atlas. The site is potentially eligible for listing on the NRHP and as a SAL.

The entire project area was monitored as the river banks were removed to allow for the construction of the Riverwalk expansion. The sections found to lack significant cultural deposits were cleared in field, and the construction of the Riverwalk proceeded. CAR recommends that no additional work is necessary in these sections.

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