San Pedro Park Tree Irrigation Monitoring, San Antonio, Bexar County, Texas

by
Stephen Smith

Principal Investigator
Raymond P. Mauldin

Texas Antiquities Permit No. 7103

Prepared for:
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Prepared by:
Center for Archaeological Research
The University of Texas at San Antonio
One UTSA Circle
San Antonio, Texas 78249
Technical Report, No. 62

Center for Archaeological Research
Preserving Cultural Resources
The University of Texas at San Antonio

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Abstract:

During mid-December 2014, the Center for Archaeological Research (CAR) at The University of Texas at San Antonio (UTSA) conducted archaeological monitoring of trenching and air tilling for irrigation facilities in portions of San Pedro Springs Park, San Antonio, Bexar County, Texas, for the City of San Antonio (COSA) Parks and Recreation Department. The entire park is a designated State Antiquities Landmark site (41BX19) and a City of San Antonio Landmark, and it is listed on the National Register of Historic Places. The park, which was established about 1729, is the one of the oldest public parks in the United States. The park is the sight of the first European settlement in San Antonio in 1718 and contains the first *acequia*, or irrigation ditch, constructed by the Spanish colonist to water their crops.

Because of the landmark status and public ownership of the project area, the archaeological work was done under Texas Antiquities Permit No. 7103 and was performed according to applicable provisions of the Antiquities Code of Texas (Title 9, Chapter 191, Texas Natural Resource Code) and the regulations and requirements of the Archeology Division of the Texas Historical Commission (THC). The project was not federally linked; therefore, it was not subject to compliance under Section 106 of the National Historic Preservation Act.

As specified in a scope of work approved by the THC, the archaeological work performed at this site included monitoring of ground-disturbing activities associated within the archaeologically sensitive areas. This monitoring was conducted by the project archaeologist. Monitoring included photographs and field notes. No temporally diagnostic artifacts were observed. Any other materials were counted and described in the field. No significant archaeological resources, as defined in the scope of work, were found, collected, or curated during this monitoring.

Based on these findings and because no additional ground-disturbances were planned, the CAR recommends to the project sponsor and Archeology Division of the THC that no further archaeological investigation of the project area is warranted. However, the lengthy culture history of the park and surrounding vicinity creates a high probability that unexamined ground in the monitored area contains important archaeological resources. Therefore, it is recommended that any future non-archaeological, ground-disturbing activities within or near the San Pedro Springs Park area be archaeologically monitored and/or investigated prior to the commencement of work.

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The archaeological monitoring discussed in this Technical Report was carried out by the Co-Project Archaeologist Stephen Smith of the Center for Archaeological Research at The University of Texas at San Antonio. José Zapata served as Co-Project Archaeologist and Raymond P. Mauldin as Principal Investigator. Laura Carbajal and Rick Young drafted the figures, and Kelly Harris edited the manuscript. A special thanks to Kay Hindes, City Archaeologist, and Ross Hosea, City Forester, for their help with the project.

Introduction

From December 15-18, 2014, the Center for Archaeological Research (CAR) at The University of Texas at San Antonio (UTSA) conducted archaeological monitoring of trenching and air tilling for irrigation facilities at San Pedro Springs Park. This work was done under contract with the City of San Antonio (COSA) Parks and Recreation Department. San Pedro Springs Park (41BX19) is a significant historic and prehistoric site. The 46-acre park is listed on the National Register of Historic Places (NRHP) and is a State Antiquities Landmark (SAL). The park is one of the oldest municipal parks in the United States (Eckhardt 2014). Figure 1 shows the park on the combined San Antonio East and San Antonio West USGS 7.5-minute quadrangle map. The park is bound by San Pedro Avenue, West Ashby Place, North Flores Street, and Myrtle Street (Figure 2).

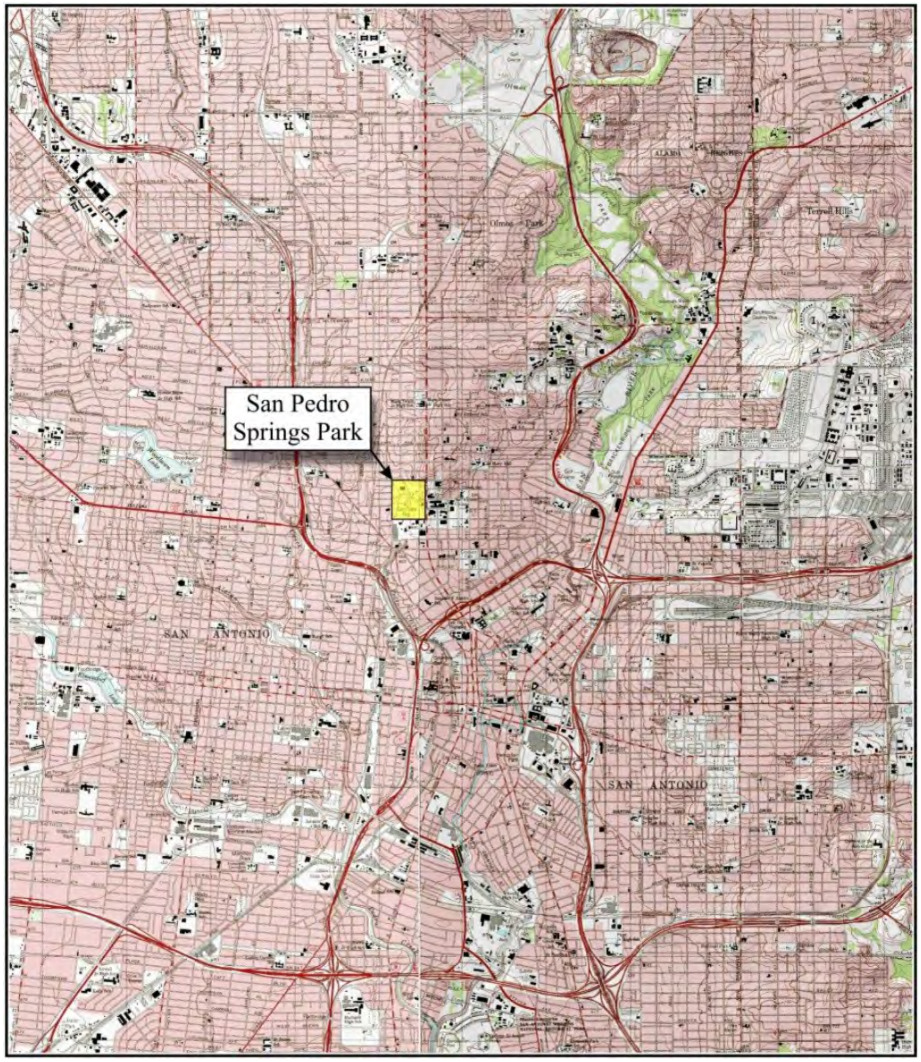

Figure 1. *San Pedro Springs Park on the combined San Antonio East and San Antonio West USGS 7.5-minute quadrangle map.*

Figure 2. *Aerial view of San Pedro Springs Park.*

The park houses several recreational facilities including the San Pedro Playhouse, a tennis center, a branch of the San Antonio Library, two softball fields, and a swimming pool and associated bathhouse. Sidewalks, parking lots, playgrounds, picnic tables, and support facilities are also present. For the current project, the area of potential effect is located just to the south and east of the swimming pool (Figure 3). The COSA Parks and Recreation Department installed an irrigation system to support cypress trees that currently ring the western, southern, and eastern side of the pool. Because of the landmark status and public ownership of the project area, the archaeological work was performed under Texas Antiquities Permit No. 7103 and in accordance with the applicable provisions of the Antiquities Code of Texas (Title 9, Chapter 191 Texas Natural Resource Code) and the regulations and requirements of the Archeology Division of the Texas Historical Commission (THC).

Background and Setting

This section provides a brief discussion of the environment, history, and culture history of the project area. The culture history is presented in Table 1 and contains a breakdown as to periods and subperiods in addition to commencement and termination dates and critical references.

Environmental Setting

San Pedro Springs Park is located near downtown San Antonio, Texas. San Pedro Springs consists of 11 major and many minor springs and is an outlet of the Edwards Aquifer (Brune 1981:73). Modern pumping practices in the Edwards Aquifer have greatly decreased the outflow of water from San Pedro Creek. San Antonio has a modified subtropical climate with cool winters and hot summers (Taylor et al. 1991:118). Rainfall averages 27.89 inches, but a great deal of year-to-year variability in precipitation exists in the area (Norwine 1995:139).

Soil from three series occurs in San Pedro Springs Park (Taylor et al. 1991:Map 44). The northeast quarter has a Tarrant association soil. These soils are typically found on hilly areas and are dark colored, very shallow, clayey, and weakly calcareous (Taylor et al. 1991:31). The northwest corner of the park has Austin silty clay soil. This soil is found on low, broad ridge tops. It is moderately deep, dark in color, and highly calcareous (Taylor et al. 1991:10). The rest of the park is covered with Houston Black clay terrace soil. This soil is thick, dark, calcareous clay found commonly on terraces near major streams (Taylor et al. 1991:21).

Bexar County is located at the juncture of several major biotic and physiographic regions. Potter et al. (1995:23) define five biotic zones in the county. The Oak-Juniper Woodland covers the northernmost part of the county abutting the southern edge of the Balcones Escarpment (Potter et al. 1995; Taylor et al. 1991:119). This region has been described as "Canyonlands" (Potter et al. 1995:13). It is heavily dissected by numerous creeks and springs. The area was once covered by the tall grass of the Blackland Prairie physiographic region. A narrow band of dense brush country between the tall grass prairie and the Oak-Hickory Forest marks the northeastern boundary of the South Texas Plains. The fifth biotic zone is the riparian forest that crosses the other zones in the creek bottoms and around springs (Potter et al. 1995:23).

Each biotic zone contains different sets of plant and animal communities providing a scale of diverse resources available for human use (Collins 1995; Ellis et al. 1995; Nickels et al. 1997:4; Potter et al. 1995:13). Pecans (*Caryaillinoisensis*), hickory nuts (*Carya* sp.), walnuts (*Juglans* sp.), and acorns (*Quercus* sp.) would have been plentiful in the late summer and fall and deer (*Odocoileus virginianus*) and turkey

(*Meleagris gallopavo*) available too, but Javalina (*Peccari tajacu*) would not have been around until at least the Late Prehistoric Period (Hulbert 1985; Potter et al. 1995:13). Yucca (*Yucca* sp.), sotol (*Dasylirion* sp.), and prickly pear cactus (*Opuntia* sp.), the latter a year-round resource, were available (Tomka et al. 1997).

Table 1. Cultural History of the Region with Critical Local References

Period	Interval/Subperiod	Beginning Date (BP)	Ending Date (BP)	Critical Local References
PaleoIndian	Early (Pre-Clovis, Clovis, Folsom)	13,500 (?)	10,000	Amick 1995; Bousman et al. 2004; Collins 2004; Waters et al. 2011
	Late	10,000	8,800	Bousman et al. 2004; Collins 2004
Archaic	Early	8,800	6,800	Collins 2004; Houk et al. 2009; Quigg et al. 2008; Thoms et al. 1996
	Middle	6,800	4,200	Collins, 2004; Houk et al. 2009; Munoz et al. 2011; Oksanen 2008
	Late	4,200	1,200	Collins 2004; Hall 1981; Hester 2005; Johnson and Goode 1994
Late Prehistoric	Initial (Austin)	1,200	750	Black 1989; Collins 2004; Shafer 1977
	Terminal (Toyah)	750	500	Black 1986, 1989; Kenmotsu and Boyd 2012
Historic	Protohistoric	500	314	Krieger 2002; Wade 2003
	Colonial/Mission	314	193	Chipman 1992; Fox and Cox 2000; Habig 1968
	Mexican Period	193	179	Barker 1928; Campbell 2003; Cox 1997; Fehrebach 1968; Weber 1982
	Republic/Early Statehood	176	115	Campbell 2003; Cox 1997; Fehrenbach 1968; Wallace 1965; Yoakum 1856
	Early 20th century	115	105	Storey and Kelley 2008

History

Summaries of the history of the San Pedro Springs attest to its cultural importance (see Campbell and Campbell 1985:37; Cox 2005; de la Teja 1995; Foster 1995:99; Grimm 2001; Habig 1968; Hatcher 1932; Hoffman 1935, 1938). In May 1718, the newly appointed Governor of Coahuila, Martín de Alarcón, selected an area near San Pedro Springs in which to locate a new presidio (Hoffman 1935:49). Alarcón's selection constituted the founding of what was later to become San Antonio (Houk 1999). Then in January 1719, an *acequia* was constructed to supply water to this presidio and its families (Chipman 1992:125).

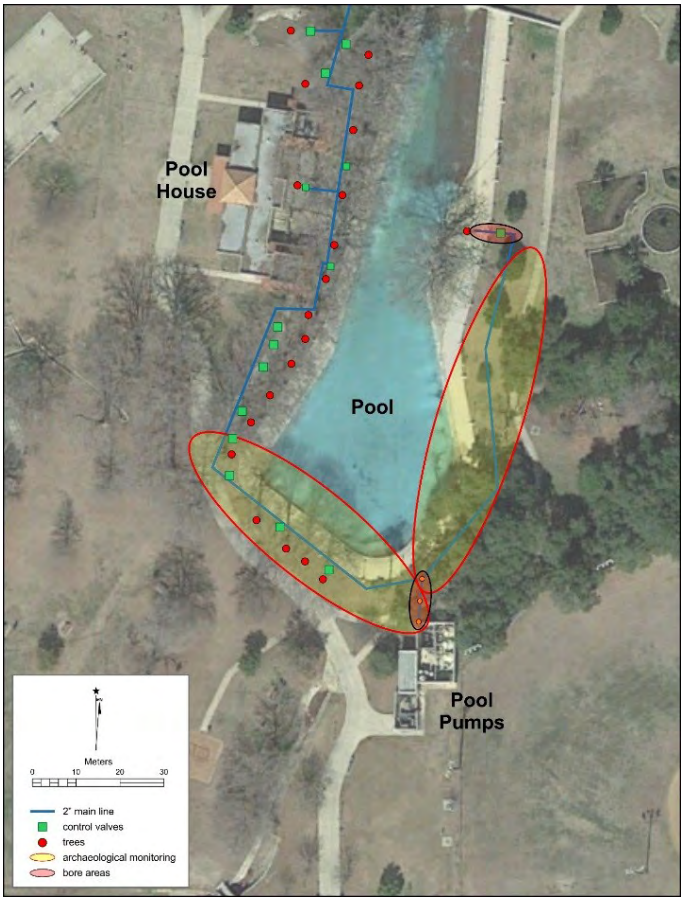

Figure 3. *Proposed trenching locations to be monitored.*

For anyone wishing to learn more about the topics addressed in this section, the climate (past and present), geology, hydrology, as well as the cultural history, archaeology, and history of the region, in addition to the history specific to San Pedro Springs Park, have been discussed more thoroughly elsewhere (see e.g., Barnes 1983; Bomar 1995; Brune 1981; Meissner 2000). This background material has also been most recently summarized in Mauldin et al. (2015).

Methods, Findings, and Implications

As specified in a scope of work approved by the THC, the archaeological work performed at this site included monitoring of excavation within the archaeologically sensitive areas (Figure 4). Monitoring included photographs and field notes. No significant and/or temporally diagnostic artifacts were collected. Other materials were counted and described in the field. Had any artifacts been retained, they would have been curated at the CAR in a manner consistent with THC requirements.

Mauldin et al. (2015) developed a composite map showing the previous archaeological investigations and trench monitoring at 41BX19 (Figure 4). The base layer of the map consists of five impact zones derived from earlier work (see Meissner 2000; Zapata and Meissner 2003). These zones were developed by Meissner (2000) to facilitate management decisions in San Pedro Park. The zones, visible in Figure 5, have various recommendations tied to subsurface impacts. For example, no construction work is recommended to occur within areas that fall within Zone 1, the darker orange shade on Figure 5. This area has significant deposits present. At the other extreme, for the zones identified in light yellow (Zone 4) and gray (Zone 5) on Figures 4 and 5, it is suggested to not require testing or to require testing only with significantly deep impacts because these areas are extensively disturbed or are presently occupied by facilities, such as the tennis complex or the swimming pool.

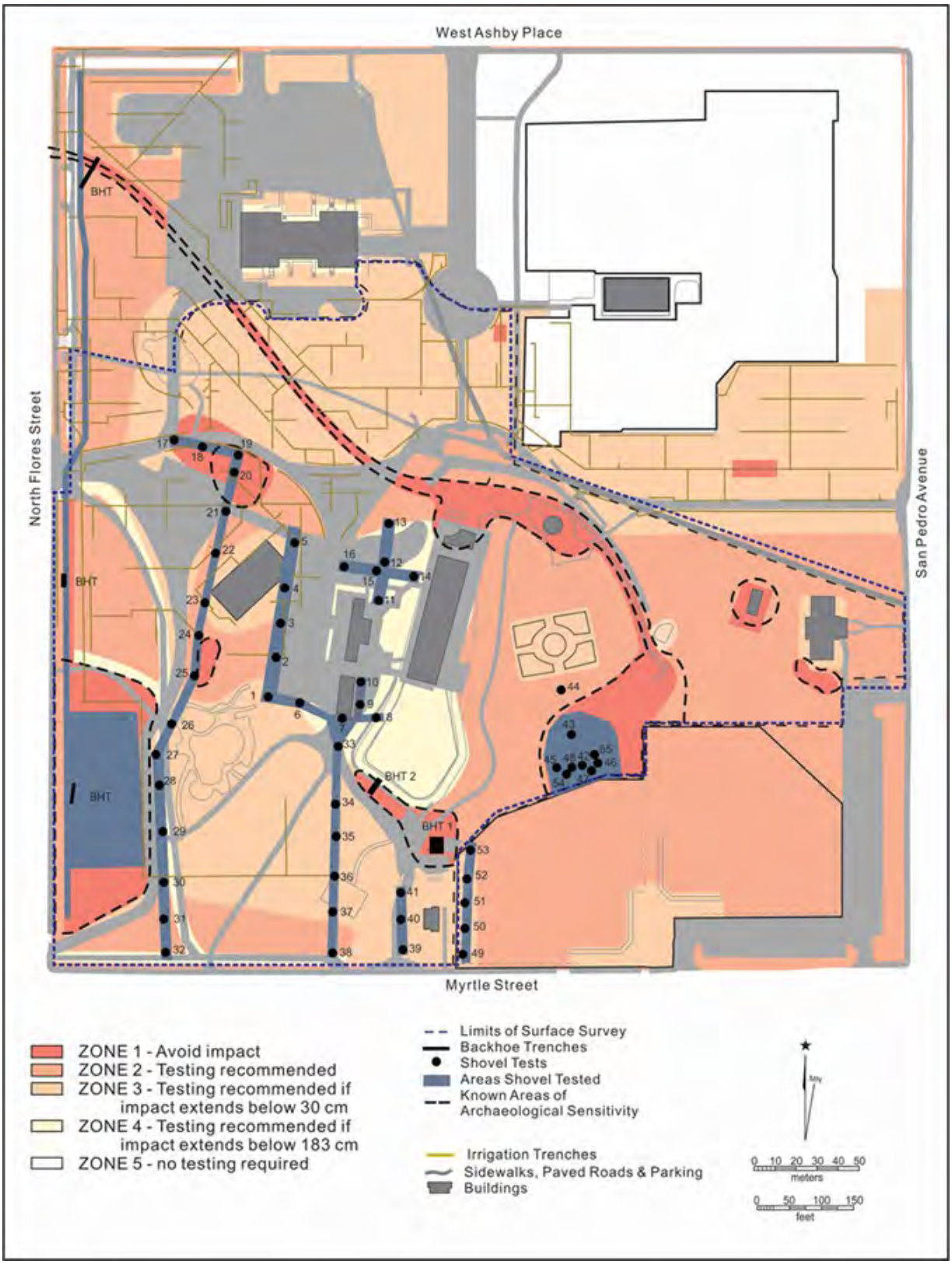

Figure 4. *Composite map of the previous archaeological investigations conducted at San Pedro Springs Park (after Mauldin et al. 2015).*

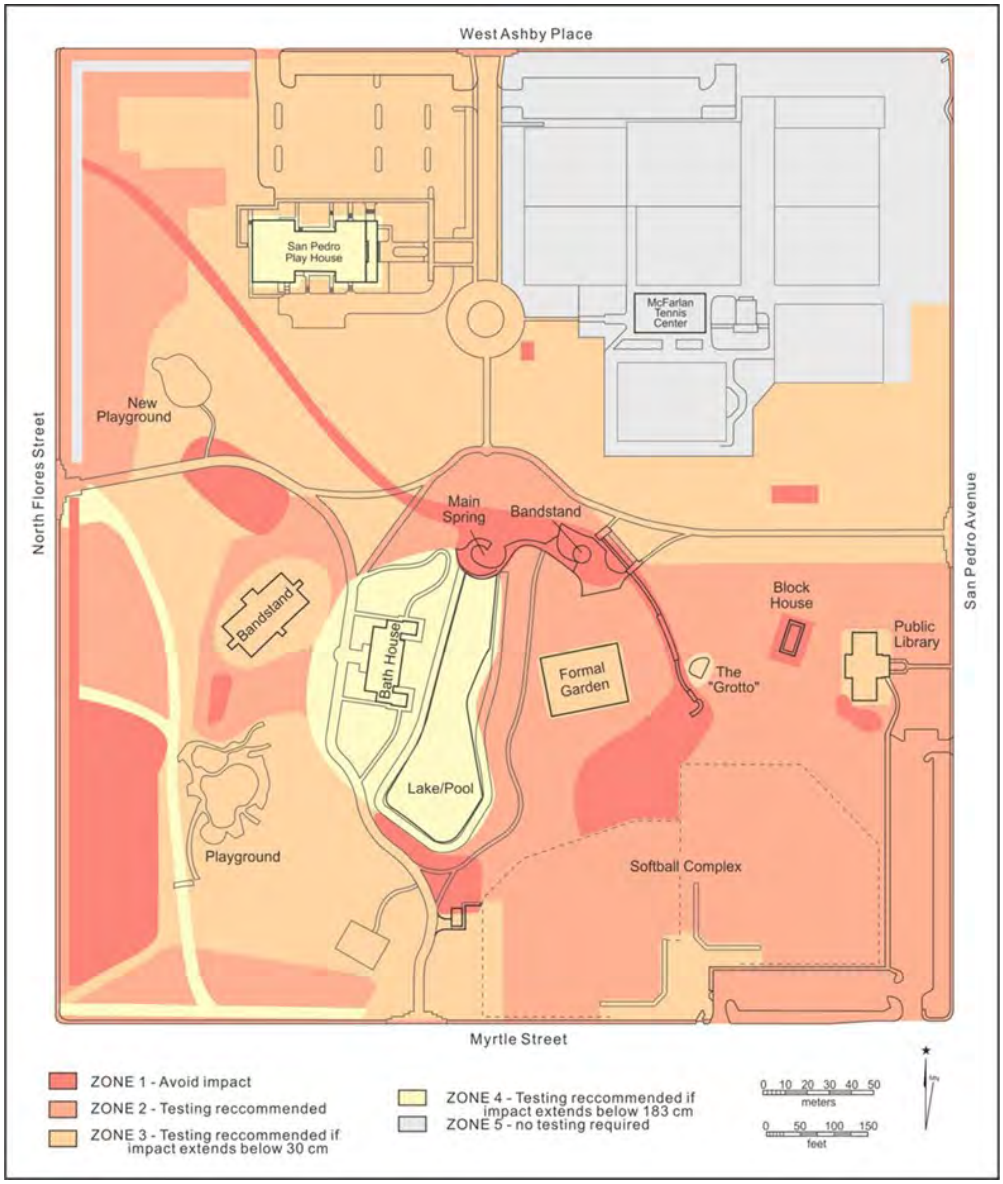

Figure 5. *Archaeologically sensitive portions of San Pedro Springs Park, after Meissner (2000; see also Mauldin et al. 2015).*

For this fieldwork, all excavations in Zones 1 and 2 were monitored. Excavations were accomplished by hand shoveling and with four separate pieces of mechanized equipment. A hand-operated, walk-behind trencher (Figure 6) generated a trench 15-centimeters (cm) wide and less than 30-cm deep. In areas where a wider or deeper trench was required, a mini-backhoe was employed (Figure 7). This mini-backhoe created a 60-cm wide trench. In addition to installation of the irrigation system, compacted soil around the roots of the five cypress trees in Zone 1 was loosened using compressed air fired from a high-pressure gun in a process called air tilling (Figure 8). The air tilling excavation did not exceed a depth greater than 30 cm and was monitored by the Project Archaeologist.

Figure 6. *The hand-operated walk behind trencher.*

Figure 7. *The mini-backhoe in operation.*

Figure 8. *The air tilling process in progress.*

Finally, a pneumatic boring tool called a "bullet" was used to excavate small tunnels beneath the sidewalk. The boring bullet was employed only once within the area of potential effect. This excavation was located in Zone 1 and took place beneath the sidewalk adjacent to the building housing the pool pump (see Figure 9). A tie-in trench was excavated to access a water valve located at the northwest end of the pump building. To accommodate the pneumatic boring tool, the mini-excavator expanded the dimensions of the trench to approximately 42-cm wide and 51-cm deep. Excavation of this trench was monitored throughout. The matrix appeared to consist of imported modern caliche fill and clay topsoil fill that contained no artifacts or other archaeological resources. Munsell (2000) values of the caliche were a light yellowish brown 10YR6/4. The clay topsoil above the caliche was dark grayish brown and mostly uniform in color with a Munsell (2000) value of 10YR5/2. No intact soil was encountered in this excavation. The pneumatic boring spanned beneath the sidewalk approximately 2 meters (m), and the matrix resulting from this activity was consistent with that observed in the tie-in trench. The boring matrix was devoid of artifacts and other archaeological resources. Occasional pieces of modern material, such as plastic and unidentified metal, appeared during this activity.

Figure 9. *Trench excavated with boring bullet at water valve tie-in location, looking south. Note the disturbed sediment.*

The second boring operation and associated trench occurred outside of the area of potential effect by a distance of about 7 m to the west of Zone 2. Although this excavation was outside of the area of potential effect, its proximity to Zone 2 prompted its monitoring. This particular boring spanned a concrete apron and flagstone walkway adjacent to the western edge of the swimming pool (see Figure 6) a distance of approximately 5.8 m. The trench was 50-cm deep and 42-cm wide. Clay topsoil fill covered approximately 20 cm of the profile and was grayish brown in color (10YR5/2; Munsell 2000). The underlying matrix was mostly very pale brown (10YR8/2; Munsell 2000). A narrow band (5-cm thick) of very light colored caliche (10YR8/1; Munsell 2000) capped a very dark grayish brown clay loam (10YR3/2; Munsell 2000). This dark grayish clay loam appeared in the final 10-20 cm of the profile and was thought to be intact sediment (Figure 10). This clay loam was separated from the overlying sediment and screened for artifacts. No artifacts were recovered.

Figure 10. *Trench outside monitored area showing band of possibly intact soil. All of this potentially intact soil was screened.*

Recommendations

No archaeological resources were encountered during the monitoring, and no additional ground-disturbances were planned in conjunction with the tree irrigation project. CAR recommended to the COSA Parks and Recreation Department, COSA Office of Historic Preservation, and the Archeological Division of the Texas Historical Commission that no further archaeological investigation of the project area was warranted for the tree irrigation construction that occurred on December 15-18, 2014. Previous construction projects at the site have undoubtedly affected this location (see Houk 1999; Meissner 2000; Zapata and Meissner 2003). However, the lengthy culture history of the park and surrounding vicinity creates a high probability that unexamined ground in the monitored area contains important archaeological resources. Therefore, it is recommended that any future non-archaeological ground-disturbing activities within or near the San Pedro Springs Park area be archaeologically monitored and/or investigated prior to the commencement of work.

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