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with a contribution by C. Britt Bousman

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Principal Investigators

Texas Antiquities Permit No. 1682

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Abstract

In April 1996, the Center for Archaeological Research of The University of Texas at San Antonio was contracted by the city of New Braunfels to perform monitoring and testing to determine the impact of planned construction on cultural resources in Landa Park. The work was conducted under Texas Antiquities Permit No. 1682. The planned development called for the construction of a golf cart barn, and subsurface excavations for one electrical line and two waterlines to supply the barn with power and water. Shovel testing was performed on the proposed site of the golf cart barn and along transects for the utility lines. Monitoring was also conducted when the utility transects were trenched.

The testing and monitoring operations uncovered various prehistoric and historic artifacts, including platform and nonplatform flakes, mussel shell, fire-cracked rock, glass, nails, and wire. The prehistoric material also included bifaces, unifaces, diagnostic projectile points (Scottsbluff, Hoxie, Montell, and Marcos), two Clear Fork tools, and one grooved grinding stone of ferruginous sandstone. In addition, a burned rock feature—possibly a large hearth—was discovered along one of the utility transects. Geological observations confirmed the contextual integrity of the artifacts. This new data expands the site boundaries of a previously recorded site, 41CM175, along the flanking edge of the T1 terrace.

The results of the testing and monitoring concluded that there is a long history of human occupation in the project area—starting from the Late Paleoindian period, through the Archaic, and into the Historic—and that cultural materials exist in good geological as well as archaeological contexts. The site, 41CM175, is recommended as eligible for nomination to the National Register of Historic Places.

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Acknowledgments

This project would not have been possible without the assistance and careful attention of Chris Acker, the golf professional at Landa Park Golf Course. In addition, I would like to thank Dr. Britt Bousman for his contribution to the geological portion of this publication as well as his guidance through all phases of this project. I would also like to thank Ward Bramblett, Tony Lyle, and Dave Nickels for their assistance with monitoring and testing. Marcie Renner deserves special thanks for her masterful editorial skills, and finally I must thank Bruce Moses for his excellent drafting abilities and patience.

Introduction

This report describes archaeological investigations conducted by the Center for Archaeological Research (CAR) of The University of Texas San Antonio for the city of New Braunfels on the golf course in Landa Park, Comal County, Texas (Figure 1). The archaeological fieldwork described herein was performed under the auspices of the Texas Historic Commission, permit number 1682, in conjunction with and in response to proposed construction by Wingfield Construction Company. The latter was contracted by the city of New Braunfels to construct a golf cart barn and to supply the barn with both water and electricity.

The purpose of the fieldwork was to evaluate possible impacts upon any archaeological sites that might be encountered during the construction of the golf cart barn and related trenching activities. Twenty-six shovel tests were excavated in the footprint of the proposed structure and along three transects for the proposed electric and water lines. Monitoring of trenches was also conducted in conjunction with the placement of the utility lines. Unfortunately the golf cart barn was constructed without the CAR crew being alerted, so this activity was not monitored.

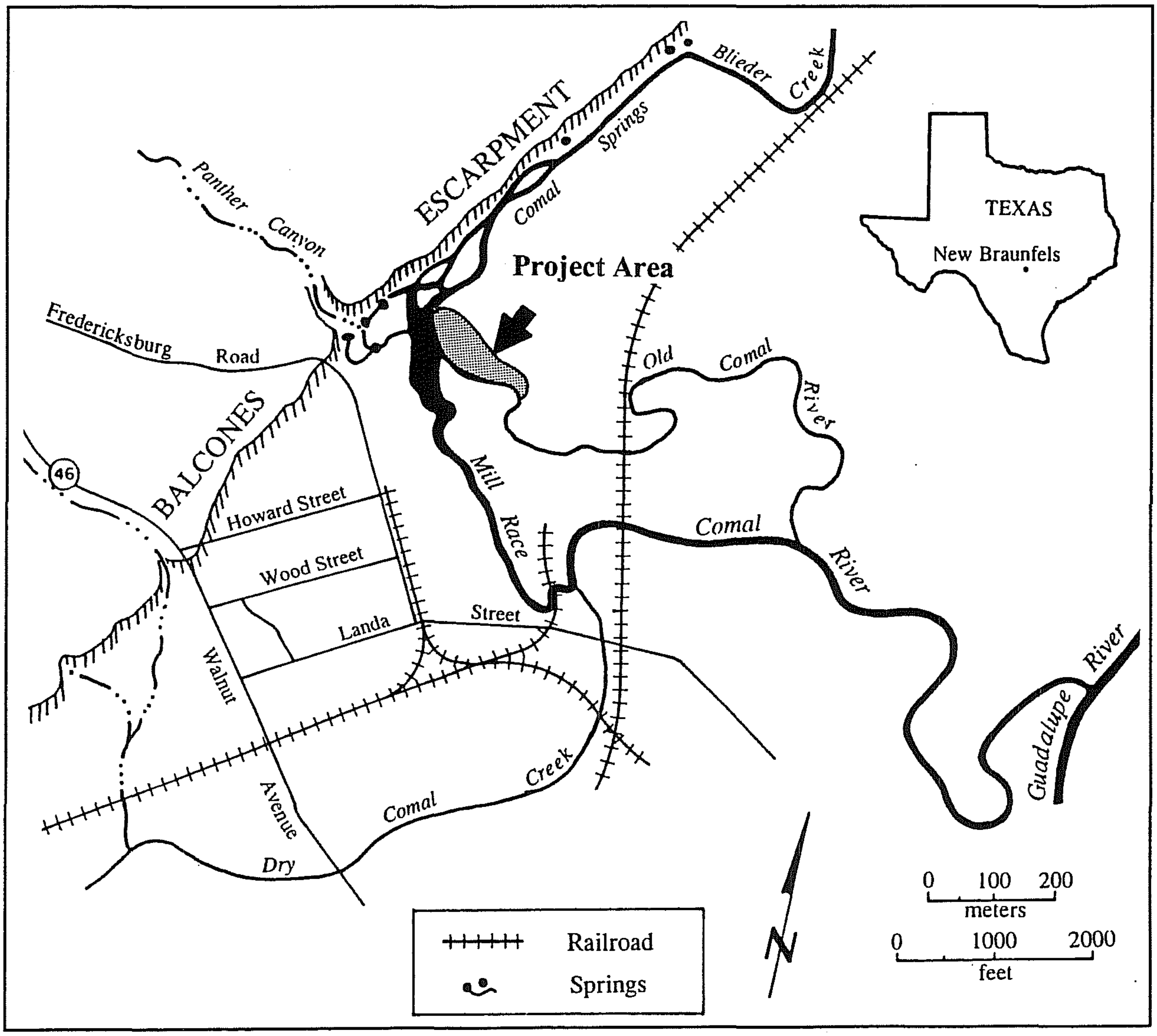

Figure 1. *Location map.*

General Setting

The project area is located on the Landa Park Golf Course, less than a kilometer east of the Balcones Escarpment within the Balcones Fault Zone (Figure 1). It is bounded on the west by Landa Lake, on the south by a small feeder stream, on the north by a fairway, and on the east by the Comal River and the golf course pro shop.

Previous archaeological investigations in the vicinity of Comal Springs have demonstrated that surface and buried deposits of burned rocks and lithic artifacts occur with some frequency (Bailey 1986; Smith 1985). In addition, excavations conducted by J. E. Pearce, A. T. Jackson, and A. M. Woolsey in 1936 unearthed a number of prehistoric burials southwest of the present project area (Pearce et al. 1936). Investigations at other nearby major springs along the Balcones escarpment have also demonstrated that archaeological materials are particularly rich and widely distributed, and span virtually the entire record of human occupation in North America (Ricklis et al. 1991; Shiner 1983; Takac et al. 1992).

Any discussion of the Landa Park area with respect to archaeology must focus, at least in part, on development in area in the last 150 years. For example, the source of the Comal River appears to be Landa Lake; however, this lake is an artificial construction and masks the true nature of the Comal River. In reality, Landa Lake is the result of a dam, built around 1850, which combined the flow of a number of springs percolating through the Lower Cretaceous limestones of the Edwards Plateau and surfacing at the foot of the Balcones Escarpment (Bailey and Bousman 1989:7). These springs, which maintain an almost constant temperature of 23°C, are the true origin of the Comal River. The river, at 5.2 km (3.25 miles) long, is the shortest river in Texas (Brune 1981:130).

One of the earliest accounts of this area was given by Dr. Ferdinand von Roemer. Roemer, in the company of the botanist Ferdinand Lindheimer, explored much of what was then west and central Texas in the late 1840s.

> . . . we came to a small, but extremely fertile plain on which dense patches of forests alternated with small enclosed prairies. After traveling some time toward the base of the range of hills, we suddenly heard near us the murmuring of rapidly flowing water, and a few moments later we stood at the most beautiful spring I had ever beheld. This, however, is not the only spring of the Comal. Near it . . . are four or six more springs of even greater volume of water and of equal clearness. Every one of them could turn a mill at its immediate source. All unite nearby and form the Comal which, unlike other streams, does not experience a gradual growth, but is born a sizable stream [Roemer 1935:109–10].

In fact, the rearrangement of the Comal channel was begun shortly after Roemer's visit in 1846. The Landa Lake dam was built as part of a larger project, the construction of the millrace in 1847 by William H. Merriwether using slave labor (Haas 1968). This supplied water to several mills and rerouted water into Comal Creek and eventually into the Comal River. The original stream channel of the Comal River apparently began at the northwest end of today's spring-fed swimming pool immediately south of the project area (Figure 2).

The escarpment area has traditionally been the home of a wide range of plant species during prehistoric and historic times due to the convergence of a number of vegetation zones (Diamond et al. 1987). While Roemer was a geologist by training, he also described some vegetation including palmetto, red cedar, cypress, elm, mesquite, and oak trees. This is consistent with later accounts (Brune 1981; Haas 1968) including Bailey's. The latter lists the natural vegetation of the area as a combination of southern Blackland Prairie, consisting of bunch and short grasses, and Mesquite-Chaparral Savanna, consisting of small trees, shrubs, and cacti (Bailey 1986:4). This mosaic of vegetation zones reflects the transitional nature of the Balcones Escarpment area and is consistent with other spring areas along the escarpment.

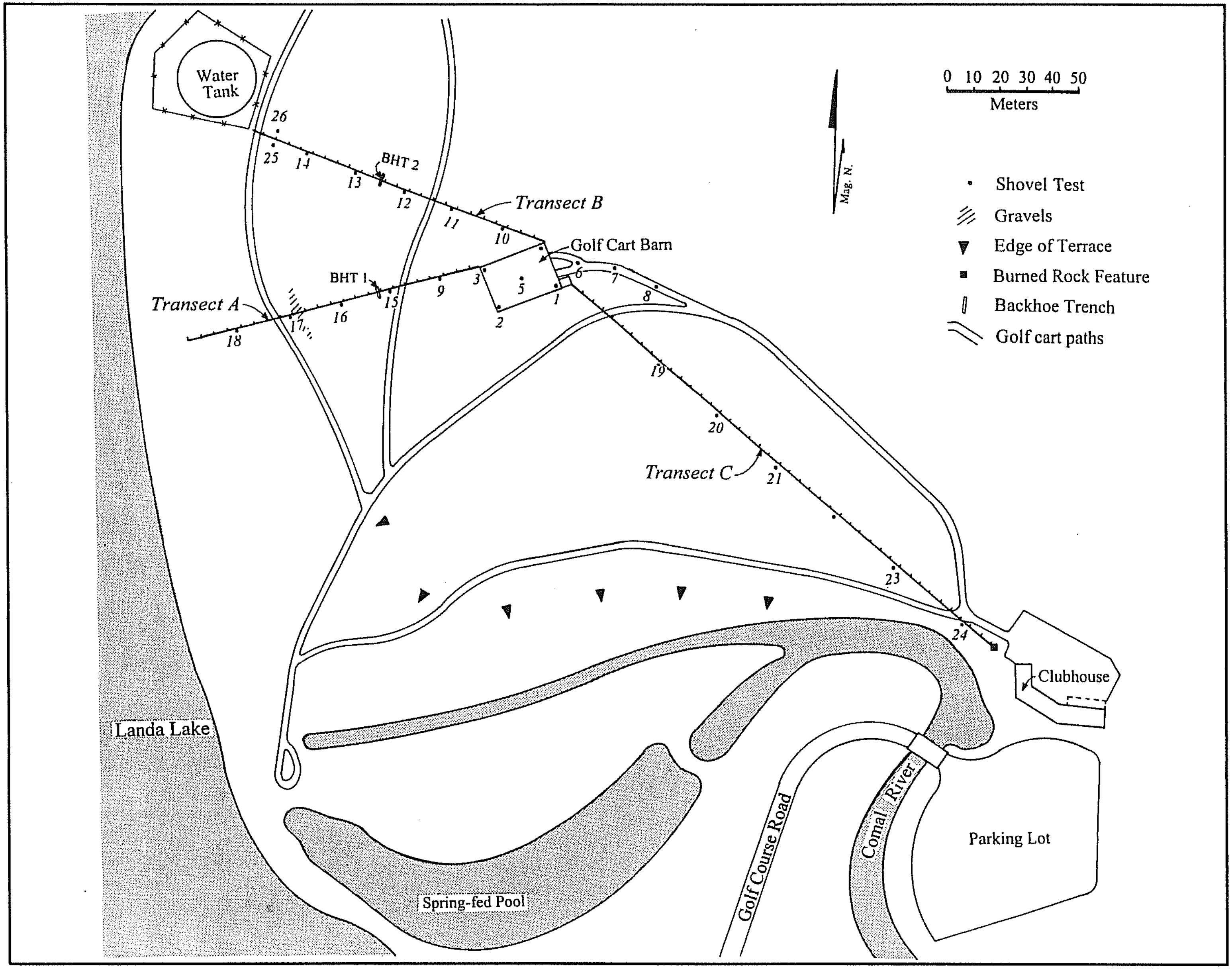

Figure 2. *Landa Park, with project area indicated.*

Today the area is still home to a wide range of flora; however, numerous plant species were introduced to the New Braunfels area during historic times. As noted earlier, the project area now lies in the middle of the Landa Park Golf Course. With the exception of a few oak and mesquite trees, virtually all vegetation has been introduced.

The Landa Park Golf Course also has a history of landscape development. According to the 1868 map of New Braunfels, the area was a pasture (Bailey and Bousman 1989:11). Bailey and Bousman (1989) note that due to the use of heavy machinery for excavation and fill, portions of the golf course were probably disturbed. However, the original course of the Comal River runs along one side of the golf course and remains relatively undisturbed. The Comal County soil survey indicates that Lewisville-Gruene-Krum soils cover the surface of the golf course (Batte 1984:33). These soils range from deep to very shallow, and level to gently sloping; and overlie loamy, clayey, and gravely sediments. In other areas, Oakalla silty clay loam (rarely flooded) occurs on the golf course (Bailey 1986:4; Batte 1984:33).

Previous Archaeological Research

Previous archaeological investigations were conducted on the golf course by Herman Smith in 1984 and Mark Denton in 1986 and 1987 (Denton 1986, 1987; Smith 1985). Smith conducted a pedestrian survey concentrated primarily along the watercourses of Landa Park and the golf course. Smith reported several sites to the Texas Historical Commission, three of which were located in the project area (Smith 1985:Figure 2, numbers 5, 6, and 7). Denton recorded Smith's site number 5 as 41CM175 with the Texas Historical Commission in 1987 (Denton 1987). This site is located in the northwest corner of the project area, under and to the north of the water tank (Figure 2). Smith and Denton both reported chert flakes and debitage and recommended monitoring future development in the area.

Methods

In May 1996, Britt Bousman and John Arnn, representing CAR, met with Chris Acker, the PGA professional at Landa Park Golf Course. The purpose of the meeting was to review the proposed golf cart barn construction and the trenching activities related to the barn construction. The golf cart barn construction site and transects for the utility line trenches were laid out. A surface collection of the entire area and preliminary maps were made. The surface collection produced several pieces of chert, including platform and non-platform flakes; however, these were not found in the immediate impact area. It should be noted that the ground cover encountered on this well-maintained golf course is thick and visibility is low.

Shovel Testing

Five shovel tests were excavated in the proposed footprint of the golf cart barn. One shovel test was located at each corner and another was placed in the center (Figure 2). All shovel tests were excavated to a depth of 50 cm. The following two days were spent finishing shovel tests of the proposed trench lines (noted as Transects A, B, and C). In total, 26 shovel tests were excavated. Shovel tests along Transects A and B were excavated every 20 m to a depth of 50 cm. Shovel tests along Transect C were excavated every 30 m to a depth of 50 cm.

Monitoring and Controlled Collection

Monitoring the excavation of the golf cart barn area was impossible because the construction crew excavated the area and poured the slab sometime after shovel testing was completed and before archaeologists returned to the site. However, all trenching activities were monitored and systematically collected. In addition, photographs of the trenches and golf cart barn area were taken. All trenches were excavated by a motorized "ditch witch" and were approximately 25–30 cm wide. Transect A was excavated to a depth of approximately 140 cm. Transects B and C were excavated to a depth of approximately 60 cm. Tapes were set up along the trenched transects and artifacts were collected in five-meter segments and their provenience noted. After trenching operations were completed, the first meter of mounded sediment out of every five-meter segment was raked and thoroughly examined for artifacts. Finally, a geological profile was recorded in Backhoe Trench 1 and observations were made in other trenches and exposures.

Artifact Classification

All diagnostic artifacts were compared to the typological definitions in Turner and Hester (1993). The temporal assignments of Turner and Hester (1993) were used as well. Nondiagnostic artifacts were classified as platform- or nonplatform-bearing flakes, shatter, core, uniface, biface, heat-damaged chert (HDC), fire-cracked rock (FCR), and mussel shell (Whitaker 1994).

Results

Geology
C. Britt Bousman

A single profile was recorded in Backhoe Trench 1 on Transect A. The profile description (Table 1) indicates that a soil developed on fine-grained overbank alluvial sediments. The fine-grained sediments sit conformably on stream-deposited gravels. Landscape morphology indicates that this is a T1 terrace of the Comal River. On Transect A, a facies change was observed in the upper fine-grained deposits. The sediments become coarser toward the western end of the transect and, at approximately 130 cm below the surface, gravels were observed. The terrace is beveled by more recent erosion in the final portion of the transect on the west end, and south of the transect. Limestone bedrock was exposed by erosion south of Transect A at approximately 2–3 m below the terrace surface. In the remaining transects, little variability was observed beyond slight variations in the thickness of the A-horizon. These observations indicate that a single terrace was constructed on limestone bedrock in this portion of the golf course, and that recent geological processes have eroded the edges adjacent to the existing water courses.

Table 1. Geological Profile, Backhoe Trench 1

Zone	Depth (cm)	Description
1	0–27	Dark brown (10YR 3/3) clay loam, fine subangular blocky structure, common small snail shell fragments, gradual smooth lower boundary, A horizon.
2	27–58	Dark yellowish brown (10YR 4/4) clay loam, fine subangular blocky structure, common small snail shell fragments and whole shells, $CaCO_3$ filaments, gradual smooth lower boundary, AB horizon.
3	58–92+	Reddish brown (5YR 4/4.5) clay loam, medium subangular blocky structure, common shell shells, common small $CaCO_3$ flecks, lower boundary not observed.
4	ca. 130+	Medium subrounded gravels, stream rolled.
5	200–300	Limestone bedrock.

Shovel Testing

Both historic and prehistoric artifacts were collected during shovel tests within the footprint of the golf cart barn. Historic artifacts include wire, wire nails, glass, and concrete in very small quantities. Prehistoric artifacts include flakes (platform and nonplatform), cores, fire-cracked rock, a biface, and mussel shell. Very little historic material was noted outside the golf cart barn area. Prehistoric material found along transects outside of the golf cart barn area included flakes (platform and non-platform), fire-cracked rock, and one grooved grinding stone of ferruginous sandstone. The latter material does not occur locally, so this artifact must have been transported to Landa Park. Ferruginous sandstones occur in numerous Eocene formations, e.g. the Reklaw Formation, occurring 45–50 km to the east (Fisher 1974).

Examination of the recovered material revealed a probable cultural zone between 20–50 cm below the surface (Table 2). In addition, concentrations of cultural material are seen at the outer ends (with respect to the golf cart barn) of Transects B and C, and at the beginning of Transect A.

Monitoring and Controlled Collection

The discussion of the monitoring and collecting is arranged by transect. The horizontal distributions of artifacts are plotted on individual line charts for each transect; the numerical data are provided in the appendix.

Transect A

Transect A began at a utility pole near the edge of Landa Lake and ended 115 m away at the northwest corner of the golf cart barn. At 140 cm, Transect A was the deepest of the three trenches. Figure 3 shows an artifact concentration at the beginning of the transect, followed by a drop-off in artifact frequency, which in turn is followed by an abrupt increase in cultural material at 50–55 m. It should be noted that between 20 and 50 m, stream gravels were encountered 15 cm below the surface and continued to the limits of the excavation depth. This suggests the presence of an abandoned stream channel, which would also explain the paucity of cultural materials within the bounds of encountered gravels. The presence of gravels may also represent a temporal as well as spatial division. The cultural material recovered from the Landa Lake side of the

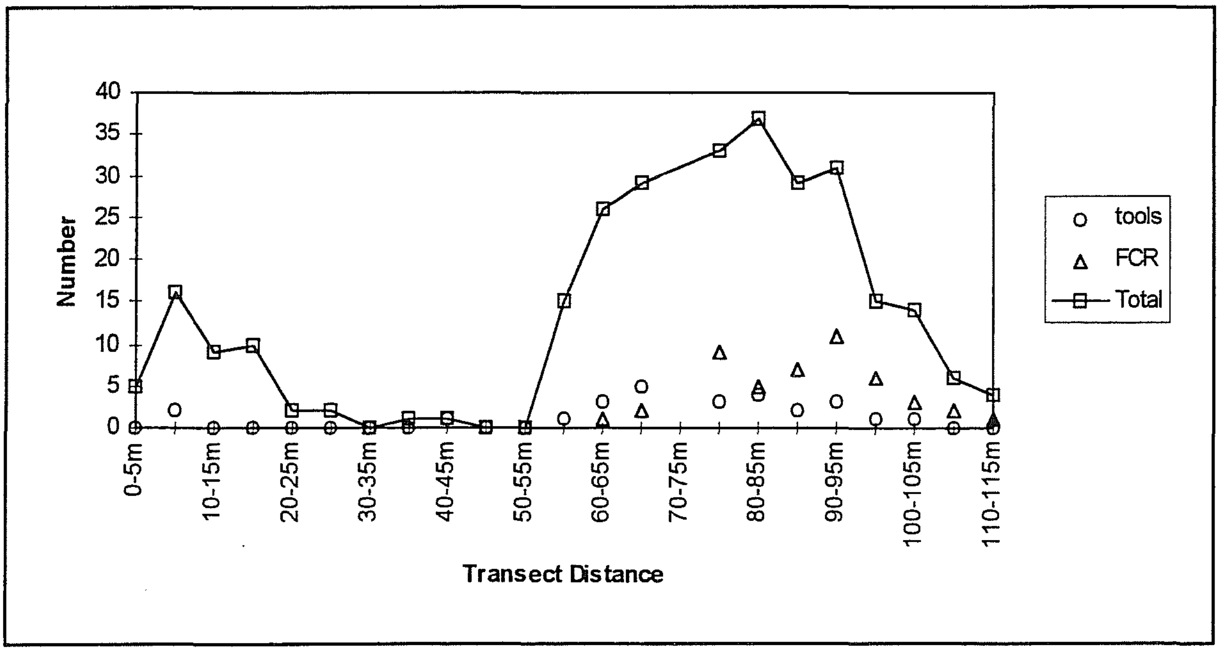

Figure 3. *Transect A, horizontal artifact distribution.*

Table 2. Cultural Material from Transects A, B, and C

Depth (cm)	Cart Barn Footprint					Transect A							
	ST 1	ST 2	ST 3	ST 4	ST 5	ST 6	ST 7	ST 8	ST 9	ST 15	ST 16	ST 17	ST 18
0-10	2 flks	6 hist 4 flks		2 FCR 4 flks	1 hist 1FCR 1 flk				1 core 1 flk				
10-20									6 flks	1 flk 1 ut. flk			
20-30		1 hist 3 flks			1 flk				4 flks		1 flk	1 flk	
30-40	3 flks	1 hist 1 biface 1 flk	5 flks 1 MS	1 flk		3 flks			10 flks				
40-50	1 core					1 flk		2 hist	12 flks				

Depth (cm)	Transect B							Transect C					
	ST 10	ST 11	ST 12	ST 13	ST 14	ST 25	ST 26	ST 19	ST 20	ST 21	ST 22	ST 23	ST 24
0-10								1 flk				1 flk 1 FCR	
10-20							3 flks 1 FCR 1 snail sh					1 flk	
20-30					5 flks 1 FCR		2 flks 1 FCR						1 gr st 1 FCR
30-40			1 flk		4 flks		2 flks	1 flk			1 flk		
40-50		1 flk			7 flks 2 FCR								

Key to abbreviations: flk - flake; hist - historic; FCR - fire-cracked rock; ut. - utilized; MS - mussel shell; sh - shell; gr st - ground stone gravel bar are primarily platform flakes. However, one core and two bifaces, all heavily patinated, showing wear/usage patterns were also recovered. With the exception of one biface (possibly a projectile point preform) very little cultural material was found in the gravel zone. The biface could have been displaced by earth-moving equipment after the initial trenching operation.

The second artifact concentration on Transect A (Figure 3) occurred between 50–100 m. Again, there was a large number of platform and non-platform flakes with respect to other materials. However, there were also significant increases in cores (12) and bifaces (10). In addition, two projectile points—a mechanically damaged Scottsbluff (Figure 4a) at 60–65 m at 110 cm below the surface, and an incomplete Montell (Figure 4b) at 65–70 m at an unknown depth—were recovered. Small amounts of mussel shell, heat-damaged chert, snail shell, and bone were also recovered from the eastern peak (see Figure 3). The presence of fire-cracked rock should also be noted.

Transect B

Transect B began at the southeast corner of the water tank fence (see Figure 2) and continued to the north corner of the golf cart barn and was trenched to a depth of approximately 40 cm. The area at the beginning of the transect has been disturbed due to the placement of the water tank and related utilities on the shore of Landa Lake. However, the shallowness of the trench did allow for better depth control. This may account for the even horizontal distribution of cultural material encountered along the length of the transect (Figure 5). While counts of various artifact types remained the same across the transect, two artifact classes—diagnostic projectile points and the relative amount of heat-damaged chert—deserve further discussion. A Marcos point (Figure 6a) at 20–25 m was so heavily damaged by heat and mechanical breakage that the identification is not absolute. The other point, tentatively termed a Hoxie point (Figure 6b), at 60–65 m, was identified based on size, slightly bifurcated stem, and stem grinding. The distribution of fire-cracked rock shows the heaviest concentration in the middle of the transect (see Figure 5).

Transect C

Transect C began at the southeast corner of the golf cart barn and ended at the edge of the asphalt pavement which lies behind the clubhouse. This

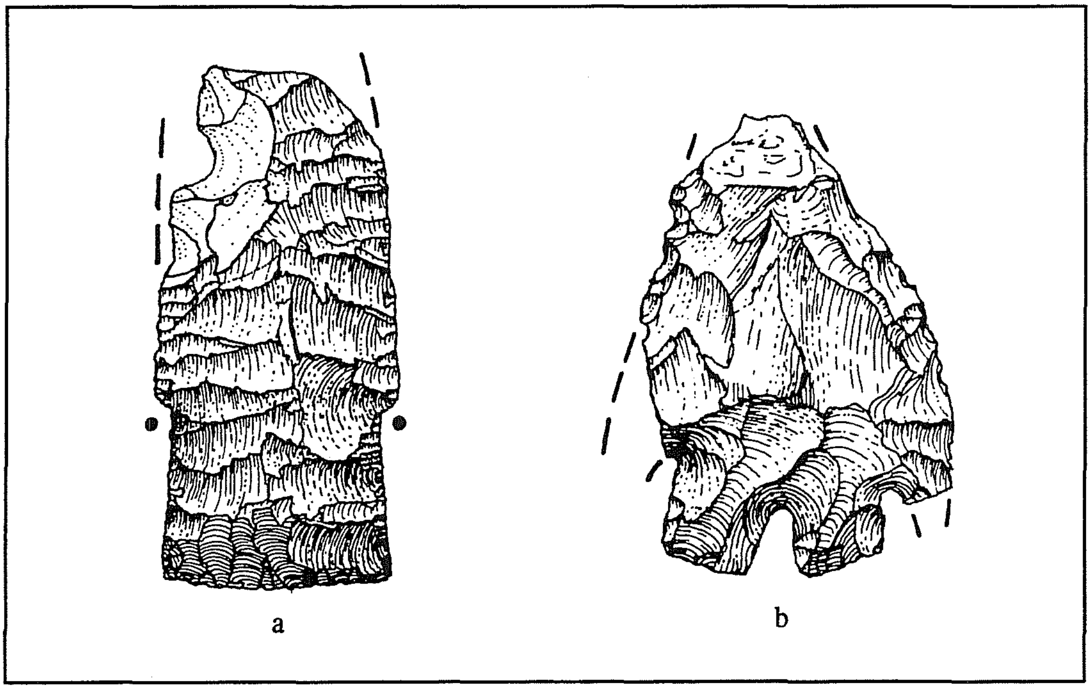

Figure 4. *Scottsbluff (a) and Montell (b) points from Transect A.* Shown actual size.

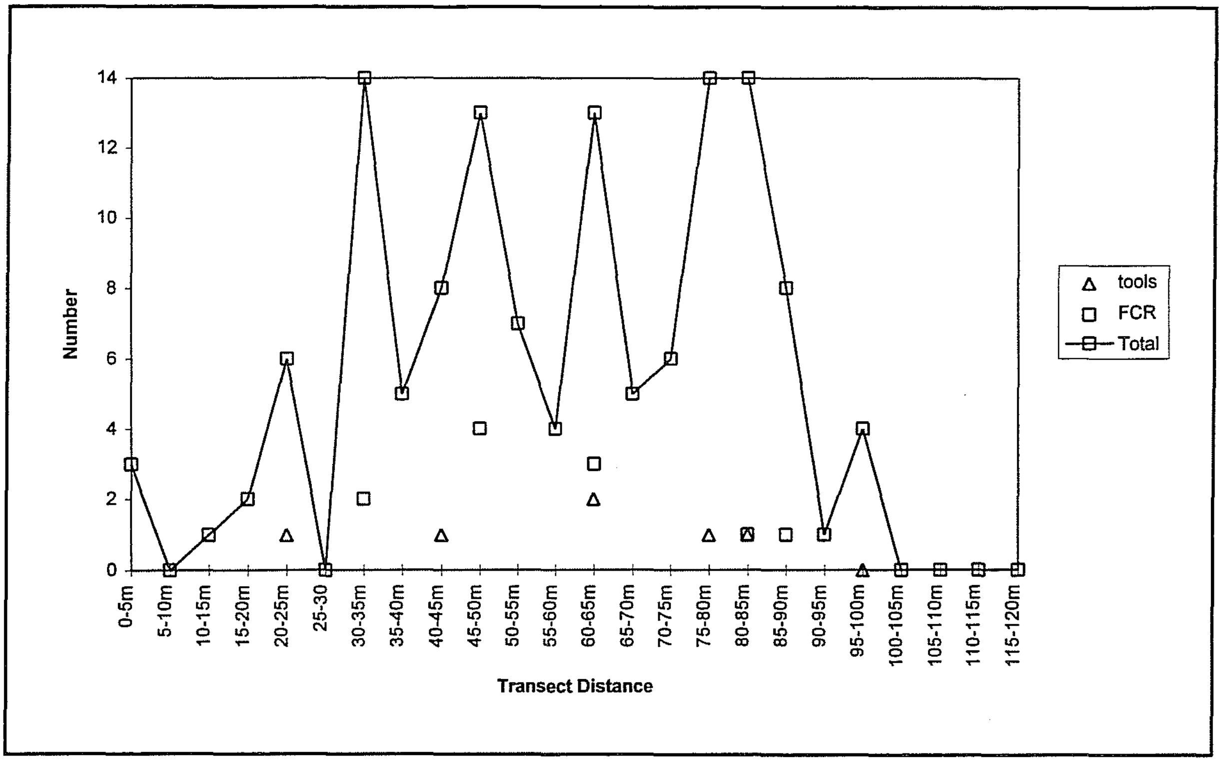

Figure 5. *Transect B, horizontal artifact distribution.*

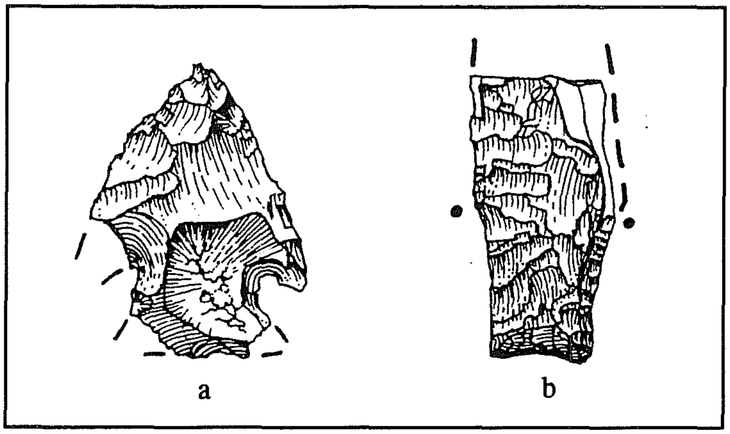

Figure 6. *Marcos (a) and Hoxie (b) points from Transect B.* Shown actual size

transect was excavated at varying depths due to two broken water lines; nonetheless, the trench was rarely deeper than 55 cm and never less than 40 cm deep. At 213 m it is almost twice as long as the other two trenches and provides an interesting overview of the area. No projectile points were found in Transect C; however, several tools and a possible grinding stone fragment were found. While numbers of artifacts as a whole were not spectacular, the three distict clusters of cultural material are significant. Since this clustering characterizes Transect C, it will be addressed in this report from the standpoint of the clustering phenomenon rather than on an individual tool basis.

Figure 7 shows three areas of marked cultural material concentrations. The first area, termed Area A, produced the usual platform and non-platform flakes as well as one core, one biface, and one Clear Fork tool. The second area, termed Area B, produced higher flake counts, one core, one biface, and one fragment which may be part of a grinding stone. The third and final area, Area C, produced the highest number of flakes, one core, one biface, and a concentration of heat-damaged chert. Also a distinct burned rock feature was encountered in Area C of this transect. In profile this feature appears to be either a series of hearths or perhaps the edge of a thin burned rock midden (Figure 8). Nevertheless, the material is clearly in a buried and sealed context, indicating good

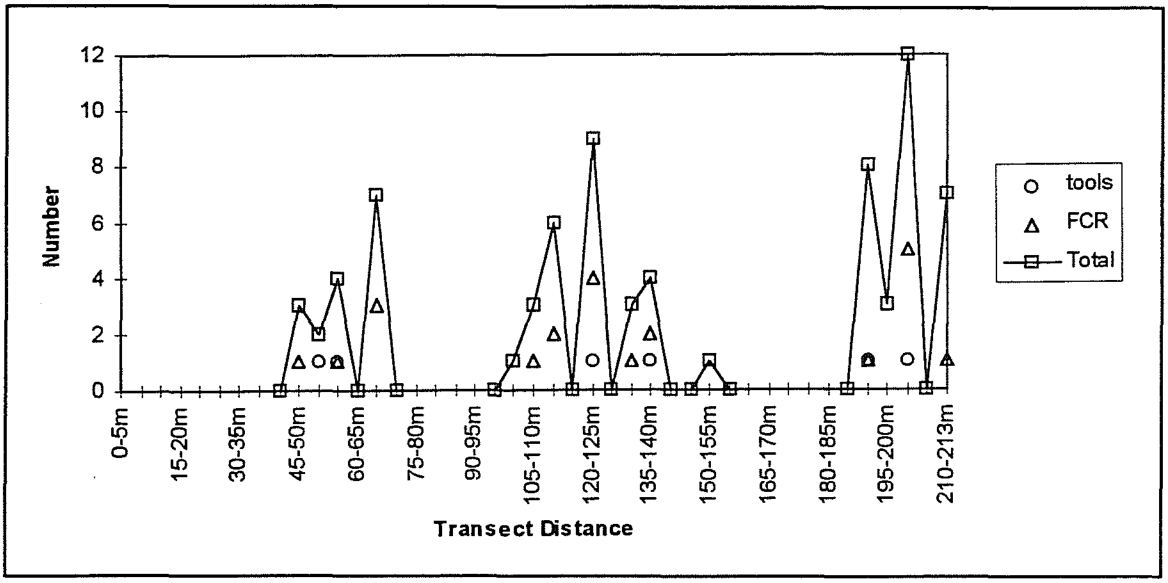

Figure 7. *Transect C, horizontal artifact distribution.*

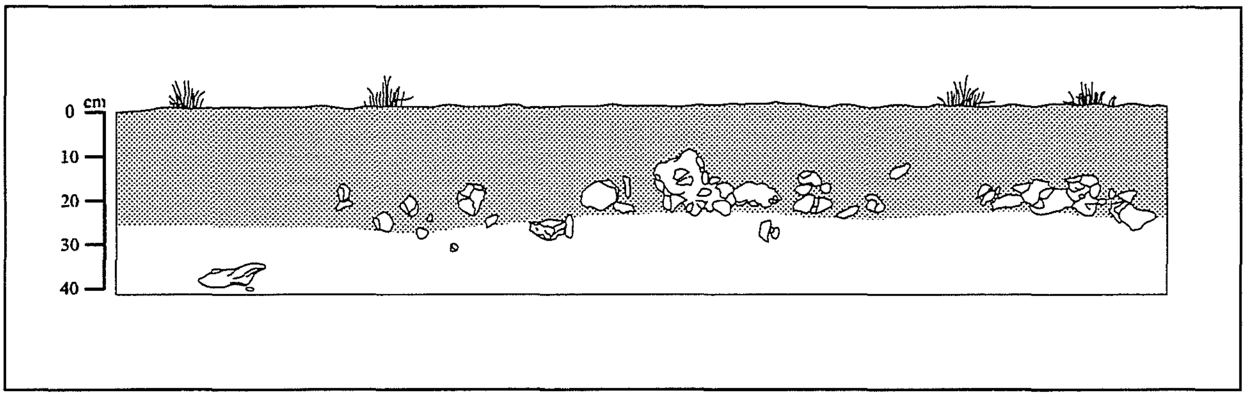

Figure 8. Profile of burned rock feature in Transect C, south wall.

stratigraphic integrity. The significance of this transect lies in the existence of the three distinct artifact concentrations, all of which produced fire-cracked rock, and the distinct buried feature in the final segment.

Summary

The shovel tests and monitoring provided a number of significant and meaningful results. First, prehistoric cultural material occurs in all areas investigated, and previous work by Bailey (1986), Denton (1986, 1987), and Smith (1985) demonstrates that archaeological materials are extremely widespread in other portions of Landa Park and the golf course. Together these data strongly suggest that all areas near the springs and Landa Park have the potential for containing prehistoric cultural material. Therefore, the boundaries of 41CM175 should be expanded to include the T1 terrace. The southern and western boundaries of the site would be the terrace edge. Unfortunately not enough information is available to plot the north and east site boundaries. However, based on the data collected during the current project, a line extending from the water tank to the clubhouse would include the known cultural material locations. This expansion would also include Smith's sites 6 and 7 (Smith 1985).

Second, abundant cultural material occurs to a depth of at least 140 cm, and in good geological and archaeological contexts. Thus these artifacts clearly represent the occurrence of significant archaeological components and prehistoric occupations. The limited geological observations and vertical distributions of diagnostic artifacts strongly indicate that the golf course and associated artifacts are on a T1 terrace. Based on previous geological data (Bailey and Bousman 1989) and diagnostic artifacts recovered during the present project, this terrace formed during the early to late Holocene and began to build at least by the Late Pleistocene. Thus the potential for a full range of prehistoric occupations spanning the last 12,000 years in good geological context is extremely high in the terrace deposits.

Finally, distinct concentrations of artifacts and features occur within the larger site context. Again this supports the inference that prehistoric cultural material occurs in good archaeological contexts despite the fact that development in the study area began relatively early and focused on hydrologic resources. Consequently the areas defined within this report should be investigated thoroughly when any future construction is undertaken. In summary, this site has well-preserved, stratified remains dating from the Late Paleoindian to Late Archaic periods, and is thus recommended as eligible for nomination to the National Register of Historic Places.

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Appendix: Artifact Data, by Transect

Key to abbreviations:

HDC - heat-damaged chert FCR - fire-cracked rock
MS - mussel shell

Table A-1. Transect A

Distance in meters	Platform Flake	Nonplatform Flake	Cores	Bifaces	Projectile Points	Unifaces	Shatter	Other	FCR	Total
0–5	3	2								**5**
5–10	9	1	1	2			3			**16**
10–15	6	2					1			**9**
15–20	7	3								**10**
20–25	1		1							**2**
25–30	1	1								**2**
30–35										**0**
35–40	1									**1**
40–45				1						**1**
45–50										**0**
50–55										**0**
55–60	9	3				1		2 MS		**15**
60–65	14	9			1	2		1 MS, 3 HDC	1	**31**
65–70	11	2		2	1	2		1 MS, 2 HDC, 1 Bone, 5 Snail shell	2	**29**
70–75										**0**
75–80	8	8	2	3			1	1 MS, 1 HDC	9	**33**
80–85	9	10	4	1		1	4	1 MS, 1 Bone, 1 Burin, 1 Spur	5	**38**
85–90	10	4	2			2	1	3 HDC	7	**29**
90–95	9	5	3	2				1 Burin	11	**31**
95–100	8		1	1					6	**16**
100–105	8	1		1			1		3	**14**
105–110	2							1 MS, 1 HDC	2	**6**
110–115	3								1	**4**

Table A-2. Transect B

Distance in meters	**Platform Flake**	**Nonplatform Flake**	**Cores**	**Bifaces**	**Projectile Points**	**Unifaces**	**Shatter**	**Other**	**FCR**	**Total**
0–5	3									**3**
5–10										**0**
10–15	1									**1**
15–20	1							1 HDC		**2**
20–25	3	1			1			1 HDC		**6**
25–30										**0**
30–35	7	5							2	**14**
35–40	5									**5**
40–45		5		1			1	1 HDC		**8**
45–50	5	3						1 HDC	4	**13**
50–55	5							2 HDC		**7**
55–60	2							2 HDC		**4**
60–65	6		2		1	1			3	**13**
65–70	5									**5**
70–75	5	1								**6**
75–80	7	2	1	1			2	1 Bone		**14**
80–85	7	5		1				1 FCR	1	**15**
85–90	4	2						1 MS	1	**8**
90–95		1								**1**
95–100	3	1								**4**

Table A-3. Transect C

Distance in meters	Platform Flake	Nonplatform Flake	Cores	Bifaces	Projectile Points	Unifaces	Shatter	Other	FCR	Total
0–5										**0**
5–10										**0**
10–15										**0**
15–20										**0**
20–25										**0**
25–30										**0**
30–35										**0**
35–40										**0**
40–45										**0**
45–50	1		1						1	**3**
50–55	1							1 Clear Fork tool		**2**
55–60	1	1		1					1	**4**
60–65										**0**
65–70	4								3	**7**
70–75										**0**
75–80										**0**
80–85										**0**
85–90										**0**
90–95										**0**
95–100										**0**
100–105	1									**1**
105–110	2								1	**3**
110–115	2	1					1		2	**6**
115–120										**0**
120–125	3		1					1 possible grinding stone	4	**9**
125–130										**0**
130–135	1							1 stream-rolled chert	1	**3**
135–140	1			1					2	**4**
140–145										**0**
145–150										**0**
150–155		1								**1**
155–160										**0**
160–165										**0**
165–170										**0**

Table A-3. continued

Distance in meters	Platform Flake	Nonplatform Flake	Cores	Bifaces	Projectile Points	Unifaces	Shatter	Other	FCR	Total
170–175										**0**
175–180										**0**
180–185										**0**
185–190										**0**
190–195	4	1				1		1 HDC	1	**8**
195–200	2		1							**3**
200–205	2	1		1				1 HDC, 1 Snail shell, 1 Clear Fork	5	**12**
205–210										**0**
210–213	3	1					1	1 HDC	1	**7**