

MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

**LIMITED TESTING AT MALJAMAR,
LEA COUNTY, NEW MEXICO**

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ADMINISTRATIVE SUMMARY

In September 1988 the Office of Archaeological Studies, Museum of New Mexico, conducted limited testing on a portion of LA 44794 in the right-of-way of proposed modifications to U.S. 82 in Lea County near Maljamar. A total of 1.09 ha (2.7 acres) was tested.

Four features were documented, all remains of hearths. The stratigraphic locations of the hearths suggest two separate occupations of the site. A C-14 sample collected from the subsurface hearth yielded a date of A.D. 558. The surface hearth was not datable but evidently was from a later occupation. A Midland projectile point (8500-8000 B.C.) was collected from the surface on disturbed ground. Due to a lack of extensive intact subsurface remains, no further archaeological studies are recommended.

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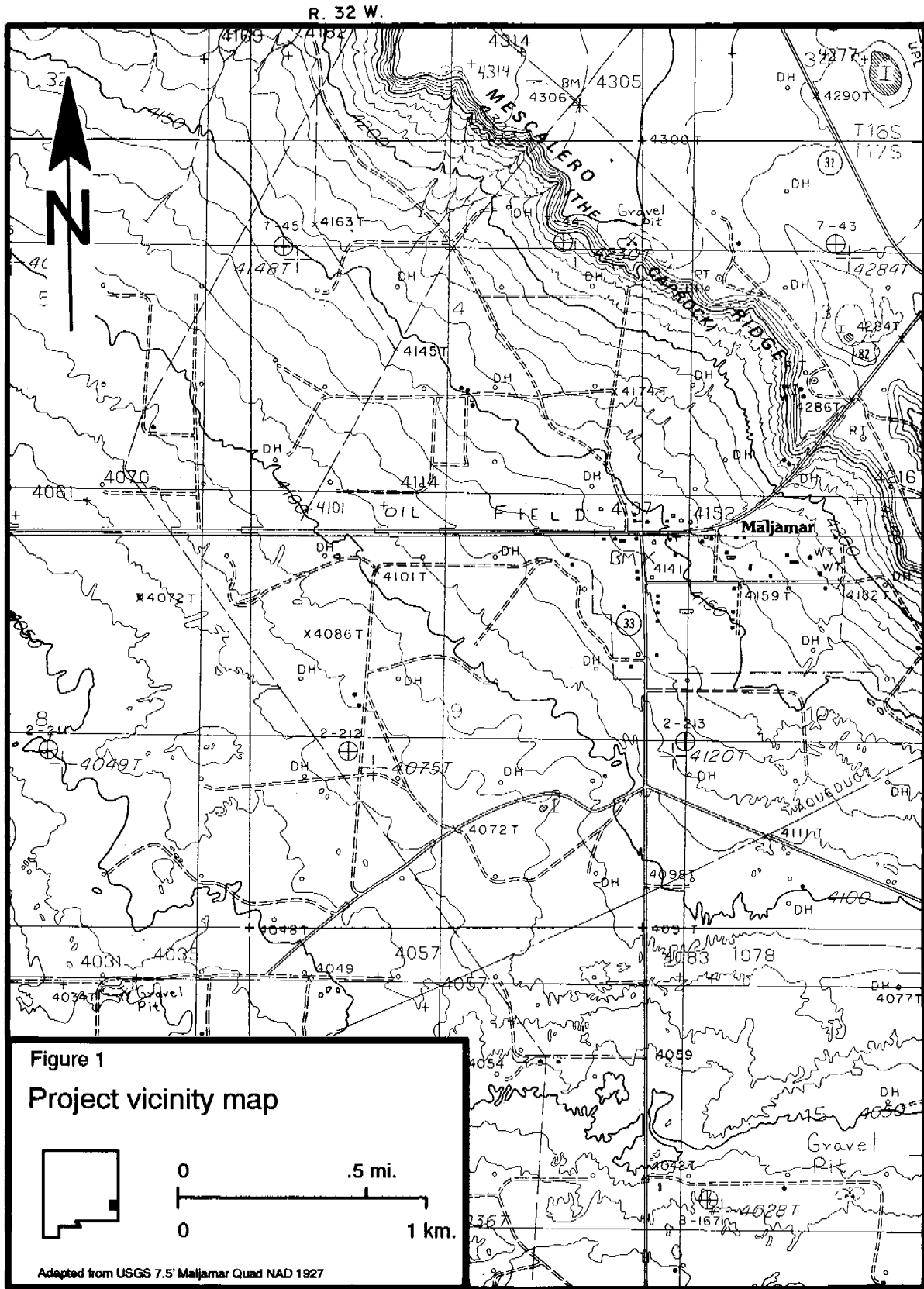
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INTRODUCTION

In July 1988, New Mexico State Highway and Transportation Department (NMSHTD) archaeologist Charles Haecker and Museum of New Mexico archaeologist Katherine Fuller relocated LA 44794, a site originally located in 1983 by Don Clifton of NMSHTD (Fig. 1). The survey was conducted in advance of proposed improvements to U.S. 82 in the vicinity of Maljamar, in Lea County, New Mexico. The location of the site is detailed in Appendix 1.

Based on their inspection of the site, Haecker and Fuller recommended that an archaeological testing program be carried out in the portion of LA 44794 within the highway right-of-way to determine if subsurface remains existed, and if so, their nature and extent. In September 1988, Stephen Post and Rhonda Main completed a limited test excavation of the site within the right-of-way. The tested portion is on highway right-of-way acquired from private sources.

The principal investigator for the project was David A. Phillips, Jr.



ENVIRONMENT

Physical Setting

LA 44794 sits on the southwestern edge of Mescalero Ridge, which defines the southwestern boundary of the Llano Estacado, at an elevation of 1,247 m (4,090 ft). The Pliocene Ogallala formation occurs in the project area and extends from the Pecos Valley in eastern New Mexico into West Texas. It consists of sandy alluvium with gravel, silt, lacustrine clays, and freshwater limestone (Reeves 1972).

Mescalero Ridge is a massive calcareous deposit near the top of the Ogallala formation. Local topography ranges from low sand hills or dunes to steep bluffs. The escarpment extends from Santa Rosa, New Mexico, south to Pearle, and east to Monument, where it all but disappears. The caliche accumulation varies in thickness from 0.9 to 2.8 m (3.0 to 9.1 ft) (Bretz and Horberg 1949) and forms the erosion resistant surface of the Llano Estacado.

Gravel from the Ogallala formation found at the base of the Caprock includes light-colored to dark gray quartzite, red to brown jasper, and gray to dark blue chert (Elbright 1979). Occasional examples of this gravel, though rare, were present on the site.

Soils and Hydrology

The USDA Soil Survey for Lea County (1974) indicates that the Pyote series, consisting of well-drained soils and fine sandy loam subsoil, is the primary soil type in the project area. The gravels, primarily angular caliche pebbles, comprise up to 30 percent of the soil volume.

No major streams cross the Llano Estacado. Numerous ephemeral ponds lie on the plains north of LA 44794. Permanent water sources do exist on the Querecho Plain and the Mescalero Ridge to the southwest. Permanent springs were active on the Querecho Plain as late as the nineteenth century. Sinkholes dot the plains and are another source of water (Rudecoff 1987).

Mean annual precipitation in the area averages 355 to 400 mm (14 to 16 in). The rainy season begins in late April and continues through early October. Eighty percent of the rain falls in late summer. September is the wettest month. Snow falls between November and April, averaging 75 to 205 mm (3 to 8 in) annually.

The average temperature ranges from 27 degrees C (80 degrees F) in July to 7 degrees C (45 degrees F) in January.

Flora and Fauna

LA 44794 is located in an environment that is transitional between plains grassland and Chihuahuan desert scrub. Both zones are represented in the floral and faunal species of the desert grassland area.

Grasses in the area include black grama, tobosa, bush muhly or hoe grass, poverty three-awn, and curly mesquite. Succulents observed include agave and yucca. Shrubs include mesquite, shinnery oak, catclaw acacia, and Mormon tea. Cholla and prickly pear were also noted.

Nine of 142 faunal species listed for the area are now extinct. Large mammals include pronghorn antelope, mule deer, and whitetail deer (Findley et al. 1975).

According to Dillehay (1974), large bison herds roamed the southern plains during three different prehistoric periods: 10,000-6000 B.C. (the Paleoindian period), 2500 B.C.-A.D. 500, and from A.D. 1200-1300 through the Historic era. These periods were separated by periods when few or no herds were present; Dillehay (1974) attributed the shifts to climatic changes.

Cottontail rabbits, black-tailed jackrabbits, pocket gopher, pocket mouse, and cotton rat are some of the smaller species common to the area. A variety of lizards, snakes, and birds also inhabit the area.

The Laguna Plata faunal assemblage (Gray 1977) provides the only information on local prehistoric use of faunal resources. Laguna Plata is 19.4 km (12 mi) west of LA 44794 in an area studded with sinks and small lakes. Jackrabbits were the most common species in the assemblage, followed by cottontails, pronghorn antelope, and bison. Haskell (1977, cited in Rudecoff 1987) believed that it was a limited base camp repeatedly occupied from the Archaic period to about A.D. 1200.

Competition with livestock introduced by European settlers has affected the distribution, frequency, and even the presence of floral and faunal resources in the project area. Buffalo herds had been systematically exterminated by white settlers by 1875 (Opler 1983). The oil industry and its discard of brine has also affected the landscape. The range of floral and faunal resources on the Mescalero Ridge and Querecho Plains was probably much more varied and abundant during the prehistoric era (Rudecoff 1987).

CULTURAL HISTORY

The archaeological record of the Hobbs area, scant at best, has been altered by artifact collection by amateur archaeologists, oil workers (Haskell 1977:8), and local residents over a period of many years.

The available archaeological evidence indicates that the area has been inhabited for the last 12,000 years. Syntheses of the local cultural sequence appear in Camilli and Allen (1979), Leslie (1979), Stuart and Gauthier (1981), Sebastian and Larralde (1989), and Rudecoff (1987).

The Paleoindian period is better represented in the southeastern quadrant than any other area of New Mexico. Archaeological evidence of Paleoindian occupation include kill sites, camp sites, butchering sites, and lithic quarries on the margins of late Pleistocene pond or lake beds, dune blowouts, caves, and gravel terraces (Sebastian and Larralde 1989:30-36). The vast majority of Paleoindian finds are isolated projectile points (Stuart and Gauthier 1981:264-265). The Paleoindian adaptation in southeastern New Mexico lasted roughly from 10,000 to 5500 B.C., as represented by dated strata from Hermit's Cave, Burnet Cave, and Blackwater Draw locality 1 (Stuart and Gauthier 1981:261; Sebastian and Larralde 1989:26). Remains of Paleoindian complexes identified at southeastern New Mexico sites include Clovis (10,000 [?]-9000 B.C.), Folsom and Midland (8800-8000 B.C.), Plano (8000-6600 B.C.), and Cody (6600-6000 B.C.) (Sebastian and Larralde 1989:32-33; Tainter and Gillio 1980:28; Cordell 1979). Paleoindian subsistence clearly focused in part on the larger mammals of the late Pleistocene and early Holocene. Site types and locations reflect this focus. The extent to which Paleoindian populations relied on other plant and animal resources is unknown.

The Archaic period (5,000 B.C.-A.D. 1000) in southeastern New Mexico is not well known. None of the Archaic remains found in the southeast part of the state suggest early agricultural subsistence or hunting of large animals, unlike remains in western New Mexico. Stuart and Gauthier (1981) suggest that hunting and gathering had a substantially longer temporal span in southeastern New Mexico than in northwest New Mexico, where agriculture was introduced about 1000 B.C.

Pottery at southeastern New Mexico sites first appeared around A.D. 900 and is associated with limited trends toward sedentism, population aggregation, and horticulture. Village and base campsites, most often located near permanent sources of water, appear during the Ceramic period (Leslie 1979; Haskell 1977). Imported ceramics from areas to the west and south suggest interaction with peoples from those areas.

The occupations associated with the Querecho phase (A.D. 900 or 950 to A.D. 1100) seem to be a continuation of the Hueco phase of the Archaic period, which is characterized by gathering camps placed around water holes (Leslie 1979). Jornada Brown Ware appears and is common during the ceramic period. By the end of the Querecho phase, clearly defined "village sites" with small rectangular pit structures appeared (Leslie 1979).

The Maljamar phase (A.D. 1100-1250) brought increased sedentism with larger pithouse villages and greater amounts of imported ceramics (Leslie 1979).

There seems to have been a 100-year period of partial abandonment of the area between the Maljamar and Ochoa phases (Leslie 1979). Stuart and Gauthier (1981) suggest changes in rainfall quantity and seasonality caused the abandonment.

Surface structures appeared during the Ochoa phase (A.D. 1350-1450). Excavations have yielded little or no evidence of corn agriculture on Ochoa-phase sites. This led to the suggestion that Ochoa-phase populations lived in fixed-place structures but relied on buffalo herds, a mobile and unpredictable resource, for subsistence (Leslie 1979). Sebastian and Larralde (1989:82) refutes this interpretation, suggesting that data recovery methods resulted in the lack of evidence for agriculture, and the data do not necessarily indicate the absence of human use.

Southeastern New Mexico was occupied by Apachean and Plains Indians and settled by early Spanish ranchers and, later, Anglo ranchers and oilmen. A comprehensive overview of the protohistoric and historic periods is provided by Sebastian and Larralde (1989).

FIELD METHODS

The objective of the limited testing project was to determine the depth and extent of cultural remains at LA 44794 within the right-of-way along the proposed modification of U.S. 82.

The site extends into the right-of-way on both the north and south sides of U.S. 82. Its dimensions within the right-of-way are 113.7 by 95 m, approximately 10,800 sq m (116,230 sq ft) or 1.09 ha (2.7 acres).

The crew began by walking parallel transects up to 10 m wide until 100 percent of the area was covered. Inspection was concentrated in areas that were deflated and lacked vegetation. Artifacts, burned rock, and other site features were marked with pinflags and mapped with a transit and stadia rod.

Auger tests were conducted in the vicinity of the features at 4-m intervals and in the remainder of the site at 10-m intervals. The total number of tests was 116 (Fig. 2).

Four 1-by-1-m test units were excavated in 10-cm levels. When subsurface hearths were encountered, they were cross-sectioned, and flotation, pollen, and C-14 samples were collected. All of the fill was screened through 1/4-inch mesh. Profiles were drawn for all test pits. The two unexcavated portions of subsurface features were covered with plastic for protection, and all auger tests and test units were backfilled. General and specific site and feature photos were taken, and sketch maps were drawn.

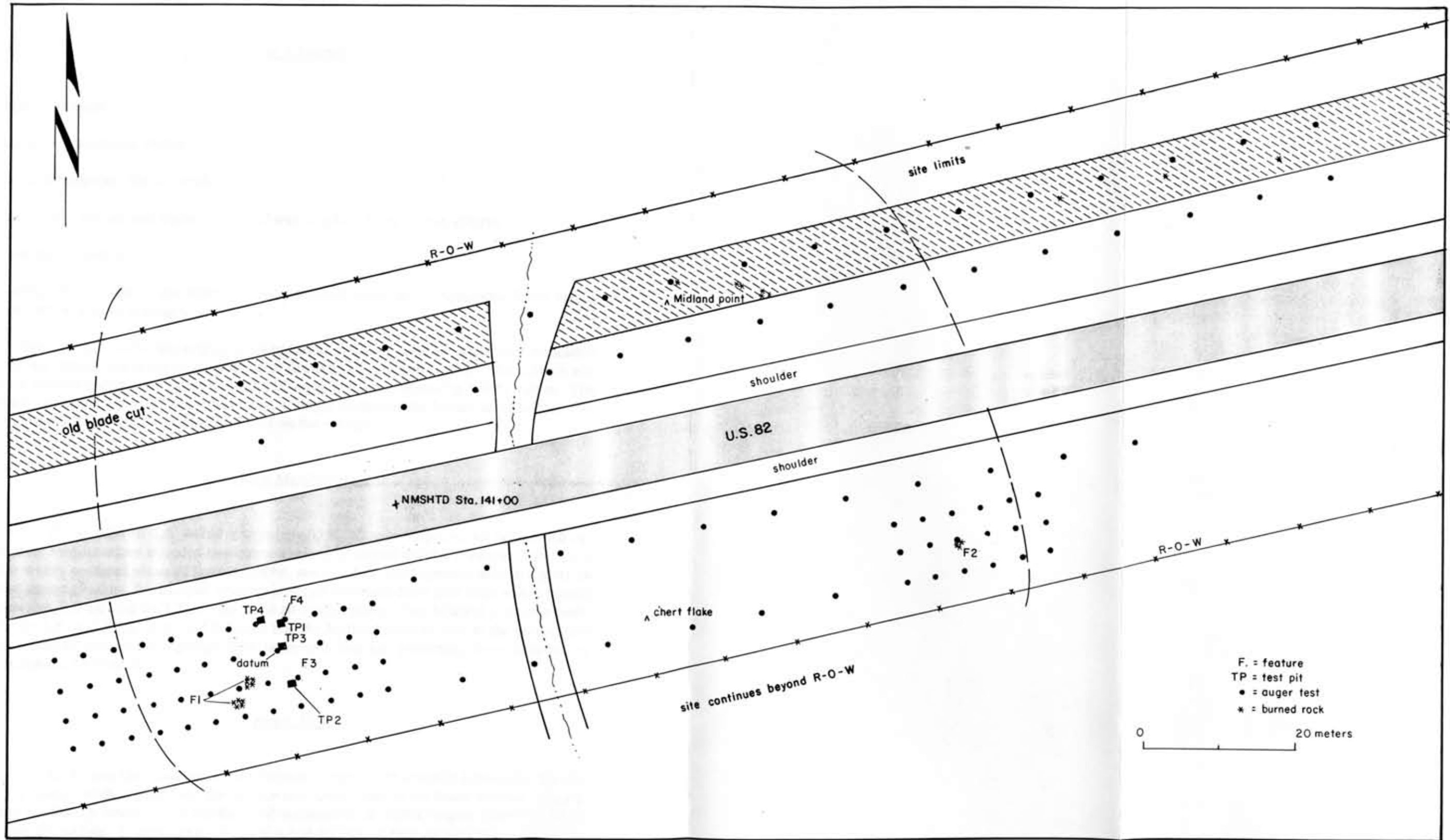


Figure 2. LA 44794 site map.

RESULTS

Site Summary

Type: Campsite.

Cultural Association: Archaic.

Legal Description: See Appendix 1.

Ownership: Private and highway right-of-way acquired from private sources.

Elevation: 4,090 ft.

Setting: The site sits in the midst of low, stabilized dunes on the Querecho Plains and is bisected by a small drainage.

Description: LA 44794 was originally identified as a diffuse lithic artifact scatter associated with six discrete but small concentrations of fire-cracked rock and caliche. The artifacts and rock concentrations were spread over 18,000 sq m in an area measuring 150 by 120 m. The lithic artifacts were small core flakes and a single nondiagnostic brown chert biface. No temporally diagnostic artifacts were found on the surface.

Surface Manifestations

The portion of LA 44794 crossed by U.S. 82 was subjected to limited testing. Surface manifestations included two concentrations of burned caliche (Features 1 and 2), a few widely scattered pieces of burned caliche, and one dark stain approximately 40 by 40 cm in diameter (Feature 3). Mapped artifacts included one black chert core flake with a faceted platform, 2.0 cm long by 3.7 cm wide, and an opaque brown chert Midland projectile point, 3.1 by 1.8 by 0.4 cm. It should be noted that the Midland point as well as the burned rock on the north side of the highway were in an area that had previously been disturbed by mechanical equipment.

Auger Tests

Auger tests identified two strata. Stratum A consists of a reddish brown (7.5 YR 4/6) eolian sand, which is loose near the surface and hardpacked 50 cm below surface. Stratum B is a culturally sterile, white calcified soil encountered at depths ranging from 0 to 80 cm below the surface. In some areas, Stratum A had deflated or been scraped off mechanically.

A total of 116 auger tests were conducted. One auger test yielded charcoal from a depth of 40 cm below the surface, and subsequently a test pit was placed directly to the south of the hole to investigate (Test Pit 1, Feature 4). The remaining auger tests yielded no indications of subsurface cultural remains. Test cores were extracted until sterile calcified soil (Stratum B) was encountered. In seven cases, tests were discontinued before Stratum B was encountered as a result of auger failure or impenetrable root and rock. For the location of auger tests see Figure 2.

Test Pits

Test Pit 1 was placed directly south of Auger Test 9, which yielded charcoal 40-50 cm below the modern ground surface. The 1-by-1-m test unit was excavated in 10-cm levels to 60 cm below the modern ground surface. Charcoal and staining from Feature 4 were encountered at 43 cm below the modern ground surface. Feature 4 is described in the following section. Two soil strata were defined, applicable to all four test pits. The upper level was 10 to 20 cm of light brown (7.5 yr 5/4) eolian sand mixed with caliche flecks and modern artifacts. The lower level appears to be an older, more consolidated dune level of brown (7.5yr 4/6) sand with less caliche and little or no organic material. Digging was discontinued when charcoal flecks and staining ended.

Test Pit 2 was placed in a portion of Feature 3, the only surface stain. The test pit determined the depth and approximate size of the feature. Test Pit 2 was excavated to 60 cm below the modern ground surface, where charcoal flecks and staining no longer occurred. The soil description for Test Pit 1 also applies to Test Pit 2.

Test Pits 3 and 4 were placed 2 m south and west of the first test pit, where the profile had revealed a break in the soil between the eolian sand and the hard-packed sand below. We decided to investigate this soil break and test for other features or cultural material. These 1-by-1-m tests, also excavated in 10 cm levels, yielded no features or cultural material but did substantiate the idea of an old ground surface. The presence of a buried, low, "fossil" dune was revealed in the profile outlined by the break in soils between loose eolian and hard-packed sand (Fig. 3).

Features

Feature 1 was a surface fire-cracked-rock concentration of about 40 burned, gray caliche fragments (Fig. 4). No artifacts were associated with the concentration. An auger test adjacent to the feature yielded no cultural deposits. It measured 80 cm north to south by 100 cm northeast to southwest.

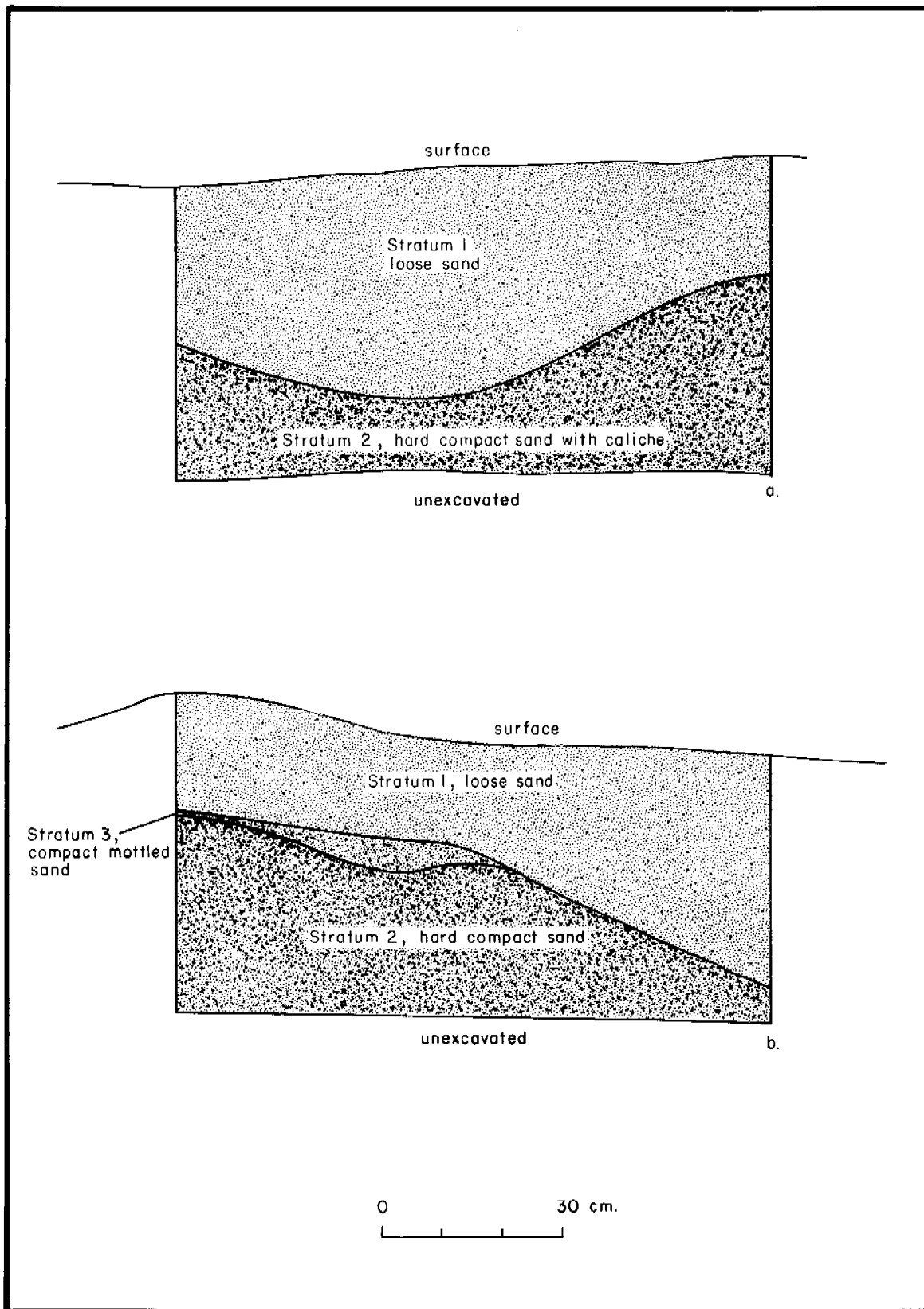


Figure 3. Profiles of Test Pit 3: (a) north wall; (b) east wall.



Figure 4. Feature 1.

Feature 2 was a surface fire-cracked-rock concentration of 22 burned gray caliche fragments (Fig. 5). It measured 80 cm north to south by 100 cm east to west. No artifacts were associated. An auger test placed adjacent to the concentration yielded no subsurface cultural deposits.

Feature 3 was the remains of a hearth excavated into native soil, first identified as a surface charcoal stain (Figs. 6 and 7). Excavation of the southeast quarter of the feature revealed a hearth 33 cm in depth and a projected diameter of 40 cm. The fill was dark, stained sand and charcoal (7.5 yr 2/0). The hearth was excavated through the loose modern eolian deposit into the more compact old dune level. Based on its stratigraphic position, it postdates Feature 4. Ethnobotanical samples and C-14 samples were collected but provided no additional functional or temporal information.

Feature 4 is a subsurface hearth 40 to 43 cm below the modern ground surface in the old dune level (Fig. 8). The west half of the feature was excavated and defined by very dark charcoal-stained soil (7.5 yr 2/0). Its projected diameter was 35 cm, and it was 15 cm deep. Ethnobotanical and C-14 samples were collected.



Figure 5. Feature 2.



Figure 6. Feature 3.

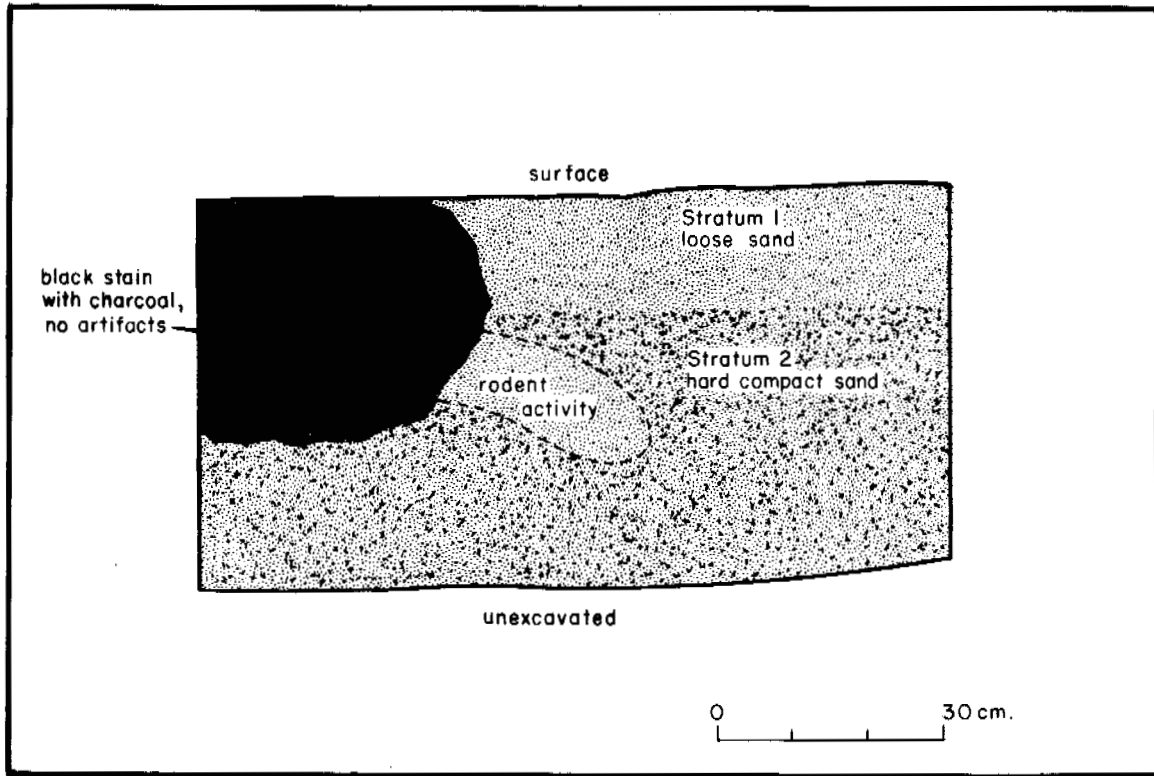


Figure 7. Profile of Feature 3.

Carbon-14 Sample

Only Feature 4 yielded sufficient charcoal for a C-14 sample. The extended count provided a median date of A.D. 558 with a one-sigma range of A.D. 434 to A.D. 638.

Flotation Samples

Scanning of the two flotation samples from Feature 4 produced limited results. Only the sample from the stain 30-40 cm below surface contained possible carbonized, spherical seeds. Charcoal in Sample 2 was mostly mesquite, with some greasewood or saltbush present. A full report can be found in Appendix 2.



Figure 8. Feature 4.

CONCLUSIONS AND RECOMMENDATIONS

Based on the data from surface inspection and limited testing, LA 44794 is an ambiguous site. Surface collection of the entire site within the right-of-way, an area of over 10,000 sq m, yielded only two items. Four features were recorded--two concentrations of burned caliche and two hearths--but none of the features was associated with structural remains or artifacts of any kind.

The stratigraphic locations of the hearths suggest two separate occupations: an earlier, Late Archaic occupation (Feature 4) associated with the surface of the calcified sands, and a later one of unknown affiliation (Feature 3) lying at or near the present ground surface. Given the lack of associated remains, these hearths may be instances of isolated activity (such as campsites used for brief periods).

The Midland projectile point is certainly an intriguing find, but it was found on the surface in an area affected by mechanical blading. As a Paleoindian artifact, it apparently has no direct relation to the occupation on top of the calcified sand (dated by radiocarbon analysis to the late Archaic period) or to the subsequent occupation, associated with the present ground surface. Its presence could be the result of an heirloom effect, or it may be unassociated with the rest of the site.

In summary, LA 44794 appears to represent a widely scattered collection of isolated activities widely spaced in time. These activities are not associated with any structured assemblage of material remains. The site appears to be one of those rare instances where subsurface remains, while present, are not likely to yield information important to local or regional prehistory. In fact, it is difficult to imagine any research question that could be answered by more intensive work. For this reason, we recommend that no further archaeological studies be conducted within the portion of LA 44794 lying within the proposed construction zone.

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APPENDIX 2: FLOTATION RESULTS

FLOTATION FROM MALJAMAR (LA 44974).
AN UNDATED SERIES OF HEARTHES IN LEA COUNTY, NEW MEXICO
MNM #41.443

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Flotation samples were presented for analysis from a site consisting of isolated burn features, located along U.S. Highway 82, in the southeastern corner of New Mexico, north of El Paso. The four hearths comprising LA 44974 lack associated structures or use surfaces, and are not associated with cultural artifacts that can provide information as to their cultural, chronological, or functional identity. Two levels of subsurface Feature 3, a black stain with charcoal, were sampled for flotation analysis.

Soil samples collected during excavation were processed at the Laboratory of Anthropology by the simplified "bucket" version of flotation (see Bohrer and Adams 1977). Each sample was measured for volume and then immersed in a bucket of water, and a 30-40 second interval allowed for settling out of heavy particles. The solution was then poured through a fine screen (about 0.35 mm mesh) lined with a square of "chiffon" fabric, catching organic materials floating or in suspension. The fabric was lifted out and laid flat on coarse mesh screen trays, until the recovered material had dried. Each sample was sorted using a series of nested geological screens (4.0, 2.0, 1.0, 0.5 mm mesh), and then reviewed under a binocular microscope at 7-45x in its entirety. The material at the bottom of the bucket (familarly referred to as "sink", in contrast to "float") was water-screened, dried, and examined also.

Sample 2, from deeper Feature 3 deposits, contained sufficient charcoal for examination of a 20 piece sample (10 from the 4 mm screen, and 10 from the 2 mm screen). Each piece was snapped to expose a fresh transverse section, and identified at 45x. Low-power, incident light

identification of wood specimens does not often allow species- or even genus-level precision, but can provide reliable information useful in distinguishing broad patterns of utilization of a major resource class.

RESULTS

Sample 1 (800 ml. of soil) derived from the upper level of fill of Feature 3, within 10 cm of the datum (just above present ground surface). This layer of dark sand contained very little charcoal, and abundant signs of current biological activity (modern roots, insect larval sacs or egg cases, and insect and/or rodent scats). Two spherical seeds appeared to be carbonized, but were unidentifiable in their partial, very degraded condition (Table 1). Two unknown seed taxa occurred as well, possibly present in conjunction with the observed rodent activity (MM feature form, Feature 3). Leguminosae seeds (cf. Crotalaria sp. in size, shape, and color, but not in seed coat texture) were recovered from the "sink" portions of **both** Feature 3 samples. Sample 2, a continuation of the black stain at 20 - 30 cm below datum, contained more possibly-carbonized, spherical seeds. Charcoal in Sample 2 was mostly mesquite, with some Sarcobatus or Atriplex present (Table 2). The charcoal composition duplicates that recovered repeatedly in the Rio Abajo/El Paso area (Table 3). Sites in the foothills of the Sacramentos (Florida Avenue, Hembrillo Canyon) are distinguished by significant components of coniferous wood and sage.

Table 1. Flotation Results from Flotation Samples, LA 44974 (Maljamar).

<u>Taxa</u>	Feat.3 <u>Lev.1</u>	Feat.3 <u>Lev.3</u>
Unknown 9109	1/1.3	
Unidentifiable	2/2.5*?	2/0.6*?
Total Seeds:	3/3.8	2/0.6

"Sink" portion of sample:

Leguminosae	3/3.8	10/3.2
viz. <u>Crotalaria</u>		

a/b a= actual number of seeds recovered; b= seeds per liter of original soil sample

*? some or all specimens **may be** carbonized

Table 2. Species Composition of Flotation Charcoal, Feature 3, Level 3.

<u>Taxa</u>	Pieces		Weight	
	<u>#</u>	<u>%</u>	<u>g</u>	<u>%</u>
<u>Prosopis</u> mesquite	19	95	0.7g	[100]
<u>Atriplex/Sarcobatus</u> saltbush/greasewood	1	5	<0.05g	<1
Total:	20	100	0.7g	100

Table 3. Comparison of Charcoal Composition, Rio Abajo sites.

<u>Project</u>	<u>Reference</u>	<u>Period</u>	n[#]	n[g]	<u>Prosopis</u>		<u>Atriplex</u>		<u>OTHERS</u>	
					% #	% wt.	% #	% wt.	% #	% wt.
Maljamar	[this study]	?	20	0.7g	95	100	5	<1	0	0
Sunland Park	Toll 1989a	Mesilla Phase	20	0.3g	60	67	25	33	15	<1
St. Theresa	Toll 1987a	?	134	138.9g	90	95	10	15	0	0
MA235G-1	Toll 1987b	Mesilla & El Paso Phases	80	2.7g	91	93	8	7	1	<1
Florida Ave.	Toll 1988	early Brownware	40	0.7g	20	<1	8	<1	72	100
Hembrillo Canyon	Toll 1989b	(Archaic to Mogollon/ Apache)	41	13.7g	78	71	0	0	22	29
GB-FELTIE	Toll1987c	?	496	16.4g	81	85	10	3	9	12