

**MUSEUM OF NEW MEXICO**  

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**OFFICE OF ARCHAEOLOGICAL STUDIES**

**THE ROSWELL RELIEF ROUTE PROJECT, PHASE 2:  
ASSESSMENT AND DATA RECOVERY PLAN FOR  
SIX PREHISTORIC AND HISTORIC SITES,  
ROSWELL, NEW MEXICO**

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with a contribution by  
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**ARCHAEOLOGY NOTES 94**

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## ADMINISTRATIVE SUMMARY

On August 1-4, 1988, a team from the Office of Archaeological Studies, Museum of New Mexico, conducted an archaeological survey of the Roswell Relief Route (Project ST-(F)-023-2(202)) for the New Mexico State Highway and Transportation Department (NMSHTD). Other surveys, performed prior to minor right-of-way changes, had located two archaeological sites (LA 54346 and LA 54347) and three isolated occurrences. The 1988 survey recorded an additional four sites (LA 68182-LA 68185). The four prehistoric sites include a ceramic-period hearth site, a bedrock mortar site, and two Archaic sites. The two historic sites appear to be homesteads. The project was conducted on private and New Mexico State Highway and Transportation Department land.

Additional data were needed to evaluate three of the sites, and a second field phase was initiated. This report presents the results of the survey and testing phases and makes recommendations for the further treatment of all six sites.

MNM Project No. 41.439.

NMSHTD Project No. ST-(F)-023-2(202).

State of New Mexico Lands Archaeological Survey Blanket Permit SP-53.

This report is submitted in fulfillment of Joint Powers Agreement D03553 between the Museum of New Mexico and the New Mexico State Highway and Transportation Department.

In accordance with New Mexico state law (18-11.1, NMSA 1978), the appendixes have been removed from copies intended for unrestricted circulation.

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## INTRODUCTION

On August 1-4, 1988, a team from the Office of Archaeological Studies, Museum of New Mexico, conducted an archaeological survey of the Roswell Relief Route project ST-(F)-023-2(20) for the New Mexico State Highway and Transportation Department (Fig. 1). David A. Phillips, Jr., served as principal investigator. The project supervisor was Regge N. Wiseman, assisted by Mark Sale. Other surveys, performed prior to some minor right-of-way changes, had located two archaeological sites (LA 54346 and LA 54347) and three isolated occurrences (IOs 1-3) (Nelson 1986; Taylor 1986). Shortly afterward, significant details of the project design were changed, necessitating a resurvey of the project. The 1988 survey recorded an additional four sites (LA 68182-LA 68185).

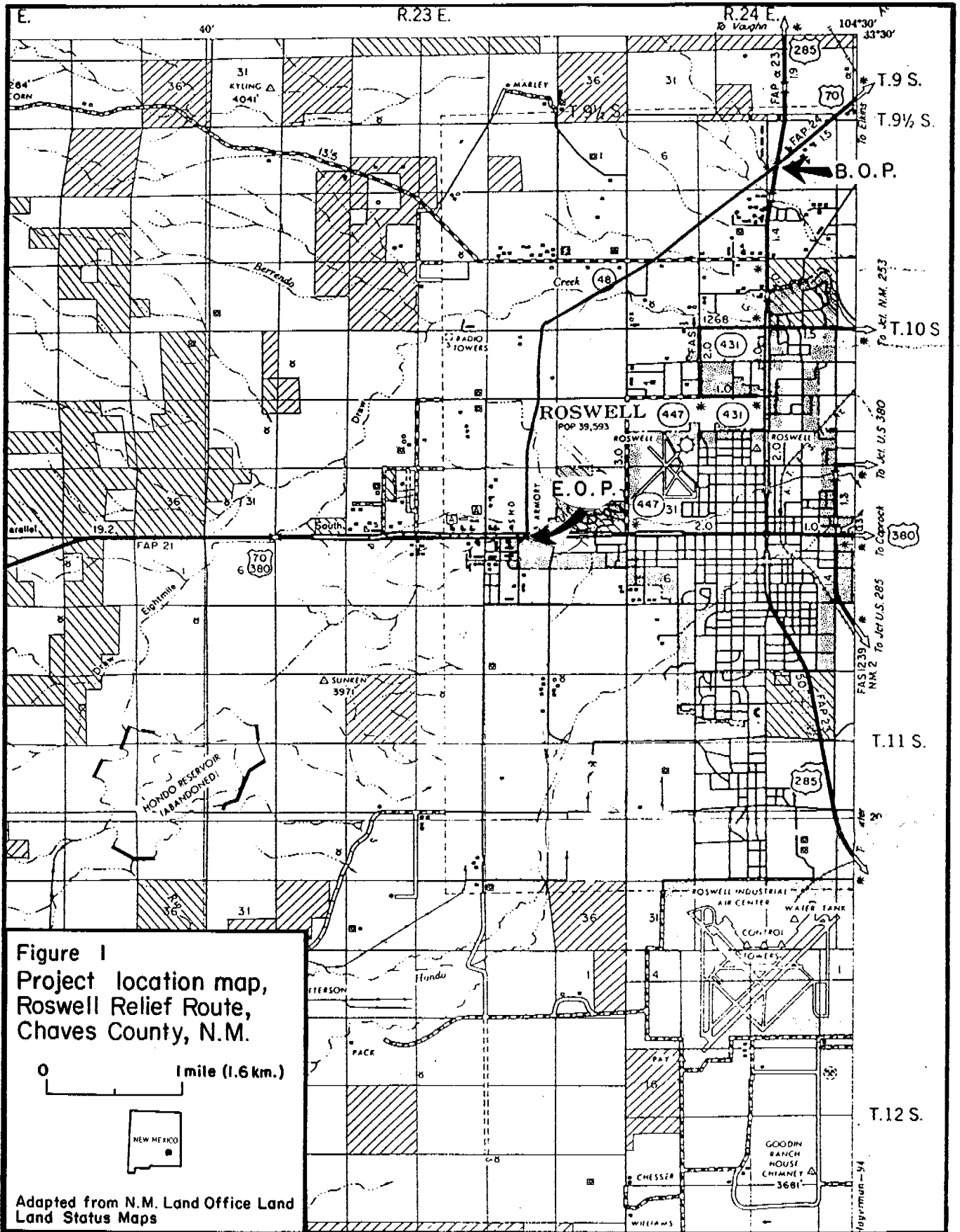
The project lands are privately owned or under the jurisdiction of the New Mexico State Highway and Transportation Department. The right-of-way of the relief route project is 12.22 km (7.60 mi) long and 61 m (200 ft) wide, an area of 30.16 acres, or 74.54 ha. It traverses the parcels of land identified in Table 1. For a legal description of the sites, consult Appendix 1.

**Table 1. Location of project area**

<i>Land Parcel</i>	<i>Section</i>	<i>Township</i>	<i>Range</i>
W <sup>1</sup> / <sub>2</sub> SE <sup>1</sup> / <sub>4</sub> (BOP)	35	10S	23E
W <sup>1</sup> / <sub>2</sub> NE <sup>1</sup> / <sub>4</sub>	35	10S	23E
W <sup>1</sup> / <sub>2</sub> SE <sup>1</sup> / <sub>4</sub>	26	10S	23E
W <sup>1</sup> / <sub>2</sub> NE <sup>1</sup> / <sub>4</sub>	26	10S	23E
W <sup>1</sup> / <sub>2</sub> SE <sup>1</sup> / <sub>4</sub>	23	10S	23E
W <sup>1</sup> / <sub>2</sub> NE <sup>1</sup> / <sub>4</sub>	23	10S	23E
NE <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub>	23	10S	23E
E <sup>1</sup> / <sub>2</sub> SE <sup>1</sup> / <sub>4</sub>	14	10S	23E
N <sup>1</sup> / <sub>2</sub> SW <sup>1</sup> / <sub>4</sub>	13	10S	23E
SE <sup>1</sup> / <sub>4</sub> SE <sup>1</sup> / <sub>4</sub> NW <sup>1</sup> / <sub>4</sub>	13	10S	23E
SW <sup>1</sup> / <sub>4</sub> SW <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub>	13	10S	23E
SE <sup>1</sup> / <sub>4</sub> SW <sup>1</sup> / <sub>4</sub> NE <sup>1</sup> / <sub>4</sub>	13	10S	23E

*Table 1 (continued)*

N $\frac{1}{2}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	13	10S	23E
N $\frac{1}{2}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$	18	10S	24E
NW $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$	18	10S	24E
SE $\frac{1}{4}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$	18	10S	24E
NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$	7	10S	24E
N $\frac{1}{2}$ SE $\frac{1}{4}$	7	10S	24E
SE $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$	7	10S	24E
SW $\frac{1}{4}$ NW $\frac{1}{4}$	8	10S	24E
N $\frac{1}{2}$ NW $\frac{1}{4}$	8	10S	24E
S $\frac{1}{2}$ SE $\frac{1}{4}$	5	10S	24E
NE $\frac{1}{4}$ SE $\frac{1}{4}$	5	10S	24E
NW $\frac{1}{4}$ SE $\frac{1}{4}$ (EOP)	4	10S	24E





## NATURAL ENVIRONMENT

The proposed Roswell Relief Route lies within the broad Pecos Valley. The predominant land form is low rolling hills and flat lands bordering Middle Berrendo Creek, South Berrendo Creek, and North Spring River. Elevations along the survey route average 2,000 m.

The surface geology of the project area consists of mixed alluvial sediments deposited by the Pecos River and its tributaries. San Andres Limestone (Permian) outcrops in the low hills to the west and at the north end of the project (Dane and Bachman 1965). A distinctive gray chert, called San Andres chert, can be found eroding from the San Andres formation in many places near the project. This material was frequently used to make tools by the prehistoric inhabitants of the region.

Soils crossed by the project include the Reakor-Tencee association (deep loams and shallow gravelly loams over indurated caliche), the Reakor-Reeves association (deep loams), and the Bigetty-Dev-Pecos association (loams, cobbly loams, and silty clay loams) (Hodson et al. 1980).

Before intensive agricultural development in the late 1800s, surface water in the Roswell area was especially plentiful. Early pioneers described several spring-fed streams (North, Middle, and South Berrendo creeks and the North and South Spring rivers) full of crystal-clear water (Shinkle 1966). The prehistoric peoples also had the waters and resources of Rio Hondo, which drains the Sierra Blanca to the west; and the Pecos River, its source in the Sangre de Cristo range in north central New Mexico. The ready availability of water gave the Roswell area an oasis-like aspect, reflected in the prehistoric and early historic remains. The vegetation of the Roswell area prior to Euroamerican settlement consisted of a grama-dominated grassland. Trees were common only along the various watercourses (Shinkle 1966).

The Roswell area had a variety and abundance of wildlife. Early pioneers described large herds of antelope, cottontails, jackrabbits, and an abundance of fish (Shinkle 1966). The Pecos River formed the western boundary of the range of the great bison herds that frequented the southern Great Plains, though small herds moved west of the river as well. The Pecos is also a minor migratory flyway. The Bitter Lakes Wildlife Refuge outside Roswell harbors migratory ducks, geese, and other species.

Roswell's climate today is characterized by mild winters and hot summers. The mean January temperature is 3.3 degrees C; the mean July temperature is 25.9 degrees C; and the yearly mean is 14.7 degrees C. The average frost-free season is in excess of 200 days (Tuan et al. 1973).

Precipitation takes place mostly in the summer. The mean annual precipitation is 295 mm, of which 210 mm fall between April and September (U.S. Department of Commerce 1965).

## CULTURAL SETTING

### Regional Culture History

The prehistoric occupation of the Roswell region is poorly known. Other than small contract surveys, few projects have been completed there. The area is peripheral to two major culture areas, the Plains to the east and the Jornada Mogollon to the west; attempts at relating Roswell archaeological remains to one or the other often yield ambiguous results. Also, artifact collecting, which results in a loss of scientific information, has been a popular activity of Roswell residents over the past 100 years. Thus, the brief culture history that follows is based on work from surrounding regions, and its applicability to the Roswell area must be viewed as tentative.

Sites in the immediate vicinity of Roswell reflect the oasis-like character of the area. Local natural resources are especially favorable to more intensive occupation and presumably greater population stability than in surrounding areas. It is not surprising, then, that a number of known and suspected sites with architecture are present and that they have the character of sites left by the more sedentary Jornada Mogollon peoples to the west: substantial trash deposits, much pottery, pithouses, and pueblo-style dwellings. For this reason, Jane Kelley (1984) has tentatively included Roswell within the geographic reach of her Lincoln phase, which dates from the late thirteenth, fourteenth, and perhaps early fifteenth centuries. Somewhat earlier remains (e.g., the Rocky Arroyo site, Wiseman 1985) also generally fit the Jornada Mogollon configuration and can be included with them. However, other sites with structures from the ceramic period, such as King Ranch (Wiseman 1981) and the Fox Place (Wiseman 1991), are enigmatic and currently unassignable to an existing culture chronology.

These remains contrast with the extensive scatters of artifacts that are commonly found in the sand dune country east of the Pecos River and on the Sacramento Plain north, west, and south of Roswell (Stuart and Gauthier 1981). It is currently unclear how these scatters relate to either the Jornada Mogollon or the Plains manifestations. Given their geographic location, they could have been occupied by peoples from either the Jornada-Mogollon or by hunter-gatherers bearing a Plains-like culture. Some progress is being made in determining their relationship (Speth 1983; Rocek and Speth 1986), but we are far from the last word on the matter.

The following culture history outline of southeastern New Mexico is distilled from a number of sources. Sources for the prehistoric period include Stuart and Gauthier (1981), a general study of New Mexico archaeology; Kelley (1984), a more specific study of the Sierra Blanca region west of Roswell; Jelinek (1967), the Pecos River north of Roswell; Katz and Katz (1985a), the Pecos River south of Roswell; and Leslie (1979),

east of the Pecos River and especially the southeastern corner of New Mexico. The primary references used for the historic period are Katz and Katz (1985b) and Shinkle (1964).

Human occupation of southeastern New Mexico began with the Llano complex ("Clovis Man") of the Paleoindian period, which dates to at least 13,000 years ago. These people and their successors of the Folsom period hunted large mammals such as mammoths and now-extinct forms of bison and maintained a nomadic or seminomadic lifestyle.

The retreat of the glaciers and resulting warming of the more southerly latitudes resulted in a shift in human adaptation to what archaeologists call the Archaic period. This adaptation was more eclectic and focused on smaller animals such as deer and rabbits. The appearance of grinding tools and specialized burned-rock features suggests a greater reliance on plant foods.

Further south along the Pecos River, in the Carlsbad area, an Archaic sequence has been proposed that may pertain to the Roswell area (Katz and Katz 1985a). It starts with the Middle Archaic, rather than the Early Archaic, suggesting that, at least along the river, there was an occupational hiatus between the Paleoindian and the Avalon phase (3000-1000 B.C.). Little is known about the peoples of the Avalon phase other than that they inhabited the floodplain near the river channel during at least part of the year, constructed hearths in the open, and consumed one or more species of freshwater shellfish. The subsistence orientation at these sites was clearly riverine. Projectile point styles, if any were used, are currently unknown.

The culture of Late Archaic peoples of the succeeding phase, the McMillan (1000 B.C. to A.D. 1) is better known because more sites with more remains have been documented. These people built relatively small hearths (1-m diameter clusters of small rocks) and burned-rock rings. They subsisted on riverine and upland plant and animal species. Previously named projectile point styles associated with the McMillan include the Darl and the Palmillas types.

The terminal Archaic in the Carlsbad area, called the Brantley phase (A.D. 1 to 750), saw a continuation of the previous patterns and increased use of burned-rock rings. Although this suggests that certain upland resources such as agave and sotol were becoming more important in the diet, the ratio of riverine to upland sites remained the same, with the emphasis still on floodplain living. Projectile point types commonly associated with the Brantley phase include the previously known San Pedro style; a newly described provisional type, the Pecos Point; and several less standardized but nevertheless familiar styles of points commonly found in the region.

From A.D. 750 to 1150 (Globe phase), at least in the Carlsbad region, occupation of the floodplain environment reached its zenith. Four major changes also occurred at

this time. Brown ware ceramics, the bow and arrow, and a type of rock habitation structure (the stone circle or piled rock structure) appeared for the first time. In addition, the subsistence system changed from an emphasis on riverine species supplemented by upland foods to one emphasizing upland species supplemented by riverine foods. Projectile point styles are dominated by the corner-notched arrow tips called Scallorn. In many ways, the Globe phase appears to have been transitional between earlier and later adaptive patterns.

After A.D. 1150, occupation along the river in the Carlsbad area diminished greatly. Those who remained in the area retained their essentially Archaic, hunter-gatherer lifestyle but continued to use pottery. By way of contrast, prehistoric occupation in the Roswell area involved substantial villages with impressive accumulations of trash (termed, at least in part, the Lincoln phase by Kelley [1984]). Corn agriculture was clearly important to the diet, but hunting, fishing, and gathering of wild plant foods were still important. This occupation ended rather abruptly some time in the fifteenth century when the entire region was apparently abandoned, at least by sedentary peoples. What happened to these people is unknown.

The period between the abandonment of southeastern New Mexico in the 1400s and the coming of the peoples described by the early Spanish explorers in the late 1500s is unknown. It is possible that nomadic use of the region continued during this time. From Spanish contact until after the American Civil War, roaming Apache and other Plains tribes kept Spanish, Mexican, and Euroamerican settlement of southeastern New Mexico in abeyance. Following the Civil War, mass westward movement of Americans and eastward drifting of small groups of New Mexico Hispanics led to settlement of the region. Roswell was founded about 1870. Artesian water was discovered in 1891, and its development promoted widespread irrigation and a rapid influx of people. The railroad reached Roswell in 1894, irretrievably setting the course for urbanization of the area. The town's economy, then as today, was based on agriculture and stockraising.

#### Previous Archaeological Work in the Roswell Area

Except for a number of small-scale contract projects associated with oil and gas exploration, archaeological investigations in the Roswell area have been few. Some of the more significant investigations include sample survey of the Abo Oil Field north of Roswell (Kemrer and Kearns 1984); testing of the Townsend site north of Roswell (Maxwell 1986); survey and excavation along the Middle Pecos River northeast of Roswell (Jelinek 1967); excavations at several sites in the Haystack Mountain area northeast of Roswell (Schermer 1980); excavation of the Garnsey Bison Kill and the Garnsey Spring Campsite east of Roswell (Speth 1983; Parry and Speth 1984); excavation at Rocky Arroyo south of Roswell (Wiseman 1985); excavation at the Henderson site southwest of Roswell (Rocek and Speth 1986); excavation at Bloom

Mound southwest of Roswell (Kelley 1984); survey of the Two Rivers Reservoir southwest of Roswell (Phillips et al. 1981); excavation of the Ontiberos Homestead west of Roswell (Oakes 1983); testing of 20 lithic artifact sites west of Roswell (Hannaford 1981); and excavation of the Fox Place site at Roswell (Wiseman 1991).

Both the *National Register of Historic Places* and the *State Register of Cultural Properties* have been consulted. No properties listed on either register, nor any properties currently under nomination to either register, lie within or adjacent to the project right-of-way.

## SURVEY METHODS

Aerial photomosaic maps with scales of 1:100 and 1:200 with a right-of-way overlay were used to find the stakes and other project markers on the ground (see Fig. 1). The survey was performed by archaeologists walking each side of the right-of-way at an interval of 15-20 m. Plant cover along most of the right-of-way was low, giving a good view of the ground.

The segment of the project right-of-way between stations 497+50 and 560+00 is in pecan orchards, and the land has been cut and leveled up to 1 m in depth. Here, one archaeologist walked each side of the right-of-way.

For the most part, surface artifacts were not collected. Most cultural materials used for dating and determination of cultural affiliation were identified in the field and left in place. The bifaces and projectile points noted at one site, LA 68185, were mapped on aerial maps and collected to ensure their retrieval for study.

All recording was performed on standard Museum of New Mexico forms, and all sites were photographed. The records will be stored in the Archeological Records Management System (ARMS), and the artifacts will be curated in the Archaeological Repository Collection (ARC). Both facilities are housed at the Laboratory of Anthropology, Museum of New Mexico, in Santa Fe.





## SURVEY RESULTS

The 1986 and 1988 surveys yielded a total of six sites and three isolated occurrences (IOs). The sites include four prehistoric sites and two historic sites, brief descriptions of which are given below. Site forms are in Appendix 2.

### LA 54346

Period: Historic.

Station: [REDACTED]; extends from centerline westward outside right-of-way.

Type: Home site/homestead (Figs. 2 and 3).

Size: 70 by 70 m.

Major Features: Abundant historic trash; two probable dugout depressions; a cistern; and two large, shallow depressions of unknown origin or function, much of the window glass in the primary trash deposit is melted (in some cases incorporating screen fragments and window latches), raising the possibility that a frame structure burned in place.

Estimated Date: 1880-1910 (hole-in-top cans).

Topography: Flat terrain 300 m northwest of the head of the North Spring River.

Comments: One of the depressions was tested (see next section).



*Figure 2. LA 54346, large depression on east side of site; looking west.*

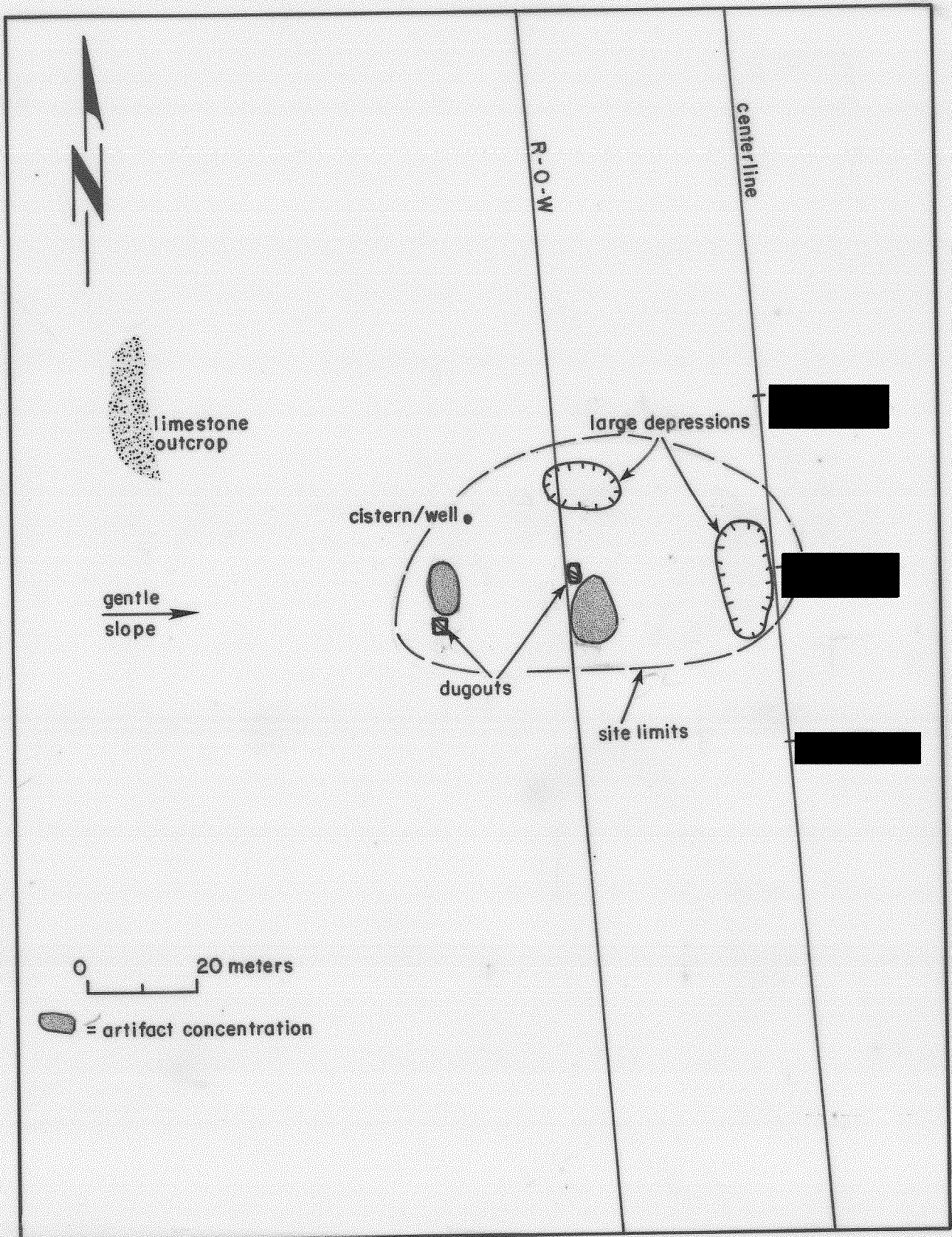


Figure 3. LA 54346 site map.

LA 54347

Period: Prehistoric.

Station: [REDACTED]; extends across width of right-of-way and south beyond south right-of-way limit.

Type: Large camp (Figs. 4 and 5).

Size: 240 by 135 m.

Major Features: Widespread lithic artifacts; hearth.

Estimated Date: Prehistoric, possibly early historic Indian.

Topography: Bench top and slope north of South Berrendo Creek.

Comments: Site was tested (see next section).

LA 68182

Period: Prehistoric.

Station: [REDACTED]; extends across right-of-way and beyond both limits.

Type: Seed grinding and/or water catchment locality (Figs. 6 and 7).

Size: 70 by 70 m.

Major Features: Twenty-two shallow bedrock mortars and/or water catchment basins; thin scatter of lithic artifacts.

Estimated Date: Prehistoric, possibly early historic Indian.

Topography: On top of high ridge north of Middle Berrendo Creek.

Comments: Surface inspection indicates that the site is superficial and the density of artifacts is very low. Three military exercise foxholes are also present on the site.

LA 68183

Period: Prehistoric.

Station: [REDACTED]; lies entirely within right-of-way.

Type: Small camp (Figs. 8 and 9).

Size: 6 by 5 m.

Major Features: Two hearths with a few lithic artifacts and one brown ware sherd.

Estimated Date: Prehistoric, A.D. 500-1400.

Topography: On the north side of a minor tributary of Middle Berrendo Creek.

Comments: Has the potential for producing datable carbon and other remains; not tested in order to preserve intact deposits.

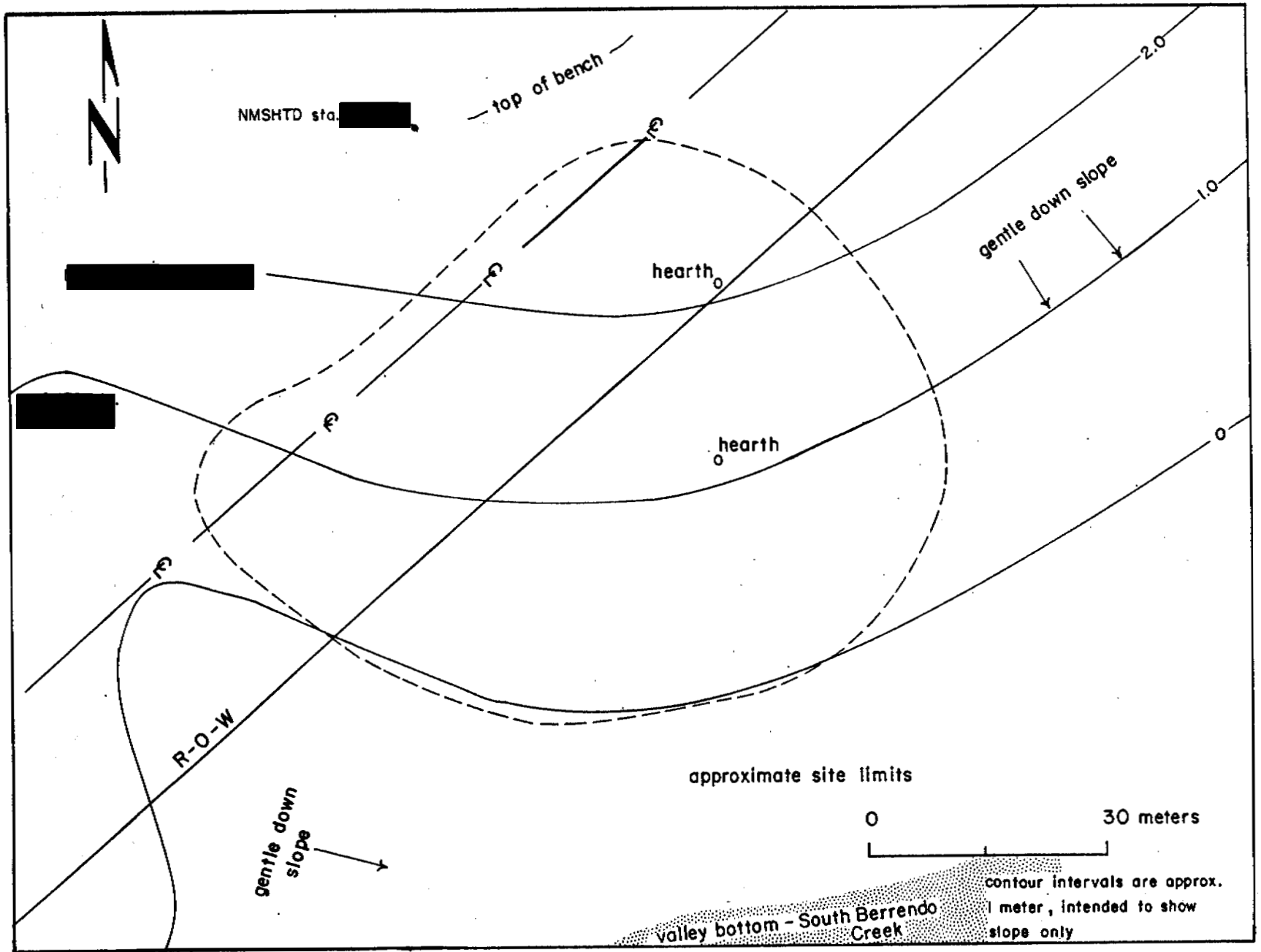


Figure 4. LA 54347 site map.



*Figure 5. LA 54347, looking west.*



*Figure 6. LA 68182, center and left center; looking northwest.*





Figure 8. LA 68183, looking south.

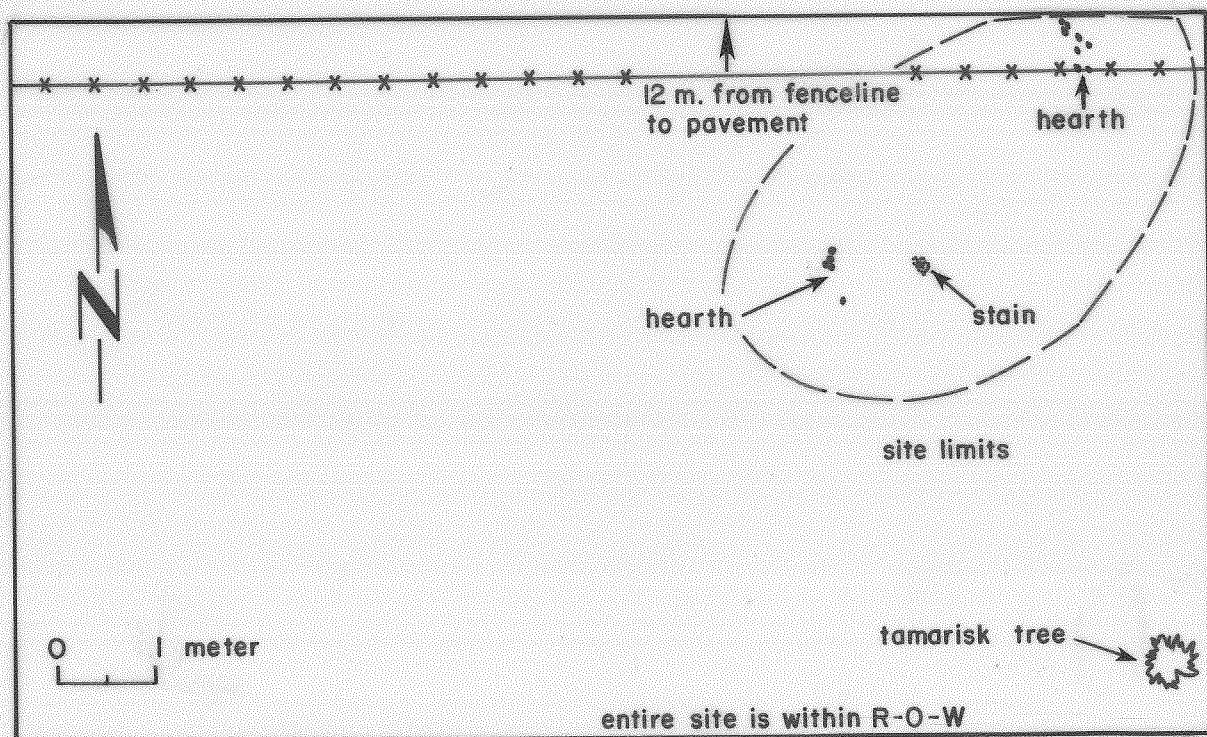


Figure 9. LA 68183 site map.

LA 68184

Period: Historic.

Station: [REDACTED] main features lie outside right-of-way, but northern limit of trash extends to centerline.

Type: Home site/homestead (Figs. 10 and 11).

Size: 130 (N-S) by 150 (E-W) m.

Major Features: Adobe house mound, adobe borrow pit (?), two small cobble scatters (outbuilding foundations?), and scattered trash.

Estimated Date: 1880-1920 (colors of glass, type of structures).

Topography: Bench top and slope north of South Berrendo Creek.

Comments: A trash scatter within the right-of-way was not tested because it all appears to be surficial. Several long-abandoned dirt roads radiate from this site.

LA 68185

Period: Prehistoric.

Station: [REDACTED] extends across right-of-way and south (right) outside project limits.

Type: Hearth and lithic artifact site (Figs. 12 and 13).

Size: 250+ (NW-SE) by 100 (NE-SW) m.

Major Features: At least six burned rock hearths and scattered lithic artifacts.

Estimated Date: Prehistoric, possibly early historic Indian.

Topography: Bench top and slope south of South Berrendo Creek.

Comments: Cobble mounds have not been recorded at sites of this type in the region, and their function needs to be determined. Site was tested (see next section).

Isolated Occurrences (IOs)

*IO-1*

Period: Historic.

Station: [REDACTED]

Description: Twisted remains of a metal windmill.

Estimated Date: Twentieth century.

Topography: On the headwaters slope of the North Spring River.



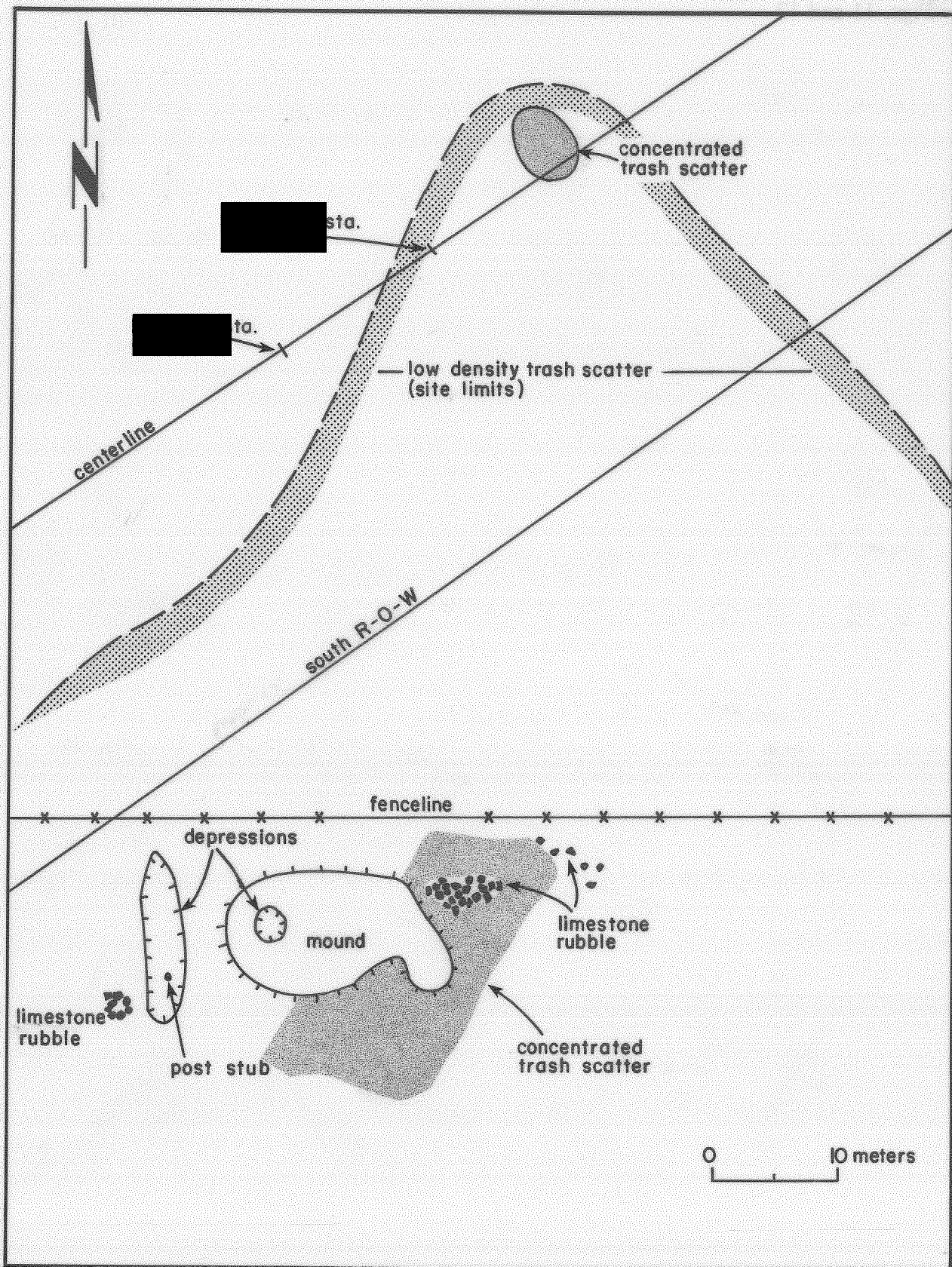


Figure 10. LA 68184 site map.



*Figure 11. LA 68184, looking west.*



*Figure 12. LA 68185, looking northwest.*

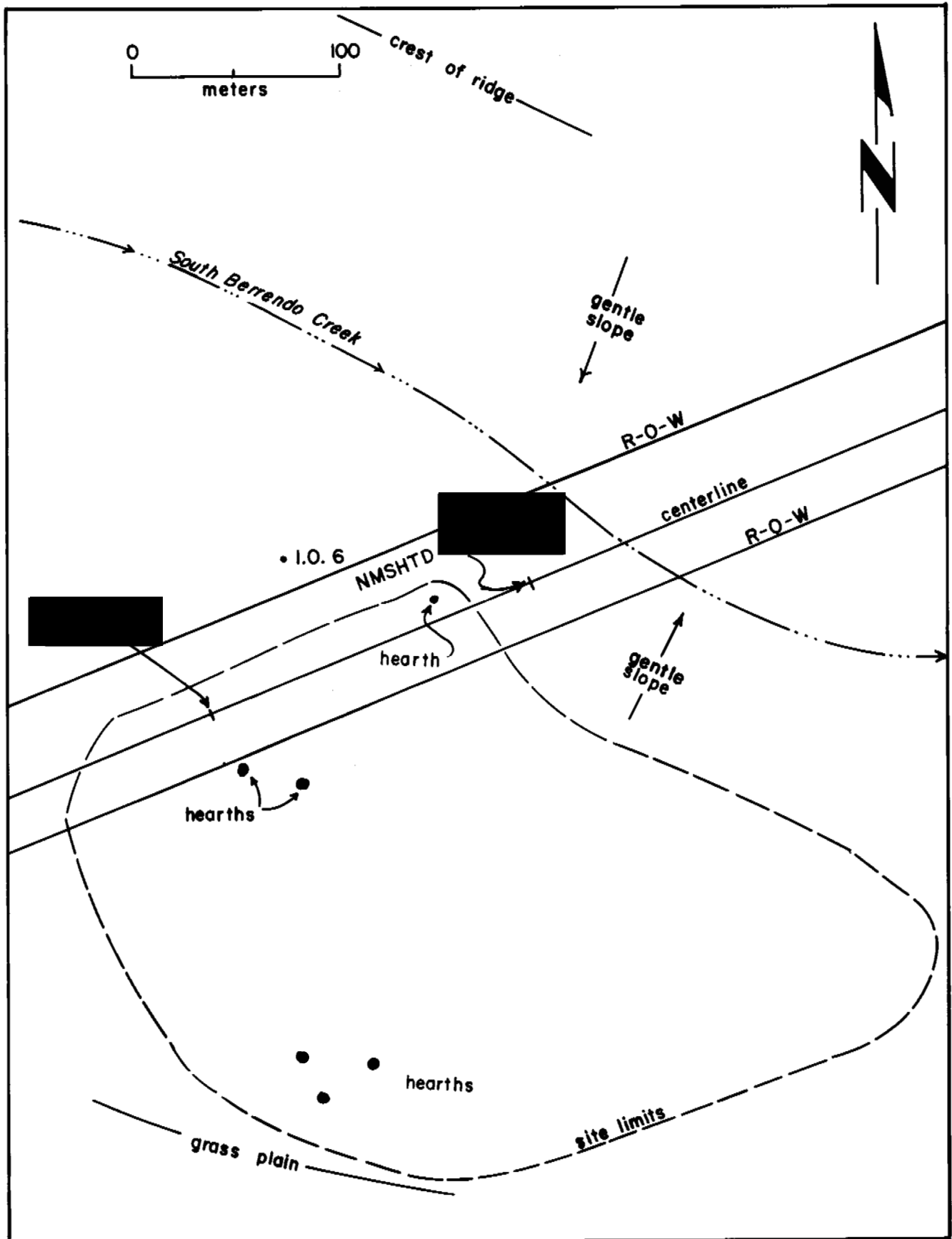


Figure 13. LA 68185 site map.

*IO-2*

Period: Prehistoric.

Station: [REDACTED]

Description: Biface blade fragment of butterscotch chert, 42 by 40 mm.

Estimated Date: 500 B.C.-A.D. 1400.

Topography: On lower slope of bench south of South Berrendo Creek.

*IO-3*

Period: Prehistoric.

Station: [REDACTED]

Description: Core of tan and white quartzite, 90 by 70 by 5 mm.

Estimated Date: Unknown prehistoric.

Topography: Slightly rolling terrain between the Middle and South Berrendo creeks.

## TESTING AND EVALUATION

The potential importance of the cultural remains at three sites was not clear from the initial survey data. The same team, therefore, spent three days in the field (six person-days) completing sample transects and augering to better determine the extent and nature of the remains at the sites.

### LA 54346

This historic site includes several features, some of which have obvious functions (dugout depressions, cistern), and others that are more problematic (large depressions, trash concentrations that could represent a frame structure burned in place). One of the dugouts, a trash concentration, one large depression, and part of another concentration are within the right-of-way. Testing was confined to one of the large shallow depressions. No collections were made.

The tested depression measures 21 m north-south by 11 m east-west by 30 cm deep. Six auger holes (including one duplicate test) were placed in the center of the depression and on the east and west edges (Fig. 14). Auger depths within the depression ranged from 52 to 75 cm, and the two outside were 100 and 79 cm deep. Except for the variations in depth (mostly arbitrary), each test revealed essentially the same information. The light brown surface layer of soil (0-10 cm) has a light organic (gray) stain. From there, the soil lacks the organic stain and becomes lighter in color with increasing depth. The southern test in the depression encountered a rock at 55 cm. No cultural materials or staining were encountered in any of the tests.

While the origin/function of the depression is still in question, we learned that it is not a structure or other formal feature, and it does not contain trash.

### LA 54347

To determine the nature of this site, three kinds of information were needed: an accurate estimate of surface artifact density, a determination of the presence or absence of subsurface deposits, and identification of diagnostic artifacts with which the site could be dated.

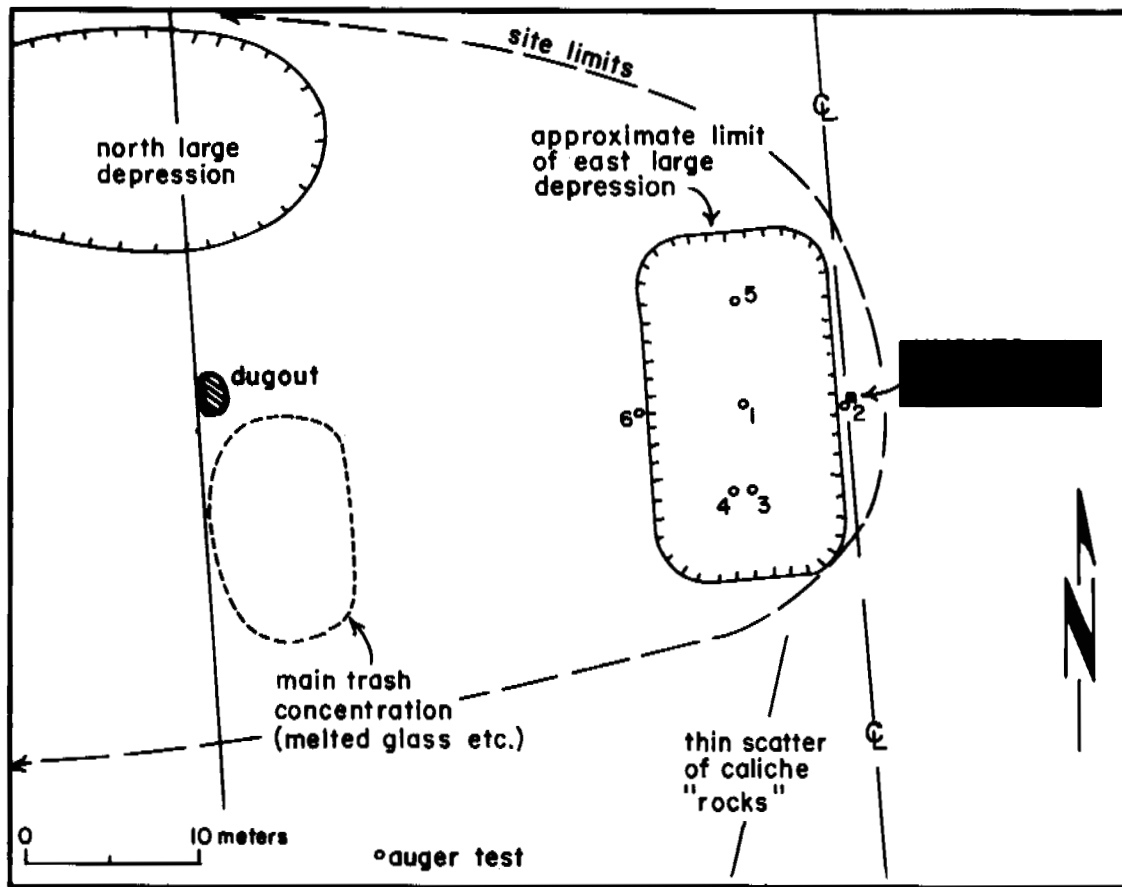


Figure 14. LA 54346 site map, showing test locations.

Surface artifact density was determined by pinflagging all artifacts (flakes, cores, formal artifacts) within two 5-m-wide transects. Fire-broken rock scattered across the site was not flagged. The first transect was placed along the south side of the centerline between Stations 629+00 and 633+00, or a distance of 132 m. The second was placed perpendicular to the first, from 15 m north to 85 m south of the centerline at Station 631+00. Nearly 200 artifacts are present in the transects. As expected, the actual density varies from one area to another; most areas range from .16 to .20 artifacts per square meter. Only the formal artifacts pinflagged during this exercise were collected.

The presence of one and possibly two intact hearths indicates that subsurface deposits exist in at least some parts of the site. Subsurface testing was limited to areas demonstrated by the pinflagging to have surficial materials. Prior to augering at each location, all artifacts within a 2-m radius were collected to prevent their loss or damage.

The auger tests were placed at 15-m intervals along the centerline and down the north-south pinflag transect (Fig. 15). Thirteen tests were made. Those not stopped by rocks or very hard ground reached depths of 50-86 cm, the end point determined by the light color and increasing caliche content of the sterile soil.

Soil changes documented by the augering were similar in all tests and are typical of natural, weakly developed southwestern soils. No cultural materials or stains were noted in any of the tests. These results support the initial impressions that most of the site lies on the surface. Subsurface remains appear to be restricted to the hearths and their immediate vicinities.

One core, 39 flakes, and 4 pieces of angular debris/shatter were collected in the vicinity of the auger tests. The flakes include core reduction flakes (large flakes with or without cortex) and artifact production/tool sharpening flakes (very small, thin flakes with generally parallel lateral edges). The assemblage clearly indicates that tool manufacturing and refurbishing were performed at the site. All are of locally available materials, but at least one obsidian flake was noted outside the collection areas and left in place.

In addition to the formal artifacts found during the transecting procedure, formal artifacts found outside the transect were mapped and collected for dating and documenting the activities performed at the site. These include three projectile points, four bifaces, and one side scraper (Fig. 16). Only the projectile points are diagnostic. One is a Scallorn-like point (Suhm and Jelks 1962), and another is a Hueco-like point (MacNeish and Beckett 1987). The third is a corner- or side-notched point, a type that generally belongs to the Late Archaic period (J. Moore, personal communication, 1988). The three projectile points indicate occupation during the Late Archaic and early Formative (pottery) periods, or sometime between 1000 B.C. and A.D. 1000.

The survey and testing of LA 54347 documented a denser artifact scatter than previously estimated, the presence of at least two intact hearths, the fact that the site is essentially surficial (i.e., a general absence of cultural depth aside from the hearths), and the presence of several diagnostic artifacts. The artifact types (lithic debris and formal artifacts) and facilities (hearths) indicate that several activities were carried on at the site. Also, the lithic materials include obsidian, indicating extraregional contacts or travels by the occupants. This variety of occupational indicators is usually thought to mean that the site served as a base camp or central focal point for subsistence activities involving one or more subsidiary sites.

In addition, LA 54347 dates between the Late Archaic and the early ceramic periods (1000 B.C. and A.D. 1000), meaning that the occupation of this site was partly contemporary with, and partly later than, that of nearby LA 68185. More than one occupation may have taken place.

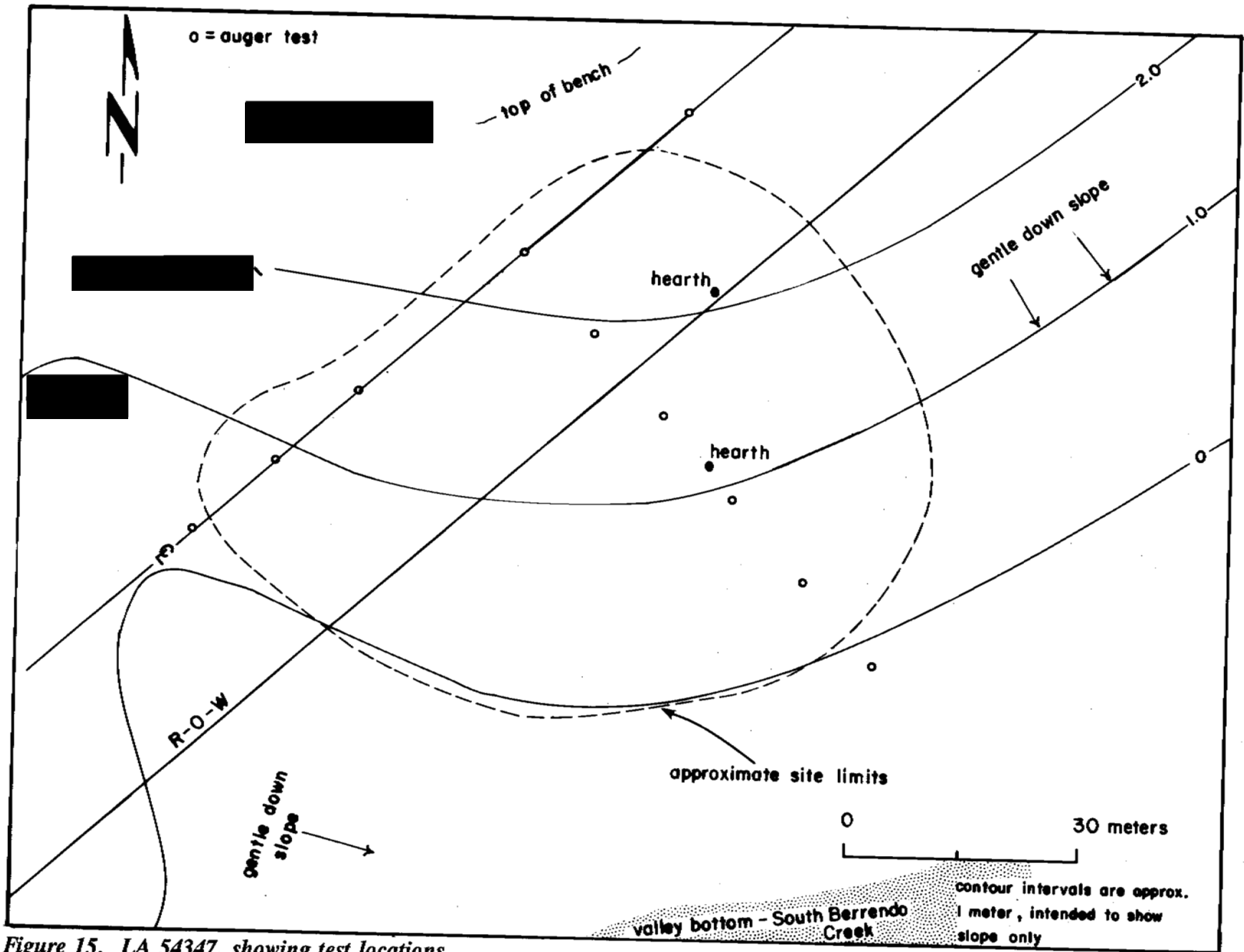
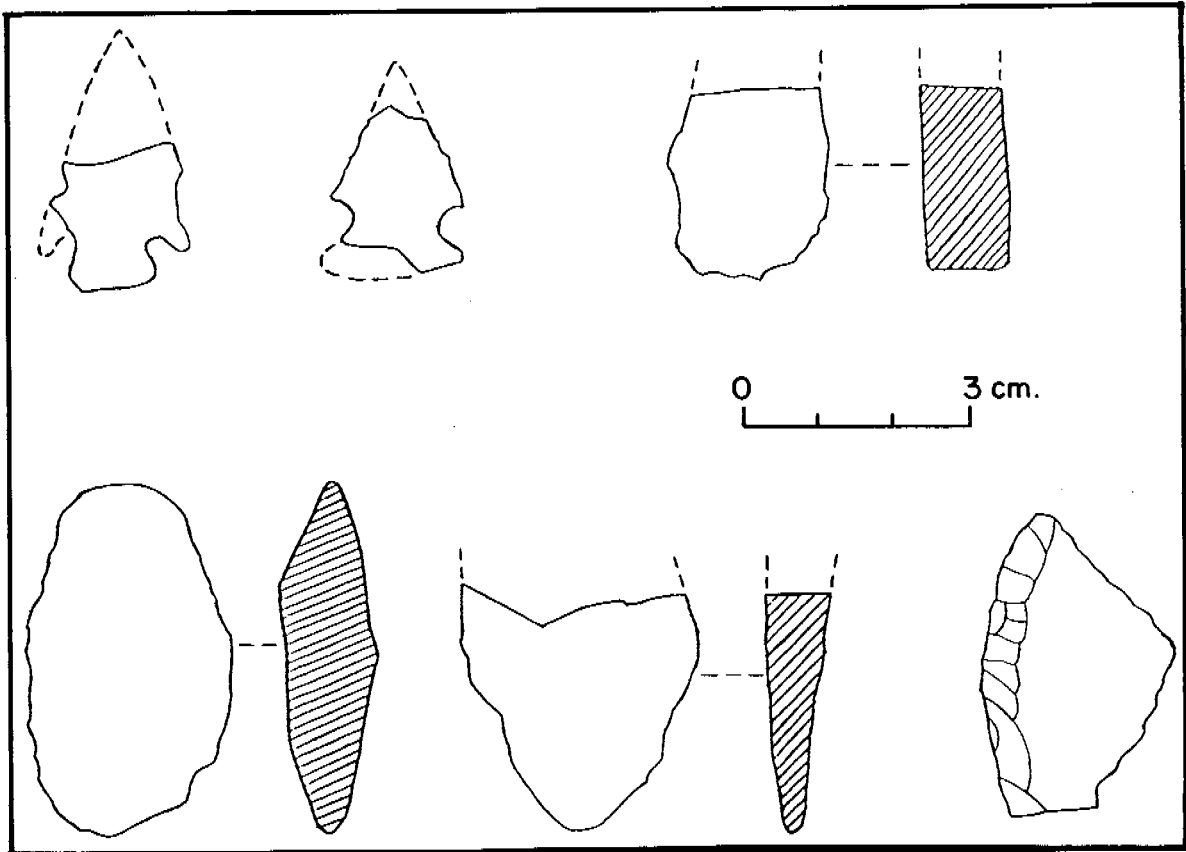


Figure 15. LA 54347, showing test locations.





**Figure 16.** *Artifacts from LA 54347: (a-b) projectile points; (c-e) bifaces; (f) side scraper.*

### LA 68185

This site is very similar to LA 54347, which is located to the northeast across the South Berrendo Creek. To determine the nature of the remains, the same types of information were needed: surface artifact density, presence or absence of subsurface remains, and age of the site as determined from diagnostic artifacts). A similar approach was therefore used to gather information at the site.

A 5-m-wide transect was set up along the southern right-of-way limit between Stations 620+75 and 624+00 in the main site area (Fig. 17). So few artifacts were pinflagged that the transect was widened to 10 m. Relatively few artifacts were present within the transect, which was about 100 m long. Although cores, flakes, pieces of angular debris, and formal artifacts were widely scattered throughout the transect, several small clusters were noted.

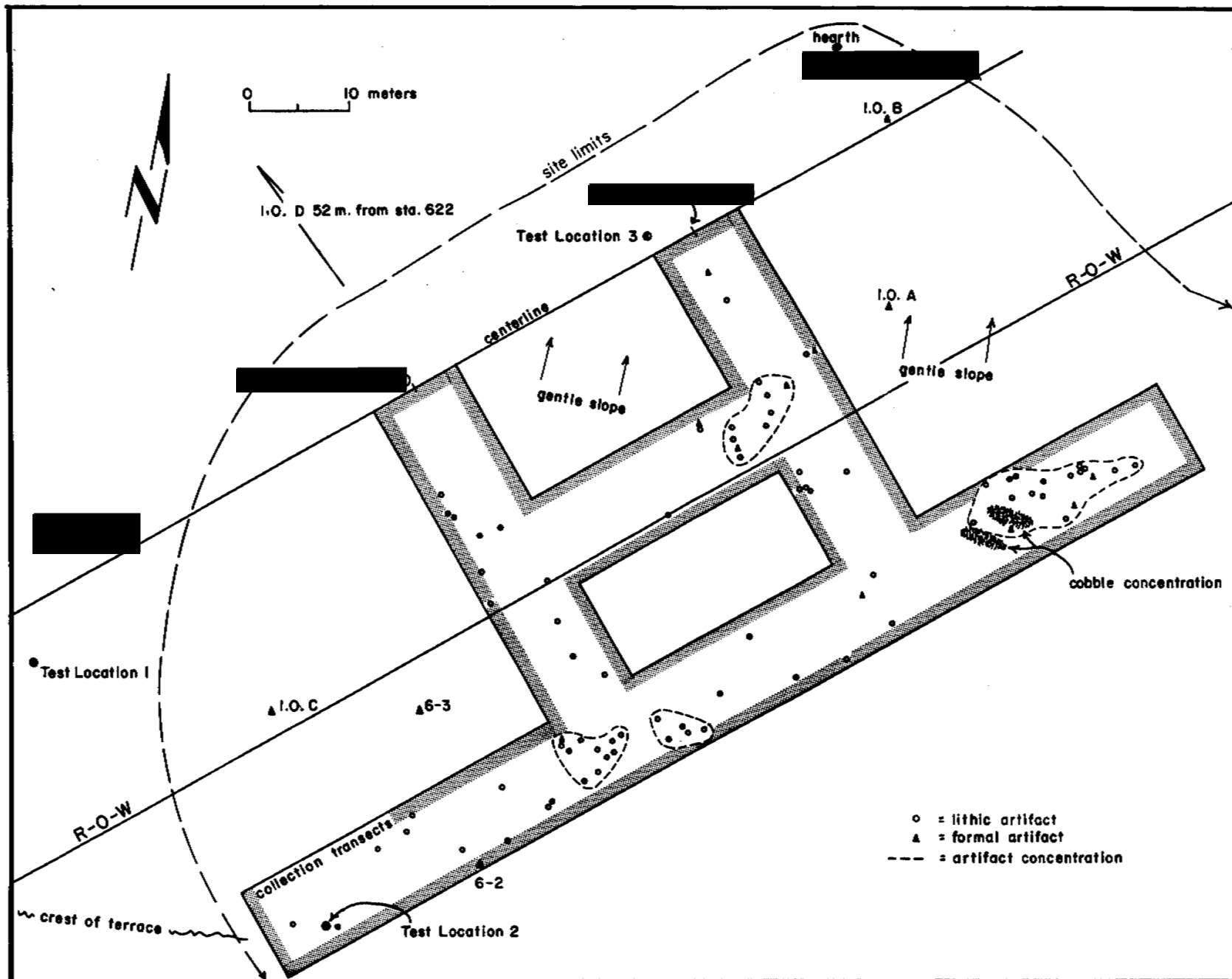


Figure 17. LA 68185, distribution of lithic and formal artifacts in collection transects.

To investigate more of the area within the right-of-way, three more 10-m-wide transects were laid out. One was parallel to the first, between it and the centerline. The other two were perpendicular to the first two and ran between the centerline and the south right-of-way limit. The pinflagging results in these transects were the same as those in the first one.

The total surface area investigated in the four transects was 1,875 sq m, about one-half of the site area within the right-of-way. The artifact density in the transect area was .05 per sq m. The average density within the four small artifact concentrations was .20 per sq m, with a range of .15 to .26. Given the low occurrence of cultural materials, the 84 flagged items (total for all transects) were individually mapped and collected.

The 84 collected artifacts include 7 cores, 54 flakes, 9 pieces of angular debris, and 14 formal tools (including 2 mano fragments). It appears that core reduction and artifact manufacturing and refurbishing were performed at the site. An obsidian flake indicates contacts with peoples to the west or northwest of the Roswell region.

Much of the site surface is barren of loose soil and vegetation. There was little possibility that buried cultural deposits were present. Accordingly, subsurface testing was limited to those areas that appeared to be scattered hearth remnants. That is, even though fire-broken rocks are generally scattered across the site, several loose concentrations were noted. Three such concentrations were investigated by augering (Fig. 18), but none yielded evidence for intact deposits, nor could they be confirmed as cultural features.

Two locations, one a nearly buried hearth and the other consisting of two 5-by-3-m cobble mounds associated with one of the artifact clusters, appear to be intact (see Fig. 17). Neither was tested because each appears likely to yield useful data based on surface indications alone.

Fifteen formal artifacts were found both within and outside of the transects (Figs. 19 and 20). All were point-provenienced and collected. They include four projectile points, two end scrapers, five bifaces, one spokeshave, and two manos. The projectile points include a San Pedro-like point; a San Jose-like or Chiricahua-like point; a Marshall-like point; and a corner or side-notched point, probably Late Archaic (J. Moore, personal communication, 1988). Thus, all four suggest a Late Archaic occupation of the site (3000 B.C. to A.D. 750) (Katz and Katz 1985a).

One of the end scrapers (Fig. 19e), a carefully fashioned tool, is made of Alibates or Tecovas chert. Its style, workmanship, and material are strongly reminiscent of end scrapers characteristic of, among other areas, the Upper Republican culture of south central Kansas. Some form of contact or long-distance exchange, perhaps through intermediaries, is indicated.

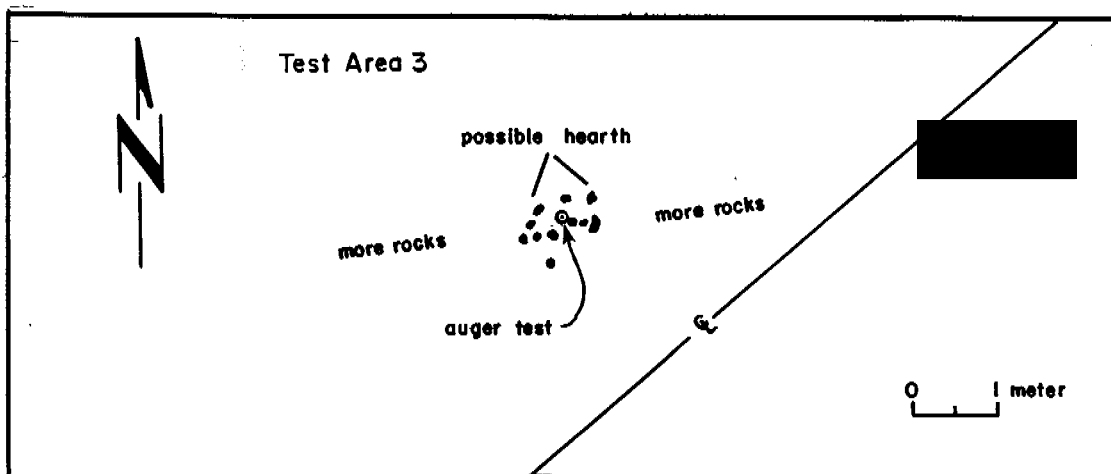
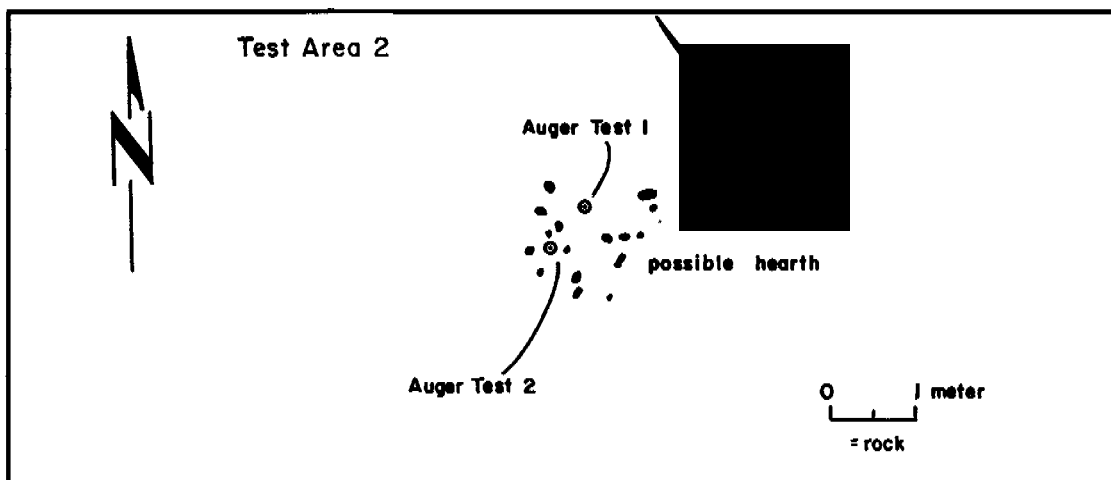
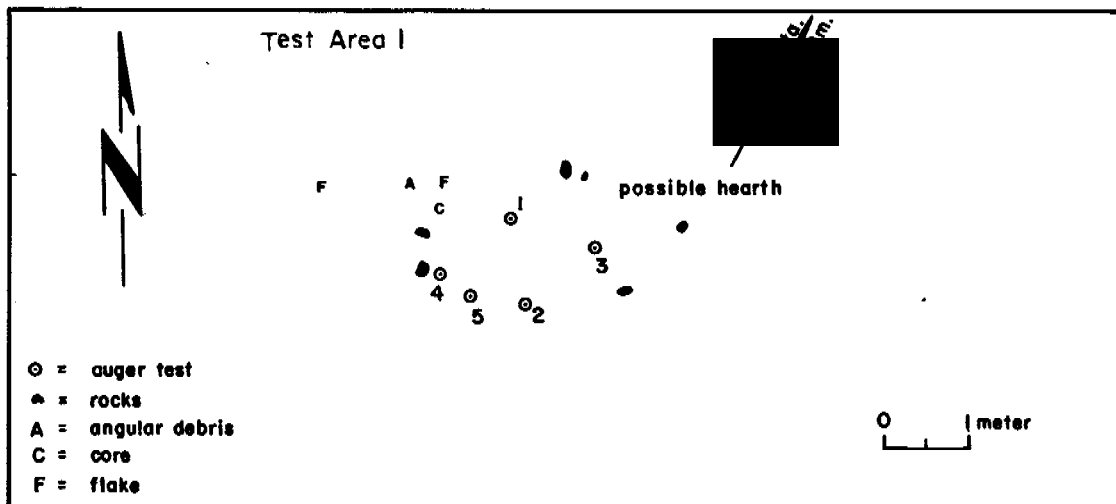
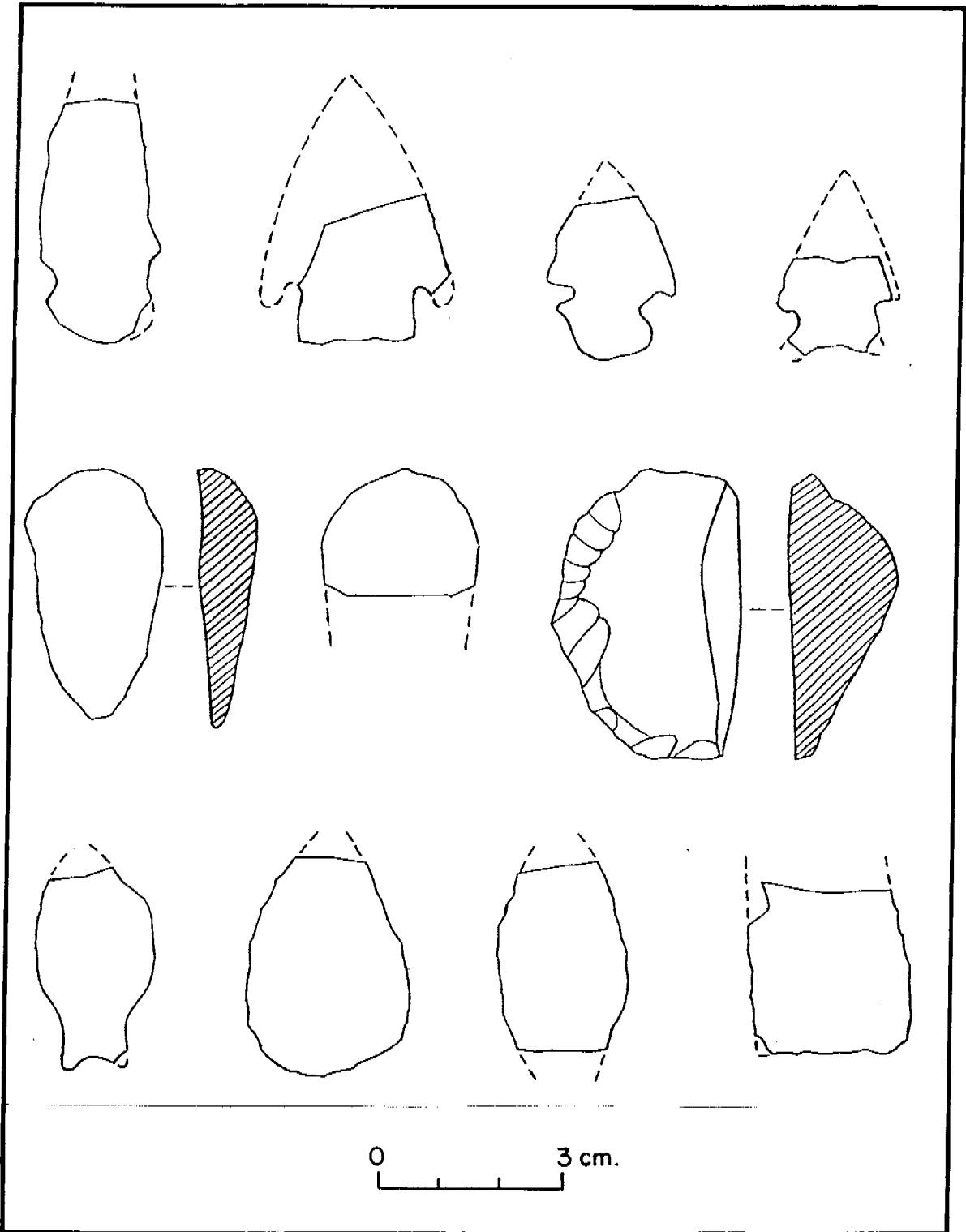
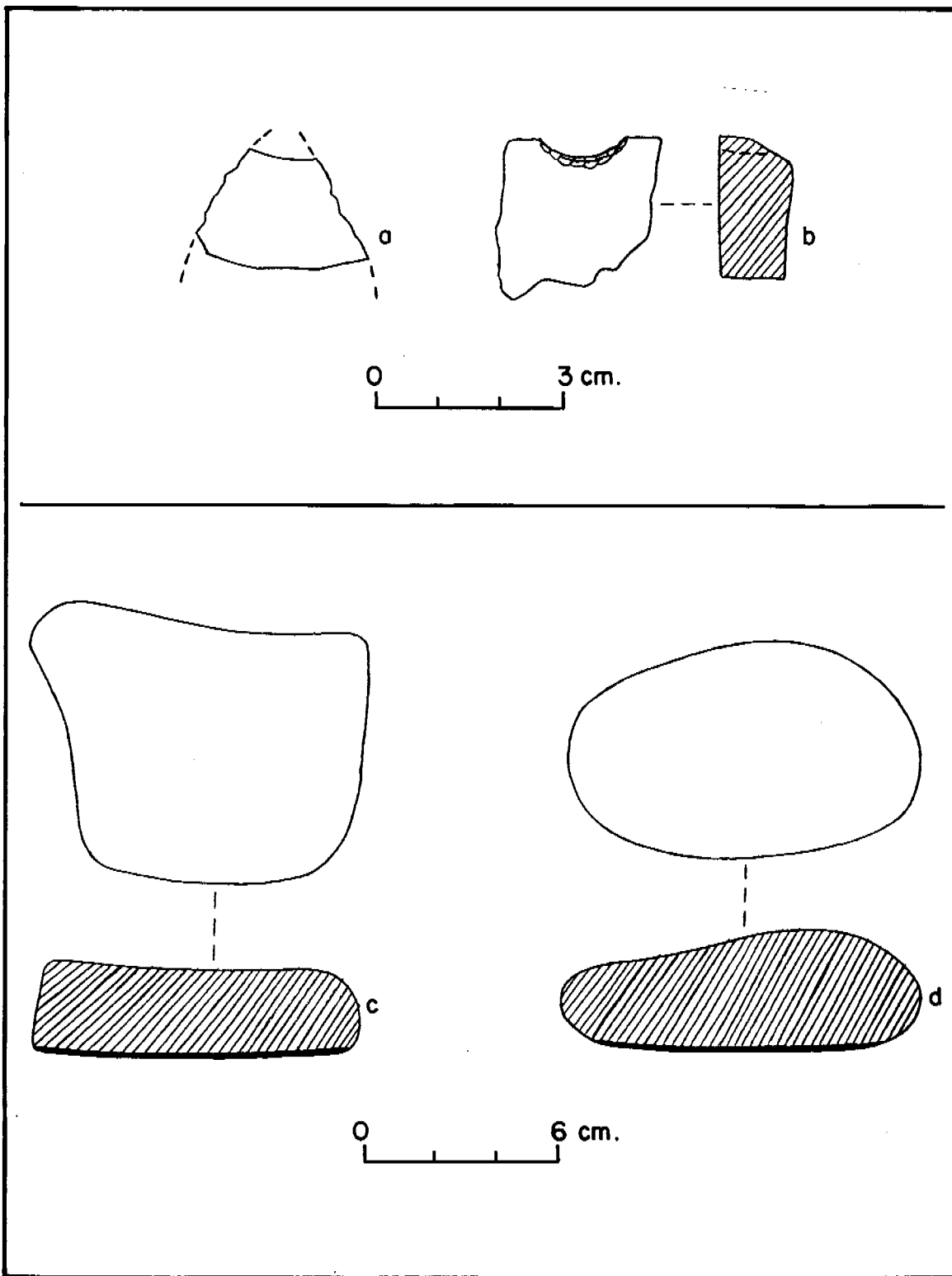


Figure 18. LA 68185, auger tests of possible hearths.



**Figure 19.** Artifacts from LA 68185: (a-d) projectile points; (e-f) end scrapers; (g) side scraper; (h-k) bifaces.



*Figure 20. Artifacts from LA 68185: (a) biface; (b) notched piece; (c-d) manos.*

Based on survey and testing of LA 68185, we have documented the presence of one intact hearth and two cobble mounds of unknown origin. The site is essentially surficial (i.e., a general absence of cultural depth aside from the hearth and the two cobble mounds), with several diagnostic artifacts, but far fewer pieces of debitage than expected. The artifact types (lithic debris and formal artifacts) and facilities (hearth and cobble mounds) indicate that several activities were performed at the site. Also, the lithic materials include a flake of obsidian and an end scraper of Alibates or Tecovas chert, indicating widespread contacts with areas to the west (central or western New Mexico) and east (the High Plains). This variety of occupational indicators is usually thought to mean that the site served as a base camp or central focus for subsistence activities involving one or more subsidiary sites.

LA 68185 dates somewhere between the Middle through the Late Archaic periods (3000 B.C. to A.D. 750). More than one occupation may be represented.





## RECOMMENDATIONS

The following recommendations are made on a site-by-site basis. Where a data recovery approach is proposed, a detailed plan is provided in the final section of this report.

### LA 54346 (Historic House/Homestead)

This site contains extensive archaeological deposits from the period in which Roswell saw intensive settlement by Euroamericans. Surviving features within the proposed right-of-way include one dugout depression, a trash area or former frame house location, and two large depressions of unknown origin and function. Archaeological study of these remains is likely to yield important information on the early history of the Roswell community.

Any data recovery program at this site should include archaeological documentation of the remains at the site, archival studies, and informant interviews to elicit information that cannot be obtained from the archaeological field work.

### LA 54347 (Late Archaic/Early Formative Camp Site)

LA 54347 is important in that it potentially contains the remains of activities associated with a critical shift in lifestyles that took place during the transition between the Late Archaic and early Formative periods. The site is also important in that, as a camping place for hunter-gatherer expeditions, the activities represented involve wild plant and animal foods that may not be represented at the corresponding village sites.

One intact hearth and a major portion of the associated lithic artifact scatter at this site lie within the right-of-way. The hearths and the adjacent use surfaces appear likely to yield important information on the prehistoric occupation of the Roswell area.

Any data recovery program at this site should include excavation of the hearths and use surfaces immediately surrounding those hearths to recover radiocarbon samples, flotation samples if possible, and any directly associated artifacts. In addition, the general artifact scatter should be surface collected to document other activities at the site.

### LA 68182 (Prehistoric Grinding Location and Lithic Artifact Scatter)

LA 68182 is important in that mortar holes are a rare type of grinding feature in this part of New Mexico. Careful recording of the grinding loci may yield useful information on specialized subsistence practices. The associated artifact scatter should provide supplemental data on the site's function. It is conceivable that an intensive collection effort would also turn up diagnostic artifacts not noted previously.

As part of any data recovery effort at this site, each mortar hole (and possible mortar hole) should be cleaned out and all fill collected for possible analysis (including pollen analysis). The holes should then be measured and recorded, photographed, and plotted on a general site map. Surface lithic artifacts, which are rare, can be piece-plotted and collected.

### LA 68183 (Formative-Period Camp Site)

LA 68183 is important in that it may have been used by the same people who used LA 68182, the mortar hole site. If such a connection can be established, it will permit us to identify the cultural and temporal affiliations of the mortar hole site, as well as round out our perception of the activities performed by those people at this particular location.

The hearth at this site, along with the area immediately surrounding it, appears to be sufficiently intact to yield useful information on prehistoric use of the Roswell area. Supplemental information on site function can be gained from the associated general artifact scatter.

As part of any data recovery effort at this site, the intact hearth should be excavated to document the feature and recover radiocarbon and flotation samples. The area immediately upslope from the hearth should also be excavated to document any associated buried remains. Finally, the sparse artifact scatter should be collected to provide supplemental information on site function.

### LA 68184 (Historic Homestead)

Taken as a whole, this site contains archaeological features and other remains that can provide useful information on the early history of the Roswell community. However, the remains within the right-of-way consist only of superficial trash. This type of material can be adequately documented through site inventory procedures alone, and

a formal data recovery program within the right-of-way seems unlikely to yield important additional information on the history and use of the site. We therefore do not recommend a data recovery effort at this site.

#### LA 68185 (Middle to Late Archaic Camp Site)

LA 68185 is important because of its potentially early date and culture type, the Middle Archaic. In southeastern New Mexico, Early Archaic sites are rare, and Middle Archaic sites are uncommon, making LA 68185 one of the earlier documented sites in this part of the state.

Within the right-of-way, this site contains an intact hearth and associated use surface along with two intact cobble mounds associated with the largest of the artifact concentrations. These features are likely to yield important information on the prehistory of the Roswell area.

If any data recovery effort takes place at this site, we recommend that the intact hearth within the right-of-way be excavated. The areas immediately adjacent to the hearth should also be excavated to locate any use surfaces associated with it. The lithic artifact scatter should be mapped and collected to document the activities these items represent.

The cobble mounds lie outside of, but adjacent to, the south right-of-way limit and should be temporarily fenced for protection during the construction. No further investigation of the general artifact scatter is recommended.

#### Summary

Within the proposed right-of-way, four prehistoric sites and one historic site appear to have the potential to yield important information on local prehistory and history. The sections that follow provide data recovery plans for these sites.

The edge of a second historic site, LA 68184, lies within the proposed right-of-way. However, no cultural materials likely to yield important information are present within the right-of-way. No further work at this site is contemplated under the current plans for the highway project.



## DATA RECOVERY PLAN

### Prehistoric Sites (LA 54347, LA 68182, LA 68183, and LA 68185)

Three of the Roswell Project sites represent Archaic and/or prehistoric ceramic-period, open-camp occupations. The bedrock mortar site (LA 68182) is currently undated, but it is presumed to be prehistoric as well. The estimated overall date range for the sites is 3000 B.C. to A.D. 1300. Within this range, the sites were used for small segments of time, and further research will help fill in some of the missing details of the regional prehistory. Consequently, the data recovery plan for the Roswell Relief Route prehistoric sites will be presented in the framework of the Archaic and ceramic periods, drawing heavily from the existing literature to round out the picture.

The Archaic occupation of southeastern New Mexico has been recognized for some time (Stuart and Gauthier 1981; Kemrer and Kearns 1984), and a coherent scheme of Archaic cultural development was devised by Katz and Katz (1985a). Although this scheme pertains specifically to the Pecos River and environs 50 to 60 km south of Roswell, it is a starting point for the study of Archaic adaptations in all of southeastern New Mexico.

Archaic sites in the Carlsbad and Roswell regions, as elsewhere in the Southwest, are usually open sites characterized by a scattering of Archaic projectile points, lithic debitage, and at least some burned rock. Actual hearths and grinding stones may or may not be present. It is believed that the economy of the people who occupied these sites was based on hunting a variety of mostly small animals, such as rabbits and rodents, and collecting wild plant foods. However, preservation in shallow open sites is usually poor, and confirmation of data on diet are spotty and slow in coming.

Another key element in the regional Archaic picture has recently been added. The Sunset Archaic site (Wiseman, in preparation) has large storage pits, rock hearths, a substantial midden, and clear-cut evidence of a low-level but well-established practice of corn horticulture. The site dates within the first five centuries A.D.

Turning to the late-prehistoric period, we have the so-called sedentary, Jornada-Mogollon occupation in the Roswell area. Sites such as Bloom Mound (Kelley 1984), Rocky Arroyo (Wiseman 1985), Henderson (Rocek and Speth 1986), and the Fox Place (Wiseman 1991) were substantial occupations with numerous structures, refuse middens, pottery, diverse faunal assemblages, and corn horticulture. We assume that wild plant foods also played an important role in the diet, but studies of flotation samples from Rocky Arroyo, Henderson, and the Fox Place are not yet available.

Another problem, as yet unsolved, has recently presented itself--the possibility

that late prehistoric hunter-gatherers lived near or even among the village-dwelling Jornada-Mogollon people (Sebastian and Larralde 1989). Ongoing attempts to determine whether these hunter-gatherers existed and how to distinguish their sites from Jornada-Mogollon hunting-and-gathering sites have been disappointing (Wiseman, in preparation). Nevertheless, until proven otherwise, we must contend with the possibility that vegetal gathering and processing sites are probably present in the Roswell area and that they were created by two different, though at least partially interrelated cultural systems.

As of this writing, a number of shallow, open-air, nonarchitectural camp sites have been tested or excavated in the greater Roswell region, but most are east and south of Carlsbad. Few sites in the immediate vicinity of Roswell have been investigated beyond the survey stage (Hannaford 1981; Hicks 1982; Maxwell 1986; Parry and Speth 1984; Schermer 1980; Wiseman 1971).

Kemrer and Kearns (1984) have defined several types of camp sites in the area immediately north of Roswell (Kemrer and Kearns 1984): multiple-use locales, temporary camp locales, lithic-procurement and workshop locales, and limited-activity locales/task-specific camp sites. Each site type has several subtypes, each designated by an alphanumeric code that can be expanded upon as needed.

The primary attributes used in the Kemrer-Kearns system are site size and the presence or absence of hearths, burned rock, chipping debris, milling equipment, projectile points, and pottery. The Roswell Project sites are categorized in this system as follows:

- LA 54347 (Middle to Late Archaic): multiple-use locale, type uncertain.
- LA 68182 (mortar site): limited activity
- LA 68183 (Formative): temporary camp
- LA 68185 (Late Archaic/Formative): multiple-use locale, type uncertain.

Bedrock mortar sites are uncommon in the Roswell area (cf. Bond 1979; Schermer 1980) but are fairly common in the Carlsbad region, 50 to 60 km to the south (Katz and Katz 1985a). While this may be in part a function of the availability of suitable rock exposures, it is probably more a reflection of using suitable rock near the resource.

To summarize, the Roswell Project sites are nonarchitectural open sites that represent several prehistoric time periods. LA 54347 and an unspecified part of LA 68185 are Archaic. LA 68182, LA 68183, and the unspecified part of LA 68185 probably represent hunting and/or gathering sites of the village-dwelling Jornada-Mogollon, or possibly an as yet undefined hunter-gatherer occupation of the Roswell area. While these pottery-period sites cannot be expected to assist in differentiating between these two "cultures," they can give us a glimpse into generalized hunting and gathering activities in the Roswell area during late prehistoric times.

## *Data Recovery Questions and Requirements*

### 1. What are the ages of the sites?

The key to success in studying southeastern New Mexico prehistory, as elsewhere, is the ability to accurately date sites and other manifestations. Dating in southeastern New Mexico is such a critical problem that recent overviews give it number one priority (Kemrer and Kearns 1984; Sebastian and Larralde 1989).

Datable materials such as wood charcoal are so rare that relatively few absolute dates are available for thousands of square kilometers. So many nondatable wood specimens come from complacent trees that the Tree-Ring Laboratory at the University of Arizona actually discourages submissions from the region! To further complicate matters, pottery cross-dating rarely works well here because the most common types are poorly dated, long-lived, or both. Dating by projectile point styles suffers many of the same problems. In effect, archaeological studies in southeastern New Mexico have been severely hampered by the lack of adequately dated sites. Thus, the acquisition of datable materials is a high priority task for all occupation periods.

One of the primary needs of sound dating is to accurately relate one site to another and one cultural period to another. We need to know which remains are earlier, which are later, and which are possibly contemporary. For instance, we have reason to believe that terminal Archaic sites date as late as A.D. 750 or even 1000 but need to confirm it to clarify our assessments of thousands of lithic sites (Kemrer and Kearns 1984; Sebastian and Larralde 1989).

Successful assessment of lithic sites in general will permit us to close the gap between the terminal Archaic and ceramic-period remains. Only when we can control the time factor can we accurately assess cultural relationships, settle the question of late prehistoric hunter-gatherers, and trace changes through time and space.

The Roswell Relief Route sites can be expected to produce several kinds of datable materials. We anticipate the recovery of wood charcoal for radiocarbon dating, the technique most likely to give the desired results. We may also recover burned clay samples (as from hearths) appropriate for archaeomagnetic dating. Small pieces of obsidian, useful for hydration dating, are also occasionally found in southeastern New Mexico sites. While hydration dating as an absolute technique is questionable, its use in relative dating (Archaic versus pottery period in most instances) has been fairly well received. We will collect and date as many of these types of samples as feasible.

In the event that charcoal, burned clay, and obsidian are not recovered, we will approach dating through lithic debitage analysis. Numerous studies in the Southwest

have suggested that Archaic- and Formative-period sites can be distinguished from one another on the basis of chipping debris (Sebastian and Larralde 1989). Attributes such as platform edge grinding, quantity of cortex, flake sizes, biface thinning flakes, and others have been used with some success.

## 2. How were the sites used and why?

The five sites clearly represent different functions as well as different time periods. They will be studied first with respect to their age and then compared through time with earlier and later project sites and with manifestations described in the literature.

The two Archaic sites (LA 54347 and LA 68185) consist of hearths, scattered burned rock, and light artifact scatters. These traits suggest occupations of short duration, possibly for hunting or wild plant-food collecting. Within the right-of-way, we will excavate the hearths, search for associated use surfaces, map and collect the artifacts, and obtain flotation samples to determine more precisely what activities were carried out at each site.

A determination of the physical relationships among the remains will be critical in establishing the patterns of use, temporal relationships, and kinds of activities. Flotation samples from the hearths may provide remains of animal and plant species used for food as well as for fuel and will assist in interpreting the functions of the sites.

The ceramic-period camp site (LA 68183) will be excavated and studied in the same manner as the two Archaic sites. It is possible that the bedrock mortar site (LA 68182), immediately south of LA 68183, was contemporary with the camp site. Data that might be used to support this suggestion are the proximity of the two sites, the location of the camp site with respect to the nearby river, the near absence of domestic trash at the mortar site, and the fact that the camp site is located in a low, protected place, shielded from the southwesterly winds.

An attempt will be made to establish temporal and functional relationships between LA 68182 and LA 68183 by collecting datable materials and samples of sediment for flotation and pollen analyses. The latter will be taken from the bottom fills of the mortar holes and the contents of the hearth. The occurrence of the same plant species at the sites would support a functional relationship. Similar dates would strengthen the idea of a temporal link, but datable materials probably will not be forthcoming from the mortar site.

Once function data for each site have been assembled, broader exploitation patterns will be delineated. Information will also be gleaned from the pertinent literature to round out the perspective. The reconstructions for each period will in turn be



compared to and contrasted with the entire time line (Middle Archaic through Late Formative). The end product will be a chronicle of human adaptation through time in the greater Roswell area.

3. What animal and plant species were used for food and fuel? Were the species the same or did they change through time?

The acquisition of food is a fundamental human activity. The food quest constantly shapes the way in which individuals and groups structure their lives and use their environment. Thus, some of the more important focal points in archaeological studies are the discovery of what plant and animal species were used, how they were combined into the diet (what mix of wild and domesticated species was used and why), what scheduling was required to maintain the diet, and how the landscape was used to obtain the diet. If changes in the diet took place, then it is necessary to investigate when and why they happened.

Fuel for fires is also very important, particularly where diurnal and annual temperature changes are substantial. Wood charcoal from hearths reveals the kind of fuel used for cooking and heating, and provides data about the local environment.

All of these questions will be addressed, insofar as possible, at each of the project sites. Once the reconstructions have been made on a site-by-site basis, the analysis will be extended to a characterization of each period (Archaic, Formative) and then to the culture history sequence as a whole. An important aspect of this last analysis will be an assessment of whether the Roswell-area Archaic adaptation was riverine-oriented, as in the Carlsbad area, or whether it was more like the xeric adaptations of other southwestern Archaic groups.

### *Field Strategy*

Field work will focus on acquisition of the data needed to answer the questions posed above. Because there are several kinds of sites, the requirements for data recovery will vary. Accordingly, the sites are discussed in groups, each of which will be treated in a manner most appropriate to the circumstances. In general, photographs, drawings, and notes will be taken as needed for full recording of all features and details uncovered during the work at each site. Contour maps of each site will be prepared, showing all artifact collection points or units, features, and excavation units. The centerline stakes and other highway planning markers will be placed on the maps to tie in the proveniences of the testing phase.

Archaic and Formative Camp Sites. LA 54347, LA 68183, and LA 68185 each

have one or more hearths and an artifact scatter. The first step at each site will be to pinflag the surface artifacts to gain an impression of the distributions and densities within the project right-of-way. Primary datums will be established, and the surface artifacts will be collected in 1-m squares.

Once surface collections are complete, the intact hearths and an area of at least 9 sq m around each will be excavated to discover any associated use surfaces and artifacts. The excavations will be expanded to follow any surfaces or other features that are discovered. The cobble features at LA 68185 will be treated in the same manner as the hearths. Internal control of the excavations and artifact proveniences will be maintained with 1-m squares and 5- or 10-cm levels. All fill will be screened through quarter-inch wire mesh. Flotation samples for the recovery of tiny plant, bone, and artifact fragments and radiocarbon samples for dating will be taken from the fill of each hearth.

Bedrock Mortar Site. The surface artifacts and rock outcrops bearing mortar holes and potential mortar holes at LA 68182 will be pinflagged. The primary datum will be established, and the artifacts will be plotted and collected.

Each mortar hole and potential mortar hole will be examined and excavated. Because each appears to be quite shallow (5-10 cm), all fill will be retained for flotation and pollen samples. The botanical analysis will determine whether any remains recovered from these samples resulted from prehistoric use of the features or were introduced subsequent to their abandonment.

Human Remains. It is highly unlikely that human remains will be found as burials or as individual bones scattered in the sites because the occupations were relatively short-term. In the event that human bones are found, they will be handled in accordance with the "Policy on Collection, Display, and Repatriation of Culturally Sensitive Materials" of the Museum of New Mexico and the stipulations of Human Burial Excavation Permit ABE-056 from the Historic Preservation Division, Office of Cultural Affairs, State of New Mexico.

### *Laboratory Study*

All artifacts will be washed and sorted to prepare them for analysis.

Chipped Stone. The chipped stone will be analyzed to derive two basic types of information. The primary emphasis will be the reconstruction of the core/flake technology. This will provide insight into the nature and significance of variation in the cores, flakes, and shatter and provide a means of comparing the Archaic and Formative periods. If differences between the two periods can be established, we should be able to determine the period of the mortar site.

A number of studies have noted differences in some of the end products of Archaic and Formative technologies, but virtually no analysts have systematically studied the sources for and the reasons behind technological variability. It is not enough to know, or suspect, that differences exist in the flake sizes and termination types between two time periods, sites, or regions. We also need to know why the differences occurred.

Research to date suggests that at least some of the differences are a result of the limitations imposed by the availability of raw materials relative to the desired end products. Until we know more about these aspects, we will never have an adequate understanding of the variability in the assemblages. We propose to monitor several attributes on each core, flake, and piece of angular debris, as follows:

*Material Types:* a detailed assessment of material, including mineralogy, presence/absence of imperfections (which would affect knapability and flake production success rate), and geologic source (as an indicator of availability and exchange);

*Cores:* source type (pebble, cobble, vein), core type (based on platform number and placement, resulting in core geometry), metric dimensions (linear and weight), and general flake scar lengths. This information allows reconstruction of how the raw material is reduced and allows control for differences (if any) in the attributes of the end products as a function of material type;

*Flakes:* source type (pebble, cobble, vein), flake type (core reduction, biface thinning, biface notching), metric dimensions (linear and weight, particularly of the complete specimens), percentage cortex, platform type, and termination type (feather, hinge, etc.). This information will permit us to examine flake detachment procedures and success and to characterize the end products, recognizing that the best flakes are probably missing. The presence/absence of biface thinning and biface notching flakes permits us to determine whether formal artifact manufacturing was taking place at the site or, in their absence, if informal tools ("utilized flakes") were the desired end product.

*Angular Debris:* source type (pebble, cobble, vein) and metric dimensions (linear and weight). Ratios of angular debris/shatter to flakes, combined with knowledge of the characteristics of the materials, will lend perspective on knapping problems and success rate.

Once the assemblage from each site is characterized and we are familiar with the technological constraints underlying each, we can then systematically search for differences that will assist us in segregating Archaic from Formative assemblages. This will assist us in dating the assemblages and determining the cultural association and general dating of the bedrock mortar site, LA 68182.

The second emphasis in the analysis of the lithic debitage will be to identify and describe evidence of use-wear. At the present time, functional interpretation of use-wear, in the absence of highly sophisticated equipment and extensive replicative studies, leaves much to desire. However, use-wear can be used as a rough index of occupational intensity and assists in determining what activities were performed at the site.

Formal Artifacts. Projectile points, scrapers, manos, metates, and ornaments will be analyzed in traditional morpho-functional terms. The goal of the analysis will be to broadly define the types of activities carried out at the sites. For instance, projectile points indicate hunting or gearing up for the hunt. Projectile point hafting-element fragments imply hunting-equipment maintenance. Impact-fracture tips and projectile point blade fragments imply butchering, processing, and consumption of game since these fragments are most likely to be returned to the site in the bodies of animals.

Thus, we will make inferences about the activities at each site, the reasons why the site was located where it is, and how the environment was used. Such reconstructions can then be compared and contrasted for the Archaic and Formative periods to determine whether those patterns changed through time. Since we have so few sites to deal with on the project, the characterizations must necessarily rely on comparisons in the literature to round out the perspective.

Pottery. Pottery will be recovered from only one site, LA 68183. The ceramic analysis will focus on the assignment of sherds to traditional types where possible, identification of temper types, the tallying of vessel type ratios, determination of minimum number of vessels, and the investigation of exchange patterns. These data will provide information on dating the site, site function, source areas of the pottery, and possible exchange relationships.

Ethnobotany. Flotation and pollen samples will be processed and submitted to specialists for examination. Emphasis will be on economic uses of plants for food and fuel. Particular attention will be given to the types and mix of edible species used (including animal species) as a reflection of human dietary activities. Both cultural and natural occurrence of species will be taken into consideration during interpretation of the results.

Data on the contemporary environment and perhaps seasonality might also be forthcoming. They will be conservatively interpreted to yield effective information on prehistoric use of the environment at specific times of the occupations as well as collectively through time.

Animal Remains. Faunal samples may be recovered from screening and flotation. They will be analyzed in terms of species, taphonomy, and evidence of butchering. We will attempt to determine whether each element is cultural or postoccupational. The emphasis will be on economic uses such as food, tools, and ornaments.

Although the subject is currently debated by archaeologists working in southeastern New Mexico, the faunal materials recovered from sites are to some degree a reflection of the local environment and the season of occupation. Data pertinent to these concerns will be evaluated in light of this debate to provide a perspective on the human occupation of the Roswell area during the Archaic and Formative periods, individually and collectively.

Dating. Standard materials and techniques will be used to date the sites and features accurately. This will be accomplished through the correlation of as many techniques as possible, including radiocarbon, archaeomagnetic sampling, ceramic correlation, and projectile point analysis. The acquisition of charcoal samples for tree-ring dating is not likely, but if suitable samples are recovered in the excavations, they will be sent to the Laboratory of Tree-Ring Research for dating.

Probably the single most valuable dating technique will be radiocarbon assay. This technique has been so greatly improved in the past ten years that its overall precision is now second only to tree-ring dating. The best results are gained through preliminary processing to obtain pure samples of  $^{13}\text{C}$ -carbon species, preferably all annuals. After eliminating specimens such as juniper, which could introduce "old wood effect," the samples will be sent to Beta-Analytic, Inc., for assaying.

As a precautionary measure, all samples will be  $\text{C}^{12}/\text{C}^{13}$  fractionated at the laboratory before dating. If deemed necessary, the smaller samples will also be subjected to extended counting time (four times normal counting time) to minimize counting error. The raw dates will then be calibrated according to the latest calibration program to obtain the greatest precision possible.

As mentioned earlier, relative dating techniques (pottery, projectile point styles) will also be used. These results will be compared and contrasted with the results from the absolute dating techniques to derive the best interpretation possible. Relative techniques, by their very nature, are generally less reliable than absolute techniques, a fact that will be taken fully into account in the dating process.

Human Remains. It is highly unlikely that human remains will be found, either as burials or as individual bones scattered in the sites. In the event that human bones are found, they will be handled in accordance with the "Policy on Collection, Display, and Repatriation of Culturally Sensitive Materials" of the Museum of New Mexico and the stipulations of Human Burial Excavation Permit ABE-056, Historic Preservation Division, Office of Cultural Affairs, State of New Mexico. These procedures will include consultations with Native American group(s) if deemed appropriate by the Federal Highway Administration and the Historic Preservation Division.

If human remains are found, they will be studied through a battery of techniques, including standard anthropometrics, determination of age and gender, observation for

pathologies, and, if they are in fairly good condition, isotopic studies. These techniques will provide information on health, nutritional status, mix of plant and animal components in the diet, stature, and genetic relationships with regional and extraregional peoples.

### *Data Integration and Interpretation*

Once all of the analyses have been completed, the results will be given comprehensive integrative treatment, including comparison with appropriate sites published in the literature. The final product will address the questions posed in earlier sections of this data recovery plan.

#### Historic Site (LA 54346)

The historical development of the Roswell area began soon after the American Civil War, when Charles Goodnight and Oliver Loving teamed up to drive cattle to Colorado from Texas, blazing a route up the Pecos Valley. John S. Chisum soon followed, maintaining thousands of cattle in the valley before supplying them first to the Bosque Redondo Indian Reservation and elsewhere. In the late 1860s, G. W. Hartman built a small adobe structure within what was later the corporate limits of Roswell. He soon sold out to Van C. Smith, who named the place after his father, Roswell Smith. For the next eight to ten years, operations in the area continued to focus on cattle ranching, all ancillary business devoted primarily to supply and outfitting of cattlemen and cowboys.

In 1877, Joseph C. Lea moved to Roswell. Because of his strong stand against the lawless elements centered in the Seven Rivers area and the town of Lincoln, an atmosphere of security prevailed. Farmers began to settle the area to take advantage of the abundant surface water and excellent soils. However, the drought of 1886 killed thousands of animals and led to the decline of cattle ranching. About the same time, sheep ranching took on new importance and, together with farming, became the economic mainstay of the region.

The next big break came in the 1890s in the form of three major events. Artesian water was discovered in 1890, and the Pecos Valley Irrigation Project was put into operation in 1895. The railroad reached Roswell from the south in 1894, and its continuation to Amarillo and beyond in 1899 provided Pecos Valley products access to commercial centers throughout the United States. The boom that followed brought rapid development of Roswell and the surrounding region. Roswell was incorporated as a city in 1903.

The earliest documented building in what is now Roswell took place within the vicinity of the original town plat and to the east, towards the Pecos River. However, we also know from historical documents that small settlements of Hispanics occurred in the vicinity at contemporary or even earlier dates. The Plaza de San José (or "Missouri Plaza"), located along the Hondo some 15 km southwest of modern Roswell, is one example (Klasner 1972; Schaafsma et al. 1967); another is the small community along Eight Mile Draw (Oakes 1983). However, we know virtually nothing about a 1878 party of Hispanic sheepherders who settled at the head of the North Spring River to create an irrigation system along the river. When they were forced to abandon their plans, some returned to their point of origin on the Rio Grande, and others joined another as yet undocumented Hispanic community along the Berrendo River northeast of Roswell.

Considering that many Hispanic families lived in the region during the earliest Anglo-American settlement and evidently contributed significant amounts of labor in the development of the economy, no accounting of the growth and development of southeastern New Mexico will be adequate until these early Hispanic communities are studied and their contributions documented.

The westward expansion of Anglo-American households from the original town plat began about the turn of the century. The process was greatly facilitated by the building and promotion of the Hondo Reservoir at Six Mile Hill at the western edge of the Pecos Valley. Originally intended to be privately funded, the project was taken over and built by the predecessor of the Bureau of Reclamation, a federal agency. By the time the project failed, as many predicted it would, many people had settled on homesteads in the vicinity, particularly on lands that would have been irrigated from the reservoir. We currently know very little about this expansion.

LA 54346 represents one or both of these periods of settlement. Located within 800 m of the head of the North Spring River, it certainly contains materials and probably other features from the Hondo Reservoir expansion. More importantly, its location with respect to the North Spring River and the 1878 Hispanic settlement, plus the presence of two depressions presumed to be dugouts, present the possibility that part of the site may date to that earlier venture. Only careful excavation will be able to confirm or deny this point.

#### *Research Goals and Orientation* by Yvonne R. Oakes

The theoretical perspective for the historical data recovery plan is derived from a variety of disciplines including archaeology, history, geography, ethnography, and economics to present a synthesis of human adaptations in the Roswell area in the late Territorial period in New Mexico.

A major focus of the archaeological excavations will be the integration of LA

54346 with its immediate environs and the early settlement of Roswell. Functional and socioeconomic comparisons will be made with existing sites of the same time period within the area and the territory of New Mexico. Another goal is to understand the relationship between the material remains on the sites and the behavioral processes that formed those remains.

Oakes (1983) has previously examined an early twentieth-century homestead immediately west of Roswell. The significance of the Ontiberos site lies in its identification as part of a Hispanic enclave at Eightmile Draw. Data from these Hispanic homesteads were used to develop an understanding of early Hispanic settlement of the American Frontier and of Roswell in particular. Comparisons were made between these sites and previously excavated Anglo sites of territorial New Mexico (Gallagher and Bearden 1980; Seaman 1983; Maxwell 1984). Ethnic differences in style of construction, interior layout, size of dwelling, and number of occupants were observed. We do not know, however, if these differences are general cultural patterns because no other Hispanic homesteads of this period have been documented in the state to date. Therefore, LA 54346 will be considered within a historical and cultural framework from an ethnic perspective, with an emphasis upon the differing roles of Hispanics and Anglos in the early settlement of Roswell.

It must be stressed that such sites do not only represent particular segments of society but are embedded in a much broader cultural system that by its very nature imposes a sense of uniformity upon all parts of the system (South 1977:86). It is this degree of uniformity that allows researchers to identify and quantify those cultural variables that may remain constant within specific cultural systems and reflect economic differentiation, cultural constraints, environmental limitation, or varying site use.

What general patterns might present themselves at this site, that will inform on adaptive human behavior at the local, regional, and statewide levels? Patterns of interest to this archaeological project include use of land and division of space at the homestead, economic status, and the demographic makeup and ethnicity of site occupants. Comparisons between LA 54346 and other excavated sites in the region will be made.

An examination of variability in site structure is critical to the explication of distinctive patterns on the sites, particularly in the study of ethnic identity. We make the assumption that Hispanic and Anglo sites will produce different behavior patterns representing the different cultures. Baker (1978:110) notes that there is not always a one-to-one relationship between ethnic groups and their patterns of behavior. However, ethnic variation is present at Eightmile Draw (Oakes 1983), and we may reasonably expect it to be identifiable at other sites in the Roswell area.

In summary, the data recovery plan specifically will attempt to define behavioral patterns associated with particular cultural systems, delineate patterns in site structure, and examine the variables that might reasonably condition the archaeological record at



the site. The information obtained will expand the data base for Anglo/Hispanic late Territorial-period sites in New Mexico and serve to further define a New Mexico artifact pattern currently based on excavated sites (Oakes 1983). Regularities within ethnic groups should thus become more evident and anomalies identifiable.

Research problems may be stated as questions to be addressed during the field and laboratory phases of the project. If more than one component is identified, these same questions should be addressed for each of the occupations and used as the basis for interethnic comparisons:

1. Demographics. Where did the settlers of the sites come from and why? What was the family size, gender, and age of the site occupants?

2. Subsistence Modes. Were the individual settlers self-employed or engaged in wage labor to meet subsistence needs? What were the settlers' basic subsistence needs? What links to local, regional, or national markets are evidenced in the artifact assemblage? How and to what extent did the site occupants participate in the local, regional, and national markets?

3. Land-Use Patterns. When and why was the land first settled? Is the site among the earliest in Roswell or does it date after the establishment of a local community? How is the site spatially organized? If LA 54346 is indeed a homestead site, what is the composition of a late Territorial-period homestead in the Roswell area?

*Research Approach* by Yvonne R. Oakes and R. N. Wiseman

To answer the questions just posed, three domains of investigation will be implemented -- personal interviews (ethnohistory), archival research, and archaeological excavation and documentation. Each domain will bring specific strengths and weaknesses to the project.

Interviews. The archaeological and archival information obtained can be supplemented by oral interviews with current and former residents of the surrounding area. It is unlikely that persons directly connected with the occupation of the site are still alive, but their descendants may remember events related to them and may also possess photographs or other useful documents for site interpretation. These data will provide information pertinent to all three research questions.

Archival Research. Because LA 54346 is tentatively dated to before 1910, the primary source of information will most likely be archival. Primary sources to be consulted include Chaves County Courthouse, Chaves County Historical Society, Roswell Public Library, New Mexico State Archives, Museum of New Mexico History Library,

New Mexico State Library, University of New Mexico Zimmerman Library, and the National Archives. The emphasis will be on documenting land transactions through time for the site, including an examination of mortgage and warranty deeds, tax records, and homestead patents. In addition, newspaper files, biographies, histories, and pertinent secondary sources will be consulted. This information will provide information pertinent to all three research questions.

Archaeological Field Work. Archaeological field studies will begin by setting out a primary datum and 2-by-2-m Cartesian grid. Surface artifacts within the right-of-way will be inventoried in terms of the grid squares. Recording will be in terms of colors and shapes of glass, types and shapes of china, and functional identification of recognizable metal items and other artifacts (buttons, marbles, etc.). Undiagnostic glass, china, and metal fragments from surface proveniences will not be collected.

Collection of surface artifacts will be limited to those that assist in dating the site, establish site ownership or site function, or require further study for proper identification. Such artifacts include maker's marks on glass, china, and metal items; diagnostic closures and mold-marks on bottles; coins; and firearm cartridges, among others.

The crew will then proceed with hand excavation of the dugout and possible burned frame structure. Intensive excavation will also extend 1 m beyond the edges of these two features. Each feature will be fully excavated unless the condition or other aspect of the feature indicates that partial excavation is more appropriate.

Horizontal provenience will be maintained in terms of the 2-by-2-m grid squares and feature interior/exterior. Vertical provenience will be in terms of 10-cm arbitrary levels unless stratigraphic units can be defined. Excavation will end when sterile soil is reached. If initial excavation shows the dugout to be devoid of cultural deposits, a backhoe may be used to remove the fill.

All hand-excavated soil will be screened through 1/4-inch wire mesh, and all artifacts will be bagged by provenience and general type. All artifacts recovered from excavations will be kept by excavation provenience and returned to the laboratory for study and curation. The crew will also collect pollen, flotation, soil, and chronometric samples if appropriate deposits are located.

A backhoe will be used to cross-section the two large depressions at the site. In addition, hand excavated pits, auger holes, or backhoe trenches may be placed in selected grid units to find features not visible on the site surface.

Standard Museum of New Mexico forms and 35-mm black-and-white photographs will record observations, dimensions, stratigraphic profiles, and other data about the excavations. A general site map of both excavated and unexcavated areas will be prepared.

The field work will address all three research questions. Past experience has shown that excavated structures and other features of sites provide important clues to project personnel when asking questions and to interviewees when discussing the site and the people who lived or worked there. Archaeological data are now well known for supplementing archival and interview studies and in some cases have provided perspectives that have been forgotten or skewed by other sources.

Laboratory Study. All collected material will be cleaned and analyzed. Analysis will include identification and dating of historic artifact types with catalogues, dating guides, and other means. The function of each recorded and collected artifact will be identified. The resulting data will be used to reconstruct aspects of site function and fill in details of day-to-day living that are not recorded in archival documents. These data not only give insights into the economic status of the inhabitants of the site, they also reflect the avenues of commerce operative in the Roswell area at the time. It is precisely in the matter of economic status that interviewees and archival documents have sometimes been found to be silent or mistaken. This information is relevant to Research Questions 2 and 3.

Artifacts will also be used to provide a weighted-mean date (Oakes 1986:64) for each occupational component. This technique graphs the established dates of manufacture for a variety of artifacts and selects the period of agreement for the largest number of artifacts as the most likely dates for the occupation of the site. These results can then be compared to interview and archival information for degree of fit. This information is relevant to Research Question 3.

Flotation and pollen samples will be submitted to the appropriate specialists for analysis. The flotation and pollen data will reflect the economy of the inhabitants and in some cases may assist in the identification of the function of certain features. This information is relevant to Research Questions 2 and 3.

If materials such as tree-ring samples and burned clay are recovered, they will be submitted to the appropriate specialists for dating. This information is relevant to Research Question 3.

### *Analysis and Synthesis of the Information*

Once the archival, interview, and archaeological data have been compiled, each will be compared to the others to establish baseline information about the site, the tract of land on which it sits, the ownership through time, the composition of the dwelling group(s), the occupation(s) of the inhabitants, and the functional history of the site. The combined results will be used to answer Research Questions 1, 2, and 3.

### Publication of Findings

The final report will be prepared and published in the Archaeology Notes series of the Office of Archaeological Studies.

### Curation of Collections and Paper Records

Collections will be submitted to the Archaeological Repository of the Museum of New Mexico for permanent curation. All paper records will be submitted to the Archaeological Records Management System (ARMS), New Mexico Historic Preservation Division.

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