# Limited Archaeological Testing at LA 86797 along NM 547, Cibola County, New Mexico

Raul Troxler and Charles A. Hannaford

Office of Archaeological Studies

Museum of New Mexico

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# LIMITED ARCHAEOLOGICAL TESTING AT LA 86797 ALONG NM 547, CIBOLA COUNTY, NEW MEXICO

by Raul Troxler and Charles A. Hannaford

Submitted by
Eric Blinman
Principal Investigator

ARCHAEOLOGY NOTES 411

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# *ADMINISTRATIVE SUMMARY*

Between January 27 and 30, 1997, the Office of Archaeological Studies of the Museum of New Mexico conducted a limited archaeological test of a portion of LA 86797 along NM 547, Cibola County, New Mexico. The limited test was conducted at the request of the New Mexico Highway and Transportation Department to determine the extent of cultural resources within the proposed construction zone. The scope of improvements entailed the proposed addition of shoulders, which would serve as bicycle lanes, along NM 547. The area investigated is land controlled by the New Mexico Department of Transportation. The site limits extend onto private land. Because the site area on private land was outside of the proposed construction zone, it was not affected by the project. Permission was not obtained to enter the portion of the site on private land and no investigations were conducted there. Limited testing was conducted under the procedures outlined in Testing and Site Evaluation Proposal (SHPO Log No. 43648).

The chipped stone assemblage consisted of 188 artifacts. The assemblage is characterized by debitage derived from both core and biface reduction. These activities centered around the utilization of local materials, especially Grants Ridge obsidian. However, the site inhabitants also had access to nonlocal obsidian from the Jemez Mountains and possibly elsewhere. The two reduction strategies may have been directed toward the production of bifacial preforms, while exploiting a range of lithic, plant, and animal resources concentrated along the Mount Taylor slopes and drainages.

LA 86797 is designated a lithic artifact scatter with an unknown cultural/temporal affiliation. However, the presence of one-hand manos and the absence of ceramics may point toward an Archaic affiliation. The site probably functioned as a special activity site associated at the very least with the exploitation of local lithic and floral resources. Establishing the duration of occupation is problematic, although the limited chipped and ground stone assemblage does not suggest a base camp.

The limited testing program has determined that the portion of LA 86797 overlapping the highway right-of-way is not likely to yield additional information important to the understanding of local or regional prehistory beyond what has been documented. Both vertical and horizontal stratigraphic relationships have been compromised by at least five and possibly as many as seven utilities within the 9-m width (maximum) of site deposits between the right-of-way fence and slope limits of the existing highway. The project area does not have the potential to contribute additional information beyond what has been recorded and described. The site is considered "Undetermined" for inclusion in the *National Register of Historic Places* and no further archaeological investigations are recommended.

MNM Project No. 41.451 Lobo Canyon
NMCRIS Activity Number 108574
NMDOT Project No. CN 3106 [SP-4955(200)]

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# *INTRODUCTION*

At the request of the New Mexico Department of Transportation (NMDOT), a program of limited testing was conducted on the portion of LA 86797 within the proposed construction zone of improvements to NM 547 near Grants, Cibola County, New Mexico (Fig. 1, Appendix 1). The scope of improvements entailed the proposed addition of shoulders along NM 547 that would serve as bicycle lanes. The area investigated is land controlled by the New Mexico Department of Transportation. The site limits extend onto private land. Because the site area on private land was outside of the proposed construction zone, it was not affected by the project. Permission was not obtained to enter the portion of the site on private land and no investigations were conducted there.

Fieldwork was conducted between January 27 and 30, 1997, by Eric Blinman assisted by Charles Hannaford. The field phase was completed in eight person-days. Limited testing was conducted under the procedures outlined in Testing and Site Evaluation Proposal (SHPO Log No. 43648). Limited testing was conducted at LA 86797 to determine the nature and extent of the site within the proposed project area. Testing was restricted to that portion of the project area for the proposed improvements to the right-of-way of NM 547. Mr. Dan Reily, Historic Preservation Division, was notified by the Office of Archaeological Studies of their intent to conduct limited testing on January 8, 1997. Eric Blinman acted as principal investigator.

Before the fieldwork, the *National Register of Historic Places* and the *State Register of Cultural Properties* were consulted. No properties listed on, nominated to, or approved for submission to either inventory are within the proposed project boundaries.

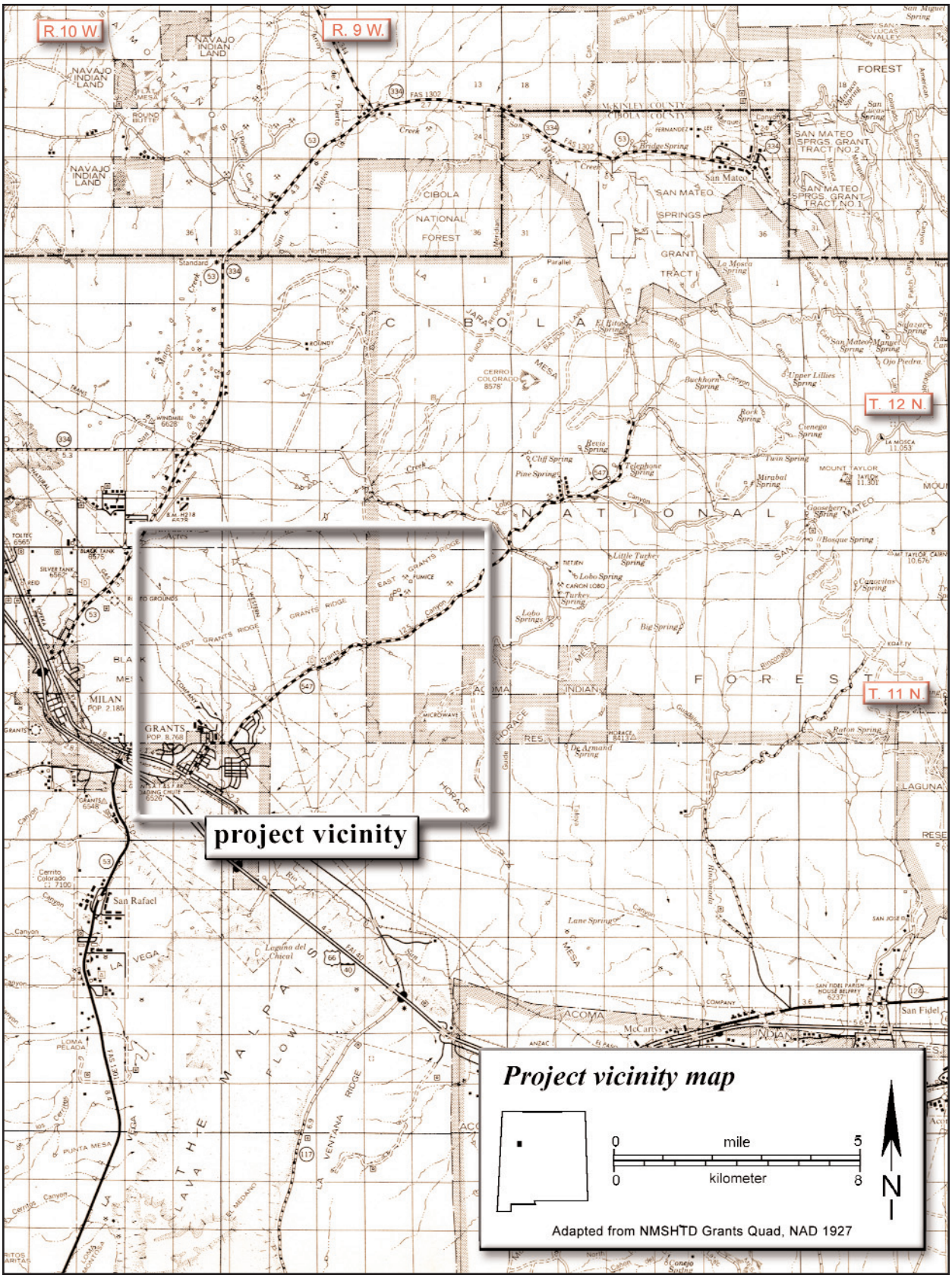


*Figure 1. Project vicinity.*

# *ENVIRONMENT*

The following environmental setting is abstracted mainly from three prior highway projects along NM 547 either overlapping the project area or in proximity (Drake 1991; Levine et al. 1991; Marshall 1995). The project area is on the south slope of Mt. Taylor. The site is located in a dune area south of the Grants Canyon Arroyo, and on the north end of a long, prominent sandstone rise on the broad and flat floor of Grants Canyon. Elevation of the project area ranges from 2,011.6 m (6,600 ft) to 2,017.7 m (6,620 ft).

## GEOLOGY

Geologically speaking, this region has been a very active one, beginning with Mt. Taylor's volcanism 4.3 million years ago and followed by depositions of alluvial and eolian units, fluvial incisions of deep canyons (Lobo and Grants canyons), canyons backfilling, intervening periods of base stability and arroyo cutting of valley-floor deposits.

LA 86797 rests on the Mt. Taylor volcanic field, which contains basalt mesas and valley floors underlying Mesozoic sedimentary deposits (Grimm 1983:46). Exposed geologic strata include the Triassic Chinle Formation and Wingate Sandstone. Much of the Granite Canyon floor is covered with alluvial fans (sandstone and limestone deposits) and eolian dune deposits. Grants Ridge exhibits a combination of intrusive rhyolite, obsidian, and pearlite.

## CLIMATE

Climatic data is from the Grant Station, at an elevation of 1,998 m (6,520 ft). Mean annual precipitation is 410 mm (10.26 in), peaking in July and August. More precipitation is expected on the higher slopes of Mt. Taylor. The mean annual temperature is -4.7 degrees C (49.1 degrees F). July is the warmest month, with an average temperature of 6.9 degrees C (70.9 degrees F). On the other hand, December is the coldest month, with an average temperature of -15.8 degrees C (29.4 degrees F).

## FLORA AND FAUNA

This portion of Grants Canyon lies in the Upper Sonoran life zone (Dart 1978). Vegetation varies with elevation. The vegetation of LA 86797 includes scattered juniper trees, saltbush, wolfberry, tumbleweed, snake weed, Indian rice grass, and other grasses. Local fauna of the region includes black-tailed jackrabbits, desert cottontails, rock squirrels, and several unidentified bird species.

## SOILS

The soils of the project area belong to the Haplargids-Torriorthents-Rock Land Association, one of the largest units in the Western Plateau Region (Maker et al. 1974:92).

The Harplagid soils on the gently sloping and rolling uplands–and the slopes of ridges–are characterized by brown or reddish brown, fine sandy or calcareous loam surface layers. The relatively coarse to fine textured subsoils are usually noncalcareous in the upper part. The shallow to moderately deep deposits of the mesa tops form residually in materials weathered from sandstone. The deep deposits developed primarily in alluvial and eolian sediments of mixed origin and range in texture from moderately coarse to moderately fine.

The shallow Torriorthent soils are light colored, calcareous, silty clay, and silt loams underlain by shale. The deep Torriorthent soils of the gently to strongly sloping alluvial fans are moderately coarse to fine in texture. On the gently sloping to moderately steep uplands and mesa tops, they are underlain by shallow sandstone deposits, with a thin layer of light brownish gray or light brown gravelly or sandy loam. Small, angular fragments of sandstone are common above the bedrock.

The Rock Land soils are a complex of very shallow soils and outcrops of sandstone, basalt, and shale, primarily on the steep slopes, hilly areas, and rough broken areas. On strongly sloping mesas and upland ridges, soils are brown, noncalcareous, gravelly fine sandy and reddish brown clay loams with sandstone fragments. These soils range from commonly gravelly and medium and moderately coarse textures to unconsolidated sedimentary deposits and shale outcrops.

# *CULTURAL OVERVIEW*

(after D. Levine, K. Fuller, and A. Willmer 1991)

The following cultural overview has been adapted from another Office of Archaeological Studies highway report along NM 547 and in proximity to the current project area.

## PALEOINDIAN PERIOD (9500 BC TO 5500 BC)

Paleoindian finds in the area consisted of several projectile points and other tools found during a survey of Cebolleta Mesa, south of Grants (Broster 1983). Points found dated from Clovis to the Cody Complex periods. This was a unique situation because of the number of points found at this high elevation, ranging from 2,267 to 2,408 m (7,440 to 7,900 ft). Previously, Paleoindian sites were believed to be found only at lower elevations, as the subsistence economy was believed to have been based on hunting large Pleistocene herd animals. Most points were found around a rincon, the main access to the mesa top, overlooking vast areas of rolling plains. The remainder were on top of the mesa in association with playas or overlooks.

Though rare, Paleoindian utilization of high elevations is well documented in other areas of the Southwest. An isolated Clovis point was found in the Rio Valdez Divide in the Sangre de Cristo Mountains, at an elevation of 3,507 to 3,657 m (11,000 to 12,000 ft). Sites with Cody knives and Agate Basin, Allen, Eden, and Meserve points have been recorded at elevations of 3,354 to 3,504 m (11,000 to 11,500 ft) in the Colorado Front Range (Broster 1983).

## ARCHAIC PERIOD (5500 BC TO AD 400)

The end of the Paleoindian period was marked by a climatic warming trend and the gradual extinction of the Pleistocene fauna. The hunting of megafauna was succeeded by the hunting of smaller game and the gathering of wild plant foods, which characterized the Archaic period (Irwin-Williams 1973). At sites dating to the early part of the Archaic, hearths, fire-cracked rock, lithic artifacts, and occasional grinding tools are found. During the Late Archaic, population increased and was less mobile, and cultigens first appeared. Sites gradually became larger and structural components were more common.

Five phases of the Archaic period have been established by Irwin-Williams (1973), based on work in the Arroyo Cuervo district of north-central New Mexico. A brief description of each follows.

*Jay (5500-4800 BC) and Bajada (4800-3200 BC):* Highly mobile small groups, occupying small, limited-use base camps.

*San José (3200-1800 BC):* Population growth was marked by more and larger sites. Shallow basin metates and one-hand manos were common, indicating a heavier reliance on plant foods (Condie 1987:6).

*Armijo (1800-800 BC):* A significant change occurred at the beginning of the phase with the introduction of corn. Horticulture gradually affected settlement patterns, eventually leading to a pattern of seasonal population aggregation and dispersion (Moore 1989:9).

*En Medio (800 BC-AD 400):* The latter part of the En Medio phase corresponds to the Basketmaker II period and appears to be a transition from the nomadic hunter-gatherer subsistence to one combining hunting and gathering with some dependence on agriculture. Population again increased, represented by numerous seasonally occupied base camps, typically found at canyon

heads and cliff bases (Irwin-Williams 1973). Tools include ground stone, stemmed corner-notched projectile points, bifacial knives and drills, scrapers, and choppers. Towards the end of the Archaic period, pottery and the bow and arrow were introduced, and their was a shift towards a more sedentary agricultural lifestyle. In contrast to the high population density in the Arroyo Cuervo district during this time, En Medio sites in the Grants-Milan area are rare. However, these site have been found on La Jara Mesa, 10 miles north of Grants (Condie 1987; Powell 1978).

Archaic occupation at higher elevations in the Cibola forest is extensive, while there is little evidence in the lower elevations of the San Mateo Valley (Allen et al. 1978; Schaafsma 1978; Powell 1978; Klager and Anschuetz 1979). The diversity of the topography in the forest offered more abundant resources than in the lowlands. However, with the shift to agriculture, the low flat areas were more desirable, though high mesas and mountainous regions were still exploited for hunting and gathering.

## FORMATIVE PERIOD (AD 400-1540)

The Cebolleta Mesa area, south of Grants, appeared to hang onto an Archaic adaptation longer than in the surrounding area, possibly until as late as AD 900 (Bryan and Toulouse 1943). During this time, early Anasazi settlement was occurring elsewhere. The population was becoming more settled, constructing pithouses, making pottery, and relying more heavily on agriculture. Above-ground masonry structures gradually replaced pithouses after AD 900. Local ancestral Pueblo population reached a peak between AD 1000 and 1050, when Chacoan outliers were constructed and were occupied in the Grants and San Mateo area (Marshall et al. 1979). This period of growth lasted until AD 1140, when most of the outliers were abandoned.

The Pecos Classification is the chronological framework that has been applied to most of the Anasazi area. Dittert (1959) developed a sequence of phases to apply specifically to the Acoma Province, based on pottery types and other cultural changes (Table 1).

### *Basketmaker III*

The Basketmaker III period has been described in three phases for the Arroyo Cuervo region (Irwin-Williams 1973:11-16) and in two for the Cebolleta region (Dittert 1959:518-526). This period is characterized by pithouses, plain gray pottery, and the advent of the bow and arrow. The economy was basically the same as in the preceding En Medio phase, with increased emphasis on plant food processing, indicated by the greater amount of ground stone found at sites.

In the Arroyo Cuervo region, seasonal foraging sites are typically found on dune ridges along drainages, but main camp sites are still in rock shelters at the base of cliffs in the early part of this period. Later in the Basketmaker period, these areas were abandoned in favor of wider valley bottoms, as agriculture came to play a more important role in the subsistence economy (Irwin-Williams 1973:523-524).

Table 1. Cebolleta Mesa Regional Sequence (after Dittert)

| CULTURAL SEQUENCE | DATES AD | PECOS CLASSIFICATION |
|---|---|---|
| Acoma phase | 1600-present | Pueblo V |
| Cubero phase | 1400-1600 | Late Pueblo IV |
| Kowina phase | 1200-1400 | Pueblo III-Pueblo IV |
| Pilares phase | 1100-1200 | Pueblo III |
| Cebolleta phase | 950-1100 | Pueblo II |
| Red Mesa phase | 850-950 | Early Pueblo II |
| Kiatuthlanna phase | 800-870 | Pueblo I |
| White Mound phase | 700-800 | Basketmaker III |
| Lobo period | ?-700 | Basketmaker II-Basketmaker III |

In the Cebolleta Mesa region, a variety of topographic situations were utilized. Most late Basketmaker sites (White Mound phase) are on low benches bordering drainages below canyon heads, mesa slopes, or some of the higher sand hills. Contact with people from the Mogollon area to the south is indicated by the presence of brown ware pottery (Dittert 1959:523-524).

*Pueblo I*

During the Kiatuthlanna phase (AD 800-870), habitation sites were generally placed above constricted canyons and built against cliff faces in side canyons. Jacal structures with stone foundations were arranged in a crescent shape beside a pithouse. The alluvial valley floors below were utilized for farming (Dittert 1959:526-527); Tainter and Gillio 1980:70).

*Pueblo II*

The Pueblo II period, represented by the Red Mesa (AD 870-950) and the Cebolleta (AD 950-1100) phases, was a time of widespread geographical development. Generally, use of higher elevations decreased during this time, though scattered room blocks have been found in the uplands surrounding the San Mateo Valley (Tainter and Gillio 1980:73). In the Cibola forest adjacent to the San Mateo Valley, fieldhouses and special-use sites have been documented (Koczan 1977; Koczan and Doleman 1976). Though the forest was generally not used for permanent occupation, agriculture and foraging occurred there on a seasonal basis.

Pueblo II architecture consisted of blocks of masonry rooms with a long axis running north-south and a plaza and kivas to the east. Fieldhouses were dispersed but abundant, as the population expanded to agricultural lands.

The population peaked during Late Pueblo II, the Cebolleta phase (AD 950 to 1100). A proliferation of pottery types, both local and intrusive, indicated influences from other areas. Allan and others (1976) believe this influx was mainly from the Chacoan area. During this time construction began on several Chacoan outliers in the area: El Rito, San Mateo, and Kin Nizhoni (Marshall et al. 1979). These were linked by roads to each other and to the Chacoan system.

*Pueblo III*

Substantial depopulation in the San Mateo Valley area occurred during the early Pueblo III period. Farther south, in the Cebolleta Mesa region, the period is characterized by large communities and intensive local specialization in artifact manufacture (McGregor 1965:63). The Pilares phase (AD 1100 to 1200) and Kowina phase (AD 1200 to 1400) comprise this time frame. Site density in higher elevations decreased in favor of canyons. However, some later sites were still built on mesa tops, including Acoma Pueblo (Dittert 1959:548-554). Intensive farming took place, and most sites were located near good agricultural lands.

*Pueblo IV*

The Kowina phase (AD 1200 to 1400) and the Cubero phase (AD 1400 to 1600) comprise this time period. It is characterized by a decrease in population and a general deterioration from the cultural peak of the Pueblo III period (Dart 1982:43). Small sites were built on overlooks near the Rio San Jose, and small shelters were built against low cliffs. Acoma Pueblo was the main large site during this time. Pottery types from Hopi, Zuni, and Rio Grande areas were introduced at Acoma (Dittert 1959:566).

## Historic Period (AD 1540 to Present)

Coronado's *Entrada* into New Mexico in 1540 marks the beginning of the Spanish presence in the Southwest. Hostilities between the Spanish and inhabitants of Acoma Pueblo were common. The pueblo was destroyed by the Spanish in 1599 and subsequently rebuilt with adobe bricks rather than masonry. Missionaries settled at the pueblo, and a large adobe church was built. Sheep and various cultivable plants were introduced (Beal 1977:46).

Navajo occupation south of Mt. Taylor

began around AD 1700 (Hester 1962:82). They considered Mt. Taylor the "sacred mountain of the south." The Spaniards attempted to establish missions at Cebolleta and Encinal, but these were overrun by raiding Navajos, who considered the missions to be a threat to their land and their way of life (Keur 1941:5). The first grant for present-day Cebolleta (on the site of the Navajo mission) was made in 1800 (Condie 1987:11). Spanish homesteads and ranches claimed vast areas of land, and as a consequence, water. Feuds over land use among the Navajos, Spaniards, and later, the Americans, continued into the Territorial period (1846-1912).

In the early part of the twentieth century, most of the major mines were near Gallup (Tainter and Gillio 1980), and mining in the Grants and Mt. Taylor areas was limited. Some low-grade copper ore was discovered at Mt. Taylor, but it was not profitable to mine (Post 1989). With the discovery of uranium in the Grants area in the 1950s, the population and economy boomed. Now, however, only one mine is still open, and the town of Grants serves mainly as a stopover for traffic on Interstate 40.

# *RECORDS CHECK*

Archaeological site data from the NMCRIS files were summarized for a two-section (16 and 17) area surrounding the project (Table 2). Only seven archaeological sites (including the currently investigated site) have been recorded on these two sections. In actuality, only seven archaeological sites have been recorded in a block of four sections (16, 17, 20, and 21) surrounding the project location. These summarized data provide additional settlement context and an understanding of the range of temporal and functional site types that might contribute archaeological material to the project area.

Seven survey projects have recorded sites in the sample area. Surveys (n=5) are mainly represented by highway-related projects along the NM 547 corridor or related borrow pit localities. These surveys range from 19 acres to 112 acres and recorded one site. Another narrow utility corridor west of the project was part of a larger 1,867-acre survey. However, the main survey blocks were away from the project area and no sites were found in the narrow corridor in the project vicinity. A larger block survey of 422 acres southwest of the project area recorded the remaining six sites.

No Paleoindian manifestations have been recorded in the sample area. The Archaic period is represented by three components suggesting regional use across the entire Archaic time frame. LA 37887 to the south was tested by New Mexico State University (Laumbach 1982). The site was characterized by a lithic artifact scatter measuring 460-by-200 m (9,200 sq m) situated in the upper 10 cm of a dune locality. The lithic artifact scatter density was estimated in the thousands and consisted of chipped stone tool manufacturing debris, several San José projectile points, and ground stone tools. The lithic artifact scatter was associated with two charcoal-stained hearths, and one concentration of fire-cracked rock. The site was interpreted as a medium-sized camp dating to the Middle to Late Archaic based on the projectile points and obsidian hydration dates. LA 37885 was tested during the same project. The simple lithic artifact was not associated with features. The site was assigned a late Archaic occupation based on an En Medio projectile point and obsidian hydration dates. LA 37885 was recorded during the same project, but was not tested. The lithic artifact scatter was associated with one charcoal stain, but this site also had a Formative period component and the temporal association of the stain was

Table 2. Sites in the Project Area

| SITE | CULTURAL AFFILIATION | SITE TYPE | COMMENTS |
|---|---|---|---|
| LA 37883 | Navajo Unknown (1945 to date) | Ramada shelter | |
| | Anglo (1945 to date) | Artifact scatter | |
| LA 37884 | Archaic (5500 BC to 3000 BC) | Artifact scatter and features | One charcoal stain |
| | Formative (AD 1100 to AD 1300) | Artifact scatter and features | |
| LA 37885 | Archaic (472 BC to 285 BC) | Artifact scatter | |
| LA 37886 | Formative (50 BC to AD 840) | Artifact scatter and features | Three hearths |
| LA 37887 | Archaic (2947 BC to 901 BC) | Artifact scatter | Two hearths, two charcoal stains |
| | Anglo (1950 to date) | Artifact scatter and features | |
| LA 37888 | Formative (111 BC to AD 760) | Artifact scatter | |
| LA 86797 | Unknown (9500 BC to date) | Artifact scatter and feature | One charcoal stain |

not determined. The Archaic occupation was assigned an early period occupation based on the presence of a Bajada-style projectile point.

The Formative period is represented by four temporal components. The sites are artifact scatters with diagnostic sherds and sometimes associated with hearths. All but one of the sites are multicomponent sites associated with earlier Archaic or Formative period components. Diagnostic sherds indicate Basketmaker II to Pueblo I (n=2), Pueblo II to Pueblo III (n=1), and Pueblo III (n=1).

Three sites have recent Anglo-Euroamerican and Navajo manifestations represented by artifact scatters. One Anglo component artifact scatter may be associated with a hearth. The Navajo component is associated with a ramada.

Finally, the site under investigation was assigned an unknown cultural affiliation, since no diagnostic artifacts were found on the site. The lithic artifact scatter is associated with one ephemeral charcoal stain.

In summary, the seven recorded archaeological sites in the sample area are represented by a repeated pattern of small to moderate-sized artifact scatters recorded mainly from the Archaic and Formative time periods. These sites most likely represent short-term special activity sites associated with the procurement of local lithic, plant, and animal resources. A few sites with hearths or thermal features represent additional resource processing and possible longer overnight or multi-night occupations. Diagnostic projectile points, sherds, and obsidian hydration dates show Early, Middle, and Late Archaic as well as early, middle, and late Formative period use of the area. Grants Canyon provides a natural access to the higher elevations of Mt. Taylor and this is why the modern NM 547 highway follows essentially the same route. In addition to floral and faunal resources concentrated by elevation along the mountain slope, Grants Canyon provides additional riparian resources, at least intermittent seasonal water, and a wide range of readily accessible lithic resources. The access route was important to groups exploiting these resources over a wide time period.

# *FIELD METHODS*

Limited testing was conducted at LA 86797 to determine the nature and extent of surface and subsurface deposits within the proposed project area. Limited testing was conducted under the procedures outlined in Testing and Site Evaluation Proposal (SHPO Log No. 43648). Initially, the two archaeologists walked 1-m transects parallel to the right-of-way fence and marked all artifact locations with pinflags. This procedure determined the surface extent of the site and helped define areas of higher artifact concentration. In addition, two areas of dark soil were noted within the right-of-way and extending north onto private land (see Fig. 4). No investigations were conducted on the portion of the site extending onto private land north of the right-of-way fence.

Systematic surface recording was carried out by establishing a 3-by-3-m grid over the surface of the site area within the right-of-way. Each grid was assigned a sequential number beginning with 1 at the northwest corner (Fig. 4). A total of 122 3-by-3-m grids were examined. Surface artifacts were described individually within each grid unit, and areas outside of the defined grid system were carefully examined to confirm the absence of artifacts. Artifacts were described and returned to the site surface. No surface artifacts were collected. Ant hill armor was examined within and outside the grid system, and microflakes were recorded when present (see Grid 1 and Grid 29).

Test units were placed to sample areas of higher surface artifact density, to explore areas of darker soil, and to establish the depth of cultural deposits away from areas of bedrock exposure. Test units were placed in areas believed to be undisturbed by live utility line emplacement and away from surface indications of dead utility lines. Test units consisted of two 1-by-2-m excavations and two 1-by-1-m excavations. Test units were hand-excavated in 10 cm levels . Excavations ceased when culturally sterile soil or bedrock were reached, and auger tests were placed in the bottom of the excavations to confirm the presence of sterile soil. All soil and sediment removed from the excavation units was systematically passed through steel mesh screens. Two sizes of screen, 1/4-inch and 1/8-inch mesh, were employed depending on the nature of the deposits. The 1/8-inch screen was used for Test Unit 2 in the area of the dark soil. All subsurface artifacts were collected and a stratigraphic profile was drawn of each excavation unit. Two additional auger tests were subjectively placed to determine presence and depth of potential cultural deposits in other area of the site (see Fig. 4). Recovered artifacts were assigned a field specimen (FS) number, which were listed in a catalog and recorded on all related excavation forms and bags of artifacts. A single flotation sample was taken in the dark soil encountered in Test Unit 2. Field recording employed standard OAS forms. All excavated areas were backfilled when the project was completed.

# *RESULTS OF TESTING*

LA 86797 was initially identified during an archaeological inventory of the NM 547 right-of-way (Drake 1991) and was relocated by Marshall (1995). Marshall describes the site as an unknown lithic artifact scatter situated on a small rise at the north end of a long prominent sandstone ridge The site is characterized by a sandy dune locality with sandstone outcrops. The Grants Canyon arroyo is about 100 m north of the site. Local vegetation consisted of scattered juniper trees, snakeweed, saltbush, and mixed grasses. Cultural material included a light scatter of lithic artifacts spread over 60-by-35-m area. Most of the chipped stone material consisted of Grants Ridge obsidian, but various colors of chert and basalt were also noted. No diagnostic tools were observed. Marshall recorded a basalt mano, two sandstone metate fragments, and two small ground slabs. An ephemeral 5-m-diameter area of dark soil was possibly the remains of a deflated hearth. Of interest is the drawing of an old pistol on Drake's map (Fig. 2). However, little mention is made of the pistol and Marshall does not mention the pistol in his site update. We were unable to work on the private property north of the right-of-way fence, so that the pistol and ground stone artifacts located in this area of the site could not be reexamined.

## CONDITION

The portion of LA 86797 overlapping the right-of-way has suffered from its proximity to NM 547 (Fig. 3). About 9 m (maximum width) of site area remain between the existing right-of-way fence and a steep shoulder cut along the north edge of the highway. This entire area is covered by abundant asphalt fragments and limestone chip base course, indicating the presence of either an earlier road or detour that passed over the site. An old borrow pit has cut the northwest site area on the private land north of the fence line. Ridges of sandstone rubble currently mark the probable but unconfirmed presence of utility lines. US West and PNM spotters located three live utility lines within the project area. The US West spotter thought that at least four additional dead phone lines crossed over the site. The PNM utility is a 4-inch gas line. Lastly, rodent disturbance was heavy throughout the profiles of the four subsurface test units. In summary, both vertical and horizontal cultural contexts in the remaining 9-m-wide site locality between the right-of-way fence and highway have been severely compromised by at least five and possibly seven utility lines, the presence of an old road or detour over the site, and slope cuts along the existing road. In combination with natural rodent disturbance and eolian deflation of the dune context, these agencies have resulted in severely mixed and redeposited contexts.

## SURFACE COLLECTION

The site surface was systematically examined by establishing a series of 3-by-3-m grids over the site (Fig. 4). The grid system was aligned with the highway right-of-way fence and covered a 102-by-12-m area. The surface of 122 individual grid units was intensively inspected. Surface visibility was excellent, although it was obvious from the quantity of limestone base course chips, asphalt, and sandstone debris from the utility trenches that surface material was severely mixed. In all, 83 chipped stone artifacts and one ground stone artifact were recorded. Chipped stone artifacts were

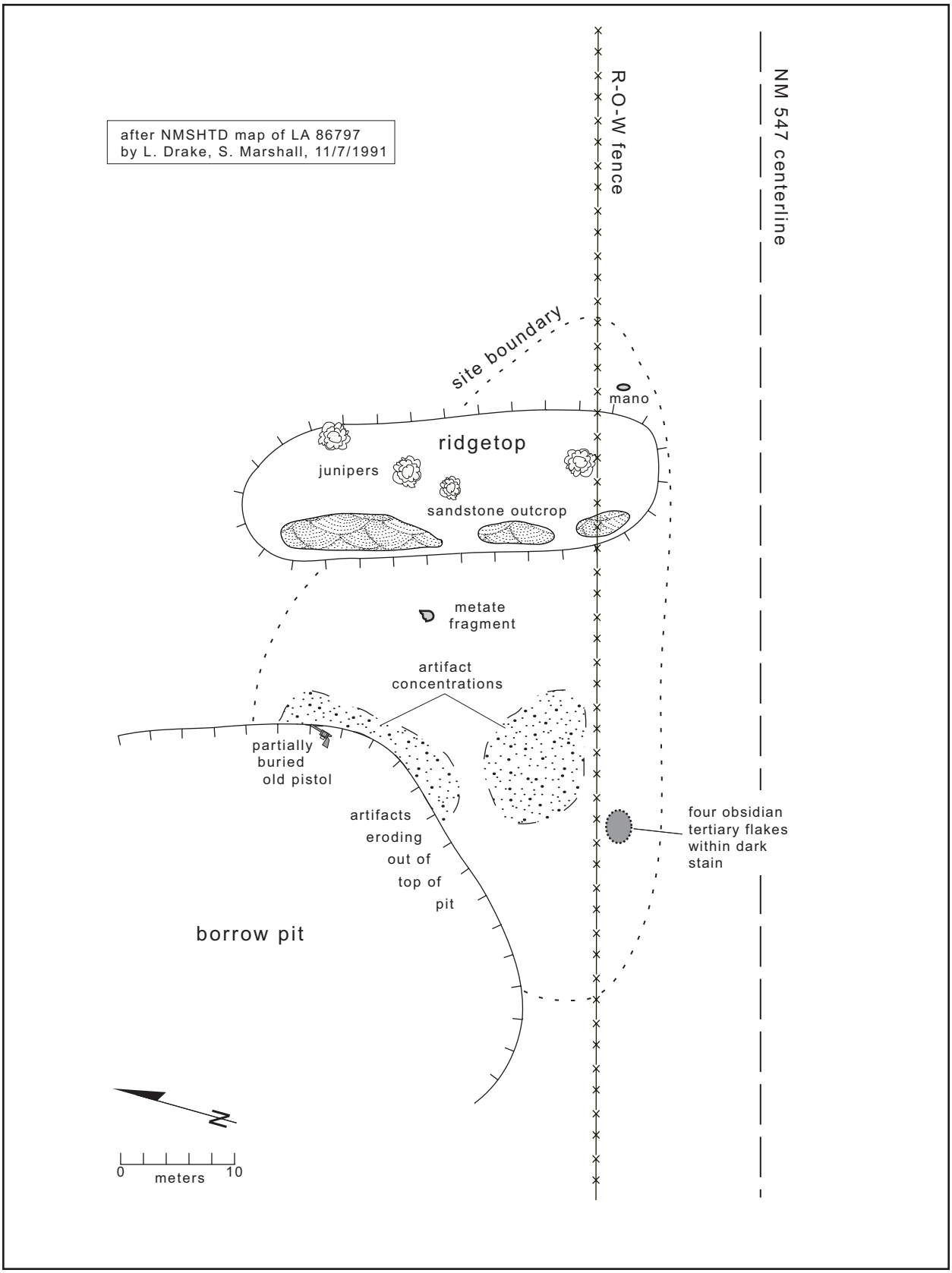


*Figure 2. Original map of LA 86797 (after Drake 1991).*

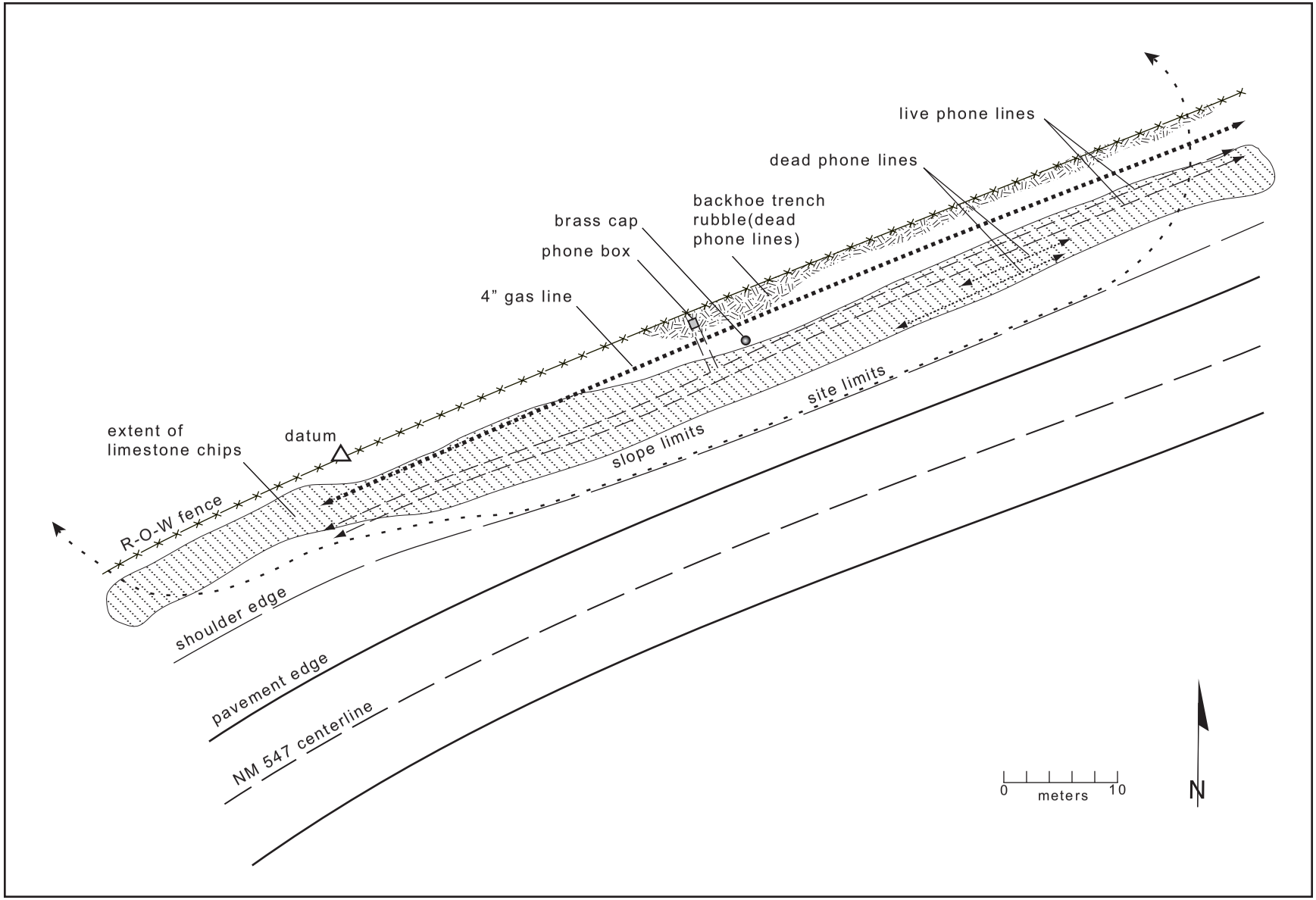


*Figure 3. LA 86797 site map showing site disturbance.*

found in 42 (33 percent) of the grid units. Artifacts in grid units ranged from 1 to a high of 12, but the majority of the grids contained only one artifact. Grid 30 contained the highest number, 12 artifacts, and these were all tiny biface thinning/retouch flakes noted on an ant hill. A single quartzite one-hand mano fragment was found in Grid 27 along the right-of-way fence. This is probably the mano depicted on Drake's site map (Fig. 2). The surface examination established the presence of a low density and widely dispersed chipped stone artifact scatter. Artifact relationships have been thoroughly mixed by a number of natural and cultural agencies. The dark stain mentioned by Marshall was observed in Grids 11 and 12 (roughly 5-by-5 m) and extended north onto the private land. A smaller ephemeral area of dark soil measuring about 3 m by 10 cm was noted in the slope cut in Grids 101 and 102. This stain was completely deflated and had been all but removed by the slope cut. No other artifact types or cultural features were found during the surface examination.

## Test Units

Four test units and two auger tests were excavated to sample and define the nature and extent of subsurface cultural material (Fig. 4). Test units consisted of two 1-by-2-m excavations and two 1-by-1-m excavations. Test units were placed to sample areas of slightly higher artifact density, to explore areas of darker soil, and to establish the depth of cultural deposits away from areas of bedrock exposure. An attempt was made to place test units in areas not disturbed by utility lines, but this was found to be nearly impossible. In all, 105 chipped stone artifacts were recovered from the test units. Like the surface artifacts, the subsurface artifact assemblage was very mixed.

### *Test Unit 1*

This 1-by-2-m test unit was placed at the east end of the site (Fig. 4). Surrounding grids have a slightly higher artifact density and a faint ephemeral stain in the road shoulder is just south of the test unit. The surface was covered with abundant limestone chip debris and asphalt. The trench was dug to a maximum depth of 50 cm below the surface (Fig. 5). Sandstone bedrock was encountered at a depth of 50 cm and the massive unit sloped upward to a depth of 20 cm below the surface on the east side. Soil consisted of a single thick layer of reddish sandy loam. The sand is primarily of eolian origin, but tiny laminae probably represent alluvial deposition originating from drainage down the higher talus slope to the south. Cultural material consisted of 34 flakes, but all levels were mixed with abundant glass, asphalt, and limestone chips (Table 4). An unrecognized phone cable was found to pass through the center of the trench and extending down into the sandstone bedrock (Fig. 5). The artifact assemblage is considered mixed and disturbed, although the south soil profile represents the undisturbed general site stratigraphy. No charcoal, fire-cracked rock, or oxidation indicative of cultural activities associated with the nearby stain were encountered.

### *Test Unit 2*

This 1-by-2-m test unit was placed along the north edge of the stain initially recorded by Drake (1991). This stain is characterized by a 5-m area of dark brown sand contrasting with the surrounding reddish sand. The stain extends north onto the private land. Marshall (1995) recorded the stain as a possible hearth or hearth midden. Limestone chips from the old road are 1.5 m south of the trench and the stain. The excavation unit was dug to a depth of 50 cm below the surface (Fig. 6). The stain was composed of dark brown sandy loam with extremely rare and fine charcoal flecks. The stain ranged in thickness from 10 cm at the west end, roughly 20 cm in the middle, and feathering to a depth of only 5 cm at the east end. The dark brown sand graded into the lower reddish sand with no appreciable boundary. The primary change was in color rather than texture. Limestone chips and glass were found through-

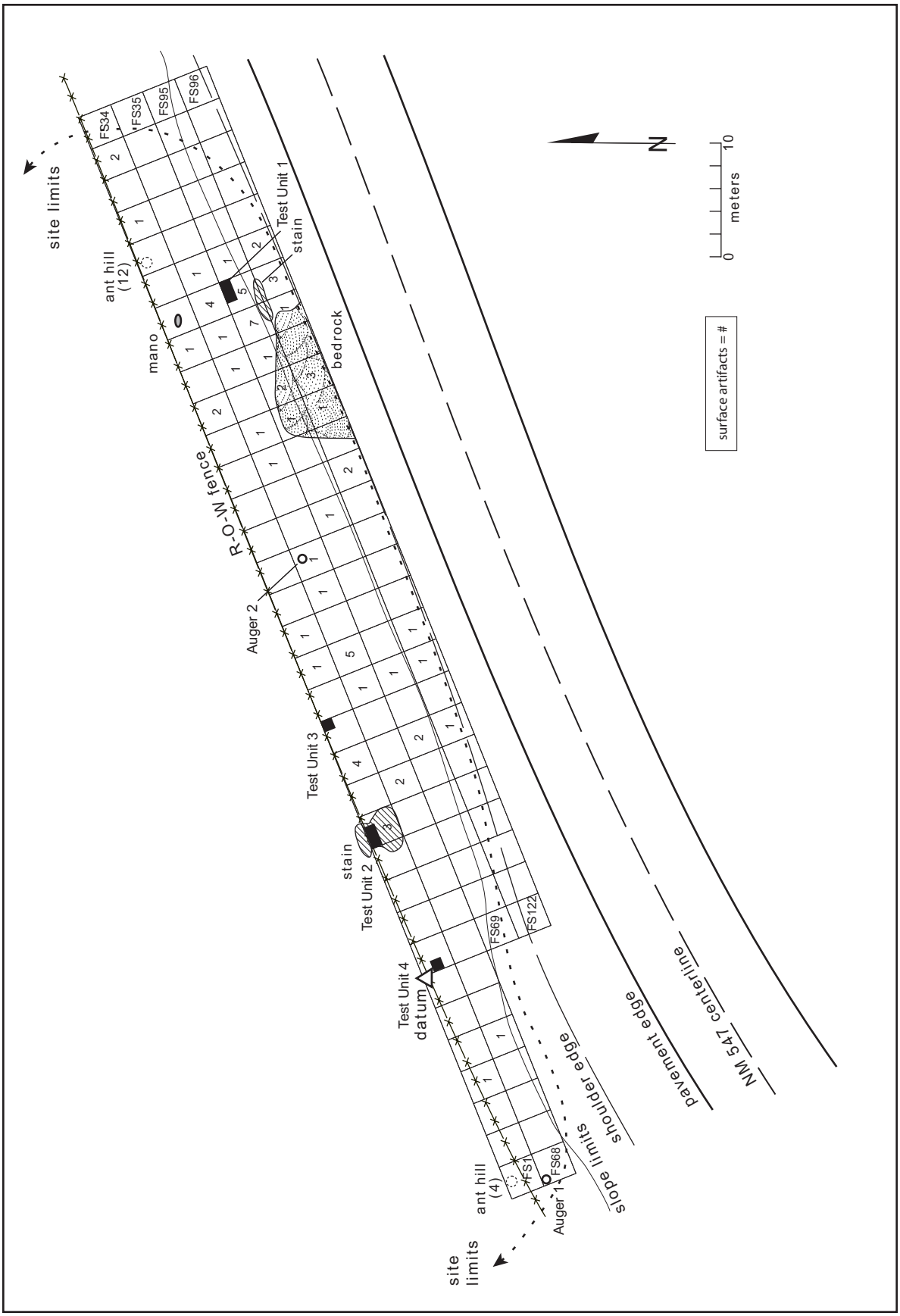


*Figure 4. LA 86797 site map.*

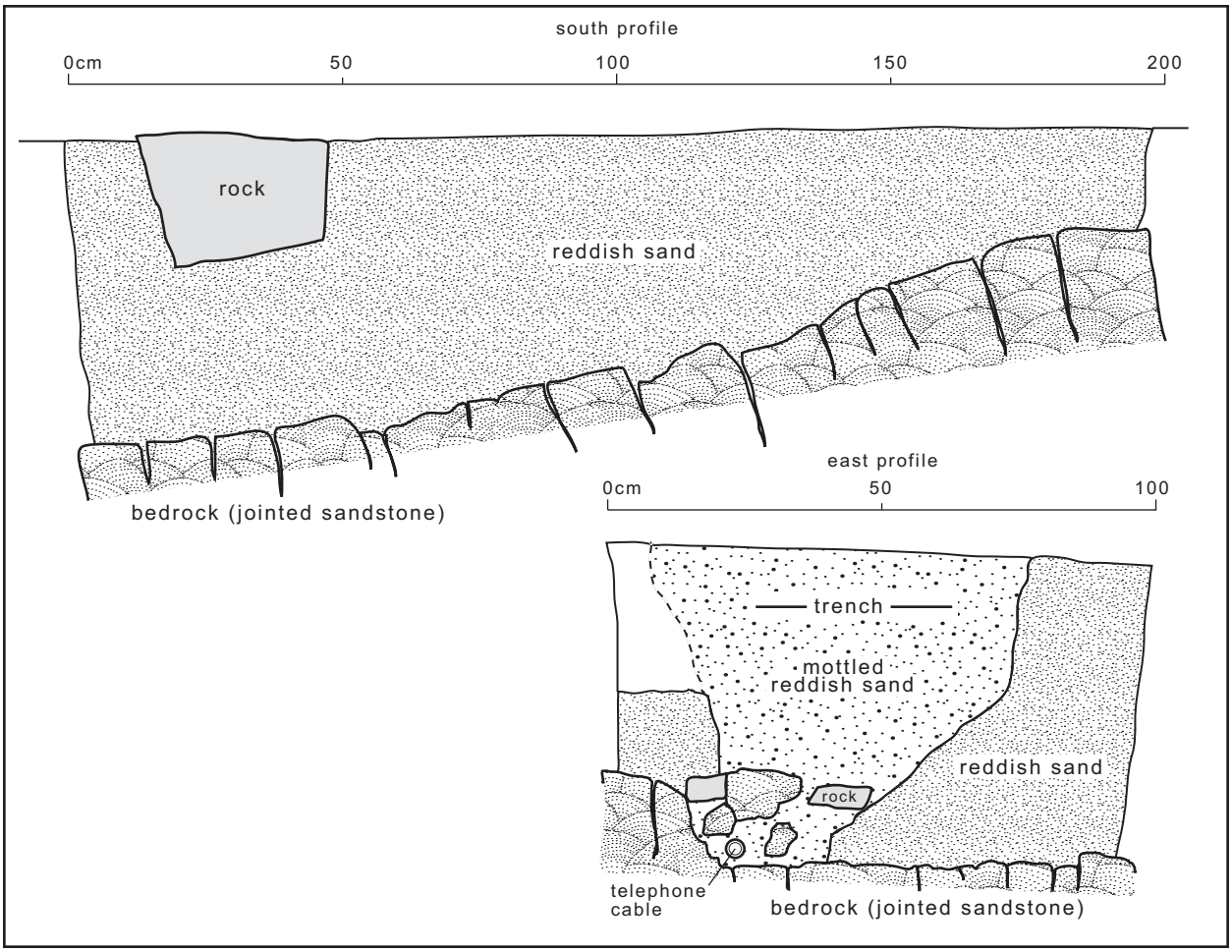


*Figure 5. Test Unit 1 soil profiles.*

out the stain and extended to a depth of 40 cm below the surface. Rodent disturbance was severe in both sandy soil layers. An auger test at the base of the test unit shows that the reddish sand layer extends to a depth of at least 1.90 m below the surface. The sandstone bedrock was not encountered in this test unit. Cultural material consisted of 62 chipped stone artifacts (Table 4). The majority (n=54) of the artifacts were found in Levels 1 and 2 characterized mainly by the initial layer of dark brown sand. However, the assemblage has been mixed apparently by the old road and artifact contexts have been additionally affected by the intensive rodent burrowing. A flotation sample was taken from Level 2 near the center of the stain. As mentioned, actual charcoal flecks were rare and very fine. No fire-cracked rock or oxidation was observed. There is little evidence that the stain represents a formal feature in the form of a hearth or hearth midden. Artifacts are rather concentrated in the dark sand at this locality, but none of the artifacts show evidence of burning. At the most, the stain characterized by the dark brown sand at this locality may represent a poorly preserved midden remnant. However, the integrity of the area has been severely altered and no longer retains intact deposits that may contribute additional site information.

*Test Unit 3*

This 1-by-1-m test unit was located along the fence line about 9 m east of Test Unit 2 (Fig. 4). The test unit was placed in this area to see if additional subsurface stains were present. The

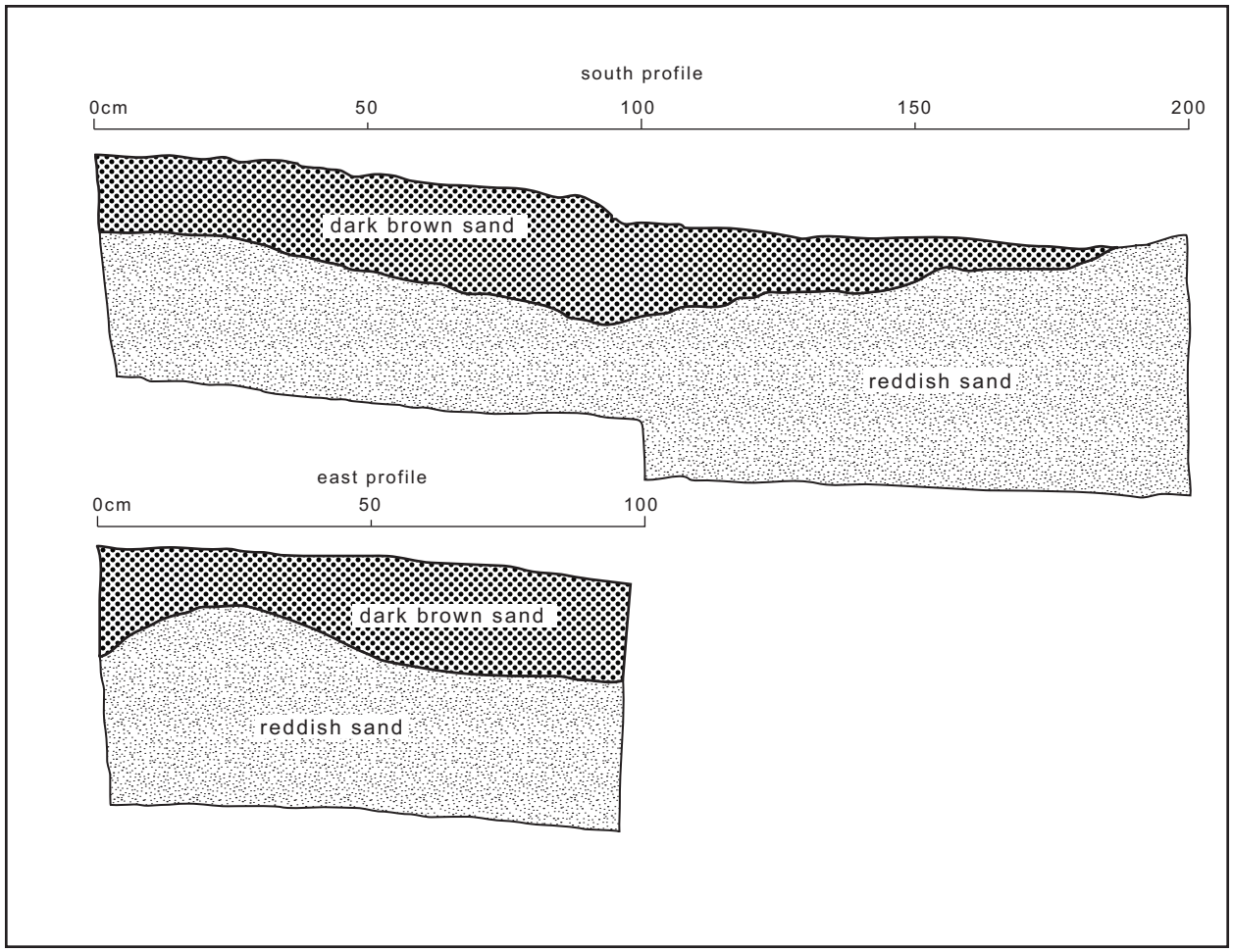


*Figure 6. Test Unit 2 soil profiles.*

excavation unit was dug to a depth of 50 cm below the surface. Soil consisted of the homogeneous layer of reddish sand. The massive layer was mixed throughout with glass and limestone chips. An auger test at the base of the test unit revealed that the massive layer of reddish sand extended to a depth of 1.5 m below the surface. Sandstone bedrock was encountered at this point. No stain or dark brown sand was found. Cultural material was restricted to six chipped stone artifacts (Table 4). No evidence of charcoal or charcoal staining was found in the excavation unit.

*Test Unit 4*

This 1-by-1-m test unit was located along the right-of-way fence about 12 m west of Test Trench 2. Again, the location was selected to see if additional subsurface stains were present. The excavation unit was dug to a depth of 40 cm below the surface. Soil consisted entirely of the homogeneous reddish sand layer. Plastic, glass, asphalt, and limestone chips to a depth of 40 cm indicates severe mixing. An auger test at the bottom of the trench indicates that the reddish sand layer extends down to a depth of at least 1.50 m below the surface at this locality. Cultural material from Test Unit 4 consisted of three chipped stone artifacts (Table 4). No evidence of charcoal or charcoal staining was found in the excavation unit.

## Auger Tests

Two auger tests were placed to additionally search for subsurface deposits. Soils from the auger tests were screened through 1/8 inch mesh.

*Auger Test 1*

Auger Test 1 was located on the west end of the site by an ant hill that had four small obsidian biface flakes. The auger test extended to a depth of 1.70 m below the surface. Soil consisted of the massive layer of reddish sand. No artifacts or other evidence of cultural material were encountered.

*Auger Test 2*

Auger Test 2 was located roughly in the center of the site between Test Units 1 and 3. The auger test extended to a depth of 60 cm below the surface. Sandstone bedrock was encountered at this point. Soil consisted of the massive layer of red sand with no artifacts or other evidence of cultural material .

## STRATIGRAPHY

The generalized stratigraphic sequence of the site was revealed by the test units. Most of the site is underlain by a steeply tilted sandstone bedrock. Bedrock is exposed on the surface at the highest portions of the site. The site is covered by a massive layer of reddish sandy loam at least 1.9 m deep in areas. This massive sandy layer is primarily of eolian origin, but tiny laminae throughout the layer suggest additional alluvial deposition probably originating from runoff from the higher talus slope to the south. Chipped stone artifacts extend to a depth of 50 cm below the surface, but both the surface and subsurface artifacts have been mixed by a number of natural and cultural agencies. Over half of the subsurface artifacts were recovered from the initial 20 cm, but no subsurface cultural surfaces were detected. An ephemeral stain in the highway slope cut is about 10 cm below the surface, but this stain has been almost removed by the slope cut. The larger 5-by-5-m stain of dark sand appears on the surface and extends to a depth of from 10 to 20 cm below the surface. The exact function of this "stain" is problematic, but it may represent a badly deflated midden remnant. The original cultural surface may have been within about 10 cm of the present surface.

# *MATERIAL CULTURE*

The limited testing program recorded 83 chipped stone artifacts on the surface and an additional 105 chipped stone artifacts were recovered from the subsurface test units (Table 3). The combined chipped stone artifact assemblage totaled 188 artifacts. The 102-by-12 m (1,224 sq m) area within the right-of-way represents less than a third of the entire site area (102-by-35 m or 3,570 sq m). Whether the analyzed assemblage is representative of the entire range of artifact types and frequencies is unknown. The integrity of the site area within the right-of-way has been almost completely compromised by a range of cultural and natural agencies. For this presentation, the surface and subsurface assemblages are combined to provide a broad understanding of chipped stone use. The combined assemblage should supply at least a broad understanding of site activities that are most likely better preserved in the larger site area north of the right-of-way fence and away from the numerous land-altering agencies that have mixed the site area along the highway. The intent of the basic analysis is to provide an initial understanding of material selection, reduction technology, and tool use.

In addition to the chipped stone assemblage, a single ground stone artifact was recorded in the field and a flotation sample was taken from the stain investigated by Test Unit 2.

## CHIPPED STONE ARTIFACTS

The assemblage data for 188 chipped stone artifacts are presented in Tables 3 and 4. The assemblage was analyzed in accordance with the *OAS Standard Lithic Artifact Analysis: Attributes and Variable Coding List* (Office of Archaeological Studies Staff 1994).

### *Materials*

The chipped stone assemblage is composed of six material types. Grants Ridge obsidian (nearly 80 percent, n=150) is the most common material, followed by nearly equal percentages of Jemez obsidian (9 percent), and undifferen-

Table 3. Chipped Stone Artifact Surface and Subsurface Distribution

| MATERIAL | SURFACE | SUBSURFACE | N | % |
|---|---|---|---|---|
| Undifferentiated chert | 8 | 7 | 15 | 8.0 |
| Jemez obsidian | 2 | 15 | 17 | 9.0 |
| Grants Ridge obsidian | 73 | 77 | 150 | 79.8 |
| Mahogany obsidian | - | 1 | 1 | 0.5 |
| Basalt | - | 2 | 2 | 1.1 |
| Quartzite | - | 3 | 3 | 1.6 |
| MORPHOLOGY | | | | |
| Core flake | 33 | 90 | 123 | 65.4 |
| Biface flake | 33 | 1 | 34 | 18.1 |
| Blade | - | 1 | 1 | 0.5 |
| Early stage biface | 1 | 2 | 3 | 1.6 |
| Multidirectional core | 2 | 1 | 3 | 1.6 |
| Tested cobble | 11 | - | 11 | 5.9 |
| Angular debris | 2 | 10 | 12 | 6.4 |
| TOTAL | 83 | 105 | 188 | 100 |

Table 4. Chipped Stone Artifacts in Test Units

| TEST UNIT | LEVEL 1 | LEVEL 2 | LEVEL 3 | LEVEL 4 | LEVEL 5 | TOTAL | |
|---|---|---|---|---|---|---|---|
| | | | | | | # | % |
| Test Unit 1 (1 x 2 m) | 0 | 4 | 1 | 18 | 11 | 34 | 32 |
| Test Unit 2 (1 x 2 m) | 34 | 20 | 7 | 0 | 1 | 62 | 59 |
| Test Unit 3 (1 x 1 m) | 3 | 0 | 3 | 0 | 0 | 6 | 6 |
| Test Unit 4 (1 x 1 m) | 3 | 0 | 0 | 0 | 0 | 3 | 3 |
| TOTAL | 40 | 24 | 11 | 18 | 12 | 105 | 100 |

Table 5. Chipped Stone Artifact Attributes

| | Chert | Jemez Obsidian | Grants Obsidian | Mahogany Obsidian | Basalt | Quartzite | Total | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | N | % |
| **MORPHOLOGY** | | | | | | | | |
| Core flake | 8 | 15 | 97 | 1 | 1 | 2 | 124 | 66.0 |
| Biface flake | 2 | - | 32 | - | - | - | 34 | 18.1 |
| Blade | - | - | 1 | - | - | - | 1 | 0.5 |
| Early stage biface | - | - | 3 | - | - | - | 3 | 1.6 |
| Multidirectional core | 3 | - | - | - | - | - | 3 | 7.4 |
| Tested cobble | - | - | 11 | - | - | - | 11 | 5.9 |
| Angular debris | 2 | 2 | 6 | - | 1 | 1 | 12 | 6.4 |
| Total | 15 | 17 | 150 | 1 | 2 | 3 | 188 | 100.0 |
| **CORTEX** | | | | | | | | |
| 0 | 12 | 14 | 107 | - | 2 | 3 | 138 | 73.4 |
| 1-25% | 3 | 1 | 12 | - | - | - | 16 | 8.5 |
| 26-50% | - | - | 15 | - | - | - | 15 | 8.0 |
| 51-75% | - | 1 | 2 | - | - | - | 3 | 1.6 |
| 76-100% | - | 1 | 14 | 1 | - | - | 16 | 8.5 |
| TOTAL | 15 | 17 | 150 | 1 | 2 | 3 | 188 | 100.0 |
| **LENGTH** | | | | | | | | |
| < 10 mm | 1 | 1 | 20 | - | - | - | 22 | 11.7 |
| 11-20 mm | 9 | 12 | 91 | 1 | 2 | 2 | 117 | 62.2 |
| 21-30 mm | 3 | 4 | 28 | - | - | 1 | 36 | 19.1 |
| 31-40 mm | - | - | 9 | - | - | - | 9 | 4.8 |
| 41-50 mm | - | - | 2 | - | - | - | 2 | 1.1 |
| 51-60 mm | 2 | - | - | - | - | - | 2 | 1.1 |
| TOTAL | 15 | 17 | 150 | 1 | 2 | 3 | 188 | 100.0 |

tiated chert (8 percent). The other three material types are represented by lower frequencies of from one to three items. Intrusive material is represented mainly by translucent Jemez obsidian with the primary source originating in the Jemez Mountain range some 80 miles to the north.

A single piece of mahogany obsidian stands out by its contrasting color. The source of this material is unknown, although some brown obsidian also occurs in some of the Jemez Mountain obsidian sources. A similar single brown flake was found at LA 68646 located some 4 miles up canyon along NM 547 (Levine et al. 1991:19). Mahogany obsidian, although rare, is present in the Cerro del Medio obsidian deposits (Acklen 1997). Cerro Toledo obsidina also has a dark brown appearance. Perhaps the simplest explanation for the presence of mahogany obsidian on this site is that it is a rare variety from the Jemez area.

The remaining materials consisting of the chert, basalt, and quartzite are considered locally available. These materials are potentially

Table 6. LA 36797 Tool Types

| LOCATION | MATERIAL | MORPHOLOGY | FUNCTION | WEAR PATTERN | MEASUREMENTS | | |
|---|---|---|---|---|---|---|---|
| | | | | | L | W | TH |
| Test Unit 1, Level 2 | Grants obsidian | Biface flake | Graver | Bidirectional retouch | 22 | 16 | 3 |
| Test Unit 1, Level 5 | Grants obsidian | Blade | End scraper | Unidirectional retouch | 25 | 10 | 3 |
| Test Unit 2, Level 1 | Grants obsidian | Core flake | Uniface/scraper | Unidirectional retouch | 22 | 14 | 3 |
| Test Unit 2, Level 1 | Grants obsidian | Early stage biface fragment | Undifferentiated biface/scraper | Unidirectional retouch | 30 | 24 | 12 |
| Test Unit 2, Level 1 | Grants obsidian | Early stage biface fragment | Undifferentiated biface | Bidirectional retouch | 20 | 19 | 7 |
| Grid 41 surface | Grants obsidian | Early stage biface fragment | Undifferentiated biface | Bidirectional retouch | 23 | 7 | 5 |

available in local sedimentary and volcanic outcrops, or streambeds both on the mountain slopes and along the lower drainages in the Grants area some 1.5 miles to the west. Grants Ridge obsidian is abundant throughout the area both as stream bed nodules and geologic outcrops. However, no unutilized raw material was observed on the site. All of the material types were transported to the site for utilization.

*Artifact Morphology*

The assemblage is dominated by unutilized core flakes, which are the most common artifact in each of the material categories. The various material types are represented by similar reduction strategies characterized by small secondary flakes with single (n=28) platforms, and a general absence (n=138) of cortex. Additional core flakes are represented by cortical (n=12), multiple (n=9), and collapsed (n=28) platforms. Actual core reduction on the site is represented by the presence of multidirectional cores and tested cobbles, flakes with cortical platforms, some angular debris, and flakes with 76-100 percent cortex. This pattern is especially evident with the Grants Ridge obsidian, which is the nearest and most abundant material. This local material is represented by the widest range of all of the analytical attributes. Of interest are the presence of 11 small tested cobbles of Grants Ridge obsidian. These cobbles measure under 30 cm in length and exhibit waterworn cortex. These small cobbles were simply split open apparently to test the quality of the material. We assume these cobbles, or small waterworn nodules, were collected from the nearby Grants Canyon arroyo. We also find it interesting that the single piece of apparently intrusive mahogany chert is represented by a small core flake with 100 percent cortex. This primary flake was recovered from the stain (Test Unit 2, Level 1), possibly representing a deflated midden remnant. Additionally, a few pieces of angular debris and at least a few flakes with higher percentages of cortex coverage are represented by Jemez obsidian, the other intrusive material type. The trajectory of the core reduction activities is unclear since formal tool and utilized flakes are poorly represented on the site. However, one consideration is the production of bifacial preforms that are represented by three Grants Ridge obsidian early-stage biface fragments.

The existence of biface reduction activities on the site is further supported by the presence of small biface flakes (20 less than 10 mm) with retouched platforms (27 out of 34) and an absence of cortex (all 34). The majority (32 out 34) of the biface flakes are represented by the local Grants Ridge obsidian. Chert is represented by two biface flakes. No biface flakes of intrusive Jemez obsidian were recovered. Many of the biface flakes were recovered from the surface around ant hill armor. We expected that these small flakes were actually more prevalent on the site. But the stain area was auger tested and screened with 1/8 inch mesh and no biface flakes were recovered. In any event, the biface reduction was probably directed toward the manufacture of bifaces or preforms while camping at this locality and exploiting the locally Grants Ridge obsidian.

*Artifact Function*

The bulk of the assemblage is composed of unutilized debitage derived from core and biface reduction. Actual tools are represented by only six artifacts (Table 5). Unfortunately, no diagnostic tools or projectile points were recovered to help in dating the site. All six of the tools were manufactured from Grants Ridge obsidian. A graver and two possible scrapers are essentially small finger tools manufactured from small flakes. Three small undifferentiated early-stage biface fragments may represent the desired product of the two reduction strategies at the site. Two of these biface fragments and a core flake with unidirectional retouch were recovered from the stain area (Test Unit 2, Level 1). These tools may lend support to the idea that the stain represents a midden remnant.

*Summary*

The chipped stone assemblage is characterized by debitage derived from both core and biface reduction. These activities centered around the utilization of local materials, especially Grants Ridge obsidian. However, the site inhabitants also had access to nonlocal obsidian from the Jemez Mountains and possibly elsewhere (mahogany obsidian). The two reduction strategies may have been directed toward the production of bifacial preforms, while exploiting a range of lithic, plant, and animal resources concentrated along the Mt. Taylor slopes and drainages.

## Ground Stone

A single one-hand mano was recorded on the surface of Grid 27 by the right-of-way fence. This is probably the mano depicted on Drake's map (Fig. 2). The quartzite cobble exhibits pecking on margins and surfaces, but was apparently never utilized. The cobble measures 10-cm by 7.6-cm by 4.0-cm. Marshall (1995:28) reported additional ground stone in the area north of the right-of-way fence, but we could not see the artifacts from the fence line. Marshall reported a vesicular basalt mano, two sandstone metate fragments, and two small ground sandstone slabs. Plant processing can probably be added as another site activity, although this activity is poorly represented in the right-of-way.

## Flotation Sample

Two 1.0 liter soil samples were taken from Test Unit 2, Level 2, near the lowest portion of the stain investigated at this locality. The intent was to determine if the stain contained floral resources that might provide insight as to prehistoric plant-related behavior. The samples were processed by Molly Toll of the Office of Archaeological Studies. Materials observed in the samples included indicators of recent biological activity (root fragments, insect parts, and small scats). Fragmentary glumes (cf. *Oryzopsis,*or Indian ricegrass) appeared to be modern. No charcoal was recovered from the samples. Although the stain appears to derive its dark brown color from cultural staining, charcoal was rarely observed in the excavation, and was not found in the flotation samples. As a possible midden remnant, the stain does not appear to contain economic floral material that might shed light on plant processing activities suggested by the ground stone artifacts.

# *SUMMARY*

The intent of the limited testing program conducted at LA 86797 was to determine the nature and extent of surface and subsurface deposits within the proposed project area. The portion of the site overlapping the right-of-way measures 102-by-12 m. In actuality, the site area about 9 m south of the fence line is characterized by a steep shoulder cut along the north edge of NM 547 (Fig. 3). The investigated portion of the site represents less than about a third of the entire site area. Unfortunately, the project area adjacent to NM 547 has suffered a wide range of land-altering activities over the years. Utility trenches numbering from five to seven transect the remaining 9-m strip essentially every meter across the length of the site. An old road passes over the site and subsurface fill is riddled with rodent activity. Both vertical and horizontal stratigraphic relationships have been compromised by these many land-altering agencies. The larger site area located on private land north of the fence line contains a large borrow pit, but, except for rodent activity in this site area should generally be better preserved. We conducted no investigations on this privately-owned portion of the site.

The limited testing program recovered 188 chipped stone artifacts from both the surface and subsurface depositional contexts. The assemblage provides a broad understanding of chipped stone utilization, but specific artifact relationships have been mixed by the many land altering agencies effecting the project area. The chipped stone assemblage depicts both core and biface reduction activities. These activities centered around the utilization of local materials, especially Grants Ridge obsidian. However, the site inhabitants also had access to nonlocal obsidian from the Jemez Mountains and possibly elsewhere (mahogany obsidian). The two reduction strategies may have been directed toward the production of bifacial preforms, while exploiting a range of lithic, plant, and animal resources concentrated along the Mt. Taylor slopes and drainages. Actual tools were minimally represented by three small flakes used as scrapers and a graver. No artifacts were temporally diagnostic in style.

A single one-hand mano suggests plant processing activities. However, this particular mano is represented only by preliminary pecking. The mano appears to be in the initial stage of manufacture, but never utilized. Additional ground stone artifacts were previously recorded from the main site area including additional manos, metate fragments, and ground sandstone slabs. The ground stone suggests that plant resources were procured and processed at the site and that the occupants may have consisted of a mixed gender group.

No definite intact features were encountered during the investigation. A roughly 5-m stain area was initially recorded as a possible hearth or hearth midden (Marshall 1995:31). However, testing revealed that the "stain" was essentially sterile of charcoal and contained no other evidence of thermal use. Stratigraphic boundaries were ephemeral and irregular. The dark brown sand contrasts with the surrounding red sand and seems to be the result of cultural staining. However, two flotation samples contained no charcoal and were free of any economically important floral resources. The stain may represent a badly deflated and ephemeral midden remnant. Artifacts consist mainly of Grants obsidian core flakes. No biface flakes were recovered, although fill was screened with 1/8-inch mesh. Two early-stage

biface fragments and a core flake with unidirectional retouch were recovered from the stain. The small mahogany obsidian primary flake was also recovered from this context. This range of material and artifact types may support a midden context, but the extreme mixing precludes assignment of an explicit functional designation to the "stain." A second ephemeral "stain" measuring about 3 m by 10 cm along the highway shoulder slope also appears as brown sand with no observable charcoal content. The remaining fill does not appear to be associated with a thermal feature. This may be a similar midden remnant that has been completely compromised by the road cut and a nearby utility trench.

The site is conveniently located on a sandy dune situated along the Grants Canyon arroyo. Subsurface soil consists of a massive layer of sand that provides a rather comfortable camping spot contrasting with the rather rocky surrounding territory. The majority of the artifacts were recovered from the initial 20 cm of this sand layer and both possible midden remnants were visible from the surface. The prehistoric occupation surface was probably within this zone, but no cultural surfaces were identified. The Grants Canyon arroyo provides a natural travel route into the Mt. Taylor hinterland analogous to NM 547 today. The site provides a good camping spot as groups exploit the concentrated lithic, animal, and floral resources on the mountain slopes and drainages. Grants Canyon provides water and smaller rivulets are blocked by the long sandstone ridge south of the site and are directed to an outlet with Grants Canyon at the site location. These smaller drainages would provide additional avenues for resource concentration and exploitation.

LA 86797 is designated a lithic artifact scatter with an unknown cultural/temporal affiliation. However, the presence of one-hand manos and the absence of ceramics may point toward an Archaic affiliation. The site probably functioned as a special activity site associated at the very least with the exploitation of local lithic and floral resources. The duration of occupation is problematic, although the rather limited chipped and ground stone assemblage does not suggest a base camp. In turn, ground stone artifacts suggest the presence of a mixed-gender group and the possible midden remnants may be indicative of longer stays or repeated use of the area.

LA 37887 is a similar, but much larger site located about 1 km south of the project area. The site is located essentially on the surface of the "old red dune" sand and was first recorded by Kirk Bryan and Joseph Toulouse in 1939. This is one of the sites that formed the basis of their work on Archaic dune sites and the "Lobo" projectile point style (Bryan and Toulouse 1943). The site is located on the north side of the long sandstone ridge that outcrops just south of LA 86797. This site contains thousand of chipped stone artifacts, a wide range of tool types, and multiple hearths with fire-cracked rock. The site has a Middle Archaic (2947 BC) to Late Archaic (901 BC) temporal designation based on the presence of San José points and 28 obsidian hydration dates (Laumbach 1982). This site may be an important Archaic base camp from which special activity sites like LA 86797 may have originated.

## Eligibility

The limited testing program has determined that the portion of LA 86797 overlapping the highway right-of-way in not likely to yield additional information important to the understanding of local or regional prehistory beyond what has been documented. Both vertical and horizontal stratigraphic relationships have been compromised by at least five and possibly as many as seven utilities within the 9-m width (maximum) of site deposits between the right-of-way fence and slope limits of the existing highway. The severely mixed artifact assemblage shows core and biface reduction activities utilizing primarily the local Grants Ridge obsidian. Plant processing reflected by ground stone manos was also a site activity. The site has an unknown cultural/temporal affiliation, but probably functioned as a special activity

site by groups exploiting lithic, floral, and faunal resources concentrated along the slopes and drainages of Mt. Taylor. The project area does not have the potential to contribute additional information beyond what has been recorded and described. The site is thus considered "undetermined" for inclusion in *The National Register of Historic Places,* and no further archaeological investigations are recommended.

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