

MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

**TEST EXCAVATIONS ON I-40 NEAR CASA BLANCA
CIBOLA COUNTY, NEW MEXICO**

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ADMINISTRATIVE SUMMARY

Between July 17 and July 20, 1989, the Research Section, Laboratory of Anthropology, Museum of New Mexico, completed archaeological testing at two sites, LA 71743 and LA 71744, in the proposed construction areas along I-40, near Laguna, Cibola County, for the New Mexico State Highway and Transportation Department (NMSHTD).

LA 71743 is a Red Mesa-phase (A.D. 870-950) sherd and lithic artifact scatter of fewer than 100 surface artifacts, on both sides of the interstate. Testing revealed the remains of a burned jacal structure. Artifacts were recovered from the fill and floor of this feature. Because the site overlooks the floodplain of the Rio San Jose, it was probably an agricultural fieldhouse.

LA 71744 is also a Red Mesa-phase sherd and lithic artifact concentration with ground stone fragments, burned sandstone fragments, and dark charcoal-stained soil within a low-density artifact scatter. Test excavations showed a limited depth to the artifact concentration, suggesting it is the remains of a sheet trash deposit. Test excavation also revealed three more charcoal stains with artifacts and burned slab fragments that may be the burned remains of a structure or of large roasting pits.

Based on the testing results, the north side of LA 71743 has limited data potential, and no further work is recommended. The south side has the potential to yield information on the prehistory of the area. This portion of the project was deleted from construction, and the site area within the right-of-way will be fenced during construction.

The testing results show that LA 71744 has the potential to yield information on local prehistory. The site has been deleted from the proposed project, and it will be fenced during construction.

Submitted in fulfillment of Joint Powers Agreement DO4040 between the New Mexico State Highway and Transportation Department and the Research Section, Laboratory of Anthropology, Museum of New Mexico.

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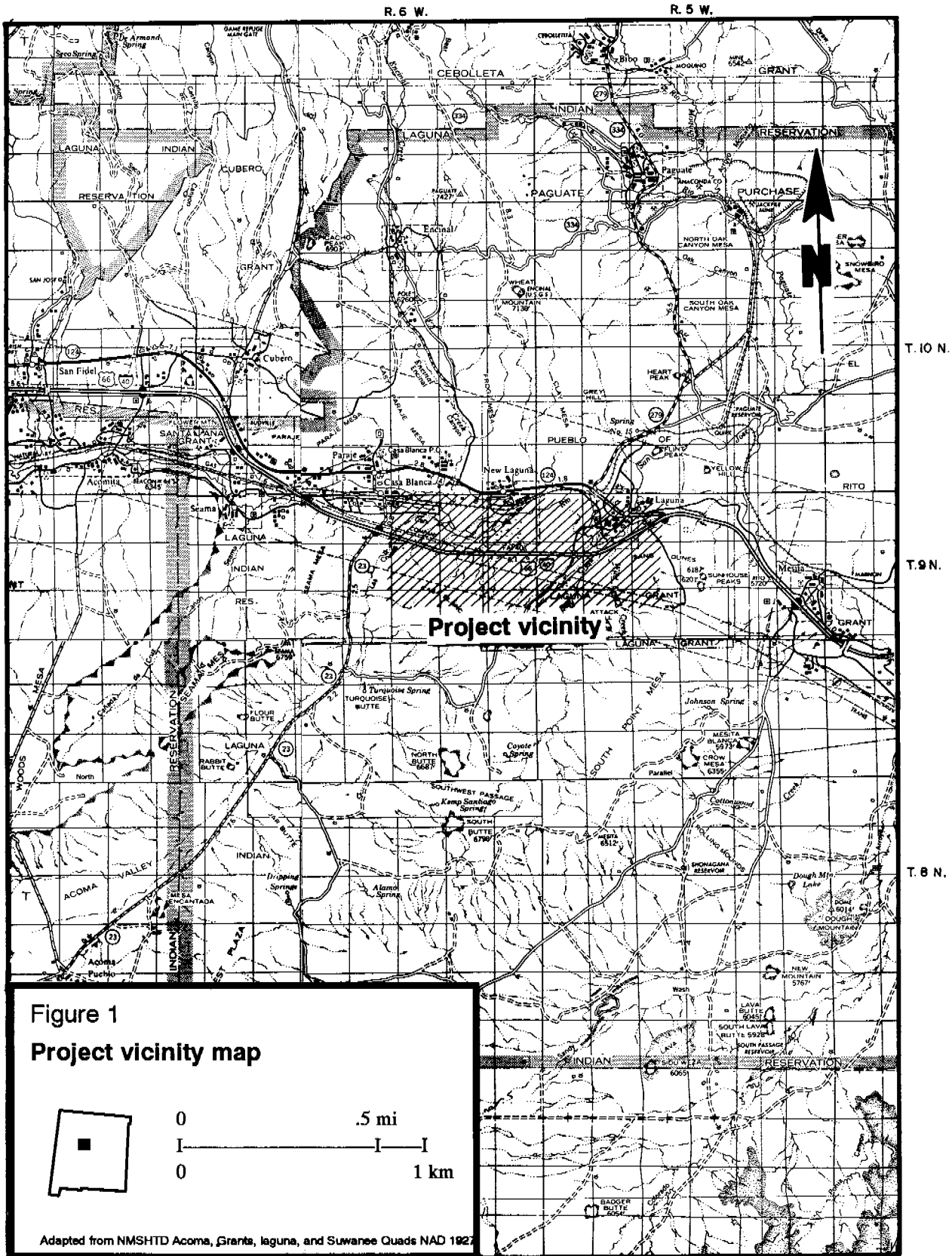
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INTRODUCTION

On May 17-19, 1989, Charles Haecker of the New Mexico State Highway and Transportation Department recorded four sites, two of which required a testing program, in preparation for construction work along Interstate 40 between Laguna and Casa Blanca. In July 1989, Stephen Post and Rhonda Main of the Office of Archaeological Studies, Museum of New Mexico, tested LA 71743 and LA 71744. David A. Phillips, Jr., served as principal investigator.

The sites are located on Laguna Pueblo land (Fig. 1). Exact site locations and legal descriptions are provided in Appendix 1.

The purpose of the limited testing program was to determine the nature and extent of subsurface cultural resources at LA 71743 and LA 71744 and their potential to yield information on local or regional prehistory. This report describes the results of the testing.



ENVIRONMENT

Geology and Landforms

The topography of the region consists of broad, steep-sided mesas, canyons, and colluvial plains. Sandstone outcrops occur throughout the area. Basalt outcrops also occur, indicating former volcanic activity (Acklen et al. 1979).

The western basin of the Rio Grande system drains the area. The Rio San Jose lies in a wide valley south of the San Mateo Mountains and flows generally eastward and southeastward to join the Rio Puerco, a south-flowing stream originating in the Jemez Mountains to the north. Ephemeral drainages occur throughout the lower southern slopes of the San Mateo mountains (Dingham 1978).

Soils in the region are primarily clayey, silty loams mixed with eolian sand and occasional pockets of gravels. With proper aeration, the clayey, silty loams make moderately good agricultural soil, whereas the sandy soils drain more quickly and are less suitable. Both types tend to be alkaline, which has resulted in caliche deposits below the surface (USDA Soil Conservation Service, Range Site Description, Section 11 E, No. 16, 1977).

Climate

The study area is semiarid. Because of its location on the Colorado Plateau, the region is subject to summer storms with heavy downpours. The lower terrain has an average annual precipitation of 10.28 inches (U.S. Department of Commerce, Weather Service, 1965-1976). Varying elevations and topography contribute to a wide range of seasonal temperatures.

Strong winds in the spring and summer contribute to the desiccation of the area. The frost-free period ranges between 150 and 205 days a year.

Flora and Fauna

The colluvial slopes of the project area, formed by eroded material from the mesas, support a grassland community with widely scattered bushy juniper. The grasslands include blue grama, galleta, various dropseeds, snakeweed, cane cholla, and yucca.

Where juniper is scarce, shrub and grass species increase, including rabbitbrush, four-wing saltbush, greasewood, ring muhly, Indian ricegrass, and western wheatgrass.

The riparian community occurring along the banks of the Rio Puerco, Cañada de los Apaches, and the Rio San José is characterized by increased density of mesophytic grasses, various shrubs, and salt cedar.

Plant communities support small animals such as cottontails, jackrabbits, and coyotes. Approximately 30 species of reptiles have been recorded in the area, and at least 45 species of birds inhabit the region, including 11 species of raptors.

ARCHAEOLOGICAL BACKGROUND

Most of the archaeological investigations in the immediate area consist of surveys associated with highway construction (Alexander 1964; J. Moore 1986) or similar projects (Peckham 1962; Gauthier and Lent 1978; Wozniak 1981, 1982). Projects resulting from the initial construction of I-40 include Peckham (1967), Bussey (1966), and Wendorf (1954). Reports are also available from investigations near the project area (Acklen et al. 1979; Anchuetz et al. 1979; Broster and Harrill 1982). Independent research projects touching on the study area include work in the Laguna area by Irwin-Williams (1973) and Beckett (1973). Dissertations by Ruppé (1953) and Dittert (1959) provide syntheses of archaeological materials in the Acoma cultural province. Tainter and Gillio (1980), Stuart and Gauthier (1981), and Cordell (1979) also provide overviews including the project area.

Preceramic Period

A comprehensive overview of the Paleoindian period in the state can be found in Stuart and Gauthier (1981). The period is characterized by distinct and temporally diagnostic spear points dated between 10,000 and 5500 B.C. Paleoindian remains and isolated spear points have been found south of the Rio San Jose (Judge 1973) in the Rio Moquino and Rio Paguate drainages, near Laguna, and around Cebolleta Mesa (Broster 1983).

Information concerning the Archaic period in the Southwest can be found in Irwin-Williams (1979). Archaic-period (5500 B.C.-A.D. 400) remains are widespread within and around the project area. Archaic sites have been recorded in the Acoma area (Dittert 1959; Broster and Harrill 1982) and the Laguna area (Beckett 1973).

Pueblo Tradition

The study area borders the culture areas of the Chaco and San Juan basins to the north, the Albuquerque district of the middle Rio Grande Valley to the east, the Mogollon area to the south, and the Zuni or Cibola area to the west. The Mogollon-Anasazi contact zone, an area with mixed cultural attributes, stretches from I-40 south 50 km along the Rio Salado (Stuart and Gauthier 1981:127).

Ruppé (1966) and Dittert (1959) developed the concept of the Acoma culture province from research centered around Cebolleta Mesa. The province was projected north to Mount Taylor, east to the west bank of the Rio Puerco, and southeast to U.S. Highway 60. Table 1 outlines Dittert's classifications of Puebloan cultural development and the corresponding Pecos classifications.

Table 1. Temporal sequences in the Acoma culture province

<i>Ruppé (1966) and Dittert (1959)</i>	<i>Pecos Classification</i>
Acoma culture phase (1600-present)	Pueblo V
Cubero phase (A. D. 1400-1600)	Pueblo IV
Kowina phase (A.D. 1200-1400)	Pueblo III-IV
Pilares phase (A.D. 1100-1200)	Pueblo III
Cebolleta phase (A.D. 950-1100)	Pueblo II
Red Mesa phase (A.D. 870-950)	Early Pueblo II
Kiatuthlanna phase (A.D. 800-870)	Pueblo I
White Mound phase (A.D. 700-800)	Basketmaker III

The following descriptions are summaries of the phase characteristics first described by Dittert in 1959.

White Mound Phase

Sites are found in all topographic settings, but most are on low benches bordering drainages. Pithouses are accompanied by small stone and jacal surface structures. Ceramics include White Mound Black-on-white and Lino Gray. Intrusives are Alma Plain, Alma Neckbanded, and an unidentified red ware. Haury (1940) and Gladwin (1945) suggest that White Mound Black-on-white is a blend of northern and southern traits. Plain gray and brown wares are the most common ceramics found.

Kiatuthlanna Phase

A large number of Kiatuthlanna-phase sites have been found against low cliffs in tributaries to main canyons or above the point where canyons constrict. Some pithouses are rectangular with rounded corners. Surface stone and jacal structures continue. Pottery includes Kiatuthlanna Black-on-white and Kana'a Gray with intrusives of San Juan Red Ware, Alma Plain, and Alma Neckbanded.

Red Mesa Phase

Based on sherds found at LA 71743 and LA 71744, people inhabited these sites during the Red Mesa phase of the Pueblo II period.

Subsistence during the Red Mesa phase focused on farming, supplemented by hunting and gathering. Jacal architecture continued early into the phase, with the addition of coursed-masonry rooms. The proportion of masonry structures increased later in the phase; these structures consisted of straight, crescent-shaped, and L-shaped double-tiered room blocks. Site types include habitation sites ranging from 1 to over 15 rooms and limited artifact scatters. Sites decreased in higher topographic settings and increased above canyons on flat mesa tops. Other site locations include knolls and low benches on the sides of canyons, and open valley floors.

Ceramic assemblages consist of Red Mesa Black-on-white, Socorro Black-on-white, Kana'a Gray, and Exuberant Corrugated. Intrusive types include Wingate Black-on-red, Alma Scored, San Francisco Red, Forestdale Smudged, and plain brown. Pilares Banded, a brown ware, appeared late in the phase.

Cebolleta Phase

The Cebolleta phase marks a transition to larger residential sites. Masonry room blocks are oriented with the long axis running north and south with a plaza and kivas on the east side. Jacal architecture is sometimes present within contiguous masonry room blocks. Site settings are similar to those of the Red Mesa phase, with an increased occupation of mountain meadows and decreased occupation of flat-topped mesas.

Ceramic assemblages are composed of Cebolleta Black-on-white, Socorro Black-on-white, Kana'a Gray, Exuberant Corrugated, Tohatchi Banded, Northern Gray Corrugated, and Pilares Banded. Intrusive types include Gallup, Escavada, Puerco Black-on-white, Reserve Black-on-white, Kwahee' Black-on-white, Wingate Black-on-red, Puerco Black-on-red, Forestdale Smudged, and Starkweather Smudged Decorated.

In the Acoma area, Puebloan occupation continues to the present day. For information concerning later occupations, refer to Dittert (1959); Carroll (1979); Wozniak (1981); Tainter and Gillio (1980); Emslie (1981); Ellis (1955); and Cattle et al. (1977).

Records Search

The author used the Archaeological Records Management System (ARMS), New Mexico Historic Preservation Division, in a records search of the four 7.5-minute quadrangles surrounding the project area. Table 2 provides a synthesis of this research. Sites in the vicinity of the test area are listed if they were inhabited during the Basketmaker III (White Mound phase) through Pueblo II (Cebolleta phase) culture periods.

Table 2. Frequency of Basketmaker III-Pueblo III sites near the project area

<i>Period</i>	<i>Artifact Scatter</i>	<i>Field Structure</i>	<i>Possible Masonry Structure</i>	<i>Pit Structure</i>	<i>Room Block</i>	<i>Total</i>
Basketmaker III	2			3		5
Basketmaker III-Pueblo I	2					2
Pueblo I	2		1	1	1	5
Pueblo I-II	4	1			3	8
Pueblo I-III	1				1	2
Pueblo II	16	5	2	5	14	42
Pueblo II-III	22	6	5		10	43
Pueblo III	2					2
Total	51	12	8	9	29	109

Out of 109 sites inhabited during this wider time frame, 42 were inhabited during the Pueblo II period, ranging from simple ceramic and lithic artifact scatters to sites with hearths, jacal structure remains, one-room masonry foundations, and pueblos. LA 71743 and LA 71744 fall in the same broad category as 16 of the Pueblo II sites, specifically those with ceramics, chipped stone, ground stone, hearths, and remains of jacal structures. These types of sites and those with small masonry structures often represent fieldhouses organized around arable land (Peckham 1967; Carroll 1979). Fieldhouses provided shelter for Pueblo people while crops were being planted, cultivated, guarded, and harvested. Once the harvest was completed, the crop was taken to the Pueblo, where it was processed, stored, and consumed (Sebastian 1983). As Moore (1979) points out, Pueblo farmers could have used fieldhouses in a variety of ways: daily, returning nightly to the habitation; biseasonally, during the spring planting and fall harvest; late seasonally, as the crop approached maturity and during harvest; sporadically, as field crops required attention; and continually, throughout the growing season.

A daily pattern might be recognized by ephemeral shelters, limited trash, jar sherds, and expedient tools. At the other extreme, a continual pattern would likely have substantial structures, more trash, and evidence of a wider variety of activities (Sebastian 1983).

FIELD AND LABORATORY METHODS

Field Methods

Similar field methods were used at LA 71743 and LA 71744. To begin, the crew pinflagged surface artifacts within the right-of-way, identifying artifact concentrations and defining the extent of the surface artifacts as the site limits.

To obtain a sample of the surface artifacts, the crew collected in areas around the test pits. At LA 71743, we collected in two 5-m-diameter "dogleash" areas around Test Pits 1 and 2, using the northwest corner of the test pit as the center of each collection area. At LA 71744, we collected from a 4-sq-m area around Test Pit 3. To avoid overcollecting the site, some of the artifacts were recorded in the field.

After pinflagging the sites, we set up several 1-by-1-m test units in areas of high artifact density, within features, and near the site boundaries. Test pits were used to determine the depth and distribution of cultural deposits and explore the subsurface strata for features and occupation surfaces. The units were excavated in 10 cm levels until sterile soil was encountered (except for Test Pit 5 at LA 71743, which was excavated in two natural levels). All excavated soil was screened through 1/4-inch (6-mm) mesh, and artifacts were collected and bagged by provenience. Auger tests were placed in the bottom of the test pits to ensure that culturally sterile levels had been reached. Soil profiles were drawn if natural stratigraphy of more than one level was encountered.

When features were encountered, they were sectioned in half (if it was possible to define the limits of the feature) and partly excavated in 10-cm levels to expose any stratigraphy that might be seen in profile. Flotation and C-14 samples were collected. Profiles and plan views were drawn, photographs were taken, and the features were described.

Auger tests were spaced at 5-m intervals to further test for subsurface cultural deposits. Soil changes and the presence or absence of cultural manifestations were recorded. After completion of the tests, the holes were backfilled.

Transit maps were made showing the locations of test units, auger tests, artifact concentrations, physiographic features, and distinctive manmade features.

Laboratory Methods

Crew members washed, sorted, assigned, and labeled the collected artifacts with specimen numbers. We then analyzed the artifacts with the naked eye and a microscope at

powers ranging between 16 and 20.

The ceramics were identified using descriptions from existing typologies and established references. Each sherd was monitored for vessel form and portion, temper, color, presence or absence of slip, paint type, design element, coil width, alterations, dimensions, and weight. When attributes were missing or indeterminate, sherds were placed into informal sorting categories.

The chipped stone artifacts were identified and recorded by artifact type, material type, material texture, portion, percentage of cortex, platform, thermal alteration, dimensions, weight, modification, and wear.

Ground stone artifacts were classified according to artifact type, dimensions, material type, condition, modification, and wear.

The two bones and two shells in the collection were analyzed, measured, and described.

The field records are stored at ARMS, State Historic Preservation Division, at the Laboratory of Anthropology in Santa Fe. The artifacts will be stored for Laguna Pueblo at the State Archaeological Repository, headquartered at the Laboratory of Anthropology in Santa Fe.

RESULTS

LA 71743

Site Type: Sherd, chipped stone, and ground stone scatter.

Cultural Association: Red Mesa phase of the Pueblo II period.

Legal Description: See Appendix 1.

Land Status: Laguna Pueblo land.

Setting: The site is on a north talus slope of a sandstone mesa bordering the Rio San Jose Valley, at an elevation of 1,800 m (5,900 ft). It is on both sides of the Interstate 40 right-of-way.

On the north side of the highway, artifacts are scattered along the south-facing slope of the bar ditch for at least 90 m, and more sherds are visible on the north-facing slope of the bar ditch. The south side consists of a steep, eroded cut with artifacts scattered along the upper portion of the slope.

Testing Methods and Results:

The crew tested the north side by placing two test pits in the areas of greatest artifact concentration and 21 auger tests at 5-m intervals across the remaining area (Fig. 2). We tested the south side by placing three test pits over charcoal stains and five auger tests at 5-m intervals across the remainder of the site. Two natural strata were encountered during the auger tests. The upper 10 cm of soil consisted of loose, eolian sand. Below this, to a depth of 90 cm, the sand became increasingly more clayey and compact.

The auger tests ranged from 56 to 70 cm in depth. No cultural material was encountered during the auger testing. It is possible that the auger tests were not bored as deeply as the cultural deposits in Test Pit 5. These tests were usually ended because soil could not be successfully removed with the auger.

Test Pit 1 was excavated in 10-cm levels, the north half to 40 cm below surface, the south half to 30 cm below surface. No changes were noted in the light brown sandy soil, and no charcoal was found. One sherd was recovered from the top 5 cm of loose sand. An auger test to 49 cm below surface ended at the caliche layer.

Test Pit 2 was excavated in 10-cm levels, the north half to 40 cm below surface, the south half to 30 cm below surface. Two lithic artifacts and three sherds were recovered from the top 5 cm of loose sand. An auger test was conducted until caliche was encountered 60 cm below the surface. No other artifacts or charcoal were found.

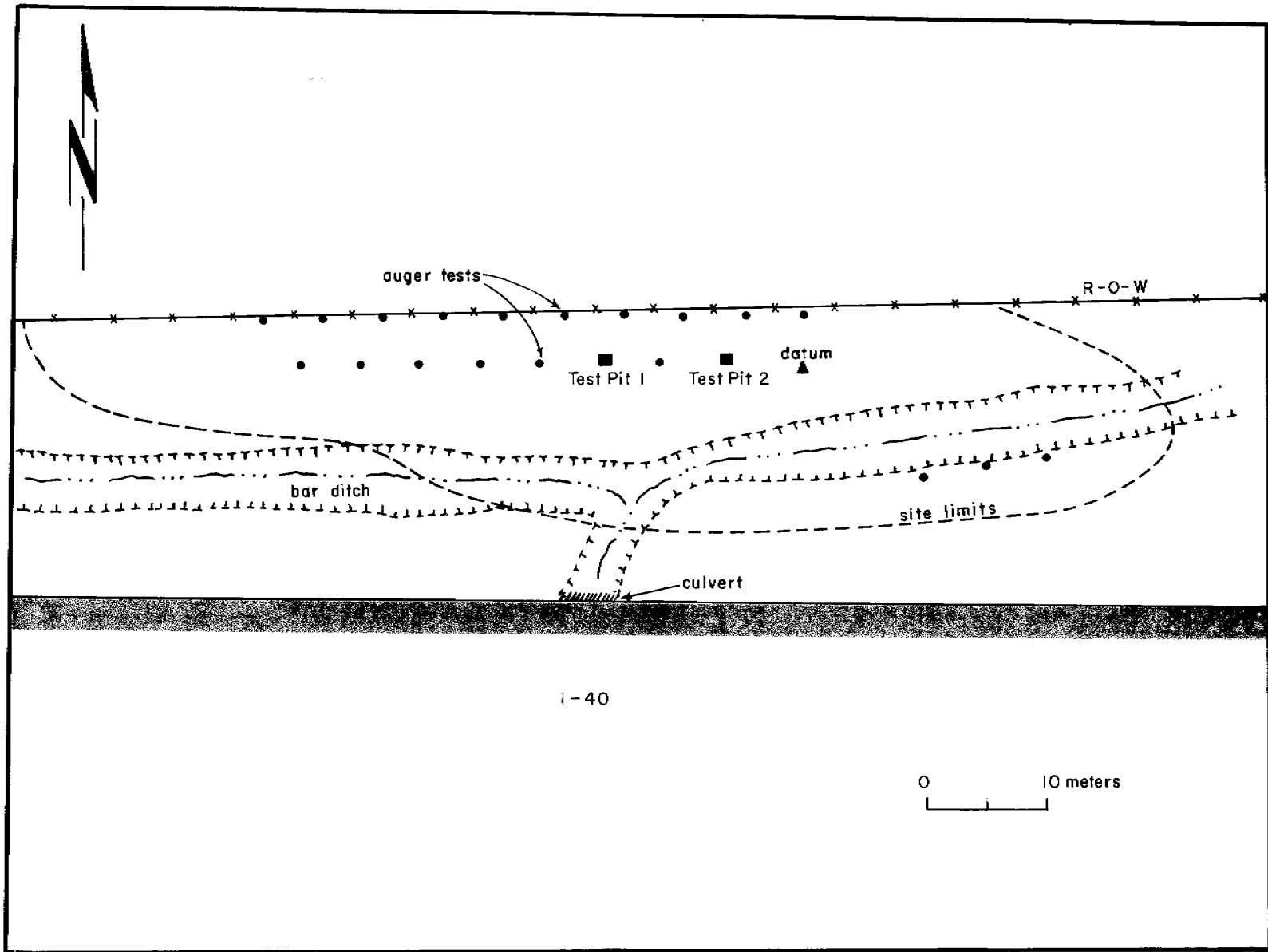


Figure 2. LA 71743 site map, north side

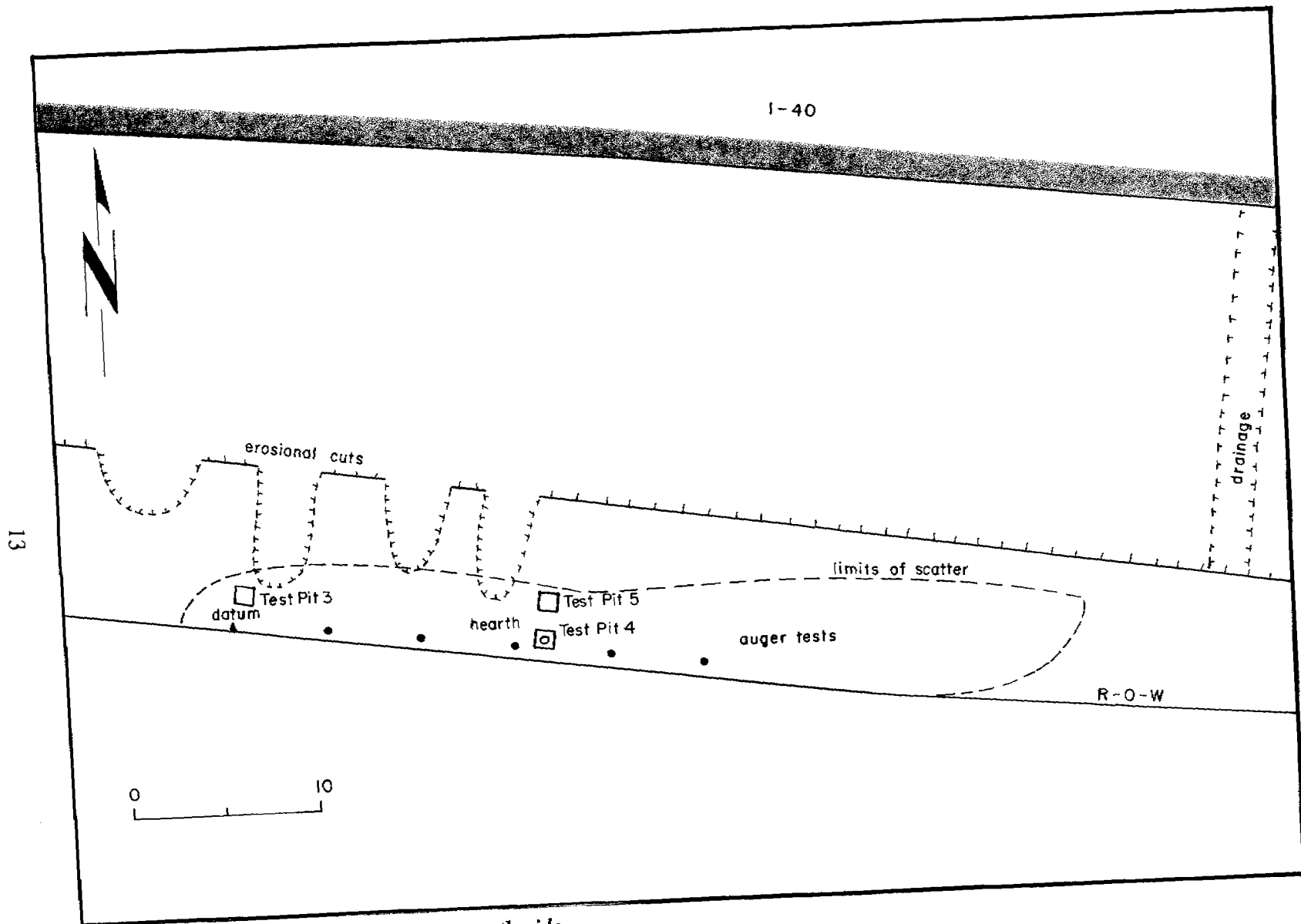


Figure 2. Cont. LA 71743 site map, south side

On the south side of the interstate, sherds, chipped stone, a mano, and three stains were observed on top and eroding out of the cut. Three test pits were placed over the stains, and five auger tests were placed along the top of the slope.

Test Pit 3 was placed next to one of the erosional cuts (where a charcoal-stained lens was observed) to investigate the potential for subsurface structural remains. The 1-by-1-m test unit was excavated in 10-cm levels to 50 cm below the surface. A distinct charcoal lens in Level 3 was evident in the west wall profile of the test unit, but no artifacts or structural remains were associated with it. Two sherds were collected from Level 4 in a rodent-disturbed area.

During the excavation of Test Pit 3, four strata were defined. Stratum 1 is 10 cm of brown eolian sand. Stratum 2, from 10 to 25 cm below the surface, is compact brown sandy clay containing small gravels. The clay is finely laminated, suggesting multiple episodes of alluvial deposition. Stratum 3, from 25 to 40 cm below the surface, is similar to Stratum 2, except that it contains small flecks of charcoal and two sherds. Stratum 4 is a compacted sandy clay containing caliche and pea gravel. No cultural material was encountered in Stratum 4.

Test Pit 4 was placed over a surface stain near the top of the slope (Feature 1). The topsoil was stripped away to expose a small, amorphous charcoal stain. Half of the stain was then sectioned to see if it had depth and fill. The excavation uncovered a probable hearth filled with charcoal and sand. No artifacts were found in the excavated portion. Fifty percent of the fill was collected as a flotation and possible C-14 sample. The possible hearth is roughly circular, measuring 30 cm in diameter and 19 cm deep.

Test Pit 5 was placed over a burned area eroding out of the slope just below the top of the cut (Feature 2). The test unit was excavated in two levels, Strata 1 and 2. Stratum 1 ranges from 1 to 10 cm deep in Test Pit 5. Stratum 2 contains charcoal, ash, burned sandstone, sherds, and chipped stone. Underlying Stratum 2 is a surface that contains concentrated charcoal, oxidized soil, burned rocks, and sandstone slabs. A mano was found on this surface. The burned fill ranges from 1-2 cm thick to 15-18 cm thick. This feature may be the remains of a jacal structure, and the north half may have been removed during highway construction. We estimate that 80 cm of the feature remains intact and continues to the south, west, and east.

In summary, the site is a scattered assemblage of sherds, lithic artifacts, and ground stone dating to the Red Mesa phase of the Pueblo II period. A lack of subsurface cultural materials on the north side of the right-of-way suggests that subsurface features are no longer present. The linear arrangement of the surface artifacts indicates that a portion of the resource may have been removed during construction of the existing road. The south side of the right-of-way had two features with intact subsurface cultural deposits. No date was obtained for Feature 1. The ethnobotanical study yielded a burned *Zea mays* cupule, suggesting the use of corn cobs for fuel and perhaps corn consumption. Feature 2, found in Test Pit 5, contains sherds of Red Mesa Black-on-white and possibly Tohatchi Banded, common types of the Red Mesa phase. Lithic core reduction flakes were also recovered

from the feature fill. The ethnobotanical study identified burned *Zea mays* cupules and kernels, and piñon and juniper charcoal, possibly the burned remains of a prehistoric jacal structure or storage unit. The charcoal could be remains from heating or cooking, or from a burned structure. Corn parts could be from consumption, fuel, or, if the structure was used for storage, they could be burned remnants.

LA 71744

Type: Sherd and lithic artifact concentration.

Cultural Association: Red Mesa phase of the Pueblo II period.

Legal Description: See Appendix 1.

Land Status: Laguna Pueblo land.

Setting: The site is on a low, broad sand ridge that trends north to south and overlooks the Rio San Jose Valley to the north at an elevation of 1,768 m (5,800 ft). The artifact concentration on and around the slope cut measures 25 m east-west by 8 m north-south and consists of between 100 and 200 surface artifacts.

Testing Methods and Results: Testing at LA 71744 included four 1-by-1-m test pits and a 50-cm by 12-m shovel test area (Fig. 3). The crew attempted auger testing, but the unconsolidated nature of the soil made it impossible. Three test pits were placed in or at the edge of the surface artifact concentration, which appeared to be the center of the site. The fourth test pit was placed on top of a surface charcoal stain. The crew investigated an area of surface charcoal staining with systematic shovel tests.

Test Pits 1 and 2 were placed at the base of the slope cut on the edge of the artifact concentration. As a result of the excavation, we defined two strata. The upper stratum consisted of 10 cm of loose eolian sand with low numbers of artifacts, probably redeposited by erosion from the concentration upslope. Stratum 2 (10-72 cm below ground surface in Test Pit 1 and 10-40 cm below ground surface in Test Pit 2) consists of laminated, compacted, sandy clay. Only small sherds and lithic artifacts were recovered from the upper 10 cm of this rodent-disturbed level. Testing stopped at basalt bedrock.

Test Pit 3 was located on top of a charcoal stain and vesicular basalt concentration. The loose sandy top soil was removed to expose any feature outlines that might be present. Small sherds, chipped stone, charcoal, and a mano fragment were recovered from the loose topsoil. A roughly circular outline of charcoal-stained sand containing basalt rocks and small tabular fragments of sandstone were exposed. A 40-cm (north-south) by 50-cm (east-west) test pit was placed in the northeast corner of the stained area. Gray-stained and mottled fill was exposed in the west wall profile. One sherd was recovered. No well-defined edge or bottom was found. The feature measures 1 m north-south by 0.84 m east-west. It may be the deflated or disturbed remains of a hearth.

Test Pit 4 was placed on top of a charcoal stain and within an area of artifact concentration. Surface artifacts from a 4-by-4-m area surrounding the test pit were collected. Under the topsoil, the sand was hard-packed, stained, and rodent disturbed, and contained flecks of charcoal. Small numbers of sherds, lithic artifacts, ground stone, and a shell were recovered from Levels 1 and 2. The north half of the test unit was taken down to 30 cm below the surface, where culturally sterile soil became apparent. No heavily burned bottom or well-defined outline was present.

The shovel testing revealed a stain in the western 3 m of the stripped area. Based on the presence of burned sandstone, artifacts, and fill, it may be an activity area that is gradually being exposed on the surface.

To summarize, at least three features were exposed at LA 71744. The artifact concentration may be the remains of a midden. The three soil stains appear to be the remains of hearths, roasting pits, or burned structures. Pottery types indicate that all three of the features date to the Red Mesa phase. These remains suggest a temporary site used for farming.

Ceramics

The ceramics from LA 71743 and LA 71744 are summarized in Table 3. Red Mesa Black-on-white is the only distinct painted pottery type in the assemblage. Placement in this category is based primarily on surface treatment and painted design elements. Due to the scarcity of painted sherds with distinguishing characteristics, all other white ware sherds from these sites are designated as undifferentiated black-on-white mineral-painted ware or undifferentiated plain white ware.

Red Mesa Black-on-white is characterized by fairly thin, well-fired walls with slipped and polished painted surfaces. Bowl exteriors are slipped; the slip is sometimes thin and streaky. The paste is light to dark gray, and the paint is matte-black or brown mineral. Vessel forms are bowls, jars, ollas, and ladles. Bowl rims are usually painted solid with a line break. The ware is distinguished from other Cibola White wares by designs including interlocking scrolls; ticked, sawtooth, or scalloped triangles; checkerboards; and frets. Layouts are usually in bands, and elements are frequently framed by narrow parallel lines. Framing and hachure lines are of equal width. Hachure is relatively widely spaced. Hatch lines are straight or wavy and are usually perpendicular to framing lines. Temper varies; sand, sandstone, sherd, clay pellets, or combinations of these were used (Gladwin 1945; Dittert 1959; Mathien and Windes 1987; Warren 1981; McKenna 1984).

Undifferentiated plain gray ware sherds are a large part of the ceramic assemblage from these sites. Because many utility wares are corrugated only on the neck of the vessel, sherds from the body of a vessel lack distinguishing characteristics.

Table 3. Ceramic artifacts, LA 71743 and LA 71744

<i>Type</i>	<i>LA 71743</i>	<i>LA 71744</i>	<i>Total</i>
Red Mesa Black-on-white	3	13	16
Undifferentiated mineral black-on-white	0	10	10
Undifferentiated plain white ware	19	46	65
Undifferentiated plain gray ware	24	43	67
Undifferentiated corrugated	6	9	15
Undifferentiated brown ware	0	6	6
Corrugated red ware	0	2	2
Undifferentiated red ware	0	5	5
Indeterminate historic polychrome	0	1	1
Totals	52	135	187

During the analysis, the author attempted to distinguish between two types of corrugated gray wares: Kana'a Gray (Hargrave 1932) and Tohatchi Neckbanded (Olson and Wasley 1956). However, due to the lack of distinguishing characteristics, all of the sherds in question were put into the undifferentiated corrugated gray ware category.

The undifferentiated brown wares and red wares in the assemblage are likely from the Mogollon area to the south. Some types may include Alma Plain (A.D. 300-1300), Pilares Banded (A.D. 900-1100), Pilares Fine Banded (A.D. 1100-1300) (Dittert 1959), Pitoche Rubbed-Ribbed (A.D. 1100-1300), and San Francisco Red (A.D. 500-1100).

As shown in Tables 4 and 5, variations in temper types are numerous among the undifferentiated gray wares and white wares from these sites. The Red Mesa Black-on-white and the undifferentiated black-on-white painted sherds displayed several temper types as well. Temper was most consistent among the red ware and brown ware sherds.

Vessel forms are primarily jars and bowls (Tables 6 and 7). No sherds were identified as ladles or other vessel forms. Most gray ware sherds were from jars, and most white ware sherds were from bowls.

Table 4. Type by temper, LA 71743

<i>Type</i>	<i>Sherd</i>	<i>Sand</i>	<i>Sherd/Sand</i>	<i>Crushed Sandstone</i>	<i>Crushed Hematitic Sandstone</i>	<i>Crushed Quartzite</i>	<i>Total</i>
Red Mesa Black-on-white	0	1	3	0	0	0	4
Undifferentiated plain white ware	2	2	2	0	0	1	7
Undifferentiated gray ware	0	6	1	0	1	0	8
Undifferentiated corrugated gray ware	0	1	0	2	0	0	3
Total	2	10	6	2	1	1	22

Table 5. Type by temper, LA 71744

<i>Type</i>	<i>Sherd</i>	<i>Sand</i>	<i>Sherd/Sand</i>	<i>Crushed Sandstone</i>	<i>Hematitic Sandstone</i>	<i>Crushed Volcanic</i>	<i>Sand and Clay Pellet</i>	<i>Crushed Quartzite</i>	<i>Total</i>
Red Mesa Black-on-white	5	1	0	4	1	0	2	0	13
Undifferentiated mineral black-on-white	3	2	4	0	0	0	0	1	10
Undifferentiated white ware	6	11	10	9	0	0	5	0	41
Undifferentiated gray ware	2	11	10	6	6	0	8	0	43
Undifferentiated corrugated gray ware	2	1	2	2	0	0	0	1	8
Undifferentiated brown ware	0	0	0	0	1	5	0	0	6
Undifferentiated red ware	0	0	0	0	0	5	0	0	5
Corrugated red ware	0	0	0	0	0	2	0	0	2
Indeterminate historic polychrome	0	0	0	0	0	0	0	0	1
Total	18	26	26	21	8	12	15	2	129

Table 6. Type by vessel form, LA 71743

<i>Type</i>	<i>Indeterminate</i>	<i>Jar</i>	<i>Bowl</i>	<i>Total</i>
Red Mesa Black-on-white	0	1	2	3
Undifferentiated white ware	2	7	7	16
Undifferentiated gray ware	3	6	5	11
Undifferentiated corrugated gray ware	0	4	2	6
Total	5	23	34	62

Table 7. Type by vessel form, LA 71744

<i>Type</i>	<i>Indeterminate</i>	<i>Jar</i>	<i>Bowl</i>	<i>Total</i>
Red Mesa Black-on-white	0	6	7	13
Undifferentiated mineral black-on-white	1	0	9	10
Undifferentiated white ware	3	17	21	41
Undifferentiated gray ware	18	16	9	43
Undifferentiated corrugated gray ware	4	4	0	8
Undifferentiated brown ware	2	3	1	6
Undifferentiated red ware	1	1	3	5
Undifferentiated corrugated red ware	1	1	0	2
Indeterminate historic polychrome	0	1	0	1
Total	35	49	50	129

Chipped Stone

The chipped stone assemblages from LA 71743 and LA 71744 consist primarily of debitage characteristic of core reduction. The data is summarized in Tables 8-17. The assemblage from LA 71743 is small, and conclusions for that site are tentative.

The materials listed in Tables 8 and 9 (chalcedony, chert, silicified wood, quartzitic sandstone, quartzite, and basalt) are available in the talus debris on mesa slopes throughout the region. Chalcedony and chert dominate the collections from both sites.

Table 8. Debitage by material type, LA 71743

<i>Type</i>	<i>Chert</i>	<i>Silicified Wood</i>	<i>Chalcedony</i>	<i>Quartzitic Sandstone</i>	<i>Total</i>
Core flake	4	1	12	3	20
Manufacturing flake	0	0	1	0	1
Bipolar flake	0	0	1	0	1
Rejuvenation flake	1	0	0	0	1
Angular debris	4	1	5	1	11
Total	9	2	19	4	34

Table 9. Debitage by material type, LA 71744

<i>Type</i>	<i>Chert</i>	<i>Chalcedony</i>	<i>Quartzite</i>	<i>Quartzitic Sandstone</i>	<i>Basalt</i>	<i>Total</i>
Core flake	34	32	6	6	1	79
Manufacturing flake	1	0	0	0	0	1
Undetermined flake	1	0	0	0	0	1
Angular debris	19	7	2	1	1	30
Total	55	39	8	7	2	111

As shown in Tables 10 and 11, most lithic artifacts at both sites are whole core flakes with distal terminations and distal fragments of core flakes with feather terminations. The lack of cortex coverage (Table 12) and the low frequency of cortical platforms (Tables 13 and 14) indicate the debitage was derived mainly from the secondary stages of reduction. Tables 15 and 16 give the dimensions of whole flakes by their material types. The larger flake sizes of quartzitic sandstone at LA 71743 may be accounted for by earlier stages of

reduction. At LA 71744, the mean flake dimensions increase with the percentage of dorsal cortex. Flakes with no cortex average 19.5 mm in length, flakes with less than 50 percent cortex average 24.1 mm in length, and flakes with more than 50 percent cortex average 36.7 mm in length.

Table 10. Debitage by portion, LA 71743

<i>Type</i>	<i>Undetermined</i>	<i>Whole Feather</i>	<i>Whole Hinge</i>	<i>Proximal</i>	<i>Distal Feather</i>	<i>Total</i>
Core flake	0	11	1	1	7	20
Manufacturing flake						
Bipolar flake	0	1	0	0	0	1
Rejuvenation flake	0	1	0	0	0	1
Angular debris	11	-	-	-	-	11
Total	11	14	1	1	7	34

Table 11. Debitage by portion, LA 71744

<i>Type</i>	<i>Undetermined</i>	<i>Whole Feather</i>	<i>Whole Hinge</i>	<i>Distal Feather</i>	<i>Lateral</i>	<i>Total</i>
Core flake	0	53	2	24	1	80
Manufacturing flake	0	1	0	0	0	1
Angular debris	29	-	-	-	-	29
Total	29	54	2	24	1	110

Table 12. Debitage material by cortex, LA 71743

<i>Percentage of Cortex</i>	<i>Chalcedony</i>	<i>Chert</i>	<i>Quartzitic Sandstone</i>	<i>Silicified Wood</i>	<i>Total</i>
0	16	8	3	2	29
< 50	1	0	1	0	2
> 50	0	0	1	0	1
Total	17	8	5	2	32

Table 13. Debitage by platform, LA 71743

<i>Type</i>	<i>Absent</i>	<i>Cortical</i>	<i>Single-faceted</i>	<i>Total</i>
Core flake	5	3	12	20
Manufacturing flake	0	0	1	1
Bipolar flake	0	1	0	1
Rejuvenation flake	1	0	0	1
Angular debris	11	-	-	11
Total	17	4	13	34

Table 14. Debitage by platform, LA 71744

<i>Type</i>	<i>Absent</i>	<i>Cortical</i>	<i>Collapsed</i>	<i>Single-faceted</i>	<i>Distal Feather</i>	<i>Total</i>
Core flake	27	5	5	45	0	82
Manufacturing flake	0	0	0	1	0	1
Undetermined flake	1	0	0	0	0	1
Angular debris	29	0	0	0	1	30
Total	57	5	5	46	1	114

Table 15. Whole flakes, material by dimension, LA 71743

<i>Material</i>	<i>Length</i>		<i>Width</i>		<i>Thickness</i>		<i>Weight</i>		<i>Total Cases</i>
	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	
Chalcedony	22.0	11.07	17.85	7.58	5.14	2.54	29.14	27.79	7
Chert	23.66	13.65	16.00	13.22	8.0	5.00	76.66	68.71	3
Quartzitic sandstone	43.75	24.18	52.00	24.48	13.5	3.87	397.75	382.53	4
Silicified wood	40.00	0	19.00	0	6.00	0	48.00	0	1

Table 16. Whole flakes, material by dimension, LA 71744

<i>Material</i>	<i>Length</i>		<i>Width</i>		<i>Thickness</i>		<i>Weight</i>		<i>Total Cases</i>
	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Mean</i>	<i>Standard Deviation</i>	
Chalcedony	17.75	5.54	14.95	5.89	4.25	1.83	14.05	14.22	20
Chert	21.92	8.37	21.08	6.77	7.96	4.73	35.28	35.45	25
Quartzitic sandstone	19.25	10.07	19.5	7.23	5.0	2.58	23.0	24.15	4
Quartzite	22.40	7.33	20.00	4.14	6.00	3.39	29.8	30.48	5
Basalt	64.00	0	64.00	0	16.0	0	732.0	0	1

The data suggest that the majority of cores were brought to the sites in a reduced form, based on low incidence of cortex. The low frequency of formal tools and manufacturing flakes shows that tool production and maintenance was not an important activity at these sites.

Two tools were present in the lithic artifact assemblage. A quartzite cobble fragment with step fractures on one sharp edge and signs of battering on another edge was collected from LA 71743. It appears to have been used both as a chopper and a hammerstone. One bifacial tool collected from LA 71744, of clear gray obsidian with sparse black inclusions, measures 1.9 by 1.6 by 3 cm and weighs 1.5 g. Three edges exhibit bidirectional retouch; one edge is retouched on both faces and exhibits bidirectional scarring. The obsidian for this biface probably came from the Jemez Mountains.

The following is a list of the surface lithic artifacts from LA 71743 that were not collected:

- 1 exhausted core of chalcedony, 5 by 3 by 3.5 cm
- 1 piece of angular limestone debris
- 1 chert core flake, platform absent, 2.5 by 3 by 0.7 cm.
- 1 chert core flake, collapsed platform, 4 by 3.5 by 1.2 cm
- 1 quartzite core flake, single faceted platform, 3 by 4 by 0.8 cm
- 2 pieces of angular chert debris
- 1 chert core flake, single faceted platform, 2.5 by 4 by 0.9 cm
- 1 chert core flake, distal fragment, 3 by 2 by 0.5 cm
- 1 chert core flake, single faceted platform, 4 by 4 by 0.8 cm

The uncollected surface lithic artifact data are consistent with the tabulations from the collected assemblage. The one piece of limestone is the only notable difference.

Ground Stone

The presence of ground stone suggests at least some food processing at LA 71743 and LA 71744 (Table 17). Two manos were found at LA 71743, one of them from the floor of the jacal structure. It is likely that this structure was an agricultural fieldhouse in which food preparation was one of the activities.

Table 17. Ground stone, LA 71743 and LA 71744

<i>Provenience</i>	<i>Type</i>	<i>Shape</i>	<i>Material</i>	<i>Size (cm)</i>	<i>Ground Surface</i>	<i>Striations</i>
LA 71743 Collection Area 2	mano	irregular flat	fine- grained sandstone	10.7 x 9.5 x 3.2	ground smooth on one side	none
LA 71743 Test Pit 5 burn area	two-hand mano	irregular convex	vesicular basalt	11 x 17 x 2	ground smooth on one side	perpendicular to long axis
LA 71744 Test Pit 4 Level 1	ground stone	tabular flat	sandstone	4.6 x 3.8 x 1.0	slightly ground on one side	none
LA 71744 Test Pit 4 Level 1	ground stone	tabular flat	sandstone	4.4 x 4.2 x 2.2	moderately ground on one side	none
LA 71744 Test Pit 3 Level 1	mano	irregular flat	vesicular basalt	5.5 x 10.5 x 2.5	ground smooth on one side	none
LA 71744 collection area	mano fragment	irregular flat	quartzite cobble	4.5 by 6.5 by 3	ground smooth on one side	none

Two small pieces of ground stone, a mano and a mano fragment, were found at LA 71744. Large stains at this site suggest the burned remains of a structure or the presence of large roasting pits.

Bones

Linda Mick-O'Hara, faunal specialist for OAS, completed the analysis and summary of the bones found at LA 71744. Only two bones were recovered from the testing. One element, identified as the first phalange of a black-tailed jackrabbit, exhibited moderate weathering from exposure prior to deposition. The other fragment could only be identified as a fragment of a bird rib. From its size and curvature, the rib could possibly be from a turkey.

These specimens do not allow us to interpret the subsistence behavior of the inhabitants of LA 71744.

Shell

One small gray tabular grooved shell fragment with a drill hole was found in level one at LA 71743. It measures 0.9 by 1.2 cm. It appears to be an ornament from a necklace or other type of jewelry.

One small tubular off-white snail shell was found in Level Three at LA 71744. It measures 1.3 long by 0.7 cm wide. It may have been used as a bead.

CONCLUSIONS

Based on the results of the testing program, we believe that the portion of LA 71743 south of the existing road has the potential to yield important information concerning the agricultural use of the Rio San Jose during the ninth and tenth centuries A.D. NMSHTD has deleted this portion of the site from the proposed construction project. It will be fenced during the proposed construction and avoided. The north side of the site does not appear to have the potential to yield important information on local prehistory, and no further archaeological work in that portion of the site is recommended.

We believe that LA 71744 has the potential to yield important information about the agricultural use of the Rio San Jose during the ninth and tenth centuries A.D. NMSHTD has deleted the site from the proposed project area. The site will be fenced during the proposed shoulder modification and avoided.

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APPENDIX 2: MACROBOTANICAL ANALYSIS OF TWO
FLOTATION SAMPLES FROM LA 71743, CASA BLANCA

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Castetter Laboratory for Ethnobotanical Studies

Two flotation samples from LA 71743 were sent for analysis to the Castetter Laboratory for Ethnobotanical Studies. Both were separated by size fraction, and the material in each screen was examined for botanical materials. Initially, only a scan was requested. Subsequently, authorization was granted for charcoal species identification.

Table 18 presents the macrobotanical materials recovered during this scan. Both samples contained large pieces of wood charcoal. The identification of the wood charcoal is presented in Table 19. *Pinus* charred wood and charcoal and *Juniperus* charcoal were recovered from these samples. In addition, both samples contained corn cupules, and FS 16 contained a few small pieces of burned starchy material. This, coupled with the recovery of corn kernels (FS 16), suggests that cobs with at least a few kernels intact were being burned. No entire cobs were recovered, which suggests the use of these materials as fuel. The recovery of charred pine cone scales and charred *Pinus* wood and charcoal suggests that this taxon was also being used for fuel.

The large amount of unburned plant fiber in FS 16 is surprising. Otherwise, the samples were fairly small in the amount of organic material recovered. Corn was present in both samples. On the basis of these scans, I recommend against conducting full sorts on this material.

Table 18. Macrobotanical results from LA 71743, Casa Blanca

FS 15, Test Pit 4, Feature 1, West 1/2

Zea mays cupule
uncharred *Juniperus* twig
wood charcoal
insect carapace

FS 16, Test Pit 5, burned level

Zea mays kernels and cupules
wood charcoal
charred pine cone scale
small shell
large quantities of uncharred plant fiber and debris

Table 19. Charcoal identification from LA 71743, Casa Blanca

FS 15, Test Pit 4, Feature 11, West 1/2

Pinus charcoal
Juniperus charcoal
Pinus charred wood

FS 16, Test Pit 5, burned level

Pinus charcoal
Juniperus charcoal