MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

LA UNION: THE TESTING OF TWO SITES NEAR SANTA TERESA, DOÑA ANA COUNTY, NEW MEXICO

Peter Y. Bullock

with a contribution by
C. Dean Wilson

Submitted by Yvonne R. Oakes,
Principal Investigator

ARCHAEOLOGY NOTES 211

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ADMINISTRATIVE SUMMARY

Between April 8 and April 12, 1996, the Office of Archaeological Studies, Museum of New Mexico, conducted limited archaeological testing at two sites near Santa Teresa, Doña Ana County, New Mexico. Limited testing was conducted at LA 112260 and LA 112261 at the request of the New Mexico State Highway and Transportation Department (NMSHTD) to determine the extent and importance of cultural resources present within the proposed project limits of the proposed extension of NM 136 (Artcraft Road) from NM 273 to the New Mexico–Texas State Line, near Santa Teresa. Both of the sites are on state land administered by the New Mexico State Highway and Transportation Department (NMSHTD) and acquired from private sources.

The two sites are surface ceramic and lithic artifact scatters, probably short-term or temporary resource utilization areas. No intact cultural features or deposits were found at either of the two sites. In both cases, the data potential of the portions of the sites within the proposed project area was determined to be minimal beyond that already documented, and no further investigations are recommended.

MNM Project 41.620 (La Union)
NMSHTD Project No. NH-0136(2)08, CN 3210
CPRC Archaeological Survey Permit No. SP-96-027

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INTRODUCTION

At the request of William L. Taylor, environmental program manager, New Mexico State Highway and Transportation Department, a limited testing program was conducted at two sites, LA 112260 and LA 112261, within the area of the proposed extension of NM 136 (Artcraft Road) from NM 273 to the New Mexico–Texas State Line, near Santa Teresa, New Mexico (Fig. 1). Limited testing was conducted under CPRC Archaeological Survey Permit No. Sp-146. Fieldwork was conducted between April 8 and April 12, 1996, conducted by Peter Y. Bullock, assisted by Byron Hamilton. Yvonne Oakes acted as principal investigator. Ceramic analysis was carried out by C. Dean Wilson. Maps were drafted by Robert Turner, the report was edited by Tom Ireland, and the photographs were printed by Nancy Warren.

Limited testing was conducted at LA 112260 and LA 112261 to determine the extent and importance of the portions of the sites within the proposed project limits. Testing was restricted to these project limits for the proposed extended construction of NM 136, near Santa Teresa, New Mexico (Appendix 1).

Prior to conducting fieldwork, current listings of the *National Register of Historic Places,* the *State Register of Cultural Properties,* and the site files of the New Mexico Cultural Resource Information System were consulted. No properties listed on, nominated to, or approved for submission to either inventory are in the vicinity of LA 112260 or LA 112261.

This report complies with the provisions of the National Historic Preservation Act of 1966 as amended.

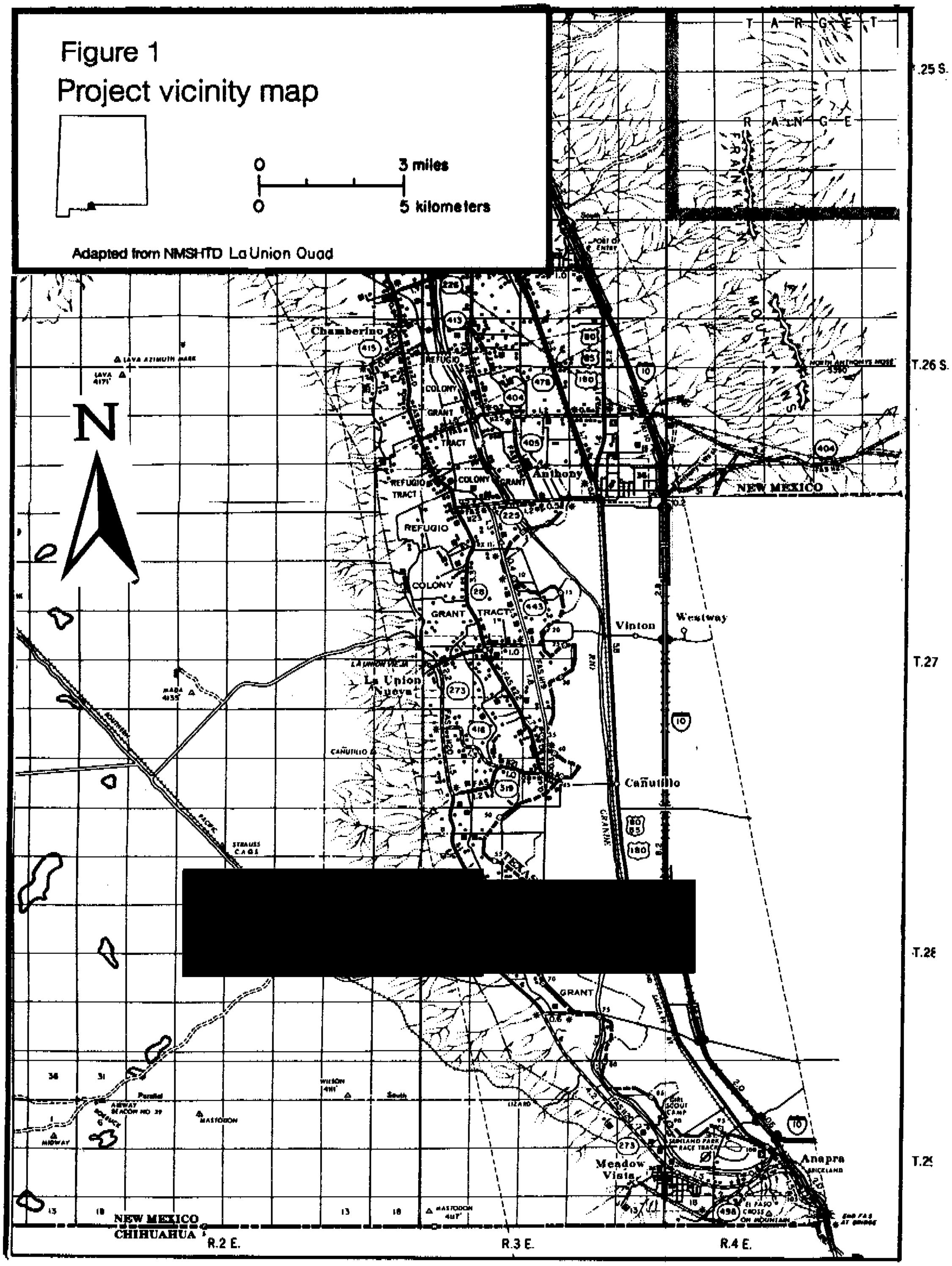

Figure 1
Project vicinity map
0
3 miles
0
5 kilometers
Adapted from NMSHTD La Union Quad
N
Chamberino
Anthony
NEW MEXICO
Vinton
Westway
La Union
Nueva
Cañutillo
[redacted]
GRANT
Meadow
Vista
Anapra
NEW MEXICO
CHIHUAHUA
R.2 E.
R.3 E.
R.4 E.
T.25 S.
T.26 S.
T.27

ENVIRONMENT

The project area is west of the Rio Grande in the southern area of the intermontain lowland known as the Mesilla Bolson. Elevation within the project area varies from 1,152.1 m (3,780 ft) to 1,155.2 m (3,790 ft).

The countryside west of the Rio Grande and north of Santa Teresa is rolling desert grassland (Castetter 1956: Fig.1). The site areas are in a region of active coppice dunes. Historically, these dunes have been stabilized; however, overgrazing has reduced the local grasses, allowing an increase in the level of erosional duning activity. The invasive species of mesquite, creosote bush, and soap-tree yucca dominate the local vegetation. An in-depth analysis of the project area's environmental setting is available in O'Laughlin (1980).

Geology

The project area is within the Mexican Highland section of the Basin and Range physiographic province (Fenneman 1931:379-380). The area is characterized by north-south block fault ranges uplifted in the Tertiary period. These ranges are separated by intermontain basins filled during the upland erosion of the Pleistocene (Kottlowski 1958; Strain 1966). The project area is within one of these basins, the Mesilla Bolson (Fenneman 1931:385). The Mesilla Bolson is bounded to the west by the Sierra de Las Uvas and the Potrillo Mountains, and by the Organ and Franklin Mountains to the east. The Franklin Mountains are 11 km (7 miles) east of the project area (O'Laughlin 1980:6). They are a Tertiary uplift of Precambrian, Paleozoic, Cretaceous and Tertiary sedimentary rock, with rhyolite, granite, and andesite intrusions (McAnulty 1967).

The project area is on the first river terrace west of the Rio Grande, in an area known as the Leeward Slope zone. This includes the alluvial fans and shallow drainages below the La Mesa deposits to the west, as well as an extensive strip of coppice dunes. The Leeward Slope zone is dominated by eolian deposits brought in by the prevailing westerly winds and has been heavily affected by erosion and duning. Sandy soils dominate this zone, although limited areas of gravelly soils do occur (O'Laughlin 1980:19).

West of the project area is an area of nearly level basin sediments. These once formed the bed of the Pleistocene Lake Cabeza de Vaca (Strain 1966) and are known as the La Mesa surface (Hawley and Kottlowski 1969). Eolian sands blowing off these deposits have been deposited in the Rio Grande Valley by westerly winds (Davis 1989:4). This material forms most of the soil comprising the coppice dunes in the project area (Strain 1966).

The soils of the project area reflect the redeposited erosional material from the La Mesa surface west of the Leeward Slope zone (O'Laughlin 1980:10). The soils of the project area are Typic Torripsamments, soils with surface layers of loose noncalcareous fine sand over thick deposits of fine sand, sometimes grading into sandy loam or sandy clay. These soils are common in areas of duning (Maker et al. 1974:35).

Climate

The climate of the project area is semiarid mesothermal, with hot days and cool nights. Average annual precipitation for El Paso is 20.1 cm (O'Laughlin 1980:12; Tuan et al. 1973:18). Most rainfall occurs in the months of July, August, and September (Gabin and Lesperance 1977:114; Maker et al. 1974:26; Tuan et al. 1973:20). The average number of frost-free days is 248 (O'Laughlin 1980:12; Tuan et al. 1973: Fig. 35), while the potential growing season for domesticated crops is closer to 348 days (Smith 1920:273, Fig. 79). O'Laughlin (1980:12) has noted that this combination of temperature and rainfall results in one long growing season, and differences in microclimates and localized conditions have the greatest effect on productivity and crop yield.

The current pattern of summer rains and cool, dry winters first appeared in the middle Holocene, when the amount of precipitation was much greater than now. Despite a great deal of variability (wetter periods are postulated for ca. 1000 B.C. and A.D. 1000), there has been an overall drying trend through time. One result of this drying trend has been a gradual change in biotic communities from piñon-juniper woodland, to juniper-oak, to savannah grassland, with scattered juniper and oak in broken mountainous areas (Davis 1989:21; O'Laughlin 1980:12-14; Van Devender and Spaulding 1979).

Flora and Fauna

One by-product of the range of environmental zones present in the project vicinity is an increased variety in available plant and animal resources. Plant communities generally vary with elevation in the Franklin Mountains (Castetter 1956). The riverine ecosystem of the Rio Grande floodplain serves as a distinct linear oasis, providing habitat for plant and animal communities not normally associated with the desert landscape. Some species such as migrating birds, utilize this area in only a transitory manner. However, the increased variety in plant and animal communities puts more species in closer proximity.

The grazing of livestock has modified the vegetation of the general project area (Castetter 1956:261-262). Previously heavy grass cover of dropseed and black grama has been eliminated. Mesquite, soap-tree yucca, four-wing saltbush, and creosote bush dominate the existing vegetation (O'Laughlin 1980:19).

Most of the project vicinity supports the Chihuahuan desert faunal complex of jackrabbits, pronghorn, mule deer, and desert cottontail. A variety of birds and small rodent species is also present (O'Laughlin 1980:21).

CULTURE HISTORY

A complete culture history of the project area is beyond the scope of this report. In-depth historical coverage of the area is available in Lehmer (1948), Moore (1996), Stuart and Gauthier (1988), and Timmons (1996).

Paleoindian Period

The Paleoindian presence in the El Paso area is primarily known from surface fines of distinctive lanceolate projectile points, scrapers, and gravers (Beckes 1977; Everitt and Davis 1977; Hard 1983; and Russell 1968). These artifacts have been restricted to Folsom and later Plano occupations dating roughly between 8000 to 6000 B. C. (O'Laughlin 1980:23). Artifacts attributable to the earliest Paleoindian culture (Clovis) have not been found in the general area.

Although researchers originally believed that Paleoindian people depended mostly on large Pleistocene mammals for food, it is now thought that the economy was broader based. Although bison played an important role in Folsom and Plano subsistence (O'Laughlin 1980:23), small animals and wild plants are also known to have played an important role (Judge 1973).

The presence of surface artifacts indicates that small, highly mobile Paleoindian groups took advantage of the diverse ecology existing in the El Paso area during the late Pleistocene. During this period, large expanses of open woodland and savannah separated the then-forested mountain ranges. Small lakes and perennial streams were common. By the middle Holocene, climatic changes had established the ecological communities present today (O'Laughlin 1980:23).

Archaic Period

The Archaic period is characterized by a generalized hunting and gathering form of subsistence, more so than that utilized during the Paleoindian period. Small family-based social groups may have traveled on a seasonal round, structured around the availability of different species of wild plants. Lechuguilla and sotol may have been principal food plants in south-central New Mexico and West Texas (Hard 1983:9).

Although subsistence remained based on wild plants, the cultivation of maize appears during the Archaic period (Hard 1983:8). Maize dating to 1,394 B.C. has been recovered from the Fresnal Shelter (Human Systems Research 1973:445). Closer to the site area, in the Organ Mountains, maize has been found dating to 1,029 B.C. (Upham et al. 1987).

Archaic sites are identified on the basis of diagnostic projectile points, allowing Archaic sequences to be developed for specific areas. In northwestern New Mexico, a cultural sequence known as the Oshara tradition was developed by Irwin-Williams (1973). The Cochise Culture has been recognized in Arizona and southwestern New Mexico (Beckett 1973).

In addition to projectile points, Archaic sites are characterized by flaked core tools, grinding implements, and clusters of roasting pits and hearths characterized by burnt and fire-cracked rock. Perishable materials, including basketry, sandals, cordage, and matting, have been recovered from caves and rockshelters (O'Laughlin 1980:24).

Archaic developments in the El Paso area reflect the Cochise Culture, with the addition of traits such as diagnostic projectile points from the Big Bend aspect of the eastern Trans-Pecos area (Hard 1983:9; Lehmer 1958:127). This is particularly true of the Late Archaic Hueco phase (Hard 1983; Lehmer 1948). A number of Archaic sites have been recorded in the project vicinity (O'Laughlin 1977, 1979, 1980; Whalen 1977, 1980).

Pueblo Period

The Pueblo period in south-central New Mexico is part of the Jornada Mogollon cultural area. Known as the Formative period, it is believed to be a direct offshoot of the Late Archaic Hueco phase (Hard 1983). Major cultural changes that occurred include an increased dependence on agriculture, the development of ceramics, and increased sedentism (Hard 1983:9). The Formative period is comprised of the three phases developed by Lehmer (1948) and later slightly modified (Moore 1996).

Mesilla Phase

Dating from A.D. 200 to 1100, the Mesilla phase is characterized by the dominate use of El Paso Brown ceramics. Circular or rectangular pit structures are present. Also present are extramural storage cists and hearths, and sheet trash deposits (Hard 1983:9; Lehmer 1948:77).

Regional trade is indicated by intrusive ceramics, indicating contacts with the Mimbres Culture to the northwest and the Livermore horizon of the West Texas Big Bend area to the east, and shell from the Gulf of California (Lehmer 1984:77).

Doña Ana Phase

The Doña Ana phase dates to between A.D. 1100 and 1200. This is a transitional phase between the earlier Mesilla phase and the later El Paso phase. The Doña Ana phase is characterized by El Paso Brown Ware and El Paso Polychrome in the same cultural deposits (Hard 1983:9-10; Lehmer 1948:78-80).

Small surface pueblos began to appear during this phase (O'Laughlin 1980:26). However, most of the cultural material of this phase shows little change from the preceding Mesilla phase (Moore 1996). Trough metates tend to become more common within the assemblages, suggesting a greater dependence on agriculture and the processing of maize. A greatly increased range of intrusive ceramic types, in greater numbers, occurred in the Doña Ana phase (Lehmer 1948:78-80).

El Paso Phase

The El Paso phase dates between A.D. 1200 and 1400. The phase is characterized by the presence of El Paso Polychrome and above-ground adobe structures. An increase in intrusive ceramics from over a wider area takes place during this phase (Hard 1983:10; Lehmer 1948:80-82). The overall artifact assemblage is more complex, and a wider range of items and types of tools is represented than in either of the two earlier phases (Lehmer 1948:81).

Adobe surface structures were the dominate structural type during the El Paso phase. These were grouped around a plaza or arranged in linear rows. Internal features are common (Lehmer 1948:8), usually postholes, pits, and hearths (Moore 1996). Village placement were generally near the base of slopes, possibly to take advantage of seasonal runoff for agricultural purposes (Hard 1983:10). Village size varied. Clusters of villages were reported in the Alamogordo area (Lehmer 1948) and the Hueco Bolson (Whalen 1977). Specialized sites such as hunting camps and plant gathering and processing camps are easily discernable (O'Laughlin 1980:26).

Ritual, at the village level, is suggested by the presence of specialized rooms at most El Paso phase villages. These rooms are larger than the other rooms in the village, and caches of material were kept beneath the floors (Moore 1996). El Paso phase villages were abandoned by about A.D. 1400 (Hard 1983:10).

Protohistoric Period

The El Paso area was inhabited by the Manso Indians, probable descendants of the Jornada Mogollon, at Spanish contact. Although pit structures and adobe pueblos were in use in the La Junta area to the south, and pueblos were used in the Socorro area to the north, the Manso inhabited small huts covered with brush. Beans, squash, and maize were raised, and wild plant foods gathered in season. The Manso hunted game and fished in the Rio Grande. After Spanish contact the Manso were gradually absorbed into the general population (Beckett and Corbett 1992; Moore 1996).

Historic Spanish Period

Although a number of Spanish expeditions passed through the El Paso area during the conquest and colonization of New Mexico, no Spanish settlement occurred in the general project area until December 8, 1659. On that date the mission of Nuestra Señora de Guadalupe de los Mansos del Paso del Norte was founded, becoming the center of Spanish settlement in the El Paso area (Timmons 1990). A presidio was also soon established.

The small Spanish population of the area increased dramatically during the Pueblo Revolt of 1680 with an influx of refugees from the northern New Mexico settlements. After the Reconquest in 1692, many Spanish and Indian refugees refused to return north, settling in the El Paso area and becoming part of the local population (Timmons 1990).

Early Spanish settlement in the El Paso area was concentrated along the Rio Grande Valley, south of the pass that gave the area its name. The threat of Apache raids effectively limited settlement to the north until the late 1700s (Timmons 1990).

The Spanish government granted a number of land grants in the Mesilla Valley to encourage settlement, a policy that was continued by the Mexican government. The Santa Teresa grant was established by 1790, on the west bank of the Rio Grande. The El Brazito grant, further north on the east bank of the Rio Grande, was established in 1805 and reestablished in 1816 (Price 1995:2) and 1823 (Sayles and Williams 1986:105-107). The Canutillo grant, on the east bank of the Rio Grande, was established in 1823 (Timmons 1990). All of these grants were abandoned by 1833 due to Apache raids and remained vacant until the arrival of the Americans (Timmons 1990). One successful settlement was Doña Ana, settled in 1843 (Price 1995:2) on the Doña Ana Bend grant, established in 1839 (Sayles and Williams 1986:105-107).

The Mexican War brought an American presence to New Mexico when American forces captured Santa Fe in April 1846. Doña Ana and El Paso were captured in December of the same year. At the end of the Mexican War, the west bank of the Rio Grande from Doña Ana to El Paso remained the territory of Mexico. Mexican citizens from both areas who were unwilling or unable to remain in the territory captured by the Americans moved into this portion of the Mesilla Valley with the encouragement of the Mexican government (Price 1995:14). The largest settlement in this area was the town of Mesilla, founded in 1850 by Mexican refugees from Doña Ana (Price 1995; Stribling 1986; Timmons 1990).

The Mexican government legitimized and encouraged this settlement with a series of land grants. The J. M. S. Baca grant, on the west side of the Rio Grande, was established in 1849. The Refugio Colony #1 grant and the Refugio Colony #2 grant were established in 1852 (Sayles and Williams 1986) (or 1850, according to Price 1995). The Mesilla Civil Colony grant and the Santo Tomas de Iturbide Colony grant were established in 1853 (Sayles and Williams 1986:105-107) (or 1852, according to Price 1995).

Anglo-American Period

The west side of the Mesilla Valley became part of the United States in 1954 with the Gadsen Purchase. The territory south of the Gila River between the Rio Grande and Colorado Rivers was purchased bu the United States for $15 million in 1854 (Stribling 1986; Timmons 1990). The small population of this territory was clustered in Mesilla Valley and in the mission settlements of southern Arizona, around Tucson.

In 1859 the Anglo-American residents of the Mesilla Valley and Tucson petitioned the United States Congress to establish a new pro-slavery Arizona Territory to be made out of the southern half of New Mexico (Price 1995:12). This petition was not adopted, but with the advent of the Civil War, many Anglo-American residents of the area supported a Confederate victory. Mesilla was captured by Confederate forces on July 1, 1861, and the Territory of Arizona was proclaimed part of the Confederacy (Price 1995:26; Stribling 1986:19; Timmons 1990).

Although not originally concerned with the issues leading up to the Civil War, the invasion of New Mexico by Texas Confederate forces rallied the Mexican-American population of southern New Mexico to support the Union. The final defeat of Confederate forces in New Mexico and the subsequent capture of El Paso by Union forces in 1862 ended Confederate control of the Mesilla Valley (Stribling 1986; Timmons 1990).

The southern area of the Mesilla Valley remained a sparsely settled agricultural area. Farming and some ranching took place mainly along the Rio Grande. The economics of the area altered after the 1880s with the arrival of the railroads. The Southern Pacific Railroad Company completed its track, just to the west of the project area, from Deming to El Paso on May 19, 1881 (Myrick 1990:60). The El Paso and Southwestern Railroad completed its track between Hermanas, New Mexico and El Paso, Texas, in November 1902 (Myrick 1990:95). This line, south of the project area, was abandoned in 1961 (Myrick 1990:70).

A number of communities are in this portion of New Mexico. Near the site area are La Union and Santa Teresa. La Union, the oldest community in the area, was created by the union of two earlier settlements in 1856 (Julyan 1996:192; Pearce 1965:86; Price 1995:9). Santa Teresa, named for the Santa Teresa Land Grant, is a recently established residential community (Julyan 1996:327). Anapra, south of the project area, was founded as a railroad town. This community is now part of Sunland Park (Julyan 1996:15; Pearce 1965:7), a town incorporated in 1960 and named after the local racetrack (Julyan 1996:393; Pearce 1965:161).

Economic activity in this part of New Mexico now centers on the growing El Paso-Juarez area to the east, and to a lesser extent, on Las Cruces, to the north.

TESTING PROGRAM

LA 112260 and LA 112261 were recorded as ceramic and lithic artifact scatters (Evans 1996). Both sites were tested as part of the planned construction of the extension of NM 136 between NM 273 and the New Mexico-Texas state line, near Santa Teresa, New Mexico. The purpose of the limited testing was to determine the extent and importance of the portions of the sites within the proposed project area. Both sites are located on state land administered by the New Mexico State Highway and Transportation Department (NMSHTD) and acquired from private sources.

Limited testing at LA 112260 and LA 112261 followed the procedures and practices outlined in the *Testing and Site Evaluation Proposal* (SHPO Log 43648). A main datum and baseline were established for each site. Surface artifacts were pinflagged to locate artifact clusters and assist in recording and mapping site limits. A map of each site was produced using a transit, stadia rod, and 50 m tape. All test units, cultural features, and surface artifacts were plotted. All surface artifacts were collected once their locations were mapped.

Test units measuring 1 by 1 m were hand excavated in areas of surface artifact concentrations or areas of possible prehistoric activity indicated by discolored soil in 10 cm levels until culturally sterile soil was reached. All of the excavated dirt was screened through 1/4 inch wire mesh, and the artifacts were collected. A stratigraphic profile was drawn, and test unit and site photographs were taken. Because of the thin diffused nature of each of these artifact scatters, only a single test unit of this type was hand excavated at LA 112260. No test units were hand excavated at LA 112261.

Auger holes were hand excavated in or adjacent to areas of clustered surface artifacts. Each auger hole was dug until culturally sterile soil was reached, and the depth was recorded.

Portions of each site were mechanically scraped in an effort to both remove dune-related overburden and expose possible cultural deposits and features connected with the prehistoric use of each site. Areas designated for mechanical scraping were dunes adjacent to areas of surface artifacts. Dirt in each designated area was removed mechanically in 10 cm levels. The scraping was monitored, and scraped areas were inspected after the removal of each level. Mechanical scraping continued to 50 cm below the base of the dune and the level of exposed surface artifacts, or until cultural material was reached.

All excavated or scraped areas were backfilled when excavation was completed. Cultural material recovered through these excavations will be curated at the Archaeological Research Collections at the Laboratory of Anthropology, Museum of New Mexico. Field and analysis records will be on file at the Historic Preservation Division, Archeological Records Management Section.

LA 112260

LA 112260 is a dual-component site approximately 150 m east of NM 273. The site's prehistoric component was originally recorded as a ceramic and lithic artifact scatter measuring 30 by 55 m (Fig. 2). The site is in an area of active coppice dunes (Fig. 3). Surface artifacts are concentrated in blowouts and a dirt track that bisects the site from east to west. A historic

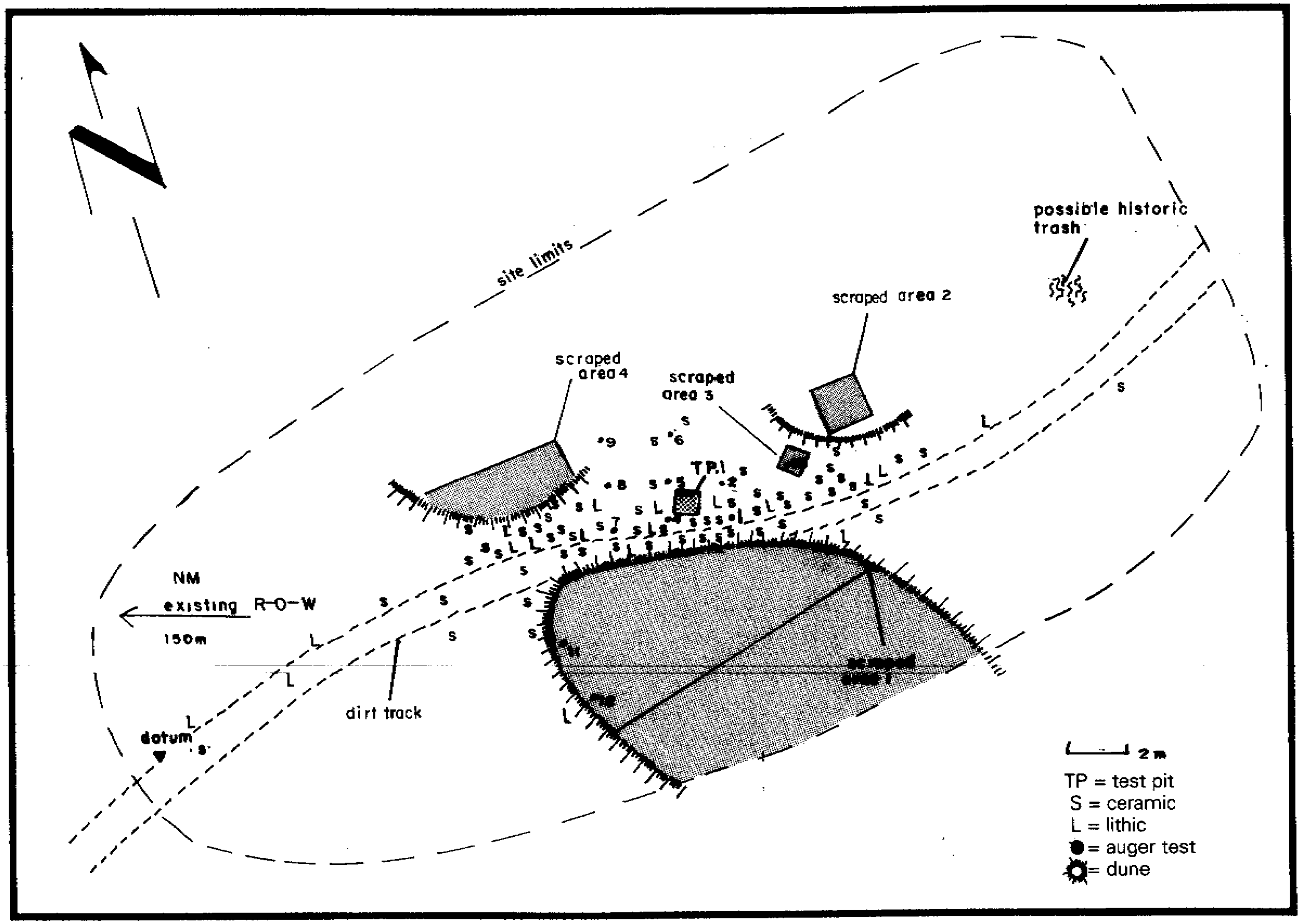

Figure 2. LA 112260 site map.

component, comprised of a small scatter of metal, glass, and ceramic artifacts, was also recorded in this site area. The elevation of the site is 1,155.2 m (3,790 ft).

A total of 85 surface artifacts (58 ceramics and 27 lithic artifacts) was piece-plotted at LA 112260. No artifacts were collected from test units, auger holes, or mechanically scrapped areas. The site is in an area of active coppice dunes and has experienced extensive erosion. LA 112260 has also been modified by livestock and vehicular traffic. One test unit and 13 auger holes were dug at LA 112260. Four areas of LA 112260 were mechanically scrapped.

Figure 3. LA 112260, looking southeast.

Test Units

Test Unit 1. Test Unit 1 (1 by 1 m) is in the middle of the site, within a large surface artifact concentration on the north side of the dirt track. This area is within a blowout between active dunes. No vegetation was present in this portion of the site.

Excavation ended 50 cm below the modern ground surface in culturally sterile soil. Testing revealed a single stratum of material. Stratum 1 is a uniform compacted reddish brown fine silty sand containing small flecks of caliche. No artifacts were recovered from Test Unit 1 below the modern ground surface.

Auger Holes

A total of 13 auger holes were dug at LA 112260 in a series of transects in areas of surface artifacts. Auger tests were dug until cultural material or culturally sterile soil was reached. No cultural features or deposits were found in any of the auger holes dug at LA 112260.

Mechanical Scraping

Four areas of LA 112260 were mechanically scraped to remove dune-related overburden and expose possible buried cultural features and deposits. Soil in each of these areas was mechanically removed in 10 cm levels.

Scraped Area 1. Scraped Area 1 was a 6 by 15 m portion of a large coppice dune in the southern portion of the site, just south of the dirt track and the main surface artifact concentration. The original top of the dune was 2.70 m above the modern ground surface. Excavation ended 50 cm below the base of the dune and the level of exposed surface artifacts in culturally sterile soil.

Mechanical scraping revealed four strata of material. Strata 1-3 were visually identical, except for a slight color change at their points of contact. All three of these strata were composed of light tan fine silty eolian sand. Each strata represents a separate period of dune formation. Stratum 4 is a compacted reddish brown silty sand containing flecks of caliche and measuring 55 cm thick. No artifacts or intact cultural features or deposits were found in Scraped Area 1.

Scraped Area 2. Scraped Area 2 is a 2 by 2 m area in the west-center of the site, north of the surface artifact concentration. This scraped area was a portion of a high coppice dune that was originally 1 m above the modern ground surface. Excavation ended 50 cm below the base of the dune and the level of exposed surface artifacts in culturally sterile soil.

Mechanical scraping revealed two strata of material. Stratum 1 was a loose fine silty eolian sand 1 m deep. Stratum 2 was a compact reddish brown silty sand containing flecks of caliche. No artifacts or intact cultural features or deposits were found in Scraped Area 2.

Scraped Area 3. Scraped Area 3 is a 2 by 2 m area near the middle of the site, adjacent to the main surface artifact concentration. This scraped area was a portion of a low coppice dune. The dune was originally 30 cm above the modern ground surface. Excavation ended 50 cm below the base of the dune and the level of exposed surface artifacts in culturally sterile soil.

Mechanical scraping revealed two strata of material. Stratum 1 was a loose tan fine silty eolian sand. Stratum 2 was a reddish brown compacted silty sand containing flecks of caliche. No artifacts or intact cultural features or deposits were found in Scraped Area 3.

Scraped Area 4. Scraped Area 4 is a 6 by 3 m portion of a coppice dune adjacent to the main surface artifact concentration in the northwestern portion of the site. This dune was originally 60 cm above the modern ground surface. Excavation ended 50 cm below the base of the dune and the level of exposed surface artifacts in culturally sterile soil.

Mechanical scraping revealed two strata of material in Scraped Area 4. Stratum 1 was a loose tan fine silty eolian sand. This stratum measured 57 cm thick. Stratum 2 was a compact reddish brown silty sand containing flecks of caliche. No artifacts or intact cultural features or deposits were found in Scraped Area 4.

Historic Component

The historic component at LA 112261 was originally described as a refuse dump possibly dating to the 1970s. This scatter was recorded because of the presence of a single piece of purple glass (Evans 1996). In-field analysis of this material found that it dates to the 1950s and 1960s (Gillio et al. 1980). The previously recorded piece of purple glass could not be relocated.

Cultural Features

No intact cultural features or deposits were found within the portion of LA 112260 within the proposed project area.

LA 112261

LA 112261 is a ceramic and lithic artifact scatter 100 m north of LA 112261 and 190 m east of NM 273. It measures 36 by 30 m (Fig. 4). The site is in an area of active coppice dunes (Fig. 5). Surface artifacts occur around a single dune in the center of a large blowout. The elevation of the site is 1,152.1 m (3,780 ft).

Thirty-five surface artifacts (18 ceramics, 15 lithic artifacts, and one ground stone artifact) were piece-plotted at LA 112261. No artifacts were recovered from test units, auger holes, or mechanically scraped areas. The site has suffered extensive surface erosion. Six auger holes were hand dug at LA 112261. One area of the site was mechanically scraped.

Test Units

No test units were hand excavated at LA 112261.

Auger Holes

Six auger holes were hand dug at LA 112261 in a transect through the area of the greatest surface artifact concentration. Auger holes were dug until cultural material or a depth of at least 70 cm was reached. No cultural features or deposits were found in any of the auger holes dug at LA 112261.

Mechanical Scraping

One area of LA 112261 was mechanically scraped to remove dune-related overburden and expose possible buried cultural features or deposits. Soil in this area was removed in 10 cm levels.

Scraped Area 1. The mechanically scraped area at LA 112261 measured 17 by 15 m. This area encompassed the large dune in the center of the site. This dune originally measured 1.8 m above

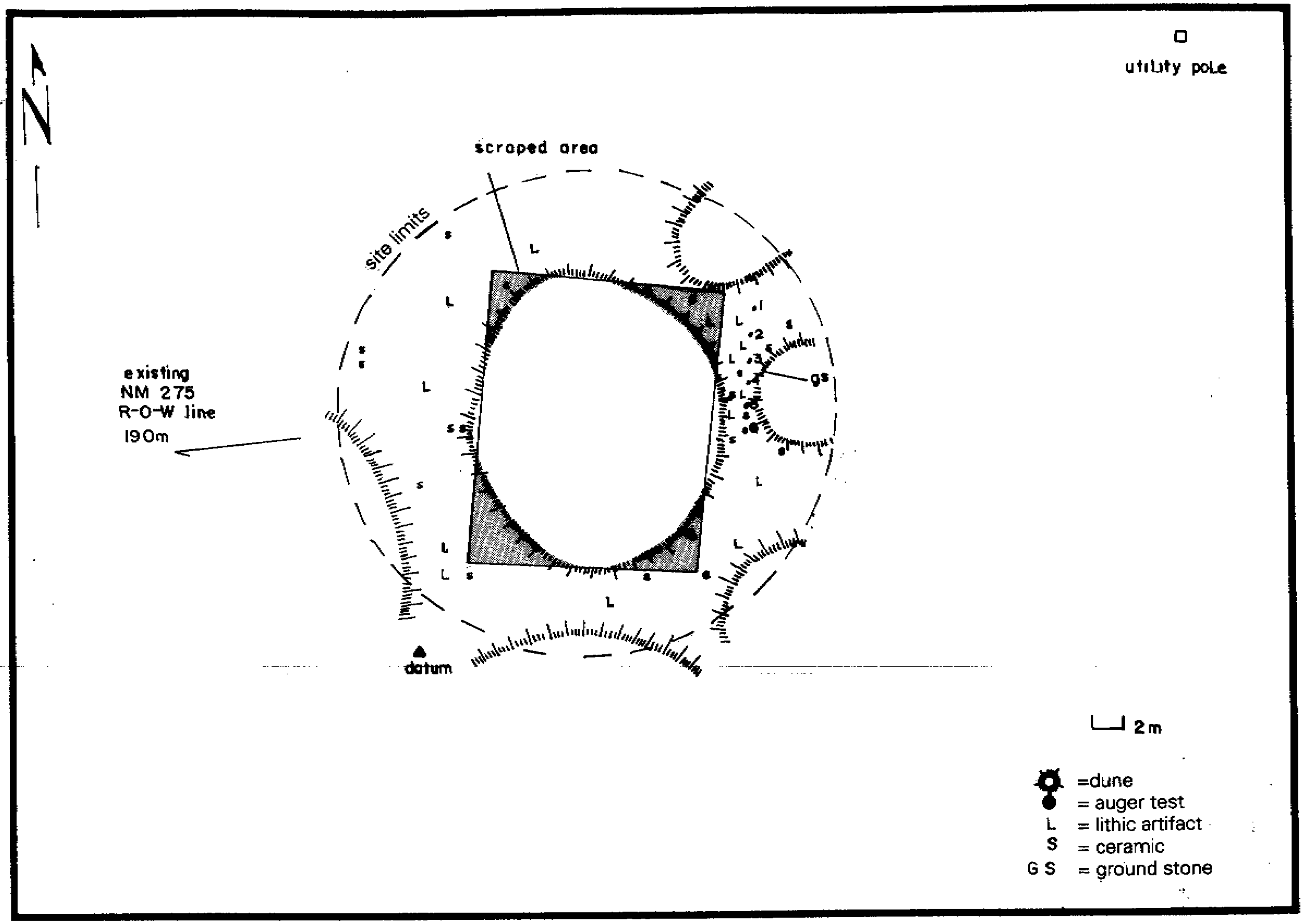

Figure 4. LA 112261 site map.

the modern ground surface. Scraping continued to a depth of 50 cm below the base of the dune and the level of exposed surface artifacts in culturally sterile soil.

Mechanical scraping reveled two strata of material in Scraped Area 1. Stratum 1 was a loose tan fine silty eolian sand. This stratum was 1.8 m thick. Stratum 2 was a compact reddish brown sand containing flecks of caliche. No artifacts, intact cultural features, or deposits were found in Scraped Area 1.

Cultural Features

No cultural features or deposits were found in the portion of LA 112261 within the proposed project area.

Figure 5. LA 112261, looking north.

LITHIC ARTIFACT ANALYSIS

Forty-three lithic artifacts were collected: 27 at LA 112260, and 16 at LA 112261.

Attributes chosen for lithic analysis reflected the desire to achieve the greatest return of useful information within the available time. The guidelines and format of *Standardized Lithic Artifact Analysis* (OAS 1995) were followed.

The following attributes were included in analysis:

Material type codes are for general material groups unless the material is from a recognizable source. For example, although a wide range of chert occurs on these sites, all were classified as "chert." If a specimen was of a specifically named chert (such as Washington Pass chert), it was coded by the specific name.

Morphology (artifact type) is the characterization of artifacts by form.

Portion is the part of the artifact present. Flakes and tools may be whole or fragmentary. Angular debris and cores are whole by definition.

Dorsal cortex is estimated to the nearest 10-percent increment. For flakes this is the cortex on the dorsal surface. Cortex on the platform was not included. For other morphological types, the cortex on all surface is estimated and added together.

Flake platform is recorded for whole and proximal flakes. Some lateral flakes also have their platforms recorded if the platform is still present. The morphology of the impact area prior to flake removal or extreme modifications of the impact area caused by the actual flake removal is coded.

Size is recorded in millimeters.

Edge number. Artifacts can have one or more utilized edges. Each utilized edge on an artifact is given an edge number. Consecutive numbers are used for artifacts with more than one utilized edge. Each edge was analyzed separately for function and wear patterns.

Function describes and characterizes artifact use.

Wear patterns. Artifact modification caused by human use is coded as wear.

Material Selection

Material use serves as an indication of the human decision-making processes with regard to the suitability of materials (Young and Bonnichsen 1985:128). The presence within a site assemblage of tested material or substantial numbers of core flakes exhibiting dorsal cortex can thus be presumed to illustrate the manner in which this material suitability is determined.

All of the lithic material utilized at LA 112260 and LA 112261 is locally available, either as nodules within the Pleistocene alluvial deposits of the area, or from erosional deposits in the Franklin Mountains. Thunderbird rhyolite is a specific form of reddish brown rhyolite containing biotite inclusions found in the Franklin Mountains.

Rhyolite and thunderbird rhyolite dominate both lithic artifact assemblages (Table 1). Rhyolite comprises 40.7 percent (11) of the assemblage at LA 112260 and 40 percent (6) at LA 112261. Thunderbird rhyolite comprises 40.7 percent of the LA 112260 assemblage and 46.6 percent of the LA 112261 assemblage.

Other materials are present in smaller quantities at both sites. Chert is represented by two artifacts at LA 112260 and one at LA 112261. The lithic artifact assemblage from LA 112260 also contains two siltstone artifacts and one quartzitic sandstone artifact. One sandstone artifact is also present in the LA 112261 assemblage.

Based on the limited range of cortex percentages within material types in these assemblages, it is possible to surmise that only limited lithic reduction took place at either site (Table 2). The lithic reduction of both rhyolite and thunderbird rhyolite occurred at LA 112260. However, from the small number of artifacts, only a single lithic reduction episode is represented by each material. Thunderbird rhyolite was the one lithic material used for lithic reduction at LA 112261.

Artifact Morphology

Core flakes make up the largest morphological group of lithic artifacts. Of 27 lithic artifacts recovered from LA 112260, 23 are core flakes. Two hammerstone flakes were also present. Thirteen of 15 artifacts at LA 112261 are core flakes.

Flake platforms at LA 112260 are 55 percent cortical and 45 percent single faceted for core flakes. This contrasts with LA 112261, where cortical platforms comprise only 22.2 percent of the platforms present, and single-faceted platforms form 77.8 percent. One platform of each type occurs on the hammerstone flakes from LA 112260.

Utilization by Material

Lithic material was utilized as formal and expedient tools on both sites (Table 3). Similarities in utilized lithic material reflect the similarities in material present in the total assemblages. However, both the range and occurrence of tools and tool types vary between the two sites.

Utilized debitage is present at both sites. Side scrapers are also present at both sites, two at LA 112260 and three at LA 112261. Hammerstones are also present in both site assemblages, two at LA 112260 and one at LA 112261. Items found at one site but not the other are an end scraper and a spokeshave at LA 112260, and a graver and a knife at LA 112261.

The percentage of tools within each assemblage also differs between the two sites. If tool occurrence was based on assemblage size, then LA 112260 should have the greater number of tools, and the two sites should have similar percentages of tools versus nonutilized debitage. Instead, the larger site, LA 112260, has almost the same number of tools as LA 112261, which is 55.5 percent smaller. This results in a tool to nonutilized debitage ratio of 1:2.4 for LA 112260, compared to 1:1.1 for LA 112261.

Secondary tool function is also high for LA 112261, which has the same number of occurrences as LA 112260. A third artifact function was recorded only for LA 112260, the larger of the two assemblages.

The small numbers of artifacts recovered from these sites and the limited variety of materials indicates that both of these sites functioned as short-term procurement areas connected to larger-scale settlement systems. This is supported by the high percentages of tools within each assemblage, particularly LA 112261 (Akins and Bullock 1992).

It should be possible to determine, however roughly, the types of activities pursued at each of these sites (Christenson 1987:77). However, both of the assemblages are too small for this to be practical. The use of utilized debitage suggests the production of expedient tools. The lack of biface thinning flakes and tool resharpening flakes indicates a lack of formal tool production and short-term site use. This is more likely to occur at a logistical camp or resource-procurement area (Akins and Bullock 1992:27). The indication of at least some lithic reduction at LA 112260, suggested by the greater nonutilized debitage to tool ratio, may be the result of slightly longer site use.

GROUND STONE ARTIFACT ANALYSIS

A single ground stone artifact was recovered from LA 112261 and analyzed in Santa Fe. No ground stone artifacts were recovered at LA 112260.

Attributes chosen for ground stone analysis reflected the desire to achieve the greatest return of useful information within the time available. The guidelines and format followed *Standardized Ground Stone Artifact Analysis* (OAS 1994).

The single ground stone artifact from LA 112261 is an interior metate fragment, found on the modern ground surface. Made of fine-grained sandstone, this fragment is a fire-reddened heat spall. It is impossible to determine the form of the whole metate from this small fragment. The use surface is a steeply concave grinding surface resharpened by pitting.

The presence of a ground stone artifact at LA 112261 is consistent with the presence of ceramics and the ephemeral nature of the site. Ground stone artifacts indicate food processing. The fire-cracked nature of this artifact suggests that it may have been reused in a fire-related function after its original use as a metate had ended.

CERAMIC ANALYSIS

C. Dean Wilson

This chapter presents information resulting from the analysis of 73 sherds recovered during the testing of two sites near Santa Teresa as part of the La Union project. This study resulted in the analysis of 45 sherds recovered from LA 112260 and 28 sherds recovered from LA 112261. Despite the small sample, this data provides an opportunity to further examine ceramic trends associated with Jornada Mogollon components in this area recently examined during the Santa Teresa project (Wilson 1996). Therefore, analysis approaches and categories used during the Santa Teresa project were utilized. Analysis involved the recording of descriptive attributes and typological categories employed in previous studies of Jornada Mogollon ceramics (Seaman and Mills 1988; Whalen 1996).

Descriptive Attributes

The recording of descriptive attributes reflecting resource use, technology, manufacture, decoration, vessel form, and post-firing modifications of vessels allows for the documentation of a variety of patterns. Attributes recorded for all sherds include temper, pigment, surface manipulation, wall thickness, paste profile, rim shape, vessel form, and modification.

Temper categories were identified by examining freshly broken sherd surfaces through a binocular microscope. All the sherds examined exhibited similar temper consisting of relatively large white angular fragments composed of quartz and feldspar. This material is a crushed granite, and its nearest source to the Santa Teresa area is the Franklin Mountains, to the east (Hill 1996).

Surface manipulations were noted for interior and exterior sherd surfaces. The term refers to the type and presence of surface textures and polishing. *Plain smoothed surfaces* refers to surfaces where coil junctures had been completely smoothed, but surfaces were unpolished, similar to Whalen's (1996:81) coarse finish category. *Plain polished surfaces* are those which have been intentionally polished after smoothing. Polishing implies intentional smoothing with a polishing stone to produce a compact and lustrous surface. This category appears to be similar to Whalen's (1996) fine finished category. *Smoothed and somewhat lustrous* refers to intermediate treatments that are either highly smoothed or lightly polished, similar to Whalen's (1996) medium finished category. *Plain corrugated polished* refers to the presence of unindented polished coils. *Punched or impressed* refers to surface textures created by pressing a tool on the vessel surface.

Wall thickness. Previous studies indicate potential changes in wall thickness of Jornada brown ware vessels from the Mesilla to the El Paso phase. Sherd thickness was recorded to the tenth of a millimeter. Therefore, during the present study, this measurement was made at an area of the sherd that appeared to be fairly typical of the overall thickness.

Paste profile. The color combinations of a sherd cross section reflects both clay iron content and the firing conditions to which a vessel was exposed. Reddish or buff profiles indicate final oxidation atmospheres. Black or dark gray profiles result from reduction atmospheres. Color categories recorded for sherd cross sections included *not recorded, brownish or red throughout, brownish or reddish exterior with dark gray or black core*, and *dark gray or black throughout.*

Vessel form. Vessel form categories were assigned based on observed shapes of rims or the presence and location of polish and painted decorations on sherds. While it is often possible to identify the basic form (bowl versus jar) of body sherds from many southwestern regions by the location of polishing, such distinctions may not be as easy for Jornada brown ware types. For example, in contrast to many Southwest pottery traditions, Jornada Brown Ware bowl and jar sherds are often polished or smoothed on either side. Such observations result in a reluctance to assign brown ware sherds to specific vessel form categories. While the location of surface polishing may convey relevant information, caution must be employed in the resulting interpretations. Therefore, body sherds were not assigned to specific vessel form categories but placed in a series of categories reflecting the presence and location of surface polishing. Categories recorded for body sherds include *indeterminate* (one or both sides missing), *both sides unpolished, both sides polished, interior side polished, exterior side polished*, and *corrugated with polished interior.* The only nonrim sherds assigned to more distinct form categories reflect *jar neck* sherds as identified by the presence of distinct curves. A single jar rim sherd was classified as an *olla* based on rim shape and small vessel radius. Bowl rim refers to sherds exhibiting inward rim curvature.

Modification and wear. Evidence of postfiring modification and wear of sherds was limited to a single sherd with a drilled repair hole. *Repair drill hole* refers to the presence of purposely drilled holes, presumably used to mend vessels by lacing together drilled sherds.

Refired paste color. Clips from 35 sherds were also fired to control oxidation conditions at a temperature of 950 degrees C to standardize ceramic pastes. This provides a common comparison of pastes based on the influence of mineral impurities (particularly iron) on paste color and may used to identify sherds that could have originated from the same source. The color of each sample was recorded using a Munsell Soil Chart.

Type Categories

Ceramic types represent convenient groupings incorporating information about spatially and temporally important trait combinations. Ceramic items are assigned to typological categories based on a series of observations. First, an item is placed into a spatially distinct ceramic tradition based on temper, paste, and technological traits. Next, it is assigned to a particular ware group based on technological and surface attributes. Finally, a sherd is placed into a type category based on temporally sensitive surface textures or design styles.

All the sherds analyzed during the present project displayed characteristics of Mogollon Brown Ware types. Jornada Mogollon Brown wares dominate ceramic assemblages at sites spread over large areas of southern New Mexico, west Texas, and northern Mexico. Most of the pottery from sites along the Rio Grande near the Texas–New Mexico border and the Tularosa Basin are assigned to El Paso Brown Ware types. These ceramics seem to differ from other Jornada Brown ware sherds solely in the presence of a coarse angular temper of local origin (Anyon 1985; Hard 1983; Jennings 1940; Lehmer 1948; Whalen 1996). It is often not possible to distinguish El Paso brown ware sherds from other Jornada brown ware types without careful characterization of the associated temper. Thus, the various El Paso brown ware types are best considered a regional variant of Jornada Brown Ware (Whalen 1996).

Most Jornada Brown wares from sites in the El Paso area exhibit plain surfaces that may be rough to polished. Most El Paso brown ware sherds lack distinct surface textures (Jelinek 1967; Jennings 1940; Lehmer 1948). Surface colors range from gray, brown, to red, and cross sections range from brown to black, with various combinations of exterior and core colors. El Paso Brown ware sherds can be further divided into types based on the presence of painted decoration or surface texture. El Paso Brown ware types identified during the present analysis include the following.

El Paso Brown Rim, as defined here, is identical to ceramics previously classified as El Paso Plain Brown (Mills 1988). This type refers to smoothed and unpainted El Paso Brown Ware rim sherds. Unpainted rim sherds are assigned to a different type than body sherds, because temporally diagnostic El Paso Polychrome vessels are often undecorated in the lower portion of the vessel only. Thus, it is more likely that unpainted brown ware sherds are actually derived from unpainted vessels.

El Paso Brown Body is similar to the category defined by others as Unspecified El Paso Brown (Anyon 1985; Hard 1983; Mills 1988). This category includes sherds where attributes such as paint and rim, most commonly used to distinguish El Paso Brown from El Paso Polychrome vessels, were absent.

Mimbres Style Corrugated refers to sherds from a single vessel exhibiting pastes and temper noted for El Paso Brown wares, but with banded corrugated textures similar to those noted for Mimbres Corrugated. Given the similarity of the temper and paste to El Paso Brown wares, it is likely that these sherds represent a corrugated variety of El Paso Brown.

Punched or Impressed Brown refers to sherds exhibiting regularly spaced punched or impressed decorations. Such decorations are common on Playas Utility. Given the paste and temper noted, it is likely that these sherds represent a textured variety of El Paso Brown.

Ceramic Patterns

The small number of ceramics recovered from LA 112260 and LA 112261 provided information on the age of these sites and associated ceramic trends. All sherds examined, brown wares exhibiting similar pastes and tempers, were assigned to types based on rim form and exterior surface textures (Tables 4 and 5). All sherds from both sites were tempered with granitic temper, exhibited similar high iron pastes, and fired to red colors in oxidizing atmospheres. This indicates that all the ceramics recovered could have been produced from the same ceramic sources. Sherds from sites displayed a very wide range of paste profiles, reflecting fairly variable firing atmospheres in both oxidation and reduction atmospheres (Table 6). The great majority of the sherds appear to have originated from jars, although a few sherds polished on the interior could have originated from bowls (Table 7). The few differences noted between these assemblages related to differences and exterior surface textures and may reflect different periods of occupation.

Dating of Sites

The dating of Santa Teresa area sites and components based on ceramic distributions can be quite difficult given the very conservative nature of ceramic change in the Jornada Mogollon region and general absence of independently dated sites. The conservative nature of this ceramic technology is reflected in the very long dominance of El Paso Brown sherds with similar ranges of paste, temper, and surface textures. Dating studies in the Jornada Mogollon region have relied on low frequencies of better-dated intrusive types and local painted brown wares such as El Paso Polychrome (Lehmer 1948). Given the small number of intrusive and painted types normally recovered from sites in this region, the reliable dating of an assemblage requires large sample sizes.

The ceramic occupation of the southern Jornada Mogollon area is usually divided into a three-phase chronology (Lehmer 1948) that includes the Mesilla (A.D. 1 to 1100), Doña Ana (A.D. 1100 to 1200) and El Paso (A.D. 1200 to 1400) phases. The earliest ceramic period (the Mesilla phase) is associated with pithouse occupations. It begins with the introduction of plain brown ware ceramics in A.D. 0–500 and ends in about A.D. 1100 with the introduction of local painted types (Lehmer 1948; Whalen 1996). Pottery is often rare at Mesilla phase components and is sometimes even absent. Some studies have documented chronological changes during the long-lived production of El Paso Brown vessels by either lumping these sherds into a series of finer-defined subtypes distinguished by combinations of paste and surface characteristics, or through the independent recording and monitoring of potentially sensitive attributes for El Paso Brown Ware types (Whalen 1981; 1996). These examinations indicate gradual changes in Jornada Brown Ware pottery, which may include a decrease in temper size and an increase in fineness of surface finish and hardness through time (Whalen 1996).

Plain ware vessels appear to have been gradually replaced by painted vessels during the Doña Ana phase (Whalen 1977). El Paso Polychrome appears during this period, although early examples may exhibit painted decorations in one color only and retain a number of El Paso Brown traits (Whalen 1981). The Doña Ana phase is thought to date between A.D. 1100 to 1200 and is often characterized by a mixture of ceramic types or attributes defined for the Mesilla and El Paso phases (Carmichael 1985; Lehmer 1948). This may result in difficulties in distinguishing Doña Ana phase mixed assemblages. It is sometimes assumed that a shift toward the almost exclusive production of El Paso polychrome vessels occurred by the beginning of the El Paso phase. It is likely, however, that the production of some unpainted El Paso Brown vessels continued into the early El Paso phase (Seaman and Mills 1988).

LA 112260

Sherds from LA 112260 are limited to 45 El Paso Brown Body sherds. The great majority of these sherds were unpolished on both sides and probably derived from rim sherds. The average sherd thickness of the pottery recovered from this site was 5.90 mm and is relatively consistent with that noted at other Mesilla phase sites. While the lack of painted or textured types could reflect the relatively small size of this sample, given the lack of polishing and thickness of these sherds, it is likely a Mesilla phase occupation is reflected. This assemblage probably represents a ceramic occupations dating before A.D. 1100.

LA 112261

While all of the 28 sherds analyzed from LA 112261 were unpainted brown wares, a relatively high frequency (25 percent) exhibited distinct surface textures. This may indicate a slightly later occupation than at LA 112260, possibly indicating an occupation sometime during the late Mesilla or Doña Ana phase. Measurements concerning average sherd thickness of the sherds from this site was 5.02 mm, and thus very similar to that noted at LA 12261.

DISCUSSION

The two sites in the La Union project have been assigned to phases based on their associated pottery (Wilson, this volume). LA 112260 has been assigned to the Mesilla phase. LA 112261 is a bit later, and has been assigned to the late Mesilla phase or the Doña Ana phase. The small size of the artifact assemblages and limited archaeological knowledge of the general project area makes any finer resolution problematic.

The small ephemeral nature of these sites suggest that they are the result of short-term, but possibly repeated, activity. Limited-activity sites are defined by Adams (1978) as "sites containing a limited range of actions present within that specific culture [and] generally involved in the exploitation of resources located at a distance from residential area." Short-term limited activity sites usually involve the procurement of seasonally available plant or animal resources (Adams 1978:105). They may also involve the procurement of other materials in short supply, such as clay or specific types of stone (Adams 1978:106). In most areas of the Southwest, short-term limited activity sites are present as small structureless ceramic and lithic artifact scatters.

Short-term limited activity areas have been documented that can be assigned to the Jornada Mogollon. In virtually all of these cases, however, these areas have had intact features present (Hard 1983; O'Laughlin 1979, 1980; O'Laughlin and Gerald 1977; Whalen 1980, 1996). Although LA 112260 and LA 112261 do not contain intact features, the artifact assemblages suggest features could have been present prior to the extensive deflation of both sites. The range of lithic debitage at LA 112260 indicates one or two episodes of lithic production, suggesting a period (however short) of occupation. The presence of a fire-reddened metate fragment at LA 112261 suggests the former presence of a no longer intact hearth.

The importance of wild plant and animal resources to the Jornada Mogollon has become increasingly better understood. Use was made of a wide range of wild plants, despite the cultivation of maize and other domesticated crops (Whalen 1996:116). This combination of farming and the collection of wild plants has been shown to be especially adaptive to hot dry desert conditions (Whalen 1996:116-117). Fluctuating crop yields are a common phenomenon in the difficult farming environment of the Southwest, where crop failure is common. The maintenance of a hunting and gathering component within a farming-based subsistence system is an effective coping mechanism in this type of environment.

Ethnographically, this mixture of farming with hunting and gathering has been recorded by Bohrer (1970) among the Pima Indians of southern Arizona. The Pima collected wild plants in inverse proportion to their harvest, although some wild plants were always collected. Hunting, as opposed to plant collecting, is less dependent on farming results.

Differentiating between these types of short-term limited activities through use of the archaeological record can be challenging. The lithic assemblages from these two sites alone would suggest animal processing, an activity discounted by the lack of faunal remains. Ground stone artifacts would indicate wild seed or possibly mesquite bean collection. Unfortunately, ground stone artifacts are limited to a single reused occurrence on one site. Short-term activity sites with large percentages of ceramics within their artifact assemblages, such as these sites, tend to reflect the seasonal exploitation of plant resources (Ellis 1988). Combined with the relatively large number of scrapers in the lithic assemblages from these two sites, this suggests the processing of dense plant material (perhaps soap-tree yucca). The similarities between the two sites, and their temporal differences, suggests they could represent the repeated use of this local plant resource by various groups.

The use of agave and yucca of various species is well documented prehistorically and historically in the Southwest. Parts of these plants have been used as food and in beverages. They were also used for woven articles, soap, and to make cordage. At least 21 different cultural groups in the Southwest used agave or yucca in some manner (Castetter et al. 1938). The remains of agave that had been utilized as food have been found in caves and rockshelters of the Hueco Mountains (O'Laughlin 1977:180), east of the project area.

There is a common basic method of preparing agave and yucca for consumption. After a plant is dug up, the outer leaves are cut off. The heart, flower stalks, flowers, fruits, and leaf bases are then roasted in a rock-lined oven for a period of several days. The edible pulp is then scraped from the fibrous leaves by scraping or chewing (Castetter et al. 1938; Hard 1983:47-49). In some areas of northern Mexico, an alcoholic beverage was made from fermented baked agave or yucca crowns. In all cases, the species of agave or yucca eaten was dependent on local availability (Hard 1983:49).

Although features may have been present at both sites in the project area, the lack of roasting pits at LA 112260 and LA 112261 need not necessarily preclude the gathering of agave or yucca at these sites. This is particularly true in cases where limited-use sites represent the activities of local groups. In these cases, the collected material could have easily been transported home and then further processed.

While agave or yucca collecting could result in the form of limited activity area dealt with in the testing of these two sites, site position within the general landscape should also be a consideration. Of particular importance is the position of these sites within the ecological edge area of the Leeward Slope and Riverine environmental zones (O'Laughlin 1980: Fig. 5).

Ecological edge areas are the areas of contact between different biotic communities. They generally occur where physical changes are present in the landscape. Ecological edge areas are "the most convenient locations for proximity to the widest variety and stability of resources" (Epp 1985:332). Correlations have been demonstrated between site location and ecological edge areas for sites dating for the Paleoindian (Thurmond 1990), the Archaic (Reher and Winter 1977), and the Protohistoric periods (Epp 1985). Settlement patterns based on the correlation between environmental zone and site location for the Jornada Mogollon in the El Paso area have been developed by O'Laughlin (1980:27-31).

Although it has been argued that the constraints imposed by the unpredictability of the wild plant crops are incompatible with a sedentary lifestyle (Whalen 1996:132), Thurmond (1990:17) suggests that these biotic borderlands maximize both density and diversity of both available faunal and floral resources. This increased availability of resources should result in short-term activity areas occurring in increased frequency in these ecological edge areas. Repeated visitation to one of these sites should occur as different plant (and possible animal) resources become available throughout the year (O'Laughlin 1980:230).

As an increasing number of sites of this type are recorded in this area, a more complete picture of site frequency, location, and site structure will enable us to make more refined interpretations of the site data.

ASSESSMENTS AND RECOMMENDATIONS

Information derived from the surface mapping and test excavations at LA 112260 and LA 112261, combined with analysis of the recovered artifact assemblages, provides insight into site function and aids in the interpretation of those portions of the sites existing within the proposed project area.

LA 112260

LA 112260 is a ceramic and lithic artifact scatter. Based on the ceramic assemblage (see Wilson, this volume), this site has been assigned to the Mesilla phase. The site has been severely deflated and the artifacts redeposited. Livestock and vehicular traffic has also modified the site area. No intact cultural features or deposits were found.

Archaeological testing within the proposed project area at LA 112260 did not reveal any cultural features or deposits likely to yield important information on the prehistory of LA 112260 or the region. No further investigations are needed.

LA 112261

LA 112261 is a ceramic and lithic artifact scatter. This site has been assigned to the late Mesilla phase, or Doña Ana phase, based on the ceramics present (see Wilson, this volume). This site has been severely deflated and the artifacts redeposited. The site area has also been modified by the presence of livestock. No intact cultural features or deposits were found.

Archaeological testing within the proposed project area at LA 112260 did not reveal any cultural features or deposits likely to yield important information on the prehistory of LA 112260 or the region. No further investigations are needed.

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APPENDIX 2: TABLES

Table 1. Artifact morphology by material type

LA 112260												
Artifact Type	Chert		Quartzitic Sandstone		Siltstone		Rhyolite		Thunderbird Rhyolite		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
Core flake	2	100.0	1	100.0	2	100.0	7	63.6	11	100.0	23	85.2
Hammerstone flake							2	18.2			2	7.4
Multifaceted core							1	9.1			1	3.7
Biface, first stage							1	9.1			1	3.7
Total	2	100.0	1	100.0	2	100.0	11	100.0	11	100.0	27	100.0

LA 112261												
Type	Chert				Sandstone		Rhyolite		Thunderbird Rhyolite		Total	
	N	%			N	%	N	%	N	%	N	%
Core flake	1	100			1	100	5	83.4	6	85.7	13	86.6
Multifaceted core									1	14.3	1	6.7
Biface, first stage							1	16.6			1	6.7
Total	1	100.0			1	100.0	6	100.0	7	100.0	15	100.0

Table 2. Cortex by material type

LA 112260												
Percent	Chert		Quartzitic Sandstone		Siltstone		Rhyolite		Thunderbird Rhyolite		Total	
	N	%	N	%	N	%	N	%	N	%	N	%
0					1	50.0	3	30.0	6	50.0	10	37.0
10	1	50.0					1	10.0	1	8.3	3	11.1
20							1	10.0			1	3.7
30	1	50.0					1	10.0	1	8.3	3	11.1
40							1	10.0			1	3.7
50												
60							1	10.0	1	8.3	2	7.4
70			1	100.0								
80							2	20.0			2	7.4
90									1	8.3	1	3.7
100					1	50.0			2	16.6	2	7.4
Total	2	100.0	1	100.0	2	100.0	10	100.0	12	100.0	27	100.0

LA 112261												
	Chert				Sandstone		Rhyolite		Thunderbird Rhyolite		Total	
Percent	N	%			N	%	N	%	N	%	N	%
0	1	100.0							1	14.3	2	13.4
10												
20							1	16.7	1	14.3	2	13.4
30									1	14.3	1	6.7
40							1	16.7	2	28.6	3	20.1
50												
60												
70									1	14.3	1	6.7
80									1	14.3	1	6.7
90							3	50.0			3	20.1
100					1	100.0	1	16.7			2	13.4
Total	1	100.0			1	100.0	6	100.0	7	100.0	15	100.0

Table 3. Artifact function by material type

LA 112260								
Function	Chert		Rhyolite		Thunderbird Rhyolite		Total	
	N	%	N	%	N	%	N	%
Utilized debitage					2	100.0	2	25.0
Scraper (side)			2	40.0			2	25.0
Scraper (end)	1	100.0					1	12.5
Spokeshave			1	20.0			1	12.5
Hammerstone			2	40.0			2	25.0
Total	1	100.0	5	100.0	2	100.0	8	100.0
Second Function								
Scraper (side)			2	100.0			2	100.0
Total			2	100.0			2	100.0
Third Function								
Utilized Debitage			1	100.0			1	100.0
Total			1	100.0			1	100.0

LA 112261						
	Rhyolite		Thunderbird Rhyolite		Total	
Function	N	%	N	%	N	%
Utilized debitage			1	25.0	1	14.3
Graver	1	33.3			1	14.3
Knife	1	33.3			1	14.3
Scraper (side)	1	33.3	2	50.0	3	42.9
Hammerstone			1	25.0	1	14.3
Total	3	100.0	4	100.0	7	100.0
Second Function						
Utilized debitage			1	100.0		50.0
Scraper (side)	1	100.0			1	50.0
Total	1	100.0	1	100.0	2	100.0

Table 4. Ceramic Types

	LA 112260		LA 112261		Total	
	N	%	N	%	N	%
El Paso Brown, body	45	100.0	9	32.1	54	74.0
El Paso Brown, rim			12	42.9	12	16.4
Polished and punched			6	21.4	6	8.2
Mimbres Corrugated			1	3.6	1	1.4
Total	45	100.0	28	100.0	73	100.0

Table 5. Ceramic exterior manipulation

	LA 112260		LA 112261		Total	
	N	%	N	%	N	%
Plain smoothed	40	88.9	14	50.0	54	74.0
Plain polished	4	8.9	4	14.3	8	11.0
Smoothed, lustrous, and unpolished	1	2.2	3	10.7	4	5.5
Plain corrugated, polished			1	3.6	1	1.4
Punched			6	21.4	6	8.2
Total	45	100.0	28	100.0	73	100.0

Table 6. Ceramic paste profiles

	LA 112260		LA 112261		Total	
	N	%	N	%	N	%
Brownish or reddish throughout	3	6.7	6	21.4	9	12.3
Brownish or reddish with gray or black core	23	51.1	10	35.7	33	45.2
Dark gray or black	12	26.7	10	35.7	22	30.1
Red and gray	7	15.6	2	7.1	9	12.3
Total	45	100.0	28	100.0	73	100.0

Table 7. Ceramic vessel forms

	LA 112260		LA 112261		Total	
	N	%	N	%	N	%
Body unpolished, both sides	39	86.7	15	53.6	54	74.0
Boby polished, both sides	1	2.2	2	7.1	3	4.1
Body polished, exterior	4	8.9	7	25.0	11	15.1
Jar neck	1	2.2	3	10.7	4	5.5
Olla rim			1	3.6	1	1.4
Total	45	100.0	28	100.0	73	100.0