

Cultural Resource Technical Series



Data-Recovery Report on Sites LA 86735, LA 86736, LA 86737, and LA 120,979, Along U.S. Highway 54 Between Tularosa and Carrizozo, Otero County, New Mexico

Technical Report 2001-2



Human Systems Research, Inc.

New Mexico State Highway and Transportation Department



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Human Systems Research, Inc. Project No. 9946
NMSHTD Project Nos. TP-(NH) 054-2 (12) 84, CN 2994
and TP-(NH) 054-2 (13) 92, CN 3038

DATA-RECOVERY REPORT
ON SITES LA 86735, LA 86736, LA 86737, AND LA 120,979
ALONG U.S. HIGHWAY 54 BETWEEN TULAROSA AND
CARRIZOZO, OTERO COUNTY, NEW MEXICO

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Prepared for The New Mexico State Highway and
Transportation Department by

Karl W. Laumbach, Helen B. Shields,
Robert L. Miller, and Delton Estes

Contributions by
Richard Holloway, Phd.,
Brian Knight,
Toni Sudar Laumbach,
Wenda Trevathan, Phd.,
and David V. Hill

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Submitted by
Human Systems Research, Inc.
Post Office Box 1225
Tularosa, New Mexico 88352

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ADMINISTRATIVE SUMMARY

On May 15, 2000, archaeologists with Human Systems Research, Inc. (HSR), began data recovery at four archaeological sites located on the U.S. Highway 54 right-of-way between Tularosa and Carrizozo, New Mexico. Archaeological Sites LA 86735, LA 86736, and LA 86737 are on New Mexico State Highway and Transportation Department land acquired from private sources, and Site LA 120,979 is on State Trust land. The data-recovery plan was approved by both the Historic Preservation Division, State of New Mexico, and in the case of Site LA 120,979, the State Land Office. Data recovery at these four sites was conducted to mitigate the adverse effects of federally funded highway construction proposed by the New Mexico State Highway and Transportation Department. Data-recovery efforts were limited to the existing highway right-of-way, from the highway to the fence lines, or to the width of the legally recognized highway right-of-way.

The data-recovery effort consisted of taking sample surface collections in the highway rights-of-way, systematic augering of the right-of-way to search for subsurface features at Sites LA 86735 and LA 120,979, excavation of trenches and areas scraped by mechanical equipment at Sites LA 86736 and LA 86737, and excavation of units in areas of artifact concentrations or where augering, trenching, or scraping produced evidence of subsurface cultural materials. Archival research and oral history interviews supplement the recovery of historic artifacts.

Site LA 86735 is the remains of the Temporal Station, a railroad siding on the El Paso and Northeastern Railroad. The proposed highway construction will not impact the structural remnant and immediately associated artifact concentrations as these features are outside the highway right-of-way. A grid system was placed on the site and it was surface collected. Fifteen 1-by-1-m excavation units and a series of auger transects were placed in the site. Only limited numbers of artifacts were recovered from the excavation units and all but one of the auger holes, which located an extensive deposit of artifacts dating to the period of occupation. Recovered artifacts, oral history interviews, and archival sources now provide increased insight into the lifeways of the Temporal Station community.

Site LA 120,979 consists of two cinder piles and one slag pile, with associated historic artifacts located between the highway and the right-of-way fence. A grid system was placed on the site and surface diagnostic artifacts were collected. Excavation units were placed in features as well as in areas with no surface artifacts. An auger transect was placed in the site to determine if subsurface deposits were present. No such deposits were found. Data are limited to the observations made on the survey, excavation of the features, and the few artifacts found on the surface. The limited data suggest that the site was created by multiple railroad- and highway-related activities over a period of many years.

Site LA 86736 was an extensive albeit low-density scatter of prehistoric artifacts characterized by a preponderance of Mimbres white ware ceramics. Several small concentrations of artifacts were present in the area between the highway and the fiber-optics line. The survey report suggested that subsurface deposits might exist. A grid system was placed on the site and it was surface collected. Thirty-three excavation units were placed in areas with and without surface artifacts. Seven shallow hearth features with associated Mimbres white ware were found on the east side of the right-of-way and excavated, yielding a suite of seven radiocarbon dates. A partial infant burial was found directly beneath a hearth feature. Eleven trenches excavated by mechanical equipment were systematically placed on both sides of the right-of-way. Two shallow hearths and a metate were located in the trenches. Upon completion of excavation and trenching, large areas of the site were scraped with mechanical equipment. The scraping identified one shallow hearth feature. Sufficient data were recovered to address the issues of chronology, function, seasonality, and regional relationships.

Site LA 86737 is an extensive scatter of prehistoric artifacts and a limited number of historic artifacts associated with a nearby historic homestead foundation. Prehistoric Late Ceramic Period artifacts are scattered within the project area and the historic artifacts extend from the historic structure into the highway right-of-way. A grid system was placed on the site, artifacts were pin flagged, and the site was surface collected. In the process of marking artifacts, it was found that the site extended 280 m further south to the banks on the south side of an arroyo. These

additional materials were included in the data-recovery project. Twenty-seven 1-by-1-m excavation units were placed at various locations on both sides of the right-of-way. Excavations in the northern portion of the site yielded only limited numbers of artifacts and no features from either the historic or prehistoric components. The historic component had been previously disturbed by highway construction and provided little insight to the homestead occupation. Excavations at the newly discovered southern concentration yielded a great number and variety of prehistoric artifacts as well as flecks of charcoal. No features were found. In an attempt to find subsurface features, trenches were systematically placed on both sides of the right-of-way. After excavations and trenching were completed, these areas were scraped with mechanical equipment. No additional features and a limited number of artifacts were located. Charcoal recovered from the stratigraphic profiles yielded a radiocarbon date and limited macrobotanical information. Although the lack of prehistoric and historic features was disappointing, sufficient data were recovered to address research issues of chronology, function, and regional relationships.

Fieldwork was completed on July 19, 2000. This report describes the four archaeological sites, with emphasis on the portions located within the existing highway right-of-way. It further presents methodological detail and the results of data recovery specific to the right-of-way at each of the four sites. Research themes addressed through excavation and laboratory analysis, archival research, and oral-history interviews are chronology, site function, and interregional relationships.

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INTRODUCTION

From May 15 to July 19, 2000, archaeologists with Human Systems Research, Inc. (HSR), conducted a data-recovery program of four archaeological sites located on the U.S. Highway 54 right-of-way between Tularosa and Carrizozo, Otero County, New Mexico (Figures 1 and 2). The data-recovery program was implemented to mitigate the adverse effects of highway construction. Data-recovery efforts were limited to the existing highway right-of-way.

The purpose of the data-recovery program was to mitigate the potential adverse effects of the proposed highway construction at these sites. The data-recovery effort was limited to sample surface collections in the highway right-of-way, systematic augering of that right-of-way to locate any subsurface features, and excavation of units within areas of artifact concentrations or where augering produced evidence of subsurface cultural materials. These methods were supplemented with the use of mechanical equipment on two of the sites. Data derived from archival sources and oral-history interviews supplement the recovery of historic artifacts.

The four archaeological sites are LA 86735, LA 86736, LA 86737, situated on New Mexico State Highway and Transportation Department land acquired from private sources, and LA 120,979, situated on State Trust land. Site LA 86735 is the remains of the Temporal Station, a railroad siding on the El Paso and Northeastern Railroad. The proposed

highway construction will not impact the structural remnant or observable artifact concentrations located outside the highway right-of-way and these features were not included in the data-recovery effort. Two excavation units were inadvertently placed within and adjacent to the foundation. Data recovered from those units is included in the artifact catalog and analysis. Site LA 86736 is an extensive scatter of prehistoric artifacts. Several small artifact concentrations were present in the area between the highway and the fiber optics line. Site LA 86737 consists of an extensive scatter of prehistoric artifacts and a historic house foundation with associated artifacts. Prehistoric artifacts were scattered within the project area and a concentration of historic artifacts extended from the historic structure into the highway right-of-way. Site LA 120,979 consists of two small cinder piles with associated historic artifacts located between the highway and the right-of-way fence.

This data-recovery report describes the data-recovery efforts at the four archaeological sites and provides documentation of the results of that work. Research themes addressed through laboratory analysis, archival research, and oral-history interviews include chronology, site function, and inter-regional trade. Sufficient data has been recovered to address the identified research themes. The research potential of those portions of all four sites located within the highway right-of-way is considered to have been exhausted through documentation.

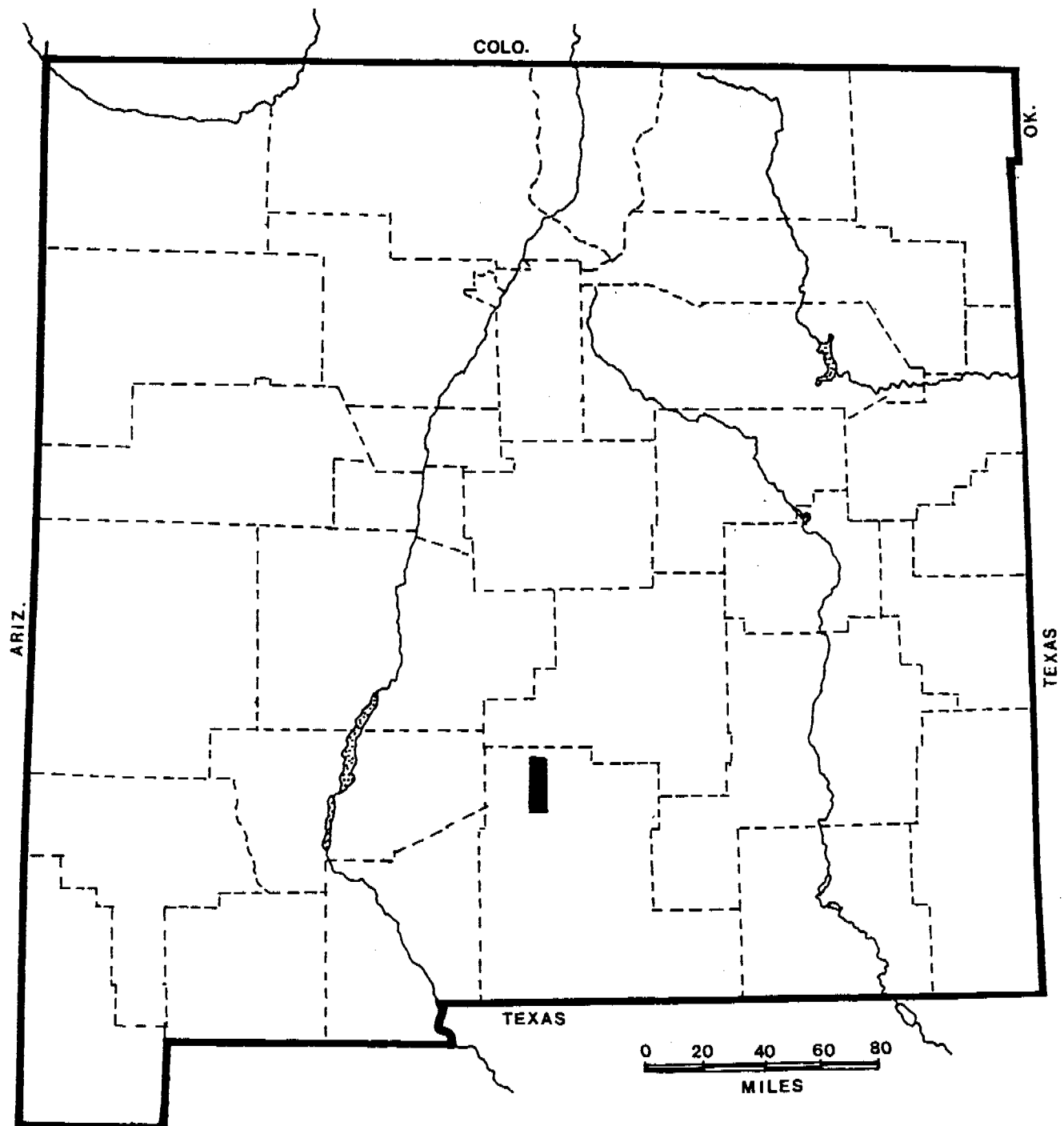


Figure 1. General location of the project area.

DESCRIPTION OF PROPOSED ACTION

The New Mexico State Highway and Transportation Department acquired the right-of-way from private sources, with extensions into the Southern Pacific Railroad right-of-way and private land. They propose to reconstruct a portion of U.S. Highway 54 between Tularosa and Carrizozo, in Otero County, New Mexico. Reconstruction includes resurfacing, restoration, and rehabilitation, and may include extensive earthwork. Highway 54 will not be widened in the process, and reconstruction will be limited to the current roadbed and its existing slope plus 3 m.

PROJECT PERSONNEL

Karl W. Laumbach served as the principal investigator, Helen Shields was the project director, and Robert L. Miller was crew chief. Heather Blanton, Renee Ericson, Delton Estes, Dean Hood, and Sue Ruth served as crew and lab members. Sara Eidenbach served as draftsman, and Gail Wimberly edited and formatted the report.

ENVIRONMENTAL SETTING

The project area is located north of Tularosa, in Otero County, New Mexico, beginning 12 km (7.5 mi) north of the Tularosa overpass at Temporal and ending immediately south of the Three Rivers Trading Post at Site LA 86737. The sites are situated on an alluvial plain of the Tularosa Basin, approximately 4 km (2.5 mi) west of the foothills of the Sacramento Mountains. The average elevation at the sites is 1,372 m (4,500 ft).

The climate in the area is arid to semiarid. Winters are clement, while summer days are hot with cool nights. The average annual temperature is 16 degrees C (61 degrees F), with extremes of -32 degrees C (-25 degrees F) in the winter and 44 degrees C (112 degrees F) in the summer. Winds blow predominantly from the west-southwest and are strongest in March and April. Annual precipitation ranges from 20 to 22 cm (8 to 9 in.), and falls primarily from July through September (Neher and Bailey 1976).

There is no perennial drainage in the immediate vicinity of the sites. Three Rivers, Boone Draw, and Temporal Creek are the nearest named drainages. The Tularosa Basin drains internally and, during heavy rains, runoff may be deposited in shallow depressions, playas, or constructed earthen tanks. All of the sites are subject to alluvial sheet wash and localized ponding.

The types of vegetation observed in the project area include an overstory of mesquite (*Prosopis juliflora*), four-wing saltbush (*Atriplex canescens*), and creosotebush (*Larrea tridentata*), with an understory of various desert grasses, low-growing forbs, and cacti. Yucca, cacti, mesquite, creosotebush, and saltbush are some of the plants that may have provided food, construction, and medicinal resources in the past. There are several disturbed areas within the highway right-of-way that would support plants, such as silverleaf nightshade (*Solanum elaeagnifolium*) and tumbleweed (*Salola kali*), that invade and prosper in disturbed areas.

The soils in the project area are deep alluvial silts classed as Alamogordo Gypsum land complex and Prelo-Tome-Largo complex (Derr 1981:11, 40, 104-105). The surface layer is a light- to reddish-brown, very fine, sandy or silty loam about 17.8 cm (7 in.) thick over a substratum of pinkish-white to reddish-brown silty or sandy loam with some gypsum content. Below that is a very light brown to reddish sandy clay loam with a gypsum content decreasing with depth.

An in-depth discussion of the soil stratigraphy at the two prehistoric sites (LA 86736 and LA 86737) is provided in Appendix B. The depth of the excavation units and trenches at these sites allowed a more detailed description of the soil stratigraphy at various locations throughout the sites.

CULTURAL HISTORY

The cultural history for the project area is varied, spanning more than 10,000 years. A summary of the cultural history of the Tularosa Basin is presented in Appendix A.

DATA-RECOVERY ACTIVITIES

At the request of New Mexico State Highway and Transportation Department, HSR visited the affected sites and evaluated the potential for cultural materials within the right-of-way prior to preparation of the Data-Recovery Plan (Laumbach 2000). The original site descriptions, HSR's evaluation of their importance, and the research potential for materials recovered from the affected right-of-way are presented with each site discussion. General field methodology as

approved in the data-recovery plan is described below.

General Field Methods

Areas within each of the four sites located in the highway right-of-way were excavated using the following data-recovery procedures.

The right-of-way contained within each site was surface mapped using a grid system with a datum placed at 500m North/1000m East. The datum and baseline were placed along the eastern highway right-of-way. Excavation grids, diagnostic surface artifacts, features, and relevant contour points within the grid system were mapped in the field using a transit. Excavation units were established within the grid system relative to their southwest corner, whereas trenches and scraped areas were established relative to their northeast corner. In addition to a site plan map, the transit data was developed on TerraModel mapping software and the resulting maps entered into an ArcView Geographic Information System.

Prior to excavation, an intensive, controlled, sample surface collection was conducted to recover any temporally or functionally diagnostic artifacts that may have become exposed on the two historic sites, LA 86735 and LA 120,979. All surface artifacts found on the two prehistoric sites, LA 86736 and LA 86737, were collected.

To identify potential subsurface remains, the right-of-way was systematically augured on both historic sites (LA 86735 and LA 120,979), and mechanically excavated trenches and

surface scrapes were systematically placed at the two prehistoric sites (LA 86736 and LA 86737). A trained equipment operator used mechanical equipment to conduct the excavation of trenches and surface scrapes. An HSR archaeologist monitored all mechanical excavation.

Placement and depths of the trenches and surface scrapes was determined by different factors, including 1) the presence of artifacts located on the modern ground surface; 2) areas where features were identified on the surface or through excavation units; and 3) the presence of a possible culturally modified landform (mounded areas or clearings).

Depths of the trenches and surface scrapes varied throughout the sites according to three factors: 1) soil composition; 2) presence of subsurface cultural material; and 3) their location on mounded or dunal areas that contained potentially deeper cultural deposits than in other more level areas.

Placement and depth of excavation units was determined by the same three factors used in the placement and depth of trenches and surface scrapes.

The basic excavation unit was a 1-by-1-m square. These units were used to sample artifact concentrations and to excavate features identified on or below the surface in a highly controlled manner. The surface of each excavation unit was photographed and all observed artifacts were recorded and collected. A complete list of collected artifacts is on file at HSR in Tularosa.

The depth of each level in the excavation unit varied according to the same factors mentioned above. Some units were dug at 10-cm increments and others at 20-cm increments. All fill from within the units was screened through a 1/8-in. mesh screen.

All of the cultural materials recovered were placed in field envelopes or bags and marked with the appropriate information, including site number, HSR project number, grid location number, excavation unit number, level information, and a brief description of the contents.

Although finding buried human remains during this project was not anticipated, human remains were found at Site LA 86736. Following the discovery, the appropriate procedures were followed as outlined in State of New Mexico Burial Permit ABE-335.

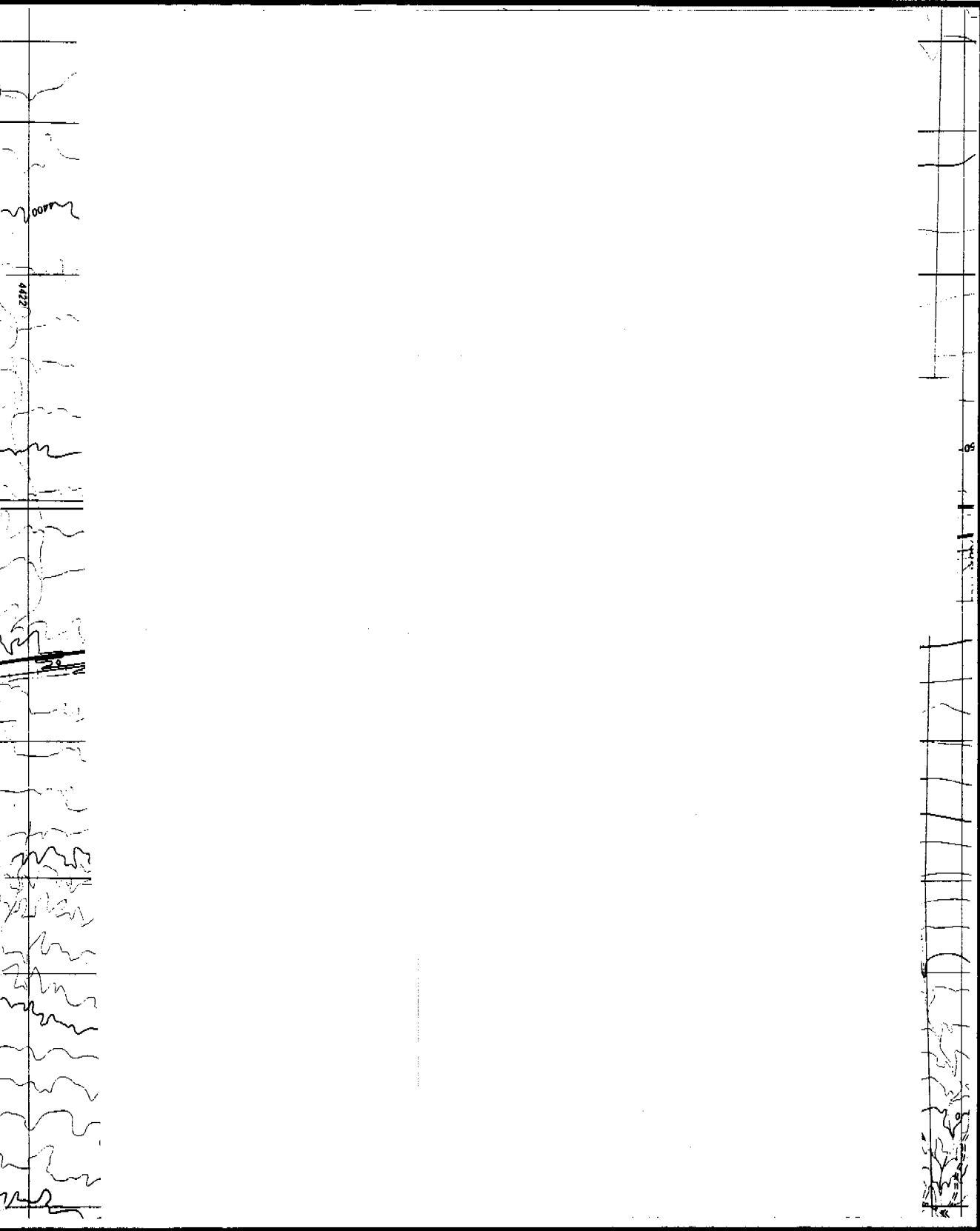
Records of the data-recovery excavations include level records and maps, site and locus maps, diagrams of features, stratigraphic profiles of trenches and excavation units, and photographs with accompanying photographic logs.

General Analytic Procedures

A computerized artifact catalog was created prior to analysis. Artifact proveniences, typologies, descriptions, and functional categories were entered to create an analytic data base. Artifacts were washed, sorted by material and artifact type, cataloged, and stored in labeled plastic bags as per Museum of New Mexico Laboratory of Anthropology

curation standards. All artifactual data were tabulated using an Excel data base program. These data were entered into an ArcView Geographic Information System to facilitate distributional analyses of artifact types and functional categories against the background of the transit-generated site maps.

Samples or artifacts requiring specialized analyses were immediately cataloged and sent to appropriate consultants. Dr. Richard Holloway, Quaternary Services, analyzed macrobotanical remains. Radiocarbon specimens were sent to Beta Analytic, Inc.. David Hill at the University of Texas, Austin, performed petrographic analysis of selected ceramics. Brian Knight, graduate student at New Mexico State University examined the faunal remains. Dr. Harry Shafer, Texas A&M University, supervised the neutron activation analysis of selected sherds of Mimbres Black-on-white. Dr. Wenda Trevathan, New Mexico State University, analyzed the human remains from LA 86736.



THE HISTORIC SITES: LA 86735 AND LA 120,979

Two historic sites, LA 86735 and LA 120,979, were excavated (Figure 3). These two sites are very different in character. Site LA 86735 was the Temporal Section Station and the varied artifact assemblage reflects both railroad work activities and a long-term domestic occupation by both families and railroad workers. In contrast, Site LA 120,979, the Clinker Site, was interpreted on survey as representing a series of short-term activities related to the adjacent railroad and highway.

Historic components are also present on Sites LA 86736 and LA 86737, although historic materials within the right-of-way on these sites were minimal. The historic materials at LA 86736 were incidental and reflect highway activity. Although a homestead foundation is located outside of the right-of-way at LA 86737, the materials recovered from within the right-of-way were limited in number and clearly out of context due to previous disturbance from construction activities in the highway right-of-way.

This section of the report provides general laboratory methods for analysis of collected artifacts from the two historic sites, LA 86735 and LA 120,979. Also included is a discussion of the physical setting, specific field methods, detailed description of features and excavation units, and the quantities and types of items recovered from the sites.

HISTORIC ARTIFACT ANALYSIS

The analysis of historic artifacts is an integral part of behavioral reconstruction of site activities and interactions. Artifact

analysis provides information on the types, quality, and amounts of goods available to a site's occupants. The condition of artifacts reflects the environmental conditions before and/or during deposition. Diagnostic artifact manufacturer's marks, sizes, styles, and types provide exact dates and date ranges which, in turn, provide temporal information or corroborate information on existing site chronology. Particular types of artifacts (such as toys or indulgent toiletries) indicate the presence of specific genders or age groups. The location of artifacts in relation to one another, to architectural features, and to other features provides information about site formation processes, dumping patterns, and general behavior. Historic artifact analysis provides basic information about a site's occupants and the economic, social, and political environment for the time period. The artifact analysis and interpretation of the data followed procedures used in the study of the McSween House in Lincoln (Kirkpatrick and Hart 1989), the Rayado Ranch at Philmont Scout Ranch (Kirkpatrick and Hart 1993), and the Valmont Railroad Station (Shields and Kirkpatrick 2001) in New Mexico.

Analysis began with the description of all artifacts by material, size, and color as appropriate for the artifact class. For instance, all whole bottles were measured and their embossed labels noted. Cartridges were described by caliber and head stamp. Ceramic analyses included a descriptive statement as to portion (rim, body, foot ring, etc.), decoration (presence or absence), and probable function, if determinable.

Historic Artifact Typologies

Historic artifacts were analyzed in two phases, descriptive and analytical (Duran and McKeown 1980:1,027). The descriptive phase involves describing the artifacts using either technological/material criteria or functional criteria. The analysis of Temporal Station (Site LA 86735), Homestead (a component of Site LA 86737), and Clinker Site (LA 120,979) focused first on technological/material criteria. Following the descriptive phase, the analyses focused on the function(s) of both the individual artifacts and artifact classes.

A typology based on material and technological criteria was used for this analysis. Initially, artifacts were sorted by material type (e.g., ceramic, glass, metal, etc.) and technology (e.g., drawn vs. rolled metal, etc.). Diagnostic characteristics (e.g., color, size, design elements, etc.) were noted in the descriptions. Twenty-two basic material types were identified in the assemblage from LA 86735, which included ceramic, glass, metal, leather, plastic, rubber, paper, wood, stone, shell, bone, botanical remains, marble, earthenware, carbon, brick, cloth, lead, organic, porcelain, stoneware, lithic and multiple-class items such as metal/paper. The bone material type denotes modified bone, such as bone handles or buttons, as well as faunal remains. Multiple-class artifacts are those made from several material types, such as a pocket knife with a bone handle (bone/metal), a shoe made of leather and metal (leather/metal), or a pencil made of wood, metal, and graphite. Subsistence remains, such as corn kernels and cut cow bone, are cataloged in botanical and

faunal categories. In contrast to LA 86735, only six basic materials were recovered from LA 86736: metal, glass, porcelain, wood, and lithic.

Functional categories were assigned in order to combine artifacts of different materials into meaningful units. For example, the food category includes canning jars and tin cans. Plates, silverware, and lamps would be included in a household category. A branding iron would be in the ranching category, while other metal items might be in the railroad category. Functional categories identified were automotive, construction, electrical, food, household, liquor, medicine, ranching, transportation, railroad, toys, personal, clothing, hunting/defense, and railroad. Many artifacts could not be assigned a specific function. Given the very different nature of their use and occupation, LA 86735 had a greater variety of functional categories represented than did LA 120,979.

Other categories defined and monitored during the analysis were gender, age, and ethnicity. Gender was determined by those artifacts that were distinctly male and female (e.g., cosmetics, clothing etc.). Age was generally determined by size (e.g., small shoes) or toys. Ethnicity was found to be much more difficult to determine and relied on less dependable artifact attributes such as foreign language labels.

The analytic phase of analysis involves the use of descriptive and functional data to address specific research questions. Topics for research questions usually include artifact use, acculturation, trade networks, lifeways,

and comparison with historic descriptions of the site (Kirkpatrick and Hart 1989:74). Once material, descriptive, and functional data were entered into the data base, tables and charts were generated to aid analysis and discussion. In like manner, the distribution of materials and categories of function, gender, and age was plotted on the site maps using ArcView Geographic Information System.

Chronological problems, such as time lag and recycling, were considered. Errors resulting from time lag and recycling are always considered a factor when attempting to assign specific dates or date ranges to artifacts and sites. Time lag involves the various delays between the manufacture of an item and its ultimate deposition. Transportation, storage, sale, use, and discard are the components of time lag, while reuse and discard are components of recycling. Considering that building materials, such

as nails, screws, tools, wood, etc., are prime candidates for recycling, such recycled, temporally diagnostic artifacts cannot be relied upon to date their current archaeological context.

Likewise, ceramics and glass tend to be the types of artifacts used until their destruction. In cases where breakage is intermittent and preferably at a minimum, as with fine china passed from generation to generation, ceramics from the early 1900s could still be in use today. If an item from a situation like this were to be recovered from a modern trash dump, the dump may incorrectly be assumed to date to the earlier time period. Therefore, definitive temporal assignment for a site, grid unit, or level should not be attempted without an awareness of time lag and recycling, and without an artifact assemblage from multiple diagnostic artifact classes or the support of chronometric dating.

SITE LA 86735

Site LA 86735, Temporal Section Station, is located 9 mi (14.5 km) north of Tularosa, New Mexico, east of U.S. Highway 54 and west of the Union Pacific Railroad (Figure 3). Temporal Station, like many other old stops along the current Southern Pacific Railroad, served as a section station for the El Paso and Northeastern Railroad. Section stations were set-up by the railroad for the purpose of track maintenance. Each section foreman and crew were responsible for approximately 10 miles of track in either direction. In addition, section stations provided water, fuel, and support for railroad traffic as well as creating a community center for travel, distribution of goods, and communication for the rural community of ranches and homesteads that surrounded the stations. Nearby stations included Salinas, Three Rivers, North, Oscuro, and Polly. Some of the stations, like Valmont located south of Alamogordo, became the nucleus of small communities that ultimately supported stores and schools. Oscuro, located north of Temporal, became a favored railhead for herds of beef cattle. Others not only remained isolated from the larger world, they had limited contact with the surrounding rural population. Based on architectural remains, artifacts recorded during the survey, and oral recollections, Temporal Station seems to fit the latter model.

Original Site Description

Site LA 86735 was described by Cody Browning in Michalik (1998) as follows:

This site consists of a dismantled railroad siding, the Temporal Station. It is located on a creosote flat adjacent to the existing Southern Pacific tracks on the east side of US 54. The site was originally recorded in 1991 on a survey for a buried fiber optics cable. The site measures approximately 150 meters north-south by 30 meters east-west (4,500 square meters) and is located on private land and State Highway ROW. The site is situated between the pavement of US 54 and a dirt maintenance road that parallels the tracks. The site has been impacted by the maintenance of both the railroad access road and US 54 [Figure 4].

Artifacts number in the high hundreds and include glass, historic ceramics, metal and railroad related items. The trash is scattered across the site but the heaviest concentration of material is located along the west side of the station foundation. The majority of the artifacts consist of bottle glass including purple, aqua, brown, green, and clear glass. The ceramics include white glazed earthenware, transfer ware, and some fragments of decorated Mexican pottery. The majority of the metal present is badly decomposed and appears to represent fragments of cans and railroad spikes.

Very little exists on the site in terms of structural remains. Only a



Figure 4. Right-of-way in front of Temporal Station, looking north. Vehicle is on edge of slope, looking north.



Figure 5. Overview of Site LA 86735, looking east.
Concrete foundation is on top of mound.

concrete foundation constructed on a raised mound of dirt [see Figure 5] remains from the old station building. The foundation is rectangular in shaped [sic] measuring 15 meters north-south by 15 meters east-west.

The site appears to be a railroad siding dating to the period of A.D. 1899 to 1930 based on the artifacts present and the construction date of the railroad. The site has the potential to yield information regarding the early history of the railroads in the Tularosa Basin. The site is eligible to the National Register of Historic Places under Criterion d of 36 CFR 60.4 Avoidance of the site is recommended. Additional recording and excavation is recommended in the areas of potential impact if the site will be affected by the proposed highway construction. (Michalik 1998)

HSR Pre-field Site Visit Notes on the Right-of-way through Site LA 86735

The pre-field inspection of Site LA 86735 conducted on January 13, 2000, revealed that the majority of the artifactual data would be from surface collections and formal excavations located between the current bar ditch and the area located within the fiber optics right-of-way. The fiber optics line had disturbed a 10-m-wide path through the site, churning the surface and subsurface to an unknown depth. A wide range of

historic artifacts occurred in that area, and at least one concentration existed. This area is outside the highway right-of-way boundary as it appears on the map accompanying the Laboratory of Anthropology (LA) Site Record. It should be noted that the Historic Preservation Division determined Site LA 86735 ineligible to the National Register of Historic Places on July 10, 1998, probably due to effects resulting from the construction of the fiber-optics line. However, given the variety of related historic materials present both within and outside the highway right-of-way, the determination of ineligibility should be reconsidered. Also, the computer data base of the Archaeological Records Management System (ARMS) lists the site as "Tuscarora" Station rather than Temporal Station.

Potential Archival Sources

The primary archival source was considered to be the Edward O. Williams Collection at the DeGolyer Manuscripts Library, Southern Methodist University, Dallas, Texas. Mr. Williams worked for many years on the El Paso and Northeastern, El Paso and Southwestern, and Southern Pacific routes. He has contributed numerous articles to the *New Mexico Railroader*, especially about the El Paso and Northeastern Railroad.

Additional archival data was sought from the National Archives in the ICC Railroad Valuation Records files. These records include engineering field notes, equipment and machinery schedules, and railroad valuation maps. Of special interest are the detailed land maps that show the layout of the track and locations

of buildings and other structural features. Mr. Vernon Glover of Manassas, Virginia, was also contacted about information on these railroads and Temporal. Mr. Glover most recently published an article on the locomotives of the El Paso and Northeastern Railroad (Glover 1999).

Historic Context: Temporal in Historical Perspective of Railroad History

In 1878, the first Santa Fe Railroad locomotive entered New Mexico under the charter of the New Mexico and Southern Pacific Company, after overcoming the physical barrier of Raton Pass and a small railroad war with the Denver and Rio Grande Railroad (D&RG) for right-of-way through the pass. By September 1879, the line was moving through the Raton tunnel on its southward destination to El Paso, Texas (Williams 1986:123). The Santa Fe eventually linked New Mexico to the Pacific and the Midwest, and was the only rail system to completely traverse the state in both north-south and east-west directions.

The second railroad to enter the territory was the Southern Pacific, which proceeded southeastward from San Francisco, California, through southern Arizona to El Paso, Texas. In October 1880, the Southern Pacific reached Lordsburg, New Mexico, and entered El Paso by April 1891, a month before the Santa Fe did (May 1881).

Temporal Station was located on the El Paso and Northeastern Railway, which began in 1888 as the Kansas City, El Paso, and Mexican Railway (KCEP&M). However, construction stopped after the

first 10 mi and did not resume until Charles Eddy bought the KCEP&M in 1896. Since coal was in high demand and the cheapest coal was in White Oaks, New Mexico (150 mi north of El Paso), the line was built to supply that demand (Wilmer and Ackerly 1990:6). A disagreement between the railway and the citizens of White Oaks caused the line to end at Capitan, New Mexico. By 1908, the El Paso and Northeastern Railway had become part of the Southwestern Railroad Company's eastern division, consisting of 405 mi of rail from El Paso, Texas, to Santa Rosa, New Mexico, and from Tucumcari to Dawson, New Mexico (Wilmer and Ackerly 1990:6).

Peak main-line mileage in New Mexico occurred around 1914 (3,124 mi). An extensive abandonment of unprofitable lines began in 1925 and continued through the Depression years (1930s), when Southern Pacific discontinued service on all connections between the former El Paso and Southwestern route and its existing main line through Deming (Williams 1986:125). With the growth of the automobile, highways were constructed, making maintenance of the track accessible from larger centers. It was no longer economical to keep a foreman and crew every few miles along the track. Temporal lost status as a maintenance point and was no longer needed.

Research Themes

Research themes addressed through laboratory analysis, archival research, and oral-history interviews are community structure, community composition, and community lifeways.

Community Structure

The community structure research theme is addressed using artifactual data recovered from the eastern portion of the site, oral-history interviews, and archival documents. The types of artifacts recovered often identify areas of specific activity. China, toys, shoes, and bottles were found during both the survey and prefield check at Temporal Station, indicating that the site included a family dwelling that is no longer evident. The artifactual data recovered during excavations was compared with the material culture recovered from other railroad communities of this time period. These include the Valmont Station (Kirkpatrick 2001); the Malpais Section Station (Site LA 54880; Kirkpatrick et al. 1994); Victorio Section Station of the El Paso and Southwestern Railroad between El Paso, Texas, and Douglas, Arizona (Williamson 1998); and Escondido Station of the El Paso and Northeastern Railroad (Hart 1994).

Community Composition

Information on community composition relied upon the development of a census based on oral-history interviews and archival documents. The United States Census records were consulted to learn about the residents of Temporal and their occupations. The Otero County Courthouse records were also reviewed. These data are integrated with oral-history accounts from informants who lived and worked at Temporal.

Community Lifeways

Community Lifeway topics include subsistence, economic status, and daily

life patterns. Subsistence studies utilized artifacts such as tin cans, bottles and jars, faunal and floral remains, and other food remains. Railroads frequently had commissaries from which workers could order supplies. Workers at Malpais Section Station for the El Paso and Southwestern Railroad (later Southern Pacific) often had supplies delivered from El Paso (Kirkpatrick et al. 1994). Homogeneity of certain artifact types, such as specific-size food cans, may indicate the use of the railroad commissary as opposed to grocery stores, which probably had a greater selection of canned goods. Various types and relative quantities of bottles and jars that held foods and sauces provide data on the daily diet. Similarly, beverage bottles provide insight into the use of soft drinks, beer, wine, and hard liquor. Faunal remains reflect sources of protein from beef, pork, chicken, turkey, and wild-game animals and birds. A comparative study of butchering techniques provides insight into the purchase of meat from a commercial store versus home butchering of range animals.

Inferences regarding the economic status of the Temporal occupants are made from the different types of food eaten. For example, an abundance of canning jar remains may indicate reliance on home canning of fruits and vegetables, as opposed to purchasing these foods at the grocery stores in Alamogordo and/or El Paso. Inferences on economic status can also be made from the variety or lack thereof in the ceramic and glass assemblages. Certain patterns and types of ceramics and glass are more costly than others. Artifacts commonly manufactured in other areas both in and out of the

United States reflect regional economics. These primarily include ceramic and glass vessels. Artifacts associated with personal use include jewelry, watches, and, for children, ceramic dolls and metal toys. Documentation of such artifacts in the excavated collections provides insight into the social and economic status of Temporal citizens.

Data Recovery at Site LA 86735

A baseline was established along the length of the highway right-of-way. The fiber optics construction had churned the surface and scattered artifacts across a 10-m-wide swath through the length of the site. A controlled sample surface collection was conducted using a 5-m grid system. The surface sample was limited to

temporally and functionally diagnostic artifacts.

After surface collections were complete, 15 excavation units were placed throughout Site LA 86735 at various locations with the highest potential to yield subsurface remains (Figure 6). All excavation units were excavated in 10 cm levels.

Prior to discovering that the rectangular foundation (Figure 7) was outside of the right-of-way, excavation units placed within and adjacent to the foundation on the south side produced a high density of artifacts and revealed that there were structural remains of the foundation below the surface (wooden steps or foundation frame).

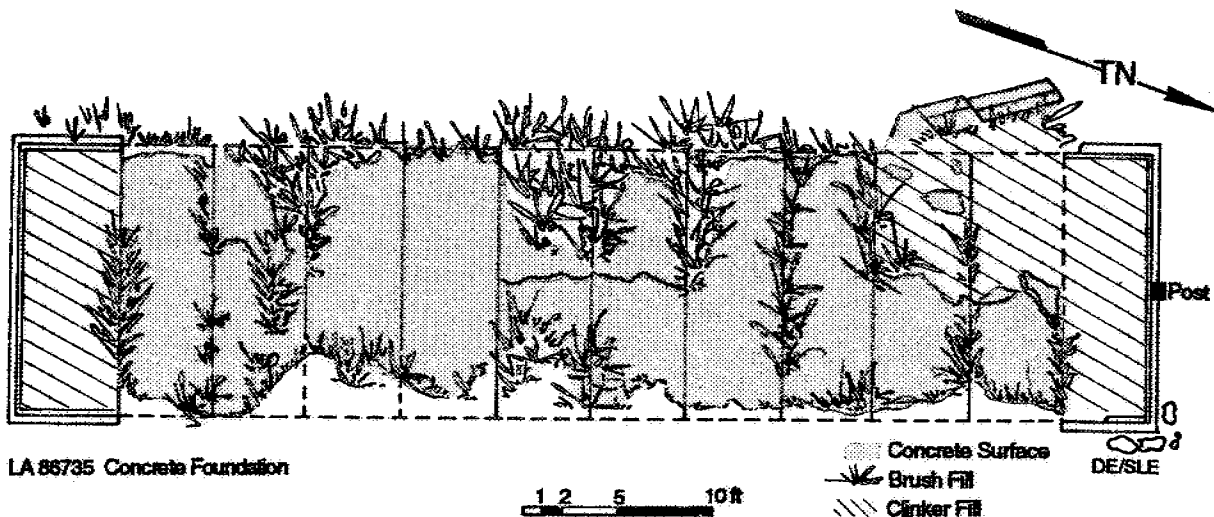


Figure 7. Field sketch (plan view) of historic concrete foundation at Site LA 86735.

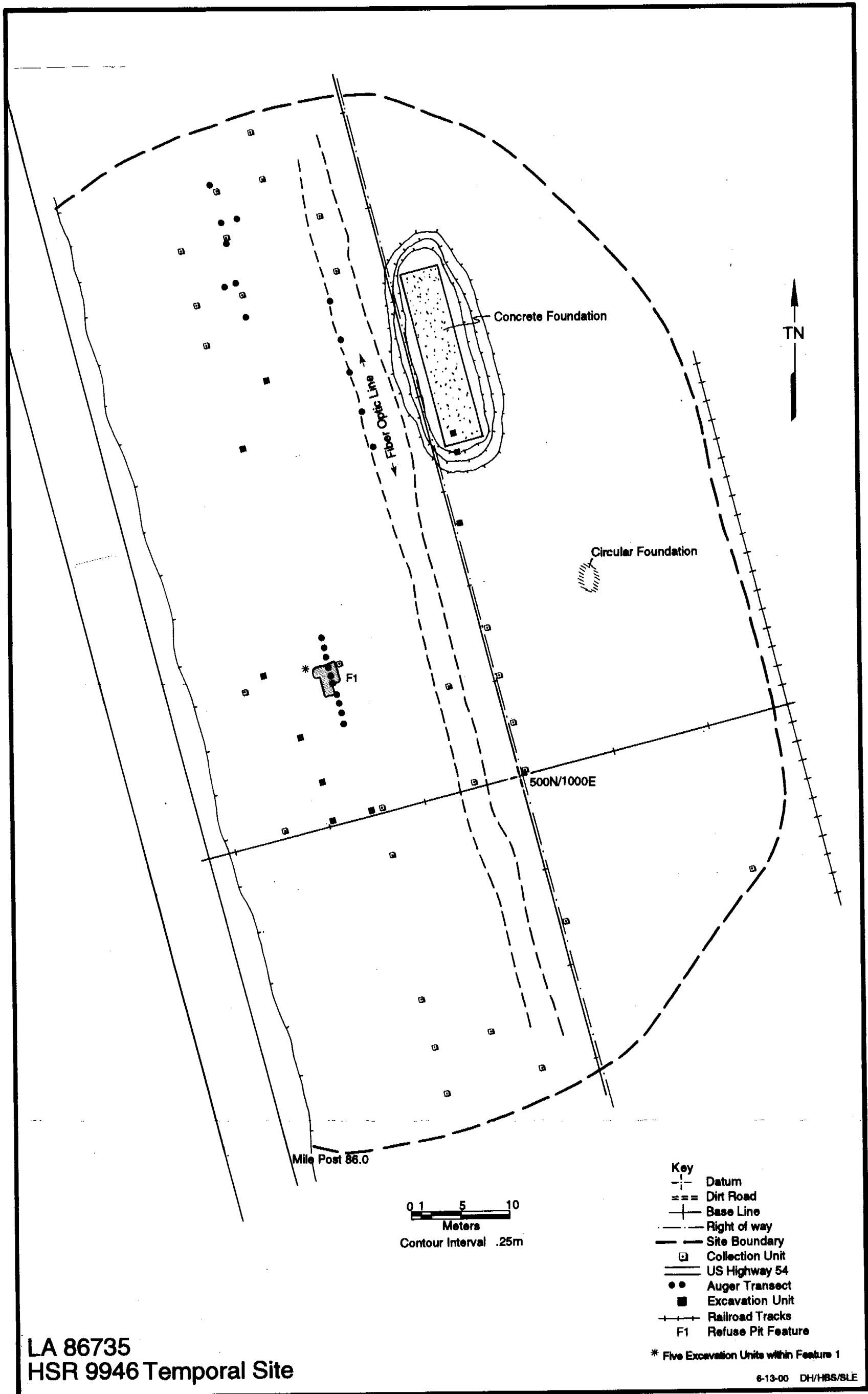


Figure 6. Site map of Site LA 86735.

Three series of auger transects comprising 22 auger holes were systematically placed within the right-of-way. All artifacts recovered from the auger transect and excavation units were collected.

The right-of-way contained within the site was surface mapped using a grid system baseline of 500 North/1000 East (see Figure 6). Mapping activities were based on a datum and a baseline placed along the eastern highway right-of-way. Excavation grids, diagnostic surface artifacts, features, and relevant contour points in the grid system were mapped in the field using a transit. Excavation units were established in the grid system relative to their southwest corner.

Excavation Units at Site LA 86735

Of the 15 excavation units located at Site LA 86735, most of those located within the highway right-of-way contained primarily surficial artifacts. A group of excavation units located 40 ft to the west of the foundation produced a large number of artifacts below the

surface (to an average depth of 25 cm). The excavation units at the southern end of the site, south and west of the refuse pit, yielded very few subsurface artifacts, with the exception of the units located in and around the refuse pit. Thus, subsurface artifact density was higher within the immediate vicinity of the rectangular foundation and the refuse pit, whereas a moderate amount of surficial artifacts were dispersed throughout the site.

Auger Transects at Site LA 86735

A series of auger transects were placed within high concentrations of surficial artifacts to the north, west, and south of the foundation located on the east side of Site LA 86735. Auger holes were spaced at 1 m intervals within each transect. The depth of the auger holes ranged from 30 to 60 cm below the surface (Table 1). Sterile soil was found at 60 cm or above in all auger holes, with the exception of Auger Hole 515N/984E. This auger hole produced a high density of charcoal and artifacts, and was later designated as Feature 1, the refuse pit.

Table 1. Auger Transects at Site LA 86735.

Grid Location Unit Number	Depth	Comments	Grid Location Unit Number	Depth	Comments
510N/984E	30 cm	no artifacts/features found	540N/996E	60 cm	no artifacts/features found
511N/984E	30 cm	no artifacts/features found	544N/996E	60 cm	no artifacts/features found
512N/984E	30 cm	no artifacts/features found	548N/996E	60 cm	slag at 10 cm
513N/984E	30 cm	no artifacts/features found	552N/996E	60 cm	no artifacts/features found
514N/984E	30 cm	no artifacts/features found	552N/985E	60 cm	rocks at 60 cm
515N/984E	30 cm	historic refuse pit identified	556N/985E	60 cm	light ash and glass at 50 cm
516N/984E	30 cm	no artifacts/features found	556N/984E	60 cm	ash at 60 cm
517N/984E	30 cm	no artifacts/features found	560N/985E	60 cm	no artifacts/features found
518N/984E	30 cm	no features found	562N/985E	60 cm	glass, ash, wood at 40-50 cm
519N/984E	30 cm	no artifacts/features found	566N/985E	60 cm	no artifacts/features found
536N/996E	60 cm	no features found	562N/986E	60 cm	chunk of lead at 20 cm

Features at Site LA 86735

Three features were documented at the Temporal Station. Of these, only Feature 1 (a refuse pit) was located within the right-of-way and was totally excavated. The rectangular foundation and an associated circular foundation were located outside the right-of-way, so no feature numbers were assigned. These features were visually inspected and surface mapped. However, prior to determining its location outside of the right-of-way, two 1-m units in and near the rectangular foundation were partially excavated.

Feature 1, Refuse Pit

Feature 1 (Figure 8) is a historic refuse pit that was first identified by Auger Hole 515N/985E. The auger hole produced charcoal and 21 pieces of historic glass at a depth of 15 to 30 cm

below the surface. The feature was then excavated within Units 514N/983E, 514N/984E, 515N/983E, and 515N/984E, and the top of the pit was defined at a depth of 54 cm below the surface. This feature was excavated in 20 cm levels.

Excavation revealed the basic plan and depth of the feature, which was defined by a circular area of dark ashy soil and a high density of charcoal chunks. The plan was a nonuniform, circular area measuring 91 cm north-south by 85 cm east-west. In profile, the feature was 64 cm in depth with a fairly uniform rounded shape.

The fill within the feature consisted of a loosely to moderately compacted, silty loam with an extremely high density of charcoal chunks and a high density of historic artifacts. This density of charcoal was observed to a depth of 80 cm below the surface.



Figure 8. Feature 1 at Site LA 86735, looking west.

Below the dense charcoal, the fill within the feature consisted of a moderate to high density of charcoal mixed with silty loam. Numerous artifacts were mixed throughout the feature. Although charcoal was present within the feature, artifacts and some large cobbles found within it were not thermally altered in any way, and no oxidation was observed. As a result, the feature was classified as a refuse pit and not a thermal feature.

Historic Foundation Feature

The foundation is located outside of the highway right-of-way. Two 1-m grids were partially excavated, which took place before an accurate measurement of the right-of-way distance had been established. This feature was visually inspected and surface mapped (see Figure 7) and consists of an exposed concrete floor that measures 59 ft-5 in. north-south by 15 ft east-west (Figure 9). At the north and south ends of the floor are areas that are part of the foundation, but are not covered with concrete. These may have been porch areas that were originally covered with wood. Excavation units placed adjacent to the foundation within the possible porch area on the south side revealed wooden beams 10 in. below the ground surface and placed along the side of the foundation. These beams may have been steps leading up to a porch or part of a wooden foundation below the concrete foundation. Numerous artifacts were dispersed on the surface and subsurface in association with the foundation.

Circular Foundation Feature

Also associated with the foundation is a circular foundation (Figure 10). This

foundation consists of a circular ring of concrete and may have been the communication building (Mary Nowell, personal communication 9/26/01). The communication building had a telephone that was used each day by the section foreman to call El Paso, Texas, to obtain the train schedule or schedule changes. This feature was observed on the ground surface 45 ft south and 9 ft east of the historic foundation, outside of the highway right-of-way. No excavations or surface collections were conducted within or in the immediate vicinity of this foundation.

Archival Records

Archival records were researched at the Alamogordo Public Library, the Tularosa Historical Museum, and the Interstate Commerce Commission. Additional information was not found for Site LA 86735.

Railroads provided access to many of the homestead lands during the 1880s and 1890s, and into the twentieth century. The Homestead Act of 1862 was initiated to promote settlement of the frontier and in 1880, a Bureau of Immigration was formed to further promote the flow of immigrant farmers to the west. A settler could acquire up to 1,120 acres per family: 160 acres by homestead residence; 160 acres by preemptive claim; 160 acres of timber land; and 640 acres of land judged to be desert (acquired without meeting a residency requirement) (Williams 1986:126).

The Goforth family had a homestead located west of Temporal (Mary Nowell, personal communication 9/26/01);



Figure 9. Historic concrete foundation, looking west.



Figure 10. Circular concrete foundation,. looking north.

however, a computer search of the Bureau of Land Management General Land Office Records did not yield a personal land patent near the sites. One entry in the records for February 8, 1902, is for the State of New Mexico listed as patentee for 49,847.44 acres of land, which includes Section 14, Township 13 South, Range 9 East. This land was assigned for Automation.

The DeGroyler Library at Southern Methodist University, Dallas, Texas, has the papers of Mr. E. O. Williams, who worked for the El Paso and Northwestern Railroad (later El Paso and Southwestern, and Southern Pacific Railway). Williams has published a few anecdotes and historical observations about these railroads in the *New Mexico Railroader*, the newsletter of the Railroad Club of New Mexico, Inc. An archivist for the DeGroyler Library furnished several hundred pages that had been microfilmed. A copy of the microfilm was reviewed, but it did not contain any information on Temporal Station (Site LA 86735).

Much information about Temporal Station was found in the *Otero County Pioneer Family Histories* (Tularosa Basin Historical Society 1985:543-553). The history of Luther and Helen Watson by Mary Virginia Nowell provided details of daily life at Temporal and documents families living there.

Mary Nowell, Luther Watson's daughter, provided his Time Book for March 1920. Luther Watson was section foreman at Temporal Station from 1920-1924 (Tularosa Basin Historical Society 1985:546-547). One of his duties

was to keep the Time Book for the El Paso and Southwestern Railroad. A copy of the Time Book is provided in Appendix E. The book lists the workers names, the type of work, and the paid hours of the foreman and laborers for the month of March 1920. It also gives details on the types of labor required for the maintenance of the tracks. This information adds considerably to the artifactual data collected during this project.

Oral Recollections

On December 15, 2000, Delton Estes with HSR conducted an interview with Mary Virginia Nowell. Following is the information collected from that interview:

Mary Virginia Watson Nowell, the adopted daughter of Luther and Helen Jane Watson, came to live with Luther and Helen in April 1920. Luther was the section foreman of the railroad crew at Temporal, New Mexico. He had taken the position in July or August 1920. Helen and Mary Watson had been living at Duran, New Mexico, to complete the time required to prove up on a homestead. In August 1921, they moved into the section foreman's house at Temporal Station. They stayed there until August 1925, when they moved to a farm in Tularosa, New Mexico.

Mary described Temporal from her childhood memories and from her knowledge of the history of the Temporal Station acquired after she left. She has remained in nearby Tularosa until the present time.

She describes the station as being a five-room structure, with one of the

rooms serving as a commissary. The front of the house faced the east and the railroad tracks were very near the front yard. The kitchen was to the back of the structure and there was a nice covered porch. There was a corral and cow shed to the southwest of the house, and a garden area was east of the corrals. The road ran north-south and was to the west side of the siding housing area. North of the foreman's house were two bunkhouses, one in front of the other and parallel to the tracks. The bunkhouses were divided into apartments, which housed ten crewmen. Most of them were from Mexico, and some had wives and families. One of the railroad workers, Fred King, came from Germany after World War I. His wife Louise and daughter Selma lived with him in one of the bunkhouses. There was a workshop north of the bunkhouses near the tracks.

From photos and recollections, it was determined that the main house had wood siding and boasted a fenced yard with grass, bordered with flowers. A peach tree grew in the front yard.

Mary played with the children of the work crew and learned to speak Spanish from them before she moved in 1924.

Helen canned food from the garden, raised chickens and gathered eggs, had a milk cow for milk and butter, and cooked on a wood or coal-burning stove. Water was delivered to the siding in large tank railroad cars that were parked on the second track siding east of the house. At least one outhouse was used by the main house, which was located west of the structure. There was probably at least one more for the bunkhouses.

The work crew used handcars to travel to areas for work; they used the train for transportation and to go after supplies in Tularosa. Later, a Model T Ford was purchased and was used to make trips to town. There was no other industry at the station other than the railroad maintenance. Cattle were not loaded here, but railroad materials and supplies were loaded and unloaded here. Personnel and occasional visitors traveled via this siding, but it was not used commercially.

Mary reviewed the artifacts recovered from the excavations and was able to discuss some of them. Her comments are included in the artifact descriptions.

Historic Artifacts

This section presents the results of the analysis of historical artifacts recovered during the excavations conducted as part of the archaeological investigations at Site LA 86735.

A total of 1,697 artifacts—including toys, ceramic and metal fragments, bottles, shoes, cartridges, a pocket knife, and numerous other miscellaneous historic artifacts— was recovered from both the surface collection and subsurface within excavation units and the auger transect (Tables 2-6). The majority of the artifacts collected came from Feature 1, a refuse pit discovered by an auger transect, and the surface collection in the vicinity of the rectangular-shaped foundation.

The variety of artifacts found at Temporal Station was a direct result of

Table 2. Total Artifacts Collected at Site LA 86735.

Type	Surface	Excavation	Total
Bone	0	45	45
Brick	0	1	1
Carbon	1	0	1
Ceramic	4	7	11
Charcoal	0	1	1
Cloth	0	1	1
Earthenware	10	15	25
Glass	119	761	880
Lead	0	1	1
Leather	0	46	46
Lithic	1	0	1
Metal	20	343	363
Metal/Paper	0	1	1
Mineral	0	1	1
Organics	0	7	7
Plastic	0	1	1
Porcelain	6	52	58
Rubber	0	6	6
Shell	3	15	18
Stoneware	50	176	226
Wood	0	3	3
TOTAL	209	1,488	1,697

Table 3. Whole Artifacts at Site LA 86735.

Type	Surface	Excavation	Total
Battery		1	1
Bead, wooden		1	1
Bottles		13	13
Bottle stopper, glass	1		1
Button, metal		1	1
Button, porcelain		1	1
Button, shell	1	8	9
Cartridge case	3	127	130
Chisel		1	1
Corn cob		1	1
Glove, leather work		1	1
Horseshoe		1	1
Insulator, glass	1		1
Insulator disk, ceramic		3	3
Knife, pocket		1	1
Marble, glass	1	1	2
Nail, metal		5	5
Nut, metal		1	1
Nut and bolt, metal	1		1
Rail fastener	2		2
Railroad marker	1		1
Railroad spike	1	5	6
Saucer, porcelain		1	1
Screw		1	1
Shoe leather		2	2
Staple, fence	2		2
Washer, metal		2	2
TOTAL	14	177	191

Table 4. Glass Artifacts from Site LA 86735.

Type	Total
Whole bottle	13
Bottle base	23
Bottle neck (some fragmented)	40
Bottle stopper	2
Canning lids	2
Mirror	8
Lamp globe	6
Light bulb	4
Light bulb filament	1
Drinking glass	1
Jar mouth	4
Jar glass	2
Milk glass	2
Insulator	2
Marble	2
Assorted glass fragments	767
TOTAL	880

Table 5. Cartridges from Site LA 86735.

Type	Total
.22 long Henry	47
.22 long Union	40
.22 short Henry	12
.22 short Union	15
30-30 Union Centerfire	3
.32 Colt Auto Centerfire	1
.32 Union Centerfire	2
.32 Winchester Centerfire	2
.38 Union Centerfire	1
.45 Colt Winchester Centerfire	1
12-gauge Shotgun, Winchester Rival	2
12-gauge Shotgun, Peters	2
.410 Shotgun	2
TOTAL	130

Table 6. Artifact Frequency by Material Type.

Type	Number	Percent
Glass	880	51.89
Ceramic/Miscellaneous	11	65
Stoneware	226	13.33
Porcelain	58	3.42
Metal-Metal and Paper	363	21.34
Leather	46	2.71
Bone	45	2.65
Earthenware	25	1.47
Shell	18	1.06
Miscellaneous*	25	1.48
TOTAL	1,697	100

* wood 3, rubber 6, plastic 1, organic 7, mineral 1, lithic 1, lead chunk 1, brick 1, carbon rod 1, cloth 1, charcoal 1, metal/paper 1.

the railroad. Not only did the construction of the railroad in 1898 give birth and growth to communities like Temporal and Alamogordo, it also provided a means of receiving goods and materials. Fruits and vegetables could be shipped from California through Arizona and New Mexico to points beyond. Seafood became available to those who could afford it. Household and work items could also be ordered from mail-order catalogs, with advertised free delivery to rural areas. Sears, Roebuck and Co. and Montgomery Ward offered a wide variety of merchandise. Trains also allowed travel to larger communities, like El Paso, to purchase needed supplies.

Artifact Types

The total of 1,697 cultural artifacts collected during the project include fragments of glass, metal, ceramics, leather, bone and shell. Some historic sites, like Temporal Station, which are dated in the historical record, are of relatively short duration; thus, the chronological information does not need to come from the artifacts. However, dates obtained from the artifacts collected do reflect the period of occupation. The following is a brief summary of the classes and types of artifacts recovered from Site LA 86735.

The artifacts were sorted by material type as part of the initial analysis. These are presented in Table 6.

Glass

The glass artifacts, combined with ceramics, constitute the largest number of items; providing a large database with

which to analyze site use, activity areas, and economic status of its occupants.

Silica is the major component in glass. In its pure state, it can be melted and formed into glass (Jones and Sullivan 1985:10). The required high temperature to create glass from pure silica prohibited commercial use. Alkali was added to the silica to serve as a flux so that the melting temperature could be lower. When purer raw materials came into use to create a consistently higher quality of glass, it was discovered that a non-alkaline additive was needed to act as a stabilizer. Without the stabilizer, glass suffered from crizzling, which is a condition found on some early and late eighteenth-century tumbler and stemware (Jones and Sullivan 1985:10)

The fluxes and stabilizers mixed with silica, in various combinations, have been used to define the main different types of silicate glasses. Soda-lime glass, potash-lime glass, potash-lead glass, and lime glass are the types that remained in production into the twentieth century. With the continuing development of other types of glasses, large amounts of inexpensive glass and jars were made in the mid 1840s, but not commonly brought into New Mexico until the first railroads were constructed in the state (Kovacik 2000:106). Several references were used to determine the types of glass and manufacturers (Fike 1987; Jones and Sullivan 1985; Zumwalt 1980).

Household glass includes a wide range of shapes and uses. Among the glass items are bottles (usually containers for foodstuffs), dishes, and mirror/window/kerosene lamp glass (Figure 11).

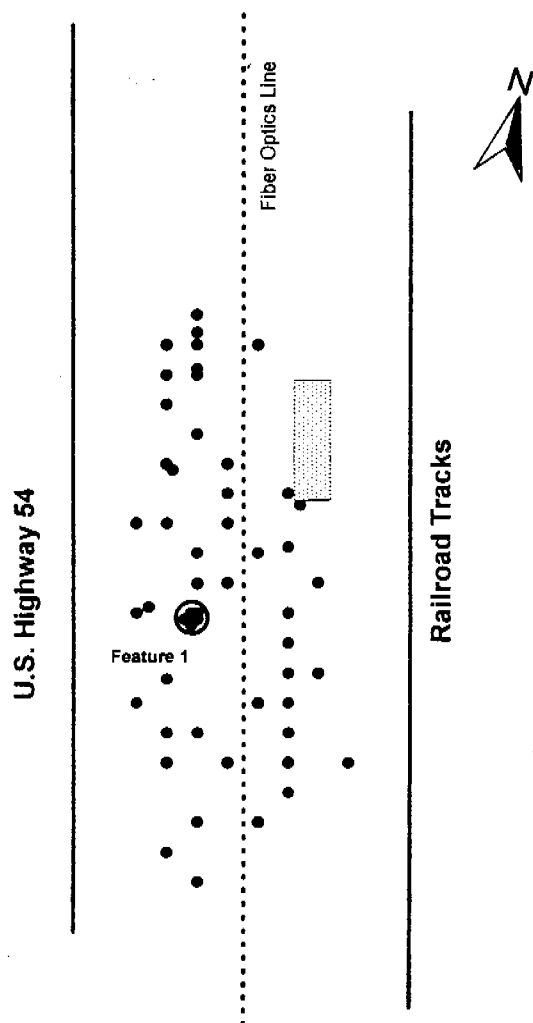


Figure 11. Distribution of glass artifacts at Site LA 86735.

Glass sherds were described by color and bottle or jar part where possible. There was a total of 13 whole unbroken bottles recovered from the refuse pit. In addition, there were fragments that could be reassembled to make 12 complete or almost complete bottles. The types of bottles include medical prescription and over-the-counter drugs, extract, beverage, food, cleaning fluid/bleach, spices and sauces (Figure 12). Other glass artifacts

include fragments of canning jars and milk glass lid liners, milk glass cold cream glass, dishes, mirror, window, coal-oil lamp globe, light bulbs, two glass stoppers, and two glass marbles.

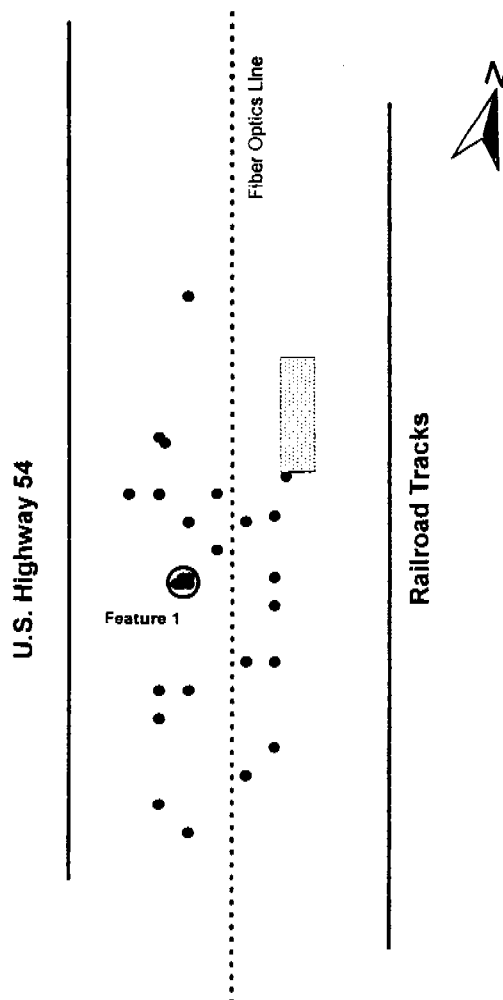


Figure 12. Distribution of glass bottles at Site LA 86735.

Bottles

Seventeen of the 25 complete or nearly complete bottles had temporal and functional diagnostic attributes that permitted a date range for manufacture of 1858 to 1958 (see the following list).

Fifteen of these bottles appear in Figures 13-17. One half of the bottles fall within the 1900-1930 range, which corroborates the historical record and oral recollections for the occupation dates of Temporal. The primary function of the bottles were as containers for medicines, food, and beverages.

Cat. No. 138: Glass bottle base fragment; light blue; "W F & S MIL" mark on base; estimated 3 in. diameter; William Franzen & Son, Milwaukee, Wis., 1900-1929 (Toulouse 1972:537).

Cat. No. 139: Glass bottle base fragment; clear; "I" within diamond mark; Illinois Glass Co, 1916-1929 (Rosenberg and Kvieotok 1982:29).

Cat. No. 186: Glass bottle fragments; clear with patination; Illinois Glass Co. mark on base; medicine bottle with side measures in cubic centimeters (cc) and fluid ounces; 6 in. x 2 in. x 1 1/4 in.; wide mouth external thread neck finish; hub or Golden Gate oval base profile; plain sides/panels; tapered ribbed neck; measures on edge panels (Fike 1987:14-15, 112); circa 1900-1916 (Toulouse 1972:264).

Cat. No. 187 (Figure 16): Glass bottle; aqua with patination; "Charles H. Fletcher's" Castoria; 5 3/8 in. x 1 7/8 in. x 1 5/16 in.; double ring neck finish; excelsior, Windsor oval or round cornered Blake base profile; indented panels; vertical embossing on both sides, some script; 1890s (Fike 1987:162).

Cat. No. 192 (Figure 17): Glass bottle; aqua with patination; "Success to Curtis & Perkins Proprietors" Mrs. Winslow's Soothing Syrup; Anglo-American Drug

Co.; 5 in. x 1 3/16 in. diameter; globular flare neck finish; round base profile; plain sides, vertical embossing; circa 1858 (Fike 1987:231).

Cat. No. 299 (Figures 13 and 15): Glass Florida water bottle; aqua with patination; with Spanish label "Agua de Florida/Murray Y Lanman/ Droguistas/ New York;" 7 in. x 1 1/2 in. diameter (Note size variation); ring or oil neck finish; round base profile; plain sides/panels; vertical embossing; New York; 1836-1901 (Fike 1987:244).



Figure 13. Rendering of glass Florida water bottle, Cat. No. 299. Note Spanish label (75% reduction).

Cat. No. 343 (Figure 16): Glass bottle, clear with patination; "C" on base; $4\frac{1}{2}$ in. x 2 in. x $1\frac{1}{4}$ in.; prescription neck finish; Blake (variant 1) base profile; possible manufacture Cunninghams & Co., Pittsburgh; circa 1879-1909 (Toulouse 1972:99).

Cat. No. 346/388 (Figure 15): Glass bottle; light green; "Dr. J. H. McLean's Strengthening Cordial and Blood Purifier, 3114 Franklin Av., St Louis, Mo," Adv. 1865 GG. 1929-1930; 8 in. x 3 in.; double ring neck finish; slender handy base profile; plain sides/panel; horizontal embossing; circa 1948 (Fike 1987:204). An 1865 advertisement states that it is a "product to tone and strengthen the system" (Fike 1987:204).

Cat. No. 349: Glass bottle base fragment; clear; Blake (variant 1) base profile; $1\frac{1}{2}$ in. diameter; Illinois Glass Co., 1916-1929 (Rosenberg and Kvieotok 1982:29).

Cat. No. 370 (Figure 16): Glass bottle, whole; clear; "Hamlin's Wizard Oil, Chicago, Ill., U.S.A.," Early Variant; $6\frac{1}{2}$ in. x $2\frac{5}{8}$ in. x $1\frac{1}{8}$ in.; double ring neck finish; Blake (variant 1) base profile; 4 indented panels; vertical embossing front and sides; copyright 1902 (Fike 1987:193).

Cat. No. 371 (Figure 15): Glass bottle, clear; round with round top; embossed with "Welch's Junior;" 2 in. x 5 in.

Cat. No. 372 (Figure 17): Glass bottle, whole; light purple; Gebhardt Chili Powder; $3\frac{1}{2}$ in. x $1\frac{1}{8}$ in. x $1\frac{1}{8}$ in.; wide mouth external thread neck finish; Blake (variant 1) base profile; 4 indented panels; vertical embossing both sides; circa 1894-present (Zumwalt 1980:164), before 1914 (Jones and Sullivan 1985:13).

Cat. No. 374 (Figure 17): Glass bottle, whole; clear; "9-09" on base (probably 1909 manufacture); ring or oil neck finish; round base profile (Fike 1987:8-10).

Cat. No. 375 (Figure 15): Glass bottle, whole; clear; no date and no mark; medicine prescription bottle with measures in cc and fluid ounces; $5\frac{3}{8}$ in. x $1\frac{7}{8}$ in. x $1\frac{1}{4}$ in.; tapered ribbed neck; stove pipe neck finish; hub or Golden Gate oval base profile; plain sides/panels; measures on edge panels (Fike 1987:112).

Cat. No. 376 (Figures 14 and 17): Glass bottle, whole; clear; A. S. Hind's Portland Me" embossed on front panel with symbol; $5\frac{3}{8}$ in. x $2\frac{3}{8}$ in. x $1\frac{3}{8}$ in.; prescription neck finish; excelsior base profile; indented panel on front; tapered neck; 1875-1907 (Fike 1987:92).



Figure 14. Rendering of A.S. Hind's prescription bottle, Cat. No. 376 (70% reduction).

Cat. No. 377 (Figure 17): Glass bottle with partial broken neck; clear; Illinois Glass Co. mark; 1916-1929 (Rosenberg and Kvietok 1982:29). Medicine prescription with measures in cc and fluid ounces; $6\frac{5}{16}$ in. x $2\frac{3}{8}$ in. x $1\frac{1}{2}$ in.; tapered ribbed neck; stove pipe neck finish; hub or Golden Gate oval base profile; plain sides/panels; measures on edge panels (Fike 1987:14-15, 112).

Cat. No. 378 (Figure 16): Glass bottle, whole; clear; no date and no mark; medicine prescription with measures in cc and fluid ounces; 6 in. x 2 in. x $1\frac{1}{4}$ in.; tapered ribbed neck; stove pipe neck finish; hub or Golden Gate oval base profile; plain sides/panels; measures on edge panels (Fike 1987:14-15, 112).

Cat. No. 379 (Figure 16): Glass bottle, whole; clear; no marks or date; medicine; $5\frac{3}{8}$ in. x $1\frac{5}{16}$ in. x $\frac{7}{8}$ in.; flat or patent neck finish with spool; Blake (variant 1)

base profile; 4 indented panels (Fike 1987:9-11).

Cat. No. 380: Glass bottle, two parts; clear; diamond C-98 mark, "Ballard Snow / Liniment Co/St. Louis, Mo"; $4\frac{1}{4}$ in. x $1\frac{11}{16}$ in. x $1\frac{1}{8}$ in.; flat or patent neck finish; Blake (variant 1) base profile; 1 indented panel; vertical embossing; 1889 (Fike 1987:133).

Cat. No. 393/395 (Figure 16): Glass bottle, small; prescription or extract type; clear; no marks; ball neck finish; indented panel $4\frac{1}{5}$ in. x $1\frac{1}{5}$ (Fike 1987:16). Extracts such as vanilla, along with elixirs, liniments, nervines, pectorals, remedies and syrups, were medicinal. Syrups were often bottled in containers with indented panel, ball or spool necks, and kickup base. These features were functional, since they could conceal small amounts of sediment and also reduce volume, saving the company money (Fike 1987:16).



Figure 15. Historic glass bottles from Site LA 86735: (l-r) Cat. Nos. 375, 371, 346/388, and 299.



Figure 16. Historic glass bottles from Site LA 86735: (l-r) Cat. Nos. 379, 370, 378, 187, 343, and 393/395.



Figure 17. Historic glass bottles from Site LA 86735: (l-r) Cat. Nos. 192, 374, 377, 376, and 372.

Glass Fragments

Not all glass fragments found have diagnostic information other than that given in the general catalogue. Those on which research information could be found are submitted in the following notes and listed by catalogue number. Again, manufacture dates range within the historically documented dates of 1989-1930s, with at least 45 glass fragments dating to pre-1920. Beer, wine, machine oil, canning, and ointment are some of the identifiable uses for these fragments. One glass item is a cake plate base (Cat. No. 514; Figure 18) similar to one listed in the 1897 *Sears, Roebuck Catalogue* (Israel 1993:686).

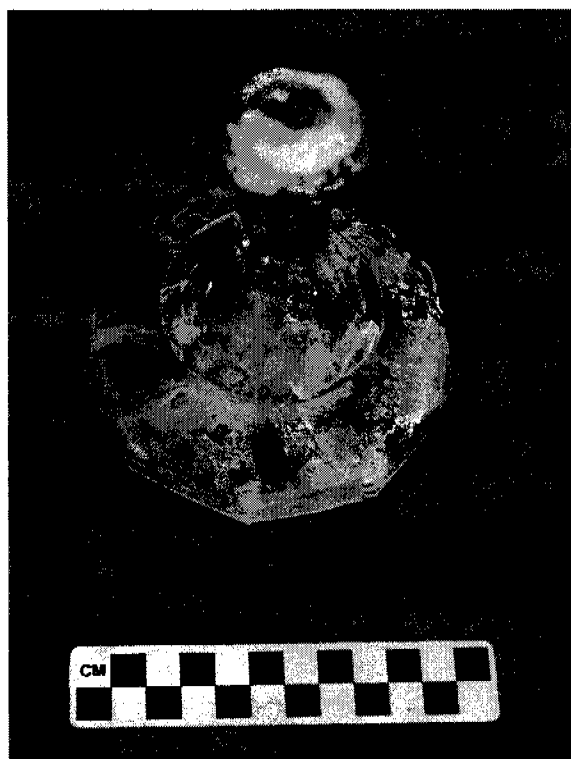


Figure 18. Glass cake plate base
(Cat. No. 514) found at Site LA 86735.

Cat. No. 1: Brown beer bottle neck; crown neck finish (Fike 1987:8; Jones and Sullivan 1985:79).

Cat. No. 6: Clear/exposure frosted glass bottle neck; large 15/8 in. diameter; wide mouth patent/extract (Wilson 1981:111).

Cat. No. 12: Aqua corner square glass bottle base; Blake (variant 1) base profile; "...ne Oil Co" on the indented side panel; most probably Machine Oil Co. (Fike 1987:10).

Cat. No. 15: Milk glass canning lid liner, reads "...for Ma..... Gen.....," most likely "Genuinefor Mason," developed prior to 1869 (Jones and Sullivan 1985:160).

Cat. No. 17: Milk glass fragment; portion of circular base reads "Imperial" around edge, and "Mark" surrounded by raised oval in base center. Most likely ointment jar. No information or date found.

Cat. No. 21: Brown beer bottle neck; crown neck finish (Fike 1987:8).

Cat. No. 31: Purple bottle neck fragment; wine or brandy neck finish; predates 1920s (Jones and Sullivan 1985:13; Wilson 1981:111).

Cat. No. 37: Two purple bottle side panel fragments; read "...DER" and "DT EA" and "Gebhardt Eagle/Chili Powder;" indented panels; vertical embossing; circa 1894-present (Zumwalt 1980:164); before 1914 (Jones and Sullivan 1985:13).

Cat. No. 41: Aqua bottle base; reads "A. B. CO./A18" horizontally across base. American Bottle Co., 1905-1916 (Toulouse 1972:37).

Cat. No. 47: Aqua bottle base fragment; letters A and B (diphthong) combined to form mark. Adolphus Bush Glass Manufacturing Co., Belleville, Ill., 1886-1907; St. Louis, MO, 1904-1928 (Toulouse 1972:26).

Cat. No. 51: Purple glass fragment; vertical panel reads ".HILI POW..."; Chili Powder bottle; pre-1920 (Jones and Sullivan 1985:13; Walski 1989; Zumwalt 1980:164), before 1914 (Jones and Sullivan 1985:13).

Cat. No. 53: Clear glass bottle neck, lip similar to oil bottles (Rosenberg and Kvietok 1982:23).

Cat. No. 54: Purple glass base fragments; reads "purity," pre-1920 (Jones and Sullivan 1985:13).

Cat. No. 64: Purple glass bottle neck fragment; wine or brandy neck finish; pre-1920 (Jones and Sullivan 1985:13).

Cat. No. 71: Purple glass bottle base fragment; "F" mark on base; unable to identify manufacture; pre-1920 (Jones and Sullivan 1985:13).

Cat. No. 73: Aqua glass base and panel fragment, reads "...N's.....D OIL." Same as Hamlin's Wizard Oil bottle (similar to Cat. No. 370); 6 1/2 in. x 2 5/8 in. x 1 1/8 in.; double ring neck finish; Blake (variant 1) base profile; 4 indented panels; vertical front/sides embossing; copyright 1902 (Fike 1987:193).

Cat. No. 101: Purple glass fragment; side panel, "...GLE" (same as bottle Cat. No. 372); 1894-present (Hull-Walski and

Ayres 1989; Zumwalt 1980:164); before 1914 (Jones and Sullivan 1985:13).

Cat. Nos. 77, 91, 95, 99, 104, 112, 116, 121, 123, 125, 140, 141, 151, 157, 158, 159, and 169: Purple glass fragments; no dates or marks; pre-1920 (Jones and Sullivan 1985:13).

Cat. No. 138: Clear glass bottle base fragment; "W. F. & S/12/Mil;" William Franzer & Son, Milwaukee, Wis., 1900-1929 (Toulouse 1972:536).

Cat. No. 139: Clear glass bottle fragment; "I" in a diamond; Illinois Glass Co., Alton Ill., 1919-1929 (Toulouse 1972:264).

Cat. No. 215: Clear glass fragment; reads "NYAL QUA..." (Nyal Quality) "External use only, lotion for destroying parasites which infest the hair;" Nyal Co. Distributors, Detroit, Mich., 1906 (Fike: 161).

Cat. No. 311: Aqua glass base fragment; marked with diamond and numbers "744" inside; Diamond Glass Co., after 1924 (Toulouse 1972:550).

Cat. No. 354: Clear bottle base fragment; "F" mark on base; Fairmont Bottle and Glass Co., 1930-1945 (Toulouse 1972:201).

Cat. No. 514 (see Figure 18). Clear glass cake plate (salver) base fragment, 4.4 in. diameter x 6 in. tall; stem has cut decoration.

Ceramics

The majority of ceramics made in the United States up to the nineteenth century were limited to coarse earthenwares and

stonewares, and the finer wares came from England. When the British ceramics began to be characterized as coarse and heavy in the mid-1850s, the American potteries experienced a growth into the white ware field. Although type names are often used interchangeably, the following outline adapted from *A Guide to Historic Artifacts* (Rosenberg and Kvietok 1981:53-55) gives a brief description of pottery types. The following descriptions were used to name and identify the ceramics recovered at Temporal Station.

Coarse Earthenwares are ceramics fired at a low temperature and are very porous. They are opaque and, when broken, have a granular earthy appearance. Paste color ranges from pinkish buff to brown. Earthenwares are generally ceramics with little or no glaze as "flower pot"-type pottery.

Fine Earthenwares are those commonly referred to as ironstone/whiteware, refined whiteware, or semi-porcelains. They are fired at a higher temperature than the coarse earthenwares and are not as porous. These wares are most often factory produced tablewares.

Stonewares are usually utilitarian pieces such as crocks, jugs, jars, and mugs. They have a wide range of paste colors (i.e., buff, mustard, yellow, reddish-brown, and black-brown). Stoneware ceramics are hard-baked and impervious to water, and can be used as crocks or jugs.

Porcelains are those ceramics exhibiting a thin, fine, glass-like surface with a translucent quality. Porcelain occurs both with and without a pattern.

Eleven pieces of ceramics were placed in a ceramic/miscellaneous category (Figure 19). These items consist of ceramic doll parts, marble, tile, electric insulators, and prehistoric ceramic sherds. The two prehistoric sherds are one bowl sherd of Mimbres white ware and one sherd of El Paso brownware. The inhabitants of Temporal Station probably collected both sherds from one of several nearby prehistoric sites.

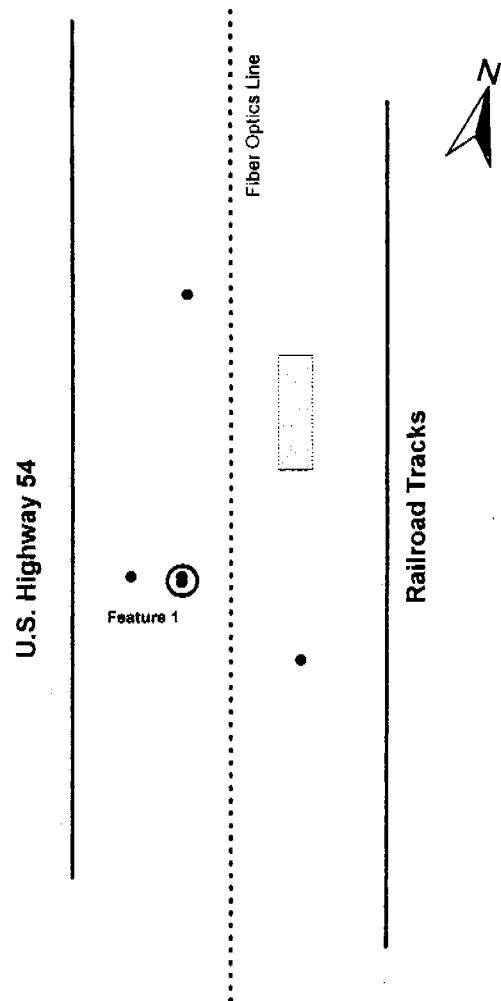


Figure 19. Distribution of ceramics on Site LA 86735.

Diagnostic Ceramics

Both coarse and fine earthenwares were collected from the site (Figure 20). The whiteware is a higher quality than the Mexican-style earthenware found, suggesting an economic and cultural range for residents of Temporal Station. White ware can be plain white or decorated. The Mexican style generally has a red paste, fired at a lower temperature and thinly glazed, usually with some decoration.

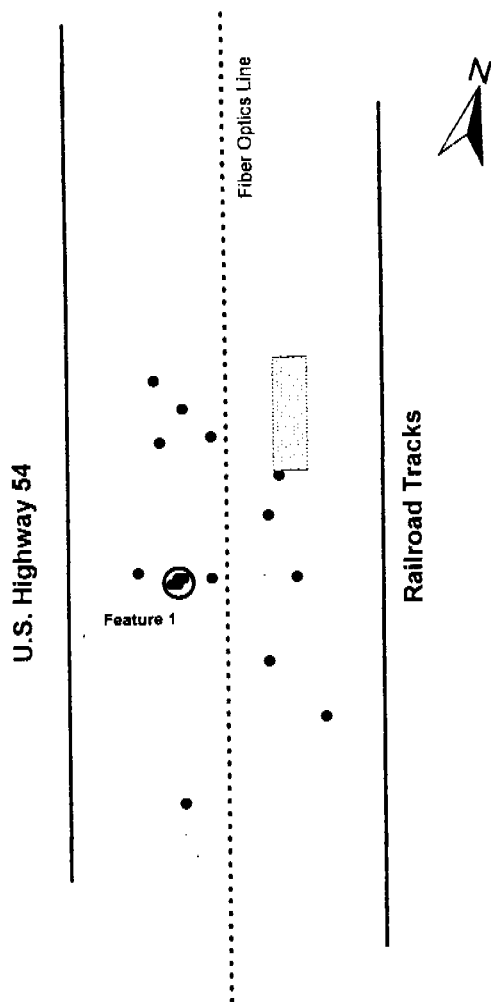


Figure 20. Distribution of earthenwares at Site LA 86735.

One white ware saucer fragment (Cat. No. 421; Figure 21) is a dish made for hotel or railroad dining. The maker's mark indicates that it was made in France for Burley and Company, Chicago, Hotel Department. It is possible that the saucer was broken and discarded with trash from the train. This artifact is the only item collected that can definitely be called restaurant ware.



Figure 21. White ware saucer fragment showing maker's mark, from Site LA 86735.

Each manufacturer of restaurant/hotel tableware seems to have a unique combination of distinctive characteristics, such as body material, colors, shapes thickness, type of edge, style of decoration, and degree of quality. There are, however, common characteristics, which include form or shape that is both functional and aesthetic. The tableware must be easy to handle, store, clean, and

serve, but still be attractive. As a result, most restaurant ware is commonly heavier and more durable than domestic dinnerware (Conroy 1998:7).

The date range for the ceramics with hallmarks found at Temporal Station is consistent with the dating of the site from 1898 to the 1930s. The following is a list of ceramic sherds that could be dated by maker's marks or some other means.

Cat. No. 18: White ware, Homer Laughlin China Co, Newell, W. Va., circa 1900 (Lehner 1988:247-248).

Cat. No. 19: White ware, West End Pottery Co., East Liverpool, Ohio, circa 1920s (DeBolt 1988:77).

Cat. No. 133: White ware, D. E. McNicol Pottery Co., Clarksburg, W. Va., circa 1920 (DeBolt 1988:50).

Cat. No. 232: White ware saucer base fragment with mark showing lion and unicorn on either side of a crowned shield, C. C. Thompson Pottery Co., East Liverpool, Ohio, circa 1915 (DeBolt 1988:104).

Cat. No. 246: White ware saucer base fragment with mark, Thompson, circa 1910-1930s (DeBolt 1988:72).

Cat. No. 421 (see Figure 21): White ware saucer base fragment with mark, reads "Burley & Company/Chicago/Hotel Department/ laurel leaves design," with "GDA/ Limoges, France," Charles Field Haviland, 1900-1940 (Terry and Kovel 1953:180).

Metal and Metal Fragments

Metal artifacts recovered from the Temporal Station include: cartridge cases, rivets, buttons, toy, lids, stove parts, clock parts, nails, screws, coal-oil lamp parts, jewelry, knife parts, razor logo, rail spikes, rail spacer, railroad hose coupling, nuts and bolts, washers, fence staples, horseshoe, bridle parts, chisel, file, metal dishes, chain clevises, battery and battery parts, wire, and other metal fragments of unknown use (Figure 22). There is a notable absence of "tin" cans in this assemblage. Not all metal and metal fragments recovered have diagnostic information other than that given in the general catalogue. Those items on which information could be found are described and discussed.

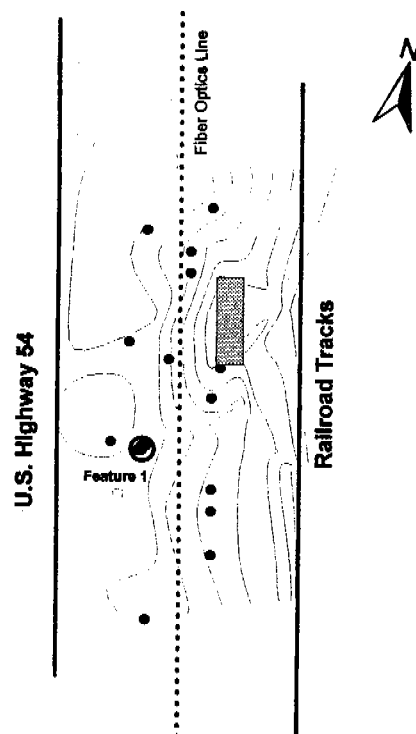


Figure 22. Distribution of metal artifacts at Site LA 86735.

Diagnostic Metal

The date ranges of 1897-1921 and 1921-present for the temporally diagnostic metal artifacts (toy, battery, and cartridges) agree with those of glass, ceramics, and other datable materials found at Temporal Station.

Toys

A metal (cast iron) horse toy fragment (Cat. No. 45; Figure 23) is similar to one in the Guiard collection, "American Village" 19th Century, at the Folk Art Museum, Santa Fe, New Mexico.



Figure 23. Toy cast iron horse (Cat. No. 45) from Site LA 86735.

Battery

One whole battery (Cat. No. 336), and the eroded posts and parts (Cat. Nos.

309, 458, and 256) of a similar battery were recovered from Feature 1 (the refuse pit). The whole battery is cylindrical in shape, measuring 6 in. long and 2 1/2 in. in diameter. In the 1897 *Sears, Roebuck Catalogue*, batteries of this type were sold as "dry" batteries to be used in several ways. The electro medical battery was used as a curative agent for nervous trouble and partial paralysis. Two of this size of dry battery were used in the long-distance Bell telephone. They were also used for silver and gold plating small articles (Israel 1993:471-473).

Cartridges

All of the cartridges were found in Feature 1 (the refuse pit). The calibers of the cartridges range from .22 caliber (n=99) to .32 (n=7), .45 (n=2), 30-30 (n=3) and 12-gauge shotgun (n=2). The .22 caliber cartridges would have been used in guns for target practice and shooting of small game; whereas, the .32 and .45 caliber cartridges were more likely used in guns designed for protection. The 30-30 caliber would have been used in rifles for larger game, and the shotgun shells were probably for game birds. The following list gives manufacturer (when possible) and number of cartridges found (in parentheses at end of paragraph).

U: Union Metallic Cartridge Company (1867-1911), Remington Arms-Union Metallic Cartridge Company (1911-1921), and Remington Arms Company, Inc. (1921 to date), all from Bridgeport, Connecticut. Used on rimfire cartridges (White and Munhall 1977:31). Includes .22 short U (15 ea.); .22 long U (33 ea.); .22 extra long U (6 ea.);

H: Winchester Repeating Arms Co., New Haven, Connecticut, and successors. On rimfire cartridges (White and Munhall 1977:23). Includes .22 short H (11 ea.); .22 long H (43 ea.); .32 H (1 ea.)

REM. UMC WIN 30-30 Remington:
Union Metallic Cartridge Co., manufactured after merge in 1911. WIN denotes suitable for model 1894 Winchester lever-action rifle. Includes .30-30 REM UMC WIN 30-30 (3 ea.).

UMC .32 WCF:
Union Metallic Cartridge Co.
Includes .32 UMC ECF (2 ea.).

WCF WRA Co. .32:
In 1882, Winchester introduced its .32 WCF for Winchester Model 73 lever-action rifle. The model 05 was especially made for the .32 WCF and the .35 WCF (Sanders 1996:18). Includes .32 WCF WRA Co. (1 ea.).

AC WRA Co .32:
The .32 Automatic Colt was designed by John Browning for his first successful automatic pistol, introduced in Belgium in 1899 and in the United States in 1903. Manufactured prior to 1940 (Sanders 1996:16). Includes .32 AC WRA Co. (2 ea.).

WRA Co. .45 Colt:
The Colt .45 WRA was the first cartridge manufactured in this caliber. The Winchester Co. and UMC produced much of the ammunition at the turn of the

century. One of the most famous American hand-gun cartridges and still a favorite with big-bore advocates, the .45 Colt has been around for well over 120 years. It is extremely accurate and has more knock-down and stopping power than nearly any common handgun cartridge. The .45 Colt was one of the cartridges that helped civilize and settle the American West. (Barnes 1997:271). Includes WRA Co. .45 Colt (1 ea.).

Shotgun Shell Casings:

Two 12-gauge Peters centerfire cartridge caps were recovered (Cat. No. 473) dating to the early 1900s (Sanders 1996:32). One "Winchester New Rival No. 12" 12-gauge centerfire cartridge cap was recovered (Cat. No. 276). No date was found for this shell; however, the 1897 *Sears, Roebuck Catalogue* (Israel 1993:584) shows the "Rival" Winchester 12-gauge shell. The New Rival was probably produced in the early 1900s.

Leather

The refuse pit (Feature 1) at Temporal Station contained leather materials, including shoes and shoe fragments, gloves, and straps. The men's athletic shoes and the women's shoe fragments are similar to those found in the 1897 *Sears, Roebuck Catalogue* (Israel 1993:190-206). Although no date could be assigned to work-style shoe fragments and gloves, their function as work items is evident. All the leather recovered was from Feature 1.

Cat. No. 364: Fragments of a pair of work shoes, which have been resoled.

Cat. No. 435: A heel fragment from a woman's shoe.

Cat. No. 454: The soles and parts of two pairs of women's shoes, approximately size 6, are very similar to ones pictured on page 197 of the 1897 *Sears, Roebuck Catalogue* (number 3930). The shoes are advertised as made of "crack proof" leather. They had a Goodyear welt and came in sizes 6 to 11, widths C, D, E, and EE. They sold for \$3.45 (Israel 1993:197).

Cat. No. 455: A complete pair of lace-up shoes, probably for baseball (Figure 24).

The heels are missing and the toes have worn spikes. These shoes are very similar to baseball shoes shown in the 1897 *Sears, Roebuck Catalogue* (Israel 1993:596).

Cat. No. 456: A baseball shoe similar to Cat. No. 455.

The athletic-style shoes found at Temporal are likely baseball shoes. Railroading seemed to be a full-time life, especially in an isolated section station like Temporal. Even when off duty, workers' spare time was spent with fellow railroaders. Baseball was a popular sport in the early 1900s. Many railroaders formed their own baseball teams and played against other railroad teams (Wheeler 1975:186). In an area like the Tularosa Basin, small communities also formed baseball teams. The work crew at Temporal Station may have joined or played against these community teams.

Bone

Forty-five bone fragments were collected from the site. These include cut bones from pig and cattle, such as round steak and roast bones (see "Faunal Remains," p. 54). Cut marks on the bones collected at Temporal Station indicate conventional butchering techniques. Even today in rural areas like Tularosa, butchering is a full day of gathering friends and neighbors to help slaughter one or more animals. Usually, one person in the group is

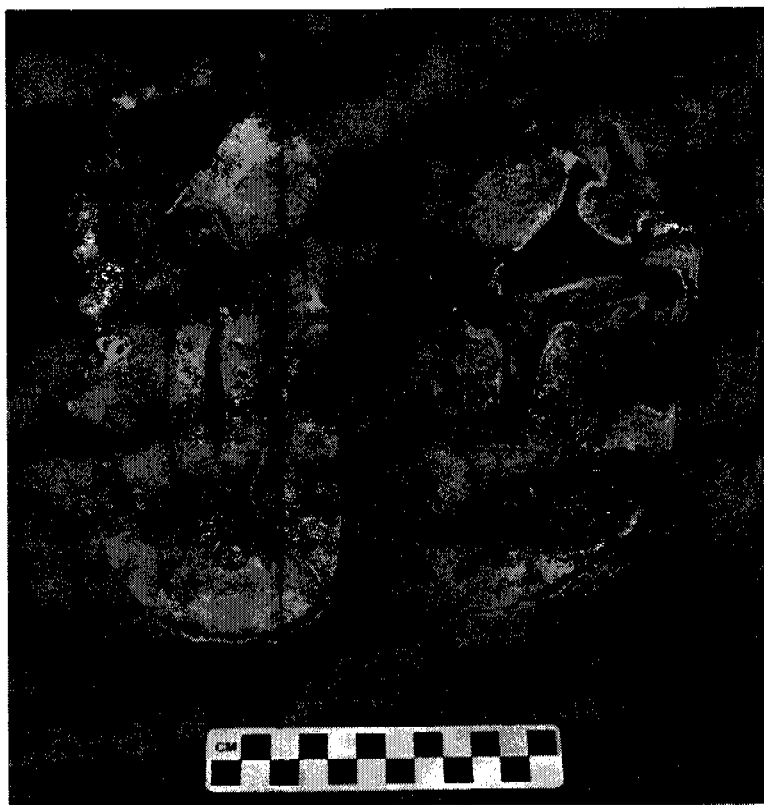


Figure 24. Baseball shoes (Cat. No. 455) from Site LA 86735.

good at cutting the meat into steaks, roasts, ham, chops, and ribs with some knowledge of appropriate technique.

Shell

The shell artifacts consist of buttons and oyster half shells. Shell buttons are made from the inner layers of abalone and other sea creatures. Fresh-water shells are not as iridescent or brilliant as deep saltwater species (Gillio, et al. 1980:21-24). Fresh-water shells are generally used for utilitarian purposes. Commercially made shell buttons were introduced into the United States from France in 1855. All types of holes, shanks, shapes, decorations, and sizes are used for shell buttons.

Button sizes are expressed in lines. Forty lines equal one inch diameter. In 1908, Sears, Roebuck and Company used the following scale to correlate lines and inches. Smaller buttons are usually from shirts and dresses (Lines 10-20) and the larger buttons from jackets, vests, and coats (Lines 24-36). The buttons collected from Site LA 86735 are one each of size 16, 22, 24, 26, 28, and two size 20. Five of the buttons are shirt size, two are coat/jacket size, one is dress size, and two are child size.

Lines	12	14	16	18	20
Inches	1/2	5/16	3/8	7/16	1/2

Lines	22	24	26	28
Inches	9/16	5/8	3/4	7/8

Before 1900, shell buttons were smoothed and polished on the back side. All of the buttons collected at Temporal Station are polished on both sides.

Oysters, a seafood delicacy, became generally available and were made popular with the arrival of the railroad in New Mexico. What a treat to have oysters in the desert. A special occasion in Alamogordo on February 20, 1899, was the visit to Otero County by Governor Miguel A. Otero. "Scalloped Oysters" were listed on the banquet menu entrees, along with "Salmi of Game a la Chasseur" (Gilbert 1988:100).

Miscellaneous

Twenty-five artifacts were classified under miscellaneous items. They include peach pits, cork, egg shell, and a mineral sample. Photographs and the oral recollections of Mary Nowell document a peach tree in their yard at Temporal Station. The egg shell reflects that raising chickens for eggs and meat was standard for rural families.

Functional Categories

Further analysis placed the artifacts into functional categories. These categories are clothing, communication, food, household, hunting/defense, medicine, personal, railroad, ranching, toys, transportation, and unidentified. The total number of artifacts in each of these functional categories are provided in Table 7.

Clothing

Sixty-three items were placed in the clothing category. Leather, metal, and shell are clothing materials found during the project. Figure 25 illustrates the distribution of these items on Site LA 86735.

Table 7. Artifact Frequencies within Functional Categories at Site LA 86735.

Functional Category and Items	Number	Percentage
CLOTHING		
Leather shoe fragments (men)	31	
Leather shoes (men's athletic)	2	
Leather shoe fragments (women's)	11	
Leather glove fragments (6 pieces)	1	
Metal (rivet button fasteners, eye hook)	6	
Shell buttons and button fragments	11	
TOTAL	62	3.7
COMMUNICATION		
Glass insulators	6	
TOTAL	6	.4
FOOD		
Bone	40	
Glass bottle fragments (chili powder, juice, etc.)	21	
Metal bottle cap	1	
Peach pits	4	
Egg shell fragments	2	
Oyster half shell	7	
TOTAL	75	4.4
HOUSEHOLD		
Ceramic	4	
Earthenware (Mexican-style pottery, crockery)	24	
Glass (bottles and bottle fragments, dishes)	403	
Metal (lamp parts, knife and stove parts)	30	
Porcelain (dish fragments)	51	
Stoneware (dish fragments)	219	
Charcoal (burnt spool)	1	
Wood	1	
Organic	1	
TOTAL	734	43.2

Table 7. Artifact Frequencies within Functional Categories at Site LA 86735 (cont.).

Functional Category and Items	Number	Percentage
HUNTING/DEFENSE		
Cartridges	131	
TOTAL	131	7.7
MEDICINE		
Glass (bottles and bottle fragments)	77	
TOTAL	77	4.5
PERSONAL		
Cosmetic jar fragments	2	
Lice comb	1	
Figurine fragment	1	
Copper bracelet fragment	1	
Pocket knife	1	
Ever ready safety razor logo	1	
Button	2	
Ceramic ball	1	
TOTAL	10	.6
RAILROAD		
Spikes, nuts, washers, chain clevis	23	
TOTAL	23	1.4
RANCHING		
Fence staples, horseshoe, bridle, saddle fragments	7	
TOTAL	7	.4
TOYS		
Doll parts	7	
Metal toy horse	1	
Marbles	2	
Toy tea cup fragment	1	
TOTAL	11	.6

Table 7. Artifact Frequencies within Functional Categories at Site LA 86735 (cont.).

Functional Category and Items	Number	Percentage
TRANSPORTATION		
Red tail light lens fragment	1	
Battery fragment	1	
Tire fragment	6	
TOTAL	8	.5
UNIDENTIFIED		
Glass, metal, organic, and cloth fragments	553	
TOTAL	553	32.6
TOTAL ARTIFACTS	1,697	100

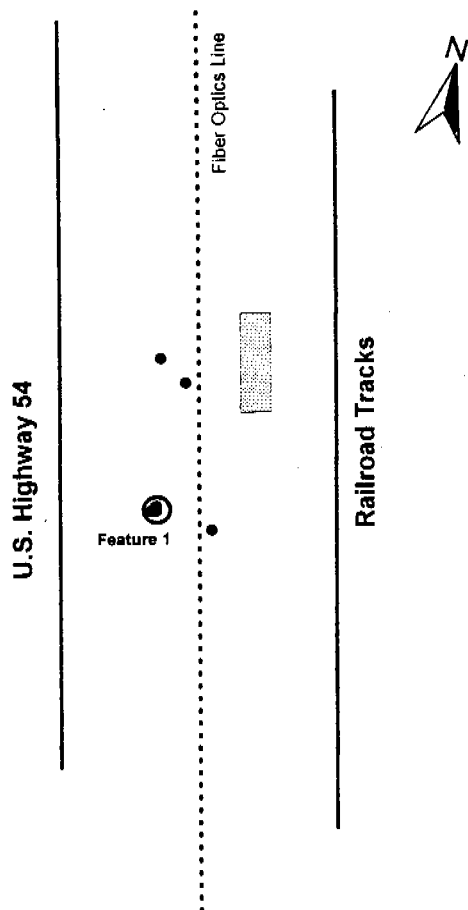


Figure 25. Distribution of clothing items at Site LA 86735.

The refuse pit at Temporal contained leather materials, including shoes and shoe fragments, gloves, and straps. Some of the shoes are men's baseball shoes. The other shoe fragments are from men's work-style shoes. The gloves are also work style. Women's shoe styles provide information on gender.

Buttons made of shell and metal were found. The 11 shell buttons reflect adult shirts, coats, dresses, and children's clothing. The coverall-type metal rivet buttons are from the utilitarian clothing of the railroad work crew.

Communication

Six fragments of glass insulators used on utility poles were found. One fragment is embossed with "USA" and "17-48," and another fragment has "8E pat. US Feb." Before the construction of an underground fiber optic communication line that crosses through Temporal, telephone poles with transmission lines were used. Glass insulators were attached to the pole crossarms and the lines were

wrapped around the insulators to prevent electrical shocks. "Guy" lines that stabilized the poles and created a "ground" used a unique round insulator with line grooves crossing over each other.

Telephone service came to Otero County on September 5, 1901, when the County Commissioners gave the first franchise to a woman named Anney Elroy Britt (Gilbert 1988:108), but it was nullified in 1902 for noncompliance with the agreement. On September 5, 1901, a franchise was given to Homer W. Shofield, who formed the Alamo Telephone Company. The company had long distance lines to Tularosa, Mescalero, Jarillo, Cloudcroft, La Luz, Ft Bliss, and El Paso. In March 1910, the Tri-State Telephone and Telegraph Company bought the Alamo Telephone Company and by July 1911, it had exchanges in Alamogordo, Tularosa, and Las Cruces (Gilbert 1988:108). The insulators as well as the battery (Cat. No. 336) collected during the project may have been used with these early lines.

Food

A total of 75 items were placed in this category, making it one of the smallest. Food items are the remains of food such as bone and seeds, and those related to food such as glass bottles and canning jars/lids (Figure 26).

Several types of food-related artifacts were recovered. These include cut bones from pigs and cattle, such as round steak and roast bones. Photographs provided by Mary Nowell show cattle and chickens at Temporal.

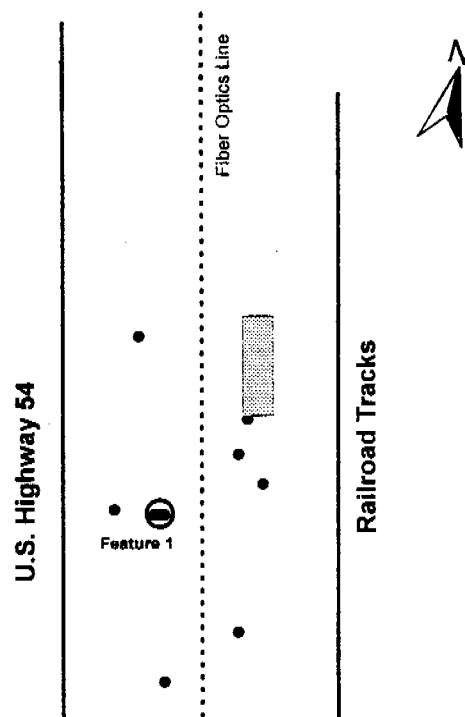


Figure 26. Distribution of food-related items at Site LA 86735.

Canning related items include canning lids (Cat. Nos. 15 and 443). Mary Nowell related (interview) that home canning was a common routine practiced by her mother at Temporal in the 1920s. Her photographs also display a garden. There was ample water supplied by the railroad to grow both a garden and a flower-lined yard with several fruit trees, one of which probably produced the peach pit recovered.

Canned goods, and even fresh fruit and vegetables, became more accessible with railway transportation. Many previously unavailable food items like oysters were readily obtainable by anyone who could afford such treasures from the sea.

Household

Household items are those used to maintain a household. The total of 602 items makes it the largest functional category. This category is comprised of glass, metal, and ceramics that include earthenware, stoneware, and porcelain (Figure 27).

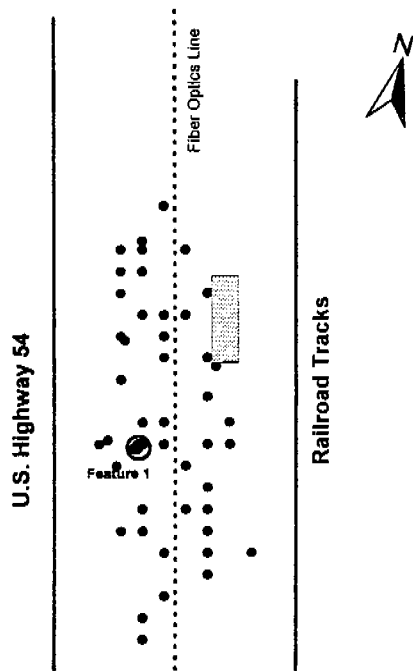


Figure 27. Distribution of household items at Site LA 86735.

Glass artifacts are bottles and bottle fragments (such as condiment and juice); canning jars, drinking glasses, and dishes; light bulb and kerosene lamp fragments; and a standing cake dish base (see Figure 18) similar to one listed in the 1897 *Sears, Roebuck Catalogue* (Israel 1993:686).

Metal household items include fragments of a wood stove and metal

dishware, kerosene lamp parts, and a wheel from a clock.

Some of the porcelain fragments are from a more expensive dishware than earthenware or glass cups and plates. One example is a beautiful transfer print showing an intricate Japanese scene (Figure 28). No maker's mark was noted.

Medicine

Seventy-seven glass medicine bottles and bottle fragments were found (Figure 29). These include several medicine prescription bottles as well as complete and fragmented bottles of Hamlin's Wizard Oil (Figure 30) and Dr. J. H. McLean's Strengthening Cordial and Blood Purifier. Whole bottles include Fletcher's Castoria and Wilson's Soothing Syrup (Figure 31). One fragment is from a bottle that may have come from Mexico. It is embossed with the name La Sandora (Cat. No. 114).

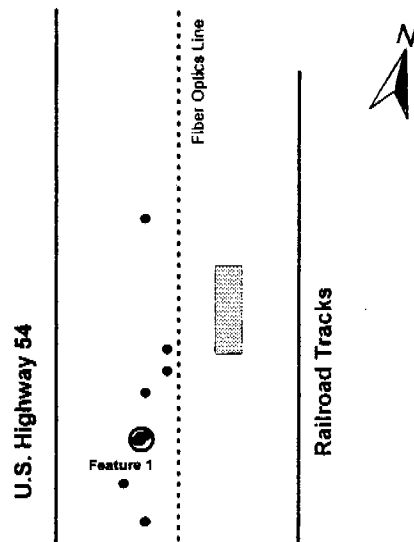


Figure 29. Distribution of medicine bottles at Site LA 86735.



Figure 28. Porcelain plate with transfer print of Japanese scene (Cat. No. 344) from Site LA 86735.



Figure 30. Hamlin's Wizard Oil glass medicine bottle (Cat. No. 370) from Site LA 86735.

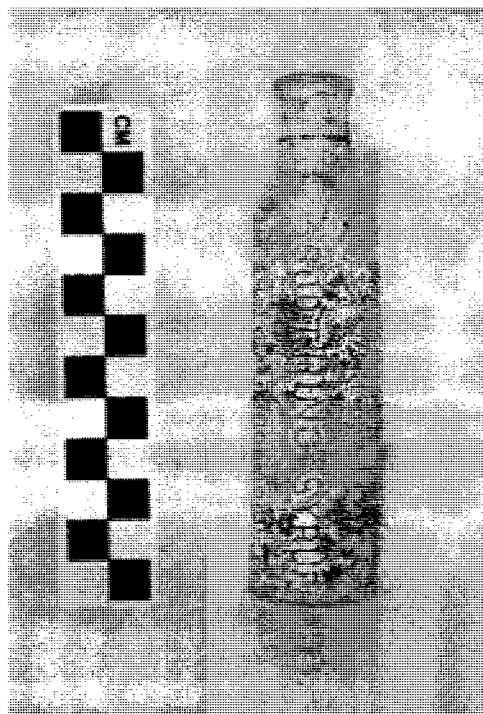


Figure 31. Mr. Winslow's Soothing Syrup glass medicine bottle (Cat. No. 192) from Site LA 86735.

Personal

Personal items are those whose use is generally limited to an individual. The personal functional category is composed of cosmetic jar fragments, a lice comb, a figurine fragment, a pencil fragment, a ceramic ball, and a button (Figure 32).

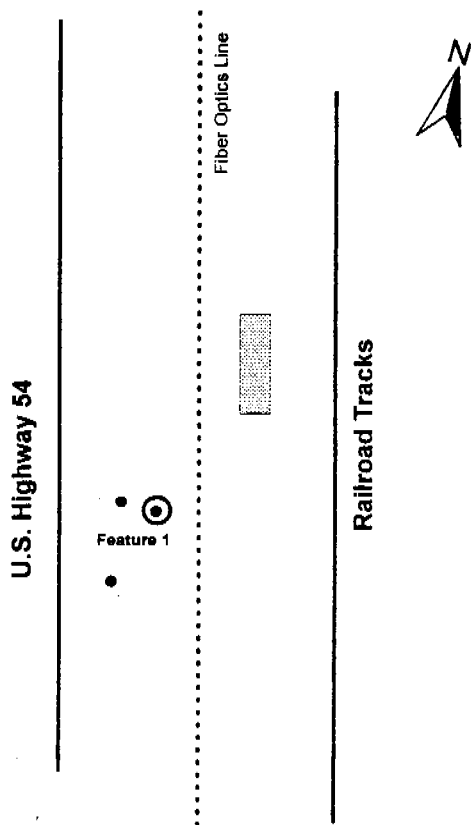


Figure 32. Distribution of personal items at Site LA 86735.

Gender-specific artifacts among the personal items collected are a piece of jewelry (Cat. No. 306) and a pocket knife (Cat. No. 432). The jewelry is a fragment of a copper bracelet with indications that stones were once attached to separate panels (Figure 33). No date or manufacture was found on the pocket knife, due to its badly rusted condition.

Personal items include a fragment of a two-sided, fine plastic mustache or lice comb (Cat. No. 447) and a metal logo (Cat. No. 449). All that can be seen of the logo on the comb's edge is "THE" and "No. 654" with a picture of an elephant. The comb has rounded sides and is very similar to one pictured in the 1897 *Sears, Roebuck Catalogue* (Israel 1993:326, No. 25539), described as "An Unbreakable Goodyear Hard Rubber Fine Tooth Comb 9¢; 3 for 25¢; per doz...\$0.92." Another personal item found in the 1897 *Sears, Roebuck Catalogue* (Israel 1993:112) is the metal logo off a box of "EVER-READY/Safety Razor/count 12 blades."

Railroad

Although Temporal was a railroad section station and much of the daily activity included track maintenance, very few (n=23) potentially railroad-related items were found (Figure 34). They

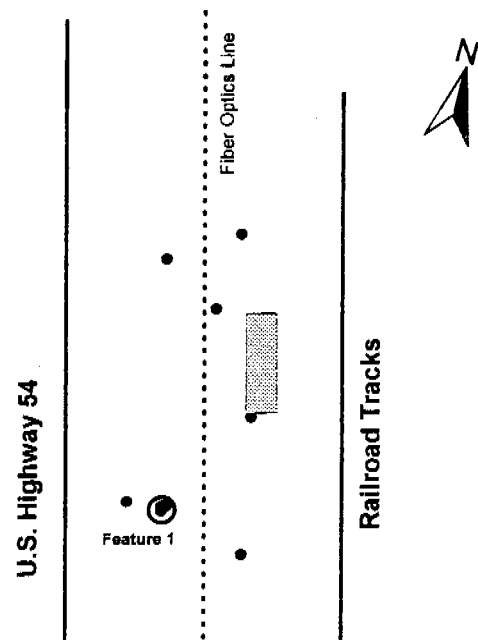


Figure 34. Distribution of railroad-related items at Site LA 86735.



Figure 33. Fragment of a copper bracelet (Cat. No. 306) found at Site LA 86735.

include spikes, nut, washers, and chain clevis. Equipment and tools were needed for the track maintenance performed by the crew, as detailed in the Foreman's (Luther Watson's) Time Book (see Appendix E). Figure 35 shows the crew

on the handcar and the workshop area. The lack of railroad-related artifacts is probably due to the removal of structures by the railroad, and construction of the highway and fiber optic line.

Ranching

Ranching is another category with a small number ($n=7$) of bits and pieces. It consists of fence staples, a horseshoe, and fragments of a bridle and saddle (Figure 36). These items were placed in the ranching category because they are artifacts commonly associated with ranch activities, although it is likely that ranching at Temporal was limited to having a cow for milk; raising a steer, pigs, and rabbits for meat; and having chickens for meat and eggs. Horses were

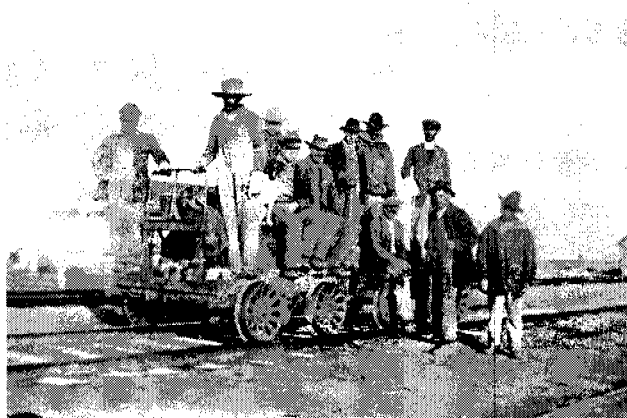


Figure 35. Railroad work crew at Temporal, circa 1923. Luther is with dog (courtesy Mary Nowell).

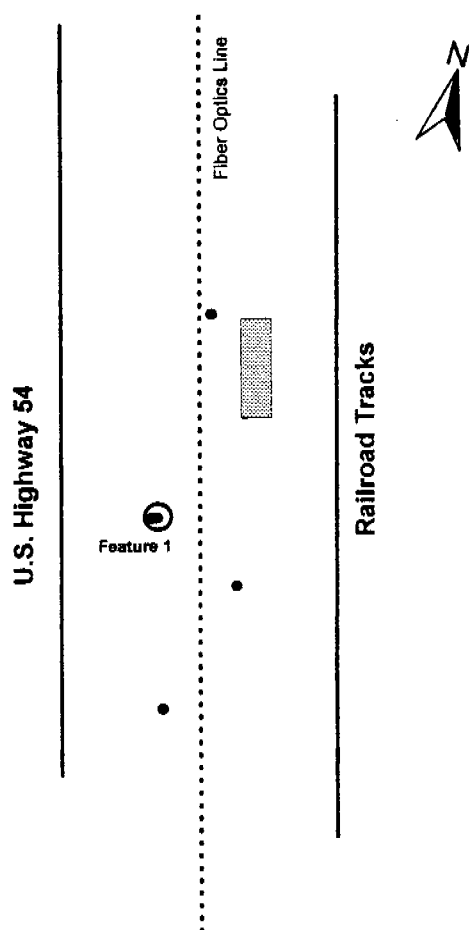


Figure 36. Distribution of ranching-related items.

undoubtedly kept for transportation and possibly work.

Toys

This category includes doll parts, traditionally girls' toys, and marbles, traditionally boys' toys. The toy artifacts certainly indicate the presence of children, both boys and girls (Figure 37). Catalog Nos. 36, 67, 85, and 136 are fragments of porcelain dolls. Cat. No. 234 is the head and body of a ceramic doll (Figure 38) that is missing arms and legs, but it is possible to see the wires where the members were attached. A portion of

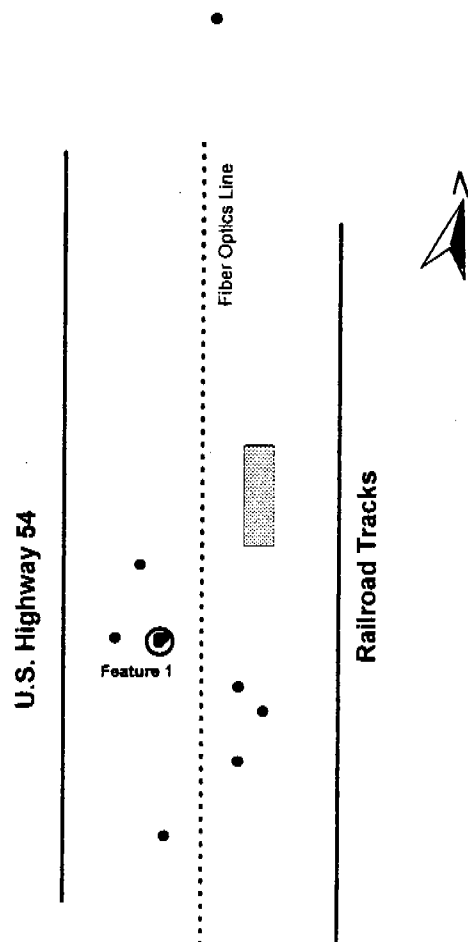


Figure 37. Distribution of toys at Site LA 86735.



Figure 38. Ceramic doll body from Site LA 86735 (actual size).

a tiny tea cup bespeaks of little girls' tea parties. For the boys, two glass marbles and three clay marbles were recovered. One half of a metal toy horse (Cat. No. 45) is the most elaborate of the potential boys toys. Pictures in the *Otero County Pioneer Family Histories*, Vol. 2 (Tularosa Basin Historical Society 1985:547) show young boys with their working fathers. The pocket knife, while not a toy, might also have been the property of a young boy.

Transportation

In addition to the railroad items, there are several artifacts that indicate there were other types of transportation at Temporal. One fragment of a rubber tire (Cat. No. 365), the type used on a Model T Ford, was found. This tire fragment has a white sidewall, with the numerical indicator for a pressure of 30 psi. The fragment was obviously cut for reuse for another, unknown purpose. Cut sections of the rim are associated with the tire fragment. Fragments of a red tail light lens and a battery post were also found. The horse-related artifacts mentioned under the ranching category probably reflect the most common transportation mode of the day.

Unidentified

The unidentified category is the second largest category, with 687 items, consisting of glass fragments, cloth fragments, and organic material. Glass fragments that were too small or without shape or marks from which to identify function were placed in the unidentified category.

Comparison of Data with Similar Sites

Artifactual data from Site LA 86735 was compared with the material culture recovered from other railroad communities of this time period. This includes the Valmont Station (Shields and Kirkpatrick 2001), the Malpais Section Station (Site LA 54880; Kirkpatrick et al. 1994); and Escondido Station (Site LA 101,183) of the El Paso and Northeastern Railroad (Hart 1994).

The artifacts from Sites LA 115,252 (Valmont Station), LA 54880 (Malpais Section Station), and LA 101,183 (Escondido Station) include the glass, metal, brick fragments, and coal clinkers expected from railroad sites, which were also recovered from Temporal Station. However, the artifacts collected and analyzed from Malpais Section Station (Site LA 54880), Escondido Station (Site LA 101,183), and Temporal Station (Site LA 86735) include whole bottles, toys, and diagnostic household items not found at Valmont (Site LA 115,252). This is likely due to the removal of buildings and large construction materials along with dispersal of artifacts by highway maintenance and construction occurring at Valmont. Although structures and larger building items along with other artifacts have been removed from both the sites, locating the refuse pit (Feature 1) at Temporal Station (Site LA 86735) provided many more identifiable artifacts than were recovered from Valmont (Site LA 115,252).

In summary, the artifact assemblage found at Temporal Station is consistent

with recorded artifact assemblages from railroad section stations across southern New Mexico.

Macrobotanical Remains by Dr. Richard Holloway

Two float samples containing macrobotanical remains were collected from Temporal Station. These samples contained conifer, pine (*Pinus* sp.), juniper (*Juniperus* sp.), and mesquite (*Prosopis* sp.). The results indicate that pine was used for firewood (likely obtained from the nearby Sacramento Mountains). Peach seeds were found in the fill of Feature 1. Oral recollections and photographs from Mary Nowell document the presence of a peach tree at the site. Dr. Holloway's observations are as follows.

Feature 1 (Refuse Pit)

Sample FS 251 was taken from the eastern half of this refuse pit feature. The assemblage contained charcoal fragments, pine charcoal and charred wood, and conifer charred wood. Conifer charcoal was also present in the smaller-sized fractions. This sample contained a large amount of material, consisting of 27.2 percent of the initial volume.

Sample FS 245 was taken from an auger hole associated with Feature 1. Pine charcoal and conifer charred wood were present in this assemblage. Conifer charcoal and small charcoal fragments were present in the smaller-sized fractions.

The wood charcoal obtained from the historic Site LA 86735 is dominated by pine and/or conifer. Conifers, including

pine and juniper, all have fairly similar wood anatomical characteristics. The wood, or xylem component of these gymnosperms consists entirely of tracheid type cells which are generally uniform in appearance. In Angiosperms, the wood consists of both tracheids and vessel elements which appear as larger pores. Pine wood is differentiated on the basis of more numerous longitudinal resin canals. These structures are surrounded by one to two layers of thin-walled parenchyma cells, which do not survive carbonization. Thus, in charcoal specimens, the wood of pine contains numerous circular resin canals giving the appearance of larger pores. Resin canals are present within the wood of juniper; however, they are rare and scattered. Thus, the absence of resin canals, particularly in areas containing both pine and juniper, cannot be used by itself to identify the particular specimen as juniper. This is especially true when the specimens are very small, as is common from archaeological deposits. In those instances when the specimens were very small and no resin canals were observed, the identification was made to the higher taxonomic level of conifer.

The presence of pine and conifer charcoal only from the historic period may or may not be a function of availability. Pine was certainly located at some distance from the project area during the prehistoric Jornada Mogollon occupation. Stands of these conifers were probably located at distances where it was not economically feasible to expend the energy to obtain this fuel wood, particularly given the local availability of other suitable fuel woods, such as mesquite. The past several hundred years (from the early 1500s to about the late

1800s to early 1900s) witnessed a slight decrease in mean annual temperatures on a global scale, referred to as the Little Ice Age (LeBlanc 1999:34). This may have been sufficient to encourage an expansion of pine stands to just slightly lower elevations. There is some evidence for this throughout New Mexico and the American Southwest, but it is not conclusive. If this expansion did occur, then pine could have been an additional fuel wood source and may have been preferred by the historic Anglo population.

Alternatively, this site is affiliated with the later Anglo population where railroad travel was already established. The railroad steam engines of this period were primarily wood burners and thus pine could have been imported easily from anywhere along the line. This latter hypothesis appears more likely, given the correspondence between conifer charcoal and the historic time period.

Faunal Remains by Brian Knight

A total of 35 bone/bone fragments (Table 8) were recovered from five excavation units at Site LA 86735, including one refuse pit (Feature 1). A number of the bones exhibited butchering marks and could be positively identified as "food bone."

Excavation units in Feature 1 revealed a number of large ungulate bones, many of which showed evidence of saw-cut butchering. Domestic cattle (*Bos taurus*) and pig (*Sus scrofa*) dominated the assemblage. Ten bone/bone fragments were cow and seven were pig. Of

the 17 bone/bone fragments recovered for these two species, nine exhibited saw-cut butchering marks. The majority of these elements were from juvenile specimens, determined by the presence of unfused long bone epiphyses. Appendicular and axial skeleton elements were both represented; however no cranial fragments were discovered. These specimens represent exactly what you would expect for historic "food bone." All of the bones exhibiting butchering marks are from portions of the animal that are most likely to yield useful meat, including ribs, spine, and appendages. Also of interest is the presence of a left, proximal radius fragment of white-tailed deer (*Odocoileus virginianus*), which may represent some hunting activities that also contributed to subsistence on this site, rather than a complete reliance on domesticated animals. One cervical vertebra of jackrabbit (*Lepus californicus*) and one undiagnostic bird long bone fragment were also recorded, although no evidence of these specimens being related to subsistence was noted. It should be mentioned, however, that these remains were found within the refuse pit (Feature 1) and probably represent discarded materials.

Excavation units not located in the immediate vicinity of the refuse pit revealed a total of 11 bone/bone fragments. One thoracic vertebra spine fragment of pig was observed with evidence of saw-cut butchering marks. This specimen probably represents discarded "food bone." Two long bone fragments belonging to black-tailed jackrabbit and one of desert cottontail (*Sylvilagus auduboni*) were present, although no cultural modifications were observed to indicate whether these represent "food bone."

Table 8. Faunal Remains Recovered from Temporal Station (Site LA 86735).

Cat. No.	No.	Description	Species	Comments
481	1	Fragmented skull	<i>Canis latrans</i>	Includes maxilla with full complement of teeth, portions of frontal, eye orbitales, left zygomatic arch, foramen magnum, both occipital condyles, and portion of occipital
	5	Rib midsections	<i>Bos tarus</i>	Saw-cut butchering marks on both ends of each rib fragment
	1	Axis (cervical) frag.	<i>Sus scrofa</i>	Unfused centrum indicates juvenile
	1	Third cervical vertebra	<i>Sus scrofa</i>	Unfused centrum indicates juvenile
	1	Unfused left femoral head	<i>Bos tarus</i>	Juvenile
	1	Distal femur frag.	<i>Bos tarus</i>	Saw-cut butchering marks, juvenile
	1	Right distal femur frag.	<i>Lepus californicus</i>	
	1	Left proximal radius frag.	<i>Odocoileus virginianus</i>	Size appears consistent with white-tail rather than mule deer
	1	Medial femur frag.	<i>Bos tarus</i>	Saw-cut diaphysis, "steak bone"
	1	Whole cervical vertebra	<i>Lepus californicus</i>	
	1	Undiagnostic long bone frag.		Small unknown bird
	4	Medial rib fragments	<i>Sus scrofa</i>	Probably juvenile pig
	1	Unfused centrum of vertebra	<i>Sus scrofa</i>	Probably juvenile pig
	1	Whole humerus		Deformed bone, unknown small mammal, probably rodent
482	1	Long bone diaphysis	<i>Bos tarus</i>	Saw cut on both ends, possibly femur
	1	Rib midsection	<i>Bos tarus</i>	Saw cut on both ends
483	1	Innominate frag.		Unknown mammal, acetabulum and portion of pubis, ischium and ilium present
	1	Right humerus		Small unknown bird
485	1	Left proximal femur frag.	<i>Lepus californicus</i>	
	1	Right innominate frag.	<i>Sylvilagus auduboni</i>	Acetabulum and portion of ischium and pubis
	1	Thoracic vertebra spine frag.	<i>Sus scrofa</i>	Saw-cut butchering marks present
	2	Undiagnostic flat bone frags.		Large mammal, saw cut
486	1	Proximal metapodial frag.	<i>Lepus californicus</i>	
	4	Undiagnostic long bone frags.		Unknown bird

Bos tarus-domestic cattle; *Canis latrans*-coyote; *Lepus californicus*-black-tailed jackrabbit; *Odocoileus virginianus*-white-tailed deer; *Sus scrofa*-domestic pig; *Sylvilagus auduboni*-desert cottontail

Additionally, five undiagnostic small bird, long bone fragments were present. The fragmented skull of a coyote (*Canis latrans*) was recovered from this site with the full complement of maxillary teeth. No evidence was found on any portion of this skull to suggest whether or not this was a natural death or the result of some cultural activity.

Discussion of Site LA 86735

Excavated data provided direction in the selection of research themes to be addressed during the analysis phase of this project. Archival data and oral histories supplement the artifact analyses. This section discusses the research themes in the perspective of the recovered data.

Community Structure

The Community Structure research theme was addressed using artifactual data recovered from the site, oral-history interviews, and archival documents. Archaeological evidence of structural remains was limited because the project was confined to within the right-of-way on the east side of the highway.

Temporal was a section station along the El Paso and Northeastern Railroad. As such, major activities would have been associated with railroad maintenance and residential life of the railroad employees. A section foreman was responsible for approximately 10 miles of track in each direction from a section station. Housing of the foreman, and laborers and their families was provided at the station. Most freight went by rail and, combined with railway travel, created a busy rail schedule.

Architectural Features

The presence of certain artifacts sometimes indicates different types of structures, such as dwellings, barns, and sheds. The buildings at Temporal Station have been removed and the artifacts were buried or scattered by fiber optic line and highway construction, making it difficult to define activity areas by groups of items found. Also, many of the diagnostic items collected at Temporal were found in the refuse pit feature. Thus, it was impossible to associate these artifacts with specific site features.

Although groups of artifacts could not be used to locate activity areas, china, toys, shoes, and bottles found at Temporal Station indicate that the site did include at least one family dwelling (Figure 39). Oral recollections of Mary Nowell reveal that many of the work crew there during the Watson family's occupation (1920-1924) had wives and children living with them in the bunkhouses.



Figure 39. The section foreman's house at Temporal Station, where the Watson family lived (courtesy Mary Nowell).

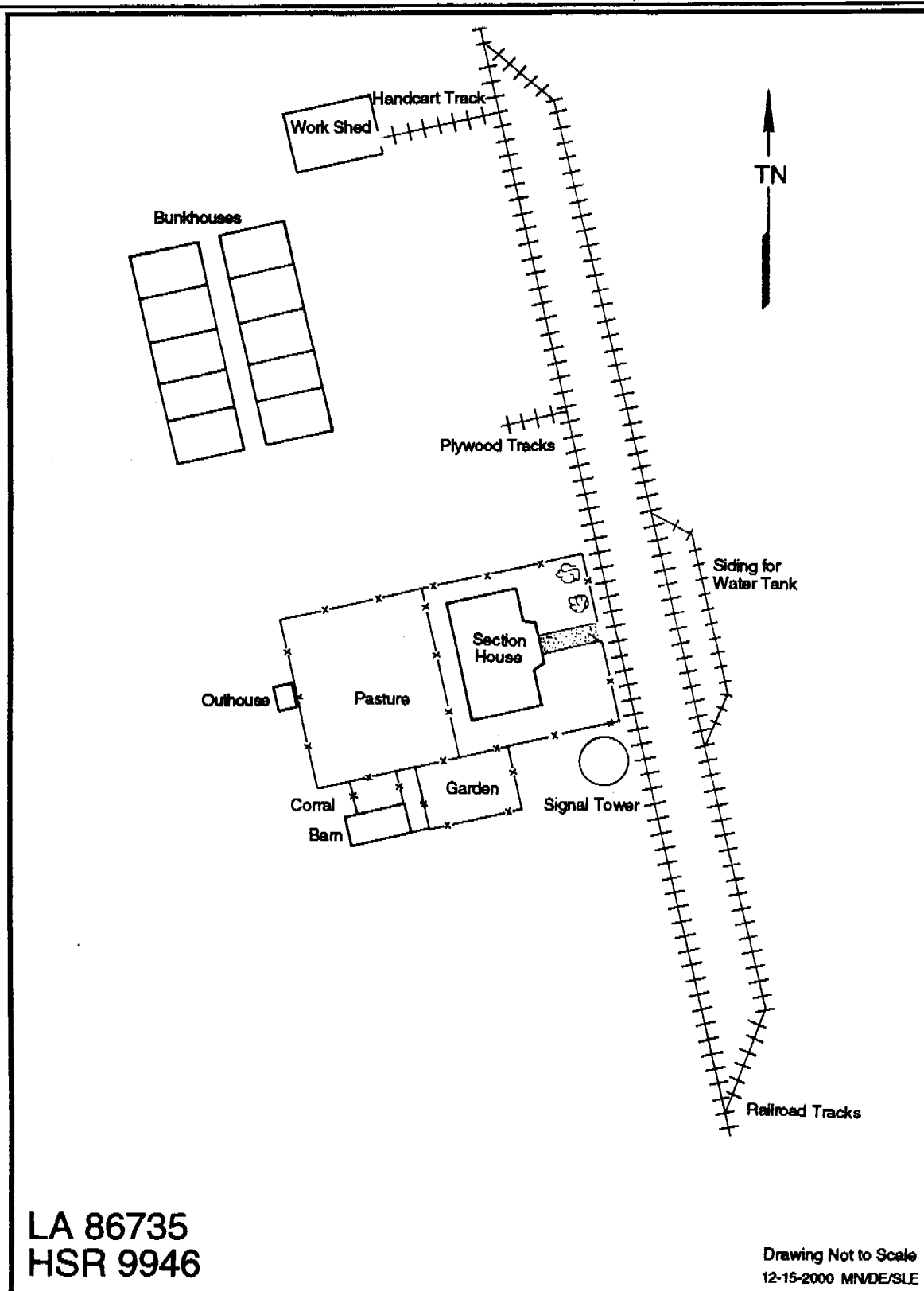


Figure 40. Map of Temporal Station, circa 1920s, based on recollections of Mary Nowell.

During the interview with Mary Nowell, Delton Estes developed a map of Temporal (see Figure 40), based on her descriptions. This map shows the location of activity areas such as the railroad track and siding, the section foreman's house, crew bunkhouses, a workshop, shed, corrals, and other buildings.

According to Myrick (1970:77, 84), the foreman's house, bunkhouse, and other buildings were constructed at Temporal sometime after the railroad arrived in Alamogordo (June 1898) and before its arrival in Capitan, New Mexico (September 2, 1899).

During her interview, Mary Virginia Watson Nowell described the foreman's house as a five-room structure, with one of the rooms serving as a commissary. The front of the house faced the east and the railroad tracks were very near the front yard. The kitchen was at the back of the house and there was a covered porch (Figures 41 and 42). The main house had wooden siding and a nice fenced yard

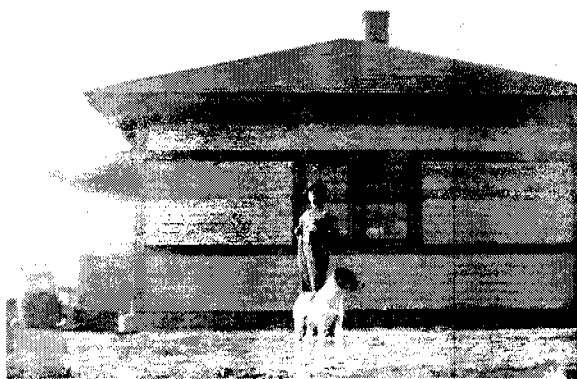


Figure 41. Luther Watson and his dog, Bobby, on north side of section house (courtesy Mary Nowell).



Figure 42. Mary Watson (right) and friend (last name Thompson) in front yard of section house (courtesy Mary Nowell).

with grass, bordered with flowers. A peach tree grew in the front yard.

There was a corral and cow shed located southwest of the house, and a garden area east of the corrals. The road ran north-south and was to the west of the housing area. North of the foreman's house were two bunkhouses, one in front of the other, situated parallel to the tracks. The bunkhouses were divided into apartments (five each), which housed ten crewmen.

A foundation that may have been for one of the bunkhouses is located outside of the highway right-of-way. Mary Nowell recalls that the bunkhouses were made with railroad ties, similar to those encountered during the excavations near the foundation.

A high density of historic artifacts was found dispersed on the surface and subsurface in association with the foundation. The north-south orientation of the foundation and the high number of artifacts in the area suggest that this foundation was for one of the two bunkhouses.

Mary Nowell recalled a workshop located north of the bunkhouses near the tracks. The tracks extended into the workshop so that railroad cars could be pulled off the track for repair work (Figure 43). There was no other industry at the station other than the railroad maintenance. Railroad materials and supplies were loaded and unloaded there.

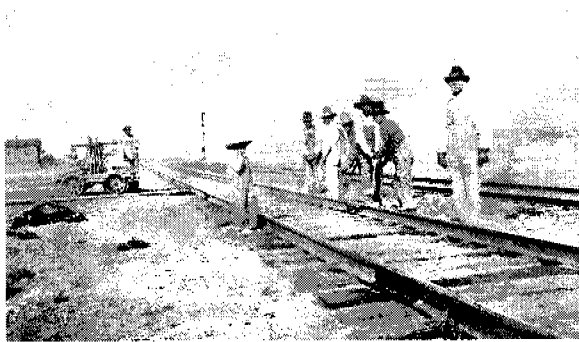


Figure 43. Handcart racks extended from the main railroad tracks to the workshop, where repair work was also performed (courtesy Mary Nowell).

The circular foundation feature may have been the communication building where the only telephone was installed (see Figure 40). Each morning the section foreman would call El Paso to obtain train schedules or changes. It was important that the foreman's "railroad watch" be absolutely accurate (Mary Nowell, personal communication 9/26/01).

Mary Nowell also recalls one outhouse, which was located west of the section house and was used by its occupants. It is likely that there was at least one more outhouse for the crew in the bunkhouses.

There was no post office at Temporal; however, it did serve as a place to pick up newspapers and mail along

with supplies that the section foreman bought in Tularosa for the work crew. Mary Nowell wrote (Tularosa Basin Historical Society 1985:546) that Luther Watson set up a commissary for the work crew in one room of the section house. On Saturdays, he would ride the train into Tularosa and walk to the Champion and Hanna Grocery Store to get supplies for his crew and their families. It was approximately 1 mile from the depot in Tularosa to the business district and the delivery boy, Cruz Marrujo, would take the supplies back to the depot in Tularosa. Along with the groceries, supplies included piece goods, lace buttons, thread, and other items that the women had requested.

Only one partial foundation remains at Temporal (Site LA 86735). However, in the early 1900s, it was called home by several families participating in the development of the railway system through southern New Mexico.

Community Composition

Information on Community Composition relied on the development of a census based on oral-history interviews and archival documents. The U. S. Census records were consulted for information about the residents of Temporal and their occupations. The Otero County Courthouse records were also researched for data, but no further information was realized. Interviews with Mary Nowell and the information in Luther Watson's Time Book (see Appendix E) were the most informative sources on the community composition of Temporal Station.

Ethnicity

Ethnic composition of the site during the early 1920s included Anglo (Luther Watson and family), and Mexican and German (laborers). According to Mary Nowell's recollections and Luther Watson's Time Book (see Appendix E), most of the crew were from Mexico, and some had wives and families with them.

The names listed in the Time Book reflect a Hispanic background and include Albert Franco, P. B. Arroyo, Manuel Gonzales, Juan Arrieta, Felipe Palafor, Zezario Palafor, Alberto Perez, and Santiago Rodriguez. There were children of the crew with whom Mary played and from whom she learned Spanish before she moved away in 1924. Helen, Luther's wife, would take care of the commissary, which necessitated that she also learn to speak Spanish (Tularosa Basin Historical Society 1985:546).

Artifacts from Mexico (i.e., ceramics, water and medicine bottles) were collected at Temporal, including four fragments of Mexican-made ceramics. The water bottle (Cat. No. 299; see Figure 13) was found at the rectangular foundation and is embossed with Spanish lettering. Although it came from New York, it may have belonged to one of the Spanish-speaking crew members. Another bottle with embossed Spanish lettering (Cat. No. 114) exhibits "La Sandora."

One of the railroad workers, Fred King, came from Germany after World War I. His wife Louise and daughter Selma lived with him in one of the bunkhouses. This was Fred King's first job after arriving in New York from

Germany. Although Fred could speak very little English, he was determined to learn, and Luther taught him how to carry out the duties of a section foreman. In a few years, Fred had his own section.

Age and Gender

All ages and both genders are represented at Temporal (Site LA 86735), supported by toys and buttons from children's clothing collected from the site, along with photographs provided by Mary Nowell (Figures 44 and 45). The toys collected during the project reflect a traditional category of dolls for girls and marbles for boys.



Figure 44. Mary Watson playing in front yard of section house at Temporal, circa 1920-1924 (courtesy Mary Nowell).



Figure 45. Mary Watson and friend at Temporal. Note peach tree and water pump in background (courtesy Mary Nowell).

The mixed gender of residents is confirmed through items collected from the site (Figures 46 and 47). When possible to determine, artifacts were placed in either female or male categories (Table 9). Items attributed to males include shirt buttons, athletic and work shoes, and medicine. Female items include dress buttons, shoes, and toiletry products.

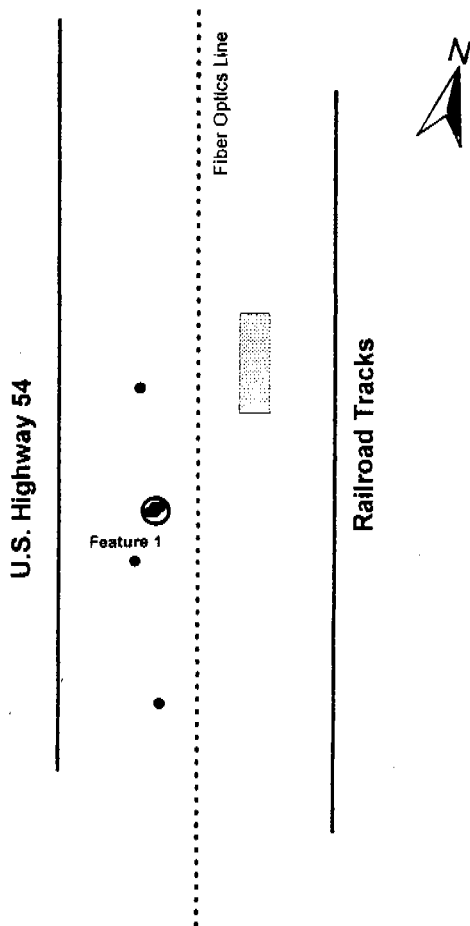


Figure 46. Distribution of male-specific artifacts collected at Site LA 86735.

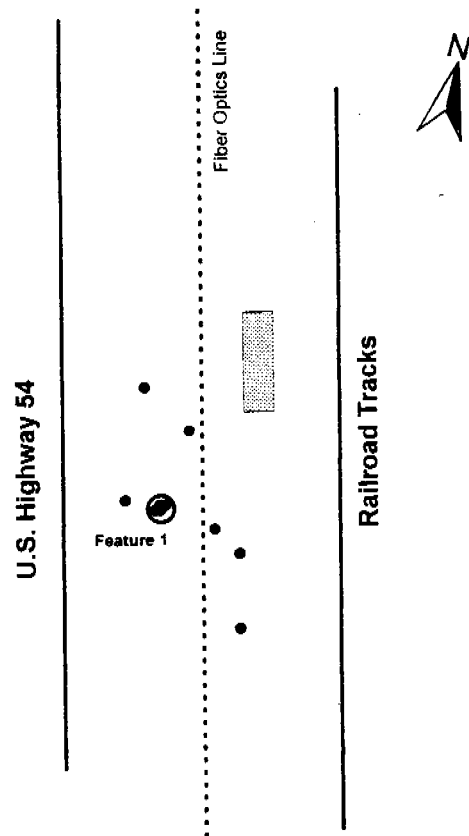


Figure 47. Distribution of female-specific artifacts collected from Site LA 86735.

Table 9. Summary of Gender-specific Artifacts from Site LA 86735 by Functional Category.

Functional Category	Male	Female	Total
Clothing	39	11	50
Household		1	1
Medicine		1	1
Personal	3	4	7
Toy	<u>3</u>	<u>8</u>	<u>11</u>
Grand Total	45	25	70

Artifacts collected from Feature 1 (Refuse Pit) were also placed in gender category, with the following results.

Table 10. Summary of Gender-specific Artifacts from Feature 1 by Functional Category.

Functional Category	Male	Female	Total
Clothing	32	11	43
Household		1	1
Medicine		1	1
Personal	2	1	3
Toy	<u>1</u>	<u>1</u>	<u>2</u>
Total	35	15	50

At least three ethnic and cultural groups lived at Temporal Station during the early years of the twentieth century. Having to work and play together required teaching and learning from each other.

Community Lifeways

Community Lifeway topics include subsistence, economic status, and daily-life patterns. The subsistence topic gives information about what types of food were consumed and where they came from, and what type of shelters residents lived in and how they were obtained. The economic status of residents in a community, as well as regional economics, refers to the prosperity of the occupants. Patterns of daily life are developed over a period of time, and include work, recreation, and managing to survive within the environment.

Subsistence

Subsistence studies used artifacts such as bottles and jars, faunal and floral remains, and other food items, as well as oral recollections. Railroads frequently had commissaries from which workers could order supplies. Workers at Malpais Section Station for the El Paso and Southwestern Railroad (later Southern Pacific) often had supplies delivered from El Paso (Kirkpatrick et al. 1994).

Mary Nowell related that her father, Luther Watson, traveled to Tularosa by train to pick up supplies for the family and crew who requested food and other needed items. When a car was purchased, Luther drove it to Tularosa to pick up supplies for the family and crew. These supplies were dispersed from the commissary set-up in one of the rooms at the foreman's house. Helen, Luther's wife, took care of the distribution of goods.

Homogeneity of certain artifact types, such as specific-sized food cans, may indicate the use of the railroad commissary as opposed to grocery stores, which probably had a greater selection of canned goods. There was, however, a lack of metal cans at Temporal Station, which are usually found on historic sites. These may have been disposed of at another place, although it suggests that what was taking place was the consumption of dried food (beans), home-grown eggs, and butchered livestock combined with home canning of fruits and vegetables.

Cartridge cases are artifacts that indicate hunting as a means of obtaining food. Some of the cartridge shells collected at Temporal Station are .30-30 caliber shells, likely used for hunting deer. Deer and rabbit bones (.22 caliber shells would have been used for small game) were identified in the faunal assemblage from Feature 1.

Faunal remains analyzed from Temporal Station reflect sources of protein from beef, pork, chicken, rabbit and birds. There were not enough bones to provide a comparative study of butchering techniques to provide insight into the purchase of meat from a commercial store versus home butchering of range animals. Bones found in the refuse pit (Feature 1) include cow and domestic pig, and exhibit conventional butchering marks. These animals may have been shipped in by railway. Fribley Meat Market in Alamogordo advertised in the *Tularosa Tribune* (dated September 1914) that:

"We have our own refrigerating plant and are thoroughly equipped for supplying meat to all the Otero County railroad points, especially Tularosa. Phone or mail us a trial order and get the price of our meats and other supplies."

However, Mary Nowell (personal communication 9/26/01) recalled that cattle and pigs were raised at Temporal. They were typically butchered during the cool months of the year since refrigeration was not available and the meat would not keep well in the summer. Three or four families would get together and slaughter

a steer or hog provided by one family. The meat was divided into equal portions. When that meat was consumed, another family would supply a steer or hog. The meat would be hung outside and, at night, it was left unwrapped to absorb the cold. During the day the meat was covered in paper and burlap to keep it cool.

Chicken and rabbits were also raised at Temporal for food. These were butchered during the summer since they could be consumed quickly. The chickens supplied eggs for much of the year (Figure 48).

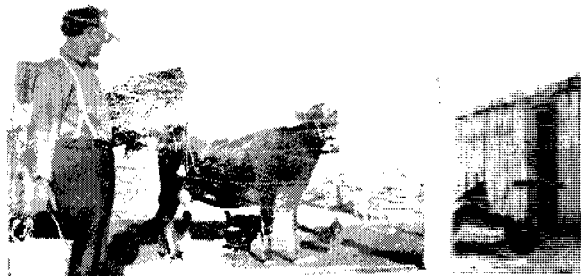


Figure 48. Luther Watson, taking care of animals at Temporal (courtesy of Mary Nowell).

Various types and relative quantities of bottles and jars that held foods and sauces provided data on the daily diet. Mary Nowell's recollections of her mother canning fruit and vegetables is supported by the canning jar/lid fragments found during the project, such as a *Kerr* jar fragment (Cat. No. 11) and a lid fragment from a glass canning jar (Cat. No. 15). She also provided a photograph showing her father harvesting pumpkins from their garden at Temporal (Figure 49). Generally, meat was not canned because there was no pressure cooker available. Sometimes, however, sausage was

cooked, poured into jars, and when cool, the fat that rose to the top would solidify and serve as a seal (Mary Nowell, personal communication 9/26/01).



Figure 49. Luther and Mary, with dog Bobbie, at a pumpkin harvest at Temporal, circa 1921 (courtesy Mary Nowell).

Artifacts reflecting purchased items include beverage and condiment bottles. No soft-drink bottles/fragments were identified from Temporal Station. Either soft drinks were not consumed there or empty bottles were returned for deposit. Two bottle fragments (Cat. Nos. 1 and 21) are from brown beer bottles, and one bottle fragment (Cat. No. 31) may have been from a wine or liquor bottle. A Welch's Juice (Cat. No. 371) and a water bottle (Cat. No. 299) were also identified. Several hot sauce bottles and fragments were found, suggesting a fondness for hot sauces. Condiments were purchased items that added flavor to meals. A whole Gebhardt's Chili bottle (Cat. No. 370) was also found on the site (Figure 50).

In addition to canning, butchering, and purchasing food, some items were available from the train. Fruits and vegetables were shipped from California through Arizona and New Mexico to the



Figure 50. Gebhardt's Chili bottle (Cat. No. 370) found at Site LA 86735.

Midwest and East Coast. Sometimes when the train stopped at Temporal, ice from the refrigerator car, as well as food items such as cantaloupe and seafood, were available to the residents. The ice was kept in compartments at either end of the car, insulated with straw placed next to the outside wall. The compartment was large enough for a man to get into to store the ice. A "fake" wall was placed between the ice and produce and/or seafood. The food was kept between the two "boxes" of ice (Mary Nowell, personal communication 9/26/01).

Water was supplied by the railroad. A railroad tanker car was placed on the siding (Figure 51) and was refilled often enough to provide water for all needs, including yard, small orchard, and garden (Mary Nowell, personal communication 9/26/01).

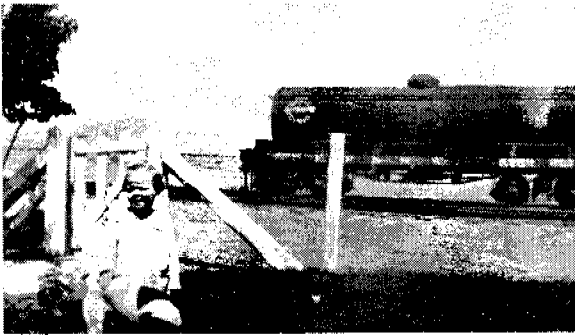


Figure 51. Railroad tanker car left on siding at Temporal for water supply, with Mary and dog "Bobby" (courtesy of Mary Nowell).

The identification of canning jar remains at Temporal Station, purchased condiment and drink bottles, combined with Mary Nowell's recollections of butchering livestock, her mother canning fruit and vegetables, her father picking up supplies in Tularosa, and obtaining food from the train, all suggest a mixture of sources for food, drink, and seasonings.

Housing at Temporal Station was provided by the railroad. The section foreman and family lived in the section house. The work crew (including those with family) lived in the two bunkhouses furnished by the railroad. Rent was deducted from each crew member's pay. There was no telephone or electricity. Porches on the house and trees in the yard offered cool places in the summer. Coal and wood supplied heat and cooking fuel in the winter (Mary Nowell, personal communication 9/26/01).

Economic Status

The economic status of Temporal residents as well as regional economics can be inferred from collected artifacts and archival material. Artifact analysis

detailing the quality and quantity of ceramics, clothing, luxury items, and food products, combined with the information on wages earned acquired from the foreman's Time Book (see Appendix E), provides a clear picture of the availability of goods and the range of economic status at Temporal Station.

The variety of ceramics, glass, toys, and medicine items found at Temporal Station reflect the range of quality in the artifacts found at Temporal. The finer porcelain suggests a higher level of income for some of the residents (see page 38 for hallmarks) in contrast to the Mexican-made ceramics also collected during the project. The ceramic doll fragments and metal toy horse might be considered luxury items purchased for children, while the marbles would be a less expensive and more common toy. Medicine bottles and bottle fragments include both prescription and over-the-counter remedies. Prescription medicine infers an income that would allow the purchase of these drugs, while over-the-counter medication might have been more affordable for the work crew and their families.

Clothing also reflects the economic dichotomy of luxury versus utilitarian artifacts found at Temporal. Athletic shoes suggest money to spend on leisure activities, while the resoled work shoes reflect labor-related frugality.

The food items consumed at the site reflect a varied economic status and the subsistence orientation of the times. Some food items, such as fruit, vegetables, and livestock, were grown and processed at Temporal. Other food, like oysters,

condiments, and some beverages, were purchased.

The foreman's Time Book (Figure 52) kept by Luther Watson lists names, work performed, money earned, deductions,

and wages paid to the foreman and crew (Table 11), and pay for track maintenance (Table 12). The amounts paid to the foreman and crew reflect a wide range, from \$50.05 paid to the foreman to \$5.00 (after deductions) paid to one crewman.

Table 11. Chart of Hours and Wages Paid from March 1-16, 1920 at Temporal (taken from the Foreman's Time Book; see Appendix E).

Name	Hours	Rate	Amount	Deductions		Amount Paid
				Hosp.	Board	
Luther Watson	120	5.00	50.80	75		50.05
Alberto	96	.34	32.64	75	26.89	5.00
Pedro	104	.34	35.36	75	16.15	24.46
Juan	96	.34	32.64	75	10.84	21.05

Table 12. Chart of Hours and Pay for Track Repair from March 1-16, 1920 at Temporal (taken from the Foreman's Time Book; see Appendix E)

Name	Hours	Rate	Amount	Deductions		Amount Paid
				Hosp.	Board	
Luther Watson	120	5.00	50.80	75		50.05
Alberto Franco	96	.34	32.64	75	26.89	5.00
Pedro Delgado	104	.34	35.36	75	16.15	24.46
Rudolfo Rodriquez	96	.34	32.64	75	10.84	21.05
Victor Duran	72	.34	24.48	75	16.47	7.26
P.B. Arroyo	104	.34	35.36	75	19.81	14.80
Manuel Gonzales	104	.34	35.36	75	24.42	10.19
Juan Corrieta	96	.34	32.64	75	19.97	11.92
Felipe Palafor	104	.34	35.36	75	14.38	20.23
Zevario Palafor	104	.34	35.36	75	14.38	20.23

Copy

FORM 1600

UNITED STATES RAILROAD ADMINISTRATION
Director General of Railroads

EL PASO AND SOUTHWESTERN RAILROAD
Maintenance of Way Department

Eastern Division

TIME BOOK

For use of
Sections, B. & B. and Water Service Gangs

Section No. *12* or Gang No. _____
District *First*

Limits M. P. *107* to M. P. *117*

Location of Section or Gang *Temporal Station* station

Month of *March* 19*20*

I certify that the time as entered and distributed, and work and material as reported are correct.

L. C. Watson
FOREMAN

I have personally examined the entries in this book and certify to their correctness.

ROADMASTER OR GENERAL FOREMAN

SPECIAL NOTE:—ABOVE INFORMATION MUST BE FILLED OUT COMPLETE.




Figure 52. Reproduction of the cover of the foreman's Time Book used at Temporal Station for the month of March 1920. (The complete Time Book is provided in Appendix E.)

The economic structure at Temporal (Site LA 86735) was similar to the regional economic situation seen at other railroad section stations of the day. Artifact assemblages found at the Malpais Section Station (Site LA 54880; Kirkpatrick et al. 1994) and Escondido Station (Site LA 101,183) of the El Paso and Northeastern Railroad (Hart 1994) are similar in composition to that of Temporal Station. The other section stations in the area undoubtedly were host to the same levels of economic disparity. Although fruits, vegetables and seafood became available to the Tularosa Basin through the railroad, only affluent resident could afford to purchase these items. On the other hand, it would appear that food staples were plentiful and it is doubtful whether anyone suffered hunger or cold.

Everyday Activities

The everyday activities for residents of Temporal Station that are reflected through artifacts and oral recollections are working on the railroad, the care of livestock and gardening, canning and preserving of foods, grooming, travel, and recreation.

Working on the Railroad

The work crew used handcars to travel to areas for work away from the station. Instructions to the foreman for work to be carried out for maintenance of the tracks are found in the Time Book (see Appendix E). Some of the categories are listed below.

11. Account No. 202: "Roadbed Repairs. This includes ditching and

cleaning cuts, filling borrow or cattle pits, repairs to roadbed on account of washouts or slides, crowning track ties with retaining earth, dressing ballast and cutting sod line, cutting and burning grass and weeds, removing scrap, cinders, trash, etc., from track or station grounds adjacent thereto, watching and patrolling track, extinguishing fires of R. of W., riprap or other work to protect track and roadbed from washouts. Floods, etc."

12. Account No. 220: "Track Repairs. This includes labor applying slag, crushed stone cinders or other ballast for repairs to track, handling, disturbing and renewing cross and switch ties and spacing same, gathering up and disposing of old ties and other material released from track handling and relaying rail, applying and renewing all track fastenings and switch fixtures, repairing rail racks, aligning, surfacing, shimming and gauging to tracks, restoring track after washouts, wrecks, etc., and taking up abandoned tracks."

13. Fuel: "This account should include all expense in connection with handling or issuing of Company coal, including the operation of coal chutes, unloading and reloading storage coal, laying, shifting or repairing temporary tracks for the exclusive use in handling storage coal, unloading coal at pumps, shops, stations or offices, also unloading or handling old ties when for use in firing locomotives."

14. Account No. 415: "Clearing wrecks and derailments, picking up wrecked cars or contents, watching or transferring freight at wrecks, building or removing temporary tracks at wrecks, transferring passengers, mail or baggage at wrecks. Always give location and state whether freight or passenger train.

The Time Book lists consecutive days of "walking the track and clearing tumbleweeds from bridges. Cleaning up around section grounds... and spotting up and aligning tracks" (see Appendix E). Tools needed for work at the station are also listed in the Time Book under "Foreman's Monthly Tool Report." This list begins with Adzes and Handles, to various types of bars (tamping and crow), barrow-wheel, cars-hand, chisels, cups-tin, drills, flags, hammers, jacks, keys, lanterns, oil cans, picks, rail benders, rope, saws, tape-lines, water kegs and wire stretchers (a full list is in Appendix E).

One particular work-related incident caused by the weather during the early 1920s concerns a sand storm. A big storm came out of the east one year and blew all the windows out of the houses. All the women and children at Temporal Station went to the largest bunkhouse. To keep the wind out, the men nailed tables over the windows. After about 24 hours of wind, a snow storm came (Tularosa Basin Historical Society 1985:547).

During the sand storm, a train missed the siding or bypass between Three Rivers and Carrizozo. Another

train heading in the opposite direction ran into the train that missed the siding. All the section crews from El Paso to Carrizozo were sent out to clean up the wreck. When the Temporal crew returned home, they still had to clean up there. Sand was scooped up with shovels and put into washtubs and then carried out of the houses. Most of the chickens and anything loose outside was blown away. Much later, there were a few items found five or six miles away (Tularosa Basin Historical Society 1985:547).

Care of Livestock and Garden

Tending a garden, milking cows, and feeding chickens and rabbits were daily events recalled by Mary Nowell (Figure 53). She remembered that her mother, Helen, canned food from the garden, raised chickens for meat and gathered eggs, had a milk cow for milk and butter, and cooked on a wood or coal-burning stove. Water was delivered to the siding in large railroad tank cars that were parked on the second track siding located east of the railroad tracks and section house.



Figure 53. Mary Watson at Temporal, with chicken for dinner, ca .1924 (courtesy Mary Nowell).

Health and Grooming

Health and grooming concerns were everyday activities reflected in the artifacts collected at the site. Fragments of a comb (lice), shaving logo, and jars and bottles that contained creams reveal personal grooming. Medicine bottles and fragments also disclose a desire to maintain health.

Travel

Artifacts also tell the early transportation story at Temporal Station. Horses and wagons were the early forms of transportation in the area. At Temporal Station, the train was used to go after supplies in Tularosa. Personal and occasional visitors traveled via this siding, but it was not used commercially. Later, a Model T Ford was purchased, which was used to make trips to town for supplies and to attend church (Mary Nowell, personal communication 9/26/01).

Recreation

"All work and no play" made for a dull Section Station. Recreation at Temporal is evidenced through artifacts such as the cartridges, toys, and athletic shoes. Mary Nowell (personal communication December 2000) also recalls playing with other children.

The 131 cartridge casings found during the project are typical items found at sites of the early 1900s. Hunting was a sport as well as a way to provide meat for the table. Plinking at tin cans and bottles, was, and still is, a favorite past time, and with the large number of small .22 shell

casings uncovered, it was probably true at Temporal in the 1920s.

The athletic-style shoes found at Temporal Station show another form of recreation. Work crews at Temporal undoubtedly participated in baseball and possibly other sports.

Toys and toy fragments collected at Temporal Station include marbles, a doll body, a doll dish, and a metal horse fragment. However, particularly in those days, children did not need "store-bought" toys. A stick became a bat or gun, a rock became a ball, and lines drawn in the sand became a playing board. All that was needed was a child or two and sometimes a dog named "Bobby."

Everyday Life

Everyday life at Temporal Station, as detailed through artifacts and oral recollections, appears to have been similar to other rural communities in the early 1900s. The residents worked for the railroad, kept gardens and livestock, took care of health needs and grooming, and had time for recreation.

Summary

Between 1898-1950, nothing had a greater influence on the land use and economy in the Tularosa Basin than the development of the railway system. The railroad became the means of transport for merchandise and opened the world to the residents of the Basin. Ranchers and farmers used the rails to ship out produce and cattle. Towns and communities sprang up. Businesses were started and a

wide variety of goods, from clothes to furniture, were brought to the merchants for retail sale. Food and lodging establishments were built to serve the travelers.

The railway system required maintenance. Railway companies erected section stations every few miles along the track. A foreman and crew were employed to maintain the tracks and keep the trains rolling. Temporal was one of these stations and for a short period, it was home to several families.

Railroad travel and transportation reached main-line mileage peak in New Mexico around 1914 (3,124 miles). An extensive abandonment of unprofitable lines began in 1925 and continued through the Depression years (1930s). With the growth of the automobile, highways were constructed, making repairs and upkeep of the track accessible from larger centers. It was not economical to keep a foreman and crew every few miles along the track. Temporal Station lost status as a maintenance point and was no longer needed.

With respect to the research theme of Community Structure, the artifacts found, collected, and analyzed combined with oral recollections and archival research, revealed the presence and locations of long-dismantled buildings and activities. These include a foreman's house, bunkhouses, a work shed, corral, and garden. The activities at Temporal were working on the railroad, tending livestock and garden, canning fruit and vegetables,

butchering cattle, and occasionally, recreation.

At least three ethnic groups are represented at Temporal. This is demonstrated through oral recollections, archival research, and artifactual data. Both Hispanic and Anglo ranchers and farmers lived on and worked the land in the Tularosa Basin before the railroad was built. When the railroad arrived, it offered a steady income and living quarters, which attracted people from Mexico as well as local residents.

The research theme of Community Lifeways includes subsistence, economics, and everyday activities, and was addressed using artifactual, oral, and archival data. A clear dichotomy was developed in this research theme. Luxury goods were purchased by those fortunate enough to afford them (primarily the section foreman). Meanwhile, basic subsistence consisted of raising livestock, growing gardens, and preserving food, and was a mainstay for all of the Temporal residents. Household items collected during the project displayed both fine and low quality assemblages. Payroll records show two sets of wages, which differed radically between the section foreman and the laborers. Although the dichotomies did exist, there is no suggestion of utter poverty or huge wealth. The people who lived and worked at Temporal were like many others in the early 1900s. They found work, a place to live, and a way to survive within their environment amidst the transition from a subsistence to a cash-based economy.

SITE LA 120,979

Site LA 120,979 (Figure 54) consists of two cinder piles and one slag pile, with associated historic artifacts located between the highway and the right-of-way fence. Artifacts at Site LA 120,979 are varied and appear to represent a number of episodes and activities over a long time period. The activities relate to both railroad and highway construction as well as travel. Data was limited to the observations made on the survey, the excavation of the features, and the few artifacts found on the surface.

Original Site Description

Site LA 120,979 (see Figure 3), the "Clinker" Site, was described by J. Turner and L. Parks in Michalik (1998) as follows:

The site consists of a scatter of historical trash with two features consisting of concentrations of cinders. It is located on a creosote flat adjacent to the existing Southern Pacific tracks on the east side of US 54. The site measures approximately 100 meters north-south by 40 meters east-west (4,000 square meters) and is located on State Trust land. The site is situated between the pavement of US 54 and a dirt maintenance road that parallels the tracks. The site has been impacted by the installation of a buried phone line and by the maintenance of both the railroad access road and US 54. Since the original recording in 1998, two new

corridors have disturbed the site. One consists of a 12 foot wide corridor that has been bladed through the site and the second consists of a 20 foot wide corridor associated with the installation of a buried fiber optic line.

Artifacts number in the low hundreds and include glass, metal, and railroad related items. The trash is scattered across the site but the heaviest concentration of material is located near one of the piles of clinkers. The majority of the artifacts consist of bottle glass, including purple, aqua, brown, green and clear glass. One blue glass insulator is present. No historical ceramics were observed. The cans include church key beverage cans, sanitary food cans, lard pails, and a spice can lid. The remainder of the metal consists of unidentifiable fragments.

Two piles of clinkers are present on the site. Feature 1 measures 1.0 m in diameter and is associated with green glass, clear glass a 7-Up bottle and a food can. Some recent charcoal is also present in the feature possibly indicating recent reuse. Feature 2 also consists of a concentration of clinkers and measures 2.0 m in diameter. Four church key opened beverage cans were associated with the feature. (Note: recent

blading in the area has destroyed Feature 2).

Three trowel tests were conducted on the site. They indicate silty loams to a depth of 40 cm. No artifacts were observed in the test holes. A number of artifacts on the site are partially buried, however, and limited subsurface cultural material may be present, particularly in the artifact concentration near Feature 1.

The site appears to represent a historical trash scatter, possibly related to the railroad, dating to the period of A.D. 1900 to 1950 based on the artifacts present. The site has been disturbed by numerous construction activities and retains little integrity. The artifact assemblage of the site has the potential to yield information regarding the early economic history of the railroads in the Tularosa Basin. The site is potentially eligible to the National Register of Historic Places under Criterion d of 36 CFR 60.4. Avoidance of the site is recommended. Additional recording and testing is recommended in the areas of potential impact if the site will be affected by the proposed highway construction.

(Michalik 1998)

HSR Pre-field Site Visit Notes on the Right-of-way through Site LA 120,979

The features and artifacts related to the site are within the fenced right-of-way. Contrary to the site form and based on the description, Feature 2 appeared to be intact.

Historic Context, Data Potential, and Importance of Cultural Materials at Site LA 120,979

The recorded density of materials suggests that the "Clinker" Site was used repeatedly as a temporary work camp where railroad and/or highway workers ate lunch and where materials may have been stockpiled during repairs on the railroad or during highway construction. Based on the artifacts, these activities occurred sometime between 1900 and 1950. Highway work and railroad maintenance are recurring activities. If the camp was used repeatedly over a long period of time, a sequential range of dates might be evident in the artifact assemblage. However, if the camp was utilized for short periods or just a few years, a single cluster of overlapping artifact dates should result.

Data Recovery of Site LA 120,979

Because of the dispersion of artifacts and the disturbed nature of the right-of-way, HSR archaeologists set up a baseline along its length at the eastern edge of the highway right-of-way and performed a controlled surface collection using a 5-m grid system (Figure 54).

Four separate series of auger transects were systematically placed at different points within the right-of-way along the length of the site to identify potential subsurface features (Table 13). However, no artifacts or features were found. The soil was loose silty sandy loam with few or no gravels. Sterile soil was found at 50 cm or less below the surface.

Table 13. Auger Transects at Site LA 120,979.

Grid Location	Depth
466N/997E	50 cm
462N/997E	50 cm
458N/997E	50 cm
454N/997E	50 cm
450N/997E	50 cm
511N/996E	50 cm
512N/996E	50 cm
513N/996E	50 cm
514N/996E	50 cm
515N/996E	50 cm
516N/996E	50 cm
517N/996E	50 cm
518N/996E	50 cm
519N/996E	50 cm
520N/996E	50 cm
551N/993E	50 cm
547N/993E	40 cm
543N/993E	40 cm
539N/993E	40 cm
535N/993E	40 cm

A total of four excavation units (two 1 by 1 m, one 1 by 2 m, and one 2 by 2 m unit) were excavated using hand tools and focused on three features identified on the surface (an additional feature was identified during the data recovery). All units were excavated in 10 cm levels.

A total of 284 artifacts were collected from the surface or subsurface excavations at Site LA 120,979 (see Tables 15 and 16, pg. 78). These artifacts include all temporally or functionally diagnostic artifacts located on the surface and those recovered from excavation of the features. Although it was anticipated that the features would yield significant information concerning the nature of Site LA 120,979, the majority of data obtained came from the surface collections and not the excavation of the features.

Features at Site LA 120,979

Three features were identified on the surface of the site (Table 14). The features consisted of piles of clinkers or, in the case of Feature 3, a pile of slag. All three features yielded a limited number of subsurface artifacts and lacked subsurface depth.

Table 14. Features at Site LA 120,979.

Feature No./Type	Grid N	Grid E	Grid Size (m)	Depth below Datum (m)	
				Beg.	End
1 Cinder pile	544	997	1x1	1.79	1.99
2 Cinder pile	597	998	2x2	1.80	1.92
3 Cinder pile	503	997.5	1x2	1.58	1.78

Feature 1

Feature 1 (Figure 55) was a cinder pile of slag and clinkers, first identified on



Figure 55. Feature 1 (Site LA 120,979), with associated 7-Up bottle, looking northeast.

the surface by the cultural resources inventory conducted in 1998 (Michalik 1998). The feature consists of a moderate concentration of clinkers that measure 1.2 m in diameter. Within the feature were 11 pieces of green glass, one piece of clear glass, and a metal can fragment. No charcoal or ash was observed on the surface within the feature. Artifacts observed in the vicinity of the feature include five pieces of clear glass and a broken green-glass bottle (7-Up).

The feature was excavated within Unit 544N/997E. Excavation revealed that the feature had no subsurface definition, although clinkers were observed 3 cm below the surface. Thus, the feature was largely surficial. Although the 7-Up bottle was nearby, no temporally diagnostic artifacts were in clear association with this feature.

The fill within the feature consisted of a loosely to moderately compacted, silty sand with a moderate density of gravels. Subsurface artifact density was very low, consisting of three pieces of clear glass. No charcoal or ash was observed.

Feature 2

Feature 2 (Figure 56) was a cinder pile of small clinkers that was first identified on the surface by the cultural resource inventory conducted in 1998 (Michalik). The feature consists of a high density of clinkers that measure 2 m (6 ft-6 in.) in diameter. Within the feature were two small patches of ash, two brown glass bottles (beer bottles), and two metal cans (triangular punch-opened cans). Two other triangular punch-opened metal cans were found in the immediate vicinity of

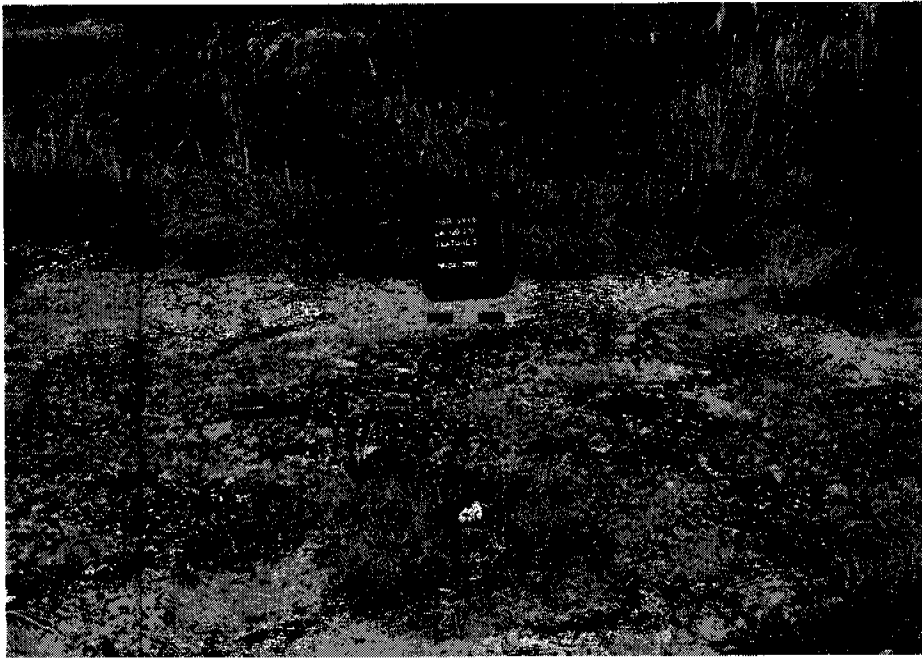


Figure 56. Feature 2 at Site LA 120,979, looking west.

the feature. Also in the immediate vicinity of Feature 2 were a bottle fragment of Hamlin's Wizard Oil and a drinking glass fragment. These artifacts are potentially the earliest artifacts from the site, respectively dating to the early twentieth century and after 1932 (see artifact discussion). Another brown bottle fragment found nearby dates to after 1954.

Feature 2 was excavated within Unit 597N/990E, a 2-by-2-m unit. Excavation revealed that the feature had no subsurface definition. Although some patches of dark ashy soil were observed at a depth of 6 cm, the feature was largely surficial.

The fill within Feature 2 consisted of loosely to moderately compacted, silty sand with a high density of gravels and clinkers. Subsurface artifact density was low, consisting of broken glass sherds and miscellaneous metal fragments.

Feature 3

Feature 3 was a pile of 12 pieces of large slag (5 to 10 cm) and numerous smaller clinkers (<5 cm) that were discovered during data recovery. The feature consisted of a low to moderate density concentration of slag and clinkers measuring 2 m in diameter. No artifacts, charcoal, or ash was observed within the feature on the surface. The feature was excavated within Unit 503N/997.5E. Excavation revealed that the feature had no subsurface definition, although clinkers were observed 5 cm below the surface. Thus, the feature was much like Feature 1, only surficial.

The fill within the feature consisted of a loosely to moderately compacted, silty sand with a moderate density of clinkers, five more pieces of large slag, and a very low density of artifacts.

Artifacts include two pieces of clear glass and two pieces of miscellaneous metal. No charcoal or ash was observed.

No temporally diagnostic artifacts were clearly associated with the feature. Artifacts observed in the immediate vicinity of the feature include a metal can and five pieces of clear glass.

Artifact Analysis

Artifacts were analyzed in two phases, descriptive and analytical. The descriptive phase described the artifacts by placing them in basic material categories (Table 15). The two largest material types are glass and metal. Further separation of materials is seen in Table 16.

Table 15. Total Number of Artifacts at Site LA 120,979.

Material Category	Surface	Excavation	Total
Glass	140	45	184
Metal	23	70	93
Wood	1	0	1
Rubber	1	2	3
Porcelain	1	0	1
Stone	2	0	2
TOTAL	144	137	284

Table 16. Breakdown of Artifacts at Site LA 120,979 by Type and Material.

Description	Total	Description	Total
Aluminum	1	Metal fragment	1
Aluminum funnel	1	Pipe	1
Bottle	1	Staple	5
Beer bottle	2	Tin	3
Bottle part	1	Tin cans	41
Bottle top	1	Tin can fragment	27
Bottle neck with rim	5	Tin jar lid	1
Cap	1	Tire	2
Flake (lithic)	2	Washer	1
Glass sherd	176	Wire	2
Insulator	1	Wood fragment	1
Metal	6	Subtotal	85
Metal disc	1		
Subtotal	199	TOTAL	284

Glass

Glass items collected include bottle and bottle fragments, insulator fragments, and glass sherds (Figure 57). For a discussion of glass manufacture, see pages 34-35 (Site LA 86735) of this report.

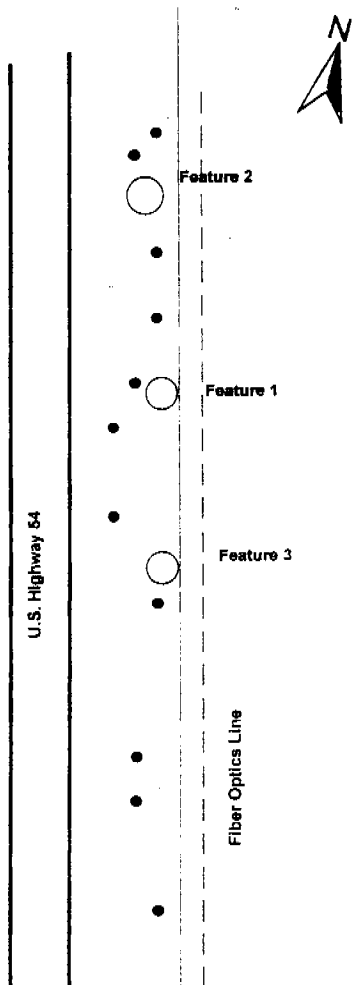


Figure 57. Distribution of glass artifacts at Site LA 120,979.

One of the earliest manufacture dates is from a Hamlin's Wizard Oil bottle (Cat. No. 49). This bottle was manufactured in 1860 and continued to be produced until the early 1900s (Fike 1987: 193).

Other diagnostic bottles and bottle fragments are from soft drink or soda bottles. These include the popular brands of 7-Up and Coca Cola. American scientists were interested in the effervescent qualities of mineral water as early as 1773, and the first establishment to sell "soda water" was in 1807 (Woodruff and Phillips 1974:1). By 1865, the flavors ranged from pineapple, orange, apple, grape, strawberry, pear, melon, lemon, cherry, and plum to gooseberry. The date of manufacture for the 7-Up bottle fragment (Cat. No. 38) is after 1954, which is the same year that vending machines for soft drinks in cups and canned soft drinks appeared (Woodruff and Phillips 1974:1). The Coca Cola bottle fragment could not be dated.

Brown bottle glass fragments were also present, primarily from beer bottles. Only one (Cat. No. 51), from a brown bottle manufactured after 1954 (Toulouse 1972:403), was temporally diagnostic.

Many glass sherds littered the ground at the site. Only a few exhibited temporally or functionally diagnostic attributes. These include:

Cat. No. 11: Glass tumbler fragments; mark "F" in shield; Federal Glass Co., Columbus, Ohio; manufactured 1932 (Peterson 1971:48).

Cat. No. 27: A bottle base embossed "Owens Illinois Pacific Coast;" manufactured 1943 to present (Toulouse 1972:406-407).

Cat. No. 33: A glass fragment embossed "Glass Containers Corp.;" manufactured since 1945 (Toulouse 1972:221).

One insulator fragment, probably broken from the nearby telephone line, was found on the site. The telephone line was recently replaced by the fiber optics cable, which impacted the site.

Metal

Metal items collected from Site LA 120,979 consist of indeterminate metal fragments, staples, pipe, an aluminum funnel, aluminum screw tops for bottles, a washer, wire fragments, and tin cans (see Table 16; Figure 58). The funnel measured 4 in. deep by 4 in. in diameter and was badly flattened. It was probably used for oil.

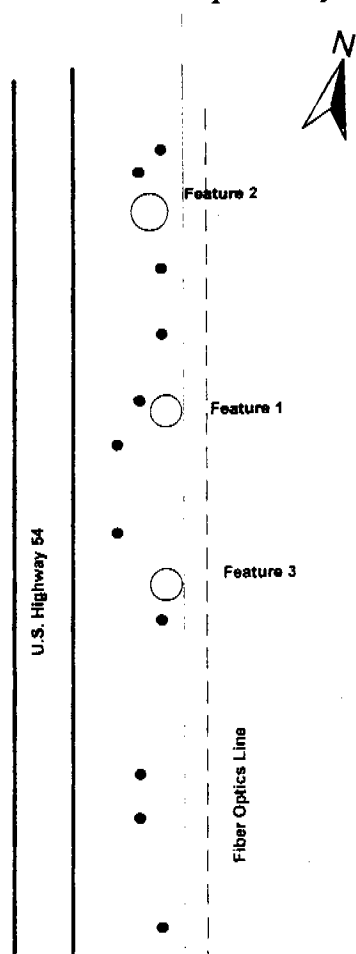


Figure 58. Distribution of metal artifacts at Site LA 120,979.

Tin Cans

Early tin cans (beginning in 1819) are classified as hole-in-top (a.k.a. hole-and-cap) and were manufactured by hand. A piece of tinplate was bent into shape on a roller and overlapping edges were soldered together. The two round ends were cut, and their edges bent down and soldered to the body. The top could be soldered on after the can was filled. This style can allowed food to be inserted through a circular hole in the top and a small cap with a vent hole was soldered over the opening. During the process of heating the can with the food inside, steam would escape. When a sufficient amount of steam was expelled, the vent hole was soldered.

The manufacture of hole-in-top (a.k.a. hole-and-cap) cans continued with many refinements until 1897. At that time, there was a switch from the hole-in-top to the sanitary-seal can, where can ends were attached to the body by crimping the edges together with a gasket between the body and top. In 1900, the hermetically sealed, double-seamed body was introduced, which is still used today.

One can was identified as a condensed milk can (Cat. No. 77). It was produced between 1932 and 1940 (Berryman 1984:56).

Other cans collected at Site LA 120,979 include beer and/or soft drink cans exhibiting triangle punch openings in the aluminum tops. The first aluminum "soft-top" cans were introduced in the late 1950s (Rock 1978). Adolph Coors Company introduced the first all aluminum can in 1959 (Rock 1978).

Wood, Rubber, and Stone

Wood (1), rubber (3), and stone (2) artifacts were also found on the site. The milled wood fragment has no distinguishing characteristics and the rubber is from tire tread. The stone artifacts are two basalt debitage with no cortex, found within the right-of-way on the west side of the highway, which were not collected.

Functional Categories

The second phase of the analysis used functional criteria. The functional categories that applied to the assemblage at Site LA 120,979 are construction, electrical, food, household, liquor, medicine, ranching, transportation, and miscellaneous/undetermined (Table 17).

Food

The food category consists of glass bottles (whole and fragments) and can fragments (Figure 59). One clear bottle is a soda bottle. Cans include nine triangle-punched food cans, six flattened cans, and one aluminum can with a pull top. The evaporated milk can (Cat. No. 77) is included, and other cans may also represent food items.

Household

This is the largest category, with 60 items consisting of glass and metal artifacts (Figure 60). Household items are those needed to maintain a house. Among the items that could be identified is a drinking glass fragment (Cat. No. 11) with a manufacture date of 1932. Also identified as a possible household item is the aluminum funnel (Cat. No. 62).

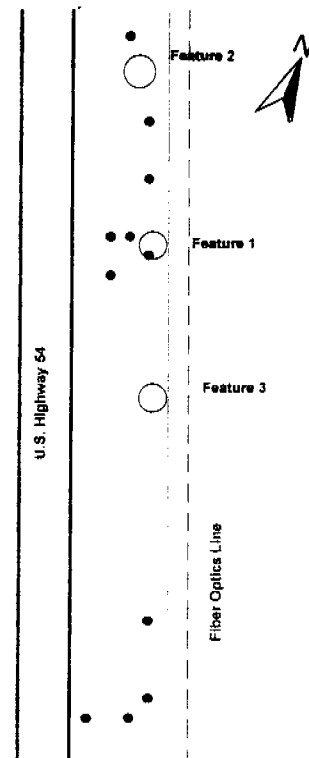


Figure 59. Distribution of food items at Site LA 120,979.

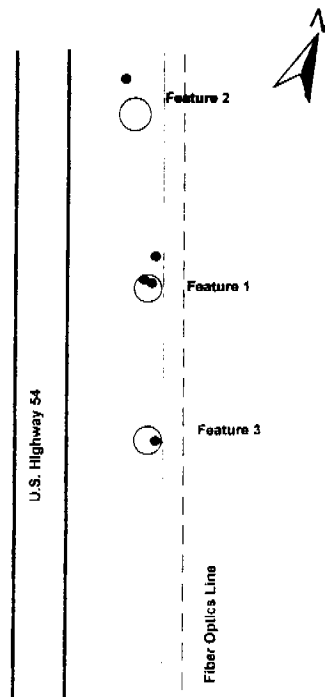


Figure 60. Distribution of household items at Site LA 120,979.

Table 17. Artifact Frequencies by Material Type within Functional Categories at Site LA 120,979.

Functional Category and Items	Number	Percentage
AUTOMOTIVE		
Metal	1	
TOTAL	1	.3
CONSTRUCTION/BUILDING		
Wood	1	
TOTAL	1	.3
ELECTRICAL		
Glass	2	
Porcelain	1	
TOTAL	3	1.1
FOOD		
Glass	18	
Metal	67	
TOTAL	85	30
HOUSEHOLD		
Glass	24	
Metal	3	
TOTAL	27	9.5
LIQUOR		
Glass	55	
Metal	5	
TOTAL	60	21.1
MARKER		
Metal	1	
TOTAL	1	.3
MEDICINE		
Glass	7	
TOTAL	7	2.5

Table 17. Artifact Frequencies by Material Type
within Functional Categories at Site LA 120,979 (cont.)

Functional Category and Items	Number	Percentage
RANCHING		
Metal	9	
TOTAL	9	3.2
TRANSPORTATION		
Glass	3	
Rubber	3	
Automotive-related	1	
Railroad-related glass	23	
Railroad-related metal	5	
TOTAL	35	12.3
MISCELLANEOUS		
Lithic debitage	2	
Undetermined glass fragments	52	
Undetermined metal fragment	1	
TOTAL	55	19.4
GRAND TOTAL	284	100

Liquor

Fifty-five artifacts were placed in the liquor category, which includes beer bottle, wine bottles, and can fragments (Figure 61). One bottle is a Coors bottle. A metal top to a wine bottle is also in the assemblage. These items were probably discards from the highway over a period of time.

Transportation

The transportation category encompasses railroad and automobile artifacts.

It contains 28 metal and glass fragments. Items related to transportation are rubber from tire tread, thick window glass fragments, an oil can fragment, and bolts.

Miscellaneous

Categories with fewer than ten items each are construction/building (1), electrical (3), automotive (8), marker (1), medicine (7), and ranching (9). These artifacts did not have any diagnostic attributes beyond function. Also included here are 53 undetermined fragments, 52 of which are glass and 1 is of metal.

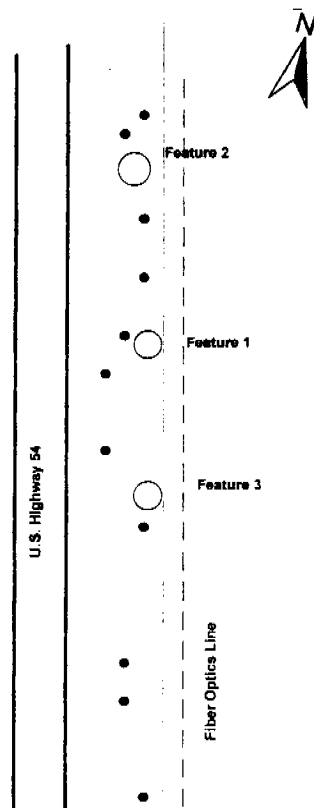


Figure 61. Distribution of liquor items at Site LA 120,979.

Discussion of Site LA 120,979

Although the features at this site did not yield great quantities of data, they represent three separate episodes of coal detritus dumping with some of the surface artifacts related to the dumping. The surface collections contain a wide assortment of historic artifacts that are useful in interpreting the site. Diagnostic artifacts help determine chronology and function of the site. These diagnostic artifacts are listed below.

Cat. No. 11: Clear glass tumbler fragments with partial base; mark "F" in shield. Federal Glass Co., Columbus, Ohio; 1932 (Peterson 1971:48).

Cat. No. 27: A rounded, brown glass bottle fragment; Owens Illinois Pacific Coast manufacture 1943 to date (Toulouse 1972:406-407).

Cat. No. 33: Three sherds glass bottle base; Glass Containers Corp., manufactured since 1945 (Toulouse 1972:221).

Cat. No. 38: 7-Up bottle, green; bottled in Roswell, New Mexico, manufactured by Liberty Glass Co, last manufacture 1954. (Toulouse 1972:321).

Cat. No. 49: Hamlin's Wizard Oil bottle, Chicago, Ill (see Figure 30, pg. 48); aqua glass, $3\frac{11}{16}$ by $1\frac{15}{16}$ by $\frac{15}{16}$ in.; produced after 1860 to 1900s (Fike 1987:193).

Cat. No. 51: Brown bottle; manufactured after 1954 (Toulouse 1972:403).

Cat. No. 77: Evaporated milk can; $2\frac{11}{16}$ in. diameter by 4 in., with hole in top; produced between 1932-1940, Berryman 1984:56.

Chronological Discussion

Potential dates for the most temporally diagnostic artifacts range from the early 1900s to the present. Only one artifact, the Hamlin's Wizard Oil bottle fragment, dates from the early 1900s. Two artifacts fall within the date range of 1932-1940; two date from 1943-present; and two date from 1954-present. None could be clearly linked with any of the clinker features.

Since the three features at Site LA 120,979 are spatially separated, they likely represent different dumping episodes.

Very few temporally and/or functionally diagnostic artifacts were collected from the excavation units. The date for the disposition of these clinkers, cinders, and slag could not be determined beyond the general range of 1940 to the mid-1950s, as indicated by the brown glass beer bottles, triangular-punched beverage cans, and the clear glass associated with Feature 2. They are likely railroad-related and could have been dumped at this location to be removed at a later time. According to the section foreman's Time Book (see Appendix E), maintenance of the track included the removal of coal, slag,

cinders, and other debris. It is assumed that such maintenance continued into the time period suggested for the clinker piles.

Many of the diagnostic artifacts functionally reflect disposable food and beverage items. Temporally, with only three exceptions, most of the materials clearly postdate 1940. These items were most likely discarded by highway travelers. Some of the food items are probably the remnants of lunches eaten by highway and railroad workers.

THE PREHISTORIC SITES: LA 86736 AND LA 86737

Two prehistoric sites were excavated during the data-recovery (Figure 62). Both sites date to the latter part of the ceramic period and are considered to be short-term, nonresidential (seasonal) sites based on survey data. Site LA 86736 contained ceramics that placed its occupation between A.D. 1000 and 1150, while Site LA 86737 reflected a longer span of use, containing ceramics that date from A.D. 1000 to 1400. Both sites contained assemblages of flaked and ground stone. While they also undoubtedly originally contained hearth features, based on the presence of fire-cracked rock, no such features were found during excavations at Site LA 86737. However, multiple hearth features were found and excavated at Site LA 86736. As a result, macrobotanical data and radiocarbon dates are plentiful from Site LA 86736, while Site LA 86737 is poorly dated with only minimal macrobotanical data and a single radiocarbon date recovered. The lack of intact features at Site LA 86737 can be attributed to extensive disturbance by highway construction and the fiber optic line, although both sites have endured these impacts.

PREHISTORIC ARTIFACT ANALYSIS

Stone tool analysis followed standard HSR analytical techniques, which focus on tools and debitage that are diagnostic of particular technologies (Meyer and Eidenbach 1996). Table 18 is a list of lithic-artifact terms and definitions that were used during the analysis. Interpretation includes discussion of lithic material sources, technological variation, and intersite distribution of the

assemblage, the stages of technology represented, and comparison of these assemblages to lithic assemblages from other sites in the Tularosa Basin.

Karl Laumbach supervised analysis of prehistoric ceramic artifacts. Ceramics were identified as to type, vessel form, and vessel portion (i.e., rim or body). Typology considered design, paint type, and temper type. Toni Sudar Laumbach, Curator of Collections at the New Mexico Farm and Ranch Museum, Las Cruces, analyzed sherds that could not be readily identified. Functional interpretations were based on vessel form and use-wear. Analysis of intrasite distribution of ceramic types and vessel forms was enhanced with the use of a Geographic Information System. Temporal homogeneity of the artifact assemblage was assessed via established dating of ceramic types and their contextual associations within the site. Due to the high number of intact features at Site LA 86736 and the absence of such features at LA 86737, the contextual associations are much better defined for the assemblage at Site LA 86736.

Specialized analyses included petrographic analysis of the tempering materials present in selected ceramics from both sites, and neutron activation analysis of the clays used to produce the Mimbres Classic Black-on-white sherds from Site LA 86736. David V. Hill performed the petrographic analysis. Dr. Harry Shafer of Texas A&M University supervised the instrumental neutron activation analysis. Dr. Richard Holloway

Table 18. Lithic Artifact Definitions and Terms.

Artifact/Term	Descriptions
Alternate flake	A percussion or pressure flake "removed alternately from the same edge from first one face and then the other" (Crabtree 1972:14). An alternate flake is typically used to remove a natural lateral or tabular surface or fracture surface, which forms a platform angle of 90 degrees or less, to create a suitable edge for further flake detachment. A percussion alternate flake usually has a platform offset, perpendicular to the flake length axis, retaining a portion of the lateral edge removed. Pressure-flake platforms are typically offset, as well, but the flake width may be twice its length, with a single arris on its dorsal surface, which runs the width of the flake or parallel to the platform (Goldberg et al. 1990). This technique usually indicates early-stage reduction or reworking of a tool or core fracture (Jackson et al. 1983).
Angular flake	A flake that is angular and fragmented and does not exhibit a distinctive platform or bulb of force. Angular flakes are created from any lithic-reduction technique employed and during all stages of reduction. Often this flake type is referred to as "shatter" or "chunk."
Arriis	The intersection of two surfaces forming an projection, or salient angle, from the detachment of previously removed flakes. An arris is generally used to guide the applied force in the removal flakes from a core (Crabtree 1972).
Bend break	A fracture resulting from use or manufacture. Breakage compression rings initiate and terminate on the same face. Finials or overhangs can occur with this type of fracture. Large finials often occur from impact; small finials typically occur from manufacture (Fagan et al. 1992).
Bidirectional core	A core that exhibits flake scars resulting from flake-reduction removal from two directions or two opposing directions.
Biface	A flake blade or core that has been shaped by percussion and/or pressure flaking by the detachment of flakes from both sides of an edge.
Biface-thinning flake	A flake resulting from bifacial core or tool reduction or maintenance, produced to thin the cross section of the biface, while only slightly affecting the width and length. Biface-thinning flakes are generally longitudinally curved, exhibit an acute, faceted platform, and multiple dorsal flake scars, including those from the opposing margin.
Billet	A percussor, usually of antler, bone, horn, or wood, used to detach flakes from a stone (Crabtree 1972).
Bipolar	A flake that was produced by resting a small pebble or nodule on an anvil and striking it with a percussor, such as a hammerstone or billet. Bipolar flakes are typically flat, but may also be slightly S-shaped; platforms are often crushed or battered; the distal end may also exhibit crushing or battering; and the ventral surface exhibits pronounced and distinctive compression rings. Bipolar flakes rarely exhibit two bulbs of force.

Table 18. Lithic Artifact Definitions and Terms (cont'd).

Artifact/Term	Descriptions
Blade	A specialized flake with parallel lateral margins, with the length equal to, or at least twice its width. In cross section, a blade is plano-convex, triangulate, subtriangulate, rectangular, or trapezoidal. Blades may have more than two arrises. This flake type is associated with a prepared blade core and blade-production technique; it is not a random flake (Crabtree 1972).
Burination	Burination is a fracture resulting from use or high velocity impact. Burins initiate at the edge of a tool. Compression rings from lateral or marginal burins run face to face. Facial burination initiates from an edge add terminates on one face (Fagan et al. 1992).
Channel flake	A basal thinning flake specifically identified to Paleoindian lithic-reduction technology. Channel-flake platforms are often specifically prepared and isolated to achieve channeling or fluting of a spear point. The dorsal surface often exhibits the midline terminations of flakes removed from the lateral margins of a biface; however, midline terminations may not be present when multiple attempts at fluting were undertaken.
Cobble/Pebble tool	A cobble or pebble, not a flake, which exhibits utilization or retouch; presumably used for cutting, scraping, or chopping. This tool type does not include hammerstones, abraders, manos, or core tools.
Collateral parallel	A pressure flake that is removed perpendicular to the edge of a biface or projectile point. This flake type overlaps previously removed flakes, exhibits a central dorsal arris, and generally terminates at the center of the biface or projectile point. Platforms are typically strong and their width is generally narrow. Point of force initiates from the center of the platform. Negative flake scars on the biface appear straight due to overlapping. This technique is commonly associated with Paleoindian lithic technology.
Core	A lithic material from which flakes have been removed for the purpose of stone tool manufacture. A core can be reduced to produce a single item, or the flakes detached can be reduced further to produce a variety of tools, including cutting and scraping implements, bifaces, or projectile points.
Cortex	The natural rind or surface on the outside of a cobble. The presence of cortex on debitage or tools may provide information regarding the type of reduction strategies employed by the manufacture, and possibly the distance from which the material was exploited.
Core tool	A core that exhibits utilization or retouch modification.
Crazing	A network of fine cracks in the surface of glaze or stone produced from thermal alteration.
Debitage	Waste flakes and angular debris that are the result of lithic material reduction, tool manufacturing, or maintenance.
Distal	The termination end of a flake or the tip of a biface or projectile point.
Expendient core	A core from which one or two flakes have been removed.

Table 18. Lithic Artifact Definitions and Terms (cont'd).

Artifact/Term	Descriptions
Fire-cracked rock	Rock that has undergone thermal shock from fire, generally found as hearth material.
Flake tool	A flake that exhibits purposeful or intrusive retouch to create an edge suitable for cutting or scraping.
Hammerstone	A cobble that shows battering and/or pecking, particularly on its ends or face; used for percussion flaking of other stones.
Interior	A flake that exhibits no cortex on its dorsal surface.
Lateral margin	The lateral margin is the side of a flake, biface, or projectile point.
Lipping	A projection on the proximal ventral surface of a flake; an extension of the platform, suspected to be associated with soft-hammer or billet percussion.
Mano	A cobble that was used in conjunction with a metate to grind seeds, nuts, corn, or pigments, etc.; it exhibits one or more ground surfaces as a result of pecking and repeated abrasion. A one-hand mano is generally a grinding implement that is manipulated in one hand, used in a rotary or linear manner, and typically used in conjunction with a basin metate or slab metate. A two-hand mano is manipulated with two hands, used in a linear manner, and typically used in conjunction with a trough or slab metate.
Metate	A portable milling item used in conjunction with a mano to process seeds, nuts, corn, or pigments, etc., which exhibits one or more ground surfaces as a result of pecking and repeated abrasion.
Modified	Any purposeful retouch or utilization observed on an artifact.
Multiple-platform core	A core from which flakes have been detached from multiple platforms, in an irregular fashion; representing an opportunistic development of platforms for flake removal.
Notching flake	A flake produced by pressure flaking that is relatively small, produced during notching or serrating a tool or projectile point. Generally, this flake type is circular shaped and exhibits a lunate or sulcus type of platform.
Overshot (<i>Outrepassé</i>)	A type of fracture that occurs on a flake when the force applied in the reduction process travels over and beyond the opposing margin (Crabtree 1972). This type of flake is diagnostic in biface reduction, whereby if the flake is whole, the platform and the distal end will retain the margins of the biface being reduced. This type of flake usually occurs as a production error during biface thinning.
Percussion	The mode of application used in the process of shaping or removing flakes from stone using a striking force. This is usually accomplished with a hammerstone or billet.

Table 18. Lithic Artifact Definitions and Terms (cont'd).

Artifact/Term	Descriptions
Perverse break	A fracture typically associated with production errors. Breaks initiate on an artifact face close to the edge. Compression rings generally terminate on the same face (Fagan et al. 1992).
Platform	Refers to the proximal end of a flake; the point of contact (by means of percussion or pressure mode of application) at which the flake was detached from a core, flake, or tool.
Pot lid	A plano-convex spall that leaves a concave scar on stone when subjected to incidental or improper heating.
Pressure	The mode of application used in the process of shaping stone by removing flakes using a pressing force, rather than a striking force or percussion force. This is usually accomplished with an anther tine.
Projectile point	An arrow, dart, or spear point that is generally symmetrical in shape and relatively thin in cross-section. Typically, although not necessarily, projectile points are bifacially worked.
Proximal	Refers to the platform end of a flake or the base of a projectile point.
Radial break	A fracture that can occur during manufacture or has been reported as purposeful in Paleoindian lithic technology. Compression rings look similar to perverse breaks, but center on a break point or corner (Fagan et al. 1992).
Single-platform core	A core from which flakes have been removed from one platform, generally resulting in a triangular or trapezoidal cross section.
Spur	A projection formed on flake tools that is generally produced from unifacial pressure flaking (Crabtree 1972). This technique is typically associated with Paleoindian lithic technology.
Thermally shocked rock	Rock that has undergone thermal shock, such as from stone boiling, and/or that cannot be discerned from fire-cracked rock.
Transverse-parallel flake	A pressure flake removed at an angle to the edge of a biface or projectile point. This flake type follows the ridge produced from previously removed flakes and exhibits the curvature of the biface surface. Platforms are typically as wide as the flake width. Point of force initiates from one end of the platform. Negative flake scars on the biface appear straight because of overlapping. This technique is commonly associated with Paleoindian and early Archaic lithic technology.
Undifferentiated	A flake that cannot be identified according to technique of manufacture (e.g., biface thinning, bipolar, etc.) and/or mode of application (e.g., percussion or pressure).
Utilized flake	A flake that exhibits use (microflake scars) from cutting or scraping along one or more margin, but does not exhibit purposeful retouch.

analyzed the macrobotanical remains. Brian Knight analyzed the faunal assemblages recovered from both sites, focusing on species identification, the condition and relative age of the faunal specimen, and the skeletal component represented. Dr. Wenda Trevathan analyzed the human remains from Site LA 86736.

SITE LA 86736

Site LA 86736 is a prehistoric ceramic period artifact scatter. Like many other sites in the Three Rivers area (Wimberly and Rogers 1977), LA 86736 was interpreted from survey data as a seasonal procurement site. The presence of Mimbres Classic Black-on-white indicated an occupation date in the 11th and early 12th centuries.

Original Site Description

Site LA 86736 was described by Cody Browning in Michalik (1998) as follows:

This site consists of a medium sized, medium density scatter of lithics, ceramics and ground stone with some scattered fragments of FCR. The site was originally recorded in 1991 on a survey for a buried fiber optic cable. This site is located on a gently sloping flat to the west of the Southern Pacific Railroad tracks and south of Boone Draw. The boundaries of the site were expanded from the 1991 recording and the site now

measures 270 meters north-south by 260 meters east-west (70,200 sq. m.). The site has been impacted by the construction of US 54, by the installation of aerial and underground utilities, by fences and by sheet wash. Portions of the site have a high potential for additional subsurface material as evidenced by the ceramics brought up during the installation of the buried fiber optic line.

Artifacts number in the high hundreds with the majority consisting of ceramics. Approximately 50 lithics are present. Material types include chert and basalt. Primary and secondary flakes dominate the assemblage with no debitage that would represent the late stages of reduction. The ceramics were dominated by Mimbres B/W, El Paso Brown ware, Jornada Brown ware and Alma Plain. One Chupadero B/W sherd was observed. The only ground stone noted was a quartzite mano fragment.

No formal features were present. Some dispersed scatters of FCR were noted across the site, predominantly in the sheet washed areas. There was no evidence of staining near any of the scatters.

This site appears to represent a limited activity Jornada Mogollon site dating to

the period of A.D. 1000-1350 based on the ceramics present. The site has the potential for additional subsurface remains in the areas that have not been eroded by sheet wash. The site has the potential to yield information regarding the prehistory of the Tularosa Basin and as such is eligible to the National Register of Historic Places under Criterion d of 36 CFR 60.4. Avoidance of the site is recommended. Additional recording and testing is recommended in the areas of potential impact if the site will be affected by the proposed highway construction.

(Michalik 1998)

HSR Pre-field Visit Notes on the Right-of-way through Site LA 86736

The concentrations of artifacts noted by Browning are extremely diffuse scatters of small artifacts that stand out as concentrations only when compared to the dearth of artifacts in the extensive intervening areas between concentrations. Five of these concentrations were located within the highway right-of-way. Four (two of which have been impacted by construction of the fiber-optics line) straddled the highway right-of-way boundaries (Figures 63 and 64). One concentration is totally within the right-of-way and consisted of small brown ware sherds in an area exposed to heavy vehicular traffic. It is possible that these sherds represent a larger sherd broken and scattered by traffic. As noted by Browning, no stains or concentrations of fire-cracked rock were visible, despite

the many cuts and scrapes in the ground surface.

In summary, the site visit revealed that the highway right-of-way has been heavily impacted by previous highway construction, a fiber-optics line, and vehicular traffic. The areas containing diffuse concentrations of prehistoric or historic artifacts were reasonably discrete and separated by large areas with a dearth of surface artifacts. Prior to the excavations, it seemed likely that the majority of artifactual data derived from within the right-of-way would be from surface collections. It was hoped that augering and small excavation units might reveal subsurface artifacts or features.

Historic Context and Importance of Cultural Materials at Site LA 86736

The ceramic assemblage at Site LA 86736 contains numerous sherds of Mimbres white ware, some of which can be identified as Mimbres Classic Black-on-white, based on fine framing lines around the hatched elements. As only one sherd of Chupadero Black-on-white was observed by Browning, it seems likely that most of the assemblage dates to approximately A.D. 1100-1130, based on ceramic cross dating. A number of sites in the area contain similar assemblages. The first two such sites in the immediate area that are important and well known are the Hatchet Site and the Temporal Site (a prehistoric site of the same name as the historic railroad station), both located several miles west of U.S. Highway 54 (HSR 1973:62-63; Dr. Stephen Lekson, University of Colorado, personal communication 1995). Several more sites



Figure 63. Right-of-way east of U.S. 54 at Site LA 86736, looking north.
Brownware ceramic concentration is graded area on right.

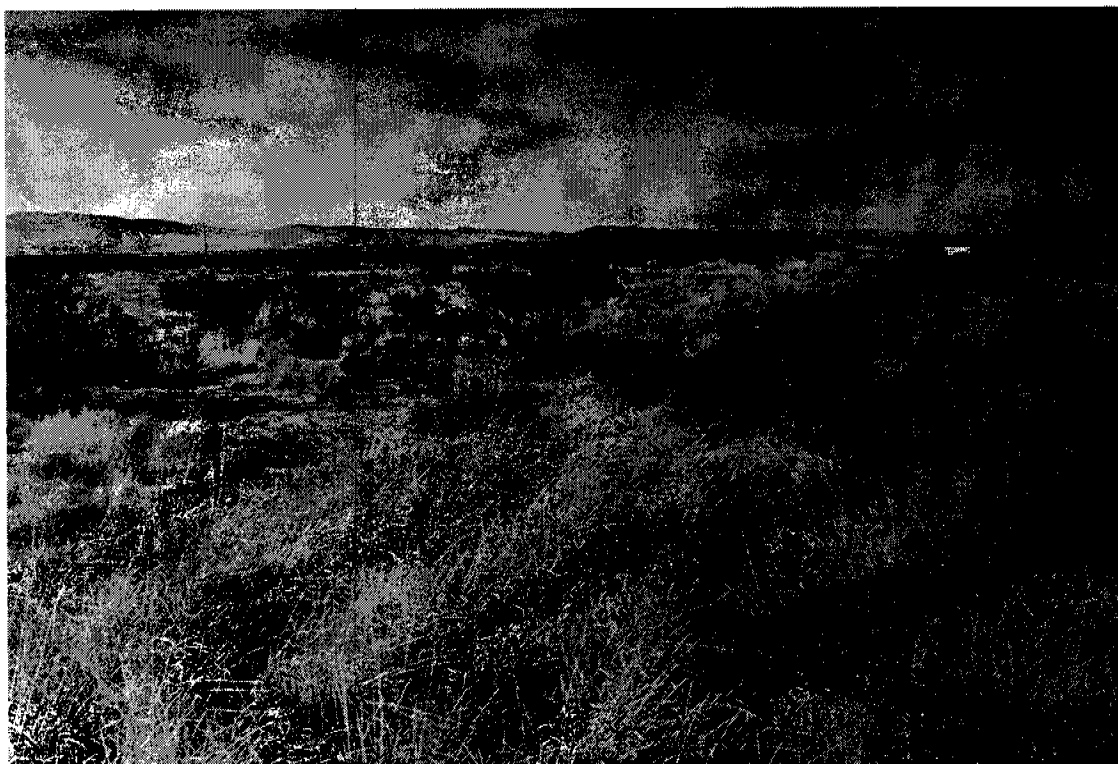


Figure 64. Right-of-way west of U.S. 54 at Site LA 86736, looking north.

were located during the HSR Three Rivers Drainage survey (Wimberly and Rogers 1977:406), and vary from residential sites with very high artifact densities associated with pit rooms to seasonal-use sites with diffuse artifact scatters and hearths (Wimberly and Rogers 1977:75). Site LA 86736 belongs in the latter category. Typically, residential sites contain a much wider variety of artifacts than do seasonal-use sites.

The occurrence of Mimbres Black-on-white in the Tularosa Basin and other locales east of the traditional Mimbres area in southwestern New Mexico led Brody (1977:67) to speculate that Mimbres Black-on-white may have been produced locally. Petrographic analyses of Mimbres sherds from the Orogrande area by Rugge (1988) and the southern San Andres Mountains by Hill (1991) suggested that while Mimbres Black-on-white was produced as far east as the Rio Grande in the vicinity of Garfield, New Mexico, there is no evidence that it was produced locally. More recently neutron activation analysis of Mimbres white ware clays strongly indicate that production of Mimbres Black-on-white was limited to sites in the Mimbres and Gila River valleys (Shafer et al. 1999:193). However, Mimbres-style petroglyphs documented at the Three Rivers Site (Duran and Crotty 1994), and Mimbres style burials found at Site LA 457 near Tularosa that are covered by pots (Three Rivers Red-on-terracotta) with "kill" holes (Rosemary Hunter, personal communication 1987) continue to spark inquiry regarding the relationship between the prehistoric populations of the Tularosa Basin and

those of the Mimbres area. Site LA 86736 provided the first opportunity to obtain data from the northern Tularosa Basin with which to elucidate on that relationship.

Data Recovery at Site LA 86736

One focus of the data-recovery effort at Site LA 86736 (Figure 65) was to document both the density and range of prehistoric artifacts in order to generate a valid database by which to evaluate the hypothesis of seasonal use.

Archaeologists with HSR set up a baseline along its length on the eastern highway right-of-way and performed a 100-percent surface collection using a 2-m grid system. As portions of the right-of-way between the railroad and the highway are not fenced, the western edge of the fiber optics line was used as an approximate eastern boundary for the highway right-of-way. Four collection units were placed on the west side of the highway.

After surface collections were complete, 33 excavation units were established within the right-of-way at various locations on Site LA 86736. Additional excavation units were placed in other areas of the site that contained artifacts and/or with the potential for subsurface remains. One excavation unit was placed on the west side of the highway. When these excavation units were completed, trenches and surface scrapes were placed systematically along the right-of-way in an attempt to locate buried features and/or artifact deposits.

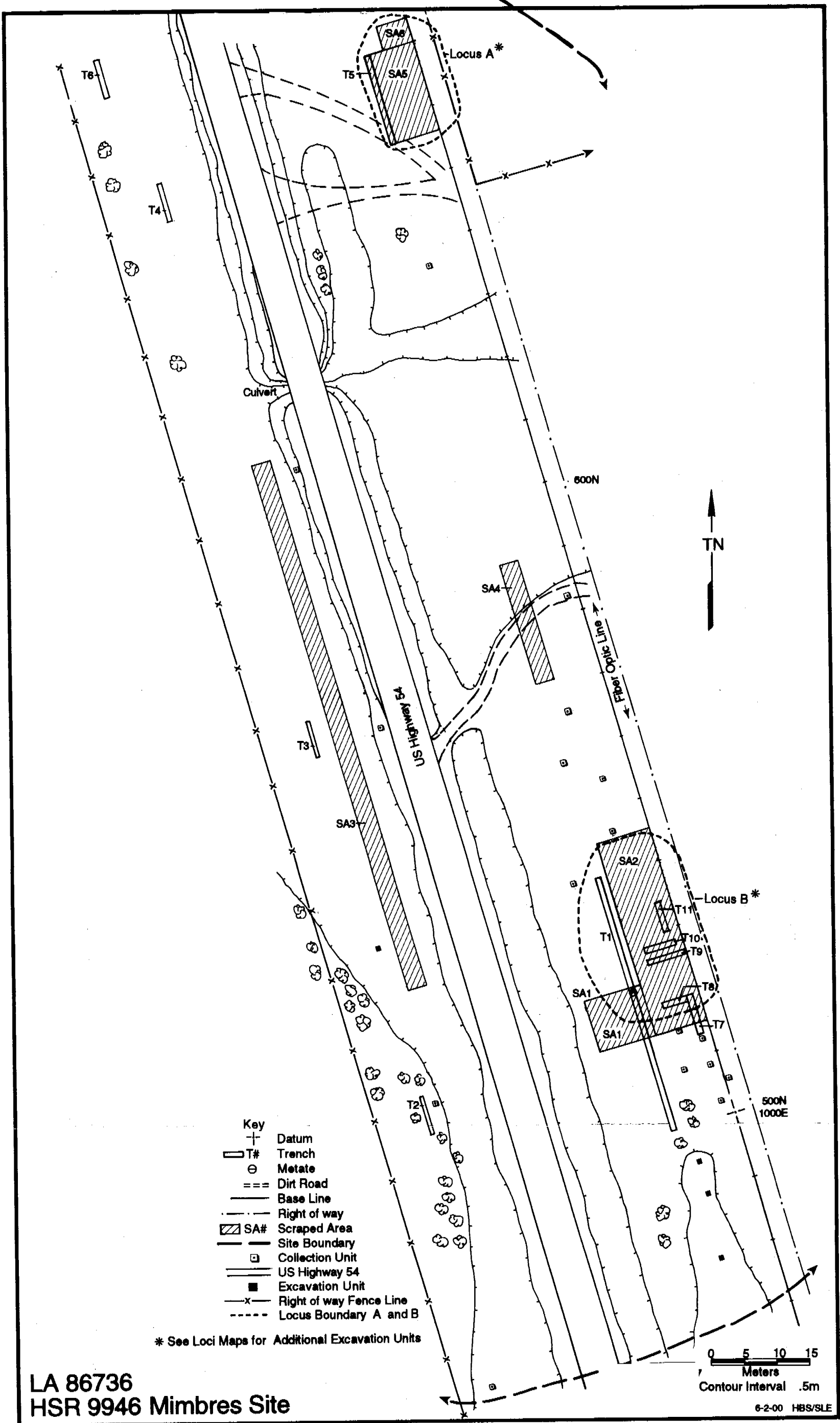


Figure 65. Site map of Site LA 86736.

Excavation Units at Site LA 86736

The excavation units at Site LA 86736 focused on two areas, designated as Loci A and B (Figures 66 and 67), both of which initially consisted of dispersed surficial artifacts and a single potential hearth feature. One excavation unit was placed on the western side of the highway.

Locus A

Excavation units located within Locus A (Figure 66) focused on a hearth feature identified on the surface and a low-density artifact concentration. The excavation of these units revealed another hearth feature that was located below the feature identified on the surface. The hearth located below the surface was identified as Feature 1 and the hearth on the surface was identified as Feature 2. Three other hearth features were identified through trench or scraped-area excavations. The excavation units for these features, and others in the immediate vicinity, reached an average depth of 30 cm before sterile soil was encountered. Although five shallow hearth features were located within Locus A, only a few artifacts were recovered below the surface. A discussion of the subsurface soils in this area is in Appendix B.

Locus B

Excavation units located within Locus B (Figure 67) focused on the surficial hearth (Feature 5) and dispersed surficial artifacts. The excavation of the four units exposed Feature 5. The units

were dug to an average depth of 30 cm, where sterile soil was encountered.

Excavation units located immediately to the east of Feature 5 identified two other hearth features and an infant burial (Features 6, 7, and 9), as well as a possible occupation surface. The two hearth features were found to be at different depths within adjacent excavation units. An ephemeral occupation surface, indicated by artifacts and slightly more compact soil, was located below both hearth features (Figure 68). Patches of oxidized soil were encountered above and below the level of the ephemeral living surface.

These excavation units produced a moderate density of artifacts, including a bone awl and a grinding stone with a yellow pigment on one side, as well as a low to moderate density of charcoal. Artifacts, charcoal, and oxidation occurred to a depth of 78 cm, at the approximate depth of the possible occupation surface, beyond which sterile soil was encountered. The two units in which the burial was exposed were excavated to a depth of 115 cm to determine if there was any possible pit or buried deposit associated with the skeletal remains. No charcoal, oxidation, artifacts, or other features associated with the burial were observed at this level. The edges of the burial pit could not be defined. Subsurface soils in this area are discussed in Appendix B.

Excavation units placed south of Locus B were located to determine if the mounded area was cultural in nature. These excavation units were dug to an

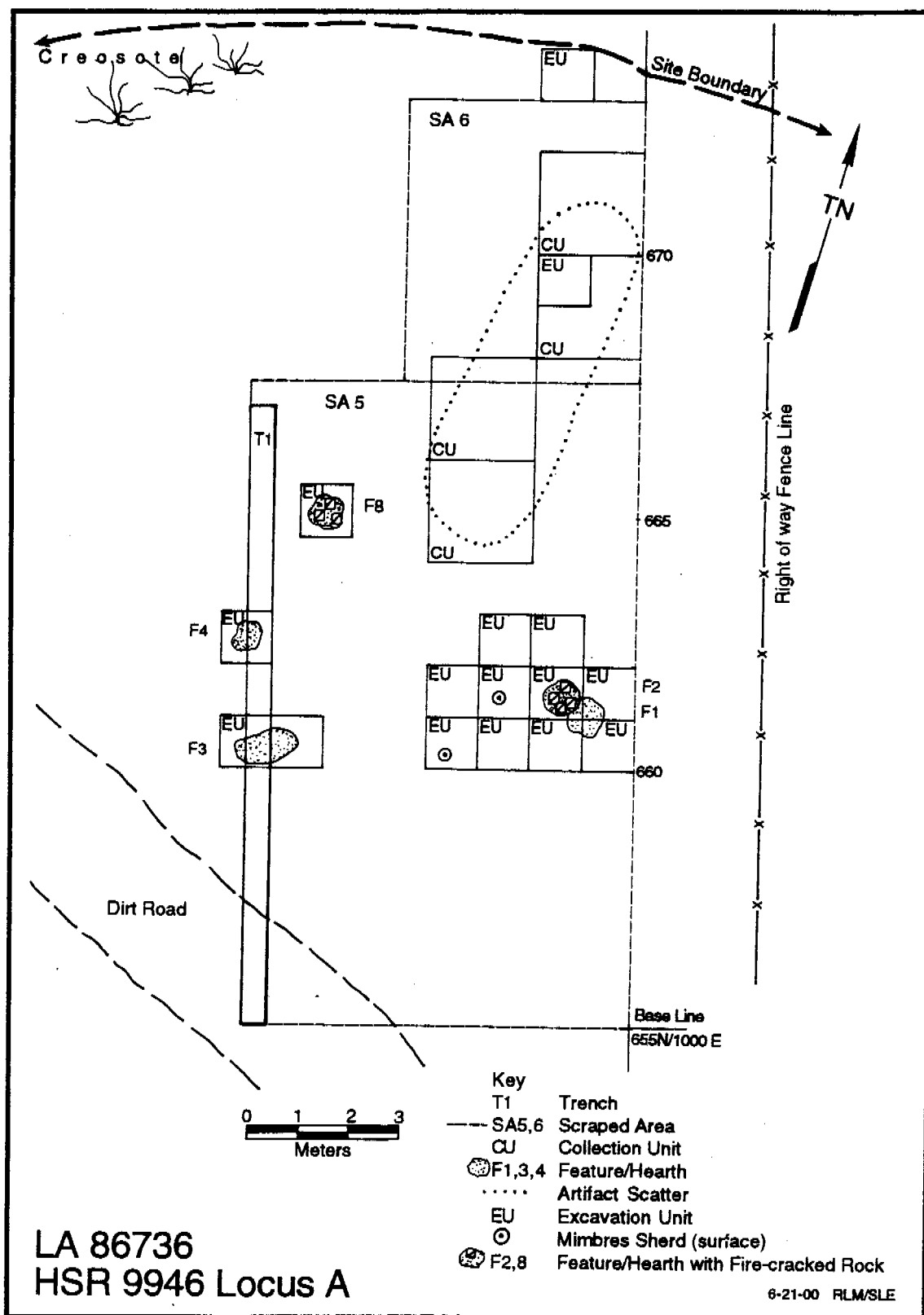


Figure 66. Locus A at Site LA 86736.

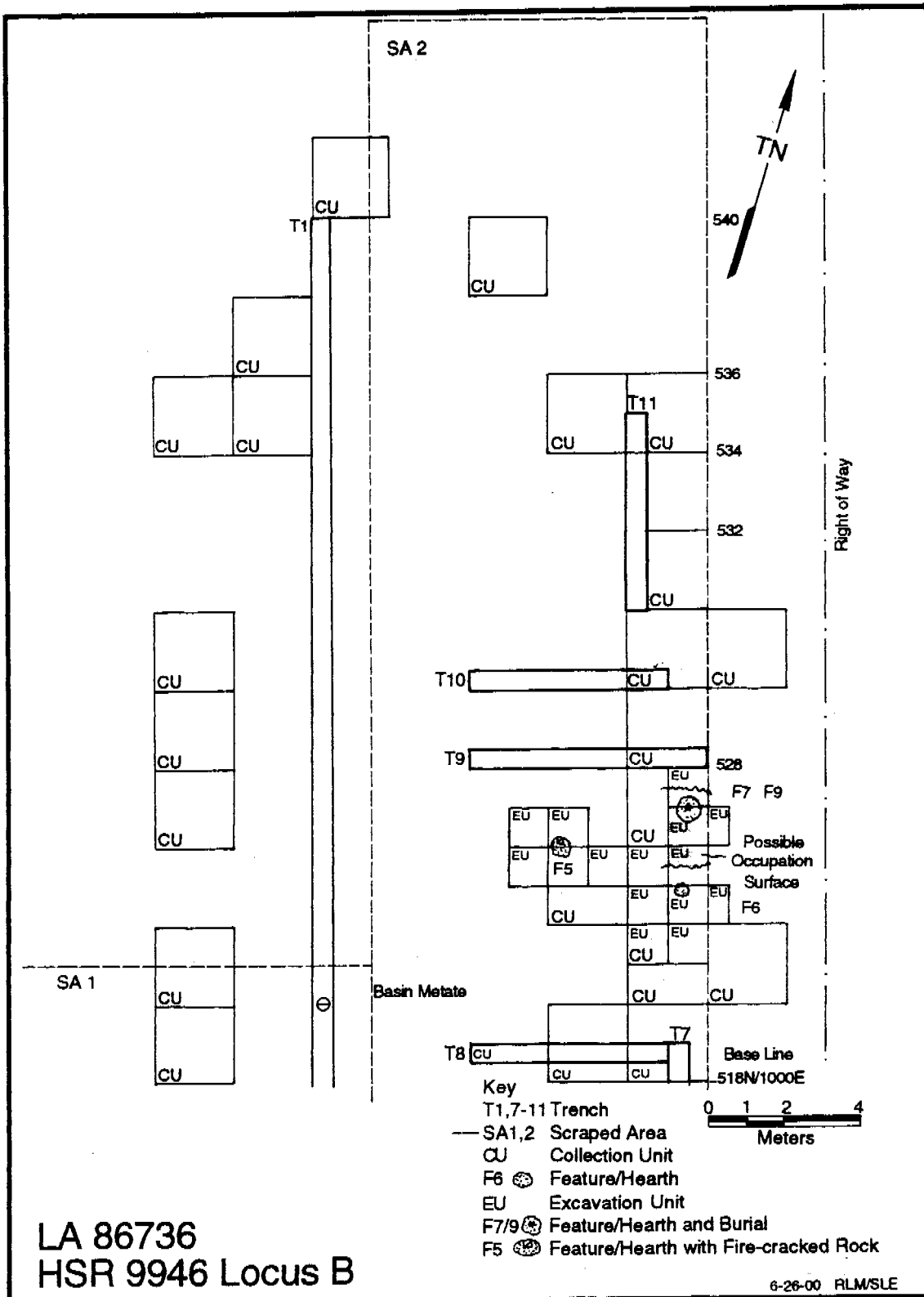
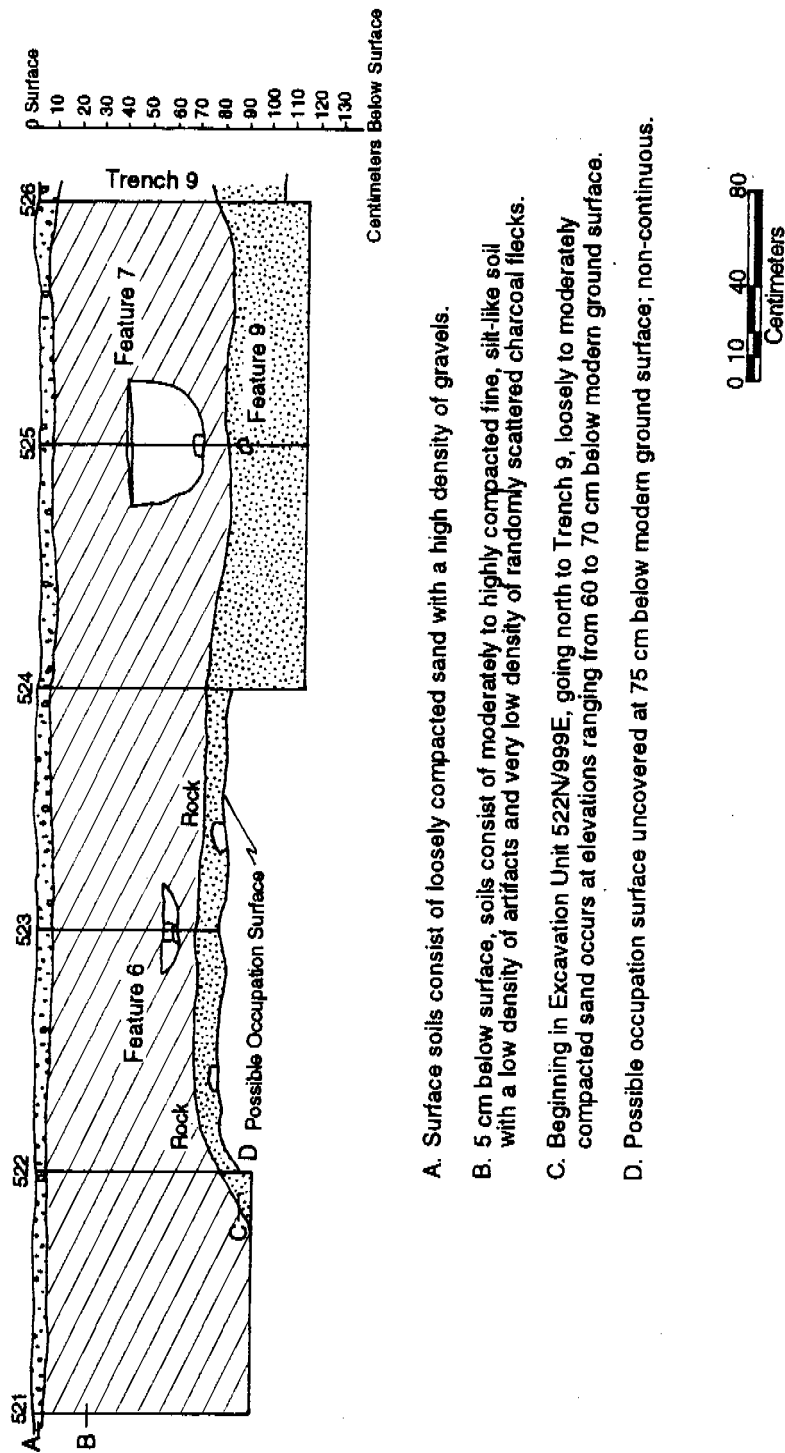


Figure 67. Locus B at Site LA 86736.



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Schematic Profile View of Excavation Units in Locus B

7-10-00 RLM/SLE

- A. Surface soils consist of loosely compacted sand with a high density of gravels.
- B. 5 cm below surface, soils consist of moderately to highly compacted fine, silt-like soil with a low density of artifacts and very low density of randomly scattered charcoal flecks.
- C. Beginning in Excavation Unit 522N/999E, going north to Trench 9, loosely to moderately compacted sand occurs at elevations ranging from 60 to 70 cm below modern ground surface.
- D. Possible occupation surface uncovered at 75 cm below modern ground surface; non-continuous.

Figure 68. Schematic profile view of excavation units in Locus B.

average depth of 45 cm and produced only several glass sherds. The mounded area was determined to be a product of the combined effects of nature and highway construction.

Trenches at Site LA 86736

Eleven trenches were excavated within the right-of-way at Site LA 86736 using mechanical equipment. Seven trenches were placed on the eastern side of the highway and four were placed on the western side. See Appendix B for the soil stratigraphy profiles of the trenches.

Trench 1, located at Grid 540N/990E, was 40 m long north-south and placed east of the road at the southern end of Site LA 86736. The trench was situated 5 m west of a surficial artifact and fire-cracked rock concentration of moderate density. It was dug to a depth of 1 m and yielded a basin metate, a lithic artifact, and a ceramic sherd. No features were noted. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.53 m, beyond which the soil became a more compacted, silty clay loam.

Trench 2, located at 510N/955E, was 5 m long north-south and placed on the west side of the road at the southern end of Site LA 86736. The trench was situated on a slightly mounded area with only a few artifacts in the vicinity, and was dug to a depth of 1 m. It yielded no artifacts, and no features were identified. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.55 m, beyond which the soil became a loosely compacted sand with a high density of pebbles, gravel, and rocks.

Trench 3, located at 570N/955E, was 5 m long north-south and placed on the west side of the road in the middle of the site. The trench was situated in an area where a small, low-density artifact concentration was found. It was dug to a depth of 1 m and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, sandy silty loam to a depth of 0.5 m, beyond which the soil became a loosely compacted sand with a high density of pebbles, gravels, and rocks.

Trench 4, located at 654N/953E, was 5 m long north-south and placed on the west side of the road at the northern end of the site, 40 m west of an artifact concentration. The trench was dug to a depth of 1 m and yielded no artifacts or features. The soil throughout the trench consisted of a moderately compacted, silty sandy loam.

Trench 5, located at 670N/990E, was 12 m long north-south and placed on the east side of the road at the northern end of the site. It was situated 5 m west of two hearth features identified within excavation units. The trench was dug to a depth of 0.4 m and yielded no artifacts. Two features were identified (Features 3 and 4; see Feature descriptions) within the trench at a depth of 4 to 5 cm below the surface. The soil within the trench consisted of a moderately compacted, silty sandy loam with several areas that contained a low density of charcoal flecks. It was determined that, since the area where the trench was placed had been disturbed by mechanical equipment constructing a small dirt road, the areas of charcoal were spread from one of the two features when that area was disturbed.

Trench 6, located at 710N/953E, was 5 m long north-south and placed on the west side of the road at the northern end of the site. The trench was situated outside the site boundary, in an area that was slightly mounded. It was dug to a depth of 0.8 m and yielded no artifacts or features. The soil throughout the trench consisted of a moderately compacted, silty sandy loam.

Trench 7, located at 519N/999E, was 8 m long north-south and placed on the east side of the road at the southern end of the site. The trench was situated 3 m south of Features 5, 6, 7, and 9 identified in excavation units. It was dug to a depth of 1 m and yielded five pieces of flaked stone. No features were identified. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.6 m, beyond which it became a loosely to moderately compacted sand.

Trench 8, located at 519N/994E, was 5 m long east-west, and placed on the east side of the road at the southern end of the site. The trench was situated at the north end of Trench 7, going west. It was dug to a depth of 1 m and yielded two lithic artifacts and four ceramic sherds. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.6 m, beyond which it became a loosely to moderately compacted sand.

Trench 9, located at 526N/994E, was 6 m long east-west and placed on the east side of the road at the southern end of the site. The trench was situated 1 m north of Features 7 and 9. It was dug to a depth of 1 m and yielded four lithic artifacts. No features were identified. The soil within

the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.6 m, beyond which it became a loosely to moderately compacted sand.

Trench 10, located at 528N/994E, was 6 m long east-west and placed on the east side of the road at the southern end of the site. The trench was situated 3 m north of Features 7 and 9. It was dug to a depth of 1 m, and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.6 m, beyond which it became a loosely to moderately compacted sand.

Trench 11, located at 536N/998E, was 5 m long north-south and placed on the east side of the road at the southern end of the site. The trench was situated through an area of moderate artifact density. It was dug to a depth of 0.6 m, and yielded no artifacts or features. The soil within the trench was a moderately compacted, silty sandy loam to a depth of 0.3 m, beyond which it became a more highly compacted silty clay loam.

Scraped Areas at LA 86736

A total of six scraped areas located within the highway right-of-way were excavated at Site LA 86736 with mechanical equipment. Five scrapes were placed on the eastern side of the highway and one long scraped area was placed on the western side of the highway.

Scraped Area 1, located at 521N/991E, was placed at the southern portion of the site on the east side of the highway, within Locus B. It measured 7 m north-south by 9 m east-west, and encompassed

an area west of Locus B and a portion of Trench 1, where a basin metate was found. The scrape was dug to a depth of 70 cm and yielded no artifacts or features. The soil is a moderately compacted, silty sandy loam throughout.

Scraped Area 2, located at 543N/1000E, was placed at the southern portion of the site on the east side of the highway, within Locus B. It measured 18 m north-south by 7 m east-west and encompassed an area surrounding the excavation units where Features 5, 6, 7, and 9 were identified. The scrape was dug to a depth of 70 cm and yielded no artifacts or features. The soil consists of a moderately compacted, silty sandy loam.

Scraped Area 3, located at 606N/962E, was placed on the west side of the highway in the center of Site 86736. The scraped area measured 83 m north-south by 3 m east-west and encompassed an area that contained a widely distributed, low density of prehistoric artifacts. The scrape was dug to a depth of 30 cm and yielded no artifacts or features. The soil consists of a moderately compacted, silty sandy loam with a moderate density of gravels.

Scraped Area 4, located at 588N/993E, was placed on the east side of the highway in the center of the site. The area scraped measured 19 m north-south by 3 m east-west, and encompassed an area with few surficial artifacts. The scrape was dug to a depth of 30 cm and yielded no artifacts or features. The soil consists of a moderately compacted, silty sandy loam.

Scraped Area 5, located at 667.5N/1000E, was placed on the east side of the highway, within Locus A. The area scraped measured 15 m north-south, by 8 m east-west and encompassed the area where Features 1-4 and 8 were identified. The scrape was dug to a depth of 40 cm and yielded no artifacts. Feature 8, a hearth, was identified within this scraped area. The soil consists of a moderately compacted, silty sandy loam.

Scraped Area 6, located at 673N/1000E, was placed on the east side of the highway, within Locus A. The area scraped measured 5.5 m north-south by 4.5 m east-west, and encompassed the northern portion of Locus A. The scrape was dug to a depth of 40 cm and yielded no artifacts or features.

Features at Site LA 86736

Numerous features were excavated at Site LA 86736, including eight hearths and a human burial (Table 19). With the exception of the human burial, all of the features were hearths that were found within the excavation units, trenches, or scraped areas. Diagrams of these features accompany each description.

Feature 1

Feature 1 is a hearth that was identified during the excavation of Units 660N/998E, 660N/999E, 661N/998, and 661N/999E. It was first identified in Unit 660N/998E as a concentrated area of highly dense charcoal flecks and chunks, mixed with small patches of orange oxidized soil in the northeast corner of the unit.

Table 19. Features at Site LA 86736 (Mimbres).

Feature No.	Feature Type	Grid N	Grid E	Grid Size (m)	Depth below Datum (m)	
					Begin	End
1	Hearth	660	998	1 x 1	2.68	2.78
		660	999	1 x 1		
		661	998	1 x 1		
		661	999	1 x 1		
2	Hearth	661	998	1 x 1	2.61	2.66
3	Hearth	660	992	1 x 2	2.68	2.71
4	Possible Hearth (disturbed)	668	993	1 x 1	2.58	2.70
5	Hearth (FCR cluster)	523	996	1 x 1	1.98	2.04
		524	996	1 x 1		
6	Hearth	522	999	1 x 1	2.33	2.39
		523	999	1 x 1		
7	Hearth	524	999	1 x 1	2.27	2.57
		525	999	1 x 1		
8	Hearth	665.5	993.5	1 x 1	2.7	2.75
9	Infant Burial	524	999	1 x 1	1.1	1.29
		525	999	1 x 1		

As the other adjacent excavation units were opened to reveal Feature 1, Feature 2 was identified as intrusive to the northwest corner of Feature 1 (see Feature 2 description).

Excavations of the four units revealed the basic shape and depth of Feature 1. It was uncovered at a depth of 10 cm below the modern ground surface, and was defined by a semi-circular shaped stain of dark ashy soil. Within this ash stain was a high density of charcoal flecks, mixed with several patches of bright-orange oxidized soil. Surrounding

approximately 50 percent of the southern perimeter of the ash stain was a 1-cm wide area of bright-orange oxidized soil. Within the stained area were 10 rocks on the surface that did not appear to be thermally altered or cracked.

Feature 1 measures 1.15 m north-south by 0.8 m east-west (Figure 69). It has been disturbed by fiber optic trenching, which cut through the eastern half of the feature. This previous disturbance most likely resulted in the feature's semi-circular shape, which was probably circular prior to the disturbance.

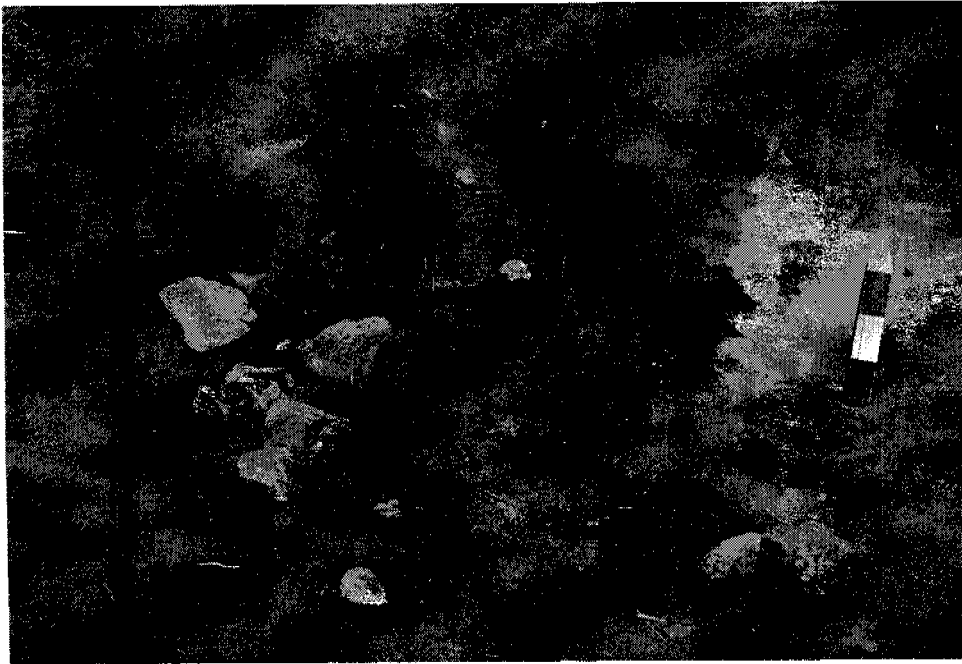


Figure 69. Feature 1 at Site LA 86736, looking north.

The depth of Feature 1 is 10 cm. In profile, its shape is irregular, in that the bottom of the hearth is not level. However, the sides of the hearth are more uniform, sloping gradually up and giving the feature an overall basin shape.

The fill within Feature 1 consists of loose to moderately compacted, dark ashy, silty sandy loam, with a high density of charcoal flecks and chunks mixed with patches of bright-orange oxidized soil. No artifacts were uncovered within the feature. More than 40 rocks were found randomly scattered throughout the feature.

Feature 2

Feature 2 (Figure 70) is a hearth that was first identified on the surface as a small area of ash containing four pieces of fire-cracked rock. This feature was then

excavated in Unit 661N/998E and was found to be intrusive to the northwest corner of Feature 1, which was below it. Feature 2 was uncovered at a depth of 5 cm below the surface, and was defined by a circular-shaped stain of dark ashy soil with approximately 20 fire-cracked rocks lining the perimeter of the stain. Within the ash stain was a high density of charcoal flecks, but no oxidation was observed at this level.

Excavation revealed the basic shape and depth of Feature 2, which measured 65 cm in diameter by 5 cm deep. In profile, the feature is irregular in shape; neither the bottom or the sides of the hearth are uniform.

The fill within Feature 2 consisted of a loosely to moderately compacted, dark ashy, silty loam with a high density of charcoal flecks. Although no oxidation



Figure 70. Feature 2 at Site LA 86736, looking north (Feature 1 is visible to right).

was mixed in the fill, the bottom of the hearth was almost completely covered in oxidized soil. One ceramic sherd was recovered from the feature. In addition, 10 more pieces of fire-cracked rock were uncovered from within, bringing the total to 30 pieces.

Feature 3

Feature 3 is a hearth that was first identified in Trench 668N/993E as an area of dispersed charcoal flecks visible on both sides of the trench. Excavation by mechanical equipment revealed 10 pieces of fire-cracked rock from this area, but no more pieces were visible in the trench profile. Feature 3 was then excavated by hand within Unit 660N/992E (a 1-by-2-m unit). The feature was uncovered at a depth of 10 cm below the surface, and was only vaguely defined by a semi-

circular area containing some ashy soil and a low density of charcoal flecks. Five pieces of fire-cracked rock were visible within this area.

Excavation of this unit revealed that Feature 3 did not have a definite plan or profile shape. Flecks of charcoal were observed in an area 50 cm north-south by 30 cm east-west, and to a depth of 6 cm. The feature was not intact, most likely a result of the grading of a nearby dirt road.

Feature 4

Feature 4 (Figure 71) is a possible hearth first identified in Trench 668N/993E as an area of low to moderately dispersed charcoal visible in the profile on the west side of the trench. This area measured 68 cm long by 4 cm wide.



Figure 71. Feature 4 at Site LA 86736, looking west.

Feature 4 was excavated by hand within Unit 662N/992E, which revealed that it retained no definition of shape or depth. The feature was uncovered at a depth of 9 cm below the surface and most likely is the result of a naturally occurring burned area, or some other type of mechanical or natural disturbance that may have redeposited the charcoal from one of the other two hearths in the immediate vicinity. It consists of a randomly scattered area of low-density charcoal flecks that measures 47 cm north-south by 28 cm east-west and is 6 cm deep.

The fill from Feature 4 consists of a moderately compacted, silty sandy loam with a low density of charcoal flecks and several charcoal chunks. Two plain ware ceramic sherds were

documented within the feature. No fire-cracked rock was found in association.

Feature 5

Feature 5 (Figure 72) is a hearth that was identified on the surface as a dispersed concentration of less than 50 rocks (approximately 10 of which were fire-cracked) within an area 65 cm in diameter. A small amount of dark ash and charcoal flecks was observed on the surface in the center of the concentration. Two ceramic artifacts and one lithic artifact were found within the concentration, and one ground-stone fragment was found 20 cm to the northwest. Feature 5 was excavated by hand within Units 523N/996E and 524N/996E.

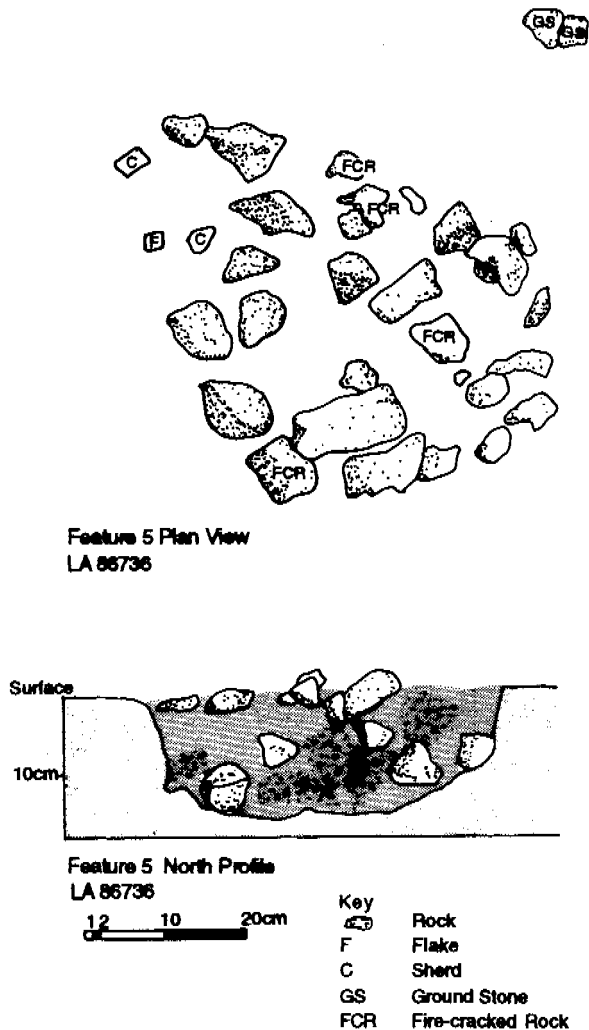


Figure 72. Feature 5 at Site LA 86736.

The excavations revealed the basic shape and depth of the feature. It measured 44 cm in diameter and was defined by a stain of dark ashy, silt-like soil and a moderate density of charcoal flecks and chunks within a circular concentration of fire-cracked rocks. Approximately 20 other fire-cracked rocks were located within a distance of 15 cm from the stained area.

The depth of Feature 5, as measured from the profile after the feature was bisected, was 18 cm. In profile, the feature has a fairly uniform circular shape, defined by the dark ashy soil. Nine pieces of fire-cracked rock were visible in the profile, as were several small areas with a high density of charcoal flecks.

The fill within Feature 5 consists of a moderately compacted, dark ashy silty loam containing a moderate to high density of charcoal flecks and chunks. A small amount of orange oxidized soil occurs randomly within the fill, but no oxidation was observed on the bottom or the sides of the feature after it was excavated. A moderate density of artifacts was uncovered in the fill, including 23 ceramic artifacts and 5 pieces of flaked stone. Over one hundred rocks were also uncovered within the feature, 30 percent of which are fire-cracked or thermally altered.

Feature 6

Feature 6 (Figure 73) is a small hearth that was identified in the excavation of Units 522N/999E and 523N/999E. It was uncovered at a depth of 50 cm below the surface, after the overlying cultural fill was removed (which contained a moderate density of artifacts and a low density of charcoal throughout). The feature was defined by a circular stain of dark ashy soil and orange oxidized soil with a moderate density of charcoal flecks throughout.

Excavation revealed the basic shape and depth of Feature 6, which measures 37 cm in diameter. The feature was bisected, and the profile revealed a

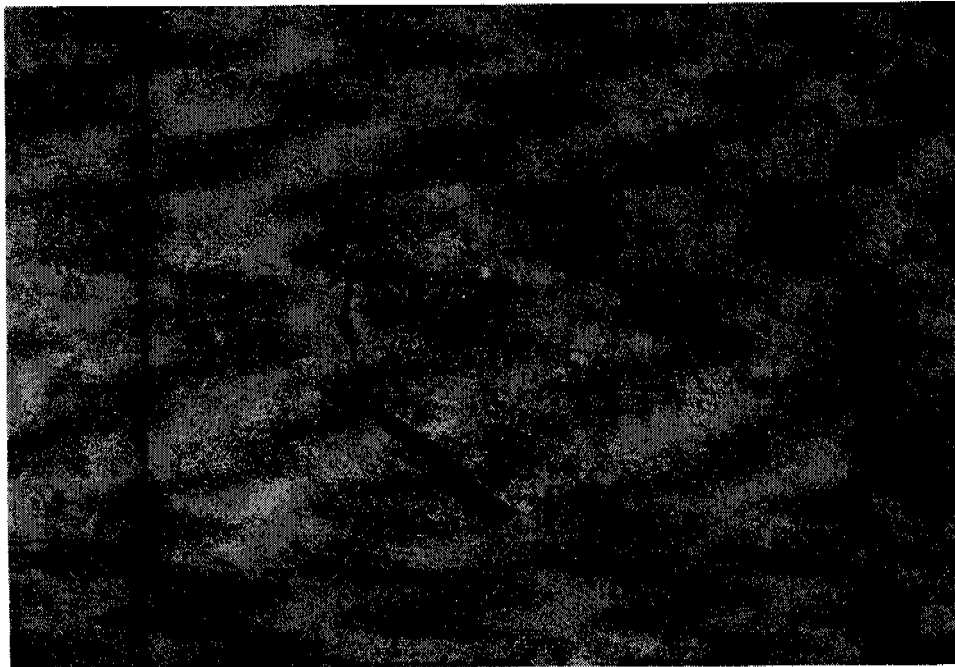


Figure 73. Feature 6 at Site LA 86736, looking north.

uniform circular shape that was 6 cm deep (Figure 74).

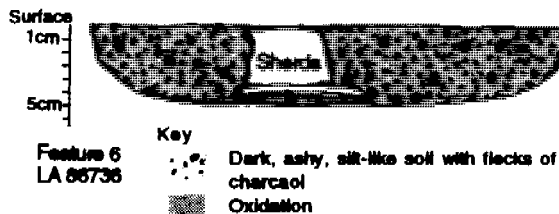


Figure 74. Profile of Feature 6 at LA 86736.

The feature fill consists of a moderately compacted, dark ashy silty loam, with a moderate density of charcoal flecks mixed with some patches of an orange oxidized soil. The bottom and sides of the feature are oxidized as well. Two large plain ware ceramic sherds were located within the feature, one lying flat on the bottom and the other lying flat against the side. No fire-cracked rock was observed in association.

Feature 7

Feature 7 (Figure 75) is a hearth that was identified in the excavation of Units 524N/999E and 525N/999E. The feature was uncovered at a depth of 34 cm below the surface, in the same manner as Feature 6, after the overlying cultural fill

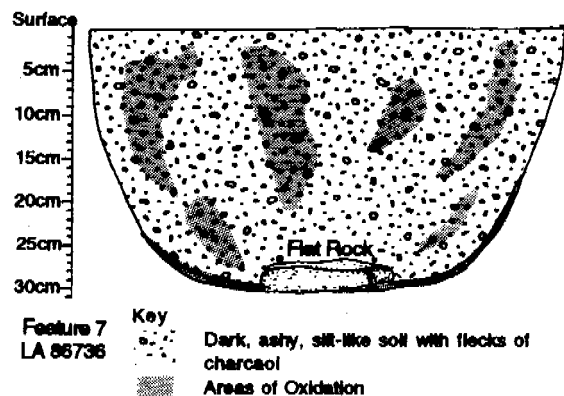


Figure 75. Profile of Feature 7 at LA 86736.

was removed. This fill contained a low density of ceramics and pieces of flaked stone, as well as a fragmented bone awl. Feature 7 was defined by a circular stain of dark ashy, silt-like soil with several large patches of orange oxidized soil within the stained area. This feature was located directly above Feature 9, an infant burial (see Feature 9 description).

Excavations revealed the basic shape and depth of the feature, which measured 55 cm in diameter. It was bisected, and the profile revealed a circular shape 30 cm in depth.

The fill within Feature 7 consists of a moderately compacted, dark ashy silty loam with a high density of charcoal flecks, with several charcoal chunks and small patches of oxidized soil randomly scattered throughout. In addition, the sides and bottom of the feature were

completely covered with an orange oxidized soil 1 cm thick. Five pieces of flaked stone were uncovered in the fill and one large rock (15 by 12 cm), which was not fire-cracked, was found lying at the bottom of the feature.

Feature 8

Feature 8 (Figure 76) is a hearth identified through surface scraping by mechanical equipment. The feature was uncovered at a depth of 15 cm below the surface, and was defined by a very dark ashy soil with a high density of charcoal flecks and chunks. Six pieces of fire-cracked rock were documented within the stained area. The feature was excavated by hand within Unit 665.5N/993.5E.

Excavation revealed the feature's basic shape and depth. It had a non-uniform circular shape measuring 65 cm

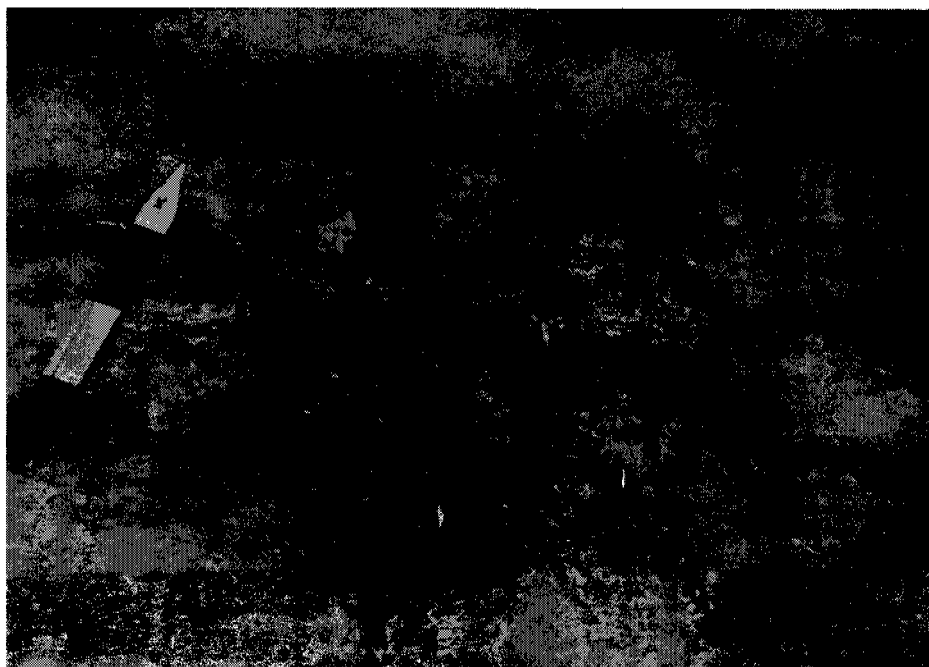


Figure 76. Feature 8 at Site LA 86736, looking north.

in diameter. In profile, the feature was also nonuniform, possibly a result from invasion by roots.

The feature fill consisted of a moderately compacted, very dark ashy silty loam with a high density of charcoal flecks and chunks. Patches of orange oxidized soil were present within the fill, but were not observed on the sides or bottom of the feature. Two more pieces of fire-cracked rock were uncovered in the fill, bringing the total to eight pieces.

Feature 9

Feature 9 is a human infant burial, which was identified in Units 524N/999E and 525N/999E. The feature was uncovered at a depth of 80 cm below the surface, directly below Feature 7. Between Feature 7 and the burial, the fill contained a low to moderate density of artifacts, including 6 ceramics, 10 lithics, and a small grinding stone with a yellow pigment on one side. This fill also contained a low density of charcoal and patches of oxidized soil.

The skeletal remains of the burial were not found within a definable pit or other type of buried deposit. Unidentified bone was first encountered at a depth of 85 cm below the surface, randomly scattered within the northern half of Unit 524N/999E. As this level of excavation was completed, the cranium of a human infant was uncovered and excavation was halted until the proper legal processes were undertaken as outlined in State of New Mexico Burial Permit ABE-335.

Following appropriate notifications, a member of the HSR staff listed on the

burial permit was allowed to remove the buried skeletal remains. The excavation revealed that the skeletal remains were not intact, having been either buried in a disarticulated manner, or possibly disturbed by rodents or some other natural occurrence. Below the cranium, two rib bones were observed in the approximate place they would be if the skeletal remains were intact. However, no other human remains were found articulated to the cranium and rib bones.

The fill surrounding the burial consisted of loosely compacted sand that showed evidence of having been disturbed. Several rodent tunnels were observed in both units, and more compacted, small clay-filled deposits were observed that were not the result of natural depositional processes. Also, a fiber-optic cable line had been dug less than 0.5 m to the east of the area where the skeletal remains were located. Constructing the trench for the fiber optic cable may have affected the area of the burial as well, although the edge of the fiber optic trench was 30 cm from the burial. No artifacts were found in direct association with the burial, and no evidence of burning (charcoal, ash, or oxidation) was observed at or below the level of the burial.

Analyses of Recovered Data

A total of 1,591 artifacts were collected from both the surface and subsurface excavations of units and trenches at Site LA 86736 (Table 20). The collections include 899 ceramic sherds, 375 lithic artifacts, 17 pieces of ground stone, 229 glass fragments, and 13 items of miscellaneous historic debris. Although

Table 20. Artifacts Collected from Site LA 86736.

Type	Surface	Excavation	Total
Bone	0	58	58
Cartridge	0	1	1
Ceramic	151	748	899
Glass	0	229	229
Ground Stone	6	11	17
Lithic	21	354	375
Metal	1	5	6
Mineral	0	5	5
Porcelain	1	0	1
TOTAL	180	1,411	1,591

it was anticipated that surface collections would yield the most data, of the 899 ceramic sherds found, 748 were subsurface, and of the 375 lithics, 354 were subsurface.

Analysis of Prehistoric Ceramic Artifacts

The ceramic assemblage from Site LA 86736 is limited to six prehistoric ceramic types, all of which are contemporary. The assemblage was comprised of 899 sherds. Nine sherds are historic ceramics (see Historic Artifacts). The temporal homogeneity of the prehistoric ceramics suggests that Site LA 86736 was occupied for a relatively short period of time, making a case that the site assemblage can be viewed as a discrete time capsule. The ceramic types represented are Mimbres Classic Black-on-white, San Andres Red-on-terracotta, El Paso Bichrome, El Paso Brown, Jornada Brown, and a red washed brown ware

(Table 21; Chart 1). Conspicuously absent are corrugated wares common in the Mimbres area or any ceramic types that clearly predate or postdate the eleventh century. Although Chupadero Black-on-white was reported on the site survey form, no sherds were recovered or seen during data recovery.

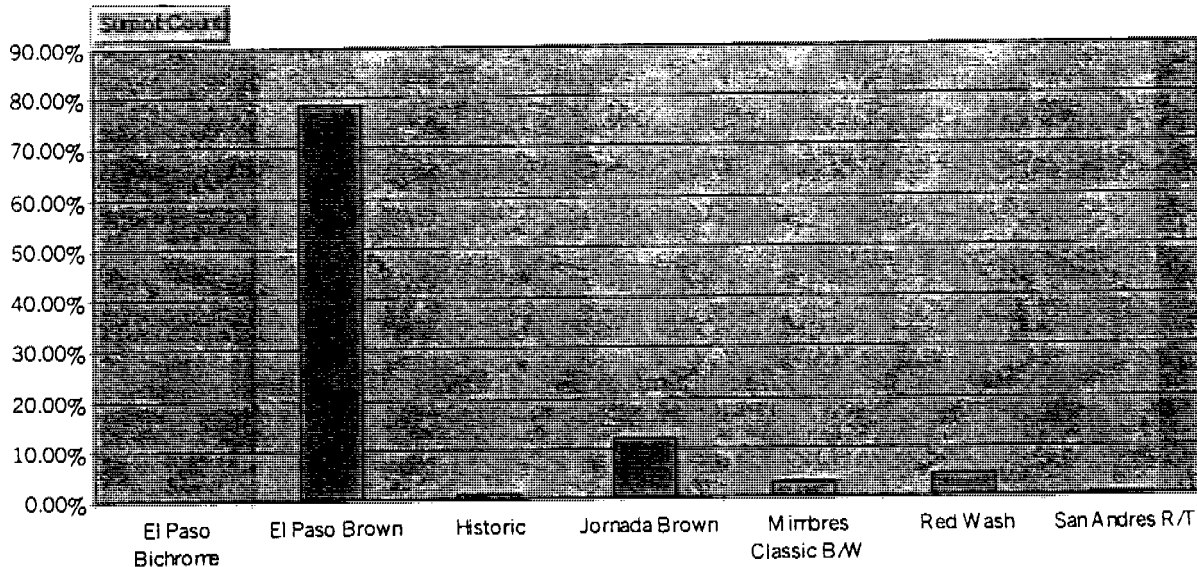
Mimbres White Ware

Twenty-seven sherds of Mimbres White ware were identified in the assemblage. Of these, the larger sherds could be clearly distinguished as Mimbres Classic Black-on-white, based on visible design elements (LeBlanc 1976; Shafer 1999). The critical design elements are parallel lines separating the design from the rim and fine-line framing lines surrounding areas of fine-line hatching. The rim sherds recovered (Figure 77) indicate that at least five vessels, all bowls, were utilized on the site.

Table 21. Ceramic Types by Level at Site LA 86736.

Type	Level									Total	Per-centage
	1	2	3	4	5	6	7	Surface	Trench		
El Paso Bichrome	1									1	.1
El Paso Brown	393	78	49	16	40	12	1	109	8	706	79
Historic								9		9	.1
Jornada Brown	71	4	1	5	8	5	2	11	1	108	12
Mimbres Classic B/W	14		2	1				9	1	27	3
Red Wash	20	4	3		3			12		42	5
San Andres R/T	3			1				1	1	6	.7
TOTAL	502	86	55	23	51	17	3	151	11	899	100

Chart. 1. Percentages of Ceramic Types at Site LA 86736.



Mimbres Classic Black-on-white was found in situ within both Locus A and Locus B (Figure 78), further documenting the contemporaneity of those loci. In Locus B, Mimbres Classic Black-on-white was found in association

with San Andres Red-on-terracotta in Level 4, a depth of 60-80 cm. and in the immediate vicinity of Features 6, 7, and 9, providing a tight context for the temporal association of these two types.

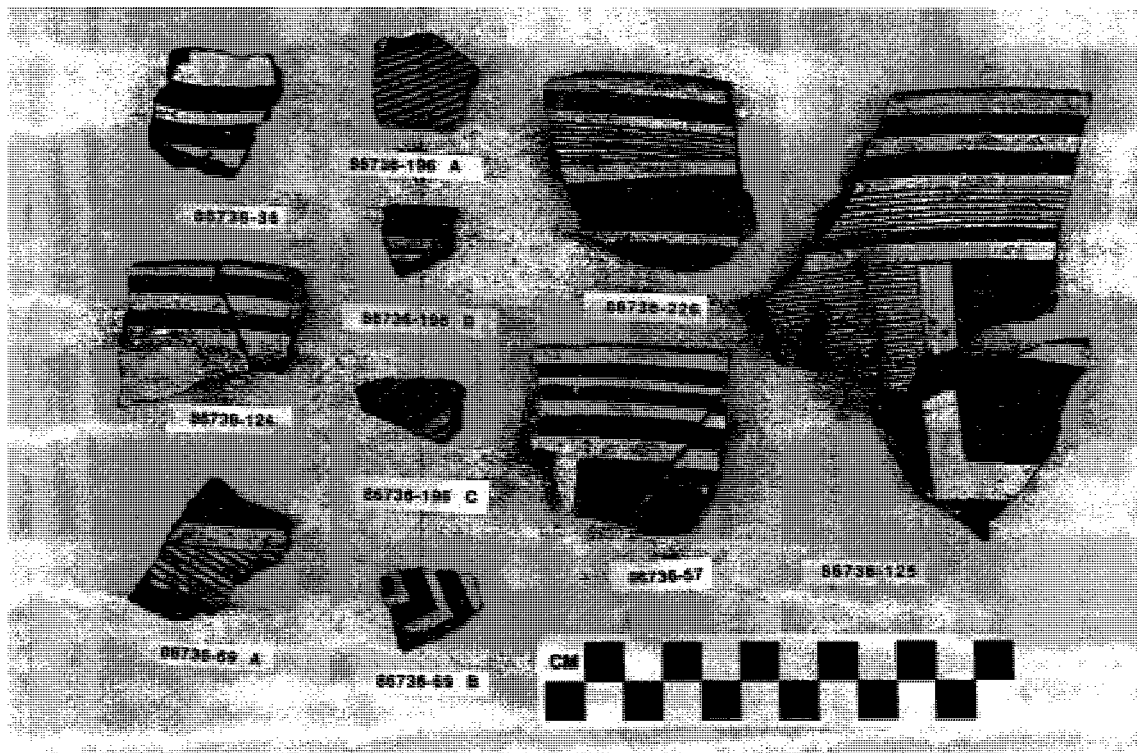


Figure 77. Mimbres White ware sherds recovered from Site LA 86736.

Two specialized studies were conducted on the Mimbres Black-on-white sherds from Site LA 86736. Both were designed to aid in designation of the geographic origin of the sherds. David Hill performed petrographic analysis of selected sherds to determine the type and percentages of tempering materials (see Appendix D). Dr. Harry Shafer, Texas A&M University, supervised neutron activation analysis of four temporally diagnostic rim sherds (letter from Shafer to Laumbach 10/16/01).

Petrographic analysis of the sherds by David Hill revealed that the tempering material was primarily sands derived from volcanic sources composed of light-colored rhyolite and grains of basalt. Sanidine quartz and trace amounts of

plagioclase and biotite were also present. Larger fragments of rhyolite containing sanidine and quartz were also observed. This tempering is consistent with that found in Mimbres Classic sherds from west of the Rio Grande in the Mimbres culture area.

More definitively, the neutron activation analysis analyzed the clays from which the ceramics were made. Comparisons with the extant database derived from previous neutron activation analyses of Mimbres White ware from the Mimbres Valley and elsewhere reveal that the four large rim sherds were constructed from clays gathered at three separate sources located within the Mimbres Valley. This finding is consistent with neutron activation analyses of

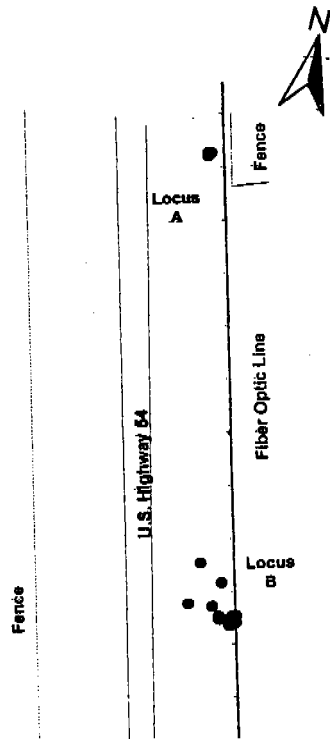


Figure 78. Distribution of Mimbres Black-on-white at Site LA 86736.

Mimbres White ware from the Gobernadora and Ojasen Sites in west Texas (Shafer et al 1999:190-194). Mimbres Classic Black-on-white sherds from both sites were manufactured with clays from the Mimbres Valley.

Shafer and Brewington (1987) developed a microseriation of Mimbres White ware based on tightly dated contexts at NAN Ruin, located on the Mimbres River. Shafer's seriation allows Mimbres White ware to be dated based on stylistic differences. Of the five rim sherds (five separate vessels) of Mimbres Classic Black-on-white that were large enough to place in Shafer's stylistic seriation sequence, all five can be confidently placed in the Middle Style III group. This assignment is mainly due to the single or multiple parallel lines that

separate the design from the rim. In the NAN Ranch assemblage, the Middle Style III group dates from A.D. 1060 to 1110. Given the radiocarbon dates from Site LA 86736, it is suggested that the Mimbres Classic Black-on-white assemblage dates to A.D. 1060 or slightly after.

San Andres Red-on-terracotta

Six sherds of San Andres Red-on-terracotta were recovered (Figures 79 and 80). All were from Locus B in the vicinity of Features 6, 7, and 9. At least two vessels are represented, one jar and one bowl. San Andres Red-on-terracotta was initially described by Mera and Stallings (1931) as a broad line terracotta. The ceramic type was named San Andres Red-on-terracotta by McCluney (1983). As

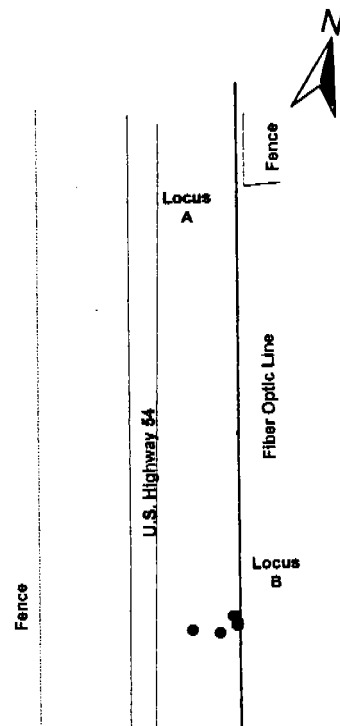


Figure 79. Distribution of San Andres Red-on-terracotta at Site LA 86736.



Figure 80. San Andres Red-on-terracotta sherds from Site LA 86736.

a "broad line" red-on-terracotta, it is the precursor to Three Rivers Red-on-terracotta. Both types are thought to have been manufactured in the northern Jornada Mogollon area in the vicinity of the Three Rivers, Ruidoso, and Rio Bonito drainages. Most of the dating for this type has been through ceramic cross dating. San Andres Red-on-terracotta is often used as a temporally diagnostic trade ware for the eleventh century (Late Mesilla Phase or Mimbres Phase) in south-central and southwestern New Mexico. The occurrence of San Andres Red-on-terracotta with Mimbres Classic Black-on-white in the context of several radiocarbon dates does much to validate their temporal association.

El Paso Bichrome

A single bowl sherd of El Paso Bichrome was recovered from the Level 1

in Locus B. El Paso Bichrome is the earliest painted ware in the El Paso Brown ware series. The type is thought to date to the mid to late twelfth century and has been associated with the Dona Ana Phase (Seaman and Mills 1988:172). In this case the context suggests that it was produced in at least limited numbers during the eleventh century.

Red Washed Ware

Forty-two sherds of red washed brown ware were found (Figure 81). Ten of these sherds were located in Locus A, while the remaining thirty-two were recovered from Locus B. Like the painted wares, the red washed wares were found in both the upper and lower levels. A red wash is basically a thin red slip. Two separate types of red washed ware appear in the literature. Hawley (1936:63) describes a Mimbres Plain Red Wash.

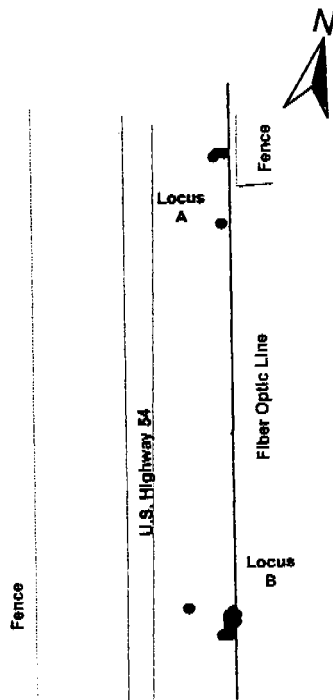


Figure 81. Distribution of Red Washed Ware at Site LA 86736.

Mimbres Plain Red Wash is commonly associated with Mimbres sites in southwestern New Mexico and is thought to be derived from the thicker slipped, highly polished San Francisco Red found in early and late pithouse sites of that area. More recently, Bussey, Kelly and Southward (1976:80) defined Jornada Red based on ceramics recovered from a pithouse site at nearby Three Rivers. These two types are very similar in appearance and without petrographic and neutron activation analysis cannot be readily distinguished. Given the presence of Mimbres Classic Black-on-white, it is possible (although less likely) that these red washed sherds, like the Mimbres Classic, were imported from the Mimbres area. Thus, the specimens from Site LA 86736 are simply called red wash wares. Neutron activation analysis would likely resolve this question.

Undifferentiated Red Slipped Ware Description

by Toni Sudar Laumbach

- The sherds tend to be well smoothed and without a bumpy surface (created by large temper particles immediately under the surface). Some sherds exhibit coarse and grainy surfaces that may be the result of weathering.
- One or both surfaces tend to be lustrous as a result of polishing. Some surfaces are dull and lack luster. Polishing striae generally are not visible.
- Where there is no red slip, the surface appears a medium to light brown color.
- The red slip ranges in color from a dark brick red to orangish red. The slip occurs as a solid, thin coating, or as an intermittent, weathered or worn, thin coating of color. The latter is frequently referred to as a "wash."
- The red slip usually appears lustrous, except in those cases where it is worn or weathered.
- The red slip may occur on one or both surfaces and may or may not cover the entire surface. Some sherds have a smudged interior surface with thin red slip on the exterior surface.
- Temper particles range from medium to coarse grains.
- Temper appears to be angular and is composed predominately of white to gray opaque particles in combination

with light-colored translucent particles. The dominant mineral is quartz.

- Rim style is direct with rounded or squared-off lips.

El Paso Brown

El Paso Brown is the most common ceramic type in the assemblage, totaling 530 sherds (Figure 82). El Paso Brown was found in both Locus A and Locus B.

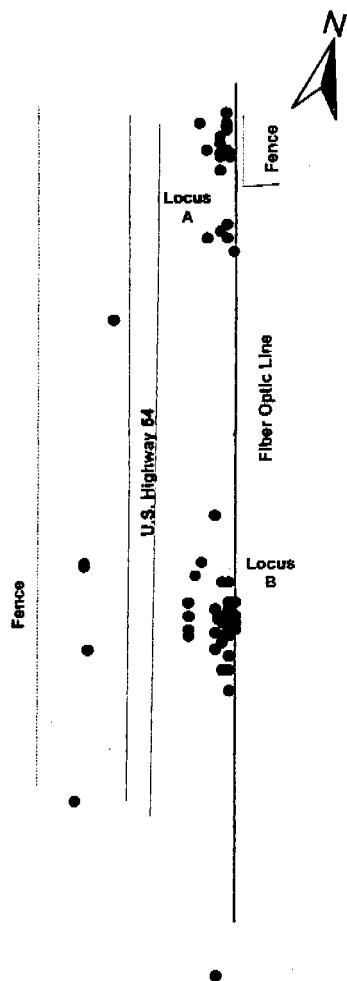


Figure 82. Distribution of El Paso Brown ceramics at Site LA 86736.

The vast majority of the assemblage were jar sherds, as the identifiable jar sherds outnumbered the identifiable bowl sherds by a ratio of almost 8 to 1. Rims for both bowls and jars were direct and consistent with the eleventh century context indicated by both the decorated ceramics and the chronometric dates (see discussion of Rim Sherd Indices this chapter).

A single shaped sherd of El Paso Brown was found south of Locus B. It was located on the surface. It had been ground into a circular shape.

El Paso Brown Description by Toni Sudar Laumbach

- Surface finish on both interior and exterior surfaces appears smooth, however, there exists a degree of bumpiness to the surfaces where large particles of temper lay immediately under the surface. Interior surfaces occasionally appear rough scraped and dull to well-smoothed and lustrous with visible polishing stria.
- Surface color ranges from dark brown to reddish brown.
- Wall thickness ranges from 3 to 5 mm.
- Temper particles range from medium to coarse grains.
- Temper appears to be angular, gray colored granitic detritus.

Jornada Brown

Jornada Brown was less common, consisting of 108 sherds (Figure 83). Like

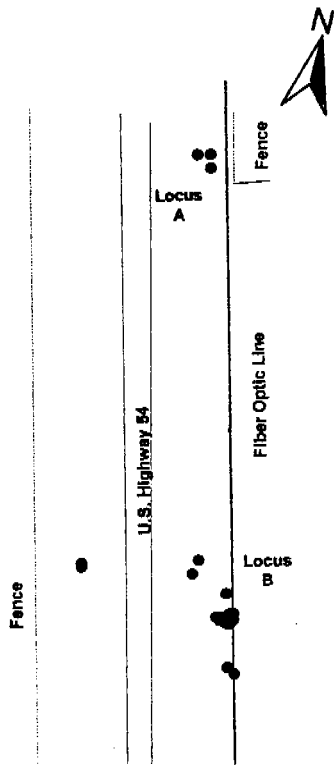


Figure 83. Distribution of Jornada Brown ceramics at Site LA 86736.

the El Paso Brown assemblage, jars greatly outnumbered bowls, although bowls did occur. Vessel form, as evidenced by the rims present in the assemblage, is identical to those in the El Paso Brown assemblage. One jar rim identified as Jornada Brown is included in the discussion of Rim Sherd Indices (this chapter).

Jornada Brown was defined by Jennings (1940) from a site in the Sacramento Mountains near Mayhill, New Mexico. El Paso Brown was defined by Lehmer (1948) from sites along the Rio Grande and in the Tularosa Basin. Considerable debate has ensued about the relationship of these two types. The primary difference is one of surface finish. El Paso Brown has a comparatively

rough, unpolished surface, whereas Jornada Brown has a smooth, polished surface much like that of the western Mogollon brown ware type, Alma Plain, but usually without that type's generally buff coloration. Based on the general distribution of these types, normative thought is that the better finished Jornada Brown was produced by the mountain dwelling Jornada Mogollon groups, while the less well finished El Paso Brown was the product of desert dwellers. In truth, it is very difficult to tell Jornada Brown from El Paso Brown and all of the sherds in the LA 86736 assemblage could be placed in the El Paso Brown category.

Jornada Brown Description by Toni Sudar Laumbach

- Surface finish on both interior and exterior surfaces appear well smoothed and generally without the bumpiness that is noticeable on surfaces of El Paso Brown.
- Surfaces tend to have a soft luster due to polishing.
- Surface color tends to be medium to light brown.
- Temper particles range from medium to coarse grains.
- Temper is predominately quartz sand composed of angular translucent and light-colored opaque particles.
- Wall thickness ranges from 3 to 5mm.
- Rims are direct with rounded or squared-off lips.

Rim Sherd Indices for El Paso Brown and Jornada Brown

Rim sherd indices (Seaman and Mills 1988:171) were calculated for five El Paso Brown jar rims and one Jornada Brown jar rim. The Rim Sherd Index was developed by West (1982), and subsequently refined by Carmichael (1986:76-84) and Seaman and Mills (1988) as a method of quantifying temporal shifts in the rim form of the El Paso brown ware series, which includes El Paso Brown, El Paso Bichrome, and El Paso Polychrome. These shifts were originally noted by Lehmer (1948) and developed by Whalen (1977, 1978, 1980). This sequence begins with the earliest El Paso brown ware (A.D. 400-700) exhibiting an inverted jar neck with a pinched rim. The next stage (roughly A.D. 700-1150) again sees an inverted jar neck, but with a direct, even walled, flat or rounded rim. During the latter end of this period, red or black carbon paint was added, creating El Paso Bichrome. The subsequent period (A.D. 1150-1300) sees a change in vessel form to a direct neck with an expanded or thickened rim. The final stage of this evolution (A.D. 1300- 1420?) saw an everted neck with a thickened rim. During the latter two stages, almost all of the vessels are polychrome with the addition of red mineral and black carbon paint. These changes in vessel form have been explained as the evolution of the El Paso Brown jar from a cooking vessel to a more efficient storage vessel (Seaman and Mills 1988:179-182).

The Rim Sherd Index requires measurements of vessel thickness at both 2 mm and 15 mm below the rim, and computes the index by dividing the first

measurement by the second. Thus, a direct walled, pinched rim would have an index of much less than one; the direct walled, rounded or straight rims would have an index of just slightly less than one; the rims with a direct wall and a thickened rim would have an index of more than one; and the latest rim with a thickened and everted rim would have an index of much more than one. In practice, this works only with jar forms, because bowls from all periods tend to have direct, unthickened rims. Seaman and Mills (1988) added a useful measurement to process by calculating the number of degrees of inversion or eversion when sherd size would permit.

Rim Sherd Indices (RSIs) taken on the six sherds reflect the direct, rounded and/or flattened rims found in the Site LA 86736 assemblage. The RSIs ranged from .76 to .86, with a mean of .83. This corresponds well with the mean of .86 recorded for plain El Paso Brown by Seaman and Mills (1988:173). It should be noted that truly pinched rims dating to the early part of the sequence have only been found in a few dated contexts (Whalen 1978:60; Oakes 1998:39, 46) and are only rarely found during survey projects. RSIs for pinched rims are slightly less than .83 (Oakes 1998:114).

Stratigraphic Context

Excavations at LA 86736 were conducted in 10 cm. levels, except for the excavation of the lower levels in the vicinity of the Feature 9 (the burial) where 20 cm levels were excavated. Other than features, no natural stratigraphic levels could be seen in the soil profiles.

In Locus A, Mimbres Classic Black-on-white, El Paso Brown, Jornada Brown, and Red Washed ware were found in Level 1 (Table 22). Only a few sherds of El Paso Brown were recovered from Level 2 and no ceramics were found in the lower levels.

In Locus B, all six types identified were found in Level 1 (Table 23). Mimbres Classic Black-on-white and San Andres Red-on-terracotta were not found below Level 4. Red Washed ware was not found below Level 5. Only

Jornada Brown and El Paso Brown were found in Levels 6 and 7. Given the shallow nature of the site, the limited number of artifacts, and the potential for deflation and redeposition by wind, it is unlikely that the brown ware from the lower levels reflects an earlier occupation.

Prehistoric Ceramic Summary

The six ceramic types from Site LA 86736 are considered to be contemporary, based on ceramic cross

Table 22. Ceramic Types by Level at Locus A, Site LA 86736.

Ceramic Type	Level				Total	Percentage
	1	2	Surface	Trench		
El Paso Brown	130	11	34	1	176	89.80
Jornada Brown	2		2		4	2.04
Mimbres Classic B/W	6				6	3.06
Red Wash	8		2		10	5.10
TOTAL	146	11	38	1	196	100.00

Table 23. Ceramic Types by Level at Locus B, Site LA 86736.

Ceramic Type	Level									Total	Percentage
	1	2	3	4	5	6	7	Surface	Trench		
El Paso Bichrome	1									1	.14
El Paso Brown	263	67	49	16	40	12	1	75	7	530	76.37
Jornada Brown	69	4	1	5	8	5	2	9	1	104	14.99
Mimbres Classic B/W	8		2	1				9	1	21	3.03
Red Wash	12	4	3		3			10		32	4.61
San Andres R/T	3			1				1	1	6	.86
TOTAL	356	75	55	23	51	17	3	104	10	694	100.00

dating and their stratigraphic association in the site. The microstylistic analysis of the Mimbres Classic Black-on-white suggests that the site was occupied ca. A.D. 1160-1110. The majority of the vessels were identified as jars, reflecting the functional utility of that vessel form on seasonal sites. Bowl forms were generally restricted to the painted vessels. Although several painted vessels are represented by rim sherds, the body sherds of these bowls may have been curated or collected. In all, the ceramic assemblage contains all the elements expected from a seasonal gathering site of the mid-eleventh century.

Lithic Artifacts

Lithic artifacts were recovered from excavated and surficial contexts in both Locus A and Locus B of Site LA 86736.

Compared to the 899 ceramic artifacts recovered, only 375 lithic artifacts were found. The lithic artifacts from LA 86736 are primarily manufactured from materials that are available in the immediate area. Formal tools are virtually nonexistent and no temporally diagnostic artifacts were found. Given the number and context of the recovered lithic artifacts, it is deemed likely that the entire assemblage is reflective of the limited occupation suggested by the ceramics and radiocarbon dates.

Materials and Cortex

Six material types were identified in the assemblage (Figure 84, Table 24). These include (in order of dominance) siltstone, quartzite, basalt, sandstone, chert, and chalcedony. The siltstone, quartzite, and sandstone are present in



Figure 84. Lithic materials from Site LA 86736: (l-r) siltstone (Cat. No. 87), chert and basalt (Cat. No. 117), and chert (Cat. No. 138).

the local arroyo gravels and are derived from the same basic geologic formation exposed in the Sierra Blanca (Cather 1991:265-275). The basalt is also available locally and can also be traced to a source in the highlands of the Sierra Blanca (Cather 1991:265-275). The chert and chalcedony are in the minority. Cherts can be found in several formations of bedded limestones in both the Sacramento and

San Andres Mountains. The chalcedony was likely imported from the Rio Grande gravels. The material type of 12 lithic artifacts could not be satisfactorily determined. The materials were distributed differentially across the site (see Figures 85-88). Only 32 lithic artifacts came from Locus A (Table 25), while Locus B yielded the great majority of the material recovered (n=343) from the site (Table 26).

Table 24. Lithic Materials by Cortex Placement at Site LA 86736.

Material	Cortex						Total	Percentage
	dorsal	dorsal/ platform	none	platform	distal/ platform	yes		
basalt		2	7	6		1	16	4.34
chalcedony			1				1	.27
chert			3	1			4	1.08
quartzite	12	14	38	53	1	2	120	32.52
sandstone	1	4	2	2		2	11	2.98
siltstone	18	41	57	62		27	205	55.56
unknown			12				12	3.25
TOTAL	31	61	120	124	1	32	369	100.00

Table 25. Lithic Material by Cortex at Locus A, Site LA 86736.

Material	Cortex					Total	Percentage
	dorsal	dorsal/ platform	none	platform	yes		
basalt		2		1	1	4	12.90
quartzite		2	4	4		10	32.26
sandstone		1		1	1	3	9.68
siltstone	1	2	7	3	1	14	45.16
TOTAL	1	7	11	9	3	31	100.00

Table 26. Lithic Material by Cortex at Locus B, Site LA 86736.

Material	Cortex						Total	Percentage
	dorsal	dorsal/ platform	none	platform	distal/ platform	yes		
basalt			7	5			12	3.55
chalcedony			1				1	.30
chert			3	1			4	1.18
quartzite	12	12	34	49	1	2	110	32.54
sandstone	1	3	2	1		1	8	2.37
siltstone	17	39	50	59		26	191	56.51
unknown			12				12	3.55
TOTAL	30	54	109	115	1	29	338	100.00

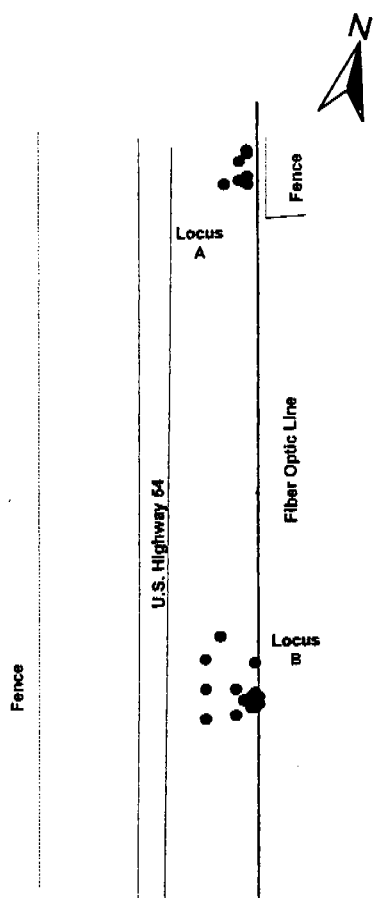


Figure 85. Distribution of siltstone at LA 86736.

Siltstone, a fine-grained silicious material, varies in color from tan to light gray. Siltstone was the most common material, represented by 207 artifacts (Figure 85). This material was found at both Locus A and Locus B. The reduction of siltstone cores was less thorough in Locus B, where only 26 percent of the assemblage did not exhibit some cortex. In Locus A, 50 percent of the much smaller siltstone assemblage ($n=14$) exhibited no cortex.

Quartzite, a coarse to fine-grained silicious material, varied in color from black to brownish-gray to gray. The black quartzite exhibited the finest grain, the brownish-gray quartzite was medium grained, while the gray quartzite varied from coarse to fine-grained. Quartzite was found at both Locus A ($n=10$) and Locus B ($n=110$) (Figure 86). Like siltstone, the quartzite found at Locus A had been more thoroughly reduced than that at Locus B, based on the retention of cortex.

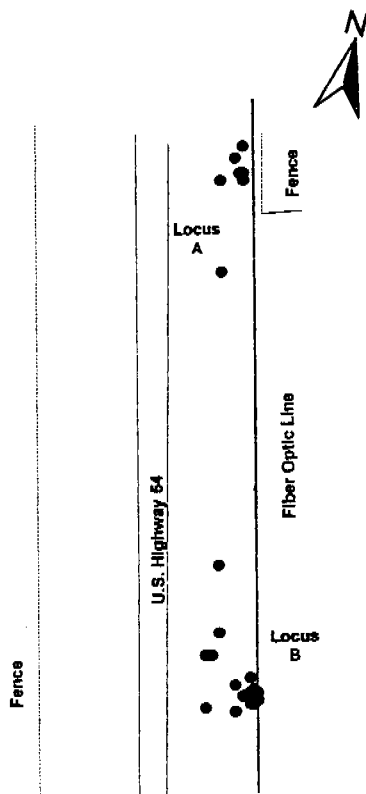


Figure 86. Distribution of quartzite at LA 86736.

Basalt, a dark gray/black material, was found in limited quantities at both Locus A (n=4) and Locus B (n=12) (Figure 87). All of the basalt at Locus A exhibited cortex, while none of the basalt at Locus B had any cortex.

Chert and chalcedony (Figure 88) vary considerably in color. Neither of these materials were present at Locus A. The limited numbers of these material types came from Locus B (chert=4; chalcedony=1). The chalcedony flake is white to brown in color and exhibits no cortex. The cherts are of the banded gray-green, black and brown hues common to cherts formed in the lime-stone formations of the San Andres and Sacramento Mountain ranges (Hawley 1983:19-20).

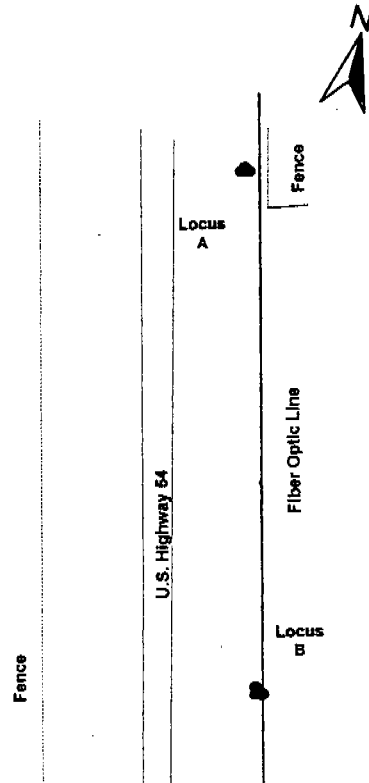


Figure 87. Distribution of basalt at LA 86736.

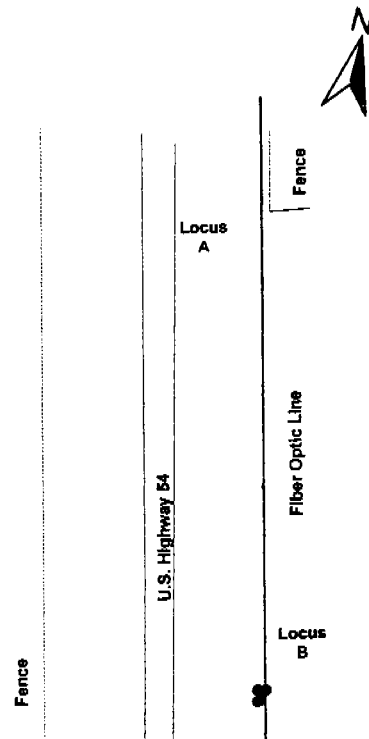


Figure 88. Distribution of chert and chalcedony.

Debitage Size and Type

The lithic debitage was divided into size categories. These categories were 0-10 mm., 10-40 mm., 40-60 mm., and larger than 60 mm. (Table 27). Of the 369 pieces of lithic debitage, 89 percent (n=331) were in the second and third categories. Of these, 56 percent (n=187) were in the second category, while 44 percent (n=144) were in the third category. These two categories seem to reflect the optimum size for flake production, as all of the more silicious, homogenous materials (chert, chalcedony, and basalt) are only found in that size range. Many of the largest flakes are thought to be the result of ground-stone production, as quartzite and siltstone are the only materials in the largest size category.

Due to the prevalence of coarser materials, debitage attributes on the ventral surfaces and terminations were difficult to observe. While striking

platforms could usually be easily defined, it was extremely difficult to differentiate a step termination from a post-production transverse fracture. Likewise, if the platform was not present, the lack of ventral attributes made it difficult to assess flake orientation.

Bifacial thinning flakes are associated with the latter stages of bifacial core and bifacial tool production. Transverse flakes are associated with the early stages of bifacial core and bifacial tool production. It is significant that none of these flake types were identified in the assemblage.

Lithic Tools

Identifiable lithic tools are exceedingly limited in both number and variety (Figure 89). They include six cores (Figure 90), one flake tool, and one hammerstone. Except for one expedient core from Locus A, all the tools are from Locus B.

Table 27. Lithic Material by Size at Site LA 86736.

Material	Size Category				Total	Percentage
	1 (0-10mm)	2 (10-40mm)	3 (40-60mm)	4 (>60mm)		
basalt		9	7		16	4.34
chalcedony			1		1	.27
chert	2	1	1		4	1.08
quartzite	5	62	39	14	120	32.52
sandstone		4	7		11	2.98
siltstone	10	99	89	7	205	55.56
unknown		12			12	3.25
TOTAL	17	187	144	21	369	100.00

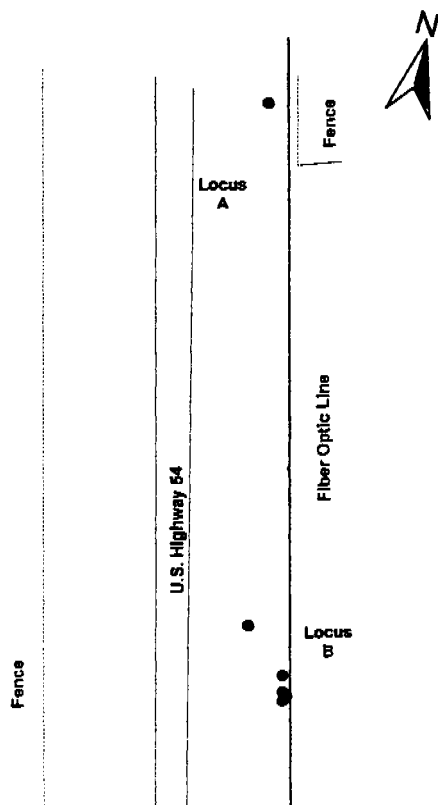


Figure 89. Distribution of lithic tools at Site LA 86736.

Only the single basalt core is a developed core, exhibiting multiple platforms. The other cores are expedient cores produced from unshaped nodules of quartzite (3) and siltstone (2). The predominance of expedient cores corresponds well with the percentages of platform/dorsal cortex in the debitage assemblage (quartzite=12%; sandstone=36%; siltstone 20%), as well as the presence of cortex on 68 percent of the overall assemblage.

One quartzite hammerstone was recovered. The hard quartzite was undoubtedly required to effectively work the very hard and often coarse-grained lithic materials present in the assemblage.

One flake tool was identified. It is made of banded grey/green chert, and exhibits some dorsal cortex. The use wear or retouch can be viewed macroscopically



Figure 90. Cores from Site LA 86736 (l-r): Siltstone (Cat. No. 107) and basalt (Cat. No. 13).

and consists of a combination of unifacial and bifacial microflake removal on multiple edges.

No bifaces, biface fragments, or projectile points were found. These negative data correspond to the lack of debitage related to bifacial tool production.

Stratigraphic Context

Excavations at Site LA 86736 were conducted in 10 cm. levels, with the exception of the lower levels of Feature 9 (the burial). Other than features, no natural stratigraphic levels could be seen in the soil profiles. Overall, 42 percent (n=157) of the 375 lithic artifacts were found in Level 1 (Table 28). As less than 1 percent were found on the surface, 52.5 percent (n=197) of the lithic material were recovered from excavated contexts.

Lithic artifacts do not reflect significant stratification in Locus A. As noted, no temporally diagnostic lithic artifacts were present in the total of only 32 found in Locus A (Table 29). Of those, 69 percent (n=22) were found in Level 1. A single lithic artifact was found in Level 2 and none were found below Level 2.

With the exception of the lone chalcedony flake found in Level 1, all of the lithic materials found in Locus B were present through Level 4 (Table 30). Basalt was found in Level 5. Quartzite and siltstone were found in Level 6, while only siltstone was found in Level 7.

Given the shallow nature of the site, the lack of temporally diagnostic lithic artifacts, the stratigraphic distribution of material types, and the potential for deflation and redeposition by wind, it is unlikely that the lithics from the lower levels reflect an earlier occupation.

Table 28. Lithic Material Types by Level at Site LA 86736.

Material	Level									Total	Percentage
	1	2	3	4	5	6	7	Surface	Trench		
basalt	8	1	3	2	2			1		17	4.53
chalcedony	1									1	.27
chert	2			1				1		4	1.07
quartzite	41	25	10	15	5	9		12	6	123	32.80
sandstone	5	3		2				1		11	2.93
siltstone	88	46	11	20	8	19	2	6	7	207	55.20
unknown	12									12	3.20
TOTAL	157	75	24	40	15	28	2	21	13	375	100.00

Table 29. Lithic Materials by Level at Locus A, Site LA 86736.

Material	Level			Total	Percentage
	1	2	Surface		
basalt	4			4	12.50
quartzite	5	1	5	11	34.37
sandstone	2		1	3	9.38
siltstone	11		3	14	43.75
TOTAL	22	1	9	32	100.00

Table 30. Lithic Materials by Level at Locus B, Site LA 86736.

Material	Level									Total	Percentage
	1	2	3	4	5	6	7	Surface	Trench		
basalt	4	1	3	2	2			1		13	3.79
chalcedony	1									1	.29
chert	2			1				1		4	1.17
quartzite	36	24	10	15	5	9		7	6	112	32.65
sandstone	3	3		2						8	2.33
siltstone	77	46	11	20	8	19	2	3	7	193	56.27
unknown	12									12	3.50
TOTAL	135	74	24	40	15	28	2	12	13	343	100.00

Lithic Summary

The lithic assemblage reflects expedient use of local materials to satisfy the needs of a procurement strategy focused on wild plant products. It is significant that no projectile points, bifaces, or other tools associated with the hunting of game were recovered, and that the debitage did not reflect production of these tools. A few exotic materials consisting of the finer-grained chert and

chalcedony were brought to the site, probably to serve specific cutting functions that would have been more difficult with the coarser-grained local materials.

Based on artifact counts, the frequency of cortex in the assemblage, and the location of cores, most of the lithic reduction occurred in Locus B. Flakes and cores of a variety of materials were taken to Locus A for utilization

and, in the case of the cores, limited reduction.

In sum, the production and use of lithic artifacts at Site LA 86736 was limited and focused on satisfying simple and immediate needs.

Ground Stone Artifacts

Seventeen ground stone artifacts were recovered from Site LA 86736 (Table 31). Four were from Locus A, three of which were from excavated contexts. Twelve were from Locus B, including six

recovered from excavated context. One artifact was found on the surface between the loci.

With two exceptions, all of the ground stone were small fragments. Five of the fragments could be identified as coming from manos, while six are from metates. The remaining artifacts are indeterminate ground stone. The exceptions are a complete, shaped sandstone slab metate found in Trench 990E of Locus B (Figure 91), and a complete mano found on the surface between the two loci. The complete artifacts and most of the

Table 31. Ground Stone by Material Type at Site LA 86736.

Material	Type					Total	Percentage
	frag.	mano	mano frag.	metate frag.	slab metate		
quartzite, fine-grained	1					1	5.88
quartzite, medium-grained				1		1	5.88
quartzite, coarse-grained	2	1	5	4		12	70.59
sandstone, medium-grained				1		1	5.88
sandstone, coarse-grained					1	1	5.88
siltstone, coarse-grained	1					1	5.88
TOTAL	4	1	5	6	1	17	100.00

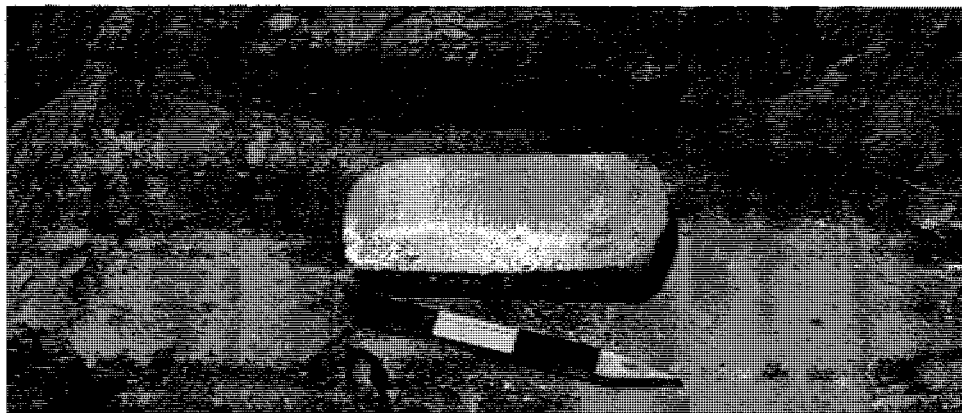


Figure 91. Slab metate at Site LA 86736, looking west.

fragments exhibit evidence of some intentional shaping of the edges, although the unground faces often were not modified.

One metate fragment (Cat. No. 277), associated with the infant burial in Locus B, may have served as a palette rather than a grinding surface for plant products. It was stained with red and yellow ochre, and exhibited parallel incisions on its grinding surface. A full description is provided below.

All of the ground stone artifacts are of local materials, including sandstone (2), fine-grained quartzite (1), medium-grained quartzite (1), coarse-grained quartzite (12), and coarse-grained siltstone (1). These materials make up the bulk of the flaked stone assemblage. Given the fact that a complete sandstone metate had been shaped by percussion, at least some of the debitage may have resulted from the shaping of ground stone artifacts.

The distribution of ground stone artifacts appears in Figure 92. Descriptions of selected ground stone artifacts appear below. A complete list of all the ground stone artifacts is on file at Human Systems Research, Inc.

Cat. No. 155 (Locus B scraped): One circular mano fragment of a light gray, coarse-grained quartzite. The fragment measures 11 by 8 centimeters (cm) and is 3 cm thick. The mano has a naturally rounded shape that has not been artificially modified. A heavily ground surface occurs on one face of the mano and extends only slightly onto the lateral edge. The opposite face of the mano is

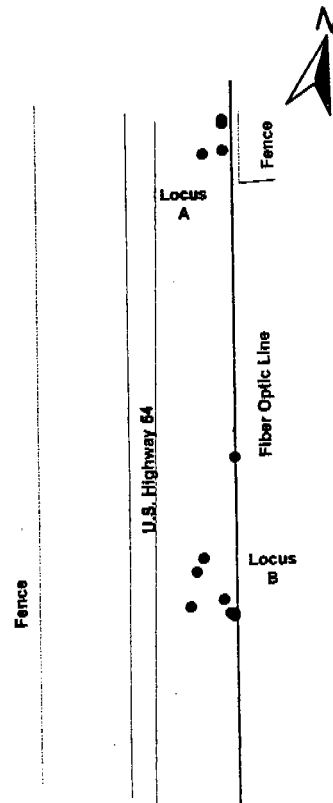


Figure 92. Distribution of ground stone artifacts at Site LA 86736.

water worn, as are some areas on the lateral edge. The mano was originally a water-worn cobble with a rounded shape and a flat surface, which were useful in producing an expedient grinding artifact.

Cat. No. 155 (Locus B scraped): One mano fragment of dark gray, coarse-grained quartzite. The fragment measures 8 by 2 cm and is 1.5 cm thick. The fragment is only a small portion of a mano, as the flat grinding surface extended a bit further.

Cat. No. 175 (Grid 570N/1000E surface): One complete, one-hand mano of a light gray, coarse-grained quartzite. The fragment measures 10.5 by 9 cm and is 4.5 cm thick. The mano has been shaped,

evidenced by pecking marks around the sides to form a nearly perfect, round shape. Given its size, the mano was probably used with one hand. A heavily ground surface occurs on one face, whereas the other face has only been moderately ground. The lateral edges also have moderately ground surfaces that are uniformly rounded completely around the circumference of the mano. Some battering is also evident on one of the lateral edges and on a small area adjacent to the moderately ground face of the mano.

Cat. No. 190 (Locus A excavated): One mano fragment of black and gray, coarse-grained quartzite. The fragment measures 9 by 6.5 cm and is 4.2 cm thick. A heavily ground surface occurs on one face and along one of the lateral edges. The ground surface has been ground completely flat. One lateral edge has also been shaped and ground flat, forming a 90-degree angle with the grinding surface. The ground lateral edge rounds off to the opposite face, which has a naturally flat surface that is water worn. The mano has been burned, as indicated by the blackened nonnatural color and fire-cracked appearance.

Cat. No. 224 (540N/990E trench): One whole slab metate of light gray, coarse-grained sandstone. The metate measures 40.5 by 18.5 cm and is 6.5 cm thick. It has been shaped completely around the perimeter, forming a rounded rectangular shape. The grinding surface has also been shaped to form a slight basin. Only a moderately ground surface is present on the prepared face of the metate. This surface is somewhat coarse.

No other surfaces are ground and the opposite face is naturally water worn. This metate does not appear to have been heavily used, even though it has been nicely shaped. It may be that the coarse grinding surface was needed and purposefully prepared.

Cat. No. 277 (Locus B excavation): One ground stone fragment of fine-grained black quartzite. The stone measures 5.8 by 4.5 cm and is 2 cm thick. This artifact exhibits two pigment stains, a large yellow ochre stain throughout much of the ground surface, and a small amount of red ochre adjacent to the ground surface on a lateral edge. The artifact may have served more as a palette than a grinding stone. A moderately to heavily ground surface is present. Parallel scratch or etching marks cover the entire ground surface. The fragment has three edges and was not much larger in its original size. The opposite face has fragmented and its original thickness cannot be determined. This artifact was found stratigraphically between Feature 7 and the infant burial, Feature 9.

Ground Stone Summary

The ground stone from LA 86736 was produced from local materials. Consistent evidence of shaping suggests that some time was invested in their production. The ground stone artifacts are typical of those associated with the processing of wild plant products. Mesquite, saltbush, and wild grass seeds were likely the focus of this processing, although there is little or no macrobotanical data to verify this inference.

Macrobotanical Remains by Dr. Richard Holloway

The majority of the macrobotanical samples were taken from Site LA 86736. Plant remains found include saltbush/black greasewood (*Atriplex* sp./*Sarcobatus* sp.), mesquite (*Prosopis* sp.), cottonwood (*Populus* sp.) and corn (*Zea mays* sp.).

Features

Feature 1: Flotation samples (FS) 249 and 281 of this hearth feature contained saltbush/black greasewood and mesquite charcoal, and small charcoal fragments. Only charcoal fragments were present in the smaller fractions. FS 281 contained only mesquite and small charcoal fragments.

Feature 2: A total of eight flotation samples (FS 238, 239, 240, 241, 242, 243, 244, and 270) were taken from this FCR cluster hearth feature, all from Level 2. Saltbush/black greasewood and mesquite were the most abundant charcoal types. Cottonwood charcoal was present in five of the eight samples.

Feature 3: FS 254 was taken from this hearth feature. Mesquite charcoal and small charcoal fragments were present. Mesquite charcoal was present in the identification sample (FS 285).

Feature 5: A total of three flotation samples (FS 247, 261, and 272) were taken from this FCR cluster hearth feature, all from Level 1. Mesquite charcoal was common, along with a single occurrence of cottonwood charcoal and small charcoal fragments. Two individual samples (FS 290 and 303) were submitted for identi-

fication. These included mesquite and saltbush/black greasewood charcoal.

Feature 6: A total of four flotation samples (FS 259, 257, 260, and 264) were taken from this hearth feature, all from Level 2. FS 259 was taken from below pottery, and contained mesquite and small hardwood charcoal fragments. Cottonwood and mesquite charcoal were both present in the flotation and identification samples (FS 288).

Feature 7: A total of three flotation samples (FS 256, 2652 and 265) were taken from the ash pit hearth feature. Saltbush/black greasewood and mesquite charcoal were present. The samples for identification (FS 302 and 304) contained mesquite charcoal, hardwood charcoal fragments, and cf *Yucca* monocot stem.

Feature 8: FS 252 was taken from this hearth feature. The assemblage contained mesquite and saltbush/black greasewood charcoal, in addition to small charcoal fragments. The same taxa were present in the identification sample (FS 286).

Feature 9: Two samples (FS 250 and 266) were taken from this infant burial feature. Mesquite charcoal and a monocot stem fragment (probably *Yucca* sp.) were present. Thirteen corn (*Zea mays*) cupules were recovered. Identification samples FS 298, 299 and 301 contained mesquite and cottonwood charcoal.

Excavation Units

Unit 522N/998E: Samples FS 258 and 267 were taken from this unit. Mesquite and hardwood charcoal fragments were present in these assemblages.

Unit 522N/999E: FS 263 was taken from this unit and contained only small charcoal fragments. The identification samples (FS 294 and 295) contained saltbush/black greasewood, cottonwood, mesquite, and an unknown type.

Unit 522N/1000E: A total of five samples were taken from this unit. Mesquite, saltbush/black greasewood charcoal, and small charcoal fragments were common, and cottonwood charcoal was present in a single sample. The identification samples (FS 291, 292, and 293) contained saltbush/black greasewood, cottonwood, and mesquite charcoal, and FS 291 and 293 also contained cf. *Yucca* stem fragments.

Unit 523N/997E: FS 273 was taken from this unit. Only small hardwood charcoal fragments were present in the flot sample, but saltbush/black greasewood charcoal was present in the identification sample (FS 289).

Unit 523N/999E: FS 268 and 276 were taken from this unit. Mesquite and small hardwood charcoal fragments were present in both the flotation and identification (FS 280) samples. FS 280 also contained cf. *Yucca* monocot stem fragments.

Unit 524N/998E: FS 246 was taken from this unit. Mesquite and small charcoal fragments were present.

Unit 524N/999E: FS 300 was an identification sample and contained only mesquite charcoal.

Unit 660N/992E: FS 286 was an identification sample, which contained

mesquite and saltbush/black greasewood charcoal.

Unit 660N/996E: FS 284 was an identification sample containing only mesquite charcoal.

Unit 660N/997E: FS 282 and 283 were identification samples from Level 1. These samples contained mesquite and saltbush/black greasewood charcoal, and a corn cob fragment of a 12-row variety.

Unit 661N/997E: FS 296 and 297 were identification samples from Levels 1 and 2. Both samples contained only mesquite charcoal.

Unit 661N/999E: FS 277 was an identification sample from Level 1, and contained mesquite charcoal and charcoal fragments.

Unit 662N/992E: FS 306 was an identification sample, which contained saltbush/black greasewood charcoal and small charcoal fragments.

Unit 662N/997E: FS 253 was taken from this unit and contained mesquite and small charcoal fragments.

Unit 662N/998E: FS 248 was taken from this unit. Mesquite, cottonwood, and saltbush/black greasewood charcoal and small charcoal fragments were present.

Discussion

Table 32 presents the ubiquity of selected taxa from Site LA 86736. From the evidence provided by this table, mesquite is clearly the dominant fuel wood from this site. It is present in 100

Table 32. Ubiquity of Selected Taxa from Site LA 86736.

Unit, N=Flot/ID	<i>Prosopis</i> sp.	<i>Populus</i> sp.	<i>Atriplex</i> sp./ <i>Sarcobatus</i> sp.	<i>Yucca</i> sp.	<i>Zea mays</i> sp.	<i>Opuntia</i> sp.
Feat 1, N=1/1	100%/100%		100%/0			
Feat 2, N=8/4	88%/100%	63%/0	100%/0			
Feat 3, N=1/1	100%/100%					
Feat 5, N=3/2	67%/33%	33%/0	0/33%			
Feat 6, N=4/1	75%/25%	25%/25%				
Feat 7, N=2/2	50%/50%		50%/0	0/50%		50%/0
Feat 8, N=1/1	100%/100%		100%/100%			
Feat 9, N=2/3	50%/100%	0/33%		50%/0	50%/0	
All Features, N=8/8	100%/100%	38%/25%	50%/25%	13%/13%	13%/0	13%/0
Feat samples, N=38	78.9%	21%	34.2%	5.2%	2.6%	2.6%
Excav. Unit samples	59.4%	16.2%	40.5%	8.1%	8.1%	0

Note: First number (n/n) refers to Flotation sample; Second number refers to Identification sample

percent of the features, 78.9 percent of the feature samples, and 59.4 percent of the excavation unit samples. Saltbush/black greasewood charcoal appears in 50 percent of the features, 34 percent of the feature samples, and 40.5 percent of the excavation unit samples. Saltbush/greasewood charcoal was likely even more ubiquitous than the data indicate. This wood is generally smaller and has a tendency to be completely incinerated by the temperatures generated by fires, more so than does mesquite. Saltbush/greasewood is also more likely to have been used in the generation of the fire rather than later, which acts to reduce its preservation in the archaeological assemblage.

The ubiquity of cottonwood charcoal was surprising, particularly given the absence of this taxon from the modern vegetation. Cottonwood charcoal was present in 38 percent of the features,

which is rather high. It was present in 21 percent of the feature samples, and only 16.2 percent of the excavation unit samples. This distribution may suggest a selection for this taxon within the features. The underlying reason for this selection, however, remains obscured.

Monocot stem fragments, probably from *Yucca* sp., were recovered in somewhat higher amounts than I have obtained before. While present in a relatively small number of samples, this taxon was present in Feature 9 samples and several samples from the excavation units. The fragments were larger than normally recovered, with one fragment approaching 1 inch in diameter. These indicated that the flowering stalks of the *Yucca* were likely used as a supplemental fuel source. Interestingly, this taxon was present only from Feature 9 samples and 8 percent of the excavation unit samples.

The distribution of this taxon is not thought to have been unusual, but rather, this wood was used as a supplement to normal fuel woods and thus appears sporadically.

Corn material, while sparse, did occur within several locations. A large number (13) of isolated cupule fragments occurred in association with Feature 9, the infant burial. Ordinarily, this might suggest an offering of some sort, but in this case I think not. Feature 9 was located directly below Feature 7, an ash pit. There were some indications of disturbance, primarily rodent, within Feature 7. It is possible that the isolated corn remains were incorporated into the sediments of Feature 9 via these animals, even though no additional corn remains were recovered from Feature 7. If the corn cupules were originally associated with Feature 7, this might imply the use of corn cobs as a supplemental fuel source.

Feature 7 also contained a single charred *Opuntia* seed, a number of charred grass stems, and a single stem fragment of horsetail/rushes (*Equisetum* sp.). This is consistent with the use of Feature 7 as an ash pit. The single charred *Opuntia* seed may be indicative of food-processing activities occurring within the feature, but based on a single occurrence, this is problematical. The presence of horsetail/rushes is interesting. This taxon is also generally restricted to more riparian habitats and suggests the presence of a riparian community in close proximity to the site during its occupation.

An additional charred corn cob fragment was recovered from excavation Unit 660N/997E. This was a 12-row

variety and was the only corn cob fragment recovered from this site.

Summary

The most common wood charcoal taxon was mesquite, followed by saltbush/black greasewood and cottonwood. These types are all locally available, suggesting that fuel woods were selected for their availability rather than for a specific purpose. The presence of cottonwood and the occurrence of horsetail/rushes suggest the presence of a riparian plant community, probably associated with the perennial drainage. A few samples contained wood from a monocot stem, probably *Yucca*. At least one specimen was nearly 1 inch in diameter. These were most likely from the flowering stalks of the *Yucca*. *Yucca* wood rarely preserves in the archaeological assemblages since it usually burns to ash, especially in the hotter fires fueled by mesquite.

Some evidence of the use of corn was also present. One cob fragment of a 12-row variety was present, in addition to a number of isolated cupules. Cupules only were associated with the infant burial. While these could infer a grave offering, it is also likely that these were the result of rodent activity or disturbance in the grave, which was located directly below an ash pit feature. If the cupules were originally associated with the ash pit, they could represent simply the use of cob materials as a supplemental fuel source. The low quantity of corn remains from these sites implies that corn was either a supplement to the diet or that the processing and storage areas were not discovered or did not preserve.

A single charred *Opuntia* seed was also recovered, suggesting the use of this plant, probably as a food source. Based on only a single seed, it is difficult to infer the importance of this plant. However, its presence suggests the exploitation of naturally occurring wild plant materials as a component of the diet.

The majority of the common taxa present in this assemblage are found locally within the vegetation. Mesquite, as might be expected, is the most common wood charcoal type present. Saltbush/greasewood charcoal is also quite common, but occurs in slightly fewer samples than does mesquite. Mesquite is fairly common in the modern vegetation and presumably was equally common during the Jornada Mogollon occupation of these sites.

Both saltbush and greasewood belong to the family Chenopodiaceae and, as such, their wood anatomical characteristics are virtually identical. Both taxa have similar habitats, and although saltbush is much more common in the central and southern portions of the state, greasewood can, and does occur. Therefore, based only upon the wood anatomical characteristics, I have combined these two genera into a morphological category and have not attempted to separate the genera. While I suspect that the majority of specimens included in this category belong to greasewood (*Atriplex*), this cannot be absolutely determined based upon only wood charcoal characteristics.

Cottonwood charcoal also appeared somewhat commonly within this assemblage, but less so than either mesquite or saltbush/greasewood. Cottonwood is

more common within riparian communities where the water source is more reliable. There are no perennial drainages within the immediate vicinity of the sites. Three Rivers, Boone Draw, and Temporal Creek are the nearest named drainages. Although not directly stated, these drainages may have supported more riparian plant communities in the past. It is likely that cottonwood was present along at least one of these drainages during the Jornada Mogollon occupation of the sites.

The wood charcoal taxa recovered from this project suggest that the fuel woods were obtained locally and that no long-distance procurement patterns were operating. All three of the dominant plant taxa (mesquite, saltbush/greasewood, and cottonwood) were likely locally available and utilized as fuel sources.

Faunal Remains by Brian Knight

All of the faunal materials discovered during data recovery at Site LA 86736 were found subsurface. Eight hearth features were also discovered during excavation of this site. Interestingly, no burnt bone of any type was identified from the specimens collected during excavation. A total of 57 bones/bone fragments were collected from this site (Table 33). The vast majority (n=31) of these consisted of desert cottontail. Black-tailed jackrabbit was also present, with four bones/bone fragments. It should be noted that a number of the specimens collected were considered undiagnostic, but their size was consistent with small mammal, potentially rabbit. Rodents were also recovered and included kangaroo rat and western harvest mouse.

Table 33. Faunal Species Represented at Site LA 86736.

Species	Total	Percentage
Bird	1	1.75
Kangaroo rat (<i>Dipodomys ordii</i>)	1	1.75
Black-tailed jackrabbit (<i>Lepus californicus</i>)	4	7.02
Mammal	12	21.05
Western harvest mouse (<i>Reithrodontomys megalotis</i>)	12	21.05
Desert cottontail (<i>Sylvilagus auduboni</i>)	25	43.86
Unknown	2	3.51
TOTAL*	57	100.00

*does not include shaped deer bone awl from Feature 7

A single fragmented bone awl was recovered from Feature 7 (Figure 93). Made from a deer metapodial (probably a metatarsal) of *Odocoileus* sp., it is likely that this shaped bone tool was imported to the site from another location. The awl is in four fragments and appears to be a right side metatarsal. The estimated width of the epiphysis and the general morphology suggests that this medapodial is from an adult white-tailed deer (*Odocoileus virginianus*). However, it is possible that this represents a small female mule deer (*Odocoileus hemionus*), although sex cannot be determined from this specimen. It is nicely worked and

polished on the awl end, and has suffered some extensive root etching and some mechanical damage. The maximum length of the fragmented epiphysis is estimated at 118.22 mm. It appears that at least some of the break evident in the diaphysis was done during tool manufacture or early use, as these areas are weathered.

It has long been accepted from both the ethnographic record and various excavations throughout the Southwest that hunting of small game was a common subsistence practice to supplement agricultural and even foraging economies.



Figure 93. Bone awl recovered from Site LA 86736 (actual size).

The large number of cottontail rabbit bones recovered from Site LA 86736 is consistent with this theory. However, no butchering marks or any evidence of burning was found on any of these collected specimens. Very few cranial components were recovered, which might be evidence that these are not necessarily deposits resulting from natural deaths.

However, this is purely speculative in light of the taphonomic processes potentially at work to form this faunal archaeological assemblage. Certainly, the faunal evidence on this site (Table 34) does not necessarily indicate any long-term sedentism/habitation, and is consistent with the suggestion that this site may have served as a seasonal use site.

Table 34. Faunal Remains from Site LA 86736.

Species	Cat. No.	Bone Type	Comments	Bone Count
Kangaroo rat (<i>Dipodomys ordii</i>)	281	Whole right tibia	Missing fused fibula	1
Black-tailed jackrabbit (<i>Lepus californicus</i>)	282	Left distal tibia frag.		1
		Right maxilla frag.		1
	285	Left proximal ulna frag.		1
		Right calcaneus frag.		1
Western harvest mouse (<i>Reithrodontomys megalotis</i>)	287	Distal medapodial frag.		1
		Left innominate frag.	with acetabulum	1
		Left mandible frag.	with 2 molars and 1 incisor	1
		Left proximal femur frag.	definitely rodent, possibly harvest mouse	1
		Mandible frags.	possibly right side	8
Desert cottontail (<i>Sylvilagus auduboni</i>)	278	Left mandible frags.		2
		Right distal humerus frag.		1
		Whole medapodial		1
	279	Lumbar vertebra frag.		1
		Whole left medapodial		1
	280	Distal epiphysis of left tibia		1
		Right scapula frag.	portion of glenoid cavity	1
	281	Innominate frag.	portion of ischium and acetabulum	1

Table 34. Faunal Remains from Site LA 86736 (cont.)

Species	Cat. No.	Bone Type	Comments	Bone Count
Desert cottontail (cont.) (<i>Sylvilagus auduboni</i>)	285	Left distal femur frag.		1
		Left distal tibia frag.		1
		Left mandible frag.	with incisor	1
		Left proximal femur frag.		1
		Right mandible frag.		1
		Right scapula frag.	with glenoid cavity	1
		Whole left medapodial		1
	286	Innominate frag.	with acetabulum	1
		Left proximal tibia frag.	with portion of diaphysis	1
		Right distal radius frag.		1
		Right proximal radius frag.		1
		Whole medapodials		2
	287	Left distal femur frag.		1
	288	Maxilla frag.	with teeth and palate	1
		Right scapula frag.		1
Bird	283	Long bone diaphysis	unknown small bird	1
Mammal	279	Undiagnostic long bone frags.	possibly rabbit	5
	280	Undiagnostic long bone frag.	small mammal, possibly rabbit	1
	281	Mandible frag.	possibly from rodent above	1
	283	Long bone diaphysis	possibly small mammal	1
	285	Undiagnostic irregular bone frags.	small mammal, possibly rabbit	4
Unknown	284	Undiagnostic flat bone	possibly skull frags.	2
TOTAL*				57

*does not include shaped deer bone awl from Feature 7

Human Remains by Dr. Wenda Trevathan

The human skeletal material recovered from Feature 9 are the remains of an infant of approximately 15 months of age. As is true for all infants this young, the skull is very fragile and highly fragmented. Sizes of cranial bones range from one section of skull 8 cm by 5 cm to tiny slivers. The number of skull fragments in this sample are sufficient to likely represent the complete skull, although reassembly would be extremely difficult if not impossible. The petrous portions of both temporal bones are present. The alveolar sections of both the left maxilla and right mandible are present. All but one of the primary dentition are present, although only the incisors have erupted. The second right maxillary incisor is missing. Upon initial investigation, the two erupted left maxillary incisors were still intact, but with further analysis they have fallen out of the sockets and are bagged with the other loose teeth.

Postcranial remains are all highly fragmented and include portions of vertebrae, ribs, scapulae, and hand bones (eight complete metatarsals, four complete phalanges, and several fragments). The largest postcranial bone present is the fragmented diaphysis of the right humerus, measuring approximately 75 mm in length. The posterior portions of the vertebral arch have not yet fused, suggesting an age less than 2 years. (The portions of the arch have not yet fused with the body of the vertebrae; this fusion occurs between ages 3 and 7 years.) All postcranial remains appear to be from the upper torso and limbs; there is no

evidence of postcranial skeletal fragments from the lower torso or limbs.

Age: The age estimate of 15 months is based upon dental eruption patterns, and the lack of fusion of the vertebral arch portions to each other and to the vertebral bodies. The sizes of the metatarsals are also consistent with an age of 1 to 1.5 years.

Sex: It is not possible to assess sex in skeletons this fragmented and for infants this young.

Biological affinity ("race") is also not evident in these remains, although the maxillary incisors show evidence of slight shoveling. Shovel-shaped incisors are common in American Indian populations.

Radiocarbon Dating

After species identification, seven charcoal samples from six features were submitted for radiocarbon dating. Radiocarbon dates were submitted to Beta Analytic Inc. of Coral Gables, Florida. All dates were subjected to C13/C12 ratio corrections and extended counts. The charcoal dated was primarily mesquite (*Prosopis* sp.), as well as samples of saltbush (*Atriplex* sp.), saltbush/mesquite, and corn cupules (*Zea mays* sp.). The results are provided in Figure 94.

Radiocarbon dating of desert shrubs such as mesquite and saltbush is problematic due to the "old wood" problem (Schiffer 1982:321-327). Woody shrubs, particularly mesquite, can survive on the desert floor for many years after their death without significant decay. Then after an interval of 100 to 200

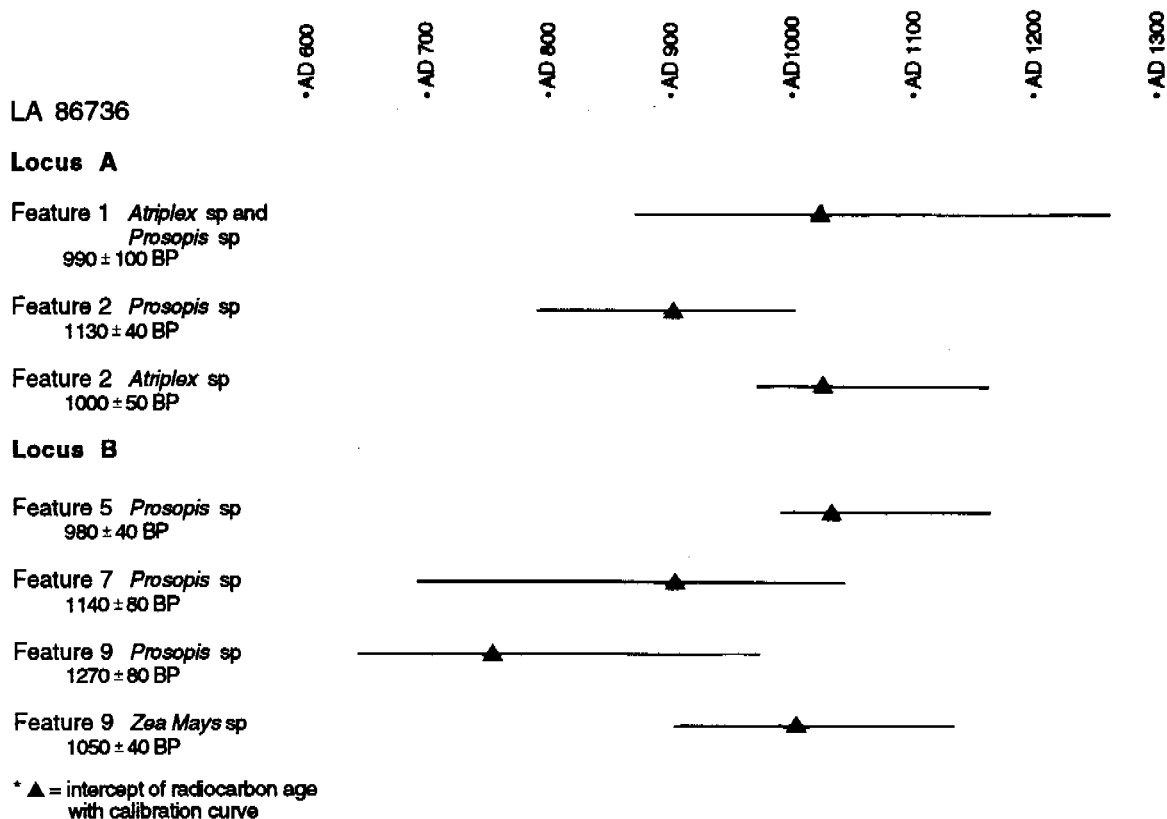


Figure 94. Comparison of radiocarbon dates at two standard deviations.

years, the plant is collected as firewood, resulting in charcoal that produces a radiocarbon date reflecting the plant's death many years prior to the construction of the hearth. Short-lived and easily decayed species (e.g. corn) or less substantial shrubs (e.g. saltbush) survive for much shorter periods of time after their death and are preferable subjects for radiocarbon dating because the date is more likely to reflect the time of use or consumption.

Old wood is a particular problem when dealing with desert sites with little or no stratigraphy. We are fortunate that Site LA 86736 contained not one, but two

sets of features that are stratigraphically related. In Locus A, Feature 2 is superimposed over Feature 1, making it clear that Feature 2 postdates Feature 1, if only by a short period of time. In Locus B, Feature 7 is clearly constructed over Feature 9. That other dated feature in Locus B, Feature 5, is spatially separated from the other two features by 4 m and, while its measured depth is equivalent to that of Feature 7, the shallow nature of the site makes its stratigraphic relationship to the other features difficult to determine.

The other bit of good fortune is that multiple dates were recovered from Features 1 and 9, and those dates were

obtained from both longer and shorter lived species. In the case of Feature 1, the species were mesquite and saltbush. In the case of Feature 9, the species were mesquite and corn.

The following analysis of the radiocarbon dates from Site LA 86736 focuses on three objectives:

1. Use of the dates to verify and calibrate the stratigraphy;
2. Use of the stratigraphy and multiple dates from separate species from the same features to determine the potential for old wood problems; and
3. To assign the relative age of the features and loci based on what logic determines are better dates.

Locus A

Stratigraphic and Spatial Relationships of Dated Features

Feature 1 is stratigraphically below Feature 2, even though the two features are vertically separated by only a few centimeters. Samples from Feature 1 and Feature 2 in Locus A yielded three radiocarbon dates. All of the samples from Locus A have $^{13}\text{C}/^{12}\text{C}$ ratios ranging from -11 to -12 ‰.

The Radiocarbon Dates

The conventional radiocarbon date from the mixed saltbush/mesquite charcoal in Feature 1 is 990 ± 100 BP. At two sigmas, the calibrated date range is A.D. 870-1260, with an intercept of A.D. 1020.

Two samples were submitted from Feature 2, the uppermost feature. One sample was saltbush and the other was mesquite. The saltbush sample yielded a conventional radiocarbon date of 1000 ± 50 BP. At two sigmas, the calibrated date range is A.D. 970 to A.D. 1160, with an intercept of A.D. 1020. The saltbush sample from the same feature yielded a conventional radiocarbon date of 1130 ± 40 BP. At two sigmas, the calibrated date range for the mesquite sample is A.D. 790 to A.D. 1000, with an intercept of A.D. 900.

Evaluating the Old Wood Factor

The date on saltbush from the uppermost Feature 2 produced a range of dates that is completely encompassed by the range of dates from the mixed saltbush/mesquite sample from the underlying Feature 1. This strongly suggests that the two are reasonably contemporary. The mixed sample of saltbush and mesquite from Feature 2 may have had the effect of canceling out the old wood issue of the mesquite, but also generated a plus or minus range of one hundred years compared to the forty- or fifty-year range from the other two samples. However, the calibrated intercept date for the mixed sample and the saltbush sample are identical. Conversely, the mesquite date range from the uppermost Feature 2 is earlier and only partially overlaps either of the other dates, strongly indicating that the mesquite in the uppermost hearth is old wood.

Calibrating the Stratigraphy

The overlapping dates garnered from the samples containing saltbush confirms the recorded stratigraphy. Given the tight stratigraphic association of the two hearths, it seems likely that both hearths were utilized within a few years if not a few weeks of each other.

The two calibrated dates from Feature 2 differ by 120 years. The older date from the mesquite in Feature 2 is likely the result of old wood, either long dead when gathered or from the inner portions of a large bush, resulting in a date that is at least 120 years earlier than the use of the hearth. The mesquite date is demonstrated by both the stratigraphy and the saltbush dates to be flawed.

Summary Locus A

In sum, the stratigraphy, the radiocarbon dates, and the associated artifacts all indicate that the two dated features in Locus A are contemporary. Given the intercept dates from the two samples containing saltbush and the association of Mimbres Classic Black-on-white, the period of use for Locus A is likely A.D. 1020 or slightly after.

Locus B

Stratigraphic and Spatial Relationships

Feature 7 is located directly above Feature 9 in clear stratigraphic association. Feature 5 is located 4 m to the south and west, and cannot be accurately stratigraphically related to the other two dated features.

The Radiocarbon Dates

Four samples from three features within Locus B were submitted for radiocarbon dating. Three of these samples were mesquite (Features 5, 7, and 9), while the fourth, also from Feature 9, consisted of corn cupules. The corn sample had a $^{13}\text{C}/^{12}\text{C}$ ratio of -10.5. The mesquite samples had a $^{13}\text{C}/^{12}\text{C}$ ratio of -22.9 0/00 to -24.9 0/00.

The mesquite sample from Feature 5 yielded a conventional radiocarbon date of 980 ± 40 BP. At two sigmas, the calibrated date range is A.D. 990 to A.D. 1160, with an intercept of A.D. 1030.

The mesquite sample from Feature 7 provided a conventional radiocarbon age of 1140 ± 80 BP. At two sigmas, the calibrated date range is A.D. 690 to A.D. 1030, with an intercept of A.D. 900.

Two samples were submitted from Feature 9. The mesquite sample yielded a conventional radiocarbon date of 1270 ± 80 BP. At two sigmas, the calibrated date range is A.D. 640 to A.D. 960, with an intercept at A.D. 740. The corn sample from Feature 9 provided a conventional radiocarbon age of 1050 ± 40 BP. At two sigmas, the calibrated date range is A.D. 900 to A.D. 1030, with an intercept at A.D. 1000.

Evaluating the Relationship of the Mesquite Radiocarbon Dates and the Stratigraphy

The following observations were made regarding the relationship of the mesquite dates:

1. At two standard deviations, the mesquite dates from Features 7 and 9 completely overlap, suggesting approximate contemporaneity of the samples.
2. At two standard deviations, the mesquite date from Feature 5 only overlaps with the Feature 7 mesquite date for 40 years and does not overlap at all with the mesquite date from Feature 9. This suggests that the mesquite in Feature 5 is younger in age than that in either Feature 7 or Feature 9.
3. The mesquite date from Feature 5 is problematic in that the feature is not stratigraphically linked to Features 7 and 9, and thus may reflect a later occupation of the site or perhaps a more recently deceased mesquite that fairly accurately reflects the period of use.
2. The corn sample from Feature 9, which is stratigraphically below Feature 7, overlaps the Feature 7 mesquite date for 130 years and has a calibrated date 100 years later in time. The stratigraphic provenience of the corn sample strongly indicates that the mesquite in Feature 7 is also old wood.
3. The date from Feature 5 compares well with the corn date from Feature 9. The Feature 9 corn date is completely overlapped by the date from Feature 5 and their calibrated intercept dates are within 10 years of each other. The Feature 5 date also compares well with both the saltbush and the mixed sample from Locus A. These similarities suggest that the mesquite from Feature 5 may not have the same degree of an old wood problem as the mesquite from Features 2, 7, and 9.

Evaluating the Old Wood Factor and the Corn Date

The following observations and conclusions were made from the data:

1. The two samples from Feature 9 (mesquite and corn) overlap by only 60 years, with calibrated dates that vary by 260 years. This clearly suggests that the mesquite sample from Feature 9 is from old wood.

Calibrating the Stratigraphic and Spatial Relationships

The corn date from Feature 9 has a reasonably restricted plus/minus factor of only 40 years and is viewed as the most accurate date from Locus B. The stratigraphic placement of the corn sample invalidates the mesquite dates from both Features 7 and 9 as old wood.

The mesquite date from Feature 5 corresponds well with the corn sample and the suggested dating for Locus A. The association of Mimbres Classic Black-on-white also suggests a mid-eleventh century date. It is therefore strongly suggested that the period of use for Locus B was also A.D. 1020 or slightly after.

Summary of Radiocarbon Dating for Site LA 86736

The luxury of having stratigraphic associations in both loci has allowed the stratigraphy to be used to calibrate the radiocarbon dates. Evaluation of the radiocarbon dates and the associated stratigraphy indicates that the mesquite dates from the stratified features in both loci are consistently too old when considered against the saltbush and corn dates. The latter dates, in conjunction with the associated ceramics, further suggest that the mesquite date from Feature 5, Locus B, which does not have a demonstrable stratigraphic association with the other dated features, may be reasonably accurate as to the period of use.

The analysis of the radiocarbon dates and their stratigraphic context concludes that, with the possible exception of the mesquite date from Feature 5, the mesquite dates are all too early and must be discounted, based on their stratigraphic context and the associated dates from shorter-lived species (saltbush and corn). Radiocarbon dates of the shorter-lived species from the features in both Locus A and Locus B are very similar, and suggest that both loci were reasonably contemporary. Four

calibrated intercept dates cluster tightly between A.D. 1000 and A.D. 1130. Given the association of Mimbres Classic Black-on-white with both loci, it is strongly suggested that the period of site use dates to a reasonably short period during the mid-eleventh century.

Historic Artifacts

A limited number of historic artifacts were collected either on the surface or from the screen during excavation at Site LA 86736. All of them are associated with traffic on U.S. Highway 54. These include several types of glass fragments, including green, brown and opalized bottle glass and windshield glass, as well as a .22-caliber cartridge with a U head-stamp. The ceramic artifacts are of more interest and are described below.

Historic Ceramics

Nine sherds of a thick red slipped ware similar to that produced in Mexico were found on the edge of the highway shoulder. Two of the sherds appear to be from a strap handle (Figure 95). One-half of an 8-oz. glazed stoneware coffee cup decorated with transfer prints depicting western motifs (brands, chuck wagons, horses, and cactus) was collected from south of Locus B (Figure 96). The maker's mark on the cup indicates that it was manufactured in California.

Discussion of Site LA 86736

Although the initial evaluation of Site LA 86736 indicated that significant amounts of cultural material might be present subsurface, the low surface

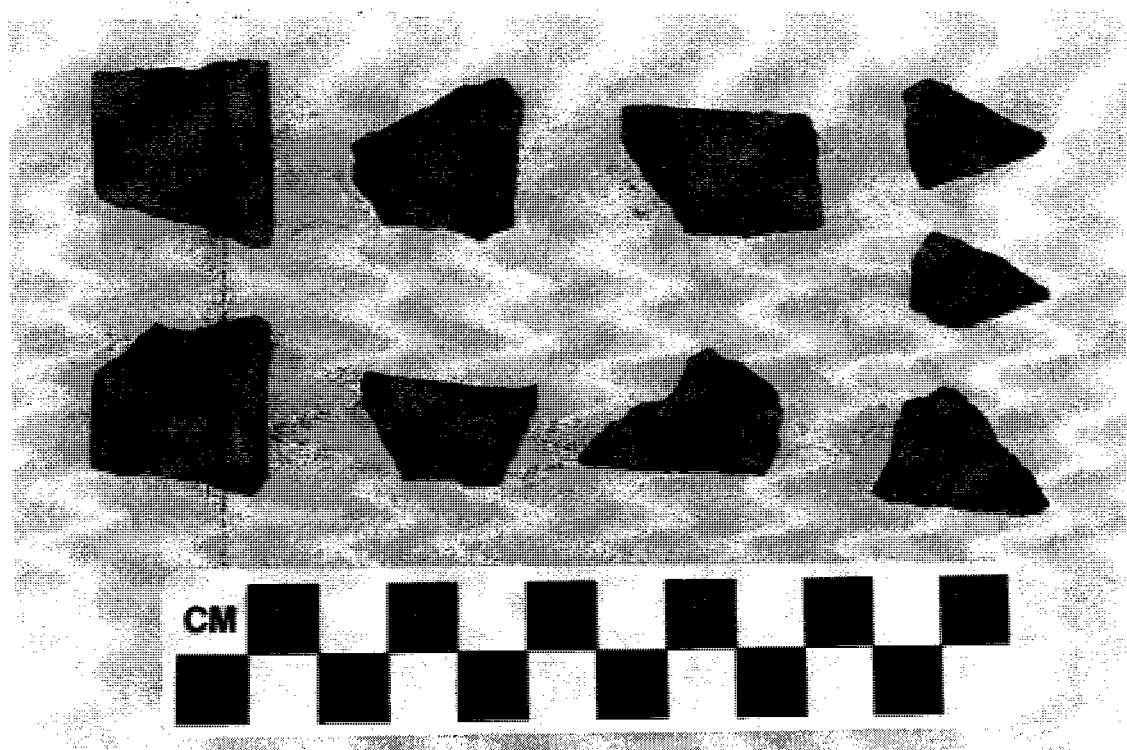


Figure 95. Mexican red ware sherds from Site LA 86736.



Figure 96. Glazed stoneware coffee cup from Site LA 86736.

artifact density and high levels of impact made the site seem unprepossessing to say the least. The discovery of multiple hearths in Loci A and B, and the recovery of substantial amounts of datable charcoal in relatively shallow deposits was a delightful surprise. Coupled with the temporal congruity of the ceramic assemblage, these data were quickly recognized as potentially composing a time capsule for the mid-1100s.

The chronometric dates obtained from the radiocarbon samples and the tight ceramic cross-dating made possible by Shafer's microstylistic sequence for Mimbres White wares confirmed the initial presumption of temporal unity for the assemblage. The presence of stratified, datable features in both loci and the recovery of short-lived species allowed a rigorous evaluation of the radiocarbon dates that is rare in open desert sites. Radiocarbon dates coupled with the ceramic cross-dating of Mimbres White wares clearly indicate that the site was occupied during the mid-1100s, and probably in the 1150s and 1160s if we accept Shafer's dating of Mimbres middle style III.

Ceramics and radiocarbon dates also indicate that Loci A and B were contemporary. Slight variations in stratigraphic placement suggest that the site may have been utilized on more than one occasion, but within the space of a very few years. The one complete metate supports the contention of reuse as it may have been left in anticipation of a return.

The macrobotanical samples reflect an environment very similar to that of today. Mesquite and saltbush were the

primary plants identified in all of the hearths. Conspicuously absent was creosote, indicating an invasion of that species in the last 1,000 years.

Given an environment dominated by mesquite and saltbush, it seems likely that the fruits of these species and perhaps wild grasses were the focus of procurement at Site LA 86736. If so, the prime time for gathering these species would have been late summer and early fall. The numerous pieces of ground stone manufactured from local materials would have been the critical tools required. That procurement of wild plant foods was a primary focus is also reflected by the limited range of the lithic tools and, in particular, the absence of projectile points and other shaped lithic tools. The cottonwood charcoal found in the hearths indicates that the parent villages were located along one of the watered drainages nearby.

Site LA 86736 is similar to many of the sites discovered during the one systematic survey of the Three Rivers Drainage (Wimberly and Rogers 1977:75). The site location away from the major drainages and the limited artifact assemblage are consistent with those ceramic period sites classified as seasonal procurement locations. Poorly recorded investigations at two nearby village sites, Temporal and Hatchet, suggest that these or sites like these were the perennial villages from which the gathering parties sallied forth (Human Systems Research 1973:62-64). Temporal, in particular, yielded a ceramic assemblage containing both San Andres Red-on-terracotta and Mimbres Black-on-white. These villages were composed of square, rectangular

and roughly circular pit rooms. The notes indicate that a great number of pit rooms are present at the Temporal and Hatchet sites, and that other pit villages are present in the area south and west of Site LA 86736.

The infant burial indicates that the site's inhabitants included women and children. What desert tragedy befell this toddler could not be discerned, but the presence of corn cupules and ochre-stained rock suggest a mournful and ceremonial interment.

In a broader perspective, the ceramic assemblage from Site LA 86736 reflects the interregional dynamics of the period. It was a time when the Mimbres culture of southwestern New Mexico was at its zenith. Mimbres Black-on-white is the predominant trade ware in southern New Mexico and most of it seems to have been transported to the east into the Jornada Mogollon culture area. The ceramic assemblage from Site LA 86736 is unabashedly local, except for Mimbres Classic Black-on-white. Shafer (1999: 95-105) contends that the wet years of the eleventh century made the Mimbres Valley a regional center for visitation and exchange. It was place where the desert dwellers would congregate during occasions of ceremony and feasting, and where some would stay to farm and work

during particularly good years. Others would return to the desert, taking with them the lovely bowls associated with the Mimbres fluorescence. The years between A.D. 1043 and 1080 were particularly good and those dates correlate well with the proposed temporal placement of Site LA 86736. Shafer's neutron activation analysis of Mimbres Classic Black-on-white allows him to state unequivocally that the vessels from Site LA 86736 were made in the Mimbres Valley. What remains not understood is whether the occupants of Site LA 86736 visited the Mimbres mecca themselves or were simply the recipients of ceramics from those who did.

The research potential of those portions of Site LA 86736 that fall within the highway right-of-way is considered to have been exhausted through documentation. The excavations at Site LA 86736 have provided data adequate to address the posed research questions. Although only the portion of the site that falls within the highway right-of-way was excavated, the data are felt to be representative of the entire site. However, the numerous features located within the right-of-way strongly suggest that additional features may be present in other areas of the site. Future research in those areas may be profitably used to expand or support the conclusions reached here.

SITE LA 86737

Site LA 86737 is a prehistoric ceramic period artifact scatter. Like many other sites in the Three Rivers area (Wimberly and Rogers 1977), Site LA 86737 was interpreted from survey data as a seasonal procurement site. The ceramic assemblage indicated an occupation date from the eleventh through the fourteenth centuries.

Original Site Description

Site LA 86737 was described by Cody Browning in Michalik (1998) as follows:

This site consists of a medium sized, medium density scatter of lithics, ceramics and ground stone with a historical component consisting of a trash scatter with a foundation. The site was originally recorded in 1991 on a survey for a buried fiber optic cable. This site is located on a gently sloping flat to the west of the Southern Pacific Railroad tracks and north of Three Rivers drainage. The boundaries of the site were expanded from the 1991 recording to include material located across the highway and the site now measures 380 meters north-south by 420 meters east-west (159,600 sq. m). The site has been impacted by the construction of US 54, by the installation of aerial and underground utilities, and by fences. Portions of the site have

a high potential for additional subsurface material as evidenced by trowel tests near the historic foundation.

Artifacts number in the low thousands with the majority consisting of ceramics. Approximately 200 lithics are present. Material types include chert, quartzite, and basalt. All stages of the reduction sequence are represented. The ceramics were dominated by Mimbres B/W, El Paso Brown ware, Jornada Brown ware, and Chupadero B/W. Several mano and metate fragments were also observed. There are no prehistoric features present on the site but there are three low mounds located on the east side of the highway. It cannot be determined if these are structural in nature or if they are the result of road or railway construction.

On the western side of the highway is a historical foundation associated with a trash scatter. The trash includes purple, brown, aqua, milk, green, cobalt and clear glass, window glass, crown top cans, solder top cans, railroad spikes, stove parts, sanitary cans and various household ceramics. The structure consists of a concrete foundation with a cobble alignment to the west of the structure. The walls appear to have been constructed of chicken wire and stucco.

Component 1 of this site appears to represent a limited activity Jornada Mogollon (possibly a habitation) dating to the period A.D. 1100-1350, based on the ceramic artifacts present. Component 2 appears to represent a historic homestead dating to the period of A.D. 1900-1940, based on trowel tests near the structure foundation. Site LA 86737 has the potential to yield information regarding the history and prehistory of the Tularosa Basin and is considered potentially eligible to the National Register of Historic Places under 36 CFR 60.4 criterion (d), information potential. Avoidance of this site is recommended. Additional recording and testing is recommended in the areas of potential effect (APE) by the proposed highway construction. (Michalik 1998)

HSR Pre-field Visit Notes on the Right-of-way through Site LA 86737

The pre-field site visit revealed that the highway right-of-way had been heavily impacted by previous highway construction (Figures 97 and 98). Based on the dispersed nature of the artifacts, it seemed likely that the majority of artifactual data derived from within the right-of-way would be from surface collections. In addition to the Chupadero Black-on-white ceramics observed by Browning, sherds of Three Rivers Red-on-terracotta and El Paso Polychrome were found within the

right-of-way. No Mimbres Black-on-white was observed. Additionally, no stains or concentrations of fire-cracked rock were noted in the right-of-way.

The "Homestead" site, consisting of a historic house foundation and associated historic artifacts, is located west of the highway right-of-way. Excavations focused on an associated trash mound located within the right-of-way and 50 ft east of the foundation.

Historic Context, Data Potential, and Importance of Cultural Materials at Site LA 86737

The prehistoric component at Site LA 86737 is dominated by pottery types that best date from about A.D. 1175 to 1400. This assemblage postdates the materials found at Site LA 86736 and is associated with the era of large surface pueblos found on the Three Rivers drainage (Cosgrove and Cosgrove 1965:1-5) and along the western slope of the Sacramentos to well south of Alamogordo (Human Systems Research 1973). The range of ceramic types found at the site is typical of the Late Pueblo period and reflects an increase in regional trade from the previous period. These types include El Paso Red Ware, Jornada Red Ware, Lincoln Red Ware, Chupadero Black-on-white, El Paso Polychrome, El Paso Bichrome, Seco Corrugated, San Andres Red-on-terracotta, Alma Plain, Lincoln Brown-on-red, Three Rivers Red-on-terracotta, and Socorro Black-on-white.

The premier site in the immediate area is Site LA 1231 at the Three Rivers



Figure 97. Right-of-way on west side of U.S. Hwy 54 near Site LA 86737, looking north.



Figure 98. Right-of-way on east side of U.S. Hwy 54 near Site LA 86737, looking north towards Locus A.

Petroglyph area. Numerous other sites were located during HSR's Three Rivers survey (Wimberly and Rogers 1977:406). These sites vary from residential sites with very high artifact densities located near water and arable land to seasonal-use sites with diffuse artifact scatters and hearths located in a wide range of environmental settings (Wimberly and Rogers 1977:75). Site LA 86737 appears to be in the latter category, as residential sites usually have higher artifact densities and wider ranges of ceramic types. While sites dating to about A.D. 1300 include the suite of ceramic types documented for Site LA 86737, post-A.D. 1300 residential sites contain additional diagnostic types, including El Paso Polychrome with an inverted rim, Seco Corrugated, Gila Polychrome, and Ramos Polychrome.

The historic component appears to be a homestead or ranch headquarters dating to A.D. 1900 through 1940. The arrival of the El Paso and Northeastern Railroad in Otero County in 1898 created a boom in land sales and encouraged wholesale homesteading, particularly of properties near the railroad. Sonnichsen (1980:151) reports that 4,000 acres in the vicinity of La Luz were preempted within a few days of the arrival of the tracks.

Data Recovery of Site LA 86737

Data recovery for the historic component focused on historic artifacts occurring within the highway right-of-way (Figure 99). All diagnostic historic artifacts were surface collected and the presumed historic trash midden was partially excavated and found to be a soil

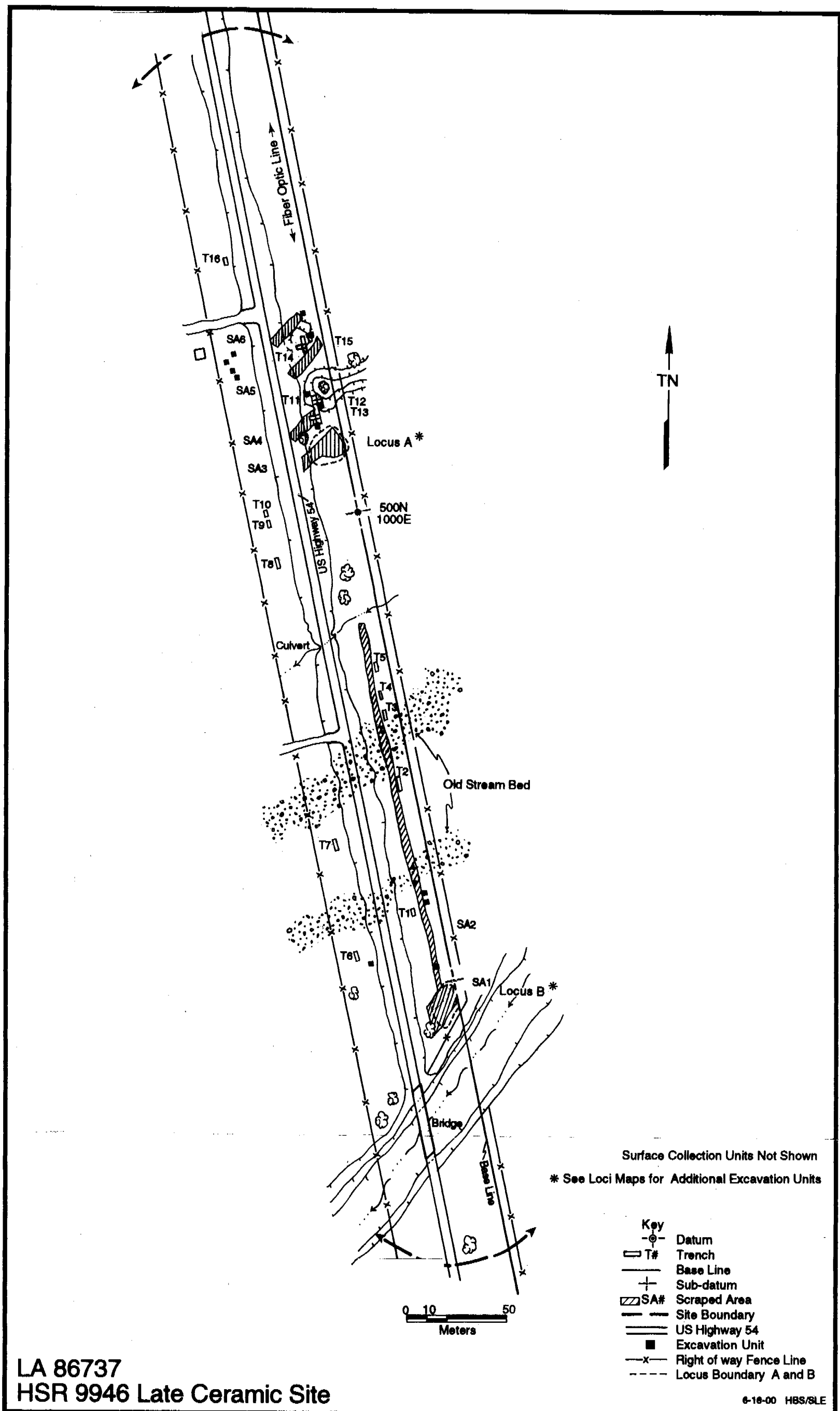
pile created by previous highway construction. The limited number of artifacts from the historic component were analyzed with the goal of interpreting the temporal period of occupation and the range of activities represented in the assemblage. These data were augmented by archival research.

Data recovery for the prehistoric component of Site LA 86737 focused on documenting the full range and density of ceramic and other artifact types, with the goal of refining site chronology and determining whether this site reflects a residential or nonresidential occupation.

Archaeologists set up a baseline along the easternmost edge of the highway right-of-way and performed a 100-percent surface collection using a 2-m grid system (see Figure 99). Twenty-seven excavation units were placed in areas of greatest artifact concentration or where topography suggested possible subsurface features or artifacts. Finally, a series of 15 trenches and six scraped areas were systematically placed along the right-of-way to locate possible subsurface features. No features were identified on the surface or below the surface.

Excavation Units at Site LA 86737

A total of 27 excavation units were placed at various locations throughout the site (see Figure 99). These excavations focused on the two areas designated as Locus A and Locus B. Additional excavation units were placed in other areas of the site containing artifacts and/or areas with the potential to yield subsurface remains.



Locus A

Locus A (Figures 100 and 101) was defined during the original survey. It contained a variety of ceramic types, ground stone, and lithic artifacts. Locus A is located on the north end of the eastern side of the highway right-of-way in an area of coppice sand dunes stabilized by mesquite and interspersed by deflated areas.

Excavation units located within Locus A (Figure 101) were focused on high-density concentrations of artifacts. These concentrations were primarily ceramic artifacts, but they did contain a limited number of lithic and ground stone fragments. Excavation of these units produced a low density of artifacts to an average depth of 10 cm below the surface, beyond which sterile soil occurred.

Locus B

Locus B (Figures 102-104) was discovered during the data recovery project. Locus B contained a wider variety of both lithic and ceramic artifacts than Locus A. Locus B is located on the south end of the eastern highway right-of-way in a low area immediately north of a deep arroyo.

Excavation units located within Locus B (see Figures 102 and 104) were focused on surficial artifact concentrations containing both ceramic and lithic artifacts. Excavation of these units yielded a moderate number of artifacts to an average depth of 30 cm. Two formal tools were collected (a drill point and a biface), as well as a burned corn cob fragment and some charcoal flecks (observed at a depth of 15 cm).



Figure 100. Locus A, Site LA 86737, looking north.

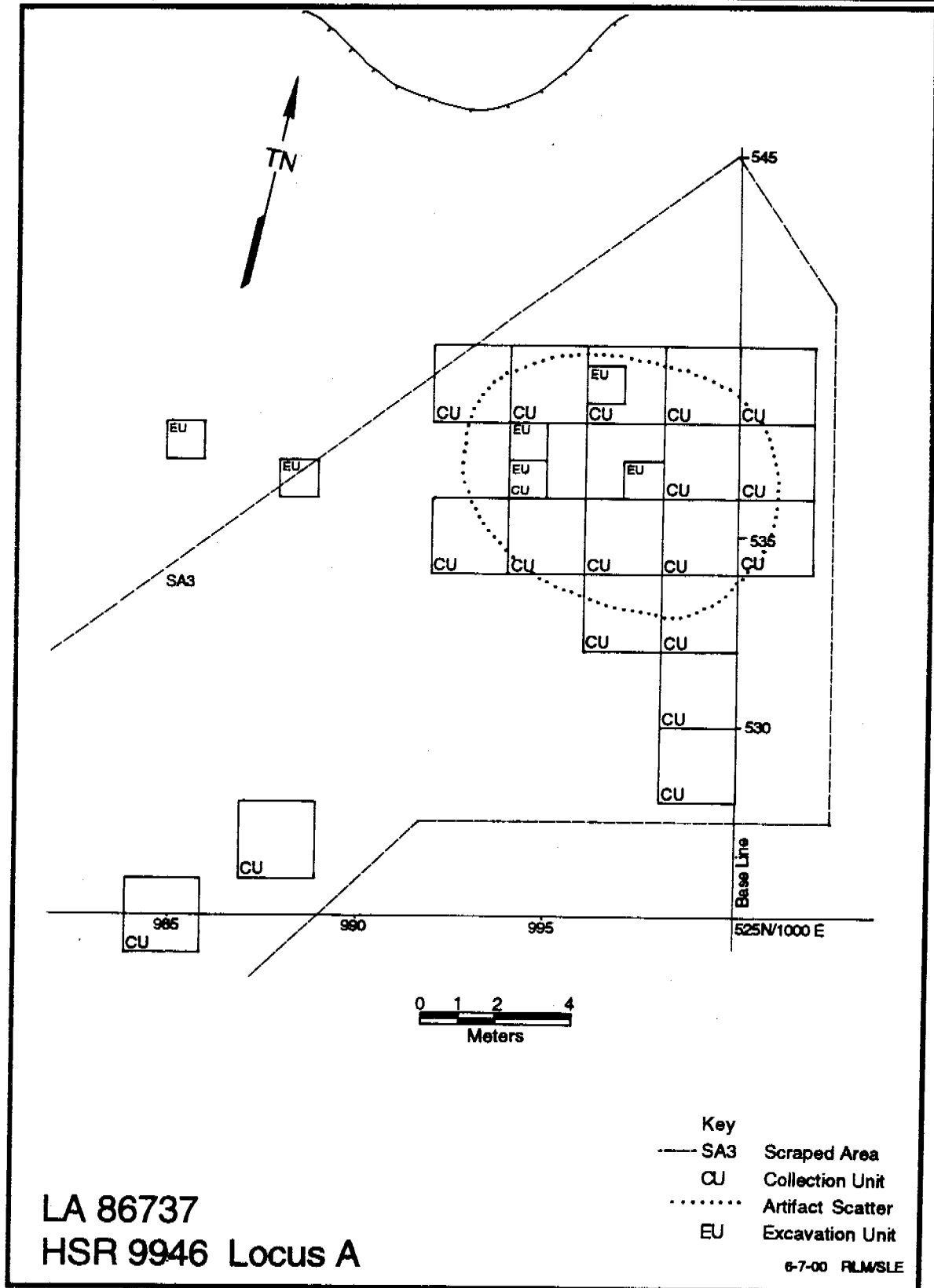


Figure 101. Map of Locus A at Site LA 86737.

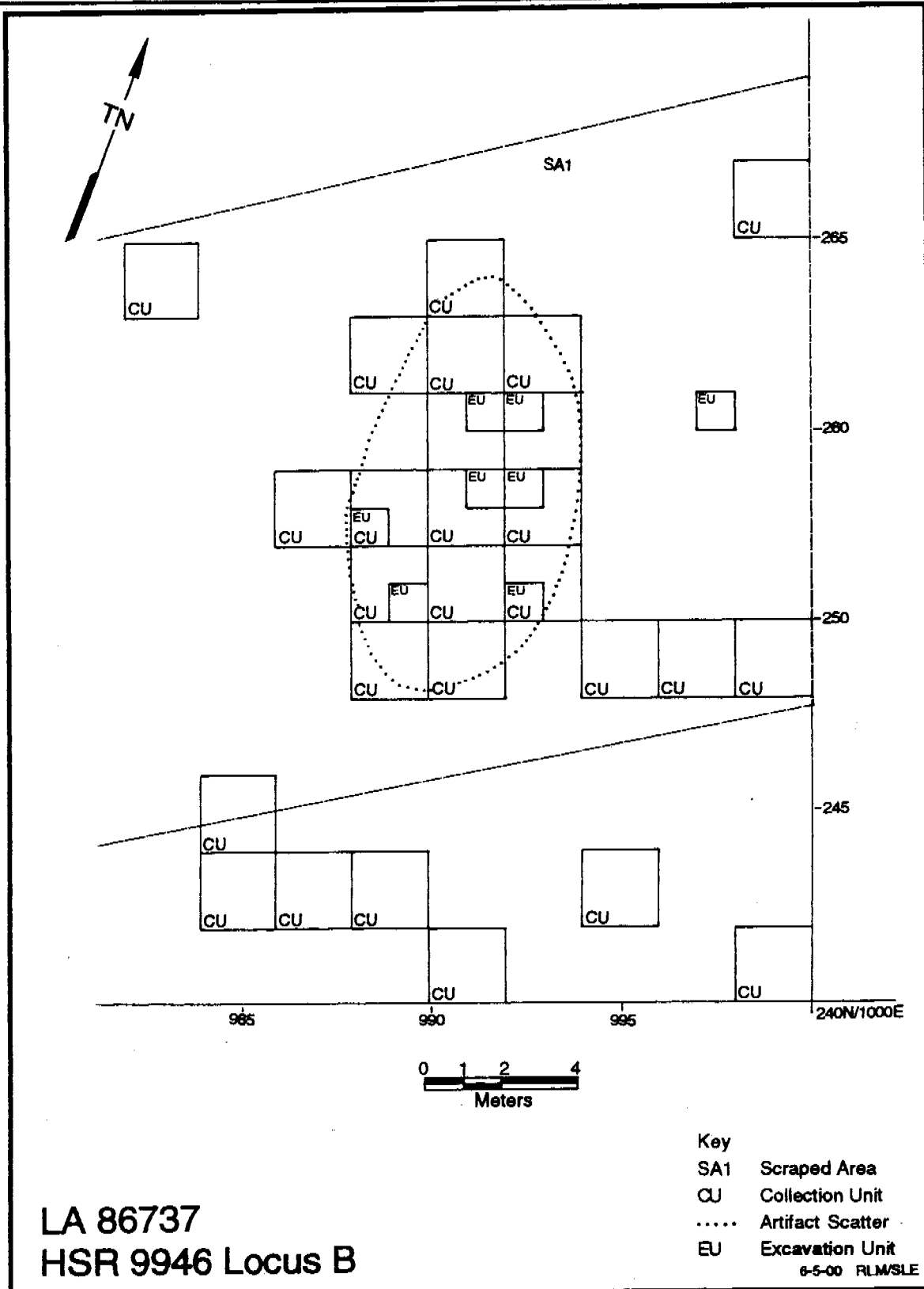


Figure 102. Map of Locus B at Site LA 86737.

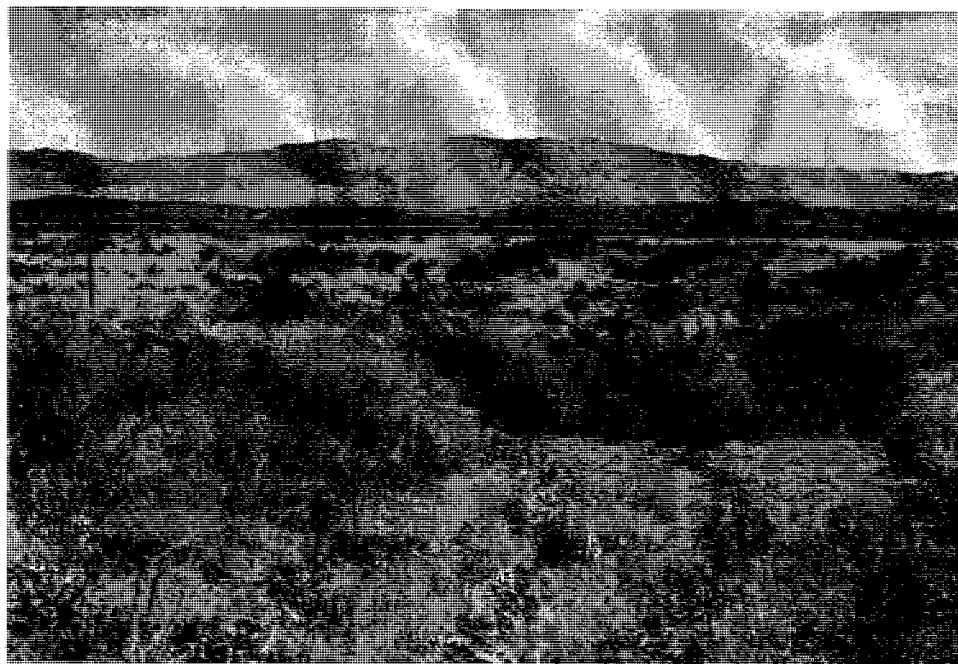


Figure 103. Overview of Locus B at Site LA 86737, looking east.



Figure 104. Excavation units, Locus B at Site LA 86737, looking east.

Sterile soil occurred beyond a depth of 30 cm. Soil descriptions are provided in Appendix B.

Excavation units located within the historic component of Site LA 86737 focused on a mounded area that was originally recorded as a probable historic trash midden. Modern trash was observed both on the surface of the midden and to a depth of 30 cm. Below 30 cm, a few historic artifacts were collected, consisting mostly of patinated glass and miscellaneous metal fragments. The fill within these units consisted of loosely compacted sand containing rocks and gravels. The nature of the fill is consistent with recent mixing by mechanical equipment of nearby soils, rather than the mound of a refuse midden.

Trenches at Site LA 86737

Sixteen trenches were excavated with mechanical equipment within the highway right-of-way at Site LA 86737 (see Figure 99). Soil descriptions are provided in Appendix B.

Trench 1, located at 305N/994E, was 10 m long north-south and placed on the east side of the highway towards the southern end of the site. The trench was situated 50 m north of the southern artifact concentration (Locus B), in the vicinity of a few artifacts. The trench was dug to a depth of 0.75 m and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam throughout, with the exception of a 2.5-m long pocket of loosely compacted sand containing a high density of pebbles, gravels, and

rocks in the middle of the trench, which began at a depth of 0.5 m and went below the trench bottom.

Trench 2, located at 373N/990E, was 5 m long north-south and was placed on the east side of the road in the middle of the site. The trench was situated in an area containing an extensive, low density distribution of prehistoric artifacts. It was dug to a depth of 0.8 m and yielded no artifacts or features. The soil within the trench consisted of a loosely compacted, silty sandy loam to a depth of 0.3 m, beyond which it became a moderately compacted, silty sandy loam.

Trench 3, located at 400N/992E, was 5 m long north-south and was placed on the east side of the highway in the middle of Site LA 86737. The trench was situated in an area that contained a widely distributed, low density of prehistoric artifacts. It was dug to a depth of 0.8 m, and yielded no artifacts or features. The soil within the trench consisted of loosely compacted sand with a high density of pebbles, gravels, and rocks to a depth of 0.35 m, beyond which the soil was a moderately compacted, silty sandy loam with no pebbles, gravels, or rocks.

Trench 4, located at 423N/992E, was 14 m long north-south and placed on the east side of the highway in the middle of the site. The trench was situated in an area that contained a widely distributed, low density of prehistoric artifacts. It was dug to a depth of 0.8 m, and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam throughout, with the exception of a band of loosely compacted sand 0.6 m below the surface

that was 0.07 m thick and ran the length of the trench.

Trench 5, located at 442N/990E, was 5 m long north-south and placed on the east side of the highway in the center of the site. The trench was situated in an area that contained a widely distributed, low density scatter of prehistoric artifacts. It was dug to a depth of 0.8 m, and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam throughout.

Trench 6, located at 269N/950E, was 10 m long north-south and placed on the west side of the highway at the southern end of the site. The trench was situated 45 m west of Locus B. It was dug to a depth of 1 m, and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.3 m, beyond which it was a highly compacted, silty clay loam.

Trench 7, located at 345N/952E, was 5 m long north-south and placed on the west side of the highway in the middle of the site. The trench was situated in an area where a few surficial artifacts occurred. It was dug to a depth of 1 m, and yielded no artifacts or features. The soil within the trench was a moderately compacted, silty sandy loam to a depth of 0.3 m below the surface, beyond which it became a highly, more compacted silty clay loam. At 0.9 m below the surface, the soil became a very loosely compacted sand with a high density of gravels, pebbles, and rocks.

Trench 8, located at 485N/950E, was 5 m long north-south and placed on the west side of the highway in the middle of the site. The trench was situated in an area of few surficial artifacts. It was dug to a depth of 1 m, and yielded no artifacts or features. The soil within the trench was a moderately compacted, silty sandy loam to a depth of 0.3 m below the surface, beyond which it became a highly compacted, silty clay loam. At 0.9 m below the surface, the soil became a very loosely compacted sand with a high density of gravels, pebbles, and rocks.

Trench 9, located at 510N/955E, was 5 m long north-south and placed on the west side of the highway in the middle of Site LA 86737. The trench was situated 40 m west of the prehistoric artifact concentration on the east side of the highway and at the northern end of the site, and 20 m east of the historic foundation. It was dug to a depth of 1 m, and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam to a depth of 0.5 m, beyond which it became a highly compacted, silty clay loam.

Trench 10, located at 520N/955E, was 5 m long north-south and placed on the west side of the highway in the middle of the site. The trench was situated 40 m west of the artifact concentration on the east side of the highway at the northern end of the site, and 20 m east of the historic foundation. It was dug to a depth of 1 m, and yielded no artifacts or features. The soil within the trench consisted of a moderately

compacted, silty sandy loam to a depth of 0.5 m, beyond which it became a highly compacted, silty clay loam.

Trench 11, located at 574N/993E, was 14 m long north-south and placed on the east side of the highway. The trench was situated 40 m north of the northern prehistoric artifact concentration in an area of mounded dunes. It was dug to a depth of 1.25 m and yielded one ceramic artifact and no features. The soil within the trench consisted of a loosely to moderately compacted sand to a depth of 0.65 m, beyond which it became a moderately compacted, silty sandy loam.

Trench 12, located at 570N/998E, was 5 m long east-west and placed on the east side of the highway. The trench was placed 40 m north of the northern prehistoric artifact concentration (Locus A) in an area of mounded dunes. It was dug to a depth of 1.25 m and yielded one ceramic at a depth of 0.65 m below the surface. The soil within the trench consisted of a loosely to moderately compacted sand to a depth of 0.8 m, beyond which it became a moderately compacted, silty sandy loam.

Trench 13, located at 565N/993E, was 5 m long east-west and placed on the east side of the highway. The trench was placed 40 m north of the northern prehistoric artifact concentration in an area of mounded dunes. It was dug to a depth of 1.25 m and yielded no artifacts or features. The soil within the trench consisted of a loosely to moderately compacted sand to a depth of 0.8 m, beyond which it became a moderately compacted, silty sandy loam.

Trench 14, located at 580N/997E, was 8 m long east-west and placed on the east side of the highway. The trench was placed 40 m north of the northern prehistoric artifact concentration in an area of mounded dunes. It was dug to a depth of 1 m and yielded one adobe brick fragment and no features. The soil consisted of a loosely to moderately compacted sand to a depth of 0.45 m, beyond which it consisted of a moderately compacted, silty sandy loam.

Trench 15, located at 583N/992E, was 5 m long north-south and placed on the east side of the highway. The trench was situated 40 m north of the northern prehistoric artifact concentration in an area of mounded dunes. It was dug to a depth of 1 m and yielded no artifacts or features. The soil consisted of a loosely to moderately compacted sand to a depth of 0.45 m, beyond which it consisted of a moderately compacted, silty sandy loam.

Trench 16, located at 645N/960E, was 5 m long north-south and placed on the east side of the highway at the northern end of Site LA 86737. The trench was situated in an area where a few surficial prehistoric artifacts occurred. It was dug to a depth of 0.5 m and yielded no artifacts or features. The soil within the trench consisted of a moderately compacted, silty sandy loam throughout.

Scraped Areas at Site LA 86737

The scraped areas at Site LA 86737 were excavated by mechanical equipment within the highway right-of-way.

Scraped Area 1, located at 269N/1000E, was placed on the east side of the highway at the southern portion of the site. The area scraped is 15 m north-south by 20 m east-west and encompasses the area surrounding excavation units within Locus B, where a high density of surficial artifacts was noted. The scrape was dug to a depth of 70 cm and yielded 15 brown ware sherds, 2 Chupadero Black-on-white sherds, 5 pieces of flaked stone, and 1 fragment of ground stone. No features were identified. The soil consisted of loosely to moderately compacted, silty sandy loam.

Scraped Area 2, located at 452N/988E, was placed on the east side of the highway, extending north from Locus B. The area scraped is 3 m wide and it extends 185 m north from Locus B. The scrape was dug to a depth of 12 cm and yielded no artifacts or features. The scrape crosses two old east-west stream beds, and gravel found on the surface of the stream beds was also found subsurface mixed with the moderately compacted, silty sandy loam.

Scraped Area 3, located at 545N/1000E, was placed on the east side of the highway within Locus A. The area scraped is 15 m north-south by 25 m east-west, and encompasses the excavation units where a high density of surficial artifacts was found. The scrape was dug to a depth of 20 cm and yielded no artifacts or features. The soil consisted of a loosely to moderately compacted, silty sandy loam.

Scraped Area 4, located at 570N/993E, was placed on the east side of the highway 10 m north of Locus A. The

area scraped is 10 m north-south by 25 m east-west and encompasses an area where a dispersed, low density of artifacts was noted. The scrape was dug to a depth of 20 cm and yielded no artifacts or features. The soil consisted of a loosely to moderately compacted, sandy silty loam.

Scraped Area 5, located at 580N/998E, was placed on the east side of the highway, on the low coppice dunes north of Locus A. The area scraped is 6 m north-south by 25 m east-west. The scrape was dug to a depth of 20 cm and yielded no artifacts or features. The soil consists of a loosely to moderately compacted, silty sandy loam.

Scraped Area 6, located at 590N/995E, was placed on the east side of the highway, on the low coppice dunes north of Locus A. The area scraped is 6 m north-south by 25 m east-west. It was dug to a depth of 20 cm and yielded no artifacts or features. The soil consists of a silty sandy loam.

Analyses of Recovered Data

A total of 1,080 prehistoric and 197 historic artifacts were collected from the surface and subsurface excavations of units, trenches, or scraped areas (Table 35). Two rather dense prehistoric artifact concentrations (Loci A and B) were recorded on the surface.

Ceramic Artifacts

The ceramic assemblage from Site LA 86737 includes 17 prehistoric ceramic types (Table 36, Chart 2). The majority of these types are contemporary and date to the late thirteenth and fourteenth

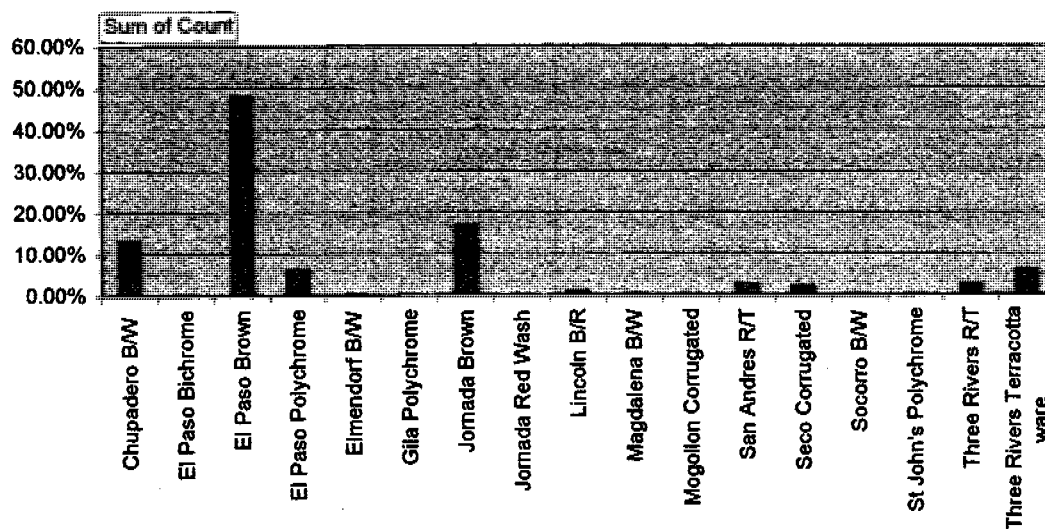
Table 35. Historic and Prehistoric Artifacts Collected at Site LA 86737.

Artifact Type	Surface	Excavation	Total	Percentage
Bone	0	26	26	2.04
Ceramic	411	277	688	53.88
Glass	7	42	49	3.84
Ground stone	12	14	26	2.04
Leather	1	1	2	.16
Lithic	105	231	336	26.31
Metal	3	137	140	10.96
Mineral	0	4	4	.31
Porcelain	0	5	5	.39
Shell	0	1	1	.07
TOTAL	539	738	1,277	100.00

Table 36. Ceramic Type by Level at Site LA 86737.

Type	Level								Total	Per- cent
	1	2	3	4	5	Trench	Scraped	Surface		
Chupadero B/W	29	7	3	1	1		1	51	93	13.52
El Paso Bichrome								1	1	.15
El Paso Brown	60	40	12	4	2		16	196	330	47.95
El Paso Polychrome	7	4		1				31	43	6.25
Elmendorf B/W								1	1	.15
Gila Polychrome								1	1	.15
Jornada Brown	31	11	7	3	2		4	58	116	16.86
Jornada Red Wash						1			1	.15
Lincoln B/R	1							6	7	1.02
Magdalena B/W						1			1	.15
Mogollon Corrugated	1								1	.15
San Andres R/T	4	3					1	10	18	2.61
Seco Corrugated	3			1				10	14	2.03
Socorro B/W	1						1		2	.29
St. John's Polychrome								1	1	.15
Three Rivers R/T	4	1	1				1	10	17	2.47
Three Rivers Terracotta ware	6							35	41	5.95
TOTAL	147	66	23	10	5	2	24	411	688	100.00

Chart 2. Percentages of Ceramic Types at Site LA 86737.



centuries. At least three of the ceramic types indicate that an earlier component dating to the late eleventh and early twelfth centuries is also present at the site. The assemblage is comprised of 688 sherds, 411 of which were collected from the surface. Chupadero Black-on-white, El Paso Polychrome, Elmendorf Black-on-white, Gila Polychrome, Jornada Brown, Jornada Red Wash, Lincoln Black-on-red, Magdalena Black-on-white, Mogollon Corrugated ware, Seco Corrugated, St. John's Polychrome, Three Rivers Red-on-terracotta and Three Rivers Terracotta ware represent the later component. El Paso Bichrome, San Andres Red-on-terracotta, and Socorro Black-on-white reflect the earlier component.

Chupadero Black-on-white (Figure 105) was the dominant painted ware recovered ($n=93$). The type was present in both Locus A ($n=36$) and Locus B ($n=37$). The remaining sherds were distributed

across the surface of the site (Figure 106). Of those sherds that could be identified as to vessel form, 82 were jar sherds, while only six were bowl forms.

El Paso Polychrome (Figure 107) was next most prevalent painted type ($n=43$). Like Chupadero Black-on-white, El Paso Polychrome was found in both loci and was distributed over a wide area of the site (Figure 108). Five bowl sherds and 37 jar sherds were identified. Rims for bowls were direct, while the jar rims are the thickened and everted styles consistent with the fourteenth-century context indicated by the varied assemblage of decorated ceramics. The Rim Sherd Index (RSI) of the seven El Paso Polychrome jar sherds that were large enough to measure revealed an RSI range of 1.31 to 1.66 with an average RSI of 1.46. (see discussion of Rim Sherd Indices for Site LA 86736). These RSIs compare favorably with the mean RSI of



Figure 105. Chupadero Black-on-white sherds from Site LA 86737: (l-r, top-bottom) Chupadero B/W, Three Rivers Red Ware, Elemendorf, Magdalena B/W, Chupadero B/W, Three Rivers Redware, St. John's Polychrome, and Socorro B/W.



Figure 107. Ceramic sherds from Site LA 86737 (l-r): (top) San Andres Red-on-terracotta (1), Three Rivers Red-on-terracotta (2); (bottom) El Paso Polychrome (3).

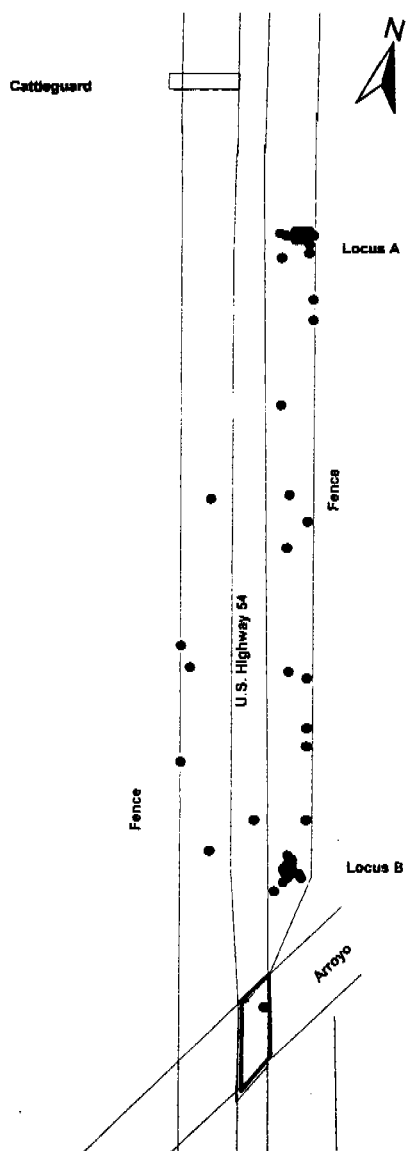


Figure 106. Distribution of Chupadero Black-on-white at Site LA 86737.

1.45 for necked jars of El Paso Polychrome documented in Seaman and Mills (1988:177). One jar sherd of El Paso Bichrome was found well south of the arroyo. This sherd may indeed be the 12th century precursor type to El Paso Polychrome or perhaps just a small body sherd of the latter type.

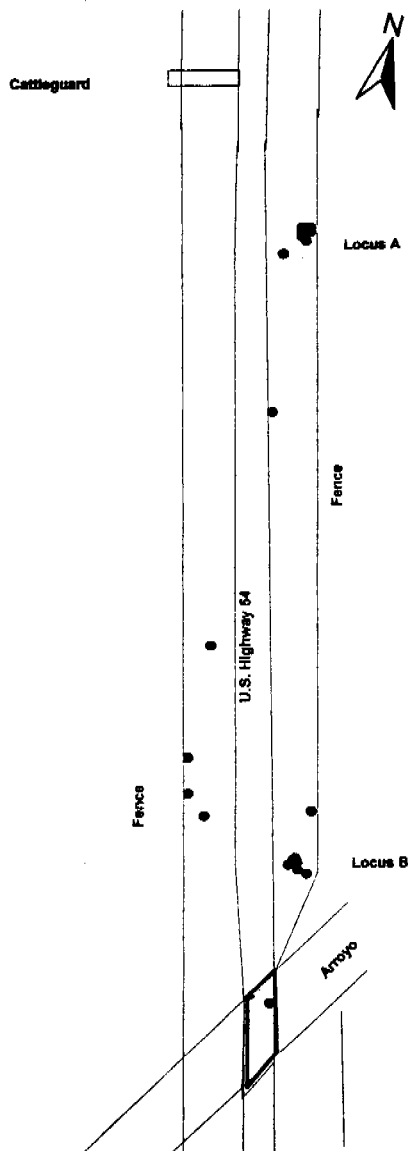


Figure 108. Distribution of El Paso Polychrome at Site LA 86737.

Three Rivers Red-on-terracotta was represented by 17 sherds (see Figure 107). Seven jar sherds and 10 bowl sherds were identified. The distribution of Three Rivers Red-on-terracotta (Figure 109) within the site was widespread and similar to that of Chupadero Black-on-white and the El Paso Polychrome.

Forty-one body sherds representing portions of unpainted red-on-terra-cotta ware were recovered from across the site.

San Andres Red-on-terra-cotta (see Figure 107), the broad line precursor to Three Rivers Red-on-terra-cotta, was represented by 18 sherds (Figure 110). Of

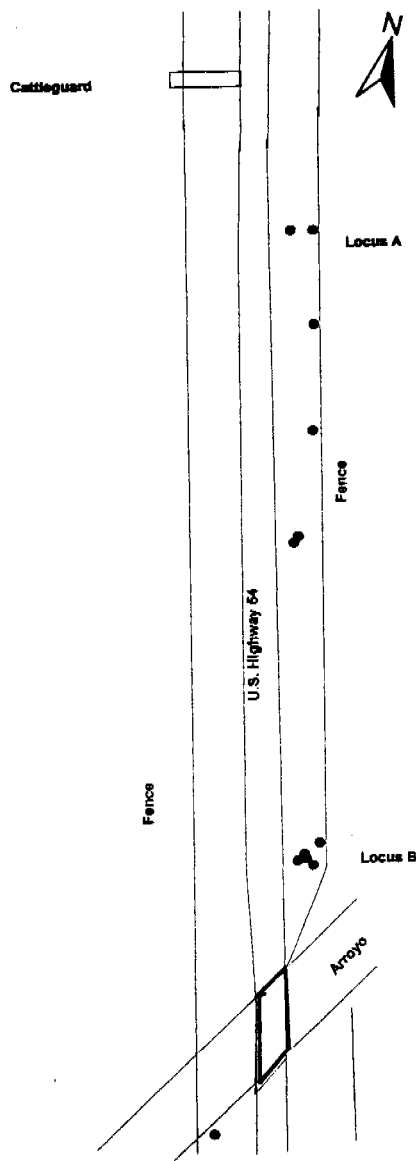


Figure 109. Distribution of Three Rivers Red-on-terra-cotta at Site LA 86737.

Three Rivers Red-on-terra-cotta exhibits a fine red line design on a terracotta slip. The type dates to the late twelfth and early thirteenth century (Stewart 1983), with possible overlap into the fourteenth century as well. Its center of distribution is in the northern Sacramento Mountains.

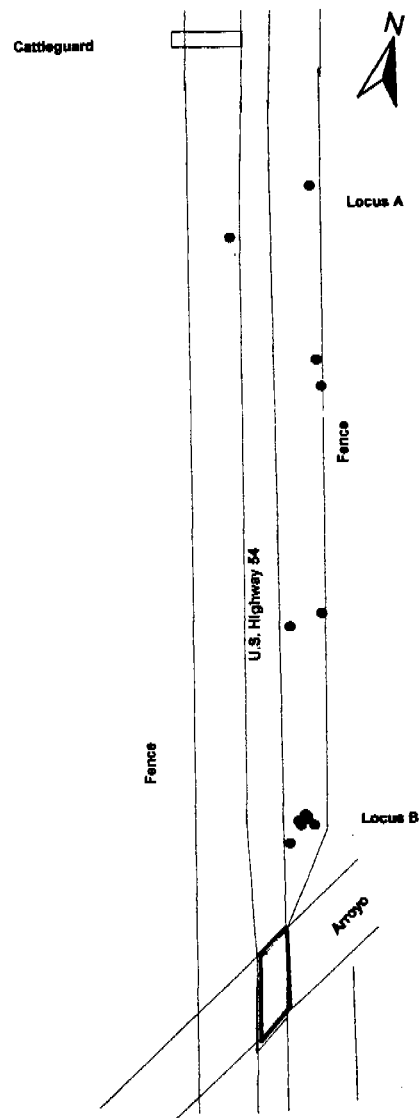


Figure 110. Distribution of San Andres Red-on-terra-cotta at Site LA 86737.

these, eight were jar sherds and nine were bowl sherds. Only one of these sherds, a jar rim, was found in Locus A. The others were found in Locus B or scattered across the surface of the site. A reconnaissance on the east side of the fence revealed a dense artifact scatter containing numerous sherds of San Andres Red-on-terracotta, suggesting that the center for the early ceramic component at Site LA 86737 is located in that area. Stewart (1983) suggests that San Andres Red-on-terracotta may overlap temporally with Three Rivers Red-on-terracotta. Excavations at Site LA 86736 (this volume) clearly place San Andres Red-on-terracotta in the eleventh century. Suggestions by Seaman and Mills (1988:167) that the two types are contemporary are ill founded.

Lincoln Black-on-red ($n=7$) was found in limited quantities at both Locus A and Locus B (Figure 111). An isolated sherd was located on the west side of U.S. Highway 54 south of the arroyo. Five bowl sherds and one jar sherd were identified. Lincoln Black-on-red (see Figure 105) is very similar in design and vessel form to Three Rivers Red-on-terracotta (Mera and Stallings 1931). Stewart (1983) suggests that these types overlap temporally, with Lincoln Black-on-red being the longest lived, beginning in the early 1300s and ending post-1400. The center for distribution of this type is the same as for the red-on-terracotta wares.

Two bowl sherds of Socorro Black-on-white (see Figure 105) were found in Locus B. This type dates to the eleventh and twelfth centuries. Its center of distribution is north and west of

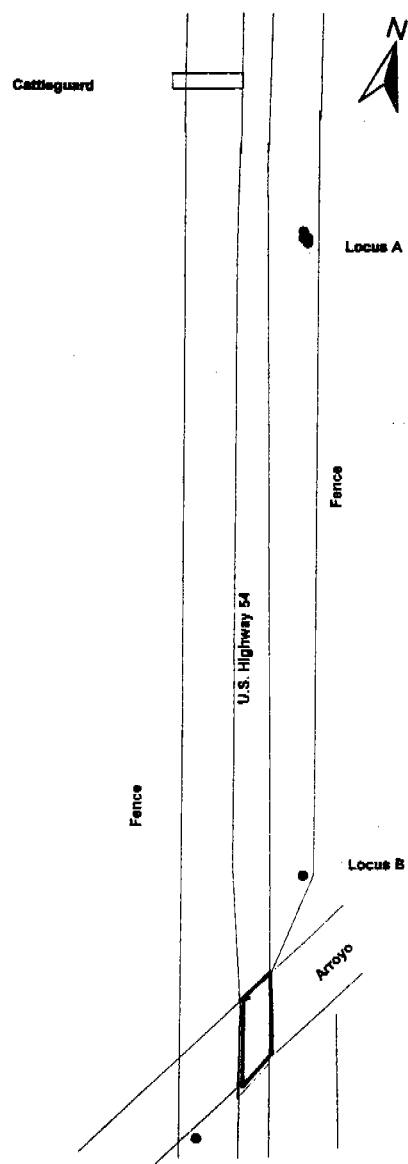


Figure 111. Distribution of Lincoln Black-on-red at Site LA 86737.

Socorro on the Rio Puerco. It is an occasional tradeware on Mimbres and Late Mesilla Phase sites in southern New Mexico.

One jar sherd of Elmendorf Black-on-white (see Figure 105) was found in

Locus A. Elmendorf Black-on-white is a carbon paint ware found on twelfth to fourteenth century pueblos along the Rio Grande in the vicinity of Socorro (Marshall and Walt 1984). It is occasionally found as a trade ware on sites in the Tularosa Basin and west of the Rio Grande.

One bowl sherd of Gila Polychrome (see Figure 105) was found north of Locus B. Gila Polychrome is a carbon paint ware and second in the series known as Salado Polychromes. It is decorated by black paint on a white slip on bowl interiors and a red slip on bowl exteriors. Crown (1994) views the spread of Gila Polychrome from its Arizona origins into New Mexico and elsewhere as reflecting the adaptation of a religious cult in which Gila Polychrome played a central role. The type is commonly found on post-thirteenth century pueblo sites across south-central and southwestern New Mexico.

One Saint John's Polychrome bowl sherd was also found north of Locus B. This type dates from A.D. 1170 to 1300 and is part of the White Mountain redware series (Carlton 1970). It is distinguished by matte black paint on red slipped bowl interiors and broad white lines on red slipped bowl exteriors. It is preceded by Puerco and Wingate Black-on-red and followed by Pinedale Polychrome in the 1300s. West-central New Mexico is its center of distribution. It is widely traded and is considered a temporal diagnostic for the late twelfth and thirteenth centuries.

One sherd of Magdalena Black-on-white (see Figure 105) was found at the

north edge of Locus A. The vessel form could not be determined. Magdalena Black-on-white is a carbon paint ware with a design style similar to McElmo/Mesa Verde Black-on-white. It was first described by Emma Lou Davis (1964) and later, Helene Warren (1974) as a southern carbon paint ware similar to that found in the Mesa Verde culture area. The type was dubbed Magdalena Black-on-white by Knight and Gomolak (1987). Site LA 1178, the Gallinas Springs Ruin, located west of Magdalena is the type site for Magdalena Black-on-white. The type has been linked to the possible migration of Mesa Verde populations from the Four Corners area into west-central and even southwestern New Mexico (Davis 1964; Lekson 1982). It is similar in design style to Santa Fe Black-on-white and Galisteo Black-on-white from the upper Rio Grande area. Both of those types have been suggested as reflecting the migration of Mesa Verde culture groups into the Rio Grande.

El Paso Brown is the most common ceramic type in the assemblage, totaling 330 sherds. El Paso Brown was found in both Locus A and Locus B (Figure 112). The vast majority of the assemblage were jar sherds, which outnumbered the identifiable bowl sherds by a ratio of 38 to 1. As the lower portion of El Paso Polychrome jars are undecorated, it is likely that most of the El Paso Brown sherds are body sherds of larger El Paso Polychrome vessels (see discussion of El Paso Polychrome).

Jornada Brown was less common than El Paso Brown, consisting of 116 sherds (Figure 113). Like the El Paso Brown assemblage, jars greatly out-

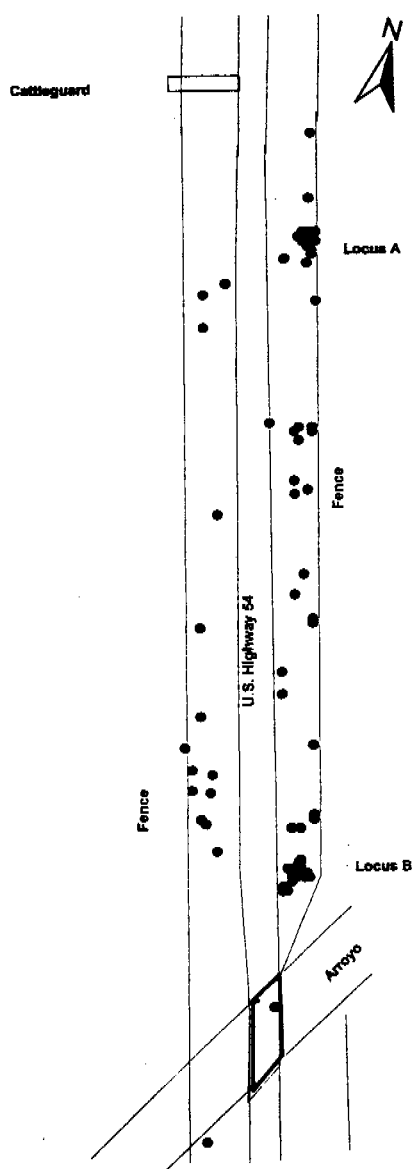


Figure 112. Distribution of El Paso Brown ceramics on Site LA 86737.

numbered bowls (89 to 25). Vessel form, as evidenced by the rims present in the assemblage, is identical to those in the El Paso Brown assemblage with several direct bowl rims. One jar rim identified as Jornada Brown was too small to measure the Rim Sherd Index, but was slightly everted, suggesting itself to be similar to

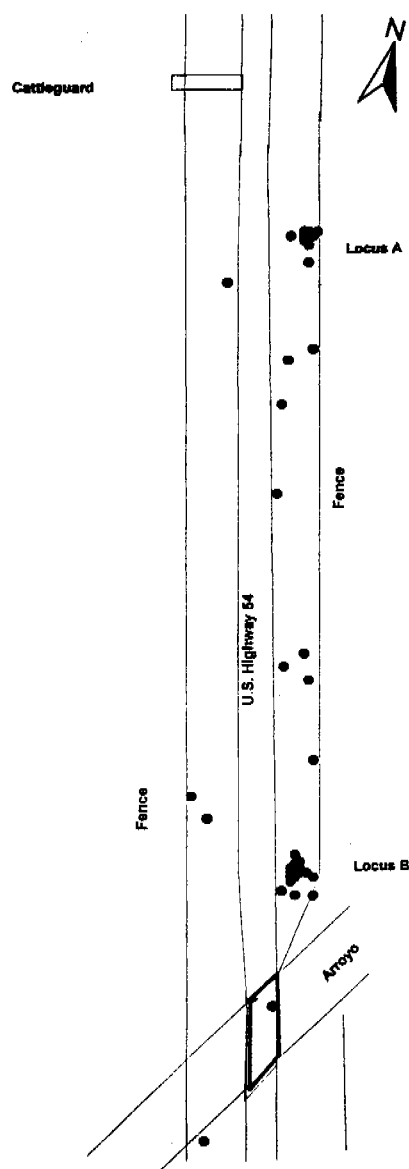


Figure 113. Distribution of Jornada Brown ceramics on Site LA 86737.

the El Paso Polychrome rims. Jornada Brown was defined by Jennings (1940) from a site in the Sacramento Mountains near Mayhill, New Mexico. El Paso Brown was defined by Lehmer (1948) from sites along the Rio Grande and in the Tularosa Basin. Considerable debate has ensued about the relationship of these

two types. The primary difference is one of surface finish. El Paso Brown has a comparatively rough, unpolished surface, whereas Jornada Brown has a smooth, polished surface much like that of the western Mogollon brown ware type, Alma Plain, but usually without that type's generally buff coloration. Based on the general distribution of these types, normative thought is that the better finished Jornada Brown was produced by the mountain-dwelling Jornada Mogollon groups, while the less well finished El Paso Brown was the product of desert dwellers. Like the sherds from Site LA 86736, it is very difficult to distinguish Jornada Brown from El Paso Brown, and all of the sherds from Site LA 86737 could be placed in the El Paso Brown category.

One bowl sherd of Jornada Red was found on the north edge of Locus A. Two separate types of red slipped or red washed ware appear in the literature. A Mimbres Red Wash was described by Hawley (1936:63). A red wash is basically a thin red slip. Mimbres Red Wash is commonly associated with Mimbres sites in southwestern New Mexico and is thought to be derived from the thicker slipped, highly polished San Francisco Red found in early and late Pithouse sites of that area. More recently, Bussey, Kelly and Southward (1976) have defined Jornada Red based on ceramics recovered from Site LA 4921 at nearby Three Rivers. In that case, the Jornada Red Wash was associated with fourteenth-century ceramic types rather than types from the eleventh and twelfth centuries. Although the two types are very similar in appearance, the specimen from Site LA 86737 is called Jornada Red based on its association with fourteenth-century ceramic types.

One jar sherd of Mogollon corrugated ware was located in Locus A. This sherd was too small to identify as to specific type, but is similar in style and construction to the Reserve/Tularosa Corrugated series made in west-central and southwestern New Mexico in the 13th century (Rinaldo and Bluhm 1985).

Seco Corrugated (n=14) was found in both Locus A and Locus B (Figure 114).

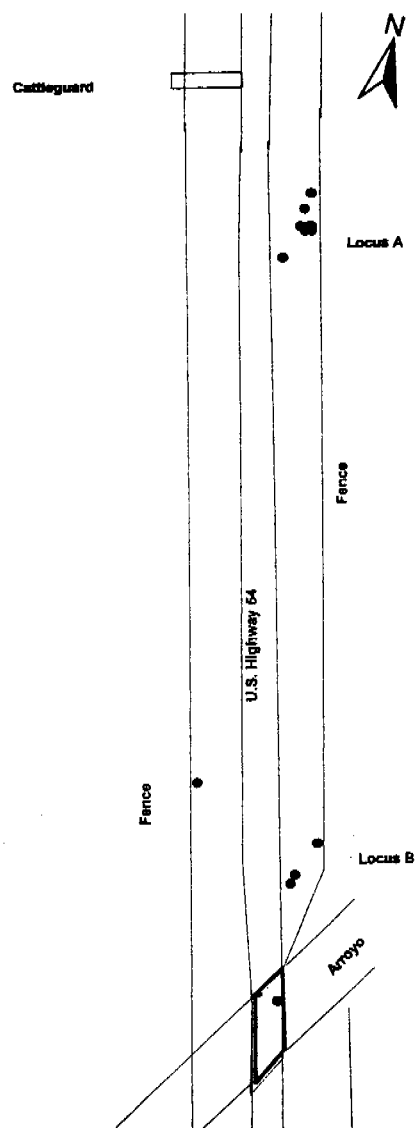


Figure 114. Distribution of Seco Corrugated at Site LA 86737.

Two bowl sherds and 11 jar sherds were identified. This corrugated type was initially described by Wilson and Warren (1973) from a type site on Seco Creek, a Rio Grande tributary in Sierra County. It is distinguished by near obliterated, vertically indented corrugations and well smudged interior. Although the origins of this type are hazy, it is consistently found on late El Paso Phase assemblages dating to the 14th century. It is sometimes referred to simply as Obliterated Corrugated.

Modified or Worked Sherds

Four small sherds of El Paso/Jornada Brown have been shaped into rough triangles by grinding the edges (Figure 115). The largest sherd is worked on two sides and is 28 mm on its longest axis. As the third side is broken, the

original shape of the modified artifact is unknown. Another, roughly triangular and broken in two pieces, is 28 by 18 mm. The one complete modified sherd is 18 by 16 mm. The last is also fragmented, but appears to have been about the same size or slightly larger than the complete specimen. The function of these modified sherds is not known.

Stratigraphic and Spatial Contexts

Excavations at Site LA 86737 were conducted in 10 cm levels. Other than features, no natural stratigraphic levels could be seen in the soil profiles. Surface collections yielded 60 percent of the ceramic assemblage and the first 10 cm level yielded an additional 21 percent. Only 19 percent of the ceramics were from excavated contexts.



Figure 115. Worked sherds from Site LA 86737.

Locus A consisted of deflated areas between coppice dunes. Eleven of the 17 ceramic types recovered from the site were found in Locus A (Table 37). Elmendorf Black-on-white and Mogollon Corrugated ware were the only two types found in Locus A and not in Locus B. Excavated materials from Locus A were very shallow as sherds were not found below 30 cm and only five sherds were found below Level 1. There is no indication of intact stratigraphy in either the ceramic assemblage or the soil profiles.

Locus B was in a low eroded area adjacent to the arroyo and bridge. The mixture of loose charcoal and artifacts, and the lack of definable features in Locus B suggests the possibility of previous mechanical disturbance as though the cultural material had been pushed into that position. Ten of the 17 ceramic types were recovered from Locus B (Table 38). Socorro Black-on-white was the only type found in Locus B that was not present in Locus A. In contrast to Locus A, 63 percent of the ceramic assemblage from Locus B was recovered from excavated contexts. However, the great majority (75 percent, n=162) were from the first two 10 cm. levels. Only four ceramic types were found below Level 2: Chupadero Black-on-white, El Paso Brown, El Paso Polychrome, and Jornada Brown. As Chupadero Black-on-white and El Paso Polychrome date to the latest occupation of Site LA 86737, it is clear that the stratigraphy of Locus B was either no

longer intact or was not present in the first place.

Ceramic Summary

In summary, the ceramic types found at Site LA 86737 reflect continued use of the site from the late twelfth century until at least the fourteenth century. San Andres Red-on-terracotta, Socorro Black-on-white, and the possible sherd of El Paso Bichrome indicate the earliest period of use. The lack of Mimbres Classic Black-on-white, which was present at Site LA 86736 (this volume), suggests a post-A.D. 1130 date for the beginning of ceramic period occupation at this site. Dense concentrations of San Andres Red-on-terracotta found outside the right-of-way further support the presence of a twelfth century component. St. John's Polychrome and Three Rivers Red-on-terracotta are indicative of continued use through the thirteenth century. The fourteenth century site use is strongly supported by the presence of late style El Paso Polychrome, Gila Polychrome, Seco Corrugated, and Lincoln Black-on-red.

Functionally, jar sherds were in the majority for most types. A few painted types, notably those represented by only a few sherds, were from bowls. The distribution of bowls and jars is thought to reflect the dominant need for storage and cooking vessels on a site focused on seasonal procurement of plant resources.

Table 37. Ceramic Types by Level at Locus A, Site LA 86737.

Type	Level			Total	Percentage
	1	3	Surface		
Chupadero B/W	15	3	18	36	21.18
El Paso Brown	20		57	77	45.29
El Paso Polychrome	1		16	17	10.00
Elmendorf B/W			1	1	.59
Jornada Brown	2	1	11	14	8.23
Lincoln B/R	1		4	5	2.94
Mogollon Corrugated	1			1	.59
San Andres R/T			1	1	.59
Seco Corrugated	3		5	8	4.71
Three Rivers R/T		1	2	3	1.76
Three Rivers Terracotta ware			7	7	4.12
TOTAL	43	5	122	170	100.00

Table 38. Ceramic Types by Level at Locus B, Site LA 86737.

Type	Level							Total	Percent- age
	1	2	3	4	5	Scraped	Surface		
Chupadero B/W	11	7		1	1	1	16	37	10.88
El Paso Brown	39	40	10	2	2	16	51	160	47.06
El Paso Polychrome	6	4		1			10	21	6.18
Jornada Brown	28	11	6	3	2	4	27	81	23.82
Lincoln B/R							1	1	.29
San Andres R/T	4	3				1	3	11	3.24
Seco Corrugated							3	3	.88
Socorro B/W	1					1		2	.59
Three Rivers R/T	4	1				1	1	7	2.06
Three Rivers Terracotta ware	3						14	17	5.00
TOTAL	96	66	16	7	5	24	126	340	100.00

Lithic Artifacts

Lithic artifacts were recovered from excavated contexts in both Locus A and Locus B on Site LA 86737, as well as surface contexts throughout the site. Compared to the 688 ceramic artifacts recovered, only 336 lithic artifacts were found (Table 39). These lithic artifacts are primarily manufactured from materials that are available in the immediate area of the site. Formal tools are virtually nonexistent and no temporally diagnostic artifacts were found. Given the number and context of the recovered lithic artifacts, it is likely that the entire assemblage is reflective of the limited functional scope of the occupation.

Materials

Eight material types were identified in the assemblage. These include in order of dominance: siltstone, quartzite, basalt, sandstone, chert, banded chert, limestone and chalcedony. The siltstone, quartzite, sandstone and limestone are present in the local arroyo gravels. The first three are derived from the same basic geologic formation exposed in the Sierra Blanca (Hawley 1983). Limestone is exposed in nearby uplifts. The basalt is also available locally and can also be traced to a source in the Sierra Blanca. The chert and chalcedony are in the minority. The materials were distributed differentially across the site (see Figures 117-121).

Table 39. Lithic Debitage by Cortex Placement at Site LA 86737.

Material	Cortex								Total	Percent
	distal	dorsal	dorsal/ distal	dorsal/ platform	dorsal/ platform/ distal	none	plat- form	yes		
basalt		4		3	1	6	6	1	21	6.56
chalcedony						2	1		3	.94
chert				1		7	1	1	10	3.13
chert, banded		1							1	.31
limestone							1		1	.31
quartzite	1	16		25		42	40	5	129	40.31
sandstone		2		4		7	7		20	6.25
siltstone		18	2	27		48	36	4	135	42.19
TOTAL	1	41	2	60	1	112	92	11	320	100.00

Locus A yielded only 24 lithic artifacts (Table 40), while the great majority of the material (n=263) was recovered from

Locus B (Table 41). The remaining 33 lithic artifacts were collected in other areas of the site.

Table 40. Lithic Material by Cortex at Locus A, Site LA 86737.

Material	Cortex					Total	Percent
	distal	dorsal	dorsal/ platform	none	platform		
basalt			1	2		3	12.50
chalcedony				1		1	4.17
chert					1	1	4.17
quartzite	1	2	1	2	4	10	41.66
sandstone					1	1	4.17
siltstone			1	5	2	8	33.33
TOTAL	1	2	3	10	8	24	100.00

Table 41. Lithic Material by Cortex at Locus B, Site LA 86737.

Material	Cortex							Total	Percent
	dorsal	dorsal/ distal	dorsal/ platform	dorsal/ platform/ distal	none	platform	yes		
basalt	3		1	1	3	6	1	15	
chalcedony					1	1		2	
chert			1		2		1	4	
quartzite	13		21		33	32	5	104	
sandstone	2		3		7	6		18	
siltstone	18	2	24		42	31	3	120	
TOTAL	36	2	50	1	88	76	10	263	



Figure 116. Selected lithic materials from Site LA 86737: (l-r) chalcidony (1) and siltstone (2).

Siltstone, a fine-grained silicious material, varies in color from tan to light gray. Siltstone was the most common material, represented by 135 artifacts. This material was found at both Locus A (n=8) and Locus B (n=120) (Figure 117). Reduction of siltstone cores was more prevalent at Locus B, where only 35 percent of the assemblage did not exhibit some cortex. In Locus A, 62.5 percent of the much smaller siltstone assemblage exhibited no cortex.

Sandstone (n=20) is a coarse-grained material and varies in color from gray to tan. Of the 20 flakes recovered, 33 percent (n=7) exhibited cortex (Figure 118). The sandstone flakes may have resulted from the shaping of ground stone artifacts.

Quartzite (n=131), a coarse- to fine-grained silicious material, varied in color from black to brownish-gray to gray. The black quartzite exhibits the finest grain, the brownish-gray quartzite is medium-grained, while the gray quartzite varies from coarse- to fine-grained. Quartzite was found at both Locus A (n=10) and Locus B (n=104) (Figure 119). Like siltstone, the quartzite at Locus A had been more thoroughly reduced than that at Locus B, based on the retention of cortex.

Basalt, a dark gray/black material, was found in limited quantities at both Locus A (n=3) and Locus B (n=15) (Figure 120). One (33.3 percent) of the three basalt flakes at Locus A exhibits cortex, while 12 (80 percent) of the 15 basalt flakes at Locus B exhibit cortex.

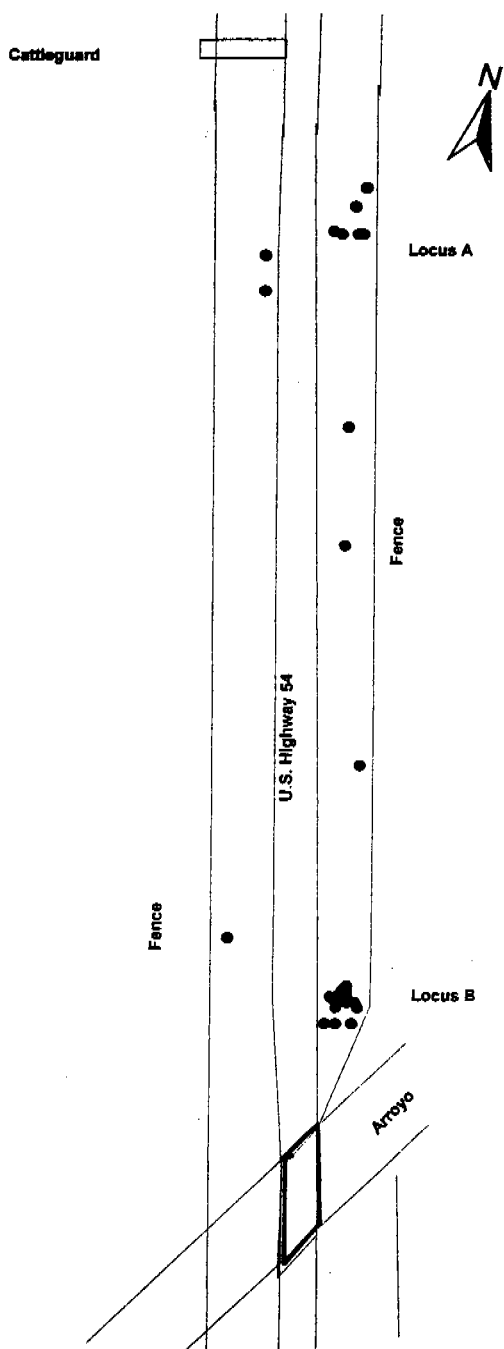


Figure 117. Distribution of siltstone at Site LA 86737.

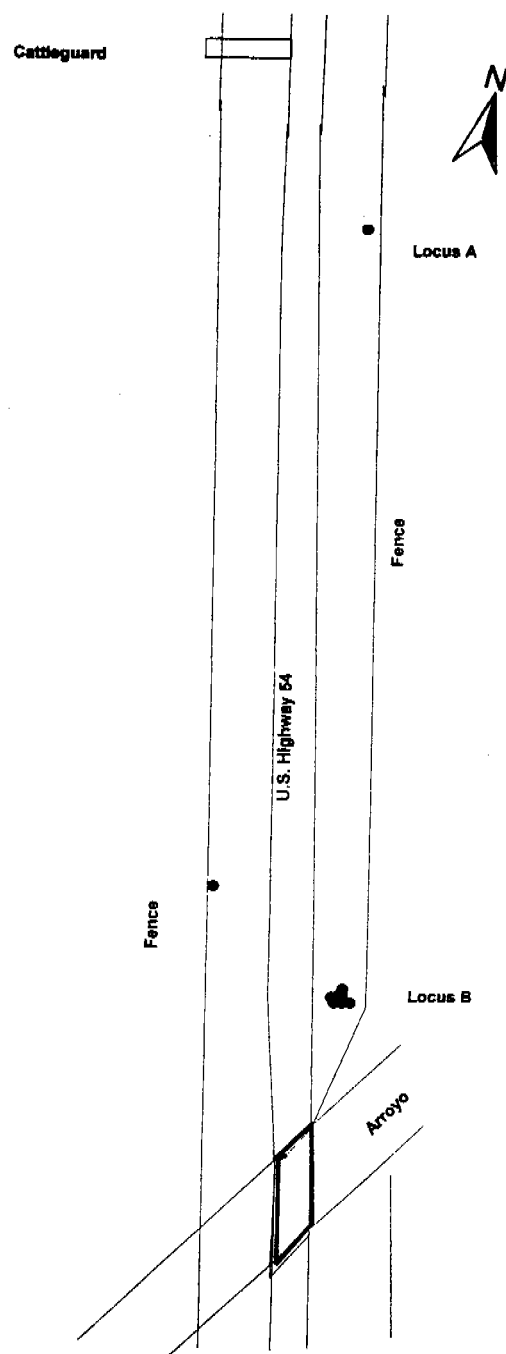


Figure 118. Distribution of sandstone at site LA 86737.

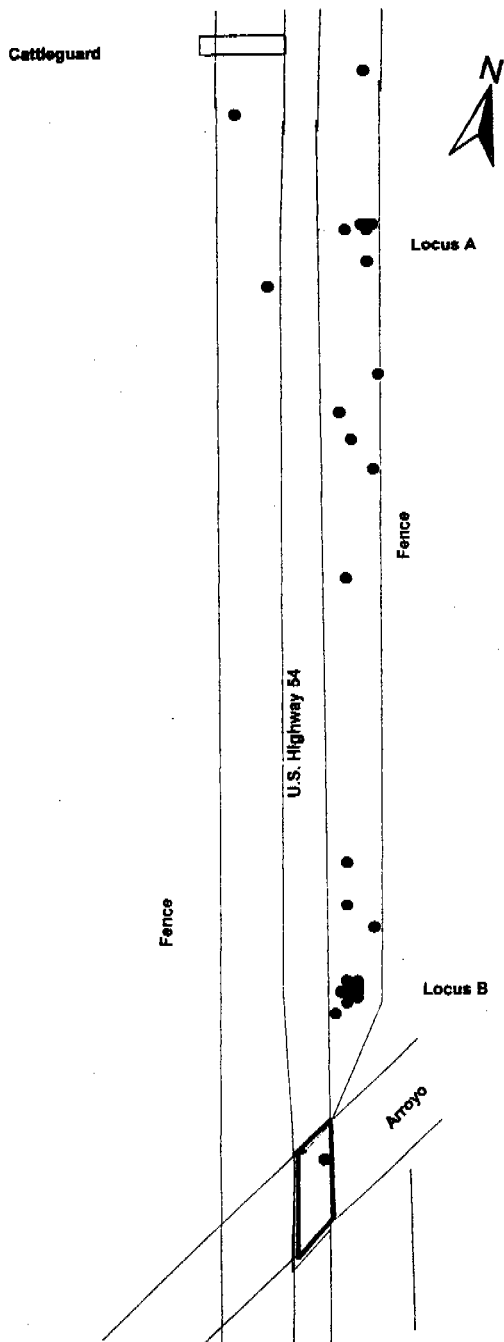


Figure 119. Distribution of quartzite at Site LA 86737.

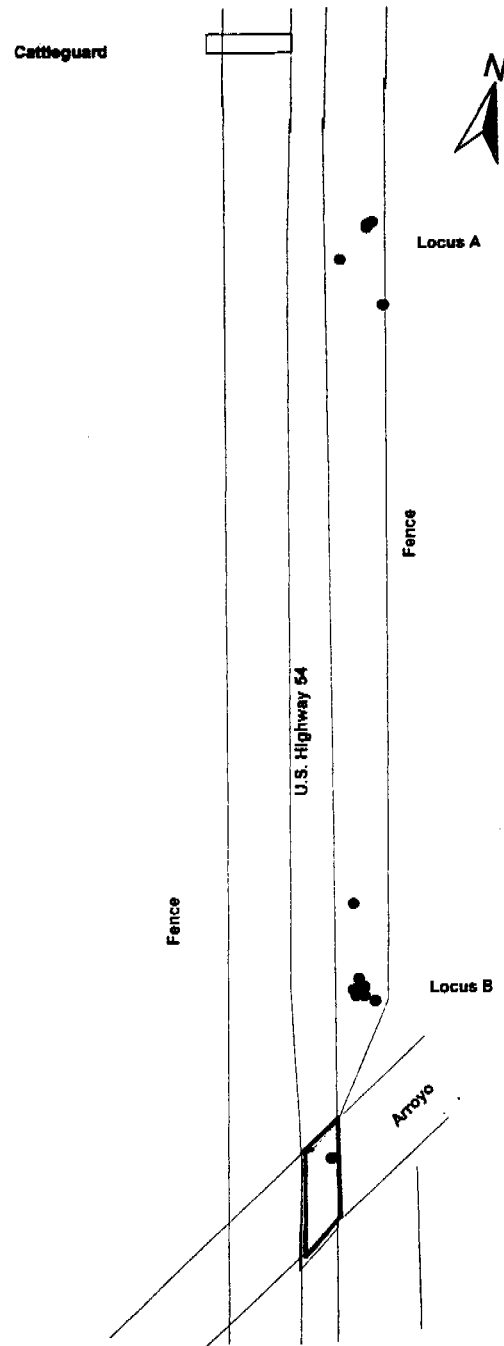


Figure 120. Distribution of basalt at Site LA 86737.

Chert (n=11), banded chert (n=1), and chalcedony (n=3) vary considerably in color. One flake of chert and chalcedony was present at Locus A (Figure 121). Other examples of these material types came from Locus B (chert=4; chalcedony=2). Seven other flakes of chert, including the banded chert, were collected across the site. The

chalcedony flakes are white or milky white with inclusions. The color and inclusions of the chalcedony suggest an origin in northern New Mexico. The procurement area for the chalcedony is likely the ancestral Rio Grande gravels found some distance west of the Tularosa Basin. One of the cherts is of the banded variety common to the cherts formed in the limestone formations of the San Andres and Sacramento mountain ranges. It exhibits a cortical surface, suggesting that it was derived from a subangular nodule. The other cherts are predominately white in color, suggesting an origin in the limestone formations of the Sacramento Mountains.

Limestone is represented by a single flake from south of the arroyo. The flake has a cortical platform and is of a gray, medium-grained material. It appears to be an expedient flake rather than reflecting the purposeful selection or preference for limestone as a lithic material.

Debitage Size and Type

The lithic debitage was divided into size categories of 0-10 mm., 10-40 mm., 40-60 mm., and larger than 60 mm. (Table 42). Of the 319 pieces of lithic debitage, 85 percent (n=271) are in the second and third categories. Of these, 59 percent (n=160) are in the second category, while 41 percent (n=111) are in the third category. These two categories seem to reflect the optimum size for flake production as all but three flakes of the more silicious, homogenous materials (chert, chalcedony, and basalt) are found in that size range. Many of the largest flakes are thought to be the result of

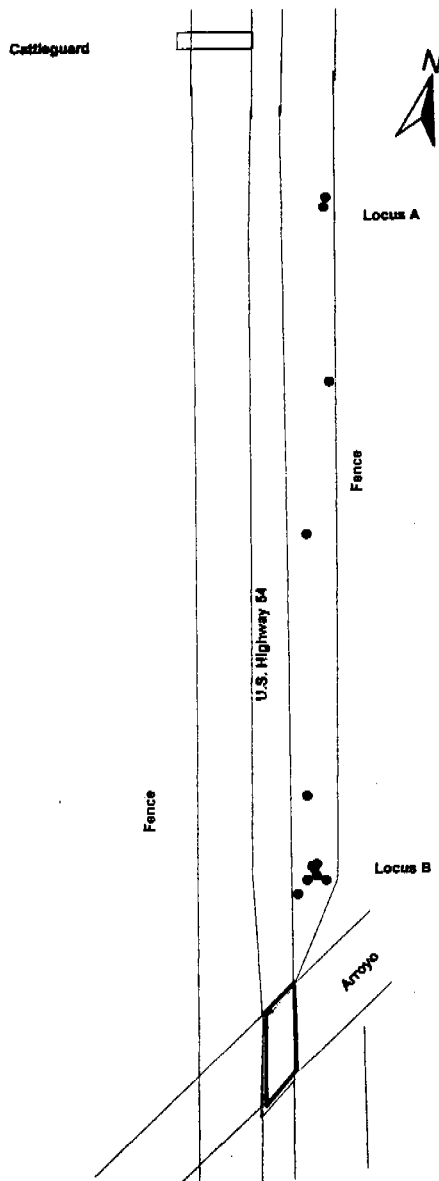


Figure 121. Distribution of chert and chalcedony at Site LA 86737.

Table 42. Lithic Material by Size at Site LA 86737.

Material	Size				Total	Percentage
	1 (0-10mm)	2 (10-40mm)	3 (40-60mm)	4 (<60mm)		
basalt	1	8	11	1	21	6.58
chalcedony		2	1		3	.94
chert	1	7	2		10	3.14
chert banded				1	1	.31
limestone				1	1	.31
quartzite	6	63	48	12	129	40.44
sandstone	1	9	7	3	20	6.27
siltstone	7	71	42	14	134	42.01
TOTAL	16 (31%)	160 (59%)	111 (33%)	32 (9%)	319	100.00

ground stone production as quartzite and siltstone are the only materials in the largest size category.

Due to the prevalence of coarser materials, debitage attributes on the ventral surfaces and terminations were difficult to observe. While striking platforms could usually be easily defined, it was extremely difficult to differentiate a step termination from a post-production transverse fracture. Likewise, if the platform was not present, the lack of ventral attributes made it difficult to assess flake orientation.

Bifacial thinning flakes are associated with the latter stages of bifacial core and bifacial tool production. Transverse flakes are associated with the early stages of bifacial core and bifacial tool production. It is significant that none of these flake types were identified in the assemblage.

Stratigraphic Context

Excavations at Site LA 86737 were conducted in 10 cm. levels. Other than features, no natural stratigraphic levels could be seen in the soil profiles. Overall, 31 percent (n=103) of the 336 lithic artifacts were found in Level 1. Another 31 percent (n=105) were found on the surface. Excavation yielded 67 percent (n=226) of the artifacts (Table 43).

Lithic artifacts do not reflect significant stratification in Locus A. Locus A consisted of deflated areas between coppice dunes. As noted, no temporally diagnostic lithic artifacts were recovered from Locus A. Only 27 lithic artifacts were found in Locus A. Of those, 89 percent (n=24) were found either on the surface or in Level 1. Two lithic artifacts were found in Level 3 and only one was recovered from Level 4 (Table 44).

Table 43. Lithic Materials by Level at Site LA 86737.

Material	Level							Total	Percent
	1	2	3	4	5	Scraped	Surface		
basalt	12	5					9	26	7.74
chalcedony							3	3	.89
chert	4	1	1				5	11	3.27
chert banded							1	1	.30
limestone							1	1	.30
quartzite	31	34	14	10	3		39	131	38.99
sandstone	7	4	5	1		1	2	20	5.95
siltstone	49	29	10	5	1	4	45	143	42.56
TOTAL	103 (31%)	73 (22%)	30 (9%)	16 (4.8%)	4 (1.2%)	5 (1.5%)	105 (31.3%)	336	100.00

Table 44. Materials by Level at Locus A, Site LA 86737.

Material	Level				Total	Percent
	1	3	4	Surface		
basalt	3			1	4	14.82
chalcedony				1	1	3.70
chert	1				1	3.70
quartzite		1	1	8	10	37.04
sandstone				1	1	3.70
siltstone	7	1		2	10	37.04
TOTAL	11 (40.7%)	2 (7.4%)	1 (3.7%)	13 (48.2%)	27	100.00

Locus B was in a low eroded area adjacent to the arroyo and bridge. The mixture of loose charcoal and artifacts and the lack of definable features in Locus B suggest the possibility of previous mechanical disturbance as though the cultural material had been pushed into that position. Lithic artifacts from the surface and Level 1 in Locus B made up 55 percent (n=151) of the

assemblage. Levels 2 and 3 yielded and additional 36 percent (n=101). With the exception of two chalcedony flakes found on the surface, all of the lithic materials found in Locus B were present through Level 2 (Table 45). Chert was found in Level 3. Quartzite, sandstone, and siltstone were found in Level 4, while only sandstone and siltstone were found in Level 5. Given the observed potential

Table 45. Lithic Material by Level at Locus B, Site LA 86737.

Material	Level							Total	Percent
	1	2	3	4	5	Scraped	Surface		
basalt	8	5					5	18	6.52
chalcedony							2	2	.73
chert	2	1	1				2	6	2.17
quartzite	27	34	13	9	3		20	106	38.41
sandstone	7	4	5	1		1		18	6.52
siltstone	42	29	9	5	1	4	36	126	45.65
TOTAL	86 (31.16%)	73 (26.45%)	28 (10.14%)	15 (5.43%)	4 (1.45%)	5 (1.81%)	65 (23.55%)	276	100.00

for mechanical mixing and the distribution of materials, it is unlikely that the lithics from the lower levels of Locus B reflect an earlier occupation.

Lithic Tools

Identifiable lithic tools are limited in both number and variety. They include eighteen cores, five flake tools exhibiting some form of use wear, and one drill. Locus A produced three expedient cores (basalt=2; siltstone=1) and one multi-platform siltstone core. In contrast, 14 tools were associated with Locus B. These include the chert drill and four of the five flake tools, one basalt single-platform core, and nine expedient cores (quartzite=3; siltstone=6). An additional two expedient cores (quartzite=1; siltstone=1) were located away from the defined loci (Figure 122).

The siltstone core from Locus A and the basalt single-platform core from Locus B are developed cores. Both have been purposefully shaped to expedite removal of multiple usable flakes. The

other cores are expedient cores produced from unshaped nodules of quartzite and siltstone. The predominance of expedient cores corresponds well with the percentages of platform/dorsal cortex in the debitage assemblage (quartzite=19.38 percent; sandstone=20 percent; siltstone 20 percent), as well as the presence of cortex on 65 percent (n=218) of the overall assemblage.

Five flake tools were identified that had macroscopically visible patterns of use wear. All but one were larger flakes, either Size 3 (40 to 60mm) or Size 4 (larger than 60 mm). The smallest (Size 2, 28mm) is the distal portion of a black chert flake with no cortex that has been shaped to create a pointed end. The other four are very similar in size, ranging from 55 mm to 63 mm. One chert flake with distal and platform cortex exhibits bending fractures on both thin lateral edges, probably as a result of cutting action. A similar flake of siltstone (no cortex) exhibits almost identical wear. Another chert flake with no cortex exhibits unifacial microflake removal on both lateral edges with an



Figure 122. Cores and large flake from Site LA 86737 (l-r): (top) quartzite core (Cat. No. 42), quartzite core and basalt core (Cat. No. 61); (bottom) quartzite flake (Cat. No. 117) and basalt core (Cat. No. 270).



Figure 123. Drill and flake tools from Site LA 86737 (l-r): chert flake tool (Cat. No. 2), chert flake tool (Cat. No. 209), quartzite flake tool (Cat. No. 211), chert drill (Cat. No. 221), and chert flake tool (Cat. No. 243).

occasional microflake removed from the opposite face, suggest use in a scraping action. One siltstone flake exhibits rounding and bifacial microflake removal on one lateral edge, indicating use as a cutting tool. All but one of these utilized flakes were found in Locus B. The remaining tool was found south of the arroyo.

The only shaped tool recovered is a chert drill measuring 38 mm long with a 21 mm bit (see Figure 123). The drill bit has been bifacially shaped to a sharp point. It also was found in Locus B. This artifact could have been used to perforate leather, bone, wood, or even ceramic.

No bifaces, biface fragments, or projectile points were found. These negative data correspond to the lack of debitage related to bifacial tool production.

Lithic Summary

Production and use of lithic artifacts at Site LA 86737 was limited and focused on satisfying simple and immediate needs. The lithic assemblage reflects expedient use of local materials to satisfy the needs of a procurement strategy focused on wild plant products. It is significant that no projectile points, bifaces, or other tools associated with the hunting of game were recovered. The debitage also did not reflect production of these tools. A few exotic materials consisting of the finer-grained chert and chalcedony were brought to the site, probably to serve specific cutting functions that would have been more difficult with the coarser-grained local materials.

Based on artifact counts, the frequency of cortex in the assemblages and location of cores, most of the lithic reduction occurred in Locus B. Locus B also yielded almost all of the visibly utilized flakes and the single drill, suggesting that a variety of activities beyond simple core reduction were occurring within or near Locus B.

Ground Stone Artifacts

Twenty-six ground stone artifacts were recovered (Table 46). Ten were from Locus A, six of which were from excavated contexts. Six were from Locus B, three being from excavated contexts. The remaining twelve were found between the two loci.

With one exception, all of the ground stone were small fragments. Ten could be identified as mano fragments. Two fragments may be from either manos or polishing stones. Two are metate fragments. Eleven may be from either manos or metates. The exception (Cat. No. 251, described herein) is a complete ground and shaped shaft straightener (Figure 124). Most of the artifacts exhibit some evidence of intentional shaping by pecking or grinding.

All of the ground stone artifacts are of local materials, including medium- to coarse-grained sandstone (n=11), coarse-grained quartzite (n=8), medium-grained quartzite (n=1), medium-grained siltstone (n=2), limestone (n=1), and basalt (n=3). These same materials made up the bulk of the flaked stone assemblage. At least a portion of the flaked stone assemblage may be the result of shaping ground stone artifacts (Figure 125).

Table 46. Ground Stone by Material Type at Site LA 86737.

Material	Type					Total	Percent
	fragment	mano frag.	mano/ polishing stone frag.	metate frag.	shaft straightener		
basalt	3					3	11.54
limestone, medium-grained		1				1	3.85
quartzite, coarse-grained	4	3		1		8	30.77
quartzite, medium-grained		1				1	3.85
sandstone, coarse-grained	1	1	1			3	11.54
sandstone, medium-grained	3	4	1			8	30.77
siltstone, medium-grained				1	1	2	7.69
TOTAL	11 (42.31%)	10 (38.46%)	2 (7.69%)	2 (7.69%)	1 (3.85%)	26	100.00



Figure 124. Shaft straightener (Cat. No. 251) from Site LA 86737.

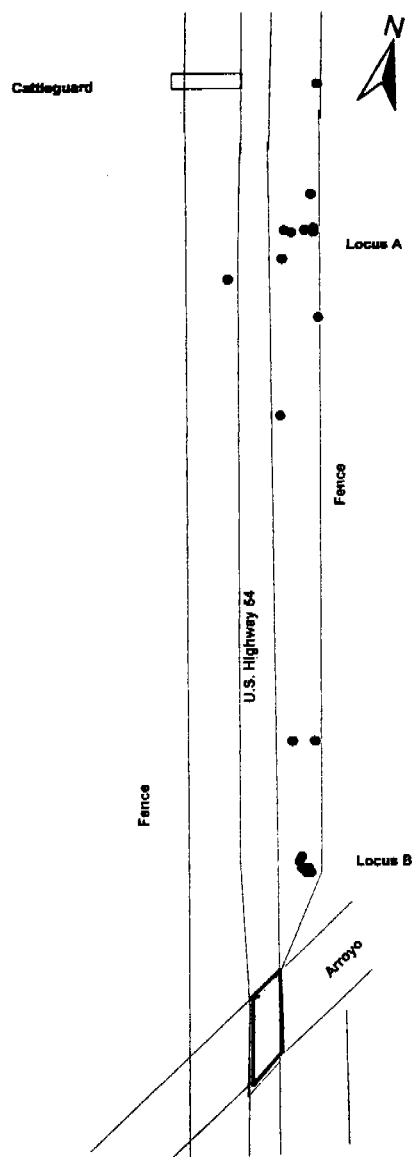


Figure 125. Distribution of ground stone artifacts at Site LA 86737.

Descriptions of selected ground stone artifacts are provided below.

Cat. No. 125 (454N 983E surface): One mano fragment of medium-grained, light gray sandstone. The mano fragment measures 7.5 by 4 cm and is 3 cm thick. Heavily ground surfaces occur on both faces, as well as on the lateral edges. The mano has been shaped to create two

parallel faces and a perpendicular, slightly rounded lateral edge. The fragment appears to have been part of a rectangular-shaped mano that was most likely used with two hands.

Cat. No. 170 (Locus A surface): One mano fragment of medium-grained, dark gray sandstone. Heavily ground surfaces occur on both faces and on the lateral edges. The mano measures 8.5 by 5.5 cm and is 5.5 cm thick. It has been shaped to create two parallel faces and a perpendicular, slightly rounded lateral edge. The fragment appears to have been part of a rectangular-shaped mano that was most likely used with two hands.

Cat. No. 180 (Locus A surface): One mano fragment of medium-grained, light gray sandstone. The mano fragment measures 5.5 by 1.5 cm and is 1.5 cm in thickness. Heavily ground surfaces occur on both faces, as well as on the lateral edges. The mano has been shaped to create two parallel faces and a rounded lateral edge.

Cat. No. 186 (603N/1000E surface): One mano fragment of medium-grained black quartzite. The fragment measures 9 by 6.5 cm and is 4.5 cm thick. A heavily ground surface occurs on one face and on the remnant lateral edge. This fragment is water worn and most likely is naturally shaped. The opposite face of the mano has been fire cracked.

Cat. No. 220 (Locus B excavated): One ground stone fragment of fine-grained black siltstone. The fragment measures 3.5 by 5 cm and is 3 cm thick. A heavily ground surface occurs on one perfectly flattened face. Several parallel scratching or etching marks occur on this face. The

lateral edge of the fragment is naturally shaped, with no evidence of grinding. The remaining portion of the artifact may have been intentionally broken, possibly the result of being flaked.

Cat. No. 251 (307N 988E excavated): One complete arrow shaft straightener (Figure 124) of medium-grained light gray silt-stone. The shaft straightener measures 8 by 4.5 cm and is 3 cm thick. Moderately ground surfaces occur on all lateral edges. A heavily ground surface occurs opposite the face with the groove for shaft straightening. Although there are some areas that are naturally worn, the stone has been shaped throughout. The shaft straightener groove is 0.5 cm wide by 2 mm deep and runs across the middle of the stone on the short axis. The groove has been pecked and does not exhibit heavy use. The opposite face has been heavily ground down to a flat surface.

Cat. No. 252 (307N/988E excavated): One mano fragment of coarse-grained, light gray sandstone. The fragment measures 2 by 2 cm and is 1.5 cm thick. Heavily ground surfaces occur on all extant faces and lateral edges. The two faces are parallel and the lateral edge is rounded.

Cat. No. 263 (536N/988E excavated): One ground stone fragment of coarse-grained quartzite that is gray to light gray in color. The fragment measures 10.5 by 6 cm and is 4.5 cm thick. Heavily ground surfaces occur on both faces. A portion of one face has not been ground, and the area that is ground is at a 45-degree angle. The shape of this stone suggests that it was part of a mortar or metate. The opposite face is ground flat and the edges have been modified to create a rounded shape.

Cat. No. 280 (553N/997E excavated): Three small mano fragments that are all from different stones. One fragment of light gray, coarse-grained sandstone measures 2.5 by 2 cm and is 1 cm thick. This fragment is heavily ground flat on one face and the remaining edge has been rounded. The second fragment is gray coarse-grained quartzite that measures 2.5 by 2.5 cm and is 1.2 cm thick. This fragment is moderately ground on both faces and the extant edge has been rounded. The third fragment is also gray coarse-grained quartzite, measures 2.5 by 2 cm, and is 1.3 cm thick. This fragment is moderately ground and has been shaped to create a rounded edge.

Ground Stone Summary

The ground stone from Site LA 86736 was produced from local materials. Consistent evidence of shaping suggests that some time was invested in their production. The ground stone artifacts are typical of those associated with processing of wild plant products. Mesquite, saltbush, and wild grass seeds were the likely focus of this processing, although there is little or no macro-botanical data to verify this inference.

The possible polishing stones are intriguing, but because there is no evidence for ceramic production on this site, their use is unknown.

The single, most interesting artifact is the alleged shaft straightener. No projectile points were found on the site and this shaped quartzite cobble may have served as a hammerstone used for lithic reduction. The shallow groove may have been a channel created by

sharpening edges of wood or stone rather than by straightening arrow shafts.

Macrobotanical Remains

by Dr. Richard Holloway

Only a small amount of material was obtained from Site LA 86737. The majority of the material consisted of small charcoal fragments, although mesquite (*Prosopis*), saltbush/greasewood (*Atriplex* sp./*Sarcobatus* sp.), and cottonwood (*Populus* sp.) charcoal were present, along with corn (*Zea mays* sp.). All of the material was recovered from Locus B.

One feature was sampled from Site LA 86737, which was a small hole filled with ashes in Locus B. This contained only small charcoal fragments and was of no interpretive value. There were no economically important taxa from this site other than the corn remains. However, the wood charcoal remains were similar to those from Site LA 86736, consisting of isolated occurrences of mesquite, cottonwood, and saltbush/greasewood. The remainder of the charcoal recovered was picked from the grid profiles in Locus B.

Unit 250N/992E: FS 323 and 321 were identification samples from Levels 1 and 3. Both contained hardwood charcoal fragments and FS 321 contained a single specimen of mesquite charcoal.

Unit 252N/992E: FS 320 was an identification sample, but contained only small charcoal fragments.

Unit 253N/992E: FS 325 and 326 were identification samples. Saltbush/greasewood charcoal and a corn cob fragment (eight-row variety) were present.

Unit 253N/997E: Identification sample FS 322 contained cottonwood charcoal and 7 corn cupule fragments.

Unit 522N/998E: FS 324 was an identification sample. Saltbush/greasewood charcoal and hardwood charcoal fragments were present.

Discussion

The majority of the common taxa present in these assemblages are found locally within the vegetation. Mesquite, as might be expected, is the most common wood charcoal type present. Saltbush/greasewood charcoal is also quite common, but occurs in slightly fewer samples than mesquite. Mesquite is fairly common in the modern vegetation and presumably was equally common during the Jornada Mogollon occupation of these sites.

Both saltbush and greasewood belong to the family Chenopodiaceae and, as such, their wood anatomical characteristics are virtually identical. Both taxa have similar habitats, and although saltbush is much more common in the central and southern portions of the state, black greasewood can, and does occur. Therefore, based only upon the wood anatomical characteristics, I have combined these two genera into a morphological category and have not attempted to separate the genera. While it is suspected that the majority of specimens included in this category belong to the genus *Atriplex* sp., this cannot be absolutely determined based upon only wood charcoal characteristics.

Site LA 86737 also yielded a cob fragment of an eight-row variety and a

small number of isolated cupules. The presence of small amounts of corn from both these sites is consistent with the time period. The small amount of corn material suggests that either corn was used primarily as a supplemental food source and was not that important, or, more likely, the storage and preparation for corn was not discovered.

Faunal Remains by Brian Knight

A total of 25 bones was collected and analyzed from Site LA 86737, all of which were discovered subsurface (Tables 47 and 48). Rabbit dominates the assemblage with four specimens of black-tailed jackrabbit (*Lepus californicus*) and three specimens of desert cottontail (*Sylvilagus auduboni*). The rest of the bone assemblage consists of undiagnostic, small mammal bones. The sizes of many of these bone fragments are consistent with rabbit and, in fact, the entire assemblage may consist of these two rabbit species.

Ten of the 25 bones/bone fragments recovered from Site LA 86737 are burnt. This is interesting, considering the low number of burnt bones found in the assemblage from Site LA 86736. No butchering marks were discovered on any of these specimens; however, it is certainly possible that these represent "food bone" that has been discarded into a hearth or other fire. Many of these fragments are burnt excessively and it is highly unlikely that any natural fire (brush fire, etc.) caused this degree of burning. All of these specimens represent long bones or innominates; no cranial or mandibular fragments were discovered, lending further evidence to the notion

that these do not represent natural deaths. Once again, this assumption should be cautioned in light of site formation processes.

Table 47. Faunal Species
Represented at Site LA 86737.

Species	Total	Percentage
Rabbit (<i>Lepus californicus</i>)	4	16
Mammal	19	76
Desert cottontail (<i>Sylvilagus auduboni</i>)	<u>2</u>	8
TOTAL	25	100

Site LA 86737 has a faunal assemblage that is dominated by the presence of rabbit. From an interassemblage perspective, this is interesting because it follows the expected patterns of late prehistoric reliance on small supplemental game and historic reliance on larger, generally domesticated ungulates. Burnt materials recovered from Site LA 86737 may be the best evidence that we have of these small mammal remains representing "food bone." It is possible that these bones were discarded into the fire after consumption of the edible portions. Very few cranial fragments were found from either site, and most of the assemblage consists of appendicular portions of the skeleton and innominate fragments. Once again, these represent the portions of the animal that would provide the best food. Jackrabbit and cottontail are very high in population in this region, and it may be inferred that this was the case during the late ceramic and historic periods in the area. Unfortunately, this information provides us very little data, since it can be implied that the

Table 48. Faunal Remains from Site LA 86737.

Species	Cat. No.	Bone Type	Comments	Bone Count
Black-tailed jackrabbit (<i>Lepus californicus</i>)	331	Right distal humerus frag.	burnt	1
	332	Right distal humerus frag.		1
		Right innominate frag.	with acetabulum	1
		Right proximal ulna frag.		1
Desert cottontail (<i>Sylvilagus auduboni</i>)	337	Left tibia diaphysis frag.		1
	338	Right distal humerus frag.		1
Mammal	332	Long bone diaphysis	burnt, possibly jackrabbit	1
		Undiagnostic long bone frags.	possibly jackrabbit	4
	333	Undiagnostic long bone frag.	small mammal	1
	334	Undiagnostic long bone frag.	small mammal	1
		Undiagnostic long bone frags.	burnt, small mammal	3
	335	Undiagnostic long bone frags.	burnt, small mammal	5
	336	Undiagnostic long bone frags.	small mammal	3
	337	Undiagnostic long bone frag.	small mammal	1
TOTAL				25

high population provided greater hunting opportunities, but also provided a higher number of natural deaths. The numerous examples of appendage bones may be the result of natural predators and scavengers dispersing the skeletal remains across the landscape. Weathering is evident on many of these elements and may have obscured carnivore marks from gnawing.

Radiocarbon Dates

After species identification, one charcoal sample from Locus B was

submitted for radiocarbon dating. Radiocarbon samples from both Sites LA 86736 and LA 86737 were submitted to Beta Analytic, Inc. of Coral Gables, Florida. All dates were subjected to C13/C12 ratio corrections and extended counts. The charcoal from Site LA 86737 was a burnt corn cob of the eight-row variety.

The burnt corn cob yielded a conventional radiocarbon age of 960 ± 40 BP. At two sigmas, the calibrated radiocarbon date ranges from A.D. 1000 to 1180, with an intercept at A.D. 1030.

This date corresponds well with the early ceramic component suggested by the ceramic assemblage.

Historic Artifacts

Data recovery of the historic component at Site LA 86737 was limited to the few historic artifacts collected from the surface and subsurface during excavations at the alleged trash mound (Figure 126). These artifacts include miscellaneous metal fragments, glass fragments, bottles, and a few fragments of stoneware, leather, and shell (Table 49). Excavation units were placed in a pile of debris situated on the west side of the highway within the right-of-way. Historic debris and foundations are located outside the right-of-way west of the fence line on private property. Some of the historic artifacts may be associated with those foundations. However, the pile of debris is pushed up from within the highway right-of-way and only a few items are potentially associated with the historic foundations.

Table 49. Artifacts by Type at Site LA 86737.

Material	Total	Percent
Metal	140	71.00
Glass	49	25.60
Porcelain/ceramics	5	2.00
Leather	2	1.00
Shell	1	1.00
TOTAL	197	100.00

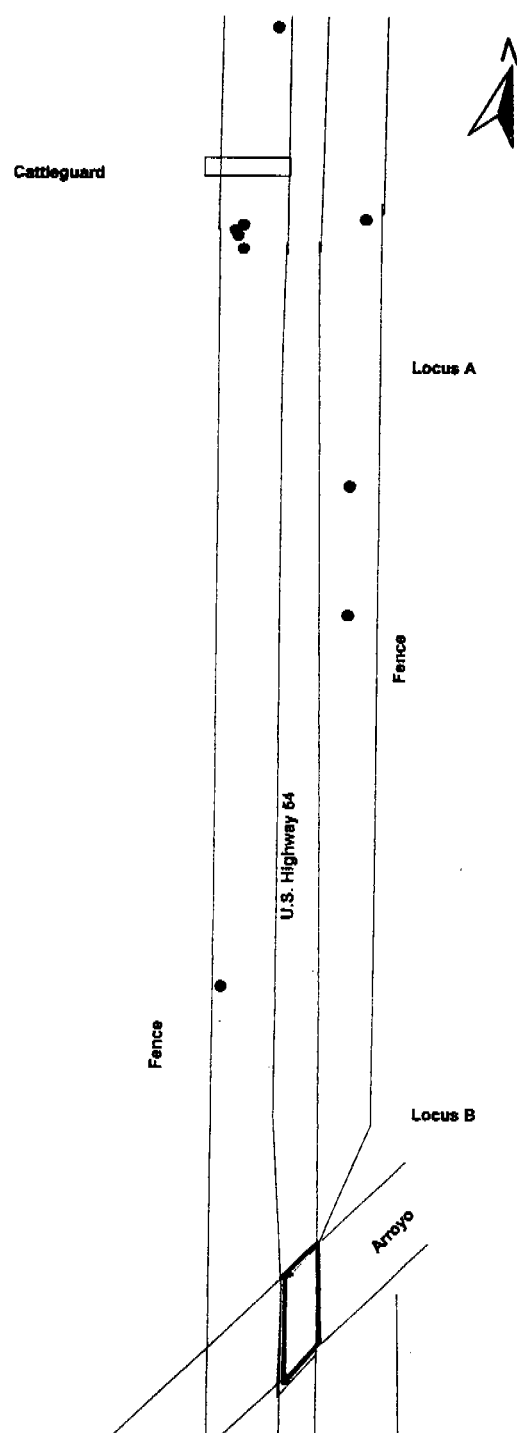


Figure 126. Distribution of historic artifacts at Site LA 86737.

Metal

Among the metal fragments are three pieces of a base to a cast-iron wood stove, a copper wire, three nails, one can opener, and 129 metal fragments. The metal key opener is the only diagnostic metal item. It is a key-and-strip opener.

The key opening device was first incorporated in 1890 (Rock 1978:10), and was commonly used on coffee cans until the 1960s. Although coffee had been packed in tin containers since 1840, it was not until 1898 that coffee was vacuum packed and opened by a key.

The fragments from the cast-iron wood stove are the only artifacts that can be clearly associated with the homestead foundations.

Glass

This category includes glass fragments, bottles, and bottle fragments. Two soft drink bottles, one Pepsi and one Dr. Pepper, were collected. The 10-oz "Sparkling Pepsi" bottle has a red and white applied color label. The process of "applied color labels" was first developed in the United States about 1920, but did not replace the embossed decorations and identification until the 1930s. The applied color label is still in use today (Munsey 1972:59).

The "Dr Pepper" 10-oz bottle has an embossed lettering and is a "no return" bottle. Dr. Pepper is the second oldest soft drink on the American market. It was developed by R. S. Lazenby in 1885, but did not become popular until 1945 (Woodruff and Phillips 1974:33).

None of the glass can be linked to the historic foundations. All of it seems to relate to the highway traffic.

Porcelain/Ceramics

These artifacts are crockery glazed stoneware fragments. There are no identifying marks and vessel form is not possible. It is quite likely that the crockery is associated with the homestead.

Leather

Two fragments of leather were recovered. Both are machine cut and could be fragments from a belt, bridle, or similar object. The association of the leather is not clear.

Discussion of Artifacts

Site LA 86737 is situated south of the Three Rivers Trading Post, site of the Three Rivers Post Office from 1900 through ca. 1975. It was named for the three mountain streams that converge in the area. The post office served the ranching community as a post office and had a small grocery business where one could pick up a few supplies. It was also a bar and dance hall for a few years.

Most of the historic artifacts from Site LA 86737 appear to be associated with that business, as well as the foundation on the west side of the fence. Some of the artifacts may even be trash thrown from vehicles traveling the highway. The stove parts, and metal, porcelain, and ceramic fragments are household-type items. It is likely that they are part of the debris from the homestead located on the west side of the fence

outside the highway right-of-way. The soft drink bottles may have been purchased at the trading post and discarded or tossed from moving automobiles.

Discussion of Site LA 86737

The prehistoric component of Site LA 86737 as recorded during data recovery is much larger than that recorded during survey. This disparity was due to the discovery of a dense concentration of prehistoric artifacts (Locus B) on the eastern side of the highway right-of-way well south of the originally defined concentration (Locus A). In contrast to Site LA 86736 (this volume), preservation of features and probably artifact provenience was very poor at Site LA 86737. As a result, only limited chronometric dating and macrobotanical information are available to support the artifact analysis. The presence of ceramics that clearly date to separate centuries makes analysis of the unstratified and featureless site all the more problematic.

The ceramic assemblage includes several ceramic types that date to the late eleventh and early twelfth centuries, as well as a number of types that date to the fourteenth century. A single radiocarbon date obtained from the apparently mixed fill of Locus B, supports the interpretation of an eleventh century component. Unfortunately, materials from both early and late components are mixed and no spatial or vertical stratification could be identified. Whether or not Site LA 86737 was continually used on at least a seasonal basis over three centuries cannot be determined.

The primary plants identified in the limited number of macrobotanical samples were mesquite and saltbush. The presence of these species suggests an environment similar to that of today. The limited presence of cottonwood and corn reflects ties to villages in nearby riparian areas.

The recovered data yielded limited insight into the function and season of the occupation. Given an environment similar to today's, it seems likely that mesquite beans, saltbush flowers, and wild grasses were the foci of the procurement activities on Site LA 86737. The ground stone assemblage, made up of local material, supports this premise. The lack of formal tools in the lithic assemblage, including projectile points, further supports the concept of a limited range of procurement activities. If these plants were the focus of activities, then late summer and early fall would have been the prime opportunity to harvest ripe mesquite beans, developed saltbush flowers, and the heads of wild grasses.

Site LA 86737 is similar to many of the sites discovered during the one systematic survey of the Three Rivers drainage (Wimberly and Rogers 1977:75). The site location away from the major drainages and the limited artifact assemblage are consistent with those ceramic period sites classified as seasonal procurement locations. The early component, like that from Site LA 86737, was undoubtedly linked to one of the numerous pithouse villages found in the general area of the Three Rivers Drainage (Human Systems Research 1973:62-64). However, the broad range of paint-decorated ceramics, representative of the

fourteenth century, suggest that the parent village for the later occupation was not far away. The fourteenth century was a time of aggregation, with larger villages concentrated on fertile slopes and well-watered drainages. Sites LA 4921 and LA 1231, located on the Three Rivers Drainage near the extensive petroglyph site, are two such locations.

The sheer numbers of painted ceramic types from the fourteenth century also reflect the widespread interaction of that period. In contrast to the preceding centuries, ceramic types were being exchanged on a broad scale and over hundreds of miles. Casas Grandes in northern Mexico is most often seen as both the nucleus and the catalyst for this broad system of exchange. Schaafsma (1979:383-388) describes the geographical range and nature of sites within the Casas Grandes sphere of influence, and it includes the Three Rivers Drainage and the northern Sacramento Mountains. It appears to be primarily a southern New Mexico system, with only moderate amounts of evidence for contact with the northern pueblos. Magdalena Black-on-white, Elmendorf Black-on-white, and the White Mountain Red Ware ceramics recovered from Site LA 86737

provide evidence of contact with the Rio Grande pueblos near Socorro and even farther to the west. Gila Polychrome was produced in southwestern New Mexico. The remainder of the Site LA 86737 ceramic assemblage reflects either local production or connections with the El Paso Phase sites to the south. The lack of Casas Grandes Polychromes can be attributed both to the seasonal function of Site LA 86737 and to its location on the edge of the Casas Grandes world.

Data recovery of the historic component at Site LA 86737 was disappointing. Limited to the few historic artifacts collected from the surface and subsurface during excavations, the preservation of the historic materials had been more severely compromised by previous disturbance than was originally thought. Archival research provided few clues as to the origins of the house foundation that are just outside the highway right-of-way. Furthermore, our ability to interview individuals who live(d) in the immediate area was compromised by their untimely demise just prior to the beginning of this project. As a result, little new data was obtained with which to interpret the historic component.

SUMMATION

The excavation and analysis of the data-recovery effort within the New Mexico State Highway and Transportation Department highway right-of-way at Sites LA 86735, LA 86736, LA 86737, and LA 120,979 has been completed. Data collected were adequate to meet the research criteria as stated in the data-recovery plan (Laumbach 2000).

The two historic sites, LA 86735 (Temporal Station) and LA 120,979 (The Clinker Site), are of very different character. Temporal Station was a habitation site with a specific function. The Clinker Site was an accumulation of brief activities across the span of use for railroad and highway. These very different sites are linked by a number of functional artifact categories that reflect life in the transient and quickly changing America during the first half of the twentieth century.

Site LA 120,979 is a scatter of discarded artifacts and piles of railroad waste. In all, these materials comprise a microcosm of the New Mexican roadways that so often parallel railroad lines, lacking only billboards and descansos (small crosses commemorating fatal accidents) to complete the picture. Beverage cans and bottles once quenched thirsty throats traveling across the Tularosa Basin. Other containers held more potent liquid and were imbibed and discarded with little regard for the potential deadly effect on either driver or fellow traveler. Lunches eaten on cold blustery days, or consumed in the heat of the desert sun, are remembered by a shard of glass and a tin container. Piles of

vitreous and heat-fractured rock testify mutely that the trains once slowed there. Other bits and pieces of metal and glass, giving little hint of their origin, tell no story other than to repeat Frank Hibben's (1961:43) observation that "man is essentially a dirty animal." The artifact scatter of the twentieth century has arguably been successful in equaling the output of all previous human experience.

Temporal Station, of more substance than the Clinker Site, tells a fine story of the American Southwest coming of age with the Industrial Revolution, of borderland economies, and of Hispanic families first encountering the American Dream and being thankful to be away from revolution-torn Mexico. This project has forever saved a little girl's memories of her father, the station master, and their life at an isolated spot in the New Mexico desert. Those memories, coupled with lovingly hoarded photographs and archival records, illuminate the rich deposit of bottles, clothes, toys, and tools that were almost miraculously located by "just one more auger hole." Together, they make Temporal Station a well-understood site in New Mexico railroad history.

The two prehistoric sites, while similar in function and size, are also of different characters. This variation in character is one of context and preservation. Site LA 86736, the "Mimbres Site" as we came to call it, even though it is not, was a joyful surprise. It was by some standards a small site, one that had been occupied for only a short period of time. What made it remarkable was the tremendous preservation of hearth

features at very shallow depths. Those features, and the charred plant remains within them, provided a time capsule for the years of occupation. The materials were not mixed with earlier and later components, and all appear to reflect a single, albeit perhaps multi-year, episode of seasonal procurement. The result was a tightly dated assemblage of perishable and non-perishable material that is rarely found at seasonal gathering locations. The fact that this episode occurred during the climax of the distant but far reaching Mimbres Culture made it all the more meaningful.

Site LA 86737, "The Late Ceramic Site", was also a seasonal procurement site. The lithic and ground stone assemblages were virtually identical to those of LA 86736. Site LA 86737 is much larger than LA 86736, but the integrity of the site had been badly compromised, not just by highway activities, but by the fact that it contained multiple prehistoric components. The resultant mixing of

materials made it very difficult to distinguish which artifacts were related to any one of the several temporal components represented by the extensive range of ceramic types. The two sites provide a cautionary case study for those cultural resource managers who, when faced with the choice, choose the larger site over the smaller one.

Beyond that, these prehistoric sites are examples of many such sites recorded in the general Three Rivers Drainage by Wimberly and Rogers (1977). These, to my knowledge, are the first of their kind to be professionally excavated. Their data sets are now available and await the researcher with opportunity to excavate comparable sites at lower and higher elevations within the drainage system. The preservation of materials at LA 86736 gives hope that one day we will have an increased understanding of cultural succession within the Three Rivers drainages as envisioned by Wimberly and Rogers so many years ago.

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APPENDICES:

Appendix A. Cultural History of the Southern Tularosa Basin

Appendix B. Soil Stratigraphy at Sites LA 86736 and LA 86737

Appendix C. Radiocarbon Analysis

Appendix D. Petrographic Analysis of Ceramics at Sites LA 86736 and LA 86737

Appendix E. Time Book for Temporal Station, March 1920

Appendix A.

CULTURAL HISTORY OF THE TULAROSA BASIN

Evidence of prehistoric occupation in the Tularosa Basin ranges from the Paleoindian period (13,500 B.P.) to abandonment (about A.D. 1400). Apachean and historic groups used the basin after about 1600. This section is intended to provide a general background. More specific information relating to the affected sites is provided in a subsequent section.

Paleoindian Period (10,000–6,000 B.C.)

Paleoindian sites (older than 7,000 years) in the Tularosa Basin are usually present on alluvial slopes below 1,525 m (5,000 ft) elevation. Paleoclimatic conditions were wetter and cooler than today's climate. The area consisted of a large savanna, or open woodlands, with heavily forested areas in the mountains. The earliest occupation, termed Clovis (10,000–9500 B.C.), is poorly represented in the Tularosa Basin, but the Folsom Complex (9500–8500 B.C.) is somewhat better represented (Meyer and Eidenbach 1996). Clovis and Folsom artifacts have been found associated with remains of the extinct mammoth and bison. Folsom sites are usually concentrated near water, possibly because of a decrease in effective moisture during that time period. Folsom hunters exploited herds of bison in the basins of southern New Mexico.

Archaic Period (6,000 B.C.–A.D. 200)

After the Ice Age, starting about 7,500 years ago, the bison essentially disappeared. Climatic conditions are suspected to have been drier than that of the previous period. Nomads turned more and more to plants for food, which required moving seasonally to take advantage of plant availability. During the Archaic period, the inhabitants of the area used tools such as stone knives and scrapers and broad, flat rocks that were used as grinding stones for plant foods. They did not build permanent structures to live in, nor did they manufacture pottery.

Formative Period (A.D. 200–1400)

The Formative period is considered to be the advent of the use of ceramics. Small pottery-producing pithouse settlements, identified as the Mesilla phase of the Jornada Mogollon (A.D. 200–1100) were established at the mouths of canyons and on the highest alluvial terraces along the margins of the basin floor, where both dry-land and flood-land agriculture were feasible. The Doña Ana phase of this period (A.D. 1100–1200) brought settlements consisting of pithouses and surface structures of adobe. The El Paso phase (A.D. 1200–1400) is the latest and most well-documented prehistoric occupation in the southern portion of the Tularosa Basin (Meyer and Eidenbach 1996). Settlements of this phase include large adobe pueblo villages, with special ceremonial structures (Marshall 1973) and rock art motifs (Schaafsma 1979). An increased dependence on agriculture was probably brought on by drought conditions about 1,500

years ago (A.D. 500–700). With a more sedentary occupation of the basins and valleys, the political, social, and cultural aspects of community living became more complex. A massive reorganization in the distribution of human populations occurred in the Southwest during the century following A.D. 1300. By A.D. 1400, the Tularosa Basin and adjacent areas seem to have been largely abandoned by sedentary agriculturists. There is some speculation that the more complex social, political, and cultural aspects of community living drove people out of the pueblos and back into a simpler nomadic life that depended upon hunting and gathering wild native animals and plants.

Historic Period

No evidence indicates that hostile Athabascan-speaking groups forced the abandonment of agricultural villages before A.D. 1400. By the time of Spanish colonization in the mid-seventeenth century, nomadic groups of Athabascans were apparently well established in the area. The Mescalero Apache, to the northeast of the Tularosa Basin, are descendants of Athabascan speakers encountered by the Spanish.

In 1541, Francisco Vasquez de Coronado crossed New Mexico and moved his army to the Pecos River in preparation for the expedition to Quivira (Tainter and Levine 1987). It was 40 years later when Spaniards reentered New Mexico to colonize the area. These efforts continued until the Pueblo Revolt in 1680. There was infrequent trading between the Spanish and the Apache during the 1600s and 1700s.

Around 1700, the Comanche came from the north and east into New Mexico and began raiding Spanish settlements. A Spanish defeat of the Comanche in 1778 led the way for a Comanche peace, which, in turn, encouraged the beginning of the Comanchero trade, but raids resumed during the Mexican and American periods.

With fear of invasion, New Mexico was closed to foreign traders during the Spanish period. The Comanche were encouraged to prevent Americans from entering the Southwest. In 1821, when Mexico gained independence from Spain, the Mexican government was eager to trade with the United States.

During the late 1860s, the Three Rivers area was sparsely colonized by people subsisting off the land (Wimberly and Rogers 1977:458). By the 1880s, substantial cattle ranches were developing. However, the introduction of the railroad in 1898 opened the basin to economic and population growth.

Ranching, Homesteading, and the Railroad

In 1878, the first Santa Fe Railroad locomotive entered New Mexico under the charter of the New Mexico and Southern Pacific Company, after overcoming the physical barrier of Raton Pass and a small railroad war with the Denver and Rio Grande Railroad (D&RG) for right-of-way through the pass. By September 1879, the line was moving through the Raton tunnel on its southward destination to El Paso, Texas (Williams 1986:123). The Santa Fe eventually linked New Mexico to the Pacific

and the Midwest, and was the only rail system to completely traverse the state in both north-south and east-west directions.

The second railroad to enter the territory was the Southern Pacific, which proceeded southeastward from San Francisco, California, through southern Arizona to El Paso, Texas. In October 1880, the Southern Pacific reached Lordsburg, New Mexico, and entered El Paso by April 1891, a month before the Santa Fe did (May 1881).

Temporal was located on the El Paso and Northeastern Railway, which began in 1888 as the Kansas City, El Paso, and Mexican Railway (KCEP&M). However, construction stopped after the first 10 mi and did not resume until Charles Eddy bought the KCEP&M in 1896. Since coal was in high demand and the cheapest coal was in White Oaks, New Mexico (150 mi north of El Paso), the line was built to supply that demand (Wilmer and Ackerly 1990:6). A disagreement between the railway and the citizens of White Oaks caused the line to end at Capitan, New Mexico. By 1908, the El Paso and Northeastern Railway had become part of the Southwestern Railroad Company's eastern division, consisting of 405 mi of rail from El Paso, Texas, to Santa Rosa, New Mexico, and from Tucumcari to Dawson, New Mexico (Wilmer and Ackerly 1990:6).

Peak main-line mileage in New Mexico occurred around 1914 (3,124 mi). An extensive abandonment of unprofitable lines began in 1925 and continued through the Depression years (1930s), when Southern Pacific discontinued service on all connections between the former El Paso and Southwestern route and its existing main line through Deming (Williams 1986:125). When oil replaced coal as engine fuel after World War II, many rail lines leading to coal fields were vacated. Small railroad/ranching communities like Temporal lost status as water stops needed by the railroad coal engine.

The history of coal dates back to fourteenth-century pueblos, with records of the Spanish using coal as a fuel in the eighteenth century. Coal production became important in the late 1800s and the early 1900s because of the railroad. All but a few small operations out of the 200 underground coal mines in New Mexico were connected to the railroad (Williams 1986:283). In addition to being used as engine fuel, coal was hauled all over the state and beyond by the railroad. The demand for coal reached its peak in 1917-1918, but declined dramatically during the Depression and never regained its prominence as a fuel.

Not only did the railroad use and haul coal, it also provided transportation for livestock and people. The abandoned agricultural lands of the prehistoric inhabitants of the Tularosa Basin had been partially resettled by ranchers who grazed sheep, angora goats, and cattle. Under the Homestead Act of 1862, homesteads were purchased for a minimum of \$1.25 per acre and established to control permanent water sources and productive agricultural and grazing lands. The Act required that water had to be available on lands where homesteads were to be established. Vast acreage between water holes was available for grazing livestock free of charge, and livestock ranged

openly as far and as wide as owners could maintain control. Settlements at the mouths of well-watered canyons would eventually thrive in the Sacramento Mountains. The nearest settlements to the project area were established on the Three Rivers and Tularosa drainages.

Although sheep, cattle, and horses had been in New Mexico for at least two centuries, the railroad was instrumental in the growth of sheep and cattle ranching. With the investment in breed stock and the growth of sheep herds, merchants began to develop wool-scouring mills at some of the towns serviced by railroads (Williams 1986:120). Although the sheep population far exceeded that of cattle (an estimated 4 million head of sheep to 350,000 head of cattle) in 1880, the railroad spurred an explosive growth of the cattle industry and, by 1888, the cattle population had increased to about 1.25 million, compared to an estimated sheep count of 3.5 million (Williams 1986:120). Large cattle empires spread throughout the eastern half of New Mexico and cattle began to dominate the livestock market. Stock towns and shipping places, such as Valmont and Oscura, were developed along the railroad.

Cattle ranching required more range space per head than did sheep. When herds increased, conflicts over water and rangeland escalated. History recounts the adventures and misadventures of cowhands turned outlaws and rustlers who used the gun to resolve struggles over water and rangeland (Sonnichsen 1980). However, by 1900, ranching and rangeland began to dwindle, grasslands became public domain, homesteaders had moved in from neighboring states, and barbed wire began to surround new and smaller ranches. The huge cattle empires became another piece of history (Williams 1986:122).

As the new Public Land laws took effect and open ranging of livestock began to slowly disappear, the development of mining and timber economy and construction of railroads and other communication and transportation systems arose. In 1934, the leasing of specific tracts of public lands to individuals brought an end to free grazing and was the first major step in the shift to a cash-based economy. Economic problems and the drought years of the 1930s combined to further disturb the early settlement pattern of homesteads and ranches.

Finally the switch to diesel engines ended the use of coal for fuel. Smaller ranches with less livestock to ship and improved highways that allowed trucking of livestock proclaimed the expiration of the railroad-ranching community.

Military Period

In the late 1930s, the United States government began to set aside vast tracts of land in the central and western portions of the Tularosa Basin. By the end of the 1940s, these tracts were designated for defense-systems testing as part of present-day White Sands Missile Range and Holloman Air Force Base.

In 1941, development began within the present-day boundaries of Holloman Air Force Base, with the construction of the Alamogordo Bombing and Gunnery Range. The post was originally intended as a training site for the British Overseas Training Program, but it was elevated to army air base status as Alamogordo Army Air Field in 1942 (Meyer and Eidenbach 1996). Currently, Holloman Air Force Base is headquarters for the 49th Fighter Wing, Air Combat Command, and supports a variety of Air Force, Department of Defense, and Army tenant organizations (Eidenbach and Wessel 1994; Mattson and Tagg 1995).

White Sands Missile Range (portions originally established in 1945 as White Sands Proving Ground) rose to early prominence as the site for research and development of the nation's first guided missiles, which responded to and fueled the growing tensions of the Cold War (1946-1989). A large portion of the Tularosa Basin was designated as part of White Sands Proving Ground and the land was officially transferred to the U.S. Army in 1952. From its onset, White Sands was a multiservice facility with an international flavor. Today's nearly 4,000-m² range was formed from earlier World War II bombing and gunnery ranges and subsumes several other agencies' properties within its boundaries. In partnership with the U.S. Navy on post and neighboring Holloman Air Force Base, White Sands was the scene of pioneering efforts in missile-systems testing, space biology, guidance, telemetry, meteorology, and atmospheric science, which allowed the United States to leap beyond the narrow constraints of the military Arms Race toward the stars (Eidenbach et al. 1996).

Appendix B.

SOIL STRATIGRAPHY AT SITES LA 86736 AND LA 86737.

The following section describes soil stratigraphy at both of the prehistoric sites, LA 86736 and LA 86737. Extensive trenching and unit excavations were conducted at these sites, enabling a rather detailed view of the soil profiles that occurred in different areas throughout the sites. Descriptions are given for the areas where a noticeable stratigraphic pattern occurred, and for these areas corresponding profile diagrams are provided (Figure B-1). The profile diagrams then, represent the overall soil stratigraphic pattern that occurred at a given location within the study area.

Profile A

Profile A depicts the soil stratigraphy from Trench 5, and excavation Units 660N/992E, 660N/996E, 660N/997E, 660E/998E, 660E/999E, 661N/996E, 661N/998E, 661N/999E, 662N/992E, 662N/997E, 662N/998E, and 665.5N/ 993.5E at Site LA 86736. The profile represents the stratigraphy within Locus A, 10 m south of the northern site boundary.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 40 cm. It was at this level that Features 1, 2, 3, and 4 occurred.

Profile B

Profile B depicts the soil stratigraphy from Trenches 4 and 6 at Site LA 86736. The profile represents the stratigraphy at the northern end of the site on the west side of the highway (Trench 6 extends 3 m north of the site boundary).

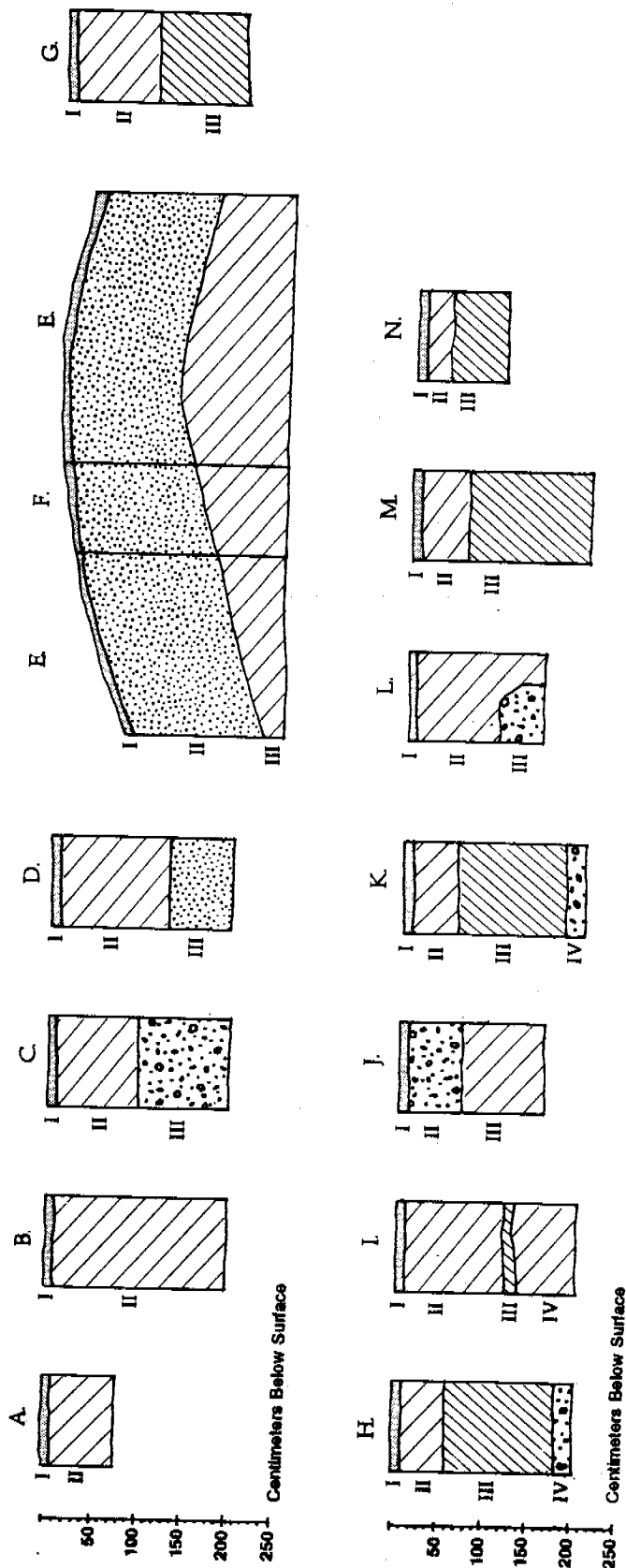
Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 1 m.

Profile C

Profile C depicts the soil stratigraphy from Trenches 2 and 3 at Site LA 86736. The profile represents the stratigraphy in an area that covers the middle and southern end of the site on the west side of the highway.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.



LA 86736, A - D
LA 86737, E - N
HSR 9946

Profiles of Soil Stratigraphy

RUM/SLE

Figure B-1. Profiles of Soil Stratigraphy at Sites LA 86736 and LA 86737.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 50 cm.

Level III consisted of a loosely compacted, silty sand with a high density of gravels, pebbles, and water-worn cobbles to a depth of 1 m.

Profile D

Profile D depicts that soil stratigraphy from Trenches 7-11, and for excavation Units 521N/998E, 521N/999E, 522N/998E, 522N/999E, 522N/1000E, 523N/995E, 523N/996E, 523N/997E, 523N/998E, 523N/999E, 524N/995E, 524N, 996E, 524N/998E, 524N/999E, 524N/1000E, and 525N/999E at Site LA 86736. The profile represents the stratigraphy from within Locus B, 50 m north of the southern site boundary.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 65 cm.

Level III consisted of a moderately compacted sandy loam to a depth of 1 m.

Profiles E and F

Profiles E and F depict that soil stratigraphy from Trenches 11, 12, and 13 at Site LA 86737. These trenches were placed on top of a mounded dune, 200 m south of the northern site boundary on the east side of the highway. A 2.5-m long profile is given to show the slope of the dune, and sloping of the stratigraphy below the surface. Profile E represents the stratigraphy at the southern end of the dune where Trench 11 ended. Profile F represents the stratigraphy where Trench 12 intersects with Trench 11.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted sandy loam that constituted the upper portion of the dune to an average depth of 80 cm below the top of the dune.

Level III consisted of a moderately compacted, silty sandy loam to a depth of 1.25 m.

Profile G

Profile G depicts the soil stratigraphy from Trenches 9 and 10 at Site LA 86737. The profile represents the stratigraphy from an area in the middle of the site on the west side of the highway.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 50 cm.

Level III consisted of a highly compacted, silty clay loam to a depth of 1 m.

Profile H

Profile H depicts the soil stratigraphy from Trench 8, 25 m south of Trenches 9 and 10 at Site LA 86737. The profile represents a discontinuation of the stratigraphy depicted in Profile G.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level 2 consisted of a moderately compacted, silty sandy loam to a depth of 30 cm.

Level 3 consisted of a loosely compacted silty sand with a high density of gravels, and water-worn cobbles.

Profile I

Profile I depicts the soil stratigraphy from Trench 4 at Site LA 86737. The profile represents the stratigraphy from an area 5 m north of an old stream bed in the middle of the site on the east side of the highway.

Level I consisted of a moderately compacted, silty sandy loam to a depth of 60 cm.

Level II consisted of a 7-cm thick layer of loosely to moderately compacted sand that continued through the length of the trench.

Level III consisted of the same soil as in Level I, a moderately compacted, silty sandy loam, that continued to a depth of 1 m.

Profile J

Profile J depicts the soil stratigraphy from Trench 3 at Site LA 86737. The profile represents the stratigraphy from an area that is on the east side of the highway within an old stream bed.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a loosely compacted silty sand with a high density of gravels and water-worn cobbles to a depth of 35 cm.

Level III consisted of a moderately compacted, silty sandy loam to a depth of 80 cm.

Profile K

Profile K depicts the soil stratigraphy from Trench 7 at Site LA 86737. The profile represents the stratigraphy from an area on the west side of the highway that is situated between two old stream beds.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 30 cm.

Level III consisted of a highly compacted, silty sandy loam to a depth of 90 cm.

Level IV consisted of a loosely compacted silty sand with a high density of gravels, pebbles, and water-worn rocks.

Profile L

Profile L depicts the soil stratigraphy from Trench 1 and excavation Units 300N/988E and 307N/988E at Site LA 86737. The profile represents the stratigraphy from an area on the east side of the highway that is 10 m south of an old stream bed.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 1 m.

Level III consisted of a loosely compacted silty sand with a high density of gravels and pebbles. This level was not continuous throughout the whole length of the trench. It was an isolated pocket of soil that was 2.5 m long, beginning at a depth of 50 cm.

Profile M

Profile M depicts the soil stratigraphy from Trench 6 and excavation Unit 260N/955E at Site LA 86737. The profile represents the stratigraphy from an area on the west side of the highway that is 10 m south of an old stream bed.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 30 cm.

Level III consisted of a highly compacted, silty sandy loam to a depth of 1 m.

Profile N

Profile N depicts the soil stratigraphy from excavation Units 250N/989E, 250N/992E, 252N/988E, 253N/991E, 253N/992, 255N/991E, and 255N/992E at Site LA 86737. The profile represents the stratigraphy from within Locus B on the east side of the highway that is 10 m north of a modern drainage.

Level I consisted of the loose blow sand that occurred on the surface to an average depth of 5 cm.

Level II consisted of a moderately compacted, silty sandy loam to a depth of 20 cm.

Level III consisted of a highly compacted, silty sandy loam to a depth of 50 cm.

APPENDIX C.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-22.9;lab. mult=1)

Laboratory number: 149239 LA 86736, Feature 7, mesquite

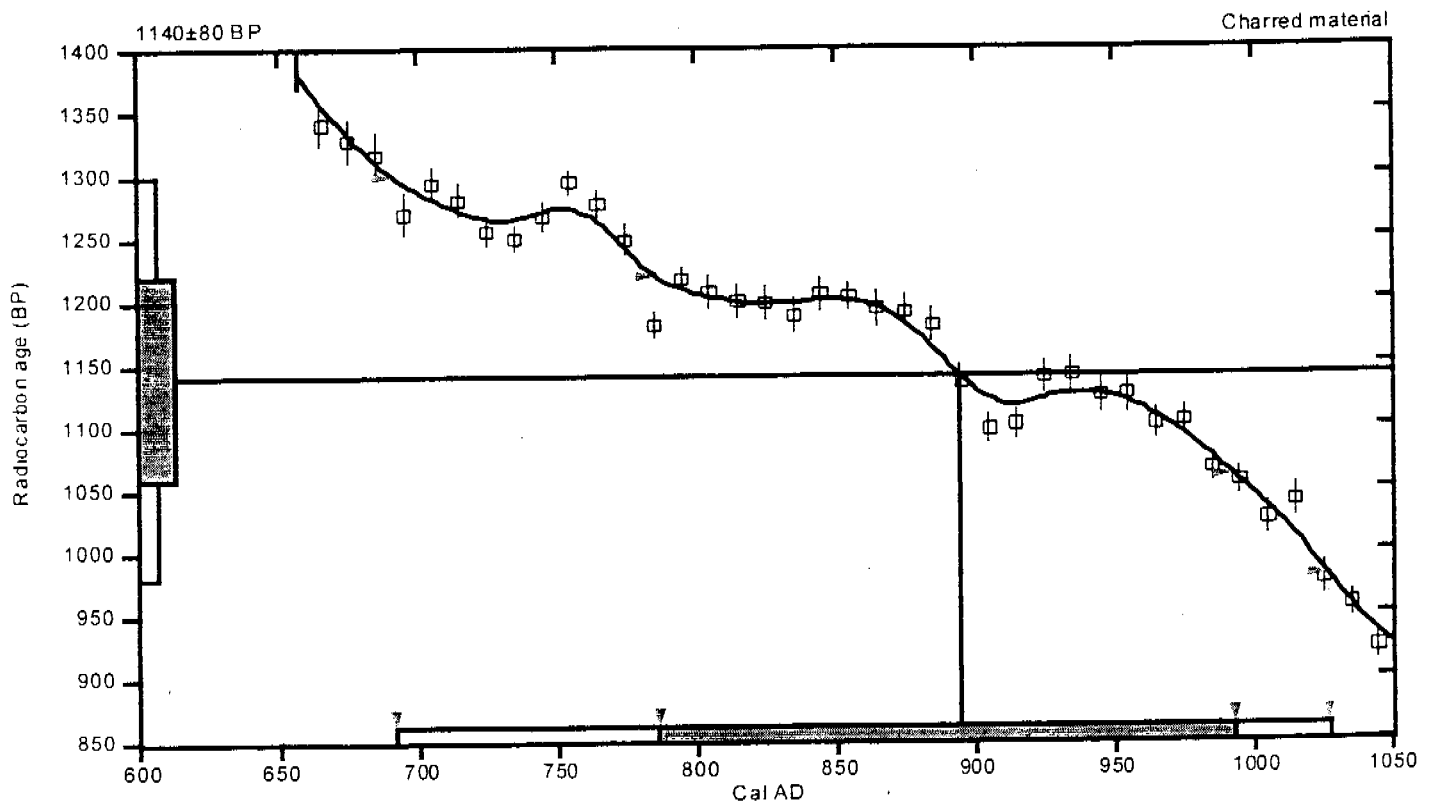
Conventional radiocarbon age: 1140±80 BP

2 Sigma calibrated result: Cal AD 690 to 1030 (Cal BP 1260 to 920)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 900 (Cal BP 1060)

1 Sigma calibrated result: Cal AD 790 to 990 (Cal BP 1160 to 960)
(68% probability)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-11.9;lab. mult=1)

Laboratory number: 149240 LA 86736, Feature 2, saltbush

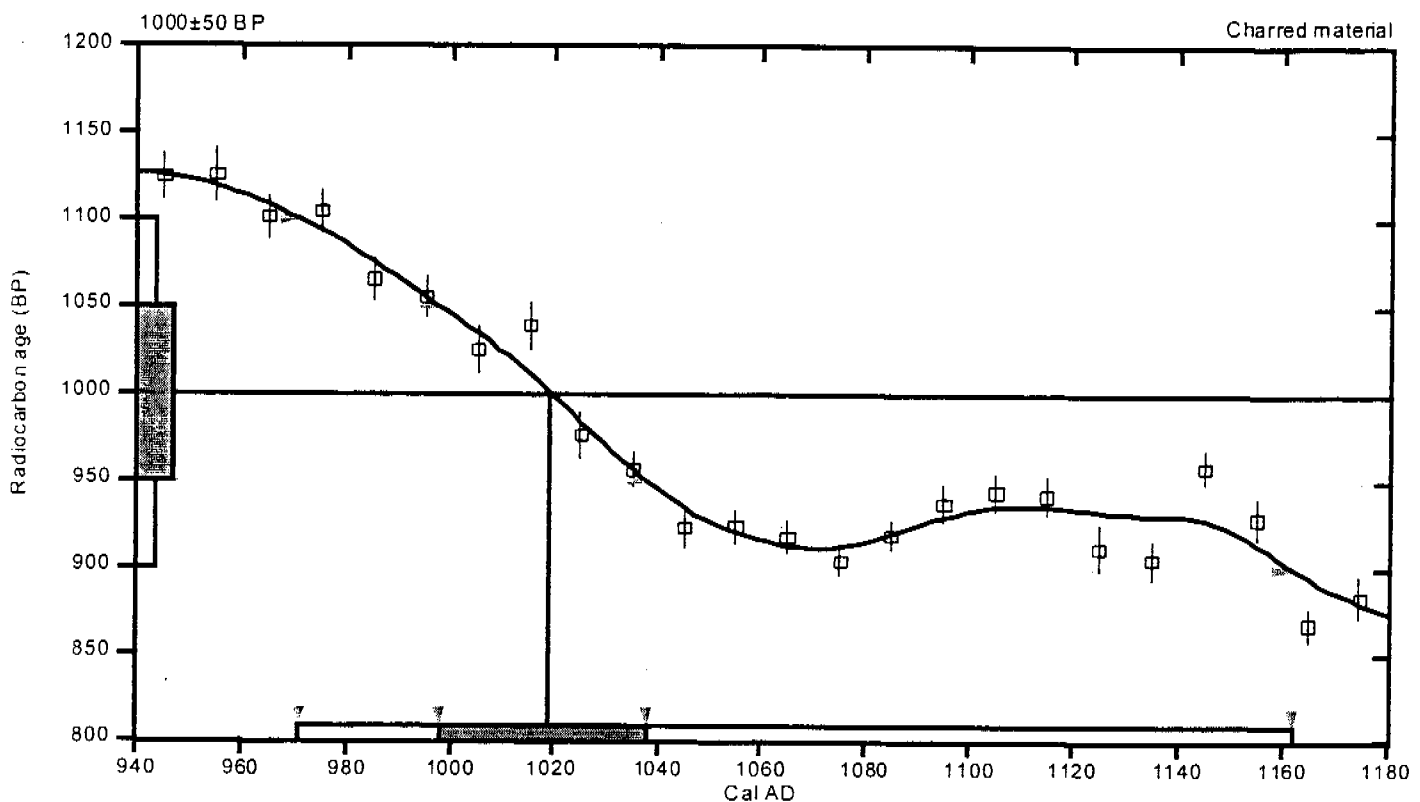
Conventional radiocarbon age: 1000 ± 50 BP

2 Sigma calibrated result: Cal AD 970 to 1160 (Cal BP 980 to 790)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1020 (Cal BP 930)

1 Sigma calibrated result: Cal AD 1000 to 1040 (Cal BP 950 to 910)
(68% probability)



References:

Database used

Calibration Database
Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-12.3:lab. mult=1)

Laboratory number: 149241 LA 86736, Feature 2, mesquite

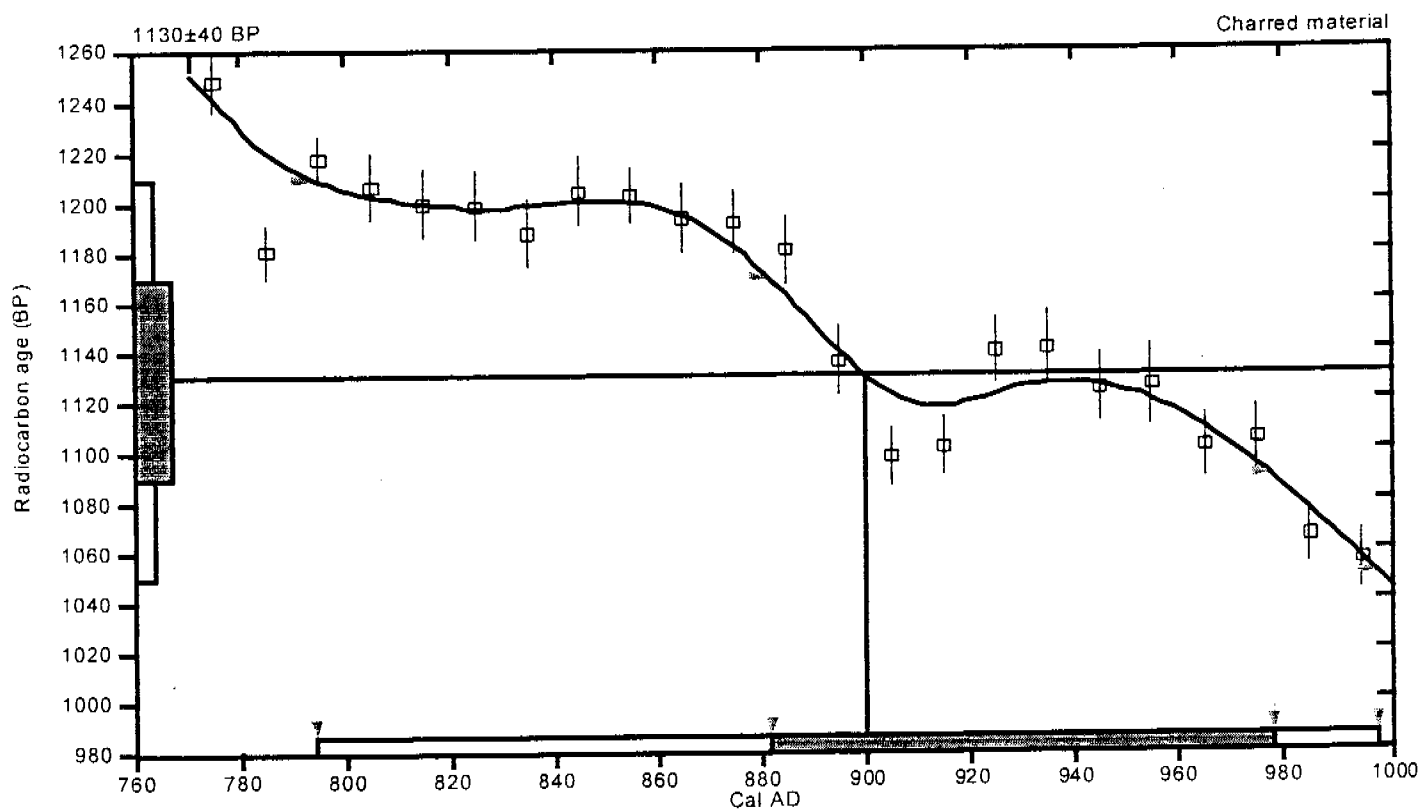
Conventional radiocarbon age: 1130±40 BP

2 Sigma calibrated result: Cal AD 790 to 1000 (Cal BP 1160 to 950)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 900 (Cal BP 1050)

1 Sigma calibrated result: Cal AD 880 to 980 (Cal BP 1070 to 970)
(68% probability)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, *Radiocarbon* 40(3), pxi-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et al., 1998, *Radiocarbon* 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-23.1;lab. mult=1)

Laboratory number: 149242 LA 86736, Feature 5, mesquite

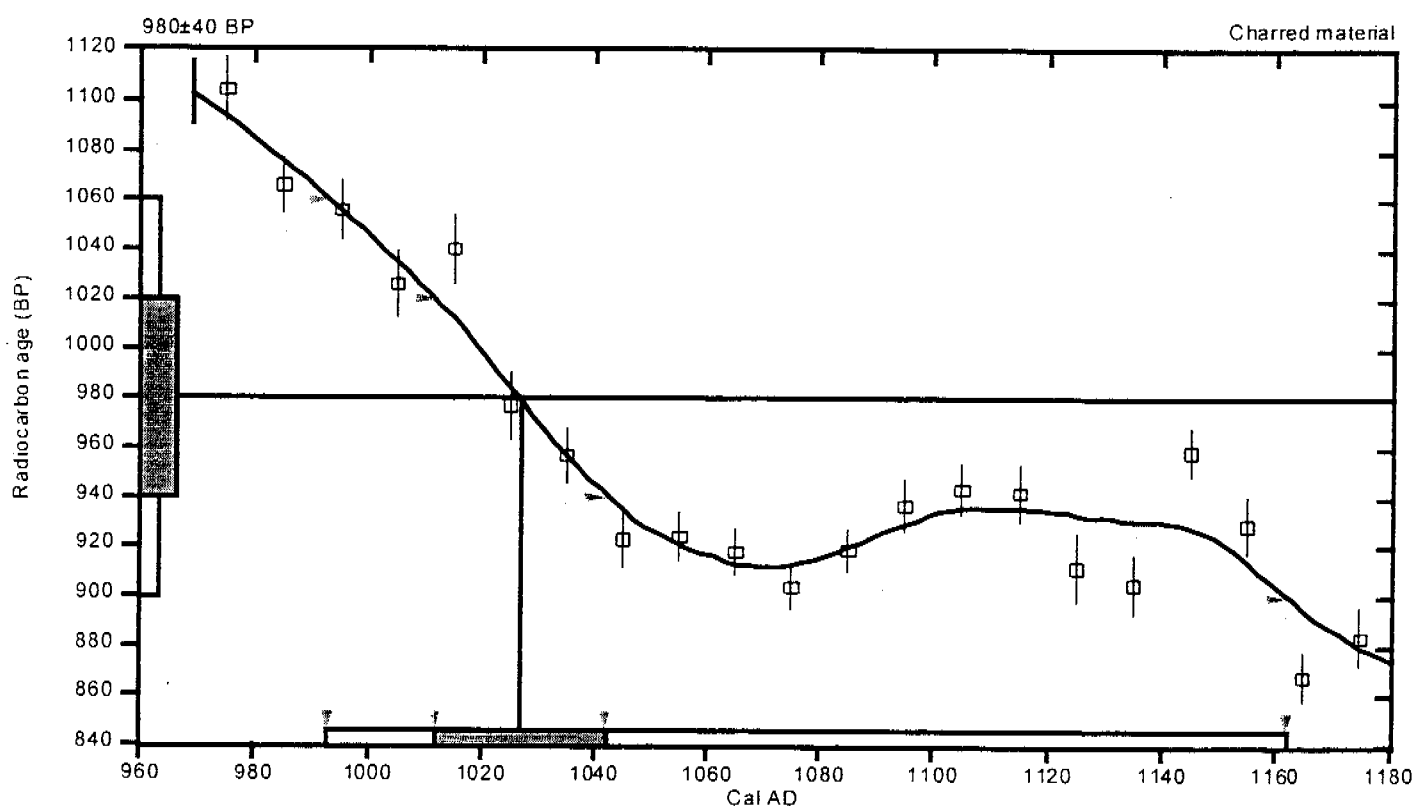
Conventional radiocarbon age: 980 ± 40 BP

2 Sigma calibrated result: Cal AD 990 to 1160 (Cal BP 960 to 790)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1030 (Cal BP 920)

1 Sigma calibrated result: Cal AD 1010 to 1040 (Cal BP 940 to 910)
(68% probability)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-10.5;lab. mult=1)

Laboratory number: 149243 LA 86736, Feature 9, corn

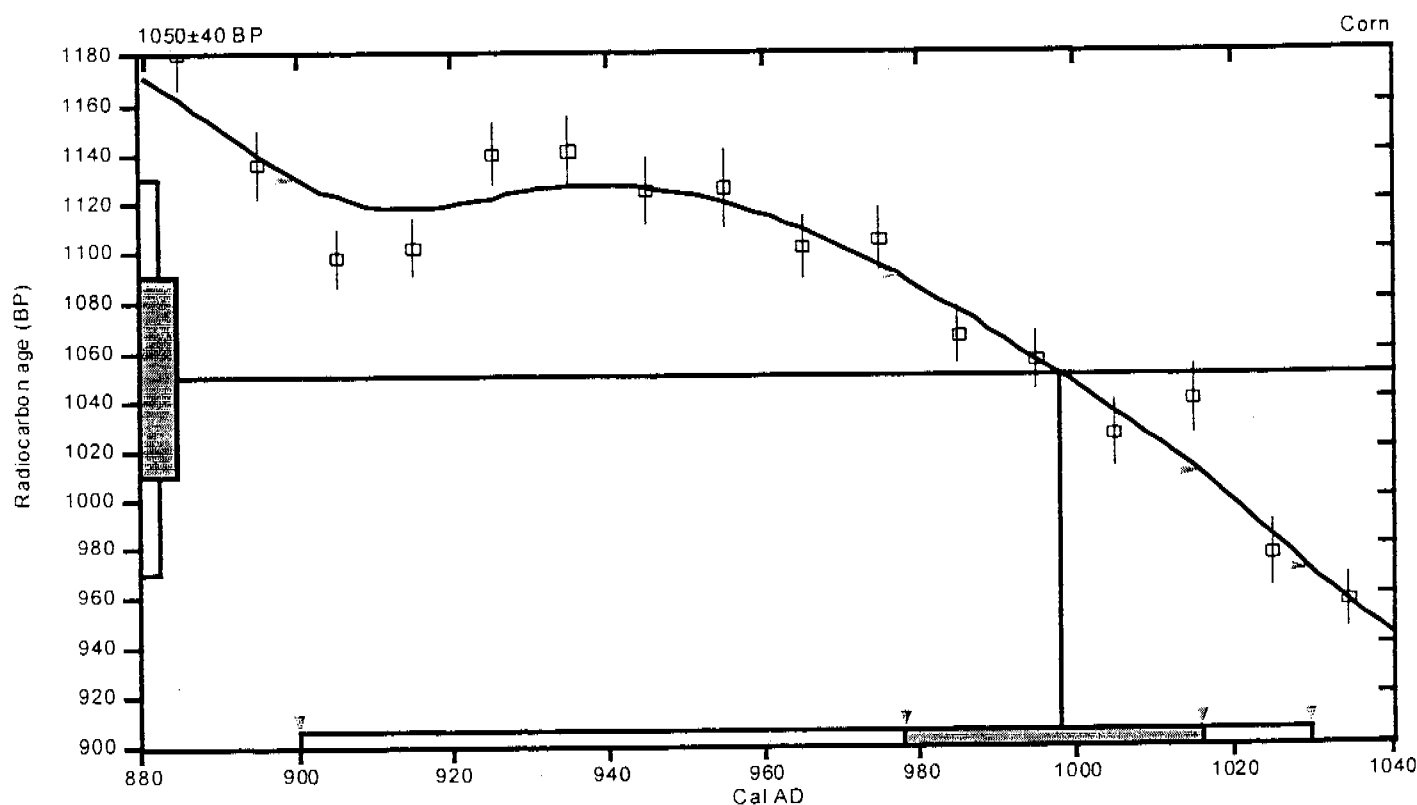
Conventional radiocarbon age: 1050±40 BP

2 Sigma calibrated result: Cal AD 900 to 1030 (Cal BP 1050 to 920)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1000 (Cal BP 950)

1 Sigma calibrated result: Cal AD 980 to 1020 (Cal BP 970 to 930)
(68% probability)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.9;lab. mult=1)

Laboratory number: 149244 LA 86736, Feature 9, mesquite

Conventional radiocarbon age: 1270±80 BP

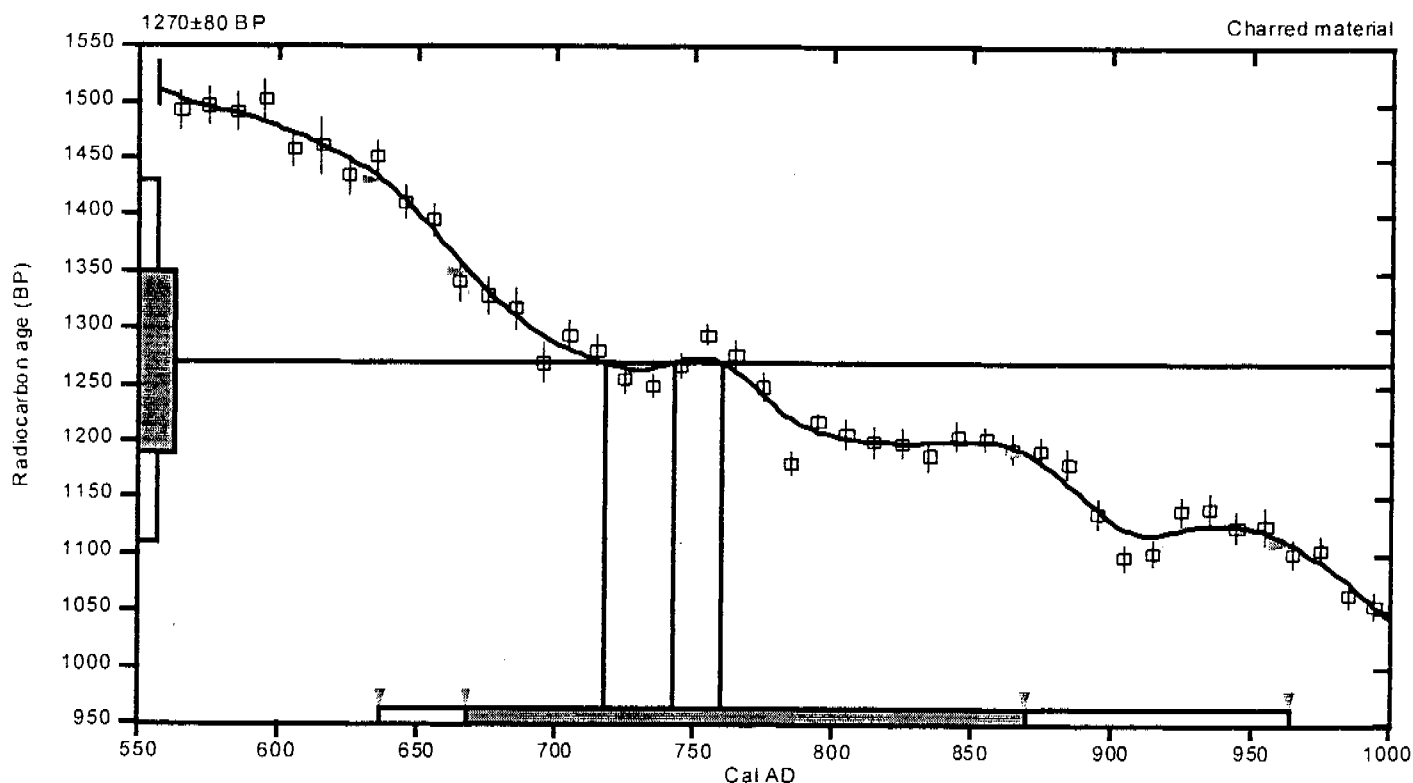
2 Sigma calibrated result: Cal AD 640 to 960 (Cal BP 1310 to 990)
(95% probability)

Intercept data

Intercepts of radiocarbon age
with calibration curve:

Cal AD 720 (Cal BP 1230) and
Cal AD 740 (Cal BP 1210) and
Cal AD 760 (Cal BP 1190)

1 Sigma calibrated result: Cal AD 670 to 870 (Cal BP 1280 to 1080)
(68% probability)



References:

Database used

Calibration Database Editorial Comment

Stuiver, M., van der Plicht, H., 1998, *Radiocarbon* 40(3), pxii-xlii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, *Radiocarbon* 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-11;lab. mult=1)

Laboratory number: 149245 LA 86736, Feature 1, mixed, saltbush/mesquite

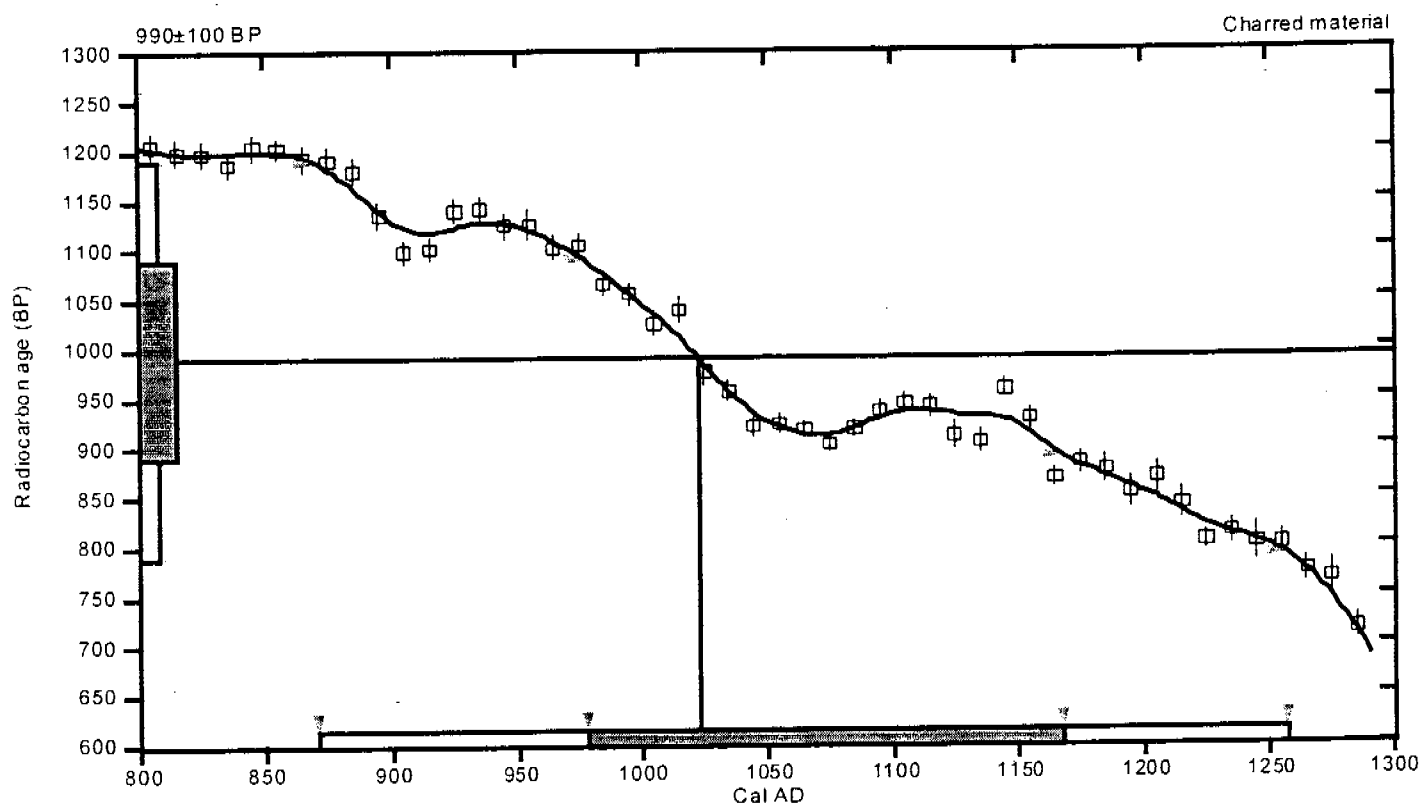
Conventional radiocarbon age: 990±100 BP

2 Sigma calibrated result: Cal AD 870 to 1260 (Cal BP 1080 to 690)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1020 (Cal BP 930)

1 Sigma calibrated result: Cal AD 980 to 1170 (Cal BP 970 to 780)
(68% probability)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, *Radiocarbon* 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, *Radiocarbon* 40(3), p1041-1083

Mathematics

A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

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CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-11;lab.mult=1)

Laboratory number: 149246 LA 86737, corn

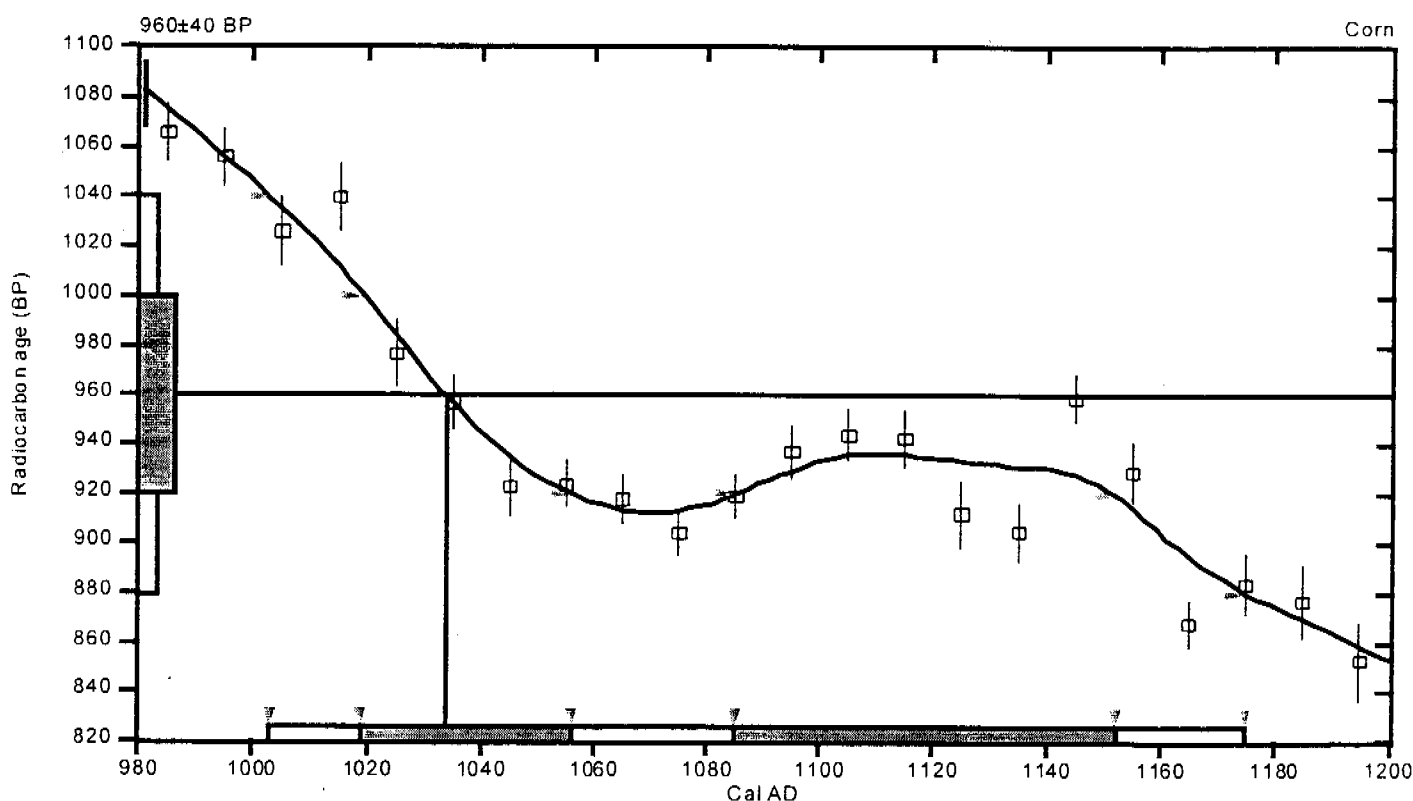
Conventional radiocarbon age: 960 ± 40 BP

2 Sigma calibrated result: Cal AD 1000 to 1180 (Cal BP 950 to 780)
(95% probability)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1030 (Cal BP 920)

1 Sigma calibrated results: Cal AD 1020 to 1060 (Cal BP 930 to 890) and
(68% probability) Cal AD 1080 to 1150 (Cal BP 860 to 800)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, *Radiocarbon* 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, *Radiocarbon* 40(3), p1041-1083

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A Simplified Approach to Calibrating C14 Dates

Talma, A. S., Vogel, J. C., 1993, *Radiocarbon* 35(2), p317-322

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APPENDIX D.

PETROGRAPHIC ANALYSIS OF CERAMICS FROM TWO PREHISTORIC SITES LOCATED IN NEAR THREE RIVERS, NEW MEXICO

David V. Hill

INTRODUCTION

A sample of seventeen ceramic sherds were examined through petrographic analysis. The sherds were recovered from two prehistoric sites located in southern New Mexico. The sites, LA 86736 and LA 86737 are located about two miles apart just south of Three Rivers, New Mexico.

METHODOLOGY

The ceramics were analyzed by the author using a Nikon Optiphot-2 petrographic microscope. The sizes of the inclusions present in the paste are described in terms of the Wentworth Scale, a standard method for characterizing particle sizes in sedimentology. The particle sizes were derived from measuring a series of ten grains using a graduated reticle built into one of the microscopes optics. The percentages of inclusions observed in the ceramic paste of the ceramic samples were estimated using comparative charts (Matthew et al. 1991; Terry and Chilingar 1955). Given the diversity of the inclusions that are present in ceramics, the comparative method for assessing the amount and size of materials found in ceramics has been found as useful for archaeological ceramic petrography as point counting (Mason 1995). Ideally, petrographic analysis should take be conducted in conjunction with chemical analysis such as ICP-MS or INAA for characterization of the ceramic pastes.

Analysis was conducted by examining the seventeen thin-sections and generating a brief description for each of the sherds. A second phase of analysis consisted of the comparison of the ceramics from each of the five sites with one another to examine the paste variability represented within the ceramic sample from each site. Additional comments about the composition of individual sherds were made at this time. All of the ceramic samples were then compared with one another and with published descriptions of the surface geology of the area where the site was located.

ANALYSIS OF THE CERAMIC COLLECTION

LA 86736

226 Mimbres Classic Black-on-white

The paste of this sherd is a medium brown color. The paste contains isolated mineral grains and fragments of volcanic rock. The isolated mineral grains make up about 35% of the ceramic matrix. These mineral grains range continuously in size from silt-sized to medium sized. The volcanic rock fragments and mineral grains are angular to sub-angular in shape. A few coarse sized mineral grains are also present. The larger mineral grains are usually components of fragments of volcanic rock. The mineral grains consists primarily of sanidine. Trace amounts of quartz and plagioclase are also present in the ceramic body. The feldspars appear unweathered.

The volcanic rock fragments make up about 10% of the ceramic matrix. The volcanic rock fragments range from fine to coarse in size. The volcanic rock fragments are characterized as having an aphanitic to microcrystalline groundmass. Some of the volcanic rock fragments display spherulitic texture. The volcanic rock fragments appear slightly weathered to clay minerals presenting a clouded appearance. The color of the volcanic rocks does not contrast with the color of the ceramic clay. Sanidine is commonly observed porphyritically within the rock fragments. Quartz, often embayed, is present in a trace amount in the volcanic rock fragments.

36 Mimbres Classic Black-on-white

The paste of this sherd is medium gray color. The paste contains isolated mineral grains and fragments of volcanic rock. The isolated mineral grains and rock fragments are rounded to sub-rounded in shape, indicative of the use of sands from a volcanic source as the tempering agent in this sherd. The isolated mineral grains fall into two size groups based on size. About 3% of the isolated mineral grains fall within the silt to fine size range. An additional 7% of the isolated mineral grains are medium sized. Sanidine is the most common mineral. Quartz and plagioclase are also present, but in a trace amount. Sparse silt-sized black opaque inclusions are also present in the gray paste.

The assemblage of volcanic rocks is highly variable in terms of composition. The rock fragments make up an additional 10% of the ceramic paste. The rock fragments are medium sized. The most common type of volcanic rock has an aphanitic to cryptocrystalline groundmass and frequently contains sanidine porphyritically. A few of volcanic rock fragments contain brown biotite that has weathered to hematite and clay minerals, resulting in black opaque spots surrounded by reddish brown staining. Some of these rock fragments display slight weathering. A few of the volcanic rocks inclusions display spherulitic texture.

Also, present in the paste are fragments of fine grained basalt. The basalt grains make up an additional 3% of the ceramic body. The basalt is characterized by laths of andesine plagioclase exhibiting a trachytic texture. A few magnetite cubes are also present in the basalt. The magnetite is usually surrounded by a reddish brown halo resulting from the weathering of the grains.

124 Mimbres Classic Black-on-white

The paste of this sample is quite similar to that of Sample #36, both in terms of having a gray colored paste and containing sands made up of fragments of light colored volcanic rock fragments and isolated mineral grains, predominantly sanidine. The isolated mineral grains fall into two size groups based on size. About 7% of the isolated mineral grains fall within the silt-sized to fine range. An additional 5% of the isolated mineral grains are medium sized. Sanidine is the most common isolated mineral grain. Quartz and plagioclase are also present, but in a trace amount. Sparse silt-sized black opaque inclusions are also present in the gray paste. Two blue-green pyroxenes are also present in the paste of this specimen.

The assemblage of volcanic rocks is compositionally variable. The volcanic rock fragments make up an additional 7% of the ceramic paste. The rock fragments are medium sized. The most common type of volcanic rock has a glassy to aphanitic groundmass and frequently contains sanidine

porphyritically. A few of volcanic rock fragments contain brown biotite that has weathered to hematite and clay minerals, resulting in the presence of black opaque spots surrounded by reddish brown staining. Some of these rock fragments display slight weathering. A few of the glassy inclusions display spherulitic texture. Brown biotite is present in the groundmass of one of the fragments of light colored volcanic rock.

Also present in the paste are fragments of fine grained basalt. The basalt grains make up an additional 3% of the ceramic body. The basalt is characterized by laths of andesine plagioclase exhibiting a trachytic texture. Magnetite cubes are present in the basalt grains. The magnetite is usually surrounded by a reddish brown halo resulting from weathering of the grains.

125 Mimbres Classic Black-on-white

The paste of this sherd is a dark brown and is slightly birefringent. The paste of this sherd contains angular to sub-angular mineral grains and fragments of volcanic rock. The mineral grains and rock fragments account for 30% of the matrix of the ceramic body. The mineral grains and rock fragments range continuously in size from very fine to coarse. The mineral grains have been weathered from the rock fragments, as none of the isolated minerals differ in composition from the mineral grains contained porphyritically within the fragments of volcanic rock. Based on the continuous distribution of the sizes of the mineral grains and rock fragments in the ceramic paste and their weathered condition, it is likely that the rock fragments and mineral grains represent naturally occurring inclusions within the ceramic clay.

The volcanic rock fragments are characterized by an aphanitic groundmass composed of weathered brown glass. Most of the groundmass displays slight weathering to clay mineral and sericite. Sanidine is the predominate porphyritic mineral present in the rock fragments. The sanidine is usually fractured along their crystallographic axis and slightly clouded as the result of weathering. Plagioclase and quartz are also present as porphyritic minerals in the volcanic rock fragments, but are observed in less than 1% of the rock fragments.

#196 Mimbres Classic Black-on-white

The paste of this sherd is a light grayish brown. The paste this sherd contains sub-angular to sub-rounded mineral grains and fragments of volcanic rock. The mineral grains and rock fragments account for 25% of the matrix of the ceramic body. Based on the continuous distribution of the sizes of the mineral grains and rock fragments in the ceramic paste, it is likely that the rock fragments and mineral grains represent naturally occurring inclusions within the ceramic clay rather than an added tempering agent. The mineral grains are slightly more common in the paste than are the rock fragments. The mineral grains and rock fragments range in size from very fine to medium sized. Sanidine is the predominate mineral present among the isolated grains and as the porphyritic mineral within the volcanic rock fragments. The sanidine appears fresh and unweathered. Other minerals present as isolated grains include quartz, and plagioclase. Sanidine is about three times more common in the paste than quartz. Plagioclase is present, but makes up only about 3% of the mineral grains in the paste or the volcanic rock fragments. Brown biotite is also present in trace amounts as isolated mineral grains and rarely in rock fragments.

The volcanic rock fragments are characterized by a light brownish gray aphanitic to glassy groundmass. About 50% of the rock fragments display axiolitic texture. Sanidine is the most commonly observed porphyritic mineral, occurring in most of the rock fragments, except those fragments of volcanic rock in which spherulitic texture is also present. Quartz and plagioclase are also present in less than 5% of the volcanic rock fragments. One of the volcanic rock fragments displays the compaction bedding characteristic of welded tuff.

#69A Mimbres Classic Black-on-white

The paste of this sherd is light gray color. The paste contains about 25% sub-angular to sub-rounded isolated mineral grains and fragments of volcanic rock. The isolated mineral grains and rock fragments are present in equal proportions. The mineral grains and rock fragments range in size continuously from very fine to medium sized. The volcanic rock fragments have a glassy groundmass that does not contrast with the ceramic paste. The volcanic rock fragments contain sanidine and quartz porphyritically. A single coarse sized rock fragment is the exception to the otherwise continuous distribution of particle sizes. Sanidine is the most common mineral and is present as isolated mineral grains and as the predominate porphyritic mineral in the volcanic rock fragments. Quartz is nearly as common as sanidine in the ceramic paste and as a porphyritic mineral in the volcanic rock fragments. A trace amount of black opaque inclusions are present in the paste. Based on the presence of reddish haloes surrounding the black inclusions, it is likely that these particles represent weathered biotite.

#69B Mimbres Classic Black-on-white

The paste of this sherd is medium gray color. The paste contains about 15% sub-rounded to rounded sands containing isolated mineral grains and fragments of volcanic rock. There are roughly twice as many isolated mineral grains as volcanic rock fragments. The isolated mineral grains range from silt-size to medium. The volcanic rock fragments range in size from very fine to medium sized. Sanidine is the predominate mineral among the isolated grains. Quartz is the next most common mineral, but is only about one third as common in the paste as sanidine. Plagioclase is also present, but in a trace amount. Sparse very fine to fine black opaque inclusions surrounded by reddish brown haloes may represent weathered biotite. Sparse medium sized fragments of calcium carbonate (caliche) are also present in the ceramic paste. One caliche fragment contains a rounded grain of quartz sand.

Two types of volcanic rock are present. Most of the volcanic rock fragments are characterized by a glassy to cryptocrystalline light gray groundmass. Sanidine is contained porphyritically within these rock fragments. A few of the more glassy fragments display spherulitic texture. In addition to sanidine, a few of the cryptocrystalline fragments also contain andesine plagioclase.

The other type of volcanic rock present is a very fine grained basalt. The basalt is characterized by aggregate masses of andesine plagioclase and black cubes of magnetite. The magnetite is weathered staining the basalt fragments a reddish brown color. The basalt grains make up only about 10% of the rock fragments observed in the ceramic paste.

57 Mimbres Classic Black-on-white

The paste of this sherd is a light brownish gray color. The paste contains about 25% sub-rounded to rounded sands consisting isolated mineral grains and fragments of volcanic rock. The volcanic rock fragments predominate slightly over the isolated mineral grains. The volcanic rock fragments and mineral grains range continuously from silt-sized to medium. Based on the continuous distribution of the sizes of the mineral grains and rock fragments in the ceramic paste, it is likely that the rock fragments and mineral grains represent naturally occurring inclusions within the clay used in producing the vessel, rather than an added tempering agent. Sanidine is the most common of the isolated mineral grains. Quartz is nearly as commonly observed as sanidine and accounts for most of the medium sized isolated grains. Brown biotite and plagioclase are present in trace amounts. Sparse fine sized black inclusions that represent biotite that has weathered to clay minerals and hematite are also present in the ceramic paste.

The volcanic rock fragments are light grayish brown in color and are characterized by a cryptocrystalline to microcrystalline groundmass. The majority of the rock fragments contain sanidine porphyritically. Brown biotite is present in three of the volcanic rock fragments. A few fragments of spherulites are also present in the ceramic paste. A single grain of compacted light brown tuff is also present in the paste.

59 San Andres Red-on-terracotta

The paste of this sherd is a medium brown color. The paste contains angular fragments of granite and rock fragments derived from the granite. The inclusions make up about 25% of the matrix of the ceramic paste. The mineral grains and granite fragments range continuously from silt-sized to coarse. The granite is composed of equal proportions of alkali feldspar, plagioclase, and quartz. Sparse brown biotite is present in the ceramic paste and in two of the rock fragments. The feldspars are clouded and altered to sericite, often obscuring their optical characteristics. Granophyric intergrowths of quartz and alkali feldspar are observable in the majority of the granite fragments. One fragment of granite that displays patch type perthritic intergrowths of albite in a grain of alkali feldspar. A single medium sized grain of weathered rhyolitic tuff is also present. The tuff is dark gray and contains highly weathered laths of plagioclase and sanidine. A highly weathered fragment of very fine grained basalt is also present in the ceramic paste. The basalt grain is characterized by a dark hematite stained mass of weathered plagioclase.

25 San Andres Red-on-terracotta

The paste of this sherd is a dark brown color. The paste contains isolated mineral grains and rock fragments derived from the same source, a fine to medium grained subhedral monzonite or quartz monzonite. The mineral grains within the monzonite fragments have a sutured appearance. The fragments of monzonite and isolated mineral grains make up 30% of the ceramic paste. The monzonite fragments and mineral grains range continuously from silt-sized to coarse in size. The monzonite is composed primarily of untwinned alkali feldspar and plagioclase. The alkali feldspars are weathered, presenting a clouded appearance, and contain sparse sericite. One feldspar grain displays micropertthitic intergrowths of albite in a grain of alkali feldspar. Quartz is present in trace amounts, among the isolated mineral grains and in two of the rock fragments. Brown biotite is also

present in three fragments of monzonite and as isolated mineral grains. Some of the biotite has weathered to black opaque inclusions composed of clay minerals and stained by hematite. It is likely that the presence of monzonite in the paste of this sherd is the result of the use of a clay in which the rock fragments and mineral grains are natural inclusions. This assumption is based on the continuous distribution of particle sizes of the mineral grains and rock fragments, and the weathering of the alkali feldspars and biotite.

32 San Andres Red-on-terracotta

The paste of this sherd is medium brown color. The paste contains rock fragments and mineral grains derived from a subhedral monzonite. The grain margins of the monzonite present a complex and sutured appearance. The inclusions range from silt to medium sized and make up about 25% of the matrix of the ceramic paste. The monzonite consists of untwinned alkali feldspar and plagioclase. Quartz is present, in two of the rock fragments and in trace amounts as isolated mineral grains. Alkali feldspar and plagioclase are the predominate minerals occurring as isolated grains. Sparse amounts of sericite are present in most of the alkali feldspar grains. Trace amounts of blue-green pyroxene and brown biotite are also present in a few of the rock fragments and occur among the isolated mineral grains. Sparse opaque black inclusions in the paste likely represent weathered biotite. The fragments of monzonite and isolated mineral grains present in the paste of this sherd are the result of the use of a clay in which the rock fragments and mineral grains are natural inclusions.

55 El Paso Brown ?

The paste of this sherd is a very dark brown color. The paste contains mineral grains and rock fragments that fall into two discontinuous size categories. About 40% of the paste contains silt-sized to fine isolated mineral grains composed weathered alkali feldspar. Trace amounts of quartz, plagioclase, and black opaque inclusions make up the rest of the smaller of the inclusions. The black opaque inclusions probably represent highly weathered biotite. An additional 10% of the paste contains fragments of equigranular subhedral monzonite. The monzonite grains range from coarse to very coarse in size. The alkali feldspar grains are slightly clouded brown biotite is present in three of the fragments of monzonite. One monzonite grains displays ribbon-type micropertthritic intergrowths of albite within one of the alkali feldspar grains. Based on the discontinuous size distribution of the mineral grains and rock fragments, and the extensive weathering of the feldspars, it is likely that the fine fraction of isolated grains represents natural inclusions within the source of the ceramic clay. The coarse fraction represents an added tempering agent.

61 Jornada Brown

The paste of this sherd is dark brown in color. The presence of 40% silt to fine sized isolated mineral grains consisting predominantly of alkali feldspar along with a 10% coarse fraction consisting of monzonite is quite similar to the inclusions and color of the paste of the previous specimen #55. Slight differences in the composition of some of the alkali feldspars in this sample are indicative of some of the variability within the source of the ceramic temper used in producing the ceramics. Five of the rock fragments display micrographic intergrowth of quartz and alkali feldspar. Three of the grains also contain brown biotite. Black opaque inclusions, representing

biotite that has weathered to hematite and clay minerals are present in the paste in trace amounts. Three coarse sized rock fragments composed of foliated brown biotite are also present. A single coarse sized dark reddish brown basalt grain is also present in the paste of this sherd. The grains are rounded in shape and composed of laths of highly weathered plagioclase in a hematite-stained matrix.

49 El Paso Brown

The paste of this sherd is medium brown color. The inclusions present in the present specimen strongly resemble those observed in Samples 55 and 61. The major difference between the present sample and the two previous sherds is the presence of only about 20% of the silt to fine sized isolated mineral grains. Also all of the coarse to very coarse sized fragments of monzonite, make up about 10% of the current specimen, display granophyric intergrowths of quartz and alkali feldspar.

LA 86737

314 Magdalena Black-on-white

The paste of this sherd is a light yellowish brown color and is slightly birefringent. The paste contains fragments of volcanic rock and mineral grains that appear to originate from the fragments of light gray colored volcanic rock. The volcanic rock fragments make up about 35% of the ceramic matrix. The rock fragments range from fine to coarse in size. The volcanic rock is characterized by a cryptocrystalline to microcrystalline groundmass. Sanidine along with trace amounts of quartz and brown biotite are also present in the fragments of the volcanic rocks. Isolated mineral grains derived from the rock fragments' range from very fine to fine in size. The isolated mineral grains make up about 3% of the ceramic matrix.

#7 El Paso Polychrome

The paste of this sherd is a dark brown color. The paste contains mineral grains and plutonic rock fragments that range continuously in size from very fine to coarse. The inclusions make up 30% of the ceramic paste. The paste contains angular fragments derived from a granite. Quartz, alkali feldspar and less commonly, plagioclase is the predominate minerals observed. Brown biotite and a single zircon was also present in the paste of the sherd. The continuous distribution of the particle sizes of rock fragments and mineral grains suggest that the sediments in the clay represent in-situ weathering. The feldspars appear fresh and unweathered. About half of the alkali feldspar grains display ribbon-type microperthritic intergrowths of albite. Sparse very fine to fine sized black opaque inclusions are present. The black inclusions represent either weathered biotite or result from some other soil forming process. A trace amount of rounded inclusions consisting of medium sized rounded masses of very fine grained calcium carbonate (caliche) are also present.

#181 Elmendorf Black-on-white

The paste of the sherd is a light yellowish gray color. The paste contains two components. The most common inclusions are silt to fine sized angular to sub-rounded isolated mineral grains. These grains

make up about 25% of the ceramic paste. The predominate mineral among the isolated grains is alkali feldspar, followed closely by quartz. The alkali feldspars are slightly weathered. Sparse plagioclase and brown biotite are also present.

Besides the isolated mineral grains, three rock fragments are present. The three rock fragments also represent natural inclusions. One of the rock fragments is a very fine-grained grain-supported sandstone. Another rock fragment is a medium sized grains consisting of equigranular untwinned alkali feldspar. Like the isolated mineral grains, the feldspars are slightly clouded through weathering. Also present was a fragment of weathered basalt. The fragment consisted of hematite stained andesine plagioclase and cubes of magnetite.

The sample also contains very fine to medium sized fragments of crushed potsherds. The sherd temper makes up an addition 20% of the ceramic body. Two different pastes are represented in the sherd fragments. The majority of the sherd fragments appear to be derived from ceramic using the same clay source as the paste of the current specimen as the paste of the sherd temper does not contrast with the sample matrix. A similar amount of mineral grains are contained within the sherd temper as in the matrix of the sample sherd. Sherd temper characterized by a dark reddish brown or orange color. The paste and the sherd fragments contain fine sized isolated mineral grains. The darker colored sherd fragments are present in roughly the same amount as the light gray colored sherd temper.

DISCUSSION

LA 86736

Two types of inclusions were observed in the sample of Mimbres Classic Black-on-white examined from LA 86736. Samples 36, 69B, and 124 are characterized by a medium gray colored ceramic paste that were tempered using sands derived from volcanic sources. Both light colored rhyolite and grains of basalt were present in these three sherds in addition to sanidine, quartz and a trace amount of plagioclase and biotite. The similarity of the paste of these sherds to one another indicates that they were most likely produced using the same ceramic resources.

Samples 57, 69A, 125, 196, and 226, are more compositionally heterogeneous. These sherds contain sub-angular fragments of rhyolite that occasionally contains sanidine and/or quartz porphyritically. The similarity of the light gray or brownish gray colored paste, and the size and amount of the light grayish brown rhyolite, along with sanidine and quartz observed in Samples 57, 69A, and 196 is indicative of the sherds having been produced using the same resources. The similarity in color of the clay to the rhyolite, and the continuous size distribution of rock fragments and mineral grains suggests that the parent vessels were formed from clays that contained the inclusions as natural constituents. Without ceramic resource surveys, the origin of the materials observed in these and other Mimbres Black-on-white sherds will remain unknown. Samples 125 and 226 have much darker colored pastes than the previous samples, but contain weathered rhyolite, sanidine and quartz. Samples 125 and 226 differ from each other in terms of the amount of inclusions present, both in their fine and coarse sized fractions.

The three samples of San Andres Red-on-terracotta, the two sherds of El Paso Brown, and the single sherd of Jornada Brown contain fragments of plutonic rock. In the case of Sample 59, San Andres Red-on-terracotta, the paste contains fragments of weathered granite. In addition to granite, two fragments of extrusive volcanic rocks are also observed in the paste. Two of the Three Rivers Red-on-brown sherds examined from LA 4921, the Three Rivers site, also contained fragments of granite and a trace amount of volcanic rock (Southward 1979:97). The nearest source of granite to LA 86736 is the Three Rivers stock (Allen and Foord 1991). The presence of volcanic rocks within the paste of the sherd likely result from the use of contamination of the source clay by sediments derived from the Cub Mountain formation, which contains highly weathered extrusive volcanic rocks and outcrops in the vicinity of the Three Rivers drainage (Weber 1964:105).

The other samples of San Andres Red-on-terracotta, the two sherds of El Paso Brown contain fragments of monzonite. Monzonite is quite common within intrusive features associated with the Lincoln County Porphyry Belt (Allen and Foord 1991; Griswold 1959). Composition and textures vary considerably within and between the intrusive features that make up the mountain ranges of the Lincoln County porphyry belt (Allen and McLemore 1991). The compositional and textural variability within individual formations makes the attribution of individual sherds to a single source difficult, even when comparative local ceramic resources are available for comparison (Hill 1997). So it is possible that the brownware sherds as well as the samples of San Andres Red-on-terracotta were produced using sediments derived from the Three Rivers stock or other sources of monzonitic sediments located in the Lincoln County Porphyry belt.

LA 86737

The single sherd of Magdalena Black-on-white analyzed from this site contains abundant fragments from a weathered rhyolitic tuff. While fragments of rhyolitic tuff are known from the Cub Mountain formation, they are usually stained with hematite or are otherwise colored. (Weber 1964). Consequently this sample of Magdalena Black-on-white represents an imported ceramic.

Sample 7 represents an example of El Paso Polychrome. The color of the paste and presence of abundant micropertite in the alkali feldspars has been documented previously from El Paso Polychrome from the Three Rivers site (Southward 1979). It is likely that this sherd represents an example of production of El Paso Polychrome within the Lincoln County Porphyry Belt.

The single sherd of Elmendorf Black-on-white examined from LA 86737 represents the first time that an example this ceramic type has been examined through petrographic analysis. The paste of this sherd contains isolated mineral grains that for the most part appear to represent natural inclusions in the ceramic paste. A few of the isolated grains may have originated within the paste of the ceramic sherds crushed for temper.

Two different pastes were observed in the sherd temper of the Elmendorf Black-on-white sample. One type of sherd temper resembles the paste of the Elmendorf sherd and probably represent the recycling of other Elmendorf vessels. The other type of sherd temper had a dark reddish brown to orange color paste. Chupadero Black-on-white recovered from the Sacramento Mountains and from southeastern New Mexico frequently contain dark orange sherd temper in a gray matrix that contains

only isolated mineral grains. (Hill 2000). The color and temper similarities observed in the paste the paste of the single sherd of Elmendorf Black-on-white examined from LA 86737 and previously examined samples of Chupadero Black-on-white is intriguing as typological studies suggest some as yet undefined relationship between the two ceramic types (Marshall and Walt 1984:77).

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APPENDIX E

Copy

FORM 1600

UNITED STATES RAILROAD ADMINISTRATION
Director General of Railroads

EL PASO AND SOUTHWESTERN RAILROAD

Maintenance of Way Department

Eastern

Division

TIME BOOK

For use of

Sections, B. & B. and Water Service Gangs

Section No. *12* or Gang No. _____

District *First*

Limits M. P. *107* to M. P. *112*

Location of Section or Gang *Tempehah station*

Month of *March* 19*20*

I certify that the time as entered and distributed, and work and material as reported are correct.

L. Watson

FOREMAN

I have personally examined the entries in this book and certify to their correctness.

ROADMASTER OR GENERAL FOREMAN

SPECIAL NOTE:—ABOVE INFORMATION MUST BE FILLED OUT COMPLETE.

Instructions to Foremen

<p>Par. 1 Time must be entered <i>daily</i>. Use separate pages for Foreman, Assistant Foreman (if any) and Laborers, so as not to have different rates of pay on same page.</p> <p>2 No TIME SHOULD BE CARRIED FOR LABOR NOT PERFORMED UNDER THE PERSONAL SUPERVISION OF THE FOREMAN OR HIS ASSISTANT.</p> <p>3 On last day of month, after all time and other information has been entered and extended Foreman should personally sign Time Book and forward to the head of his District or Division, who will also sign personally and forward to his superior officer. Each laborer must be required to certify to his time and deductions in space provided for same.</p> <p>4 All labor on private tracks, joint tracks, new tracks laid or old tracks taken up or any new or special work of any nature must be shown on separate line giving full description, location, A. F. E. Nos., etc., making special mention of same on proper date in the weekly report in back of this book.</p> <p>5 Section gangs working off their sections will distribute the time to proper account according to work performed, giving full detail of same in the weekly report.</p> <p>6 When reporting the unloading or handling of cinders, screenings, or any similar material, be sure to state for what purpose same is to be used and where.</p> <p>7 In reporting labor at wrecks give location, engine or train number; transferring cars, give car numbers and cause for transfer; repairing cars or locomotives, give location, number and cause.</p> <p>8 In reporting work on bridges, buildings, or other structures, give number, name or location, so as to properly identify the job.</p> <p>9 B. & B. Department should use separate page in the Time Book for each rate of pay, using the weekly report to describe each class of work, showing the amount of time consumed on each job, daily, at the different rates of pay, which should also be entered in the weekly report.</p> <p>10 Memorandum sheet should be used to explain any work that has not been clearly defined.</p>	<p>Par. 11 Account No. 202—"Roadbed Repairs"—This includes ditching and cleaning cuts, filling borrow or cattle pits, repairs to roadbed account washouts, laying and removing temporary tracks around washouts or slides, crowning track ties with retaining earth, dressing ballast and cutting sod line, cutting and burning grass and weeds, removing scrap, cinders, trash, etc., from track or station grounds adjacent thereto, watching and patrolling track, extinguishing fires on R. of W., riprap or other work to protect track and roadbed from washouts, floods, etc.</p> <p>12 Account No. 220—"Track Repairs"—This includes labor applying slag, crushed stone, cinders or other ballast for repairs to track, handling, distributing and renewing cross and switch ties and spacing same, gathering up and disposing of old ties and other material released from track, handling and relaying rail, applying and renewing all track fastenings and switch fixtures, repairing rail racks, aligning, surfacing, shimming and gauging track, restoring track after washouts, wrecks, etc., and taking up abandoned tracks.</p> <p>13 "Fuel"—This account should include all expense in connection with the handling or issuing of Company coal, including the operation of coal chutes, unloading and reloading storage coal, laying, shifting or repairing temporary tracks for the exclusive use in handling storage coal, unloading coal at pumps, shops, stations or offices, also unloading or handling old ties when for use in firing locomotives.</p> <p>14 Account No. 415. Clearing wrecks and derailments, picking up wrecked cars or contents, watching or transferring freight at wrecks, building and removing temporary tracks at wrecks, transferring passengers, mail or baggage at wrecks. Always give location and state whether freight or passenger train.</p> <p>NO WORK restoring track to normal condition after wrecks and derailments should be charged to Account No. 220 "Track Repairs."</p>
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Division

HSR 9946C, Appendix E, pg. E-3

Month of March 15th to 31 1920

[illegible]

Month of March 1 to 15 1920

[illegible]

Record of Time—Section or Gang No. 13 Division 1

[illegible]

Month of March 15 1920

[illegible]

Record of Time—Section or Gang No. 12 Eastern

Division

[illegible]

Month of March 15 to 31 1920

[illegible]

Record of Time—Section or Gang No. 12 Eastern

Divisio

[illegible]

Month of March 15th 31 1920

[illegible]

Division

HSR 9946C, Appendix E, pg. E-13

Month of March 15 to 31 1920

[illegible]