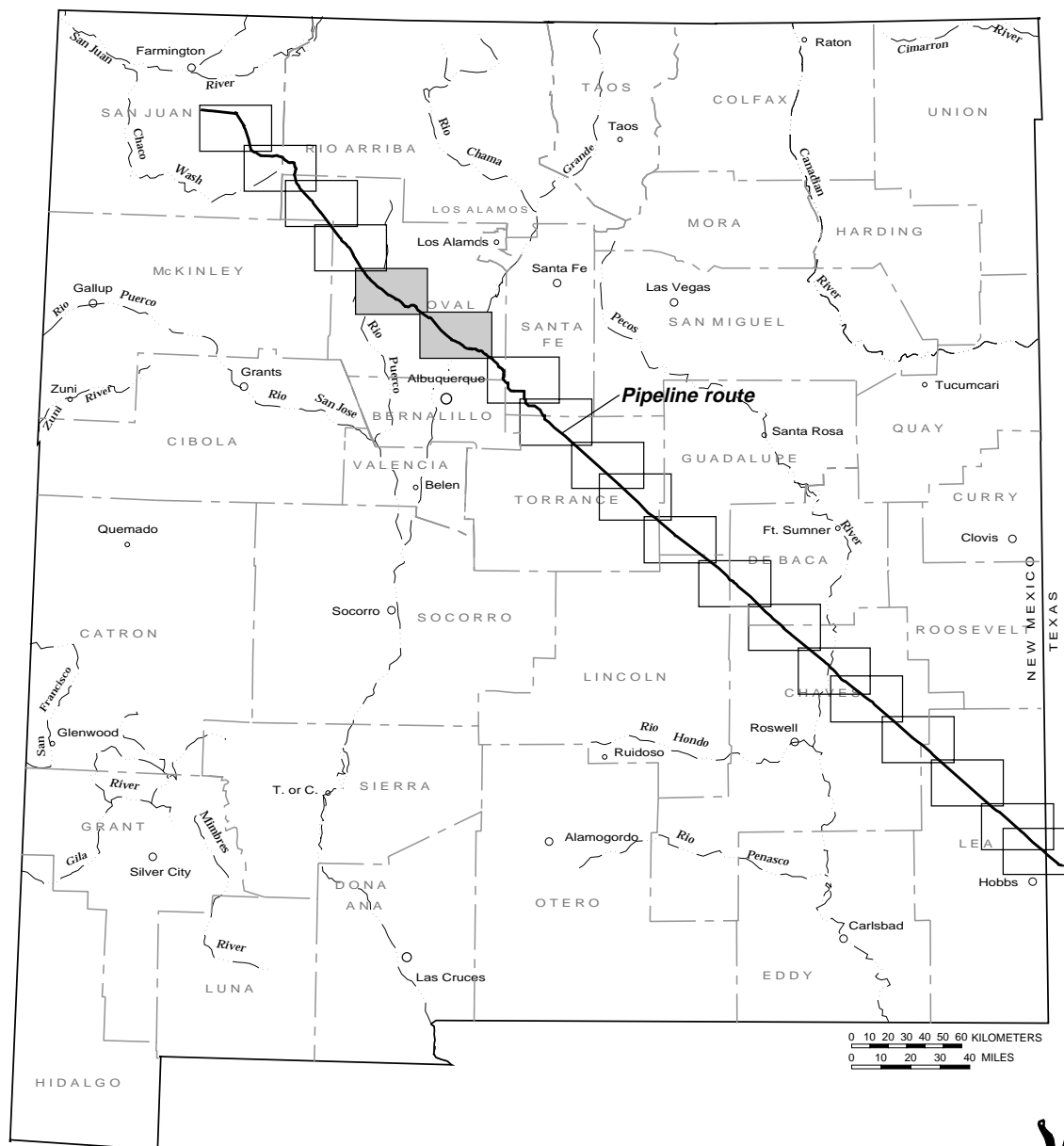


Volume 3

Data Recovery along the 1995 MAPCO Four Corners Pipeline: Sites in the Jemez and Las Huertas Drainages, Sandoval County, New Mexico

Compiled by Kenneth L. Brown



VOLUME 3

**DATA RECOVERY ALONG THE 1995 MAPCO FOUR CORNERS PIPELINE:
SITES IN THE JEMEZ AND LAS HUERTAS DRAINAGES, SANDOVAL COUNTY, NEW MEXICO**

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FOREWORD

This report documents the cultural resources along the Mid-America Pipeline Company's (MAPCO) Four Corners Pipeline. This is the third in a series of five volumes that are concerned with the cultural resources along the Four Corners Pipeline which extends from Huerfano Station, New Mexico, to Hobbs Station, Texas. This volume presents the data recovery at 26 sites in the Jemez and Las Huertas valleys of northcentral New Mexico.

The other volumes in the series are the *Cultural Resources Along the MAPCO Four Corners Pipeline: Huerfano Station, New Mexico, to Hobbs Station, Texas* (Vol. 1), *Colorado Plateau/San Juan Basin* (Vol. 2), the *Jemez and Las Huertas Valleys: Analyses* (Vol. 4), and the *Estancia Basin, Pecos Drainage, and Mescalero Sands* (Vol. 5).

ABSTRACT

This volume describes OCA's data recovery at 26 sites in the Jemez and Las Huertas drainages in northcentral New Mexico for the Mid-America Pipeline Company's (MAPCO) Four Corners Pipeline Project, a 12-inch diameter high-pressure petroleum pipeline that runs diagonally across the state of New Mexico from the Chaco Plant south of Bloomfield, in northwestern New Mexico, to Hobbs Station, in west Texas.

The pipeline corridor—following existing pipelines—crossed lands owned or administered by the Navajo Nation, the Pueblo of Zia, the Pueblo of Santa Ana, the Bureau of Land Management (BLM), the State of New Mexico, the City of Albuquerque, and private land owners. Personnel of the Office of Contract Archeology (OCA) conducted data recovery from 17 July to 15 December 1995, 26 to 30 August 1996, and 19 May to 11 July 1997. Data recovery—conducted at 65 sites—included work at Paleoindian, Archaic, Formative, Navajo, Spanish colonial, and American territorial components. Sites are grouped into five physiographic and cultural areas: the San Juan Basin and Colorado Plateau; Jemez and Las Huertas drainages; Estancia Basin; Pecos drainage; and Mescalero Sands. Twenty-six sites discussed herein include Archaic, Formative, Spanish colonial, and American components.

Work was conducted under BLM Cultural Resource Use Permit 5-2920-95-0; Temporary Trenching Permit NM94041 in association with R/W NM 93652 (EA Log No. NM-070-95-3269); State of New Mexico State Trust Land Archaeological Survey Permit 95-017; New Mexico State Highway and Transportation Department Survey Permit SP-230; Navajo Nation General Survey Permit B9536 and Investigation Permit C9517; authorization from Zia Pueblo and Santa Ana Pueblo; and Bureau of Indian Affairs (BIA) Permit ARPA-BIA//AAO-95-008. These were all general permits for the recording of sites during survey. Sites recorded as discoveries during pipeline construction activities were covered by ARPA permits with the same agencies (BLM: ARPA 5-8152-95-7, State of New Mexico Office of Cultural Affairs Historic Preservation Division: Annual Human Burial Excavation Permit - ABE-151, BIA Permit ARPA-BIA//AAO-95-008, and the Navajo Nation: ARPA-NAO-95-012). The Traditional Cultural Property Study by Genevieve Pino was done under the authority of the Navajo Tribal Code (NTC), BLM Permit No. 10-2920-94-Q, and State of New Mexico Permit No. 95-036.

ACKNOWLEDGMENTS

The authors wish to thank several employees of the Office of Contract Archeology. Special thanks go to Donna K. Lasusky, Administrative Assistant, for her administrative skills and patience in seeing this project through, Ronald L. Stauber for drafting the maps and figures, Donna Ward for data entry, and Peter N. Eschman for the data base management and resulting tables. Special thanks also go to the OCA laboratory supervisors Martha R. Binford and Kathy Pierce and their supervision of crew members Cindy R. Donaldson, Jana J. Martin, Patricia G. Mudd, Hugo G. Peña, and student employees James D. Kilby, Victoria L. Saxe, and David F. Van Alfen. Finally, editing and report production by June-el Piper and desktop publishing by Michelle Aiken contributed greatly to the final product.

Field crew members included part-time assistance from Project Director Ronna J. Bradley, full-time Project Directors Janette M. Elyea and Peggy A. Gerow, crew supervisors George L. Arms III, Byrd A. C. Bargman, Stephen J. Pezzetti, Harding Polk II, John Mark Sheppard, Richard B. Sullivan, Cherie K. Walth, and crew members Stanley Brown, Charles E. Corbett, Diana L. Covington, Patricia M. Cyman, Daniel Desruisseaux, Cecile Gevock-Delahaye, Nick J. Gevock, Hansene C. Gustafson, Bruce M. Hays, Kathleen E. Hiatt, L. Jean Hooton, John M. Lawrence, Mary K. Morrison, Linda S. Neff, James T. O'Donnell, Noel P. Pacheco, Lauren A. Persky, Michael N. Prinz, Amina Quargnali-Linsley, Thea A. Rhodes, Colleen A. Shaffrey, Nick Spence, William R. Thompson, Carmelita M. Topaha, Janet M. Weeth, and Tom Yoder. Monitoring of pipeline construction was supervised by Charles M. Freuden, Randall D. Rhoades, and Richard B. Sullivan. The archeological crews worked long hours, often during inclement conditions, and their support is highly commended.

Thanks are extended to the geology graduate students who visited and described the deposits at several of the sites and to the archeobotanists who identified the plant remains summarized in each site description. The geologist include Carol J. Treadwell, Mary Trigilio, and Scott Aby of the Department of Earth and Planetary Sciences at The University of New Mexico. The archeobotanists are Lisa W. Huckell, of The University of New Mexico and Pamela J. McBride, a local consultant. Both Lisa Huckell and Pamela McBride are contributing authors in the subsequent analysis volume (Vol. 4). We wish to thank Dr. Jeffrey L. Eighmy, of the Archaeometric Laboratory, Department of Anthropology at Colorado State University, for doing the archaeomagnetic report for a sample collected from LA 109129 (see Appendix A).

Special thanks are extended to Eligio Aragon for his expertise in the use of a backhoe. His artistic manipulation of the mechanical equipment greatly enhanced our ability to recover cultural materials that might otherwise have gone unnoticed.

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Chapter 1

PROJECT OVERVIEW

Kenneth L. Brown

The Mid-America Pipeline Company (MAPCO) contracted with The University of New Mexico (UNM) Office of Contract Archeology (OCA) in early 1995 to perform all cultural resource management activities required in conjunction with construction of an approximately 644 km (400 mile) long pipeline. The Four Corners Pipeline was constructed along an existing right-of-way that traverses diagonally across New Mexico from Hobbs Station, Texas, in the southeast to Huerfano Station, New Mexico, in the northwest (Figure 1.1). The 0.304 m (12 inch) diameter high-pressure liquid petroleum pipeline parallels two existing pipelines in MAPCO's permanent right-of-way. The Farmington District of the Bureau of Land Management (BLM)—as lead federal agency for the undertaking—required a complete resurvey of the 644 km (400 mile) long corridor.

The following permits were issued for cultural resources investigations associated with the Four Corners Pipeline: for the BLM, ARPA 5-8152-95-7, Cultural Resource Use Permit 5-2920-95-O, Temporary Trenching Permit NM 94041 in association with R/W NM 93652 (EA Log No. NM-070-95-3269); for the BIA, ARPA-BIA//AAO-95-008; for the State of New Mexico, State Trust Land Archeological Survey Permit 95-017, State Highway and Transportation Department Survey Permit SP-230, and Office of Cultural Affairs, Historic Preservation Division Annual Human Burial Excavation Permit - ABE-151; and for the Navajo Nation, General Survey Permit B9536, Investigation Permit C9517, ARPA-NAO-95-012. The Traditional Cultural Property study by Genevieve Piño was done under authority of Navajo Tribal Code (NTC), BLM permit No. 10-2920-94-Q, and State of New Mexico Permit No. 95-036.

VOLUME OVERVIEW

This volume summarizes OCA's investigations at 26 sites (Table 1.1) in the Jemez and Las Huertas drainages. The volume consists of 27 chapters and an appendix. Chapter 1, the project overview, summarizes the Four Corners

Pipeline Project. Chapters 2 through 27 are descriptions of the data recovery at the 26 sites. The appendix lists all of the radiometric dates for sites discussed in this volume. The site maps and illustrations—showing data recovery areas and features—are oriented toward either True North (TN), Magnetic North (MN), or Grid North (GN). Site datums are assigned the arbitrary elevation of 100 m.

The sites are plotted on regional maps (Maps 5 and 6) that are keyed to the index map (Figure 1.1). The rectangles on the regional maps represent the portion of the 7.5' quadrangle that accompanies each site description in Volume 1, Appendices A and B.

MANAGEMENT SUMMARY

The apex of the administrative structure is the principal investigator, Patrick F. Hogan. Daily administrative support was provided by the project administrator, Kenneth L. Brown, and the project directors, Janette M. Elyea and Peggy A. Gerow. The project directors managed two to four five- or six-person crews, with each crew consisting of four or five crew members and a crew supervisor. Crew supervisors were responsible for immediate on-site decisions. Support staff at OCA included the laboratory directors, Martha Binford and Kathy Pierce; administrative assistant, Donna K. Lasusky; cartographer and draftsman, Ronald L. Stauber; computer analyst, Peter N. Eschman; and data entry specialist, Donna Ward. Several work-study students performed secretarial and laboratory tasks when needed.

INVESTIGATIONS

Eighteen sites with Archaic and early Formative period occupations were recorded in the Jemez Valley and two (LA 25675 and LA 112660) were recorded in the Las Huertas drainage (Table 1.2). Seventeen sites with Puebloan or protohistoric occupations were encountered in the Jemez Valley. The Jemez Valley, for purposes of this study, extends from the confluence of the Jemez River and Rio

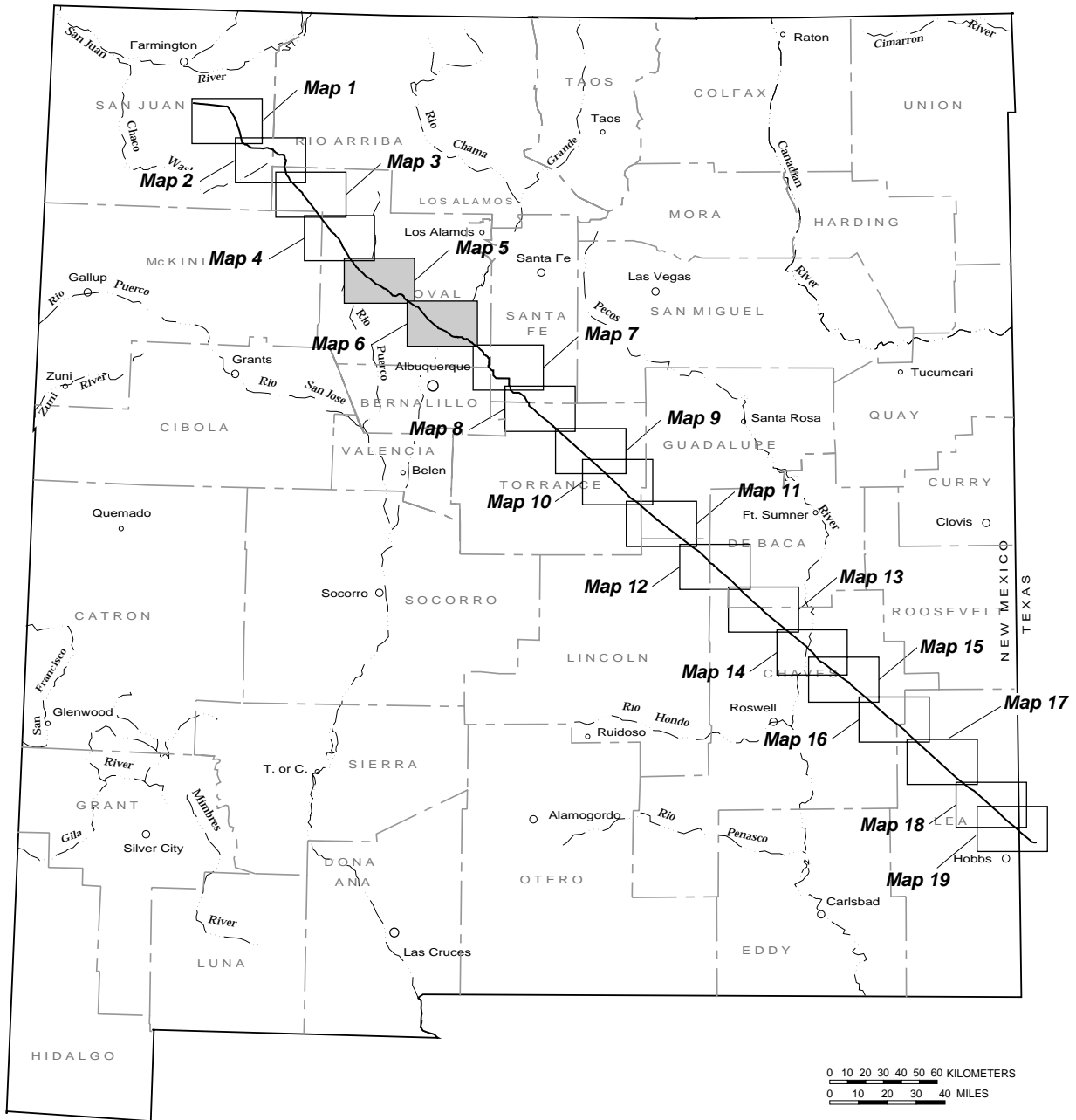
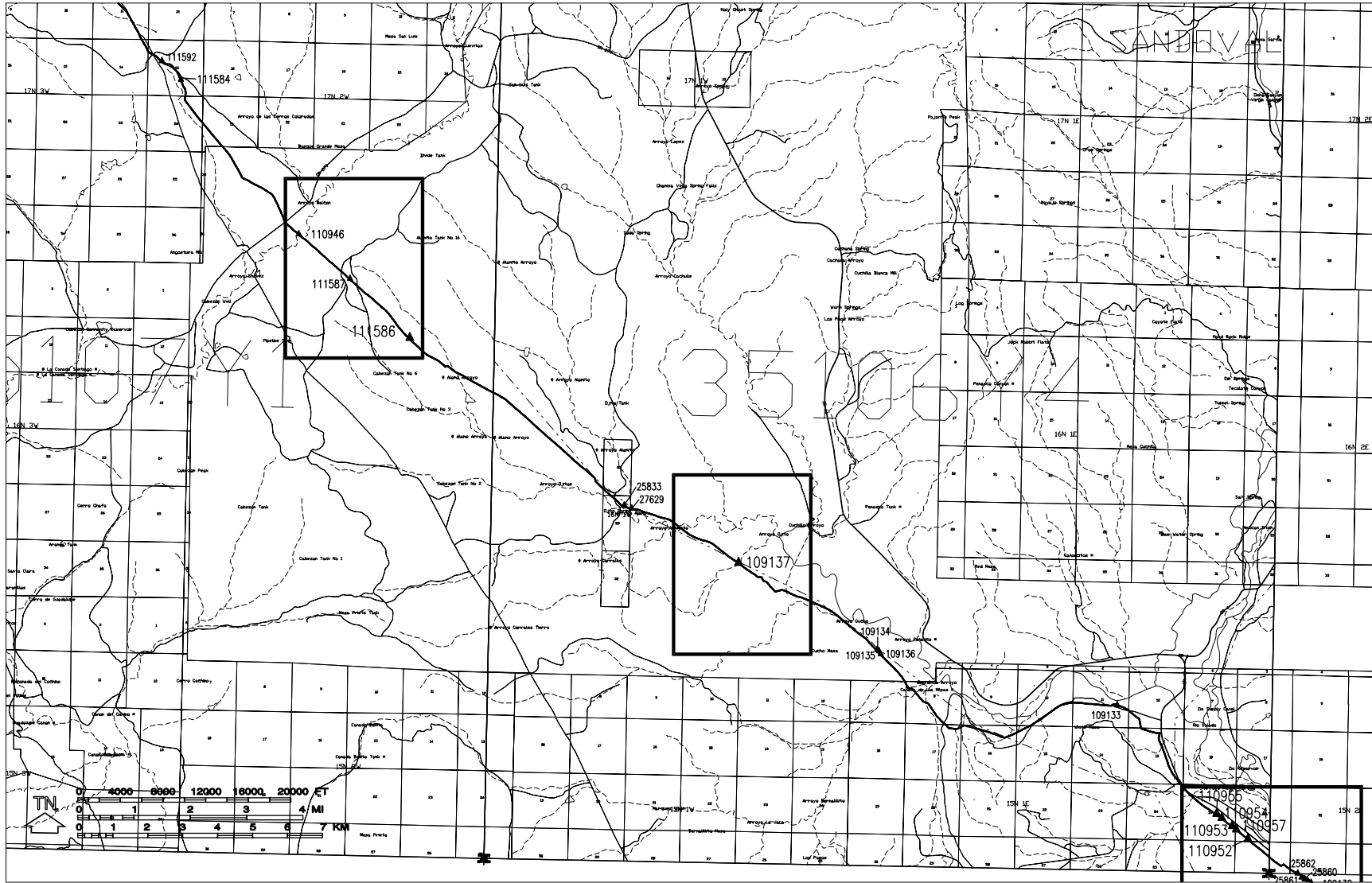


Figure 1.1 Route of Four Corners Pipeline in New Mexico and Texas and index of project area maps showing site locations in the Jemez and Las Huertas drainages.

MAP 5

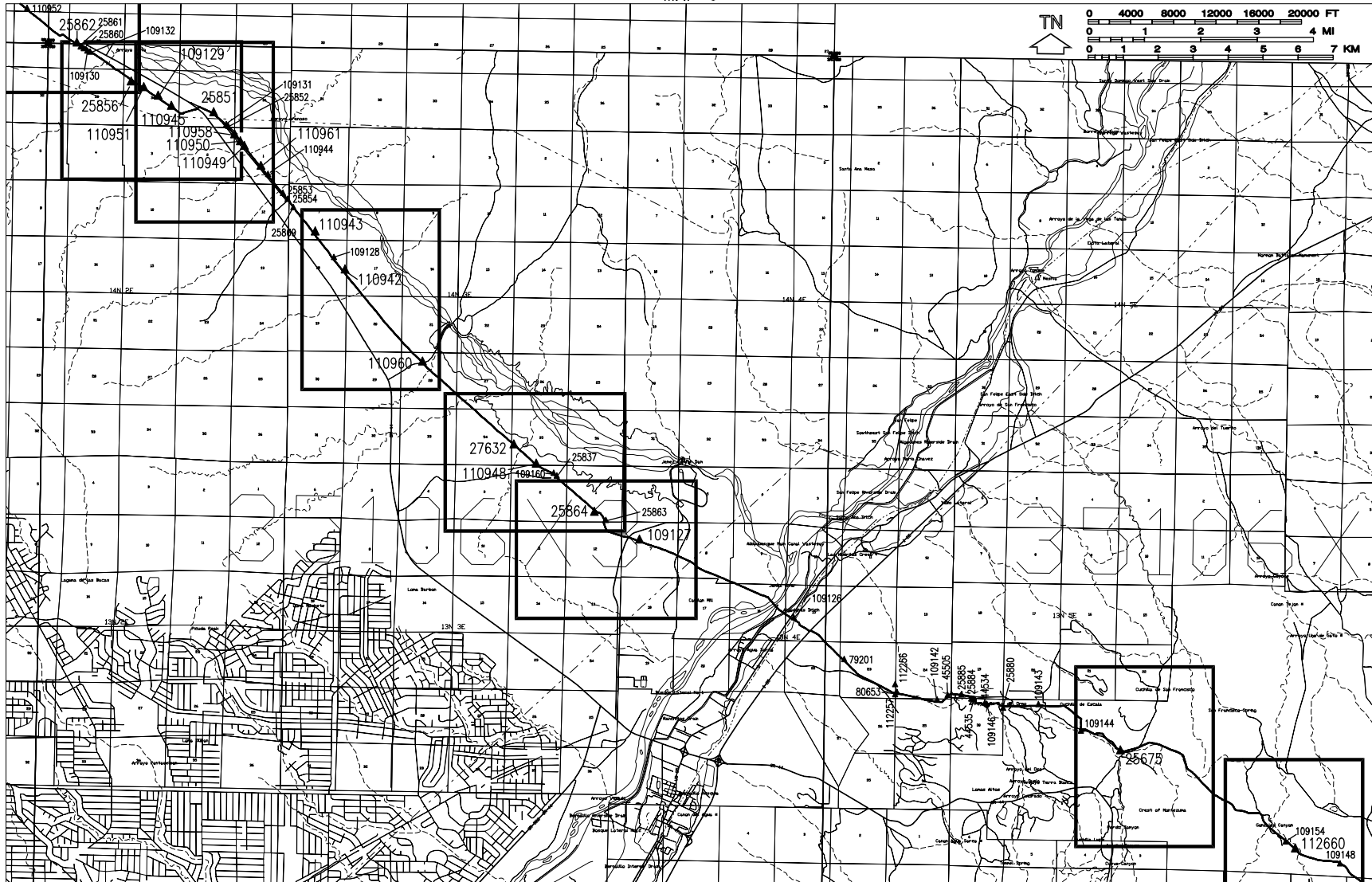


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PROJECT OVERVIEW

Project map for the Jemez Valley, Map 5, Chaco Mesa/Los Alamos area, LA 109137, LA 110952, LA 110953, LA 110954, LA 110955, LA 110957, LA 111586.

MAP 6



4

KENNETH L. BROWN

Project map for the Jemez and Las Huertas Valleys, Map 6, Albuquerque area, LA 25675, LA 25851, LA 25856, LA 25862, LA 25864, LA 27632, LA 109127, LA 109129, LA 110942, LA 110943, LA 110945, LA 110948, LA 110949, LA 110950, LA 110951, LA 110952, LA 110958, LA 110960, LA 110961, LA 112660.

PROJECT OVERVIEW

Table 1.1 Regions and sites in the five volumes.

Volume 1	Volume 2	Volume 3	Volume 4	Volume 5		
Survey and Discoveries	San Juan Basin/ Colorado Plateau	Jemez and Las Huertas Valleys	Analyses Related to the Jemez and Las Huertas Valley Sites	Estancia Basin	Pecos Valley	Mescalero Sands
	25673	25675		25676	25850	25831
	109151	25851		60985	109465	27104
	109156	25856		109455	109466	68993
	110946	25862		109461	109468	109476
	110959	25864		109487	109471	109480
	111584	27632		110947	109472	109481
	111585	109127			109478	109484
	111587	109129			109479	109485
	111588	109137			109483	109492
	111589	110942			109498	110956
	111590	110943				
	111591	110945				
	112466	110948				
		110949				
		110950				
		110951				
		110952				
		110953				
		110954				
		110955				
		110957				
		110958				
		110960				
		110961				
		111586				
		112660				
	<i>n</i> = 13	<i>n</i> = 26		<i>n</i> = 6	<i>n</i> = 10	<i>n</i> = 10

Grande westward to the western edge of the Jemez drainage system, or the eastern bluffs of the Rio Puerco drainage. The Las Huertas drainage consists of the region extending from the confluence of Las Huertas Creek and the Rio Grande eastward to its head waters in the northern portion of the Sandia Mountains. Components date from the middle Archaic period (San Jose phase of the Oshara Tradition) to the recent past. Radiometric ages (*n* = 54) were obtained for 20 of the 26 sites (marked with * on Table 1.2), with many of the sites yielding multiple radiometric samples. Archeomagnetic ages derived for LA 109129 coincide with its radiometric ages (Appendix A).

Table 1.3, adapted from Anschuetz (1984:21), summarizes the different cultural and temporal schemes proposed by other authors for the Rio Grande Valley in the vicinity of Albuquerque and Bernalillo. The last column shows the scheme most frequently used in this volume.

Table 1.2 Sites in the Jemez and Las Huertas valleys investigated during the MAPCO Project.

LA Number	OCA Number	Jurisdiction	Components	Supervisor
25675*	547-744	Private	middle Archaic	Harding Polk II
25851*	547-11	Pueblo of Zia	middle Archaic; Formative	Byrd A. C. Bargman
25856	547-13	Pueblo of Zia	Formative (early Developmental, Basketmaker III–Pueblo I)	Byrd A. C. Bargman
25862	547-18	Pueblo of Zia	Formative (late Developmental, Pueblo I–II)	Byrd A. C. Bargman
25864*	547-3	Pueblo of Santa Ana	late Archaic (Basketmaker II)	John Mark Sheppard
27632*	547-7	Pueblo of Santa Ana	late Archaic (Basketmaker II)–Formative (early Developmental, Pueblo I); Historic (Pueblo V–Historic)	Harding Polk II
109127	547-6	Pueblo of Santa Ana	Archaic	Byrd A. C. Bargman
109129*	547-14	Pueblo of Zia	Formative (early Developmental, Basketmaker III; late Coalition–early Classic, Pueblo III–IV)	Cherie K. Walth
109137*	547-28	Pueblo of Zia	early/middle Archaic	Byrd A. C. Bargman
110942*	547-700	Pueblo of Santa Ana	late Archaic (Basketmaker II); Historic (Pueblo V–Historic)	Byrd A. C. Bargman
110943*	547-701	Pueblo of Santa Ana	late Archaic (Basketmaker II)	Stephen Pezzetti
110945*	547-704	Pueblo of Zia	Historic	Charles M. Freuden
110948	547-709	Pueblo of Santa Ana	Archaic; Formative	Byrd A. C. Bargman
110949	547-712	Pueblo of Zia	Formative	Stephen Pezzetti
110950*	547-713	Pueblo of Zia	Historic, recent	Stephen Pezzetti
110951*	547-718	Pueblo of Zia	late Archaic (Basketmaker II)–Formative (early Developmental, Basketmaker III)	Stephen Pezzetti
110952*	547-733	Pueblo of Zia	late Archaic–Formative (late Developmental, Pueblo II; Coalition, Pueblo III–early Classic, Pueblo IV)	Harding Polk III
110953*	547-723	Pueblo of Zia	Formative (Coalition, Pueblo III)–Historic (Pueblo V); Historic	Byrd A. C. Bargman
110954*	547-739	Pueblo of Zia	Formative (Classic, Pueblo IV)–Historic (Pueblo V); Historic	Stephen Pezzetti
110955*	547-735	Pueblo of Zia	middle Archaic; Formative (Classic, Pueblo IV)	Stephen Pezzetti
110957*	547-734	Pueblo of Zia	late Archaic (Basketmaker II); Formative (Developmental, Pueblo I–II)	Harding Polk II
110958*	547-714	Pueblo of Zia	Formative (Classic, Pueblo IV)	Cherie K. Walth
110960*	547-740	Pueblo of Santa Ana	late Archaic (Basketmaker II)–Formative (early Developmental, Basketmaker III; late Developmental, Pueblo II–Coalition, Pueblo III)	Stephen Pezzetti
110961*	547-720	Pueblo of Zia	late Archaic (Basketmaker II)–Formative (early Developmental, Basketmaker III; Coalition, Pueblo III–Classic, Pueblo IV)	Harding Polk II
111586*	547-800	BLM Albuquerque District	middle Archaic	Harding Polk II
112660	547-403	Private	Archaic	Harding Polk II

Key: * Sites dated with radiocarbon analysis.

PROJECT OVERVIEW

Table 1.3 Cultural and temporal schemes proposed by other authors.

Date	Pecos Classification Kidder (1927)	Wendorf (1954) and Wendorf and Reed (1955)	Irwin-Williams (1973) Oshara Tradition	Anschuetz (1987)	This Volume
Present					
1600	Pueblo V	Historic			Historic
1500					
1400		Classic		Pueblo IV	Classic
1325	Pueblo IV				F o r m a t i v e
1300					
1200		Coalition		Pueblo III	
1100	Pueblo III				
1050				late Pueblo II	
1000		late Developmental			late Developmental
900	Pueblo II			early Pueblo II	
850					
800	Pueblo I			late Pueblo I	
700		early Developmental	Loma Alta phase	early Pueblo I	early Developmental
600			Sky Village		
500	Basketmaker III			Basketmaker III	
400			Trujillo phase		
300					
200					
100	Basketmaker II				
BC/AD			En Medio phase		late Archaic
400					
800					
1800			Armijo		
2000					middle Archaic
3200			San Jose phase		
4000		Preceramic			
4800			Bajada phase		early Archaic
5500			Jay phase		
6000					
6600			Cody		late Paleoindian
7000					
8000					
9000					
9500			Clovis and Folsom		early Paleoindian
15,000					

Chapter 2

LA 25675

Harding Polk II

LA 25675 is a multicomponent site occupied intermittently from the middle Archaic to the Spanish colonial periods. OCA's investigation was limited to its periphery and two deeply buried hearths dating to the middle and possibly late Archaic periods. The site—located 1.3 km (0.8 miles) north of NM 44 in the village of Placitas—is in a deep, narrow valley at the confluence of Las Huertas Creek and an unnamed tributary flowing from the north. It is situated on a small, gentle, westward-sloping terrace between these two drainages (Figure 1.1). Vegetation consists of desert scrubland that includes saltbush, rabbitbrush, snakeweed, wolfberry, cholla, and Russian thistle. The surrounding steep hills are a juniper and piñon woodland.

Five stains—along a 36 m length of pipeline trench—were identified by the archeologist during monitoring. A ceramic and lithic artifact surface scatter extended to within 10 m of these stains, which indicated they were an extension of the site's northern boundary. Data recovery was limited to the stains identified in the trench walls.

An adjacent drainage has caused severe erosion along portions of the site, and the construction of a cobble retaining wall along the site's southern edge has caused additional damage. Some sedimentation is apparent upstream of the cobble retaining wall. Three existing pipelines traverse the northern portion of the site. Unpaved roads border the north (Camino de la Rosa Castilla) and east (Camino del Tecolote) site boundaries.

PREVIOUS INVESTIGATIONS

LA 25675 was reported in 1980 by Complete Archaeological Services Associates (CASA)—during a survey for the Shell CO₂ Mainline (CASA 1981:3.40)—as being a probable pitstructure village with a surface scatter of sherds and chipped stone artifacts. No subsurface investigations were conducted. Ceramic types noted include corrugated grayware, Santa Fe Black-on-white, Kwahee Black-on-white, and Glazes E and F. These ceramic types indicate at

least one prehistoric and one protohistoric occupation. CASA suggested the presence of a Hispanic component based on a stone retaining wall along the drainage that borders the west side of the site.

INVESTIGATION STRATEGY AND RESULTS

Initial investigations in 1995 consisted of probing with a trowel the five ash and charcoal stains (Features 1 to 5) observed in the trench walls. Four of the stains (Features 1, 3, 4, and 5) were determined to be redeposited noncultural material. Two additional stains, designated Features 6 and 7, were observed in the trench walls. Feature 7 was determined to be noncultural. Mechanical equipment was used to remove the culturally sterile overburden from the two remaining stains (Features 2 and 6) believed to be of cultural origin.

The two small, basin-shaped ash and charcoal deposits (Features 2 and 6) were hand-excavated (Figure 2.1). Both had been partially destroyed by trenching. Feature 6 was located in the southwest trench wall and Feature 2 in the northeast wall.

Feature 6 is a small hearth composed of dense charcoal and a light grayish brown hard clay matrix. The hearth, bisected by the pipeline trench, was at a depth of 1.75 m below the graded surface. Because it was in the southwest wall of the trench near the existing pipelines the culturally sterile overburden could not be removed with the aid of mechanical equipment. It was, therefore, removed by hand. The remaining portion of the hearth measured 37 cm long, 18 cm wide, and 20 cm thick. No artifacts were recovered from the area surrounding the hearth. A charcoal sample—consisting of saltbush/greasewood, New Mexico foresteria (desert olive), juniper, piñon, and oak—collected from the small hearth (Feature 6) yielded an age of 3710 ± 80 BP (Beta-92326) and a date of 2110, 2080, and 2050 cal BC. Its 2-sigma date range is 2325 to 1890 cal BC. This date indicates an occupation during the middle Archaic period.

HARDING POLK II

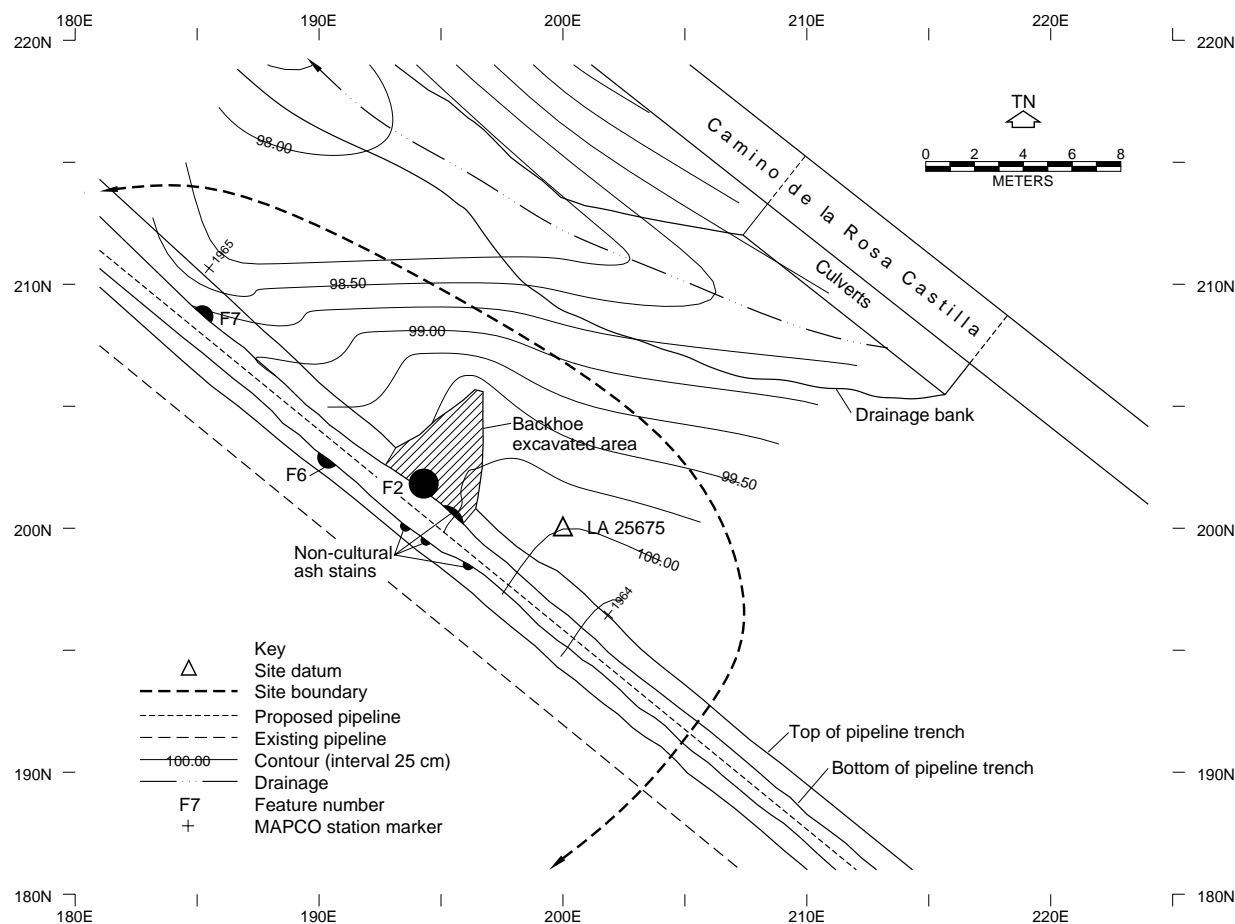


Figure 2.1 Site map of LA 25675 showing locations of backhoe-excavated area and features.

The second small basin-shaped hearth (Feature 2) was located at the bottom of the north wall of the pipeline trench at a depth of 1.26 m below the bladed ground surface. Mechanical equipment was used to remove the culturally sterile overburden. The hearth, circular in plan view, had been truncated nearly in half by the pipeline trench. The hearth measured 62 cm along the trench wall, 35 cm in remaining width, and 27 cm deep. Its entire fill was collected for flotation and charcoal samples. No artifacts were recovered from the area adjacent to the hearth. Because this hearth was slightly closer to the surface than Feature 6, it is believed to be more recent.

No artifacts were recovered from the excavations. The entire contents of both hearths were saved for flotation. The fill from the two hearths, totaling 57.3 liters, was processed by flotation and then scanned for botanical remains by Lisa Huckell. Feature 6 yielded uncharred goosefoot (*Chenopodium* sp.) and carbonized tansy mustard (*Descurainia* sp.) seeds. No botanical remains were recovered from

Feature 2. The uncharred goosefoot seeds are believed to be a recent contaminant whereas the carbonized mustard seeds are likely associated with the archeological feature.

SUMMARY AND INTERPRETATION

Data recovery focused on the excavation of two deeply buried small hearths (Features 2 and 6) that were exposed by the pipeline trench. A charcoal sample from one hearth (Feature 6) yielded a radiometric age indicating a middle Archaic occupation. Feature 2, stratigraphically above Feature 6, is not as old and may date to the late Archaic period. Botanical remains indicate the occupants were burning locally available wood, particularly oak. Although oak is not presently available in the immediate vicinity it does grow in the Las Huertas Creek drainage. Oak yields a hotter fire than most local woods and is well suited for cooking and heating. The age of the hearths and the absence of artifacts suggest they represent short-term camps of

hunter-gatherers who were exploiting the locally available plant and animal resources in the Las Huertas Valley.

The early date from Feature 6 extends the time depth of LA 25675. Previous surveys indicated the site was a pitstructure village with at least two occupations. OCA's data recovery indicates the thermal features on the northern periphery of the site can be attributed to middle Archaic and perhaps late Archaic occupations that precede the pitstructure village component.

Chapter 3

LA 25851

Byrd A. C. Bargman

LA 25851 is a multicomponent site that has occupations attributed to the middle Archaic and Pueblo IV periods. The site is about 1 km (0.62 mile) south of the Jemez River and is on a gentle north slope of the upper terrace of the Jemez Valley (Figure 1.1). The area consists of coppice dunes underlain by alluvial gravels. Vegetation consists of one-seed juniper, ephedra, snakeweed, and grasses. This location would have provided ample firewood and water, excellent potential for acquiring wild game, and protection from inclement weather.

PREVIOUS INVESTIGATIONS

LA 25851 was originally recorded (MAPCO 40) as having Red Mesa Black-on-white ceramics (Schaafsma 1973:6). The 1995 survey identified three distinct episodes of occupation—middle Archaic, Pueblo I, and Pueblo IV (Bradley et al. 1998:251). Pipeline trenching revealed charcoal stains in the trench walls approximately 100 m southeast of the site survey datum (Figure 3.1).

INVESTIGATION STRATEGY AND RESULTS

Data recovery focused on the excavation of five features via mechanical and manual stripping of overburden and hand-excavation of 22 1 m² units. Four study units—2.5 by 35 m (SU 1); 3 by 4 m (SU 2); 3 by 4 m (SU 3); and 2.5 by 1 m (SU 4)—were established to encompass the five features. Between 40 to 65 cm of culturally sterile overburden was removed to expose the features. Features 2 to 5, in Study Units 2 to 4, were found to be natural occurring evidence of fire. No further work was conducted in these areas. Two lithic artifacts were recovered from Study Unit 2 but none was recovered from Study Units 3 or 4.

Study Unit 1—placed to investigate a diffuse stain that represented a hearth (Feature 1)—was the only cultural feature discerned within the pipeline corridor. The overlying 50 cm of culturally sterile eolian sands was removed with the aid of mechanical equipment followed by hand-scraping to

the top of the stain. The surface scrape yielded 17 flaked lithics from an area measuring approximately 8.75 m².

The hearth (Feature 1) measured 160 by 60 cm and 11 cm deep (Figure 3.2). Approximately 50% of the hearth had been removed by trenching. The hearth—capped by a compact caliche layer that varied from 5 to 50 cm thick—had fill consisting of black ashy sand with dense charcoal flecking. There was no oxidation of the surrounding ground.

Study Unit 1 yielded 68 lithics of which flakes constitute 66% (Table 3.1). Large cortical flakes were recovered from the area surrounding the hearth, and very small flakes were recovered from the hearth (Feature 1) fill. The tools—all of obsidian—are utilized flake, the distal end of a projectile point, and the proximal end of a San Rafael-type projectile point. The flotation sample from the feature fill contained carbonized goosefoot seeds. Two radiometric dates were derived from charcoal samples collected from the hearth (Feature 1). The first sample—conifer (cf. *Juniperus*) with minor amounts of saltbush/greasewood (*Atriplex/Sarcobatus*)—yielded an age of 3940 ± 80 BP (Beta-96748) and a date of 2460 cal BC. It has a 2-sigma date range of 2605 to 2190 cal BC. A second sample—conifer (cf. *Juniperus*) and saltbush/greasewood (*Atriplex/Sarcobatus*)—yielded an age of 4070 ± 60 BP (Beta-96711) and a date of 2585 cal BC. It has a 2-sigma date range of 2870 to 2795 cal BC and 2770 to 2460 cal BC. These dates place occupation of this portion of the site during the middle Archaic period.

ARTIFACTS AND SAMPLES

The artifact assemblage consists of 74 lithics, one animal tooth, and archeobotanical remains.

Lithics

The lithic assemblage is composed of mostly flakes and angular debris (Table 3.1). The only tools are a utilized flake

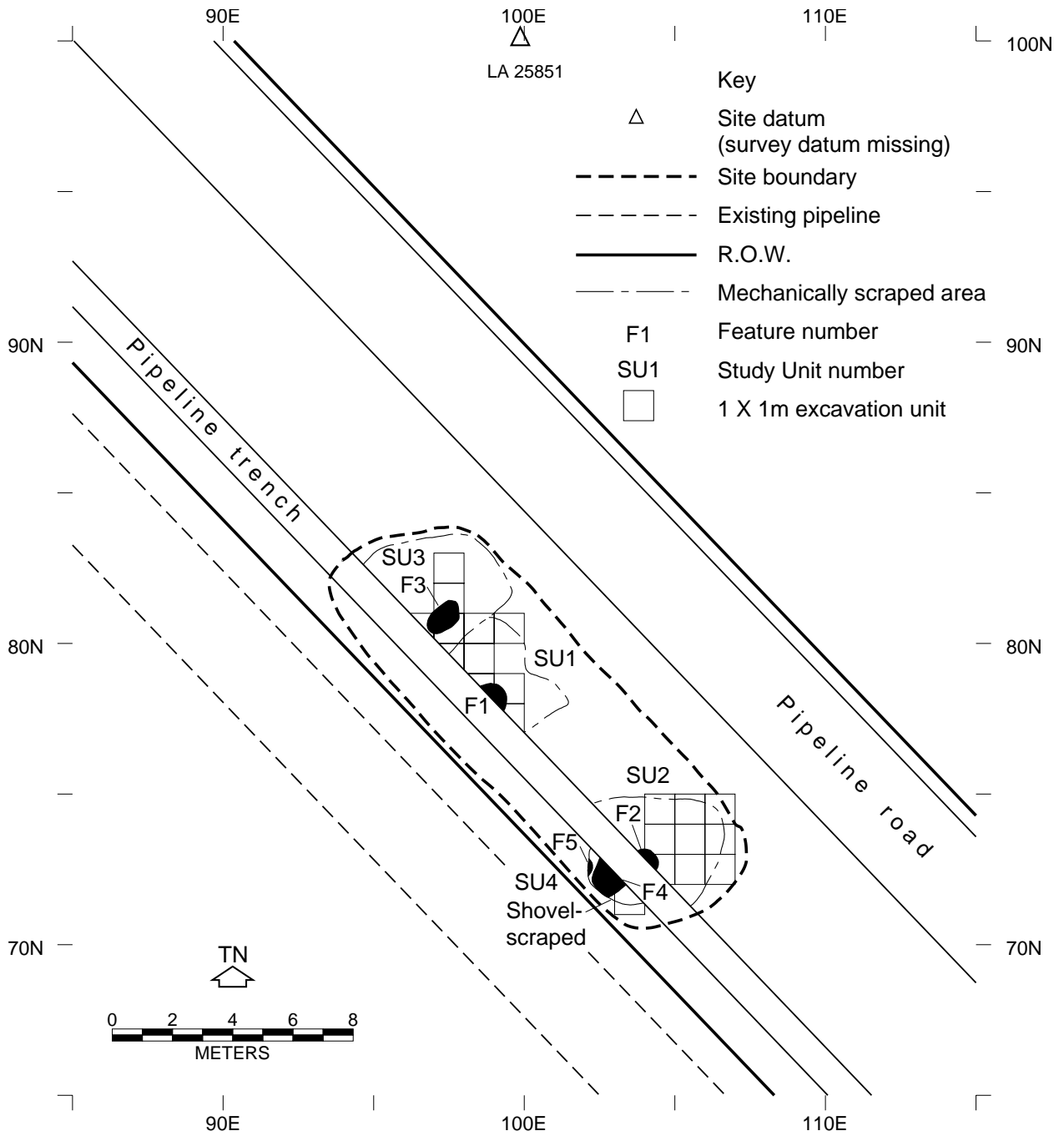
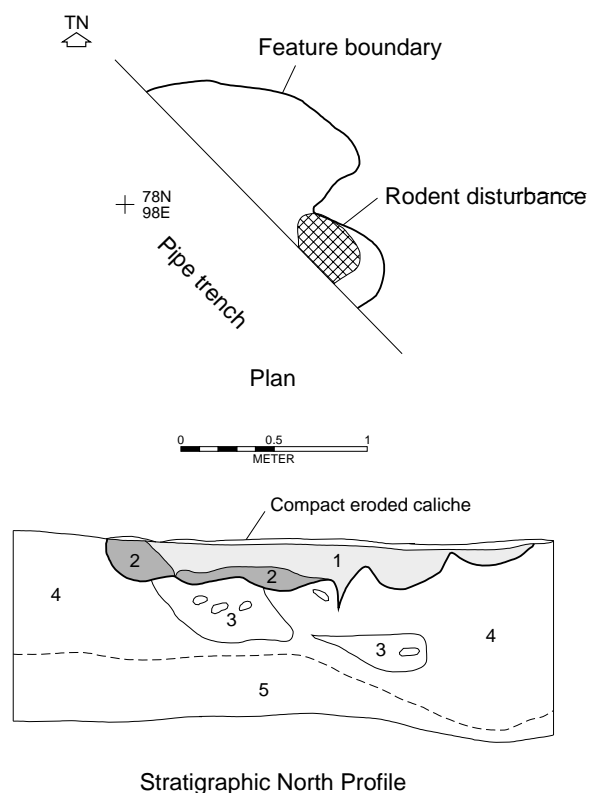


Figure 3.1 Site map of LA 25851 showing excavated areas and features.



- 1 Black ashy feature fill
- 2 Gray ashy feature fill
- 3 Light brown sand w/conc. of rounded cobbles & pebbles
- 4 Light brown sand
- 5 Light brown sand w/eroded caliche throughout
- Large rounded cobble

LA 25851
Study Unit 1
Feature 1

Figure 3.2 Study Unit 1 Feature 1.

and fragments of two projectile points. One projectile point fragment—a tip—is a bifacially modified obsidian flake. The size of the tip suggests it represents a medium-size point, best suited for hafting as a dart or spear. The second projectile point fragment is the base of a San Rafael type. It is made on a large obsidian flake. Its tip is missing as a result of an impact fracture. The size of this specimen suggests it too would have been best suited for tipping a dart or spear. The utilized flake is a primary decortication flake. The distal end of the flake has a pronounced protrusion

that appears to have been used as a graver while one lateral edge has been used as a knife. Small scalar fractures occur on both the dorsal and ventral surfaces of the lateral edge, confirming its use as a knife.

Lithic materials are mostly chalcedonies, cherts, and obsidian (Table 3.1). Most of these materials are available in the local gravels along the Jemez Valley. The larger pieces of obsidian are most likely from the Jemez Mountains to the north; however, smaller cobbles suitable for knapping occur in the local gravels.

Faunal Remains

The faunal assemblage consists of a single deer/pronghorn (*Odocoileus/Antilocapra americana*) tooth fragment from one of the naturally occurring stains (Study Unit 2). Deer/pronghorn is an economically important species and its presence, even in a noncultural context (a root burn), is probably related to cultural activities.

Archeobotanical Remains

This site had 52.1 liters of matrix processed by flotation. Three flotation samples from the hearth (Feature 1) were scanned by Lisa W. Huckell for botanical remains. One of the three samples contained carbonized goosefoot (*Chenopodium* sp.) seeds and probable juniper seed fragments which are probably associated with the archeological assemblage.

Table 3.1 Lithic artifact and material types, LA 25851.

	Hearth SU 1	Other Areas	<i>n</i>	Total %
Artifact Type				
Angular Debris	20	2	22	29.7
Flake	45	2	47	63.5
Tested Rock	1		1	1.4
Core, Irregular		1	1	1.4
Flake, Utilized	1		1	1.4
Projectile Point	1	1	2	2.7
Total	68	6	74	100.1
Material Type				
Chalcedony	38	3	41	55.4
Silicified Wood	2	2	4	5.4
Quartzite	3		3	4.1
Chert	11		11	14.9
Obsidian	13	1	14	18.9
Basalt	1		1	1.4
Total	68	6	74	100.1

SUMMARY AND INTERPRETATION

Previous surveys indicated LA 25851 had multiple components dating from the middle Archaic to the Pueblo IV periods. The location of the excavated hearth (Feature 1) 100 m southeast of the site survey datum suggests a separate encampment rather than a satellite feature of LA 25851. The radiometric ages and San Rafael-type projectile point suggest that Feature 1 represents a short-term campsite dating to the middle Archaic period. The extent of this middle Archaic period occupation is not known since only a small portion of the site was within the pipeline corridor, and the remainder was not tested.

Chapter 4

LA 25856

Byrd A. C. Bargman

LA 25856 is a low-density lithic and ceramic scatter dating to the early Developmental or Basketmaker III–Pueblo I period (Figure 1.1). The site, measuring 60 by 10 m, is located 1 km (0.62 mile) south of the Jemez River on a flat, sandy plain that has a moderately thick stand of juniper. Approximately 1.6 km (1 mile) northwest of this site is LA 25860—the Sheep Chute Site—a Developmental period residential site (Ferg 1983:7–90). Located 1 km (0.62 mile) to the southeast is LA 109129, a long-term early Developmental or Basketmaker III period residential site (see Chapter 9, this volume). LA 25856 is situated within partially stabilized coppice dunes. Vegetation consists of one-seed juniper, snakeweed, ephedra, prickly pear cactus, blue grama, and other grasses.

PREVIOUS INVESTIGATIONS

LA 25856 was recorded in 1973 during the first MAPCO pipeline project (MAPCO 45) as a lithic scatter with an abundant quantity of burned rocks (Schaafsma 1973:7–8). The absence of ceramics suggested an Archaic period occupation. The 1995 survey reported a diffuse scatter of lithics and sherds distributed over dune and sand sheet deposits (Bradley et al. 1998:254). The ceramics are Cibola grayware and whiteware sherds and a single Red Mesa Black-on-white.

INVESTIGATION STRATEGY

Initial investigation focused on relocating the artifacts recorded during the 1995 survey (Bradley et al. 1998:254) and probing for buried cultural deposits. A surface collection using 1 m² units was conducted on the eastern portion of the site. Two groups of shovel test pits (STPs), designated Study Unit 1, were excavated. The eastern group of shovel test pits was placed to investigate a deflated area closest to the surface collection units with the highest artifact density. The western group of shovel test pits was placed within a deflated area in the middle of the site. Mechanical equipment was used to dig five trenches (SUs 2 to 6) to

search for intact subsurface cultural deposits. One trench (SU 2) was placed on the pipeline centerline while the other four trenches (SUs 3 to 6) were placed perpendicular to the centerline trench (Figure 4.1).

RESULTS

Surface Collection

The surface collection grid was positioned over the road where the artifact density was highest. Within this 34 by 11 m area only 32 1 m² units produced artifacts—27 ceramics, 23 pieces of chipped stone, a ground stone fragment, and a spherical stone concretion.

Shovel Test Pits (STPs) (Study Unit 1)

Artifacts visible in the eroded road suggested the presence of buried cultural remains. Two groups of shovel test pits were dug to probe the deep sands extending north from the pipeline centerline. Seventeen shovel test pits were dug within a 20 by 2 m grid positioned over a deflated area closest to the artifacts in the road. These pits—excavated to depths of 60 to 70 cm—did not yield any artifacts. The second group of 22 shovel test pits was placed in a 14 by 4 m grid located in a deflated area believed to be the middle of the site. These pits—dug to a depth of 60 cm—also did not yield any artifacts.

Trenches

Five mechanically excavated trenches (SUs 2 to 6) were placed parallel with or perpendicular to the pipeline centerline. Three small stains (Features 1 to 3) and a few artifacts were noted in the trench walls at a depth of 1.5 m below surface.

The trench (SU 2) on the pipeline centerline, which bisected the site southeast to northwest, measured 1 m wide, 59 m long, and 1.5 m deep. An ash stain (Feature 2) was

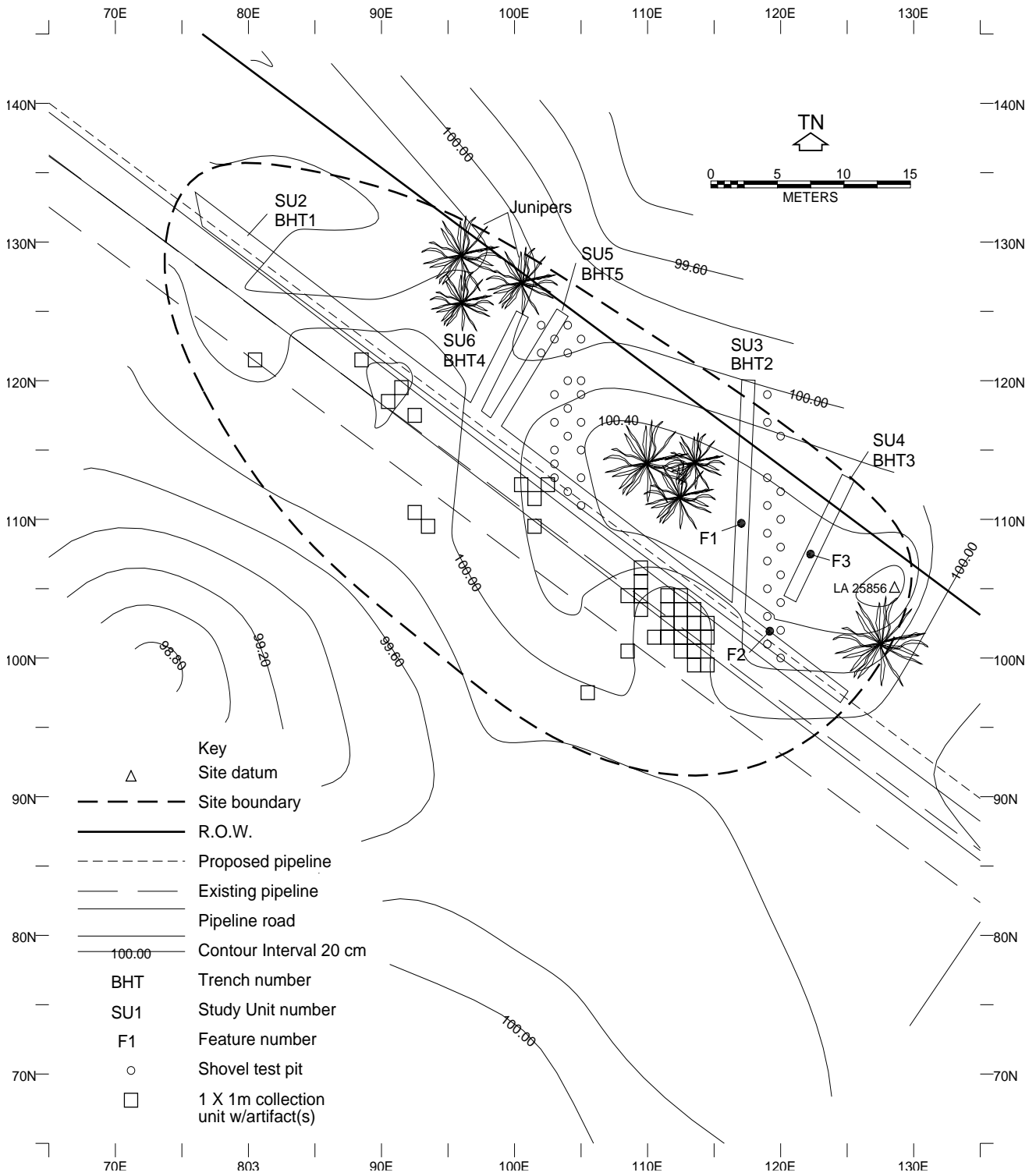


Figure 4.1 Site map of LA 25856 showing locations of surface collection units with artifacts, trenches, shovel test pits, and features.

discerned in the north wall of this trench. The stain occurred in the stratigraphically lowest sand deposit, which represented alluvial sediments. One lithic item and a plain grayware sherd were recovered from the stain. The project geomorphologist identified this stain as cultural remains transported in water-lain sands.

Study Units 3 to 6 are trenches dug perpendicular to the first trench (Figure 4.1). Study Unit 3, measuring 1 by 17 m and 1.5 m deep, revealed an amorphous ash stain (Feature 1) at floor level. This stain consisted of diffuse cultural remains in channel-laid deposits. Two lithics and three plain grayware sherds occurred 4 m from the stain in the east wall of the trench.

Study Unit 4—1 wide, 10.5 m long, and 1.5 m deep—revealed a basin-shaped hearth (Feature 3) in its east wall (Figure 4.1). This hearth, measuring 40 by 30 cm and 9 cm in depth, had fill consisting of dark gray ash and sand. No artifacts or oxidation was noted, but rodent disturbance was apparent. A single piece of fire-cracked rock occurred 20 cm southwest of the hearth. Flotation of the hearth fill yielded carbonized remnants of Indian ricegrass (*Oryzopsis hymenoides*), maize kernels (*Zea mays*), and goosefoot (*Chenopodium* sp.) seeds. This hearth (Feature 3), which had been dug into clay overbank sediments, was the only intact cultural feature discerned during data recovery at this site.

Neither of the remaining two trenches (SUs 5 and 6) revealed any cultural deposits. Study Unit 5 measured 1 m wide, 7.5 m long, and 1.75 deep and Study Unit 6 measured 1 m wide, 9.5 m long, and 1.5 m deep.

Stratigraphy was consistent throughout the site. Examination of the trenches by a geomorphologist (Mary Triglio, personal communication 1995) indicated multiple episodes of alluvial deposition. The 30 cm of sands at the base of the stratigraphic profile were coarse, well-sorted channel deposits displaying low-energy deposition. Overbank sediments, seen as clay lenses, were found within and on top of the lower, channel-lain deposits. Vertical stacking, as a result of floodplain activity, was visible in these lenses. The 1 m of fill above the lower channel-lain deposits consisted of numerous examples of crossbedding, climbing ripples, and water laminates. These were capped by 30 to 40 cm of active eolian sand.

ARTIFACTS AND SAMPLES

Data recovery yielded 68 artifacts most ($n = 51$, 88%) of which were from the surface collection. The assemblage consists of 27 lithics and 41 plain grayware ceramics and unidentified Cibola graywares and whitewares. Both bowl and jar forms are represented. The time range associated

with the Cibola ceramics is very broad, spanning AD 650 to 1325 (Mills 1993). This makes determining the time of site occupation difficult, but the ceramics appear to be from the earlier Pueblo I period. One flotation sample from the hearth (Feature 3) was scanned for botanical remains.

Lithics

The lithic assemblage is composed mostly of flakes and angular debris (Table 4.1) with an irregular core, a utilized flake, and a mano fragment also being present. Lithic materials are mostly chalcedonies with lesser quantities of silicified wood, chert, basalt, and quartzite. These lithic materials are available in the local gravels along the Jemez Valley. Most of the lithic assemblage is from the surface collection. In addition to the chipped and ground stone specimens an unusual spherical stone concretion, a probable manuport, was also recovered from the surface. It measures 26.8 mm in diameter and weighs 26.2 g.

Table 4.1 Lithic artifact and material types, LA 25856.

Artifact Type	Surface	Other	Total	
			<i>n</i>	%
Angular Debris	8		8	29.6
Flake	13	3	16	59.3
Core, Irregular	1		1	3.7
Flake, Utilized	1		1	3.7
Mano, unknown	1		1	3.7
Total	24	3	27	100.0
Material Type				
Chalcedony	17		17	63.0
Silicified Wood	1	2	3	11.1
Quartzite	2		2	7.4
Chert, white	3		3	11.1
Basalt		1	1	3.7
Limestone	1		1	3.7
Total	24	3	27	99.9

Ceramics

Sherds consist of two unidentified Cibola whiteware, one unidentified solid style Cibola whiteware, one polished plain gray, and 27 plain gray. Ten unknown specimens also occur. Most of the assemblage—plain grayware body sherds—is from Lino Gray jars. One Lino Gray jar rim sherd occurs in the assemblage. The decorated ceramics are also jars.

Archeobotanical Remains

Samples consisting of 6.3 liters of matrix from the hearth (Feature 3) were processed by flotation and then scanned by Lisa W. Huckell for botanical remains. Identified specimens were carbonized remains of Indian ricegrass (*Oryzopsis hymenoides*) and kernels of maize (*Zea mays*).

SUMMARY AND INTERPRETATION

The integrity of most of the cultural deposits at LA 25856 has been compromised because of substantial fluvial activity. The location of the hearth (Feature 3) and absence of charcoal and oxidation suggests a Developmental period short-term camp on the banks of a stream whose presence is indicated by stratigraphy in the trench walls. The other cultural remains are secondary deposits resulting from fluvial processes. The artifact assemblage and the site's proximity to LA 25860—the Sheep Chute site (Ferg 1983:7–90)—and LA 109129 (see Chapter 9, this volume) suggest a Developmental or Basketmaker III–Pueblo I period occupation.

Chapter 5

LA 25862

Byrd A. C. Bargman

LA 25862 is a Pueblo I period habitation with at least one pitstructure, associated activity areas, a midden, and an extensive ceramic and lithic surface scatter measuring approximately 210 m north-south by 102 m east-west. The site is situated on a gentle, sandy slope, on the south edge of the Jemez Valley. The Jemez River is 1 km (0.6) to the northwest (Figure 1.1). Modern vegetation consists of one-seed juniper, snakeweed, broom dalea, blue grama grass, ring muhly grass, and other grasses. This location would have supported a year-round occupation with ample firewood and water, areas nearby suitable for cultivation, a good view of the surrounding terrain for monitoring the movement of wild game, and some protection from inclement weather.

PREVIOUS INVESTIGATIONS

LA 25862 (Mapco 51) was originally recorded as being a Lino Gray sherd scatter (Schaafsma 1973:9). The 1995 survey (Bradley et al. 1998:259) determined it to be much more expansive than originally recorded, with three distinct artifact concentrations (Areas 1 to 3). The nearby Sheep Chute site (Ferg 1983:7–90)—approximately 350 m to the southeast—has a Developmental, or Pueblo I period occupation.

INVESTIGATION STRATEGY

Surface artifacts were collected using 1 m² units. Locations of high-density surface artifacts were chosen for surface scraping, shovel test pits, and trenches. Data recovery focused on excavating a subsurface structure, activity areas, extramural features, and midden deposits. The site was divided into three areas—eastern (Area 1), middle (Area 2), and western (Area 3).

RESULTS

Area 1

Area 1 (Figure 5.1)—measuring 16 by 28 m in the eastern part of the site—was surface collected. The surface collection yielded 16 ceramics and 11 lithics. A 4 by 5 m shovel scrape (SU 3) yielded 11 ceramics and 6 lithics. A 1 m wide, 10 m long trench (SU 5) was dug parallel to the north edge of the pipeline corridor. Deposits consist of channel sediments, alluvial sands, and overbank sediments. No artifacts were observed. This portion of the site has only surface artifacts with no subsurface cultural deposits.

The artifact assemblage from Area 1 is composed of 27 ceramics and 17 lithics. Most of the ceramics are Cibola utility graywares with one diagnostic sherd of Red Mesa Black-on-white (AD 850 to 1125). Lithics consist of flakes of poor quality chert. The absence of subsurface cultural deposits indicates short-term use of this portion of the site.

Area 2

Area 2 (Figure 5.1)—measuring 10 by 50 m in the middle of the site—was surface collected by piece plotting 21 artifacts. Subsurface investigation included shovel test pits and a mechanical surface scrape. Twenty-six 50 cm² shovel test pits (SU 2) recovered 14 lithics and 5 ceramics. The entire area was surface scraped (SU 4) resulting in the recovery of an additional 31 ceramics, 11 lithics, and 4 pieces of ground stone. Two thermal features (Features 1 and 2) were discerned at an eolian sand/clay interface.

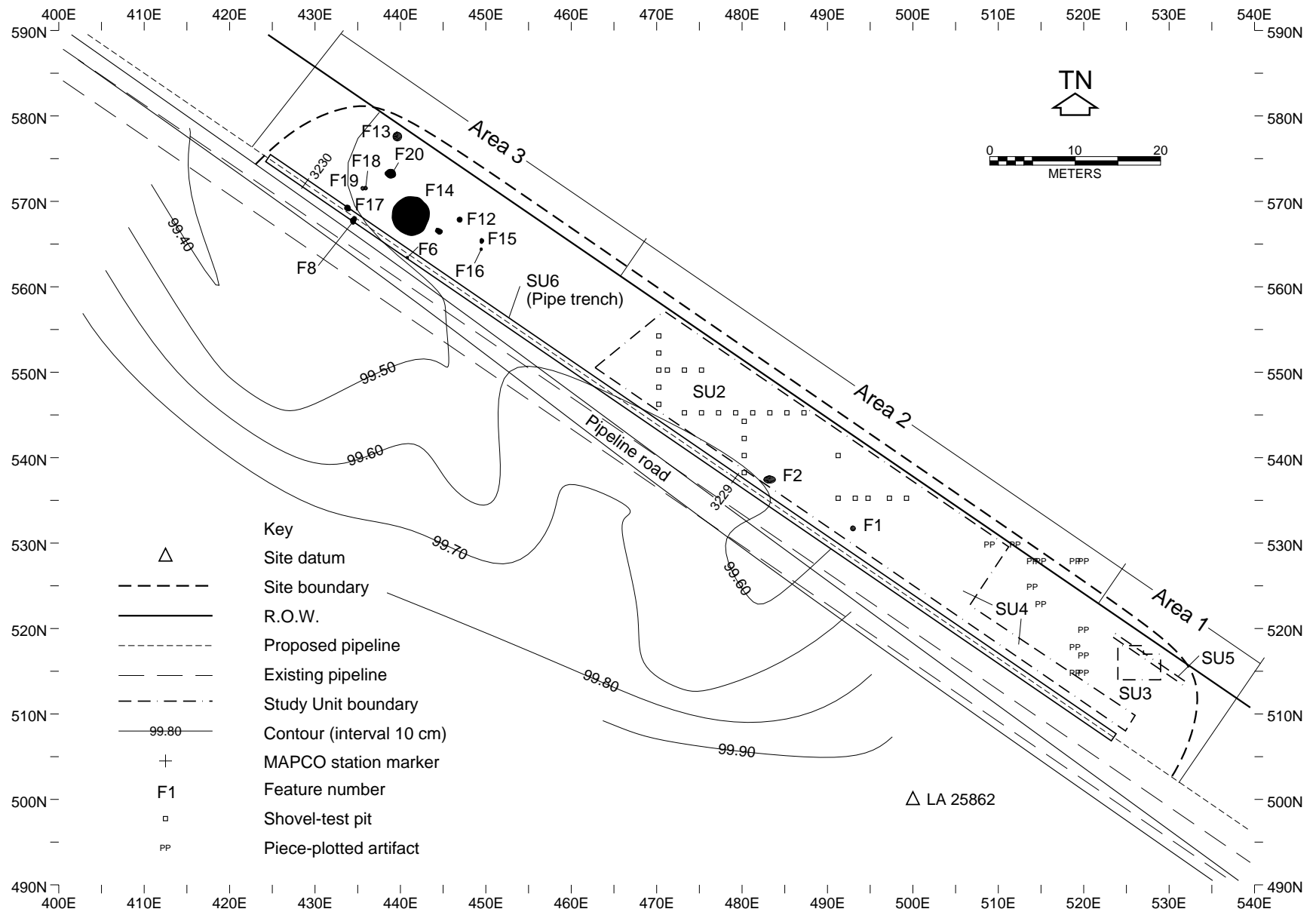


Figure 5.1 Site map of LA 25862 showing excavated areas and features.

Feature 1, an ash concentration measuring 25 by 50 cm with a depth of 7 cm, had fill consisting of loose, dark gray ash with compacted pieces of matrix. Two Cibola grayware jar sherds were recovered from its upper portion. The second feature—an oval hearth (Feature 2) measuring 70 by 120 cm with a depth of 8 cm—was located 11 m southeast of the ash concentration (Feature 1). Its perimeter was oxidized and fill consisted of a dark, fine ash and small pieces of charcoal. A flotation sample yielded carbonized remains of Indian ricegrass (*Oryzopsis hymenoides*), fourwing saltbush, (*Atriplex canescens*), and maize (*Zea mays*). Five Cibola grayware jar sherds, one Cibola whiteware bowl sherd, 12 large lithic artifacts with substantial amounts of cortex, and a one-hand basalt mano were recovered from the top of the hearth. The high density of charcoal and degree of oxidation suggests the hearth was used several times. Based on the carbonized archeobotanical remains, ceramic assemblage, and ground stone artifacts, Area 2 is believed to represent extramural activities that focused on the processing of agricultural produce.

Area 3

Area 3 (Figure 5.1)—at the west end of the site and measuring 10 by 40 m—was systematically surface collected in the area of highest artifact density. This 12 by 14 m area, which is believed to be a midden, yielded 77 ceramics, 62 lithics, and 2 ground stone fragments.

Three backhoe trenches (SUs 6, 8, and 10) were placed in Area 3 (Figure 5.2). Study Unit 6 was on the pipeline centerline, traversing the entire site. This trench measured 120 m long, 0.6 to 1 m wide, and 0.9 to 1.25 m deep. Stratigraphy in the eastern part of the trench exhibited overbank or floodplain deposits underlain by fluvial deposits consisting of water laminates, cross bedding, and low- and high-energy channel sands. No buried cultural deposits were discerned. The western portion of the trench exposed a midden, a clay lens, and two hearths (Features 8 and 17).

Study Unit 8 is a backhoe trench measuring 4 m long, 0.5 m wide, and 2.2 m deep that bisected a depression discerned in the centerline trench (Figure 5.2). The stratigraphy in its west wall (Figure 5.3) revealed three distinct flooding and filling episodes that had incised culturally sterile sands. The uppermost stratum was a 20 to 30 cm thick dense clay that contained silt, sand, and charcoal. This stratum was underlain by a 60 cm thick layer of dense clay containing sand, charcoal, and artifacts. At the bottom of the second stratum—along approximately 30% of the length of the trench—was a 2 cm thick lens of charcoal, underlain by a 1.3 m thick stratum of sands, silts, some carbonates, charcoal, and artifacts. At the bottom of the trench was a layer of intensely burned organic material.

A 6 m long trench (SU 10) was dug perpendicular to Study Unit 8 at the locus of the deeply buried burned organic material (Figure 5.4). The west end of Study Unit 10 revealed a sharp boundary between internal cultural deposits and external culturally sterile sands. This boundary, discerned in both walls of the trench is in fact the wall of a pitstructure (Feature 14).

The pitstructure fill was removed by both hand-excavation and mechanical equipment. Two 1 m² control units—hand-excavated in 10 cm levels—were placed in the western part of the pitstructure fill. These control units tested the depth and artifact density of the pitstructure fill and delineated the west wall.

The upper clay stratum, west of Study Unit 8, was removed mechanically. Because of time constraints mechanical equipment was used to remove the pitstructure fill in quadrants. Fill was removed to a depth approximately 25 cm above the structure floor and from its interior walls. Hand-excavation completed removal of the fill. The pitstructure upper and lower floors contained several features (discussed below).

Area 3 had four separate surface scrapes (SUs 1, 7, 9, and 11). The first (SU 1, Figure 5.2)—a 10 by 13 m shovel scrape in the area of the surface collection—exposed a stratum of slightly compacted, gray sand that contained charcoal flecks and some noncultural staining. Two 1 m² control units—hand-excavated in 10 cm levels—were placed arbitrarily within this midden. These control units tested the depth of the midden and its artifact density. The artifact assemblage from this surface scrape ($n = 2,052$) consists of 898 ceramics, 1,134 lithics, 7 ground stone fragments, and 13 animal bone fragments. This area did not contain any cultural features. Hand-excavation of the remainder of the cultural deposit in a 15 by 9 m area (SU 7)—also designated a midden—yielded 122 ceramics, 29 lithics, and 2 ground stone fragments.

A mechanical surface scrape (SU 9) measuring about 7 by 13 m was done to uncover two hearths (Features 8 and 17) exposed in the wall of the pipeline trench at the west end of the site (Figure 5.2). Further excavation revealed three additional hearths and a storage pit (Features 13, 18, 19, and 20) in a 9 by 9 m area. This extramural area yielded 26 ceramics, 16 lithics, and a ground stone fragment.

Study Unit 11 (Figure 5.2) is a 7 by 7 m mechanically surface-scraped area located where an unusual clay lens was exposed in the north wall of the pipeline trench. The heavily pedded clay broke away from an underlying stratum of sand. Further mechanical scraping delineated a 5 m wide pitstructure. The upper fill was in a depression with heavy clay containing sand, charcoal, and artifacts. This area

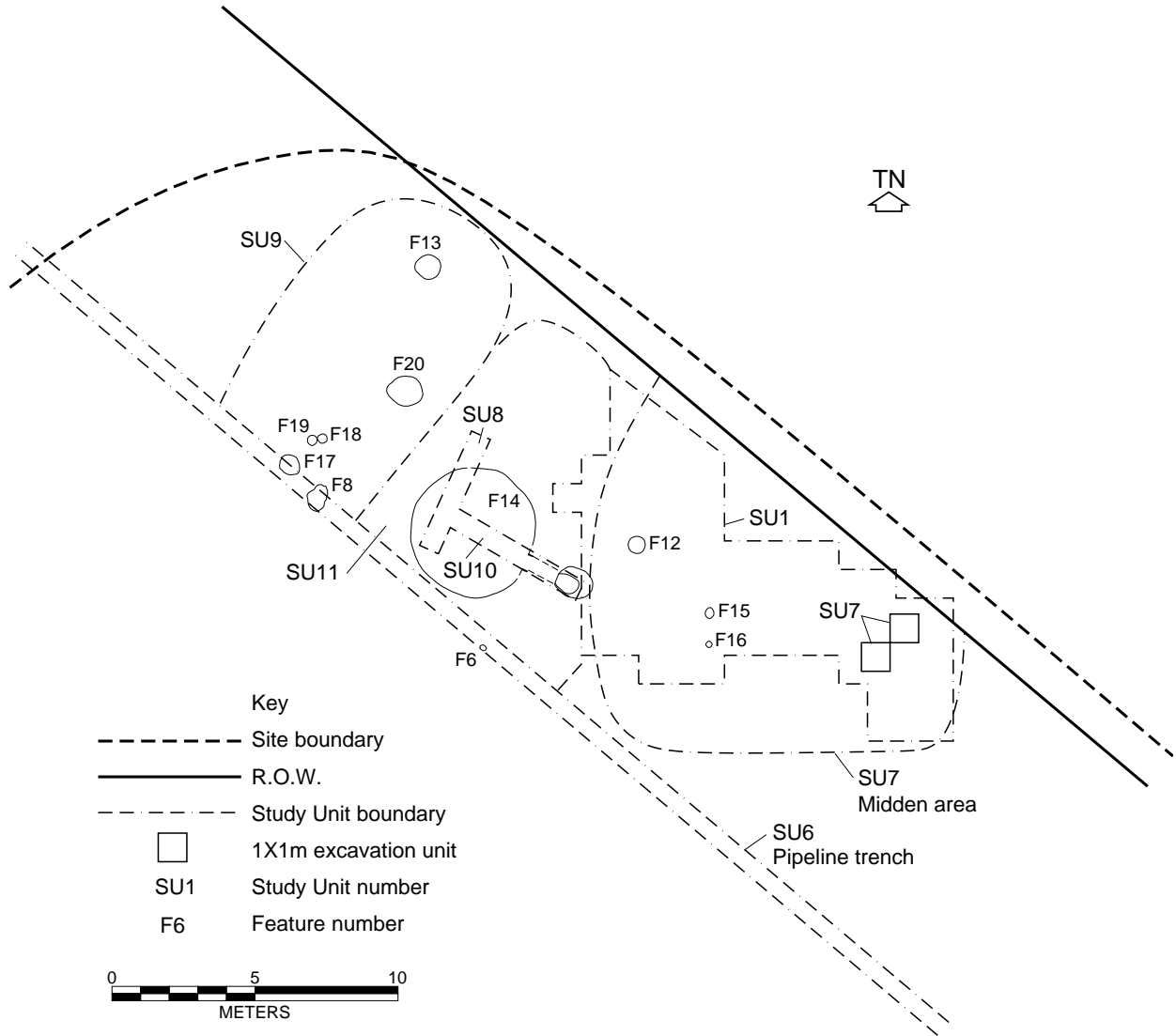
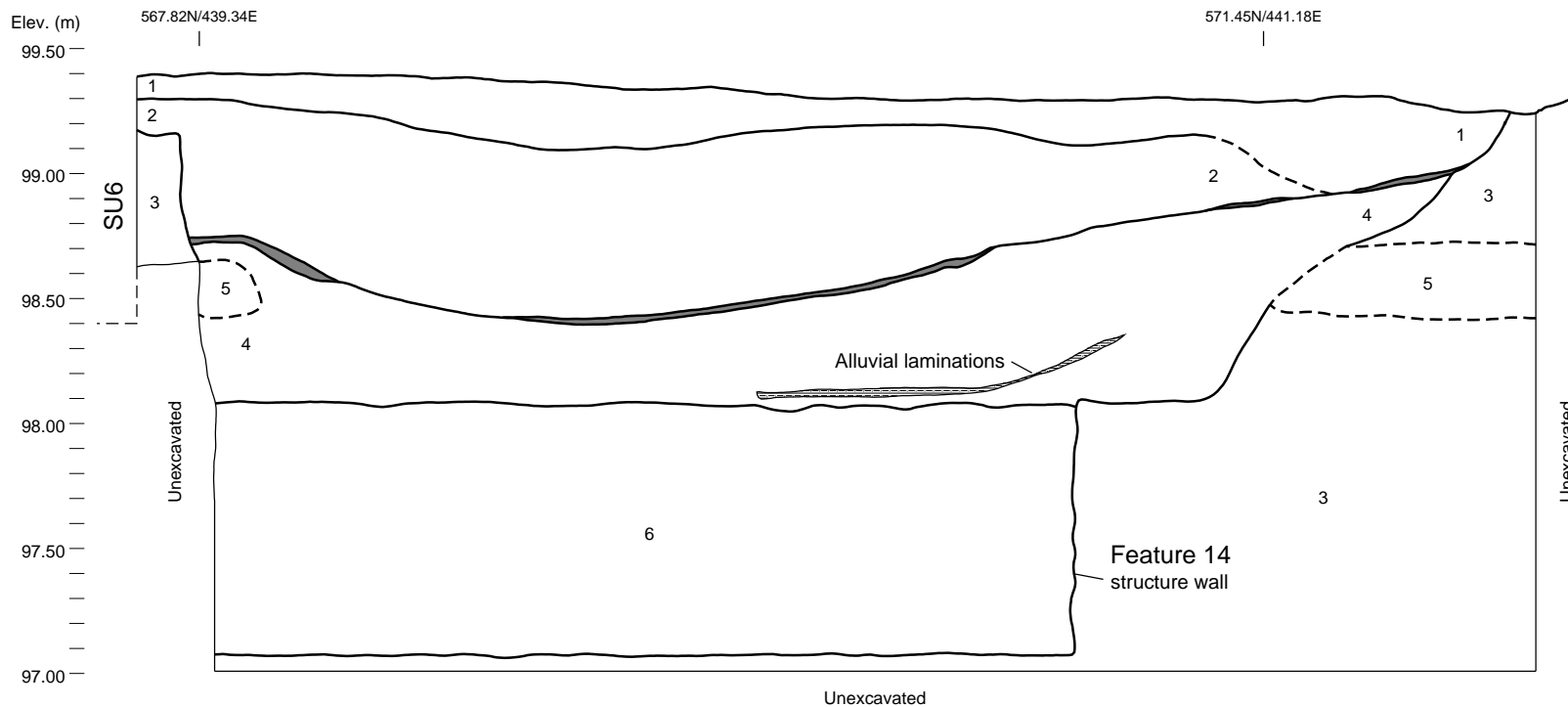

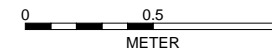


Figure 5.2 Area 3 Study Units and features.



- 1 Grayish brown very compact clay w/silt & charcoal (10YR 5/2)
- 2 Light gray mod. compact clay w/sand, charcoal & artifacts (10YR 3/2)
- 3 Very light brown fine sterile sand (10YR 7/3)
- 4 Light brown mod. compact sand w/silt, caliche, charcoal & artifacts (10YR 6/3)
- 5 Very light brown medium sterile channel sand (10YR 7/4)
- 6 Feature 14 fill
-  Charcoal lens



LA 25862
Study Unit 8
Feature 14
West Trench Wall Profile

Figure 5.3 Study Unit 8 (Feature 14) west trench wall profile.

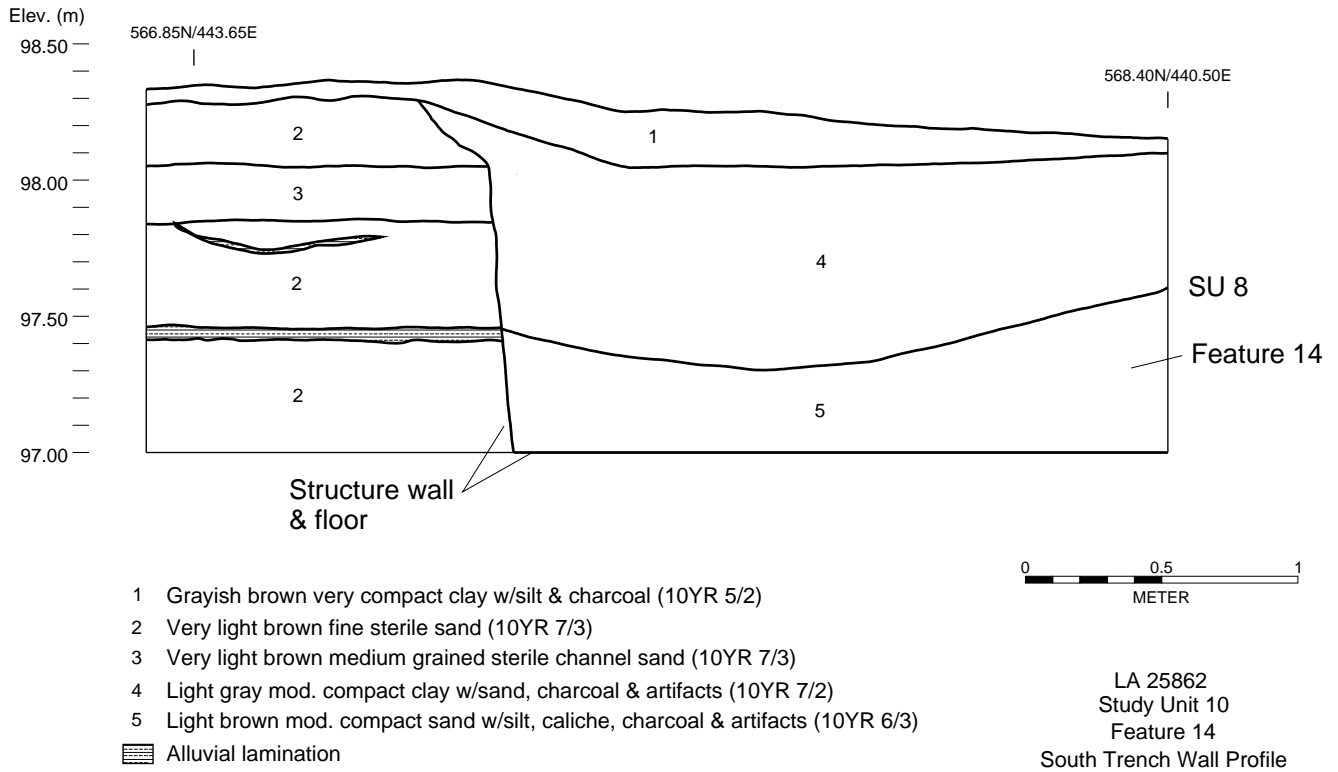


Figure 5.4 Study Unit 10 structure (Feature 10) south trench wall profile.

Table 5.1 Features in the extramural activity area within Area 3 at LA 25862.

Feature Number	Feature Type	Shape	Dimensions (cm)
8	hearth	shallow oval	80 by 60 by 10
13	hearth	circular basin	85 by 90 by 13
17	hearth	circular	69 by 68 by 21
18	slab-lined storage pit	circular	35 by 35 by 51
19	slab-lined storage pit	circular	38 by 34 by 12
20	storage pit/hearth	circular/ bulbous	105 by 122 by 58

yielded 78 ceramics, 12 lithics, and 2 ground stone fragments.

ACTIVITY LOCI

Area 3 consists of three distinct activity loci: an extramural activity area in Study Unit 9, a midden (SUs 1 and 7), and a pitstructure (Feature 14). Stains (Features 4, 5, 6, and 11) determined to be noncultural based on their shape and contents were also noted.

Extramural Activity Area

The extramural activity area—west of the pitstructure—encompasses six features, most of which appear to be hearths (Table 5.1). Four of the features (Features 8, 17, 18, 19) are clustered in a 2 by 2 m area adjacent to the pipeline trench (Figure 5.2).

The fill of Feature 8 consisted of a dark gray ash with carbonized wood and fire-cracked rock. Carbonized remains of maize kernels (*Zea mays*) and cobs were recovered from the flotation sample. Artifacts found throughout the fill consist of mano fragments, ceramics, tabular sandstone, and chipped stone. The fill also contained approximately 11 kg of heavily sooted sandstone and quartzite fire-cracked rock. Carbonized remains of conifer (cf. *Juniperus*) from Feature 8 yielded a radiocarbon date of 1180 ± 50 BP (Beta-96721) or cal AD 880. Its 2-sigma date range is cal AD 720 to 735 and 760 to 985.

Feature 17, about 1 m northwest of Feature 8, had multiple episodes of use. Its fill—two lenses of gray ash and sand with the greatest concentration of charcoal in the lower lens—contained carbonized remains of goosefoot (*Chenopodium* sp.), goosefoot/pigweed (*Chenopodium/Amaranthus*), pine (*Pinus* sp.), Indian ricegrass (*Oryzopsis hymenoides*), banana yucca (*Yucca baccata*), bugseed

(*Corispermum* sp.), and maize (*Zea mays*). A basalt biface was recovered from the upper portion of fill. Associated artifacts consist of 13 lithics, 4 ceramics, and 17 fragments of animal bone.

Two slab-lined pits (Features 18 and 19) were located immediately to the north of Feature 17. The fill of Feature 18 contained two distinct strata. The uppermost 25 cm was a gray, ashy sand with charcoal flecks and the lowermost 20 cm was tan oxidized sands and clay with a few charcoal flecks. Associated artifacts include a jasper core, a sandstone slab, a basalt mano fragment, very small chalcedony flakes, and a utility grayware sherd. The sandstone slab and basalt mano fragment were positioned on end and embedded in the southwest corner of the pit wall. This pit may have originally been for storage. The flotation sample yielded carbonized remains of pigweed (*Amaranthus* sp.), goosefoot (*Chenopodium* sp.), bugseed (*Corispermum* sp.), goosefoot/pigweed (*Chenopodium/Amaranthus*), winged pigweed (*Cycloloma* sp.), and maize (*Zea mays*). A charcoal sample—cottonwood/willow (*Populus/Salix* 67%) and conifer (cf. *Juniperus* 33%)—from Feature 18 yielded a radiocarbon date of 920 ± 90 BP (Beta-96717) or cal AD 1065, 1075, 1155. Its 2-sigma date range is cal AD 975 to 1280.

The upper portion of the second slab-lined pit (Feature 19) contained a 5 cm thick lens of dark charcoal. Directly beneath this lens were four burned basalt slabs. Three of the slabs lined the north section of the pit while the fourth was in its south section. The fill beneath the slabs was an oxidized sand with fragments of charcoal. Oxidation was evident on the upper perimeter of the hearth. The hearth fill contained a flaked lithic and three ceramic sherds. The flotation sample yielded carbonized remains of goosefoot (*Chenopodium* sp.), goosefoot/pigweed (*Chenopodium/Amaranthus*), winged pigweed (*Cycloloma* sp.), and maize (*Zea*

mays). Carbonized cottonwood/willow (*Populus/Salix* 90%), hardwood, and saltbush/greasewood (*Atriplex/Sarcobatus*) from Feature 19 yielded an age of 1170 ± 100 BP (Beta 96722) and a date of cal AD 885. Its 2-sigma date range is cal AD 665 to 1035.

Feature 20, located approximately 3 m northeast of Features 18 and 19, exhibited dual functions—thermal feature and storage pit. Its uppermost 10 cm of fill was a light-colored ash interspersed with large charcoal fragments. The second stratum consisted of a tan sand with compact pieces of oxidized sand and charcoal flecking. Its west side undercut the mouth of the pit by 10 cm. The artifact assemblage—37 ceramics, 29 lithics, 4 ground stone fragments, and 3 animal bone fragments—was primarily found in the bottom of the pit. Evidence of fire was discernible in the upper stratum, indicating initial use was for storage whereas later it was used as a hearth. The flotation sample yielded carbonized remains of goosefoot (*Chenopodium* sp.), goosefoot/pigweed (*Chenopodium/Amaranthus*), winged pigweed (*Cycloloma* sp.), banana yucca (*Yucca baccata*), prickly pear cactus (*Platyopuntia* sp.), and maize (*Zea mays*).

Feature 13 is situated at the north end of the activity area, approximately 3 m from Feature 20. This hearth had fill consisting of dark ash with small fragments of charcoal and thermally altered sands. Its interior was cracked and bright orange. The artifact assemblage is composed of 20 ceramics, 7 lithics, 3 fragments of animal bone, a piece of ocher, and 2 pieces of fire-cracked rock. The flotation sample yielded carbonized remains of prickly pear cactus (*Platyopuntia* sp.), banana yucca (*Yucca baccata*), and maize (*Zea mays*).

Midden

A sheet midden, covering a 15 by 9 m area, was located east of the structure (Figure 5.2). The fill consisted of a gray sand with charcoal flecks and pockets of ash, and varied in depth from 2 to 29 cm. The artifact assemblage from this area consisted of 1,037 sherds, 1,222 lithics, 10 ground stone fragments, and 81 pieces of animal bone. An ash stain (Feature 16) and two storage pits (Features 12 and 15) were found in the midden.

One storage pit (Feature 12)—a circular basin measuring 50 cm in diameter and 18 cm thick—had fill composed of a sand with small charcoal flecks. Differential soil compaction helped delineate its perimeter. The fill contained three sherds and one lithic flake. The function of this basin is unknown, but its distinct shape, absence of thermal alteration, and paucity of cultural remains suggest use for storage.

A second storage pit (Feature 15)—3 m southwest of Feature 12—measured 38 by 31 cm and contained three distinct stratigraphic levels. The uppermost stratum was a tan sand with dense charcoal flecking, the lowermost stratum was a mottled tan sand with a minimal amount of charcoal, and removal of the upper stratum revealed a third stratum that undercut the eastern portion of the upper stratum by 10 to 12 cm. This third stratum—measuring 60 by 45 cm and 44 cm in depth—was clean sand with small fragments of charcoal. The two upper strata represent a single event and the lower stratum represents an earlier event.

Feature 16 was a shallow circular stain consisting of a loose dark sand with charcoal and ash. No artifacts were recovered from this feature. The color and composition of the deposit are suggestive of a single ash dump representing hearth cleaning debris.

Pitstructure

The circular pitstructure (Feature 14) in the middle of Area 3 measured 4.5 m north-south by 4.3 m east-west and had two floors. The upper floor features had two hearths and a warming pit (Features 23–25) and a portion of the ventilator system (Feature 22) in the wall (Figure 5.5). The lower floor features was marked by a hearth (Feature 27), two ash pits (Features 28 and 30), and a group of depressions (Feature 30) (Figure 5.6).

The pitstructure fill was a tan sandy matrix with pockets of ash and charcoal intermixed with roof fall (Figures 5.3 and 5.4). The roof fall varied in thickness from 5 to 15 cm and constituted 70% of the fill. Carbonized fragments of annual reeds and fist-sized clay pieces were noted, but very little wood and few sizable charcoal fragments were present. Although the reeds and clay were probably minor elements of the roofing material, no evidence of the superstructure was discernible. A concentration of roof fall was designated Feature 21. The pitstructure fill ended with a fine gray ash covering a compacted sandy undulating deposit that formed the floor.

The pitstructure walls varied in height from 0.30 to 1 m, with the west and south walls being the best preserved (Figure 5.7). Plaster—on approximately 50% of the wall surface—was a tan clay that measured 2 cm thick. The plaster had been evenly applied with a smooth finish. In some areas the distinction between the wall and floor was not discernible because plaster had been applied to both surfaces.

A charcoal sample—conifer (cf. *Juniperus* 49%), saltbush/greasewood (*Atriplex/Sarcobatus* 49%), cottonwood/willow (*Populus/Salix*), and sunflower

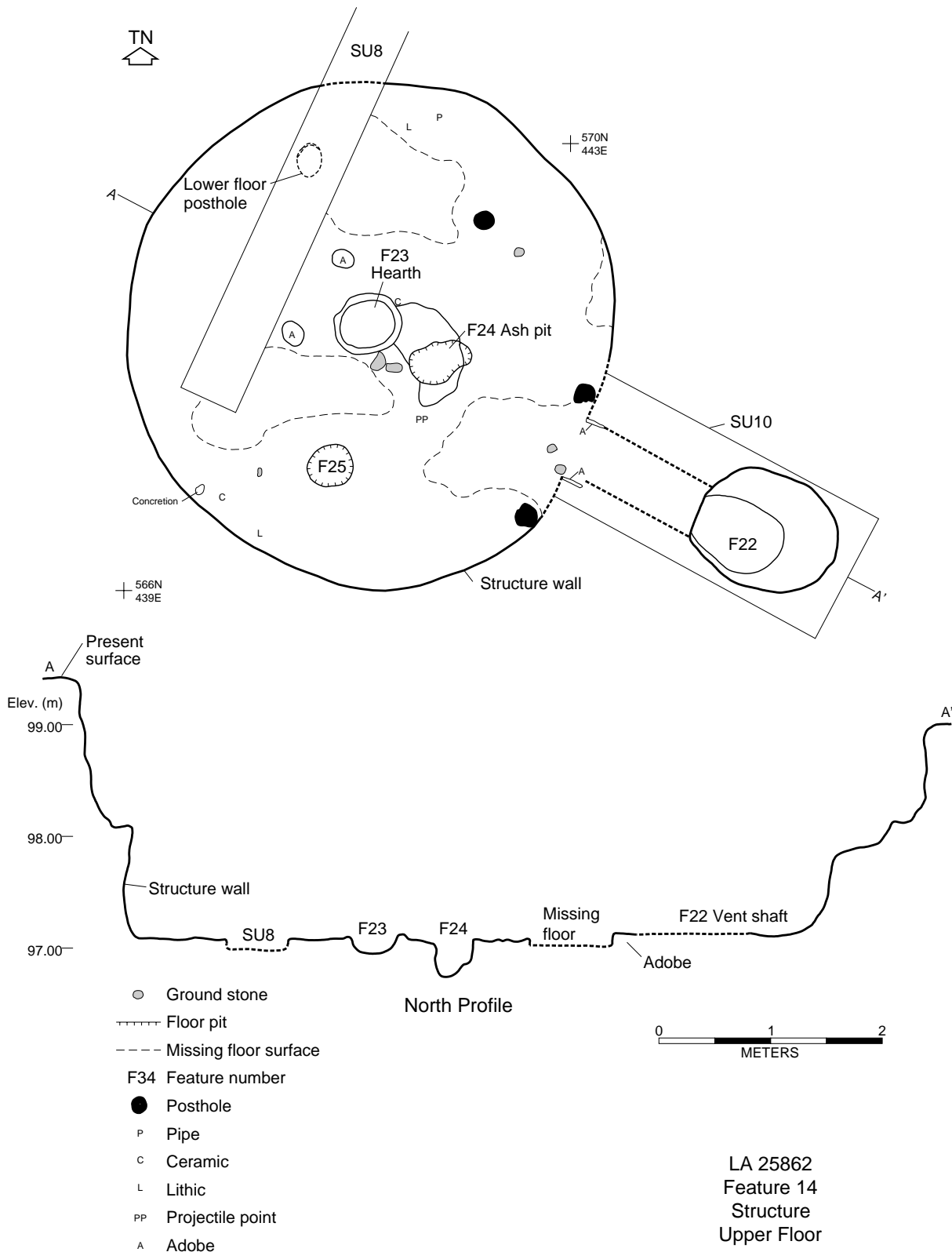


Figure 5.5 Upper floor features in structure (Feature 14).

(Compositae, few)—from the pitstructure fill yielded a radiocarbon date of 1260 ± 70 BP (Beta-96715) or cal AD 775. Its 2-sigma date range is cal AD 650 to 960.

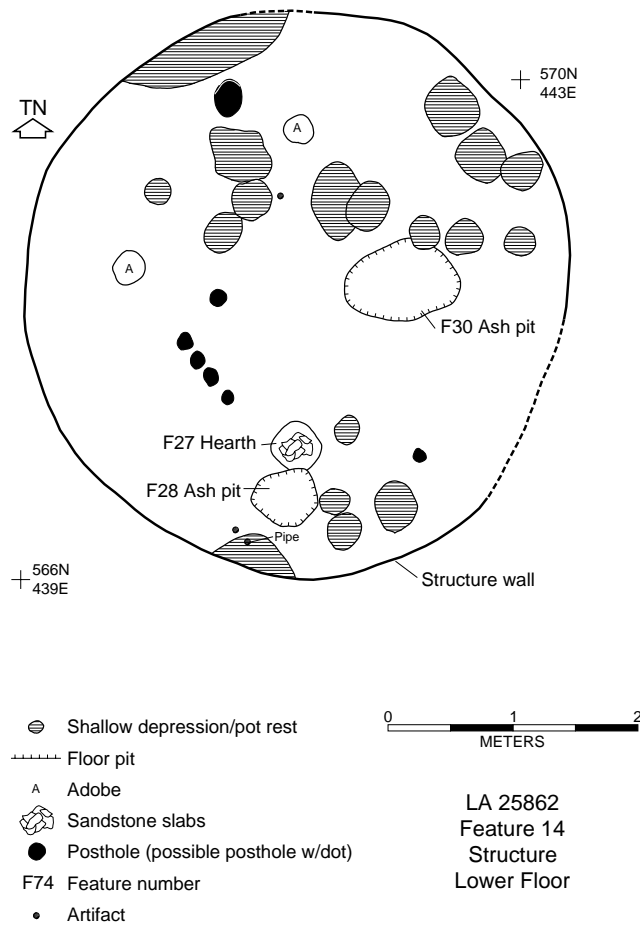


Figure 5.6 Lower floor features in structure (Feature 14).

Upper Floor

The plastered floor was a clay and sand mixture varying in thickness from 2 to 5 cm. Approximately 70% of the floor was covered with a layer of compacted sand 3 cm thick.

Artifacts found in situ on the floor include six fragments of ground stone, a White Mound Black-on-white ladle sherd, an obsidian projectile point, a smoking pipe, and two re-touched flakes. Five of the six pieces of ground stone and the ladle fragment are associated with the central hearth or were east of the hearth, suggesting an area used for the preparation of food.

Hearths. The central hearth (Feature 23) was adobe-coped with an interior diameter of 47 cm and an exterior diameter of 60 cm. The fill, measuring 9 cm thick, was dark ash and

charcoal in a sand matrix. Its sloping interior walls were heavily oxidized. A worked piece of basalt and a ground stone fragment were noted on its southeast edge. A White Mound Black-on-white ladle fragment was recovered from the pitstructure floor northeast of the hearth. The hearth flotation sample yielded carbonized remains of goosefoot (*Chenopodium* sp.), goosefoot/pigweed (*Chenopodium/Amaranthus*), bugseed (*Corispermum* sp.), bean (*Phaseolus* sp.), prickly pear cactus (*Playopuntia* sp.), juniper (*Juniperus* sp.), and maize (*Zea mays*).

A slab-lined hearth (Feature 25)—in the southern area of the pitstructure floor—measured 40 by 45 cm and 15 cm in depth (Figure 5.8). It was lined with seven heavily blackened basalt slabs and its fill was a dark ashy sand. The well-set basalt slabs produced a level interior. The largest slab was set in the base and the other slabs lined the hearth's upper walls. The flotation sample yielded carbonized remains of Indian ricegrass (*Oryzopsis hymenoides*), goosefoot (*Chenopodium* sp.), bugseed (*Corispermum* sp.), winged pigweed (*Cycloloma* sp.), cholla (*Cylindropuntia* sp.), sedge family (Cyperaceae), juniper (*Juniperus* sp.), pine (*Pinus* sp.), and maize (*Zea mays*). A conifer (cf. *Juniperus* 60%) and pine (*Pinus* 40%) charcoal sample from this slab-lined hearth yielded a radiocarbon date of 930 ± 40 BP (Beta-96718) or cal AD 1055, 1090, and 1150. Its 2-sigma date range is cal AD 1020 to 1215.

Warming Pit. The warming pit (Feature 24)—25 cm southeast of the central hearth—measured 48 cm in diameter and 28 cm deep. One ground stone fragment was recovered from the upper fill. The flotation sample yielded carbonized remains of pigweed (*Amaranthus* sp.), goosefoot (*Chenopodium* sp.), fourwing saltbush (*Atriplex canescens*), goosefoot/pigweed (*Chenopodium/Amaranthus*), sunflower (Compositae), squash/coyote gourd (*Curcubita* sp.), winged pigweed (*Cycloloma* sp.), and maize (*Zea mays*).

Ventilator System. The ventilator system (Feature 22)—in the southeast portion of the structure—consists of a tunnel approximately 1.45 m long and oriented toward the southeast (Figure 5.9). The vertical intake shaft was 1 m long with an exterior opening measuring 1 by 1.4 m and narrowing to 45 by 80 cm at the tunnel and shaft juncture. No floor deflector was found but two circular postholes, each 20 cm in diameter, located on either side of the tunnel opening, may be remnants of a deflector. Pieces of ground stone were recovered from the shaft and the front of the tunnel opening. The flotation sample yielded carbonized remains of pigweed (*Amaranthus* sp.), goosefoot (*Chenopodium* sp.), goosefoot/pigweed (*Chenopodium/Amaranthus*), bugseed (*Corispermum* sp.), winged pigweed (*Cycloloma* sp.), juniper (*Juniperus* sp.), reed (*Phragmites* sp.), and maize (*Zea mays*).



Figure 5.7 Photo of the pitstructure (Feature 14) at LA 25862.



Figure 5.8 Photo of a hearth (Feature 25) in the pitstructure at LA 25862.



Figure 5.9 Photo of the ventilator system (Feature 22) for the pitstructure at LA 25862.

Other Floor Features. In addition to the above features two adobe pads and four postholes were discerned on the pitstructure floor. Two postholes—in the north half of the floor—appear to have been part of the superstructure. The circular adobe pads, measuring 20 cm diameter, were applied to the floor surface. Their location, 50 cm north and 50 cm west of the central hearth, suggests ladder rests. The pads, however, seem to be too thin and fragile to bear loads.

Lower Floor

The prepared upper floor was underlain by tan sands and four lower floor features: a slab-lined hearth (Feature 27), two ash pits (Features 28 and 30), and a group of circular depressions (Feature 29) (Figure 5.6, Table 5.2).

Hearth. Feature 27—located almost directly beneath Feature 25 on the upper floor—had six heavily fire-blackened basalt slabs lining its interior. Its fill was nearly culturally sterile sand with some ash staining and mottling in the lowermost 2 to 3 cm. A bone awl, rodent mandible, and two flaked lithics were recovered from its northeast perimeter. The truncated condition of the hearth and absence of ash and charcoal suggest it had been cleaned prior to the application of the overlying floor.

Ash Pits. The northern perimeter of a clay-lined ash pit (Feature 28) overlapped the southern perimeter of Feature 27. The ash pit fill—a dense ashy matrix with very little

charcoal—contained a flaked lithic and two utility grayware sherds.

A second ash pit (Feature 30) was located in the east-central part of the lower floor. The fine, gray ashy sand fill of this large oval pit was not oxidized and contained no charcoal or artifacts.

Other Floor Features. Several shallow, mostly circular pits (Feature 29) occurred east of the hearth and across the northern half of the lower floor (Figure 5.6). They were discerned on the basis of texture and differential moisture content between their sandy fill and the surrounding subfloor matrix. They cluster in groups of three or four, with three larger pits associated with one smaller pit being the most prevalent. These pits may represent basket or pot rests, or evidence of remodeling activities.

ARTIFACTS

Data recovery at LA 25862 yielded 1,710 lithics, 2,534 ceramics, 213 animal bones, and 6 small turquoise fragments. In addition to the pottery sherds, the ceramic assemblage also included two pipes.

Lithics

The lithic assemblage is mostly composed of flakes and angular debris with a few tools, ground stone, and cores (Table 5.3). The predominant raw material is chalcedony

Table 5.2 Lower floor features in the pitstructure at LA 25862.

Feature Number	Feature Type	Shape	Dimensions (cm)	Depth (cm)
27	slab-lined hearth	circular	40 by 40	22
28	ash pit	basin	50 by 50	21
30	ash pit	large oval	65 by 95	11
29	shallow pits	circular	20–60 diameter	2–5

with a variety of cherts, silicified wood, quartzite, obsidian, and basalt also occurring. The presence of arrow points (Figure 5.10), cutting, scraping, and grinding implements indicates the procurement and processing of animals and plants. The assemblage represents residential activities related to food preparation and tool manufacture. Most of the artifacts are from the area immediately above the pitstructure, which suggests they are refuse rather than marking actual locations of use.

Six small turquoise fragments, weighing a total 0.98 g, were recovered from the structure (Feature 14) and its adjacent areas. None appear to be worked. The turquoise specimens may have originated from the Cerrillos region where it was mined prehistorically (Scurlock 1998:103). Several small red and yellow ocher fragments were also recovered. These specimens, which are available locally, probably represent raw material for pigments and paint.

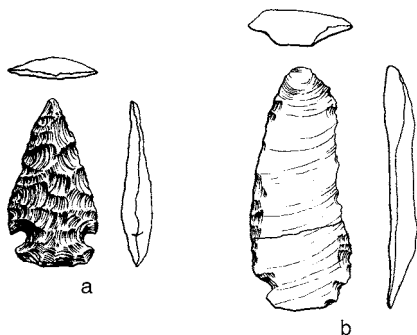


Figure 5.10 Illustrations of arrow points from LA 25862 (actual size).

Ceramics

The entire ceramic assemblage includes 2,534 sherds, 1,663 of which could be assigned to a type (Table 5.4). The dominant types are Cibola whitewares and graywares. Other identified wares include Rio Grande ceramics and glaze wares. Diagnostic types include White Mound Black-on-white (Figure 5.11c), Kiatuthlanna Black-on-white, Red Mesa Black-on-white (Figure 5.11a,b), Puerco Black-on-white, and Kana-a Neck Banded. Jars make up 87.6% of

the assemblage, of which 75% are Cibola grayware. Bowls comprise 9.3% of the assemblage, 72% of which are Cibola whitewares. The bowl:jar ratio of 1:9 suggests a domestic assemblage with an emphasis on storage (Sebastian 1983a:411–414). The ceramics from the structure, midden, and extramural activity areas all have similar date ranges indicative of a late Pueblo I to early Pueblo II occupation. Only a few intrusive glaze wares were noted in the surface collection from Area 2.

The ceramic assemblage also contains a cloudblower (Figure 5.12) and a pipe (Figure 5.13). The cloudblower, recovered from the upper structure floor, is formed from a conical piece of clay that measures 70.9 mm long and 24.2 mm in maximum diameter. There is a small hole in the center that extends the entire length of the pipe. The bowl is about 20.4 mm deep. The pipe, recovered from the lower structure floor, has a human effigy head at its distal end. The bowl is perpendicular to the stem. The stem extends beyond the bowl to form a rounded end that has a face consisting of two eyes, a nose, and a mouth. The face is oriented in the same direction as the bowl orifice. The pipe measures 83.6 mm long, 23.5 mm wide at the bowl, and 30.55 mm high at the bowl. The bowl measures 21.3 mm deep and has an orifice of 13.8 mm.

Faunal Remains

About two-thirds (67.1%) of the faunal assemblage consists of small mammal bone fragments (e.g., jackrabbit, cottontail, woodrat). Indeterminate medium and large mammals represent 7.5% of the assemblage, and a deer/pronghorn element was identified (Table 5.5). Most of the animal remains are from the midden and Features 12 and 15. Other loci with substantial quantities of animal remains include the pitstructure fill, roof fall, and floor, and associated features. The presence of animal remains in the pitstructure fill indicates its use for refuse disposal after it ceased to be inhabited.

Recovery of eggshell from the pitstructure and the activity area west of the structure suggests the possible presence of domestic captive birds (i.e., turkey). The woodrat bones from the structure fill, roof fall, and floor are probably

Table 5.3 Lithic artifact and material types, LA 25862.

Artifact Type	Other Areas	Surface			Scraped		Structure						Area 2	Midden	Activity Area	Total		
		General	Area 1	Area 3	Area 1	Area 3	Control Unit	Quads	Fill, Rooffall, Floor		Vent	Structure				n	n	
									n	%								n
Angular Debris	4	2	4	16		278	71.3	4	4	21	5.4		19	2	25	11	390	22.8
Flake	15	6	5	39	5	808	69.2	9	21	89	7.6	1	53	13	57	46	1167	68.2
Flake, Bifacial Thinning													1				1	0.1
Tested Rock						1	33.3			2	66.7						3	0.2
Core, Irregular			1	1		12	44.4		3	4	14.8		1	1	2	2	27	1.6
Core, Bifacial						1	50.0		1								2	0.1
Core, Unidirectional						1	100										1	0.1
Hammerstone									3	4	50.0					1	8	0.5
Pecking Stone															1		1	0.1
Chopper, Unifacial						1	100										1	0.1
Chopper, Bifacial									1			1	1				3	0.2
Angular Debris, utilized					1	1	50.0										2	0.1
Angular Debris, Retouched		1											1				2	0.1
Flake, Utilized						14	56.0	1	3	1	4.0		1	2	3		25	1.5
Flake, Retouched				1		9	50.0	1		5	27.8					2	18	1.1
Projectile Point						1	50.0			1	50.0						2	0.1
Biface						3	60.0									2	5	0.3
Uniface				1		1	25.0									2	4	0.2
Scraper						3	75.0		1								4	0.2
Ground Stone, unknown						3	33.3	1	1	1	11.1				3		9	0.5
Mano, unknown	4	1				2	16.7		1	2	16.7		1	1			12	0.7
Mano, One-hand									1	2	28.6		2	1	1		7	0.4
Metate, unknown						2	28.6	1	2	1	14.3				1		7	0.4
Metate slab	1								2	1	16.7		1	1			6	0.4
Shaft Straightener																1	1	0.1
Shaped Stone													1				1	0.1
other Ground Stone										1	100						1	0.1
Total	24	10	10	58	6	1141	66.7	17	44	135	7.9	2	80	22	91	70	1710	100

Table 5.3 continued.

Artifact Type	Other Areas	Surface				Scraped		Structure						Area 2	Midden	Activity Area	Total		
		General	Area 1	Area 3	Area 1	Area 3	Control Unit	Quads	Fill	Roof/Fall, Floor	Vent	Structure	n				n	n	n
Chalcedony	8	7	6	41	5	817	68.1	10	23	86	7.2	1	60	14	63	59	1200	70.2	
Silicified Wood	2			2		46	58.2		1	22	27.8		1		3	2	79	4.6	
Quartzite	6	1	1	4	1	50	58.8	2	6	4	4.7	1	2	1	4	2	85	5.0	
Chert	2	1	1	1		78	74.3	2	2	4	3.8		5	1	8		105	6.1	
Obsidian										2							2	0.1	
Obsidian, black opaque						1	100										1	0.1	
Obsidian, Jemez						27	64.3		2	5	11.9		6		1	1	42	2.5	
Basalt	5		2	8		110	73.3	1	1	7	4.7		3	2	9	2	150	8.8	
Basalt, vesicular		1				2	33.3						1	2			6	0.4	
Latite				2													2	0.1	
Sandstone	1					10	27.0	2	7	7	18.9		2	1	3	4	37	2.2	
Limestone, fossiliferous														1			1	0.1	
Total	24	10	10	58	6	1141	66.7	17	44	135	7.9	2	80	22	91	70	1710	100.2	

Key: general = general site area

Table 5.4 Ceramic types, LA 25862.

Ceramic Type	Other Areas <i>n</i>	Surface			Scraped		Structure						Area 2 <i>n</i>	Midden			
		Gen. <i>n</i>	A 1 <i>n</i>	A 3 <i>n</i>	A 1 <i>n</i>	A 3		Control Unit <i>n</i>	Quads <i>n</i>	Fill, Rooffall, Floor		Vent <i>n</i>		Structure <i>n</i>	Feature <i>n</i>	<i>n</i>	<i>%</i>
						<i>n</i>	<i>%</i>			<i>n</i>	<i>%</i>						
unidentified Cibola whiteware		4	2	4		81	9.0	3	7	24	12.5	1	8		3	7	5.0
unidentified narrow line Cibola whiteware			1	9		35	3.9	10	3	10	5.2		1		1	4	2.9
unidentified medium line Cibola whiteware						9	1.0		2								
unidentified solid Cibola whiteware						5	0.6	2	5	7	3.6		2			2	1.4
unidentified hatched Cibola whiteware						1	0.1										
White Mound Black-on-white						6	0.7		2	4	2.1		1			4	2.9
Kiatuthkanna Black-on-white						7	0.8	2	1	3	1.6	1	2		1	1	0.7
Red Mesa Black-on-white	1			2	1	8	0.9	7	9	4	2.1		4			2	1.4
Puerco Black-on-white										1	0.5						
plain/polished redware						4	0.4						1			1	0.7
polished plain gray						7	0.8	3	3	5	2.6		3				
smudged plain gray						3	0.3	3	2	3	1.6						
unidentified Cibola grayware				2		54	6.0	17	4	24	12.5	3	3			5	3.6
plain gray	9	7	7	32	7	599	66.7	27	50	101	52.6	2	32	1	21	108	77.7
Kana-a Neck Banded		1		3		33	3.7	1	1	5	2.6		2			3	2.2
unidentified clipboard corrugated gray						6	0.7										
incised corrugated gray						5	0.6										
Lincoln Black-on-red						1	0.1										
unidentified San Juan whiteware						15	1.7			1	0.5						
unknown glazeware		2		2		11	1.2								6		
Wiyo Black-on-white															1	1	0.7
Santa Fe/Wiyo Black-on-white													1				
unknown ceramic						8	0.9		2				1			1	0.7
Total	10	14	12	52	8	898	100	75	91	192	100	7	61	1	33	139	100

Key: Gen. = general site area; A = Area; unid = unidentified



Figure 5.11 Photo of Red Mesa Black-on-white (a,b) and White Mound Black-on-white (c) ceramics.



Figure 5.12 Photo of the cloudblower.



Figure 5.13 Photo of the ceramic pipe.

Table 5.5 Faunal remains from LA 25862.

Taxon	Other Areas	Surface Area 3	Scraped Area 3	Control Unit	Quads	Fill, Floor, Rooffall	Structure		Area 2	Midden	Activity Area
							Vent	Structure			
Indeterminate size bird	1			1		3		1			1
<i>Sylvilagus</i> sp. (Cottontail)			3			2		8		11	1
<i>Lepus californicus</i> (Black-tailed Jackrabbit)			2	1		3	1	2		2	1
cf. <i>Lepus californicus</i> (cf. Black-tailed Jackrabbit)						1					
<i>Neotoma</i> sp. (Woodrat)						1					
<i>Odocoileus/Antilocapra americana</i> (Deer/pronghorn)								1			
Indeterminate mouse-size mammal						8		4			
Indeterminate rabbit-size mammal	1		21	1	1	19		24	1	31	7
Indeterminate dog-size mammal						3				3	
Indeterminate deer-size mammal		1	1			4		1		2	1
Indeterminate size mammal	7					3				19	3
Total	9	1	27	3	1	47	1	41	1	68	14

intrusive. The lagomorph remains—cranial and limb elements—represent butchering and food refuse. The single deer/pronghorn element, a metatarsal that is modified into an awl (see below), is from the structure and associated features. The archeofaunal assemblage indicates a focus on locally available animals.

Two modified bone specimens, both awls, were recovered. One, a splinter awl fragment, is from the pitstructure. It consists of the tip and distal shaft. The awl was made from a long narrow splinter of a deer-size long bone. The awl shaft broke, probably making the remaining tip portion too short for further use. This specimen measures 75 mm long and 5 mm in maximum diameter.

The second specimen—a nearly complete awl with only the tip missing—is made from a proximal deer/pronghorn metatarsal. The shaft was split longitudinally, and the remaining portion of the articular end and shaft have been heavily ground and polished. This specimen measures 138 mm long, 17 mm wide, and 8 mm thick at its proximal end.

Both specimens had sharp narrow tips indicating hideworking rather than weaving implements. They would have functioned very efficiently for piercing hides for the manufacture of clothing and other items.

Archeobotanical Remains

Matrix totalling 405.5 liters was processed by flotation. Selected samples from 11 features were scanned for botanical remains (Table 5.6). The samples yielded a variety of taxa, particularly from the extramural storage pits and pitstructure. Pigweed, purslane, bugseed, and goosefoot are weedy annuals that have preference for disturbed habitats created by cultivating fields and other human activities.

Maize, the only taxon recovered from all 11 features, was undoubtedly an important crop. Most of the taxa would have been economically important during the late summer and fall.

SUMMARY AND INTERPRETATION

LA 25862 represents a Developmental, or late Pueblo I to early Pueblo II period occupation. Data recovery focused on one pitstructure, two extramural activity areas, and a substantial midden deposit. The remains suggests this site was a permanent habitation. The amount of investment in the pitstructure and its interior hearths would have made it suitable for year-round use. The ceramic assemblage indicates a focus on storage. The archeobotanical assemblage indicates use of several seasonally available wild plants and cultivars, with evidence of processing within the pitstructure. The multiple vessel rests and the distinct floor assemblage imply intramural/indoor domestic activity. This size structure could have supported a large family. Bullard (1962) suggests 1.5 m² of floor space is required for each sleeping adult. Using this constant the structure could have accommodated six to eight people. The presence of turquoise suggests interaction with groups to the northeast in the Cerrillos area (Scurlock 1998:103). Sites comparable to LA 25862 have been investigated near the Pueblos of Sandia, San Felipe, and Zia (McKenna 1995; Peckham 1954, 1957) and on the south drainages of the Jemez Valley (Fisbie 1967; Reinhart 1968; Skinner 1965; Vivian and Clendenen 1965; Vytlačil and Brody 1958). These sites include Sheep Chute (Ferg 1983), Joe and Mathew (Hammack 1983a), and LA 25869 (Hammack 1983b) which are located approximately 350 m southeast of LA 25862. The magnitude of the Developmental occupation in the lower Jemez Valley appears to have been substantial.

Table 5.6 Botanical remains from LA 25862.

	Hearths			Extramural Areas			Structure	Vent	Warm ing Pit	Pitstructure	
	2	8	13	17	18	19				23	25
Feature Number	2	8	13	17	18	19	14	22	24	23	25
Taxon/Number of flotation samples	1	1	1	1	4	1	1	1	1	1	1
<i>Amaranthus</i> (Pigweed)					c			c	c		
<i>Chenopodium</i> (Goosefoot)				c	c	c		c	c	c	c
<i>Chenopodium/Amaranthus</i> (Goosefoot/Pigweed)				c	c	c	c	c	c	c	
<i>Corispermum</i> (Bugseed)				c	c			c		c	c
<i>Cycloloma</i> (Winged Pigweed)					c	c		c	c		c
<i>Phaseolus</i> (Bean)										c	
<i>Zea mays</i> (Maize)	c	c	c	c	c	c	c	c	c	c	c
Gramineae (Grass Family)	c				c	c					
<i>Oryzopsis hymenoides</i> (Ricegrass)	c			c							c
<i>Phragmites</i> (Reed)							c	c			
Compositae (Sunflower Family)							c		c		
<i>Atriplex canescens</i> (Fourwing Saltbush)	c								c		
<i>Cylindropuntia</i> (Cholla)							c				c
Cyperaceae (Sedge Family)											c
<i>Juniperus</i> (Juniper)								c		c	c
<i>Pinus</i> (Pine)				c							c
<i>Platyopuntia</i> (Prickly Pear Cactus)			c		c					c	
<i>Yucca baccata</i> (Banana Yucca)			c	c	c						
<i>Cucurbita</i> (Squash/Coyote Gourd)									c		
<i>Euphorbia</i> (Spurge)							u				

Key: c = carbonized remains, u = uncharred

Chapter 6

LA 25864

Janette M. Elyea and John Mark Sheppard

LA 25864 is a multiple-occupation Archaic site with numerous short-term campsites and a small structure that indicates a longer occupational episode. Artifacts and radiocarbon dates indicate all of the occupations occurred during the late Archaic period from about 500 to 45 BC. Our investigations recovered a well-preserved macrobotanical assemblage that suggests most of the occupations occurred during the late summer or early fall, although the structure was probably occupied during the winter.

The site is on a stabilized north-south dune on Pueblo of Santa Ana lands. A large arroyo borders the site's eastern edge and flows north into the Jemez River, which is about 1.6 km (1 mile) north (Figure 1.1). Eroded, rocky hills that contain abundant gravels and siliceous lithic resource materials lie to the south, north, and east of the site. Dropseed and snakeweed are the dominant vegetation with an overstory of ephedra, rabbitbrush, and juniper.

PREVIOUS INVESTIGATIONS

LA 25864 was recorded as MAPCO 54 during the 1972 survey for the first MAPCO pipeline. It was a dense scatter of fire-cracked rock, lithics, mano fragments, and a few pieces of brownware ceramics (Schaafsma 1973:19). Scaafsma suggested that the site was probably a late Archaic occupation similar to those described by Agogino and Hester (1953). The site was accidentally graded during construction of the first MAPCO pipeline, which led to an emergency surface collection of the bladed corridor and eight nearby blowouts. The 1100 artifacts recovered included tools, flakes, cores, and fire-cracked rock (Schaafsma 1974:2–6).

The 1995 survey (Bradley et al. 1998:264) reported few tools, but an En Medio style projectile point indicated a late Archaic period occupation as suggested by Schaafsma (1974:5). Based on Schaafsma's research (1973:19, 1974:2–6) and the 1995 survey, the site appears to represent one or

more residential camps dating to the En Medio phase of the Oshara Tradition. The map prepared during Scaafsma's excavations could not be relocated, however, so the results of his work could not be integrated with the research reported here.

INVESTIGATION STRATEGY

The site, redefined during the 1995 survey (Bradley et al. 1998:264), measures 80 m north-south by 110 m east-west. Data recovery was limited to an area measuring approximately 12 by 100 m along the northwest-southeast trending pipeline corridor. Because of its length the site was divided into three areas. Area 1 is the northwestern portion of the site, which consists of shallow sand deposits that rise gently to the east. Area 2 is the top of the dune ridge to the east of Area 1. Area 3 is the southeast portion of the site, downslope and east of the dune ridge, abutting the arroyo (Figure 6.1).

Our investigations included 1,150 m² of controlled surface collection and 202 m² of excavation. Mechanical equipment was used to strip approximately 70 m² of the site area to search for buried features or activity areas. Three backhoe trenches were also excavated to reveal the stratigraphy and locate activity areas. Prior to pipeline construction our backhoe dug the pipeline trench through the entire site.

RESULTS

An extensive surface scatter of lithic artifacts covered the northwest half of the site in Area 1, and the northwest slope of Area 2. Surface collections in these areas did not show any definitive patterning. Erosion and previous collections have apparently obscured any patterns in artifact distribution.

Deposits were mostly shallow reddish and yellow sands (Figure 6.2) with the artifacts occurring in the upper 10 to 20 cm. Near the top of the dune, however, the upper 40 to

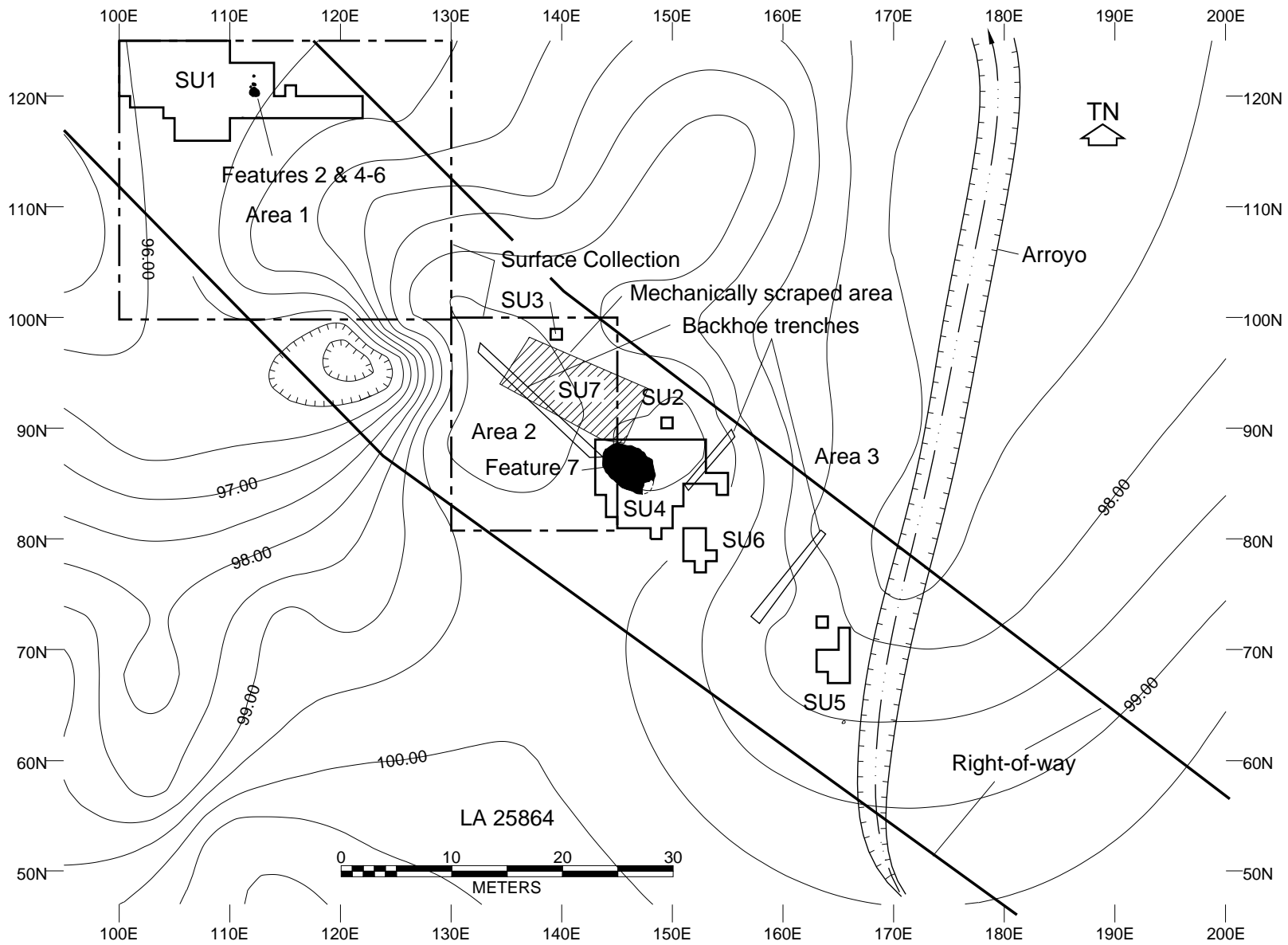


Figure 6.1 Plan and topographic map of LA 25864 showing the locations of excavation units.

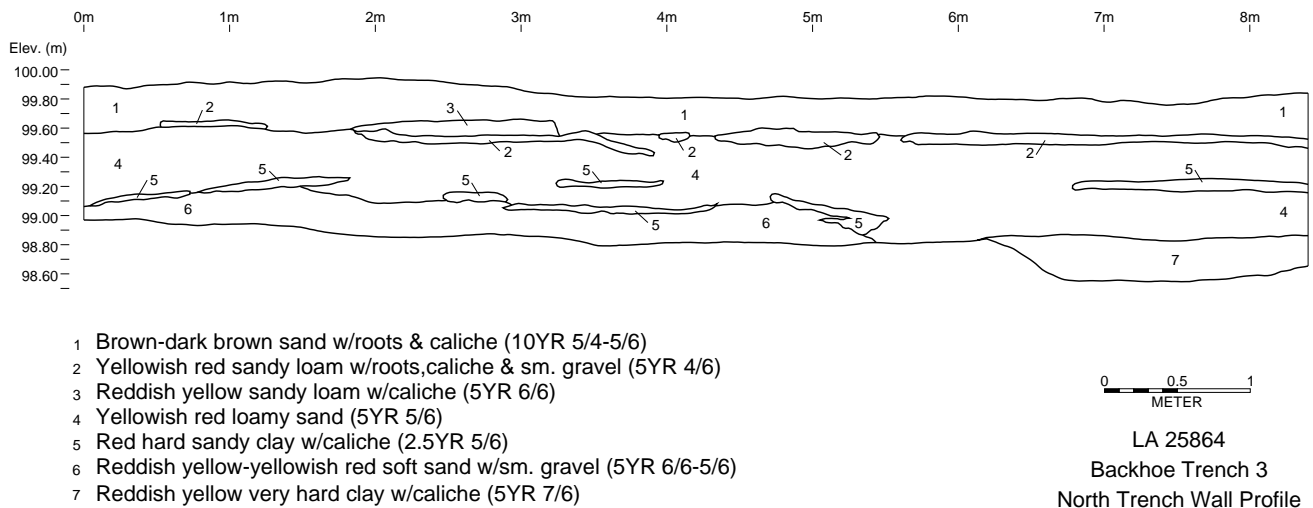


Figure 6.2 Backhoe Trench 3 north trench wall profile.

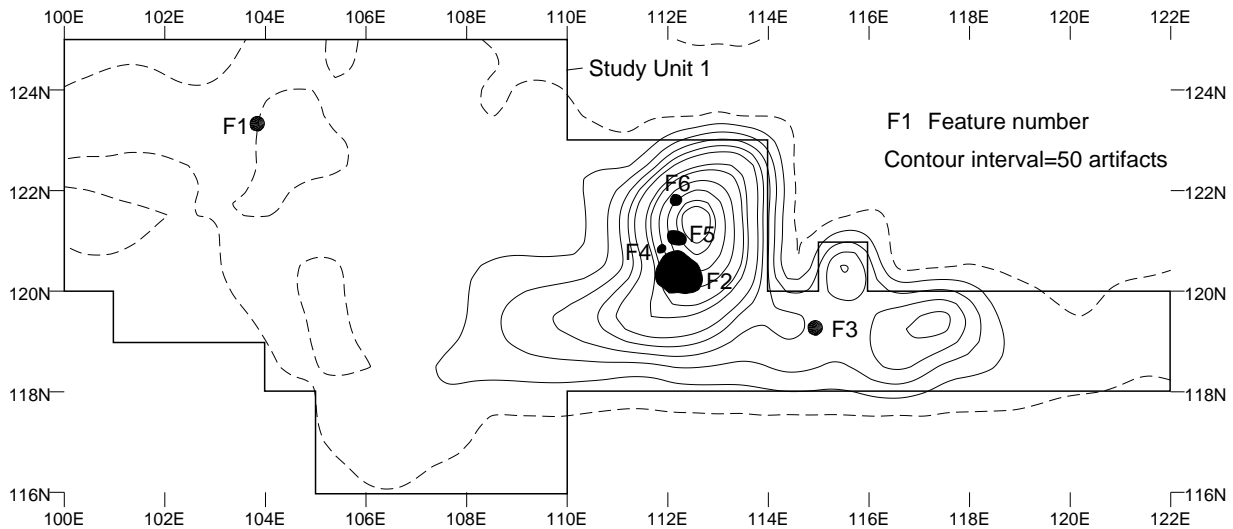


Figure 6.3 Artifact distribution and location of Features in Study Unit 1.

50 cm of deposits were sterile and the artifacts occurred 60 to 80 cm below the modern ground surface.

Area 1

Area 1 encompasses a 25 by 30 m surface collection unit in the northwest quadrant of the site and Study Unit 1, an irregularly shaped excavation consisting of 115 1 m² units. Deposits in the area were a thin stratum of unconsolidated eolian sand. In the western portion of Study Unit 1 they had a depth of 10 cm or less and were underlain by a very hard, culturally sterile stratum of cemented sands. Excavation units in the eastern portion of Study Unit 1, mostly those east of grid line 110E, contained deeper sand

deposits that attained depths of up to 50 cm before the hard sterile deposits were encountered. Study Unit 1 contained six features, 5,552 lithic artifacts, and 45 bones (Figure 6.3).

Because of the extent of the artifact scatter, the superpositioning of some features, and the overall density of materials adjacent to the superimposed features, we suspect that Study Unit 1 represented numerous occupational episodes. In order to delineate these episodes we ran a cluster analysis of the lithic material types. Study Unit 1 seemed to be the remains of multiple late Archaic occupations. Since the debris from overlapping late Archaic occupations tend to reflect the same reduction processes and to include

Table 6.1 Study Unit 1 material types by analytical unit.

AU	Chalcedony		Yellow Chalcedony	Silicified Wood	Quartzite	Obsidian	Basalt	Chert		Chuska Chert	Total		
	<i>n</i>	%	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	%	<i>n</i>	<i>n</i>	%	<i>n</i>	<i>n</i>	%
1	1066	94.25		1	9	1	1.50	9	29	2.56		1131	13.91
2	990	94.56	1	5	3	25	2.39	4	19	1.81		1047	12.87
3	2370	94.42	7	14	5	85	3.39	5	15	0.60	9	2510	30.86
4	134	86.45				7	4.52	1	13	8.39		155	1.91
5	181	90.95		1	2	8	4.02	1	6	3.02		199	2.45
6	437	94.59		3	2	16	3.4	3	1	0.22		462	5.68
7	41	85.42				4	8.33		3	6.25		48	0.59
None	2346	90.90	13	7	12	149	5.77	9	42	1.63	3	2581	31.73
Total	7565	93.02	21	31	33	311	3.82	32	128	1.57	12	8133	100.00

similar artifact types, we performed a nearest neighbor analysis where every 1 by 1 m grid unit was considered a case, and every lithic material type within the grid unit was a variable. Each grid unit was compared with all other grid units and those with similar or equal proportions of material types were clustered.

This analysis method uses nonparametric statistics to group the data and evaluate the relationships between variables and cases. The groupings are based on chi values that normalize the data matrix, compensating for different sample sizes, and the chi values represent the deviation from the expected values based on the entire population.

The normalized chi matrix is used for singular value decomposition, which calculates the amount of variance for which each variable (each lithic raw material type) is responsible. The singular values are then scaled to left and right vector matrices. The right variance, or vector, evaluates the relationship of each variable to every other variable as indicated by the magnitude of the chi values. After each column calculation the variable responsible for the greatest variance is eliminated and the remaining variables are again evaluated. The left variance calculates the variance for cases (in this instance, 1 m² units) rather than variables. Distance measurements between the cases are calculated by computing the squared Euclidean distances among the analytical

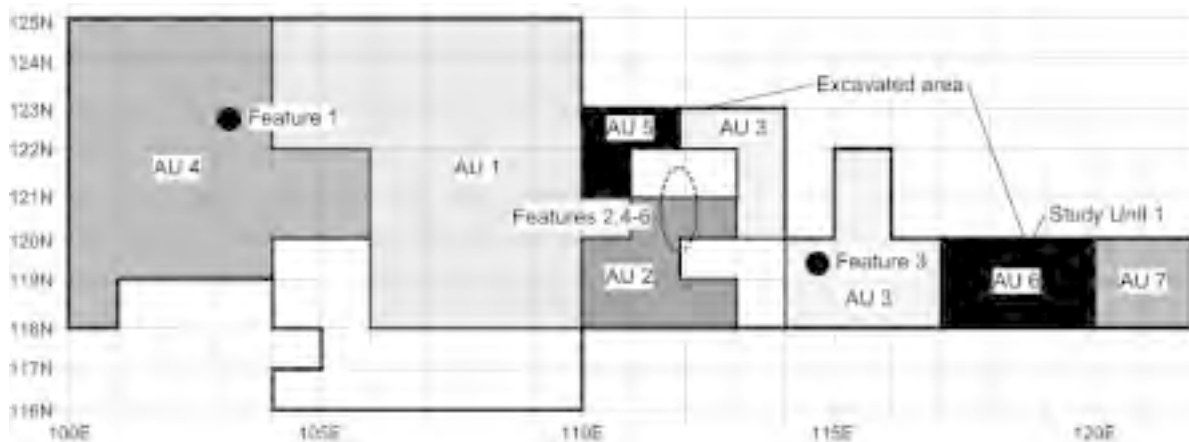


Figure 6.4 Analytical Units defined for Study Unit 1.

Table 6.2 Adjusted residuals for material types in Study Unit 1.

AU	Chalcedony	Yellow Chalcedony	Silicified Wood	Quartzite	Obsidian	Basalt	Chert	Chuska Chert
1	0.3979	-1.4316	-1.9753	2.5633	-3.168	2.2384	3.0979	-1.5186
2	0.8377	-0.4601	0.2479	-0.5367	-1.1314	-0.1802	0.7729	-1.4474
3	1.1976	2.4051	1.2947	-1.9741	1.8844	-2.2662	-5.2144	3.3053
4	-4.0154	-0.4797	-0.8320	-0.7781	1.1991	0.4539	6.9922	-0.5088
5	-1.8438	-0.5457	0.1538	1.4669	0.9409	0.1974	1.7056	-0.5789
6	0.5546	-0.8527	0.7428	0.1999	0.7274	0.8216	-2.4223	-0.9046
7	-2.5160	-0.2643	-0.4585	-0.4288	2.2389	-0.4488	2.6489	-0.2804

units which results in a vector of distances. These are then merged two at a time in a maximum linkage cluster analysis. Grid units with the least distances are merged first, and the last merging links assemblages that are the least similar.

This procedure identified seven areas, or analytical units (AUs), that contained distinct material assemblages (Figure 6.4). Shaded units without analytical unit designations did not cluster with any other grid units, and the unshaded grid units designate those that were not excavated. Table 6.1 lists the material types within the analytical units (and the grid units that were not assigned to an AU). Most of the units share material types, but the proportion of these types makes each unit, or cluster, distinct.

Table 6.2 shows the adjusted standardized residuals for the material types. These *z*-scores allow a statistical evaluation to be made of each material type in the clusters or analytical units. With the significance level set at 0.05, *z*-scores greater than 1.96 or less than -1.96 show the material types that occur in significantly greater or lesser amounts than would be expected in a normal distribution. Although chalcedony is the predominant material type in all of the units, its frequency is lower than expected in Analytical Units 4 and 7.

Analytical Unit 3 is noteworthy because it is the only area that contains Chuska Chert. This distinctive material, formerly referred to as Washington Pass Chert, indicates the site's occupants traveled to or had contact with people from the far western edge of the San Juan Basin. This

Table 6.3 Study Unit 1 artifact types.

AU	Angular Debris		Flakes		Cores	Pounders	Expedient Tools	Formal Tools	Ground Stone	Total	
	<i>n</i>	%	<i>n</i>	%						<i>n</i>	%
1	254	22.5	863	76.3	10		1	2	1	1131	13.90
2	209	20.0	825	78.8	8		2	3		1047	12.87
3	604	24.1	1884	75.1	11		4	7		2510	30.85
4	37	23.9	112	72.3	6					155	1.91
5	64	32.2	133	66.8				2		199	2.45
6	76	16.5	378	81.8	5			3		462	5.68
7	13	27.1	34	70.8			1			48	0.59
None	546	21.1	2010	77.8	14	2	1	9	1	2583	31.75
Total	1803	22.2	6239	76.7	54	2	9	26	2	8135	100.00

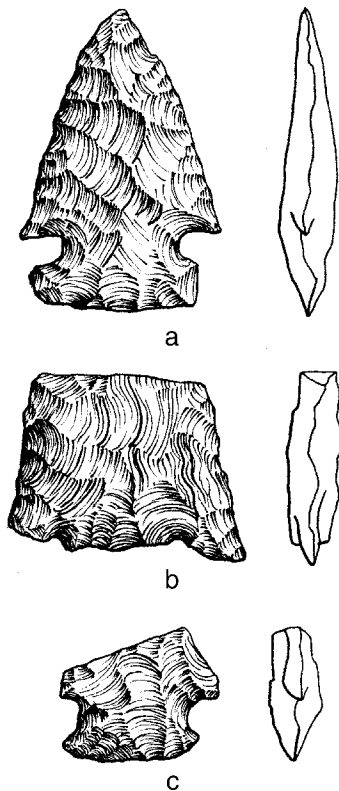


Figure 6.5 Projectile points from LA 25864 (actual size). Points b and c collected by Schaafsma during 1972 field-work.

cluster also contains significantly large amounts of a distinctive yellow chalcedony of unknown (probably nonlocal) origin.

Similar analyses were performed to compare the artifact types found in these analytical units. They revealed no significant differences between the analytical units. This suggests that similar activities occurred during all episodes of occupation. Table 6.3 lists the artifacts by analytical unit for Study Unit 1. The formal tools are five scrapers, 20 bifaces, and one projectile point. The projectile point, from Analytical Unit 1, is a corner-notched San Pedro style point (Figure 6.5a) that dates to the late Archaic period (from 1500 BC to about AD 500).

Features

Five hearths and one storage pit were defined. Feature 1, in Analytical Unit 4, was a hearth measuring 25 cm in diameter and 6 cm deep. This feature was discernible on the surface and had been disturbed by rodent burrowing. It did not contain enough charcoal for radiometric dating, and its contents were not scanned for botanical remains because of the rodent disturbance.

Feature 3, in Analytical Unit 3, was first discerned 11 cm below the ground surface. This small circular hearth was 22 cm in diameter and 15 cm deep. Its upper 5 cm was charcoal and ash and the remaining fill was ashy charcoal-flecked sand. A thin (less than 1 cm thick) layer of ash covered the bottom and most of the feature's sides. This feature did not contain enough charcoal for radiometric dating, but its fill contained carbonized seeds of juniper, goosefoot, and dropseed.

Four adjacent and partially superimposed features (Features 2, 4, 5, and 6) were uncovered in Analytical Unit 2 and in two grid units whose lithic assemblages did not cluster with any of the other units. These features were initially discerned as a 2.35 by 1.5 m ash lens at the base of excavation level 1 (0–10 cm). Three of the features were hearths and one was a storage cist (Figure 6.6).

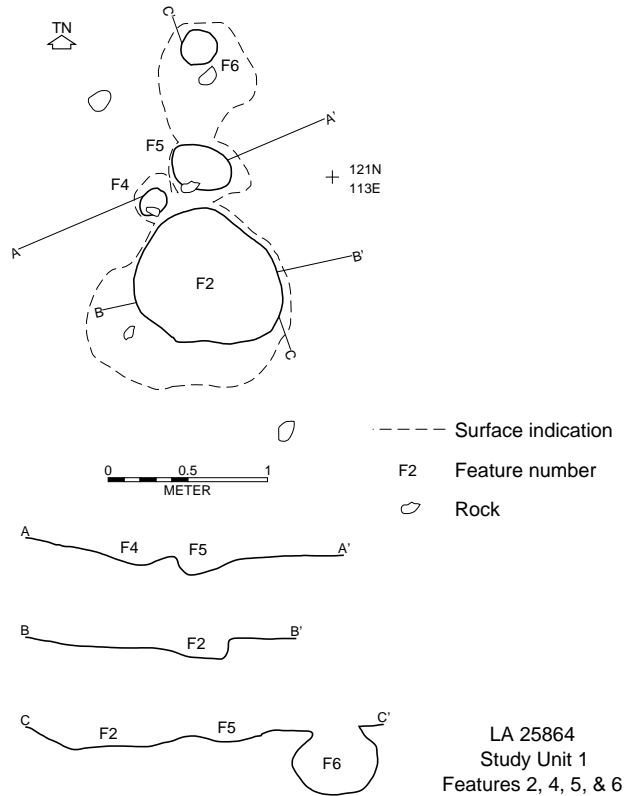


Figure 6.6 Plans and profiles of Features 2, 4, 5, and 6 in Study Unit 1.

Feature 2 was a circular hearth about 1 m in diameter and 18 cm deep. It contained 465 pieces of chipped stone, including four bifaces, a core, a hammerstone, and a very small garnet. Eleven indeterminate size mammal bone fragments were also recovered. The fill contained carbonized juniper seeds and the charcoal yielded a date of 2360±100 BP (Beta-92304) or 400 cal BC with a two-sigma range between 185 and 785 BC. The lithic materials

associated with Feature 2 did not cluster with any other grid units. This suggests they are a composite of multiple occupational episodes that were deposited after the feature was abandoned.

Feature 4 was the smallest hearth in this group of features. It was circular, measuring approximately 25 cm in diameter and 10 cm deep. It contained one bone from a rabbit-size mammal, and 22 pieces of lithic debris. The fill also contained carbonized juniper seeds, but it did not contain enough charcoal for a routine radiocarbon date.

The third hearth (Feature 5) measured approximately 35 cm in diameter and 17 cm deep. It exhibited some oxidation along its southern perimeter. The fill contained a few lithic artifacts, one bone from a dog-size mammal, and burned juniper and goosefoot seeds.

The storage pit (Feature 6) was bell-shaped, measuring 32 cm north-south by 28 cm east-west at its orifice and expanding to 55 cm north-south by 48 cm east-west at its base. It was 39 cm deep. The pit exhibited oxidation on its west wall near the opening and on the north and south portions of its base. This oxidation may indicate that it was also used as a roasting pit. Seventeen pieces of fire-cracked rock, weighing a total of 9.5 kg, and one very large one-hand mano were at the bottom of the pit. The fill was a dark ashy sand that contained 488 pieces of lithic debitage, 20 indeterminate-size mammal bones, and four bones from deer-size mammals.

Macrobotanical remains in the fill from Feature 6 included burned seeds of pigweed, goosefoot, dropseed, an unidentified grass, and juniper. Charcoal from the feature yielded a radiocarbon date of 2500 ± 60 BP (Beta-92297) or 560/634/760 cal BC with a two-sigma range of 800 to 405 BC. The lithic materials from this feature did not cluster with assemblages from other grid units, which suggests they were deposited after the feature was abandoned.

Area 2

Excavations in Area 2 (Figure 6.1) included two test pits (SUs 2 and 3), which were dug to determine the depth of the cultural materials and nature of the stratigraphic deposits; two areas of contiguous excavation (SUs 4 and 6); and one area of mechanical stripping (SU 7). Two backhoe trenches and a 15 by 20 m surface collection unit were also located within this area.

Test Pits

The two test pits in this area were at 90N/149E (SU 2) and 98N/139E (SU 3). Study Unit 2 yielded 280 pieces of

debitage, a core, and a used flake tool. Most of these materials were recovered from 50 to 80 cm below the modern ground surface. They are mostly chalcedonies. Study Unit 3 contained 97 pieces of chalcedony debitage, most of which were from the upper 10 cm of the test pit.

Study Unit 4

Study Unit 4 is at the top of the dune ridge, the highest point on the site. Investigations in this area began adjacent to a centerline backhoe trench that exposed a black ashy stain immediately below the surface. Excavation of 71 1 m² units revealed the remains of multiple campsites and a structure (Feature 7).

The ash was exposed by removing the upper 10 cm or less of loose sandy deposits. As this surface stripping was completed and adjacent areas were excavated it became apparent that two occupation levels were present. The lower level was marked by the structure. The upper level consisted of four hearths and thousands of artifacts overlying the structure (Figure 6.7) that appeared to be remnants of multiple, short-term camps.

Upper Occupation Level. Three of the four hearth pits in the upper occupation level (Features 8, 9, and 25) were small, shallow, oval, ash-filled basins. Feature 8 measured 42 by 28 cm and 12 cm deep. It contained charred dropseed and cheno-am seeds. Feature 9 measured 95 by 38 cm and 7 cm deep. It contained 0.75 kg of fire-cracked rock, one deer/pronghorn bone, and no charred macrobotanical remains. Feature 25 measured 40 by 25 cm and 18 cm deep. It contained a minute amount of fire-cracked rock and burned goosefoot seeds. Feature 22, located adjacent to Feature 25, was a 105 by 85 cm basin with a depth of 40 cm. This hearth contained fire-cracked rock and exhibited oxidation. The fill contained a bone from a rabbit-size mammal, and charcoal which yielded a radiometric date of 2060 ± 60 BP (Beta-92320) or 45 cal BC with a two-sigma range of 195 BC to AD 75. Features 22 and 25 were intrusive into the underlying Feature 7. Both were discernible above the structure floor, and their construction had cut into and disturbed the southeastern perimeter of the structure. Feature 25 contained carbonized seeds of goosefoot and dropseed.

As for Study Unit 1, a cluster analysis was run to discern possible occupational episodes. For this analysis we included the artifacts from within the structure and its features in order to discern activity areas associated with its occupation. Figure 6.8 shows the 13 analytical units derived from the cluster analysis of the materials above and adjacent to the structure. Table 6.4 lists lithic material types and analytical units, including the structure and five grid units that did not cluster with any others. Further analysis of these analytical units indicated no difference between the

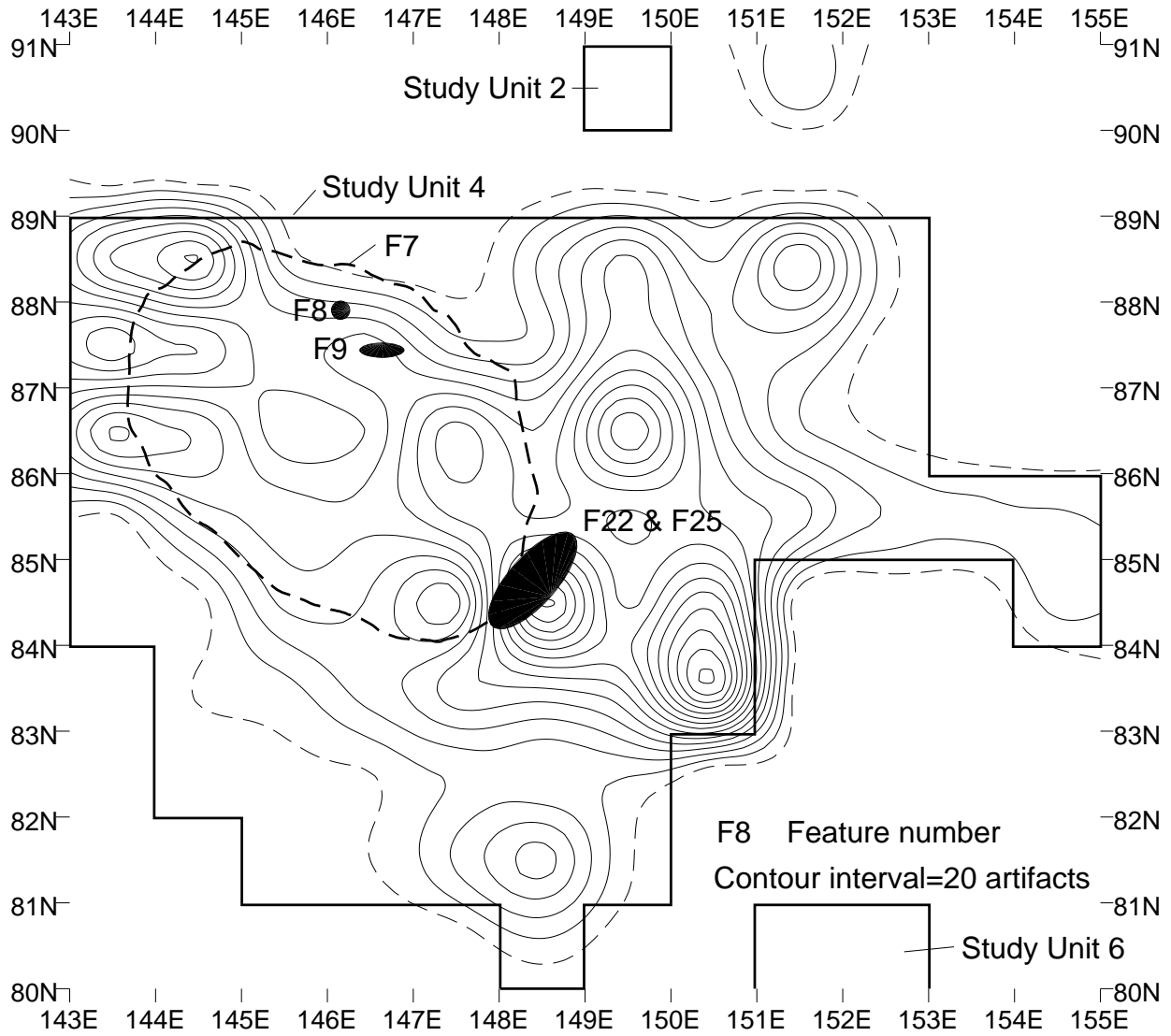


Figure 6.7 Artifact distribution and location of features in the upper occupation level of Study Unit 4. Dashed line indicated the position of the structure in the lower occupation level.

Table 6.4 Study Unit 4 material types.

AU	Chalcedony		Yellow Chalcedony	Silicified Wood	Quartzite	Obsidian		Basalt	Chert		Other	Total	
	<i>n</i>	%	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	%	<i>n</i>	<i>n</i>	%	<i>n</i>	<i>n</i>	%
9	192	93.66	1	1		2	0.98		8	3.90	1	205	2.22
10	255	87.33		4	2	3	1.03	1	27	9.25		292	3.17
11	468	91.41	3	1		7	1.37	2	31	6.05		512	5.55
86N/144E	343	95.28		4	1	2	0.56		10	2.78		360	3.90
12	423	93.79	2	3	2	4	0.89		17	3.77		451	4.89
13	865	92.81	5	6	2	6	0.64		48	5.15		932	10.10
14	282	92.76	1	1		1	0.33	1	17	5.59	1	304	3.30
15	80	87.91	1	1	3	1	1.10		5	5.49		91	0.99
86N/143E	161	93.06		1	2	2	1.16		7	4.05		173	1.88
16	1339	95.10	4	6	1	21	1.49		37	2.63		1408	15.26
17	784	92.78	2	4		14	1.66	2	39	4.62		845	9.16
18	601	95.25	5	6	1	6	0.95		12	1.90		631	6.84
87N/144E	679	97.84	2	4		3	0.43		6	0.86		694	7.52
19	577	95.37	4	2	1	1	0.17		20	3.31		605	6.56
87N/146E	376	94.95	1	1	1	1	0.25		16	4.04		396	4.29
20	156	96.89	2				0.00		3	1.86		161	1.75
21	482	95.07	3			5	0.99		17	3.35		507	5.50
90N/151E	81	91.01	2	1		2	2.25		3	3.37		89	0.96
Feature 7 Structure	485	85.39	1	3	2	4	0.70		73	12.85		568	6.16
Total	8629	93.55	39	49	18	85	0.92	6	396	4.29	2	9224	100.00

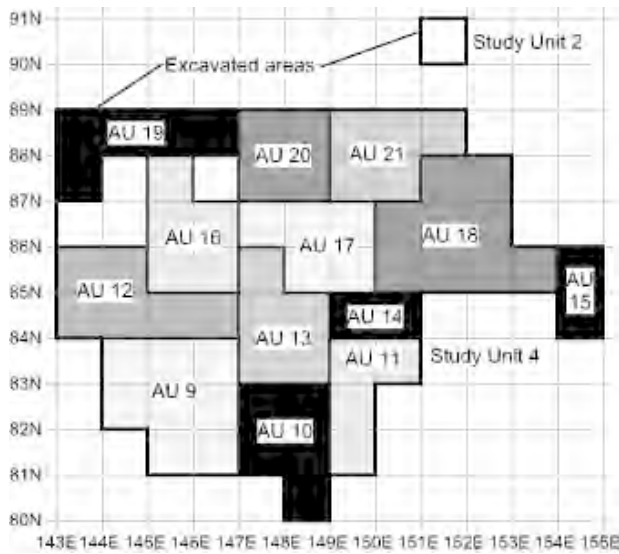


Figure 6.8 Study Unit 4 analytical units.

materials within the structure and those in Analytical Units 10 and 14. This finding suggests these two areas are associated with the structure. Their location, southeast of the structure, further suggests that AUs 4 and 10 are outside activity and door dump areas. Analytical Unit 11, which lies between them, is adjacent to the intrusive Features 22 and 25. This later occupation has probably partially obscured part of the activity area associated with the structure.

Most of the lithic artifacts from Study Unit 4 are chalcedonies (Table 6.4). Other materials include one Chuska Chert flake associated with Analytical Unit 9 and a piece of quartzitic sandstone from Analytical Unit 14. As was the case in Study Unit 1, the proportions of these materials form the distinctive clusters. Table 6.5 shows the adjusted residuals for the analytical units and how their varying proportions distinguish the clusters.

We are not certain if each of these clusters represents a distinct occupational episode or if, in some cases, two or more of the clusters represent a single occupation. The distribution shown in Figure 6.7, however, suggests numerous occupational episodes. The absence of hearths with each of the clusters probably results from poor preservation, and the hearths that are present seem to represent ephemeral short-term occupations. Artifact types within these analytical units are shown in Table 6.6. All of the assemblages are dominated by debitage. Cores and formal tools are found in all of the analytical units; the formal tools consist of bifaces, knives, and scrapers.

Lower Occupation Level. Feature 7 was a small Archaic structure measuring 6 by 4 m with 12 interior features (Figure 6.9). The structure was a shallow basin 5 to 12 cm deep.

Nine interior postmolds were found adjacent to its perimeter. They were all from upright posts with 9 to 12 cm diameters and 6 to 14 cm depths. The floor was unprepared sand and was only discerned by the presence of floor features and the absence of ash fill. The floor sloped to the southeast, where it was about 6 cm lower than in the northwest portion of the structure.

Macrobotanical remains from the structure floor include carbonized goosefoot, cheno-ams, dropseed, purslane, and unidentified grass seeds. Charcoal from the floor yielded a radiocarbon date of 2150 ± 80 BP (Beta 92297) or 180 cal BC a two-sigma range of 385 BC to AD 25. Faunal remains consist of one pocket gopher, one jackrabbit, and 17 rabbit-, three dog-, and five undeterminate-size mammal bones. Lithics, including those found in the interior features, total 568 items. They are mostly debitage but include seven cores, a hammerstone, four biface fragments, and a one-hand mano.

Twelve features (Figure 6.10) were discerned within the structure. Ten of the features were small, shallow, ash-filled basins (Features 13–20, 23, and 24). All but Feature 23 contained charred dropseed and/or goosefoot/cheno-am seeds. Feature 15 contained thousands of goosefoot seeds, while the other small ash-filled basins contained fewer than 150 seeds. The presence of these edible seeds indicates the features may be small cache or storage areas. Three (Features 13, 15, and 18) also contained a few pieces of fire-cracked rock, however. They may represent small warming hearths that were filled with coals and hot rocks to heat the structure. The seeds in these pits could have spilled during food preparation or consumption, and ended up in some of the features. The presence of charred

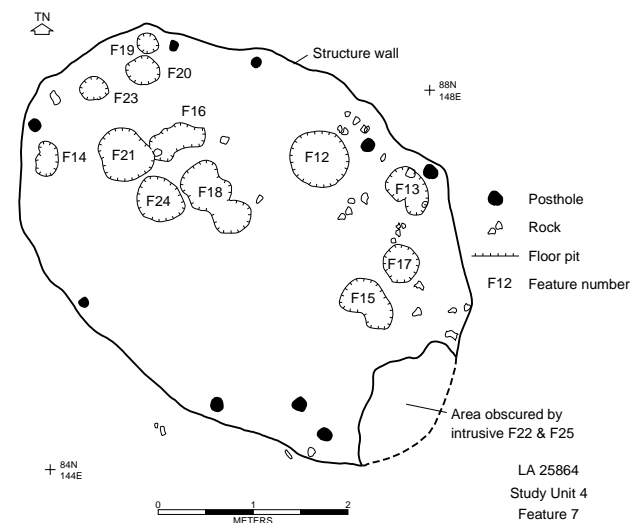


Figure 6.9 Study Unit 4 Feature 7 structure and floor features.

Table 6.5 Study Unit 4 adjusted residuals.

AU	Chalcedony	Yellow Chalcedony	Silicified Wood	Quartzite	Obsidian	Basalt	Chert
9	0.3054	0.1494	-0.0821	-0.6388	0.1052	-0.3686	-0.2515
10	-4.2292	-1.1299	2.0099	1.9321	-0.4084	1.8934	4.2890
11	-1.7425	0.5914	-1.0719	-1.0277	1.1282	2.9799	1.6226
86N/144E	1.3267	-1.2616	1.5429	0.3619	-0.7244	-0.4939	-1.4316
12	0.1703	0.0685	0.4003	1.2244	-0.0556	-0.5557	-0.5430
13	-1.0380	0.5628	0.4972	0.1411	-0.9061	-0.8217	1.3952
14	-0.3839	-0.2536	-0.4905	-0.7829	-1.0825	1.8389	1.1698
15	-2.2280	0.9983	0.7481	6.7355	0.1894	-0.2447	0.5786
86N/143E	-0.2911	-0.8655	0.0850	2.8901	0.3422	-0.3389	-0.1494
16	2.3457	-0.8366	-0.5478	-1.1263	2.5673	-1.0307	-3.2034
17	-1.1515	-0.8511	-0.2110	-1.3376	2.4555	2.0787	0.6186
18	1.7498	1.4811	1.5011	-0.2168	0.1088	-0.6642	-3.0522
87N/144E	4.7442	-0.5692	0.1690	-1.2117	-1.3807	-0.6991	-4.6175
19	1.8420	0.9336	-0.7032	-0.1727	-1.9974	-0.6494	-1.2178
87N/146E	1.1214	-0.5344	-0.7805	0.2639	-1.4100	-0.5191	-0.2347
20	1.7229	1.6157	-0.9357	-0.5662	-1.2275	-0.3267	-1.5255
21	1.3901	0.6020	-1.6932	-1.0245	0.1829	-0.5911	-1.0544
90N/151E	-1.0028	2.6644	0.7719	-0.4193	1.3329	-0.2419	-0.4232
Feature 7 Structure	-7.6433	-1.0066	-0.1188	0.7850	-0.6625	-0.6482	9.8360

Table 6.6 Study Unit 4 lithic artifact types.

AU	Angular Debris		Flakes		Cores		Pounders	Expedient Tools	Formal Tools	Ground Stone	Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%					<i>n</i>	%
9	37	18.0	162	79.0	1	0.5	1	1	3		05	2.22
10	72	24.7	219	75.0		0.0			1		292	3.17
11	129	25.2	380	74.2	3	0.6					512	5.55
86N/144E	57	15.8	301	83.6		0.0		1	1		360	3.90
12	91	20.1	357	79.0	3	0.7			1		452	4.90
13	208	22.3	705	75.6	9	1.0	1	2	7		932	10.10
14	61	20.1	240	78.9		0.0			3		304	3.30
15	13	14.3	78	85.7		0.0					91	0.99
86N/143E	39	22.5	130	75.1	3	1.7			1		173	1.88
16	294	20.9	1102	78.3	7	0.5		1	4		1408	15.26
17	212	25.1	621	73.5	6	0.7		2	4		845	9.16
18	107	17.0	513	81.3	6	1.0	3		2		631	6.84
86N/143E	86	12.4	605	87.2	1	0.1			2		694	7.52
19	106	17.5	495	81.8	1	0.2		1	2		605	6.56
87N/146E	54	13.6	340	85.9		0.0		1	1		396	4.29
20	38	23.6	118	73.3	4	2.5			1		161	1.75
21	66	13.0	430	84.8	4	0.8		2	5		507	5.50
90N/151E	9	10.1	77	86.5	2	2.2	1				89	0.96
Feature 7 Structure	101	17.8	454	79.9	7	1.2	1		4	1	568	6.16
Total	1780	19.3	7327	79.4	57	0.6	7	11	42	1	9225	100.00

macrobotanical remains, therefore, may not signify a storage feature. Faunal remains from these features include two rabbit-size bones in Feature 20 and one rabbit-size bone in Feature 18.

Feature 12 was a slightly larger feature near the northeast edge of the structure. It was circular with a 61 cm diameter and 24 cm depth. There was no oxidation but the fill contained 0.85 kg of burned rock. The fill also contained thousands of charred goosefoot/cheno-am seeds, lesser numbers of charred dropseed and juniper seeds, and one bone from a rabbit-size mammal. This feature may be the main interior hearth or it may be a storage facility.

Feature 21 had a 58 cm diameter and a depth of 32 cm. The walls were steep and the base was flat, suggesting a small storage pit. The fill contained abundant plant remains, including cheno-ams, unidentified grasses, juniper, and dropseed. The latter was particularly abundant with an estimate of more than 1700 seeds in the feature fill.

Although some sort of shelter was probably built by Archaic family groups at all sites that were occupied for any length of time, those associated with short-term summer camps are rare to absent in the archeological record. For that reason, Feature 7 is believed to represent a winter occupation. Given the number of possible short-term occupations that occurred after the structure was abandoned and the absence of additional structural evidence, we can assume that any structures associated with these subsequent occupations were ephemeral.

Study Unit 6

Study Unit 6, southeast of the structure (Feature 7), had intense charcoal and ash staining. The overlying culturally sterile eolian sand was removed with mechanical equipment. An area 6 m north-south by 7 m east-west was shovel scraped to delineate the stain boundaries. The stain, designated Feature 11, measured 26 to 42 cm thick, and was 20 cm lower on its western edge.

Eight 1 m² units were hand-excavated in this stain until it became evident that the stained sediments were redeposited material probably eroded from Study Unit 4. Artifacts from this area total 412 items and include one En Medio style projectile point, seven bifaces, one drill, and debitage.

Study Unit 7

Study Unit 7, northwest of the structure, measured 5 by 13 m. The overlying 30 to 40 cm of eolian sand was removed with mechanical equipment to the top of a reddish clay stratum. No units were hand-excavated and only a few artifacts were recovered. These deposits were also redeposited. Artifacts include 15 pieces of debitage and one biface fragment.

Area 3

Study Unit 5

Study Unit 5 is at the east edge of the site adjacent to the arroyo. A 5 cm thick, 3 m long ash lens was discernible in the west bank of the arroyo at a depth of 25 to 30 cm below the modern ground surface. An area 10 m north-south by 6.5 m east-west was scraped with mechanical equipment to remove the overlying deposits. Eleven 1 m² units were hand-excavated to depths of 9 to 23 cm, below the level of the ash stain. Only five pieces of lithic debitage were recovered. Deposits were alternating layers of alluvial sand and

small pieces of gravel, indicating that the area was redeposited and no further work was warranted.

ARTIFACTS AND SAMPLES

The artifact assemblage consists of 18,905 lithics, 107 animal bones, and botanical remains. Most of the materials were deposited during short-term late summer to fall encampments.

Lithics

The lithic assemblage consists largely of flakes, angular debris, and cores. Tools include bifaces, utilized flakes, retouched flakes, projectile points, and scrapers. All but two of the points listed in Table 6.7 are undiagnostic tips. The paucity of ground stone implements suggests these items may have been removed or cached off-site, since the quantity of seeds recovered from the features suggests grinding and food preparation were common activities performed during the occupations. Lithic material is mostly locally available chalcedonies (Table 6.7) and cherts; Jemez obsidian and Chuska Chert constitute only a small portion of the raw materials.

Faunal Remains

The faunal assemblage is very fragmented with only nine specimens identified to one of three specific taxa (Table

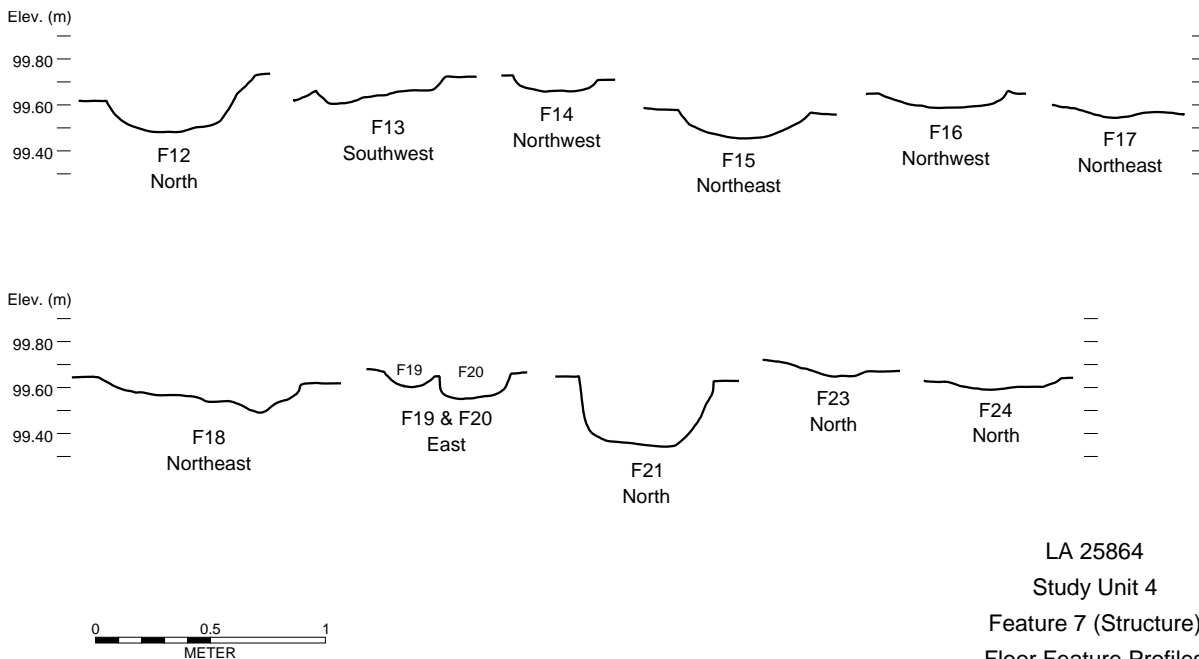


Figure 6.10 Study Unit 4 Feature 7 (structure) floor feature profiles.

Table 6.7 Lithic artifact and material types, LA 25864.

Artifact Type	n	%
Angular debris	3951	20.9
Flake	14617	77.3
Flake, Bifacial Thinning	20	0.1
Tested Rock	33	0.2
Core, Irregular	143	0.8
Core, Bifacial	12	0.1
Core, Unidirectional	4	0.0
Hammerstone	6	0.0
Chopper, bifacial	6	0.0
Angular Debris, Retouched	4	0.0
Flake, Utilized	11	0.1
Projectile Point	8	0.0
Biface	65	0.3
Uniface	2	0.0
Scraper	7	0.0
Drill	2	0.0
Mano, One-hand	3	0.0
Metate, unknown	2	0.0
Total	18905	100.0

Material	n	%
Chalcedony, black inclusions	2001	10.6
Chalcedony, red inclusions	192	1.0
Chalcedony, clear gray	2	0.0
Chalcedony, clear	3798	20.1
Chalcedony, yellow	67	0.4
Chalcedony, opaque	6417	33.9
Chalcedony, other	1892	10.0
Silicified Wood	91	0.5
Silicified Wood, platy	2	0.0
Quartzite, fine grained	74	0.4
Quartzite, medium/coarse	10	0.1
Quartzitic sandstone	2	0.0
Chert, brown	118	0.6
Chert, tan	294	1.6
Chert, gray	52	0.3
Chert, black	7	0.0
Chert, red	33	0.2
Chert, pink	20	0.1
Chert, lavender	1	0.0
Chert, fossiliferous	11	0.1
Chert, Chuska	13	0.1
Chert, mocha	2	0.0
Chert, white	3245	17.2
Chert, other	94	0.5
Obsidian	110	0.6
Obsidian, black opaque	22	0.1
Obsidian, Polvadera	1	0.0
Obsidian, Jemez	240	1.3
Basalt	59	0.3
Sandstone	2	0.0
Obsidian, Jemez, brown	33	0.2
Total	18905	100.0

6.8): jackrabbit, pocket gopher, and deer/pronghorn. Most of the unidentified specimens are from rabbit-size and dog-size mammals. The jackrabbit remains are a humerus and a phalange while the pocket gopher element is an upper incisor. The deer/pronghorn specimens are teeth as well as a metatarsal from Feature 9 in Area 2. The assemblage, though limited, indicates a foraging economy utilizing locally available animals. The poor state of preservation suggests that the assemblage was probably exposed to the elements for a long period prior to its becoming buried.

Archeobotanical Remains

Twenty-four flotation samples, collected from 21 features, were scanned for plant remains. The samples yielded a variety of carbonized and uncharred taxa (Table 6.9). Uncharred botanical remains are not considered part of the archeological assemblage. Carbonized remains, on the other hand, are indicative of fuel use, food preparation, and herbal use of plants. The most frequently occurring taxa are goosefoot (*Chenopodium* sp.), dropseed (*Sporobolus* sp.), and juniper (*Juniperus* sp.). All the macrobotanical remains are available from late summer to early fall. Maize, although common at other late Archaic structural sites, is absent.

Dating

Four charcoal samples were submitted for radiometric dating (Table 6.10). One sample, consisting of juniper, was from a shallow pit (Feature 2). A second sample, consisting of juniper and saltbush, was from a bell-shaped pit (Feature 6). The third sample, consisting of juniper, rabbitbrush, saltbush, and doveweed, was from the structure (Feature 7). Finally, the fourth sample, consisting of juniper, was from a hearth (Feature 22) above the structure. All four samples yielded ages consistent with an En Medio phase or late Archaic occupation.

In summary, LA 25864 has the remains of multiple late Archaic occupations. The majority occurred in the late summer to early fall when goosefoot/pigweed and dropseed were ripening. These short-term occupations consisted of small family-size groups. The storage pit in Study Unit 1 (Feature 6) suggests caching of the ripening seeds was part of the late Archaic subsistence routine.

The structure (Feature 7) is typical of middle and late Archaic residences in the area. These structures consist of shallow basins with a superstructure that was at least partially composed of juniper brush. Multiple structures are not uncommon during the late Archaic, and it is possible that additional contemporaneous structures were destroyed by previous pipeline construction at LA 25864.

Table 6.8 Faunal remains from LA 25864.

Area 1										
Taxon	Surface	Feature Number					Total			
		0	2	4	5	6	<i>N</i>	%		
<i>Lepus californicus</i> (Black-tailed Jackrabbit)		1					1	2.1		
<i>Odocoileus/Antilocapra americana</i> (Deer/Pronghorn)	1	4					5	10.6		
Indeterminate rabbit-size mammal				1			1	2.1		
Indeterminate dog-size mammal	1	1	11		1		14	29.8		
Indeterminate deer-size mammal						4	4	8.5		
Indeterminate size mammal		2				20	22	46.8		
Total	2	8	11	1	1	24	47	100.0		

Area 2										
Taxon	0	7	9	Feature Number				22	Total	
				11	12	18	20		<i>N</i>	%
<i>Lepus californicus</i> (Black-tailed Jackrabbit)		1						1	1.7	
<i>Thomomys bottae</i> (Botta's Pocket Gopher)		1						1	1.7	
<i>Odocoileus/Antilocapra americana</i> (Deer/Pronghorn)			1					1	1.7	
Indeterminate rabbit-size mammal	22	17		1	1	2	1	44	73.3	
Indeterminate dog-size mammal	1	3						4	6.7	
Indeterminate deer-size mammal	1							1	1.7	
Indeterminate size mammal		5		3				8	13.3	
Total	24	27	1	3	1	1	2	1	60	100.0

Table 6.9 Charred botanical remains from LA 25864.

Taxon	Features																					
	Study Unit 1					Study Unit 4																
	2	3	4	5	6	lower occupation														upper occupation		
						7	12	13	14	15	16	17	18	19	20	21	23	24	8	9	25	
<i>Chenopodium</i> sp. (Goosefoot)		c		c	c	c	c	c		c		c	c									c
<i>Amaranthus</i> sp. (pigweed)					c																	
Cheno-am (Goosefoot/pigweed)					c	c	c	c		c	c	c	c	c		c				c	c	
<i>Portulaca</i> (purslane)							c						c									
<i>Sporobolus</i> sp. (Dropseed Grass)		c			c	c	c		c	c		c	c	c	c	c			c	c	c	
Gramineae (Grass Family)					c	c				c									c	c		
<i>Juniperus</i> sp. (Juniper)	c	c	c	c	c		c	c					c							c		
Solanaceae (Nightshade family)										c												
<i>Sphaeralcea</i> (Globemallow)													c								c	
cf. <i>Suaeda</i> (Seepweed)								c														

Key: c = carbonized

Table 6.10 Radiometric ages and dates from LA 25864.

Feature	Beta-#	age	cal date intercept	cal date (2-sigma)
2	Beta-92304	2360 ± 100 BP	400 BC	785 to 185 BC
6	Beta-92297	2500 ± 60 BP	760, 634, 560 BC	800 to 405 BC
7	Beta-92299	2150 ± 80 BP	180 BC	385 BC to AD 25
22	Beta-92302	2060 ± 60 BP	45 BC	195 BC to AD 75

Chapter 7

LA 27632

Harding Polk II

LA 27632 is a small multicomponent site with late Archaic and Formative occupations, and a small historical component. The prehistoric occupations represent small campsites while the historical component is a trash scatter. The site is 2.9 km (1.7 miles) southwest of the Jemez River and 3.5 km (2.2 miles) southeast of the Pueblo of Santa Ana access road (Figure 1.1). It is situated on the northwest face of a northeast trending ridgeline overlooking the upper end of Jemez Canyon Reservoir. The area is characterized by relatively steep, sandy slopes with sandstone outcrops in the portions of the ridgeline above the site. Soils are a tan sand with small pebbles. The lower portion of the site is littered with eroded quartzite cobbles. Vegetation is snakeweed, ephedra, and various grasses. The overstory consists of a low-density juniper woodland.

PREVIOUS INVESTIGATIONS

The site was recorded in 1979 by Complete Archaeological Services Associates (CASA) during a survey for the adjacent Shell CO₂ pipeline (CASA 1981:3.28). They described it as a low-density sherd and lithic scatter that possibly represented a campsite or resting place. No features or artifact concentrations were noted. They reported the site as covering a 91.4 m (300 ft) northeast-southwest by 30.5 m (100 ft) northwest-southeast area with the pipeline traversing its northern portion. Flakes of chalcedony, basalt, and chert were noted, but no tools were observed. Ceramics included a Glaze A Agua Fria sherd (AD 1315 to 1425), two Glaze E or F sherds (AD 1515 to 1700), and a few Lino Gray (AD 500 to 875?) and Pueblo II whiteware sherds (AD 900 to 1100). A small quantity of historical material (tin cans) was noted. CASA suggested eolian erosion and deposition of about 5 cm of sand had displaced materials at the site. They inferred some artifact collecting may have occurred because motorcycle tracks were noted on the site.

The 1995 survey described LA 27632 as being a multicomponent prehistoric/historical site of unidentified

function (Bradley et al. 1998:275) but evidencing long-term use and reuse. It was a dispersed lithic scatter with several concentrations of ceramics, two hearth/ash stain features, and various historical artifacts. The site dimensions were expanded to 116 m northeast-southwest by 70 m northwest-southeast. The greatest number of artifacts, including most of the sherds, occurred in the southwest corner of the site, outside of the construction right-of-way. Two major concentrations of material were recorded in the area. The larger of these concentrations, designated Provenience 1, was a 10 by 16 m sherd and lithic scatter located about 14 m west of the site datum (Figure 7.1). A 2 by 3 m discrete sample in this provenience yielded 10 artifacts: seven flakes, a core, and two Glaze E sherds. The second concentration, located 10 m northwest of the site datum, consists almost wholly of sherds and appears to be a pot drop. It is associated with a probable hearth stain. The artifact scatter extended downslope from these concentrations, decreasing in density and with a decreasing proportion of sherds. The scatter is discontinuous within the right-of-way, but an ash stain was found in the pipeline corridor suggesting that subsurface cultural deposits were present. A 100% flag sample of surface artifacts at the site, exclusive of Provenience 1, contained 143 lithics, 84 ceramics, and 6 historical artifacts. The lithics were dominated by chalcedony (64%) with, in descending order of frequency, cherts, quartzites, basalt, silicified woods, Jemez obsidian, and andesite. Lithic artifacts were predominately flakes (61.5%), cores (23.8%), and angular debris (8.4%). A few tools were noted: a biface, a drill, a scraper, two retouched flakes, and four hammerstones. The ceramics in the flag sample consisted of Cibola graywares (97.6%), an unidentified Zia ware sherd, and a Glaze A sherd. Historical artifacts included aqua and brown glass fragments and a fuel can. The prehistoric ceramics suggest that the site area may have been utilized sporadically throughout the Formative period. The historical artifacts represent a Hispanic/Anglo presence dating to the first half of the twentieth century. They may be related to the nearby logging railroad (LA 109131) that crosses the pipeline corridor northwest of this site.

HARDING POLK II

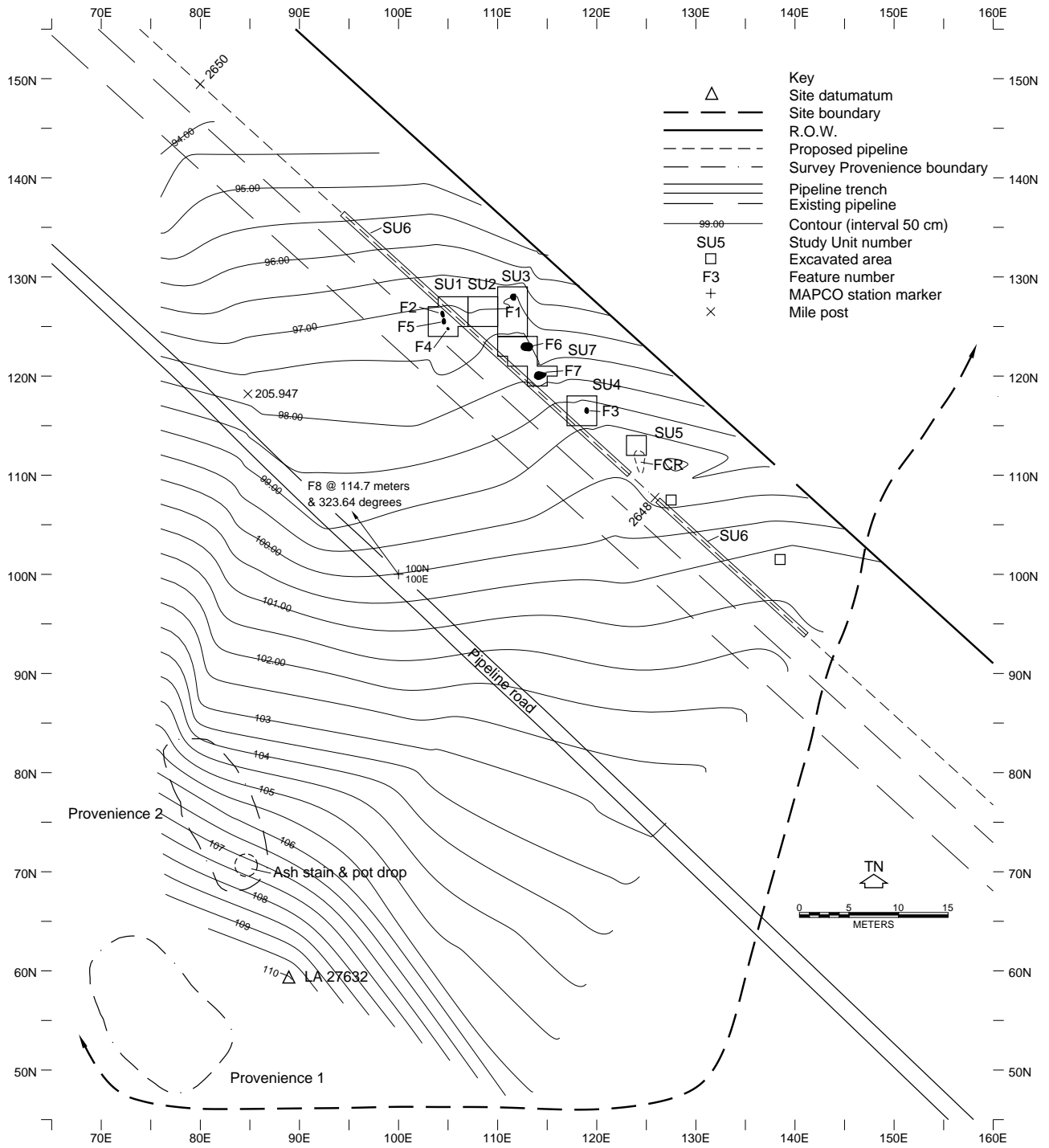


Figure 7.1 Site map of LA 27632 showing location of excavated areas and features.

INVESTIGATION STRATEGY

Data recovery consisted of manual excavation of 69 1 m² units within the right-of-way in the area of the ash stain noted by the survey crew. Most of the excavations units ($n = 67$) were placed within six study units. Excavations revealed eight features and recovered a moderate quantity of artifacts. Approximately 10 cm of sandy overburden was shovel scraped and screened from each unit. Nineteen of the units were excavated deeper than the shovel scraping. Rodent burrowing was evident in the soil throughout the site. Mechanical equipment was used to trench the site along the pipeline centerline and to remove 30 to 50 cm of overburden from an area measuring approximately 20 by 20 m.

After the excavations at LA 27632 had been completed, pipeline trenching exposed a buried pit (Feature 8) approximately 100 m northwest of the excavated site area. This feature was excavated as a discovery. It is discussed as part of LA 27632 for administrative convenience, but it represents an isolated historical component well outside the boundaries established for LA 27632.

RESULTS

Six study units were opened to investigate areas within the pipeline right-of-way where one or more features were identified or suspected. Study Units 1, 2, 3, and 7 are contiguous, and the features exposed by these excavations evidence multiple occupational episodes during the late Archaic/Basketmaker II period. Study Unit 4 encompasses the remnants of a brief early Developmental occupation; and Study Unit 5, remnants of a camp or processing facility of unknown age.

A backhoe trench (Study Unit 6) was dug along the pipeline centerline to probe for additional buried features. It measures 60 cm wide and 30 to 175 cm deep. It was dug in two sections, 20 and 40 m long, respectively, with a 4 m space between them to allow access to the excavations. The southeast part of the trench began at the crest of the hill and extended northwest down its slope.

A small ash stain noted in the wall of the trench south of Study Unit 5 may be a hearth that was the origin of the fire-cracked rock scatter located in the southeast corner of the study unit. A second, more faint ash stain—measuring 5 to 7 m long and occurring at a depth of 20 to 30 cm—was noted south of Study Unit 3. Sandstone was encountered at several locations in the southeastern portion of the trench. The depth of the deposits above the sandstone bedrock varied from several centimeters to more than one meter.

A single artifact, a quartzite mano, was recovered from the trench spoil dirt between Study Units 1 and 7. One side of the mano has been ground to a concave surface to form a small mortar. The mano measures 10 cm in diameter and 3.3 cm thick. Its concave surface measures 6.5 cm in diameter and 1.25 cm deep.

The Late Archaic–Basketmaker II Occupation

The excavations in Study Units 1, 2, 3, and 7 uncovered evidence of multiple short-term occupations dating to the late Archaic/Basketmaker II period. Excavations in Study Units 1, 3, and 7 were begun initially to investigate known or suspected features. The excavations were expanded to trace the prehistoric occupation level, and ultimately, a total area of 54 m² was exposed (Figure 7.2). Six features were uncovered in this area, each potentially representing a separate occupational episode.

Study Unit 1

Study Unit 1—measuring approximately 4 by 4 m—is located along the pipeline centerline in the northwestern portion of the site and encompasses a small hearth (Feature 2) that was visible on the ground surface (Figures 7.3). Removal of surface deposits revealed another hearth (Feature 5) and an ash stain (Feature 4). Study Unit 1 contained 25% of the lithics recovered from LA 27632. Most of the artifacts are concentrated in areas adjacent to the features, a pattern suggestive of debris from heart-centered activities (Figure 7.2). Conifer charcoal collected from Study Unit 1 yielded a radiocarbon date of 1930 ± 110 BP (Beta-92327) or cal AD 85 with a 2-sigma date range of 180 BC to AD 370. This places the occupation of the study unit during the late Archaic–Basketmaker II period.

Feature 2, a small, oval hearth, was originally identified during the 1995 survey (Bradley et al. 1998:275). Measuring 33 by 23 cm and 13 cm deep, the fill was loose, ashy sand with small pieces of charcoal (Figure 7.4). A small area of oxidized matrix was in the center at the bottom and some fire-cracked rock was present, but no artifacts. The perimeter of the feature was indistinct owing to rodent disturbance.

Another hearth pit (Feature 5) was located immediately to the south of Feature 2. This pit was irregular in shape and measured 35 cm east-west by 55 cm north-south and 6 cm deep. Its fill consisted of loose, ashy sand and small pieces of charcoal. No oxidation was apparent and no artifacts were recovered, but a few fragments of fire-cracked rock were noted. The feature's perimeter was indistinct and rodent activity was evident.

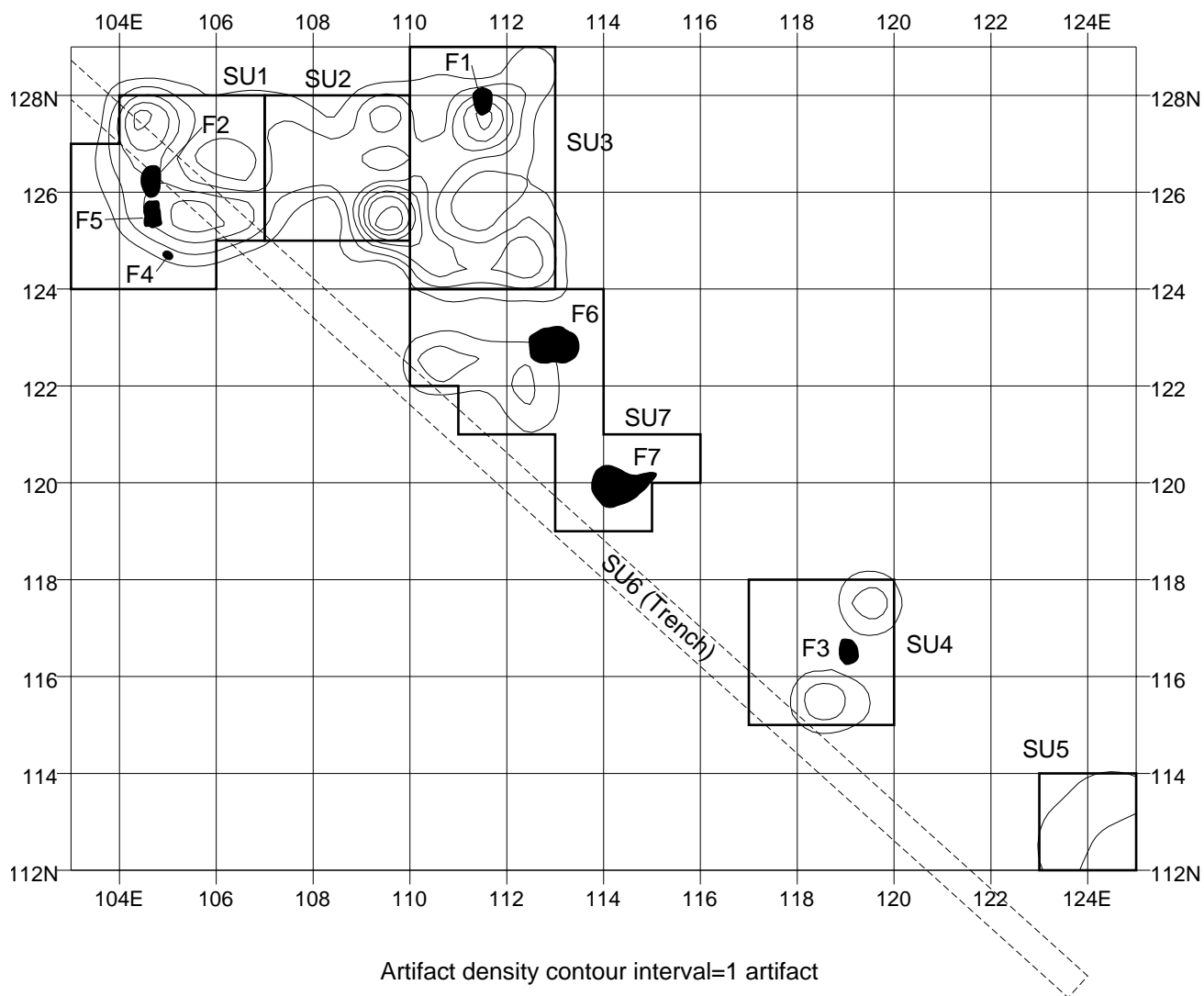


Figure 7.2 Map showing artifact densities in the excavated areas.

A small, oval ash stain (Feature 4) was also uncovered, roughly 65 cm southeast of Feature 5. It measured 21 by 20 cm and 6 cm deep and consisted of loose ashy sand with a small quantity of charcoal. Oxidation was absent and no artifacts were recovered.

Study Unit 2

Study Unit 2—measuring 3 by 3 m—abuts the east edge of Study Unit 1 and the west edge of Study Unit 3. Approximately 10 cm of surface deposits was removed, but no buried features were found. Study Unit 2 yielded 22% of the entire lithic assemblage from LA 27632, and 3 kg of fire-cracked rock. The fire-cracked rock could be debris from one of the features in an adjacent study unit or the remnants of an eroded hearth or roasting pit. The remaining materials from Study Unit 2 are angular debris, flakes, and a retouched flake. Chalcedonies comprise 88% of the

assemblage, while 12% consists of cherts, obsidian, and basalt.

Study Unit 3

Study Unit 3 abuts the east edge of Study Unit 2 and the north edge of Study Unit 7. Measuring 5 m north-south by 3 m east-west it was designated to encompass Feature 1. This study unit was surface scraped to expose buried cultural remains. Study Unit 3 yielded 28% of the entire lithic assemblage from LA 27632. Items include angular debris, flakes, and an irregular core. Chalcedonies comprise 87% of this assemblage; chert and quartzite are represented by two specimens each. Artifact densities were low; no excavation unit contained more than four lithics. The southern portion of the study unit had a slightly higher artifact density, but this may reflect its proximity to Feature 6 in Study Unit 7. Study Unit 3 contained 8 kg of fire-cracked rock.



Figure 7.3 Photo of the excavation of Study Unit 1 at LA 27632.



Figure 7.4 Photo of Feature 2 in Study Unit 1 at LA 27632.

Feature 1 is an oval, straight-sided pit measuring 40 by 55 cm and 20 cm deep (Figure 7.5). Its fill consisted of dark gray-brown loose sand with charcoal flecks. No oxidation was noted and no artifacts were recovered. The pit fill contained a small quantity of fire-cracked rock suggesting that Feature 1 was a roasting pit, although straight-sided pits are commonly used for storage. A charcoal sample—conifer and saltbush—produced an age of 1620 ± 100 BP (Beta-92324) or cal AD 430 with a 2-sigma date range of AD 225 to 645.

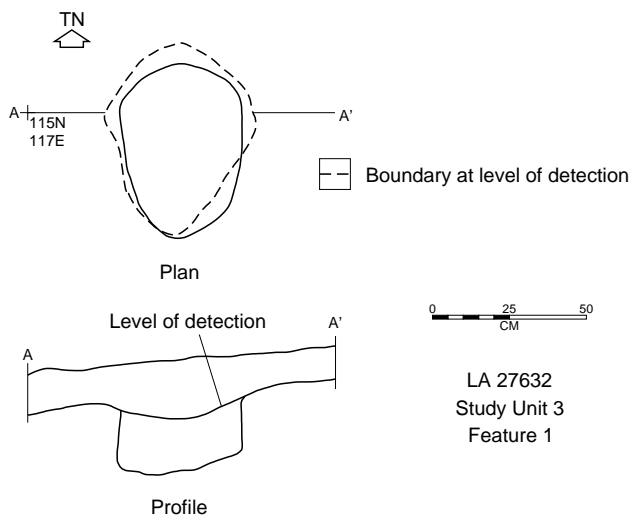


Figure 7.5 Plan and profile of Feature 1 in Study Unit 3.

Study Unit 7

Study Unit 7 abuts the south portion of Study Unit 3 and is approximately 2.5 m northwest of Study Unit 4. The study unit is irregularly shaped and measures 5 by 6 m, encompassing 16 m². Portions of its southwest edge overlap the pipeline centerline. This study unit—scraped with mechanical equipment to remove 30 to 50 cm of overburden—contains two hearths (Features 6 and 7). Artifacts recovered include flakes, a piece of angular debris, and a core. Materials include chalcedonies and cherts.

Feature 6 is a large amorphous hearth pit measuring 100 cm east-west by 75 cm north-south and 5 cm deep. The fill consisted of loose, variably ashy sand with charcoal flecks. It contained no artifacts or fire-cracked rock. Rodent burrowing and plant roots have impacted its integrity. Carbonized juniper, saltbush, rabbitbrush, and maize yielded a radiometric date of 1680 ± 70 BP (Beta-92325) or cal AD 395 with a 2-sigma date range of AD 225 to 550.

Another oval hearth pit (Feature 7)—measuring 135 cm east-west by 105 cm north-south and 9 cm deep—was located about 2 m southeast of Feature 6. The fill of this

second hearth consisted of a mottled gray-tan sand with ash and charcoal flecks. The mottled appearance indicates it was disturbed by rodent burrowing. No artifacts were recovered.

The Formative Occupation

Study Unit 4—measuring 3 by 3 m—contained a hearth (Feature 3). This study unit was shovel-scraped to expose cultural remains. Artifacts recovered include chipped stone debris, tools, and 1.5 kg of fire-cracked rock. Chalcedony constitutes 88% of the lithic sample. A corner-notched projectile point made on a finely worked flake of Jemez obsidian (visual identification) was also recovered. Its base is missing, and therefore it cannot be typed. Its size, however, suggests that it is a late prehistoric arrow point. Carbonized juniper, saltbush, and rabbitbrush collected from Study Unit 4 yielded a radiometric age of 1300 ± 50 BP (Beta-92328) or cal AD 695 with a 2-sigma date range of AD 650 to 865. This date places the occupation of Study Unit 4 during the Basketmaker III or early Developmental period.

An oval hearth (Feature 3)—measuring 47 cm east-west by 52 cm north-south and 5 cm deep—consisted of dark gray-brown loose sand with small pieces of charcoal. No oxidation or rodent disturbance was noted, and no artifacts or fire-cracked rock were recovered.

Study Unit 5

Study Unit 5—measuring 2 by 2 m—was defined to encompass a diffuse cluster of fire-cracked rock. The area was first scraped to expose cultural remains and then was hand-excavated to sandstone bedrock, no more than 10 cm below the ground surface. Lithic flakes and 6 kg of fire-cracked rock were recovered. The fire-cracked rock consists of granite, sandstone, and basalt. No feature was defined within Study Unit 5. The rock scatter probably represents the remains of a nearby hearth.

Two smaller 1 by 1 m test units were also hand-excavated on the uphill, or southeast, end of the site to determine the potential for subsurface cultural deposits. Excavations in both units—dug as one level through eolian sand—first encountered bedrock in parts of the units at a depth of 14 cm and continued to a maximum depth of 35 cm. No artifacts or evidence of cultural deposits was noted.

The Historical Occupation

A historical basin-shaped ash stain (Feature 8) was bisected by the pipeline trench. Approximately 80% of the stain was destroyed by the pipeline trenching. The stain as revealed in the southwestern trench wall measured 2.25 m long.

Hand-excavation determined that its remaining portion measured 90 cm northeast-southwest, and it was 11 cm thick. The stain was located 94 m northwest of Study Unit 1. No fire-cracked rock or artifacts were recovered from this ash stain, but it did contain one piece of metal slag.

A carbonized fragment of ponderosa pine (*Ponderosa pinus*) yielded a radiocarbon date of 70 ± 50 BP (Beta-92323). The date does not intercept the calibration curve but it falls within a 2-sigma date range between cal AD 1680 to 1755 and cal AD 1805 to 1940. These dates are not contemporaneous with other features at the site. These recent dates may be spurious or the result of a contaminated sample. On the other hand, the ash stain (Feature 8) appears to coincide with the old Santa Fe Northwestern Railroad bed crossing the pipeline corridor. The railroad operated from 1922 to 1941, which fits the radiocarbon date range although Taylor (1987:35–38) indicates radiocarbon dates less than 200 years old are not very accurate or useful. Further support for Feature 8 being associated with the railroad is the presence of metal slag and ponderosa pine. Ponderosa pine was commonly used in railroad construction, but does not grow in the immediate project area and was likely procured in the Jemez Mountains.

ARTIFACTS AND SAMPLES

The artifact assemblage is composed of 109 lithics, two animal bone specimens, archeobotanical remains, and a slag fragment.

Lithics

The lithic assemblage is mostly flakes and angular debris (Table 7.1). Tools include a piece of retouched angular debris, a retouched flake, a projectile point, and a mortar. The projectile point, made of obsidian, is nearly complete. The point has a fracture at the base of its blade. It appears to be a corner-notched arrow point that broke as a result of impact. The arrow point is made on a flake blank that has been worked on its dorsal face and marginally modified on its ventral face. Curvature of the flake blank is apparent. It cannot be typed because it is missing the stem and base. The mortar was made on a fist-size disc-shaped quartzite cobble. The mortar top has a concave circular depression for grinding while its obverse side has been ground smooth. This specimen is suitable for processing pigments or very small quantities of materials.

Most lithic materials are chalcedonies with smaller quantities of silicified wood, quartzite, chert, obsidian, and basalt (Table 7.1). The lithic materials are available in the local gravels that outcrop in the Jemez Valley.

Faunal Remains

The faunal assemblage consists of an indeterminate element of a rabbit-size mammal and a long bone fragment of a deer-size mammal, both recovered from Study Unit 3. These specimens are from economically important species and may have been introduced by the site occupants (especially the rabbit-size bone, which is calcined).

Archeobotanical Remains

A large quantity of matrix from LA 27632—130.65 liters—was processed by flotation. Seven flotation samples collected from six features were scanned for botanical remains (Table 7.2). Indian ricegrass (*Oryzopsis hymenoides*) seeds and maize are the only carbonized plant remains associated with the late Archaic/Basketmaker II occupation. The historical feature (Feature 8) contained carbonized remains of goosefoot/pigweed (*Chenopodium/Amaranthus*), grass (Gramineae), and an unknown taxon. The recovery of carbonized botanical remains was minimal. Two maize cupules were recovered during excavation of Feature 6.

Historical Artifacts

A slag fragment was recovered from the historical ash stain (Feature 8). The presence of metal slag supports the association of this feature with the railroad.

SUMMARY AND INTERPRETATION

The 1995 survey and subsequent data recovery determined LA 27632 to be a large multicomponent site with late Archaic–Basketmaker II, Early Developmental, Classic, and historical components. The site boundaries extend for a considerable distance north and south of the pipeline corridor. Only a small portion of the site was excavated because investigations were restricted to the pipeline corridor. Prehistoric uses consist of small campsites resulting in limited artifact scatters and associated ash stains.

Data recovery included hand-excavation of 67 1 m² units within six study units, two 1 by 1 m test pits, and two mechanically dug trenches. Eight stains were exposed—five hearths (ash stains), a storage or roasting pit, and two rodent burrows. Loose eolian sand and rodent disturbances prevented clear delineation of their perimeters.

Data recovery yielded 111 artifacts, mostly undiagnostic flakes, although an undiagnostic arrow point fragment and a mortar were recovered. Most of the lithics consist of angular debris and flakes (93%) with a small quantity of retouched materials and cores. Chalcedonies are the material of choice. Chalcedonies are readily available and were noted eroding out of the surrounding terrain north of the

HARDING POLK II

Table 7.1 Lithic artifact and material types, LA 27632.

Artifact Type	Scraped Areas						FCR Cluster Study Unit 5	Trench Study Unit 6	Total		
	Late Archaic					Formative SU 4					
	hearth Feature 6	SU 1	SU 2	SU 3	SU 7						
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	%		
Angular Debris	2	11	8	8		2	1	32	29.4		
Flake	5	17	15	22	3	5	3	70	64.2		
Core, Irregular				1	1		1	3	2.8		
Angular Debris, Retouched					1			1	0.9		
Flake, Retouched			1					1	0.9		
Projectile Point						1		1	0.9		
Mortar								1	0.9		
Total	7	28	24	31	5	8	5	109	100.0		
Material Type											
Chalcedony	5	21	21	27	5	7	5	91	83.5		
Silicified Wood		3						3	2.8		
Quartzite, medium/coarse		1		1				3	2.8		
Chert	2	2	1	3				8	7.3		
Obsidian, Jemez			1			1		2	1.8		
Basalt		1	1					2	1.8		
Total	7	28	24	31	5	8	5	109	99.9		

site. Procurement of lithic raw material was one of the tasks performed at the site. Primary and secondary reduction are evidenced by the angular debris, flakes, and a core. The projectile point and mortar indicate procurement and processing activities.

Late Archaic occupations are represented by Features 1 and 6, which yielded radiometric dates of AD 225 to 645 and AD 225 to 550, respectively. This component represents a small

campsite occupied repeatedly, as evidenced by numerous hearths in the area. The two maize cupules recovered from Feature 6 may indicate a longer-term occupation to allow for cultivating maize. The 2-sigma date range for Study Unit 1 is 180 cal BC to cal AD 365, overlapping Features 1 and 6 by 155 years. The 1-sigma date range is cal 35 BC to cal AD 225, which indicates a late Archaic occupation that is not contemporaneous with Features 1 and 6.

Table 7.2 Botanical remains from LA 27632.

Taxon	Ash Stains			
	Late Archaic			Historical Feature 8
	Feature 2	Feature 5	Feature 6	
<i>Oryzopsis hymenoides</i> (Indian Ricegrass)	c	c		
<i>Chenopodium/Amaranthus</i> (Goosefoot/Pigweed)				c
Gramineae (Grass Family)				c
<i>Zea mays</i> (Maize)			c	
Unknown				c

Key: c = carbonized

The radiometric date from Study Unit 4—a 2-sigma date range of cal AD 650 to 865—indicates an early Formative, or Developmental period, occupation. This radiometric date, in addition to the presence of Lino graywares—identified during the CASA survey—and recovery of an arrow point fragment also lend support for a Developmental period occupation consisting of short-term campsites used by small groups.

The historical component is represented by artifacts and a hearth. The historical artifacts—dating to the late nineteenth century or early statehood—are in the southeast portion of the site. The hearth, which is located far from the core area of the site, is likely associated with the logging railroad that operated from 1922 to 1941.

Chapter 8

LA 109127

Byrd A. C. Bargman

LA 109127 is a diffuse lithic scatter covering a 63 by 55 m area on an ancient terrace mantled by eolian sands, about 2 km (1.3 miles) northwest of the Rio Grande (Figure 1.1). Vegetation on the site consists largely of one-seed juniper, snakeweed, and rabbitbrush.

The site was first documented during the 1995 survey (Bradley et al. 1998:A21–22), and the lithic scatter was interpreted as debris from lithic procurement activities. Two ash stains were noted at the extreme northeast edge of the scatter, but the association of these features with the lithics is uncertain. Temporal affinity of the occupation(s) is unknown, as no cultural-temporal diagnostics are present.

No data recovery was planned since LA 109127 as only the southern one-quarter of the scatter extended into the right-of-way, and damage to the cultural materials could be avoided by positioning the pipeline trench along the southern site boundary. During construction, however, an ash stain with fire-cracked rock was uncovered in the right-of-way roughly 20 m east-southeast of the site. Because of its proximity to LA 109127, this feature was included as part of the site for administrative convenience. Data recovery at the site was nevertheless limited to the excavation of this isolated feature.

INVESTIGATION STRATEGY AND RESULTS

Feature 1 was exposed by preliminary blading of the right-of-way just beyond the boundaries defined for LA 109127. As first observed, it consisted of a cluster of fire-cracked limestone in a matrix of darkly stained sediments. During data recovery, a 3 by 3 m area encompassing the stain was shovel scraped, removing 2 to 6 cm of eolian sand, to delineate the feature boundaries (Figures 8.1). The entire feature and its surrounding area were then hand-excavated.

These excavations uncovered a shallow basin measuring 1.5 m in diameter and 16 cm deep. The pit was filled with

black and gray ash-stained sand with small quantities of charcoal. Oxidation was not evident. The pit also contained 22 pieces of blocky fire-cracked limestone weighing a total of 27.5 kg. The feature had been disturbed by previous pipeline construction, vehicular traffic, and rodent burrows.

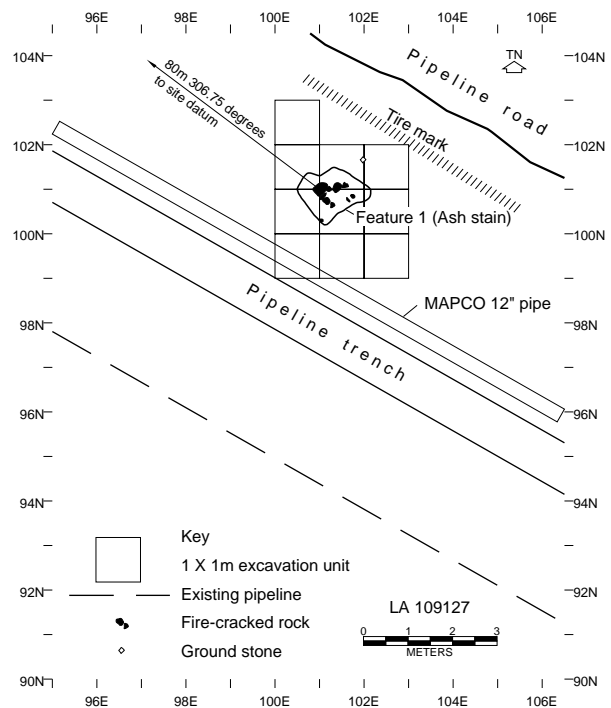


Figure 8.1 Site map of LA 109127 showing location of excavated area and Feature 1.

Three flaked lithic artifacts were recovered from the excavation: a flake, a tested rock, and a piece of angular debris. These three specimens exhibit a large amount of cortex, which is consistent with the lithic procurement activities posited for LA 109127. Matrix totaling 45 liters was processed by flotation. The single flotation sample

collected from the fill of the thermal feature was scanned for botanical remains. Fragments of juniper and prickly pear were identified, but since none was charred, and given the disturbed condition of the feature, they are probably recent contaminants.

SUMMARY AND INTERPRETATION

The paucity of artifacts and charcoal and lack of depositional integrity make any meaningful interpretation of the feature difficult. Feature 1 appears to be the remnant of a hearth or small roasting pit, and like the other features at the site, it probably marks a short-term occupational episode. The lithics at LA 109127 clearly indicate that the procurement of lithic raw materials was a major activity at the site. Whether this activity was the major rationale for the occupational episodes evidenced by the features, an embedded activity associated with those occupations, or an unrelated use of the site area could not be ascertained from the limited excavations described here.

Chapter 9

LA 109129

Cherie K. Walth

LA 109129 has evidence of Basketmaker III and Pueblo IV occupations. The Basketmaker III or Early Developmental occupation—represented by five structures and 57 extramural features—is radiometrically dated to AD 395 to 575. The Pueblo IV or Classic occupation is indicated by a very light surface scatter of Glazes A and C ceramics. Except for the collection of a few glaze wares, data recovery focused exclusively on the Basketmaker III occupation. This work recovered a large artifact assemblage: 17,364 lithics, of which 103 pieces are ground stone; 481 sherds identified to type; 11,803 animal bones; a ceramic pipe; red and yellow ocher; worked shell; and small turquoise and galena fragments.

The site occurs on the south side of the Jemez River on the first terrace above floodplain (Figure 1.1). LA 109129 is 4.2 km (2.6 miles) southeast of the Pueblo of Zia and 0.4 km (0.25 mile) south of NM 44. The present channel of the Jemez River is 1 km (0.6 mile) north of LA 109129. The site affords an unobstructed view of White Mesa to the northwest and the Colorado Plateau uplift to the north. Marillo Peak—with an elevation of 5,565 ft—is 1 km (0.6 mile) to the south-southeast (Figure 9.1). The elevation of the site is 5,380 ft. The terrace on which the site occurs drops off slightly immediately beyond the north, east, and west site boundaries. The site's southern boundary is indeterminate as a result of previous pipeline construction. It is likely that the present excavation was near the site's southern boundary. The fact that data recovery was limited to the pipeline corridor precluded excavation of the northern portion of the site.

Eolian sand dunes dominate the landscape on the south side of the Jemez River. The eroding Zia Formation (sandstone) is the source for the dunal sand. Vegetation is juniper savanna with a ground cover of snakeweed, blue grama, sideoats grama, Indian ricegrass, winterfat, skunkbush, three-awn grass, sand dropseed, broom dalea, plains aster, blue flax, prickly pear, yucca, and cholla.

INVESTIGATION STRATEGY

Data recovery was completed in two phases. The first phase was controlled surface collection and subsurface testing. Results of the first phase helped define procedures for the subsequent excavation phase. The site datum, placed by the survey crew (Bradley et al. 1998:302), was used as the main datum for testing and data recovery. The datum was assigned the coordinate 200N/200E and an arbitrary elevation of 100 m. The grid established for the site aligned with true north and proceeded for a maximum of 35 m north and 42 m east of this datum.

Testing Phase

Ropes marked with flagging tape at 1 m intervals and metric tapes were used for conducting the surface collection within 1 m² grid units. All surface artifacts in the right-of-way within the site grid were collected; no artifacts were collected from outside the pipeline corridor. Most of the artifacts were found in the two-track road, as a result of erosion of subsurface deposits and because of disturbance and displacement of artifacts from previous pipeline construction. The paucity of surface artifacts elsewhere on the site is mainly a result of burial by eolian sand. There was a scatter of artifacts, including some late Glaze A ceramics, on the slope at the north boundary of the site. Their presence indicates that the site continues to the edge of the terrace. Artifacts collected from the surface consist of ground stone, debitage, tools or cores, sherds (including one each of White Mound Black-on-white and Glazes A and C), and one fragment of bone. The latter sherds suggest ephemeral use of the site area sometime between AD 1300 and 1400.

Subsurface testing consisted of hand-excavating shovel test pits (STPs) that were judgementally placed within the pipeline corridor. The shovel test pits were placed along the pipeline centerline and across the site area within the



(a)



(b)

Figure 9.1 Photos of the view toward the (a) north and (b) east from LA 109129.

pipeline corridor (Figure 9.2). Artifacts were collected in 10 cm levels to allow for the definition of culturally sterile overburden. In some site areas the overburden was too thick for the pits to make contact with subsurface cultural deposits. In this case, the excavation was expanded to a 1 m² unit. Shovel test pits were also dug in the southwest corner of each 1 m² unit until culturally sterile subsurface deposits were encountered. The overburden thickness varied from 1.2 m at the west end of the site to 30 cm at the east end of the site and it was deepest along the fence line in the southern portion of the pipeline corridor. The overburden undulated throughout the remaining site area within the corridor—the shallowest being 25 cm in the area north of Structure 1 and the thickest being 65 cm near Structure 4 (Figure 9.2).

Three 1 m² units were hand-excavated to document the stratigraphy where the overburden was thickest. The units were initially dug—without screening—until the level where artifacts were encountered in nearby shovel test pits was reached. The remaining deposits were dug in 10 cm levels and the matrix sifted through $\frac{1}{8}$ inch hardware cloth. Profiles of the unit walls were drawn.

The project geomorphologist examined the stratigraphy exposed in two of the units, commenting that the culturally sterile subsurface, eroding Zia Formation (sandstone), was a stable stratum that was old enough to allow the first stage of soil development. This level, characterized by a coarse light tan sand, is the prehistoric ground surface where features and structures originated. At the western portion of the site the Zia Formation was deteriorating while to the east it had completely decomposed, creating a coarse-grained sand.

Sixty-three shovel test pits and three 1 m² units were dug within the pipeline corridor. These tests indicated that subsurface artifacts were present over most of the site, and that there were lenses of charcoal-stained sediments—probably marking burned structures or associated features—in at least four areas.

Excavation Phase

The goal of the excavation phase was to investigate all features and occupation areas within the pipeline corridor. The shovel test pits and 1 m² units revealed considerable depth of culturally sterile overburden across much of the site area. Mechanical equipment was used to remove most of this overburden. The extramural features exposed by mechanical stripping were each assigned a unique number based on their center point grid coordinate. During excavation most features were divided in half. Once the first half was excavated, with all matrix sifted through $\frac{1}{8}$ inch hardware cloth, a feature profile was drawn and the second half was

excavated. In two features a distinct change in the stratigraphy led to excavation of the second half in two levels, but most features were dug as a single stratum. Flotation samples were collected from the second half of the fill unless the feature was small, in which case the fill was collected as a single unit. Pollen samples were collected from the base of features, and charcoal was collected for radiometric samples.

Structure 1 (Feature 7) was cleared of overburden by both manual excavation and mechanical stripping. Overburden at the south half of the structure was more than 1 m deep. Hand-excavation of 1 m² units delineated the structure's perimeter. Two perpendicular hand-dug trenches—each 50 cm wide and aligned with the cardinal directions—partitioned the structure into quadrants. These trenches also delineated the structure walls and floor. All matrix from the trenches was sifted through $\frac{1}{8}$ inch hardware cloth. Two 1 m² units were hand-excavated, using 10 cm levels, to obtain a control sample of the structure fill. Once the location of the structure walls and floor was known, the remaining fill was hand-excavated, without screening, to within 10 cm of the floor. Artifacts observed within the fill were collected. The 10 cm level of fill remaining above the structure floor was hand-excavated using 1 m² units and all matrix was sifted through $\frac{1}{8}$ inch hardware cloth. Flotation samples, pollen samples, and charcoal for radiometric samples were collected from the structure floor. The structure's interior features were excavated using similar methods described above for the extramural features. Most interior features were small. Flotation, pollen, and charcoal samples were collected from all features except postholes. Because much of Structure 1 was dug into the sandstone bedrock there was no need to test for subfloor deposits.

A midden (Study Unit 5) overlay Structure 2 (Feature 8). Mechanical equipment was used to remove the overburden. The midden was hand-excavated using 1 m² units and 10 cm levels. All matrix was sifted through $\frac{1}{8}$ inch hardware cloth. Excavation of the 1 m² units—beginning at the north boundary of the pipeline corridor and proceeding south—cleared the midden and exposed the east half of Structure 2.

After the midden was excavated the perimeter of Structure 2 was delineated by stripping the remaining overlying deposits by hand without screening the matrix. A 50-cm-wide trench was hand-dug across Structure 2 along the northern boundary of the pipeline corridor. The trench matrix was sifted through $\frac{1}{8}$ inch hardware cloth. One 1 m² unit was dug using 10 cm levels to provide a control sample of the structure fill. The trench and test unit delineated the structure walls and floor. The remaining structure fill was removed, without screening, to a depth of 10 cm above the structure floor. The remaining 10 cm level was

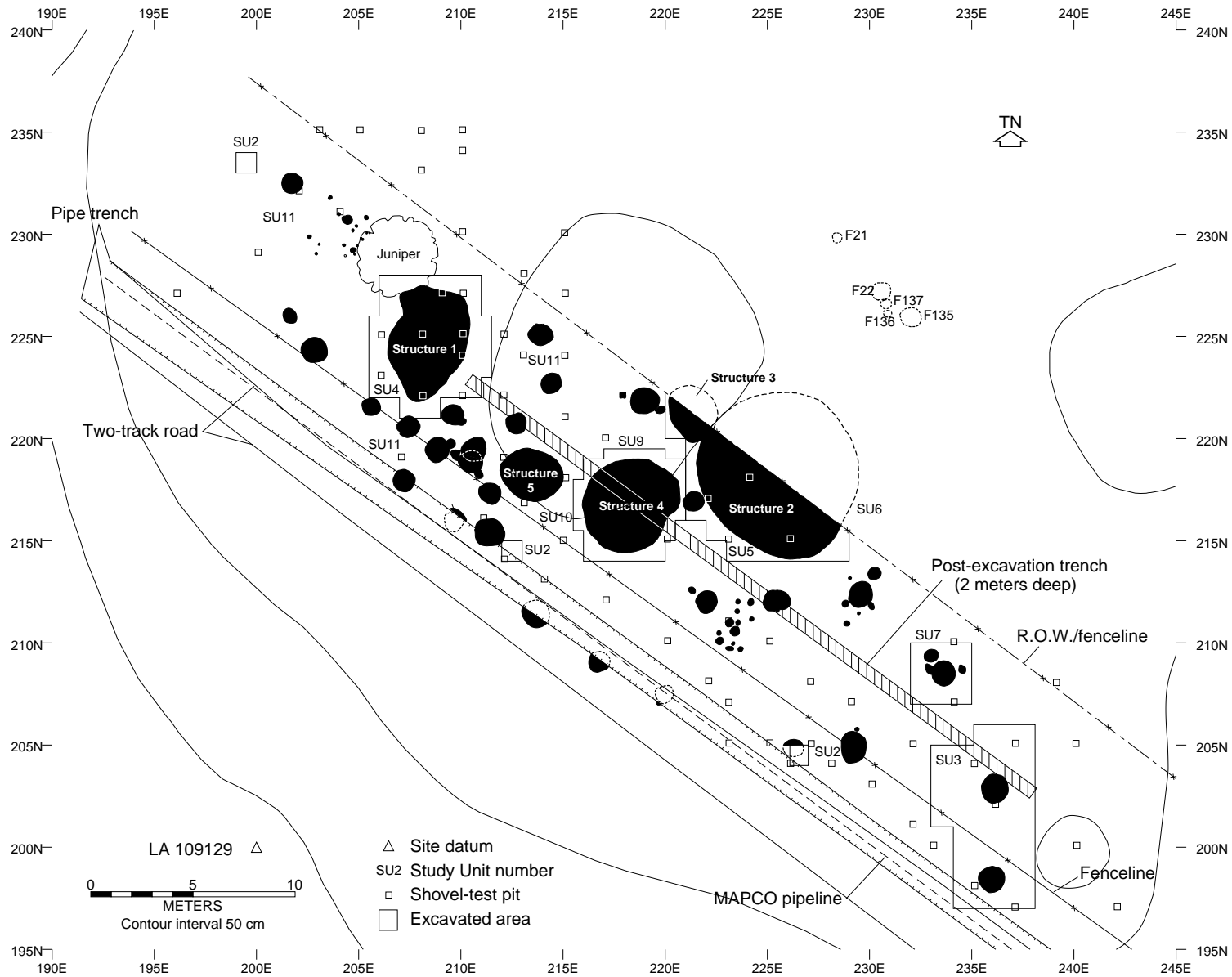


Figure 9.2 Site map of LA 109129 showing location of excavated area and features.

hand-excavated according to 1 m² units and all matrix sifted through ½ inch hardware cloth. As with Structure 1, flotation, pollen, and charcoal samples were collected from this 10 cm level and from internal features. Excavation of the 1 m² control unit was continued through the structure floor and into the underlying matrix. No structure subfloors were encountered.

As the last of the overburden was cleared from Structure 2 a large charcoal stain was observed expanding to the west. Additional overburden was removed, without screening, to delineate the boundary of this stain, which was designated Structure 3 (Feature 9). The fill in the west half was excavated as a full cut and sifted through ½ inch hardware cloth. Once the profile was drawn the east half was removed, without screening, to a depth 10 cm above the structure floor. The remaining 10 cm level was excavated using 1 m² units with matrix sifted through ½ inch hardware cloth.

The overburden was removed from Structure 4 (Feature 10) by mechanical and manual stripping. A sample of the remaining overburden, measuring 20 to 25 cm thick, was hand-excavated using 1 m² units and 10 cm levels. The remaining overburden was shovel stripped, without screening, to expose the structure. The structure was investigated with discontinuous east-west and north-south trenches that measured 50 cm wide. These hand-dug trenches were used as control samples. The trenches—consisting of several 1 m long segments—were dug in 10 cm levels and matrix was sifted through ½ inch hardware cloth. Most of the remaining structure fill was removed, without screening, to a depth 10 cm above the structure floor. Artifacts were collected and provenienced according to their 1 m² unit. The remaining 10 cm level immediately above the structure floor was hand-excavated using 1 m² units. Internal features were excavated using the method described above. Once the floor features had been excavated a second, stratigraphically lower floor was noted. Features originating on the first floor were excavated first, then the fill between the first and second floors was removed. The fill between the two floors consisted of two strata although the second stratum was absent in some areas. The fill was hand-excavated using 1 m² units and according to the cultural stratigraphy. The matrix of the second stratum, when present, was collected for a flotation sample. The matrix from the first stratum was sifted through ½ inch hardware cloth. Additional features discerned in the second floor were excavated using the methods described above. The 1 m² control unit was extended in 10 cm levels to test for additional subfloors, but none was discerned.

Structure 5 (Feature 17) was revealed during mechanical stripping of the site area. As with Structure 4, a concentration of fire-cracked rock indicated the presence of a probable feature. Manual stripping, with no screening, was done to

delineate the boundary of Structure 5. A 1 m² test unit was hand-dug, revealing the structure was only 3 to 21 cm deep. Because of the structure's shallowness, all of its fill was sifted through ½ inch hardware cloth and floor features were excavated.

After all structures and features were excavated a trench was dug, with the aid of mechanical equipment, to test for subsurface cultural remains that may have been missed by the excavations. This trench—beginning east of Structure 1 and continuing eastward to the edge of the site—was dug to a depth of 2 m. The trench paralleled the pipeline and was centered between the proposed pipeline centerline and the edge of the pipeline corridor (Figure 9.2).

RESULTS

This section describes the 153 excavated features and the midden (SU 5). Five of the features were semisubterranean structures and 76 were extramural. Discussion begins with a description of each structure and its associated features. The extramural features are described next, followed by a discussion of the artifacts.

Structure 1

Structure 1 (Feature 7) is a large semisubterranean feature located near the west boundary of the site (Figure 9.2). In plan view it is an irregular oval measuring 5.6 m north-south by 3.8 m east-west (Figure 9.3). The depth of the floor below prehistoric ground surface varies from 26 cm on the south to 48 cm on the north. Two-thirds of its exterior walls were dug into sandstone bedrock. Although the inhabitants had removed the loosely consolidated sandstone bedrock, no digging stick marks were discernible. The inhabitants may have smoothed out any marks to give the structure a more finished appearance. The structure's south wall was culturally sterile sands. Structure 1 had a single floor level that contained 28 features of various types, including eight internal postholes and five extramural postholes. The northern two-thirds of the structure's floor was sandstone bedrock while the southern one-third was a compacted sand with protruding bedrock. Two artifacts were in direct contact with the floor—a chalcedony uniface and a basalt mano. The prehistoric ground surface sloped down from north to south, with the ground elevation at the structures origination being 100.3 m in for the north wall and 99.85 m for the south wall. The structure's floor elevation varied from 99.65 to 99.5 m relative to the site datum.

Structure fill differed between the north and south halves (Figure 9.4). Structure fill in the north half was a medium to dark gray brown, loose sandy sediment with lenses of charcoal (Figure 9.5). The darkest matrix was in the northeast quadrant immediately above the structure floor. In

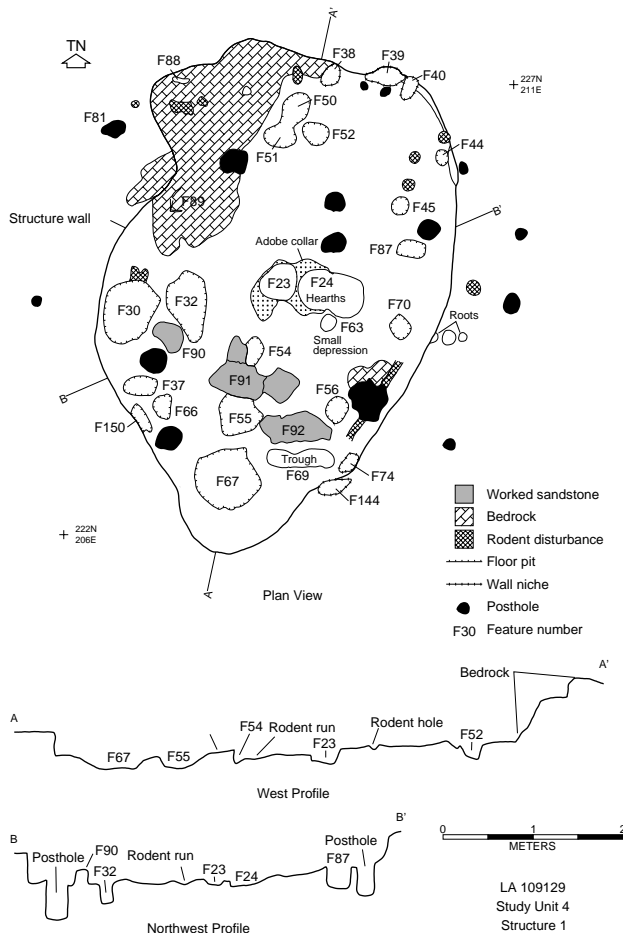


Figure 9.3 Study Unit 4 Structure 1.

contrast, the fill in the south half appeared to be wind- and water-lain sands with lenses of lightly stained sand that contained charcoal flecks. The north fill is believed to represent burned roof fall mixed with sand, the roof having fallen to the north. The south fill may have resulted from episodes of erosion that removed cultural deposits, replacing them with an eolian matrix.

The greatest concentration of artifacts is in the upper portion of the structure fill. Small quantities of artifacts were found throughout the fill. Artifacts include bone, flaked lithics, ceramics, ocher, turquoise, ground stone, and fire-cracked rock. The large quantity of artifacts from the structure fill ($n = 5,386$) suggest it represents refuse from activities performed after the abandonment of Structure 1. The wall in the south portion of Structure 1 was difficult to delineate, and the fill had nearly the same consistency as the culturally sterile subsurface matrix. Rodent, root, and insect disturbance was evident throughout the structure fill.

Table 9.1 lists the features associated with Structure 1. Most are storage facilities—11 storage pits, a possible storage

pit, and six wall niches. In addition to the storage pits there are two hearths, a cache pit, a pot rest, a trough-shaped feature, five bedrock features, and 13 postholes.

Hearths

Features 23 and 24 were side by side in the center of the structure floor (Figure 9.3). Both could have functioned as hearths, or one could have been an ash pit. The south walls of both had oxidized surfaces. The fill was a medium to very dark gray, ashy, loose sediment with charcoal fragments. Four lithics were associated with Feature 24.

Storage Facilities

Storage facilities were located in all quadrants of Structure 1 (Figure 9.3). Two were in the east quadrant, three in the north, two in the west, and five in the south. Another possible storage pit was also located in the south quadrant. The wall niches, which could have functioned as storage facilities, were in two groups of three each. They were located in the north and south quadrants near the storage pits.

Two storage pits (Features 70 and 87) were in the east quadrant. Feature 87 fill was a gray brown sandy matrix with a small quantity of charcoal. It also contained a rock with ocher stains. Feature 70 had fill that was a gray brown sand with few charcoal flecks. No artifacts were recovered.

A cluster of six pits was in the north portion of Structure 1: three storage pits (Features 50, 51, and 52 [near the wall]) and three wall niches (Features 38, 39, and 40). One wall niche (Feature 38) had a sandy fill mottled with ash and a small quantity of charcoal, but no artifacts. Another (Feature 39) had similar fill and a ground stone fragment. The third wall niche (Feature 40), which had a fill of dark stained sand with charcoal fragments, contained a lithic artifact and a bone. One storage pit (Feature 50)—disturbed by rodent activity and filled with a lightly stained sand and no discernible charcoal—contained one flake. The second storage pit (Feature 51) had similar fill but no artifacts. The third storage pit (Feature 52) had similar fill as the other two, but it contained red and yellow ocher fragments.

On the west side of Structure 1 are two large storage pits (Features 30 and 32). Feature 30 is near the wall. Its orifice was an irregular oval probably resulting from rodent burrowing. The fill was a sandy sediment mottled with ash and charcoal. Artifacts recovered from its fill include animal bone, worked bone, a piece of possibly worked ceramic, shell, lithics, and ground stone. Feature 32 also had an irregular oval orifice and its fill was a medium gray, sandy sediment with ash and charcoal. It contained animal bone, lithics, ground stone, and shell.

From these two large storage pits (Features 30 and 32) and continuing around the structure wall to the south and east

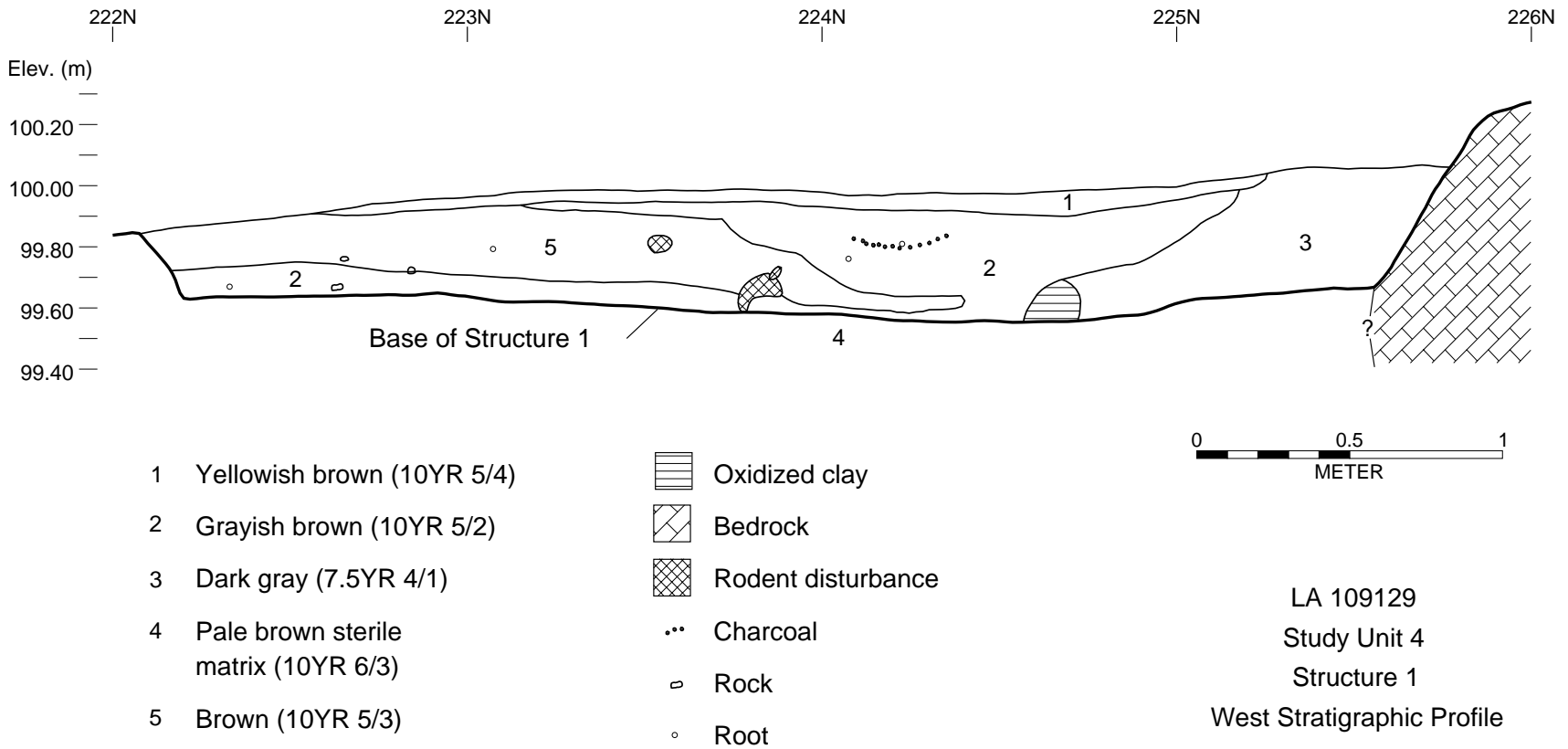


Figure 9.4 Study Unit 4 Structure 1 west stratigraphic profile.



(a)



(b)

Figure 9.5 Photos of the (a) east profile and (b) excavated Structure 1 (Feature 7) at LA 109129.

Table 9.1 Structure 1 features, LA 109129.

Feature Number	Shape	Orifice Size or Diameter (cm)	Depth (cm)	Function
23	Oval Basin	49 by 64	14	Hearth
24	Oval Basin	35 by 42	13	Hearth
30	Oval Basin	63 by 73	26	Storage Pit
32	Oval Basin	66 by 44	26	Storage Pit
37	Oblong Bowl	36	22	Storage Pit
50	Oval Basin	34 by 26	30	Storage Pit
51	Circular Basin	26	21	Storage Pit
52	Oval Basin	40 by 25	15	Storage Pit
55	Oval Basin	23 by 17	11	Storage Pit
56	Circular Basin	42	16	Storage Pit
66	Oblong Bowl	49	13	Storage Pit
67	Circular Basin	66 by 33	13	Storage Pit
70	Circular Bowl	25	26	Storage Pit
87	Oval Bowl	33 by 21	30	Storage Pit
54	Circular Basin	43 by 40	12	Possible Storage Pit
38	Oval Shaft	13 by 20	45	Wall Niche
39	Oval Shaft	53 by 30	32	Wall Niche
40	Circular Shaft	17	22	Wall Niche
74	Circular Shaft	30	27	Wall Niche
144	Oval Shaft	43 by 22	18	Wall Niche
150	Oval Basin	42 by 20	6	Wall Niche
45	Circular Bowl	15	9	Cache Pit
63	Circular Basin	11	4	Pot Rest
69	Trough	72 by 14	17	Possible Upright Slab depression
88	Grooved	22 by 2	11	Tool Marks on Bedrock
89	Grooved	40 by 20	5	Tool Marks on Bedrock
90	Slot in Bedrock	23 to 21	12 to 15	Indeterminate
91	Ground Bedrock	94	33	Grinding Slab or Metate Rest
92	Ground Bedrock	83	26	Grinding Slab or Metate Rest
44	Circular Bowl	20	14	Posthole
81	Oval Bowl	13 by 25	19	Possible Extramural Posthole
		38 by 30	43	Posthole
		30 by 22	33	Posthole
no feature numbers assigned to these postholes		21	20	Posthole
		22	17	Posthole
		29	33	Posthole
		18	29	Posthole
		30	56	Posthole
		17	9	Posthole, Extramural
		15	20	Posthole, Extramural
		12	6	Posthole, Extramural
		19	21	Posthole, Extramural

was the largest concentration of features. There are three storage pits (Features 37, 66, and 67) near the wall and three wall niches (Features 74, 144, and 150) (Figure 9.3). The fill of one storage pit (Feature 37) was a lightly stained sandy soil with no discernible charcoal fragments or artifacts. Feature 66 had sandy fill with light charcoal flecking and five flakes. The largest storage pit (Feature 67) had fill that was a lightly stained sand with no charcoal or artifacts. One wall niche (Feature 74) had a loose ashy fill and no artifacts. Feature 144 was filled with a sandy sediment and no ash or charcoal, but flaked lithics, including an obsidian projectile point, were recovered. The third wall niche (Feature 150) had a loose sandy fill with no charcoal or artifacts.

The south portion of the Structure 1 floor had three storage pits (Features 54, 55, and 56). Feature 54—located north of one of the “islands” of bedrock (Feature 91)—had an irregular shape as a result of extensive rodent disturbance. The fill was a very lightly stained sand that contained a flaked lithic and an animal bone. Feature 55, located on the south side of the exposed bedrock (Feature 91), was larger and had a similar fill but contained no artifacts. The third pit (Feature 56), located north and east of a bedrock “island” (Feature 92), had a medium gray sandy matrix with charcoal fragments. Artifacts include ground stone, flaked lithics, yellow ocher, and animal bone.

Pot Rest

A small pot rest (Feature 63) was in the central portion of the structure floor and south of a hearth (Feature 24). It had the same ashy fill as the hearth and contained a yellow ocher fragment. A small stash pit (Feature 45) had fill that was lightly stained sand with no charcoal or artifacts.

Bedrock Facilities

Two grooves (Features 88 and 89) oriented in various directions and measuring 11 to 21 cm long and 0.5 to 2 cm deep were apparent in the face of the sandstone bedrock on the northwest wall of Structure 1. They are not digging stick marks but appear to have been formed when an object was sharpened, polished, or ground against the wall.

In the west quadrant of Structure 1, between two storage pits (Features 30 and 32), a small segment of sandstone bedrock rose 18 to 20 cm above the floor. Near the center of this bedrock was a groove or slot measuring 8 cm wide and 10 cm deep. The top of the formation and sides of the slot were slightly ground. This unusual bedrock feature may have been used in conjunction with the storage pits, possibly for milling before or after the goods were stored.

In the south quadrant of the floor, near several storage pits (Features 54, 55, and 56), were two “islands” of bedrock (Features 91 and 92). These bedrock exposures, with slightly ground upper surfaces extended 18 to 21 cm above the floor.

They may have been used as grinding slabs or metate rests. In this same area of the floor is a trough-shaped pit (Feature 69). This pit may have held an upright slab or helped support a metate. It is probably not the base for a deflector because it is too far from the hearth. Feature 69 a lightly stained sandy matrix with some charcoal flecking and also contained flaked lithics.

Postholes

Four main posts were used to support the roof of Structure 1—one in each excavated quadrant (Figure 9.3). These postholes were 22 to 38 cm in diameter and had sockets 33 to 56 cm deep. Four additional postholes occur in Structure 1. Two are north of the hearth, the third is along the southwest wall, and the fourth is near the northeast wall. These four measured 18 to 21 cm in diameter and had sockets 14 to 29 cm deep. Five extramural postholes were also discerned. Four are along the east wall and one is near the northwest wall. These extramural postholes measured 12 to 19 cm in diameter and had sockets 6 to 20 cm deep. The closest extramural posthole is 10 cm from the northeast wall of Structure 1. The other three extramural postholes on the east side of the structure are 70 to 90 cm from the wall, and the posthole in the northwest area is approximately 60 cm from the structure wall.

Summary

Structure 1 represents a single-family dwelling. The interior hearths suggest cold weather occupation. No direct evidence was found for an entryway. Most of the internal features are in the southern portion of the floor, suggesting the entrance may have been toward the east or northeast.

Structure 2

Structure 2 (Feature 8) is a large dish-shaped, semisubterranean structure that is bisected by the pipeline corridor boundary (Figure 9.6). Only the south half of Structure 2, which is within the pipeline corridor, was excavated. This portion measures 7.5 m east-west and 3.5 m north-south. Near the structure’s center the depth from the prehistoric ground surface to the floor is 40 cm. The depth along the structure’s southern perimeter was as shallow as 2 cm. Excavation revealed one use-compacted floor with 11 features of various functions and 13 postholes. In addition, seven possible post remains—consisting of surface stains only—were discerned along the perimeter. Three artifacts—a tan chert uniface, a quartzite irregular core, and a quartzitic sandstone mano fragment—were recovered at floor contact near the south perimeter of the structure. The structure’s origination elevation varied from 100.09 to 100.00 m and its floor elevation from 99.94 to 99.84 m relative to the site datum. Carbonized conifer (cf. *Juniperus* 49%), cottonwood/willow (*Populus/Salix* 49%), and salt-bush/greasewood (*Atriplex/Sarcobatus*, few) yielded an age



(a)



(b)

Figure 9.6 Photos of the (a) north profile and (b) excavated Structure 2 (Feature 8) at LA 109129.

of 1510 ± 60 BP (Beta-96736) and a date of cal AD 575. The 2-sigma date range is cal AD 425 to 655.

Structure 2 fill consisted of two sediments designated Strata 5 and 6 (Figure 9.7). Stratum 6 is the matrix above the floor. It was a grayish brown sandy soil with ash and charcoal. Across the structure it varied in depth from 12 to 38 cm. This matrix was interspersed with wind- and water-lain sands, burned roof fall material, and midden deposits. Rodent, root, and insect disturbance occurred throughout this level. Stratum 6 originated at the prehistoric ground surface, followed the slope of the structure wall on the east, and continued west across Structures 2 and 3.

Stratum 5 is basin-shaped, originating about 20 cm west of the east edge of Structure 2 and proceeding west for a distance of 4 m. This stratum—varying in thickness from 10 to 18 cm—consisted of pale brown compact sand mottled with pockets of medium to dark grayish brown sand and charcoal. Stratum 5 appears to be a culturally sterile subsurface matrix that was dumped on top of the lower structure fill (Stratum 6) and subsequently mixed with charcoal-flecked sand and midden deposits. Stratigraphically above and in about the same area as Stratum 5 is Stratum 4, which is the midden (SU 5). A variety of artifacts was recovered from Structure 2 fill and Strata 5 and 6. That the density of artifacts is higher in the upper portion of the structure fill than in the floor contact level indicates mixing of the overlying midden deposits (SU 5) with the upper fill in Structure 2. Artifacts recovered from the fill of Structure 2 include animal bone, flaked lithics, ground stone, ceramics, turquoise, ocher, fire-cracked rock, shell, and burned adobe.

Storage Facilities

Structure 2 contained a variety of floor features, including several storage pits (Figure 9.8; Table 9.2). Feature 33 is a large oval pit with a rectangular orifice. The considerable rodent disturbance accounts for its irregular shape. The fill—a sandy gray brown sediment with charcoal—contained animal bone, lithics, and a piece of adobe with an impression of the roofing material. This storage pit was probably open when the roof collapsed or the structure was dismantled. Feature 43 is a basin-shaped storage pit with an oval orifice. Its fill—a medium grayish brown sand with charcoal flecks—contained animal bone and lithics. A probable storage pit (Feature 47) was partially excavated; the remainder is outside the pipeline corridor. This pit is located near the center of the structure floor where a hearth would be expected; however, there is no indication that it is related to thermal activities. Its fill was a grayish brown sand mottled with ash but no charcoal. Neither oxidation nor artifacts were noted. A circular basin-shaped storage pit (Feature 48), at the west edge of the structure, was also bisected by the pipeline corridor boundary. Its fill—a grayish brown sand mixed with ash—did not contain any

charcoal or artifacts. A small circular storage pit with a sloping base (Feature 100) was filled with a dark gray brown sand and charcoal fragments. Rodent disturbance may have caused its slanted base. Feature 100 did not contain any artifacts.

Other Floor Features

A circular ash pit (Feature 25)—located in the southwest quadrant—contained an ashy sand with no charcoal or artifacts. Feature 98, a bowl-shaped pit with a slanted base that may be the result of rodent and root disturbance, is located at the west end of the structure, south of Feature 48. It was filled with a gray brown sand mixed with charcoal but no artifacts, and may represent a small stash pit (i.e., a small pit used for the short-term storage of personal items or small quantities of food).

Three other small features are most likely metate or pot rests. Feature 97, a small circular basin, had fill consisting of a gray brown sandy sediment mixed with charcoal but no artifacts. Feature 31 is centrally located in the floor. This large, shallow, and basin-shape feature is indicative of use as a metate rest. It has been disturbed by rodent burrowing. The fill was a lightly stained sandy sediment with not charcoal or artifacts. Feature 99 is a circular, bowl-shaped pit. It may be a posthole; however, its size and depth suggests its use as a pot rest. Its fill was a lightly stained sand mixed with charcoal, but no artifacts.

Feature 141 is an irregular, basin-shaped pit of undetermined function. It had been impacted by a main post support that had been dug through its southern portion. This feature is near the center of the structure floor. The fill—a gray brown sand mixed with ash—contained no artifacts.

Postholes

There were three main post supports in the half of Structure 2 that was excavated. Two are properly located if the inhabitants used a four post roof support system (Figure 9.8). The third post is near the center of the structure and may have been added to support a sagging roof. This post was dug into a pre-existing circular basin (Feature 141). All three posts appear to have been removed when the structure was abandoned, as the postholes exhibited dug out portions along their sides, which facilitated removal of the posts. These postholes measure 28 to 64 cm in diameter and 79 to 107 cm deep. There are 10 smaller postholes with 13 to 24 cm diameters and 21 to 60 cm depths, and seven possible post remains that are only surface stains. They are regularly spaced along the south perimeter of the structure. They may represent stringer posts or roofing material that burned in place. In addition, four circular stains were recorded as rodent disturbances, but their locations are where posts might be expected. It is likely that rodents dug into old postholes.

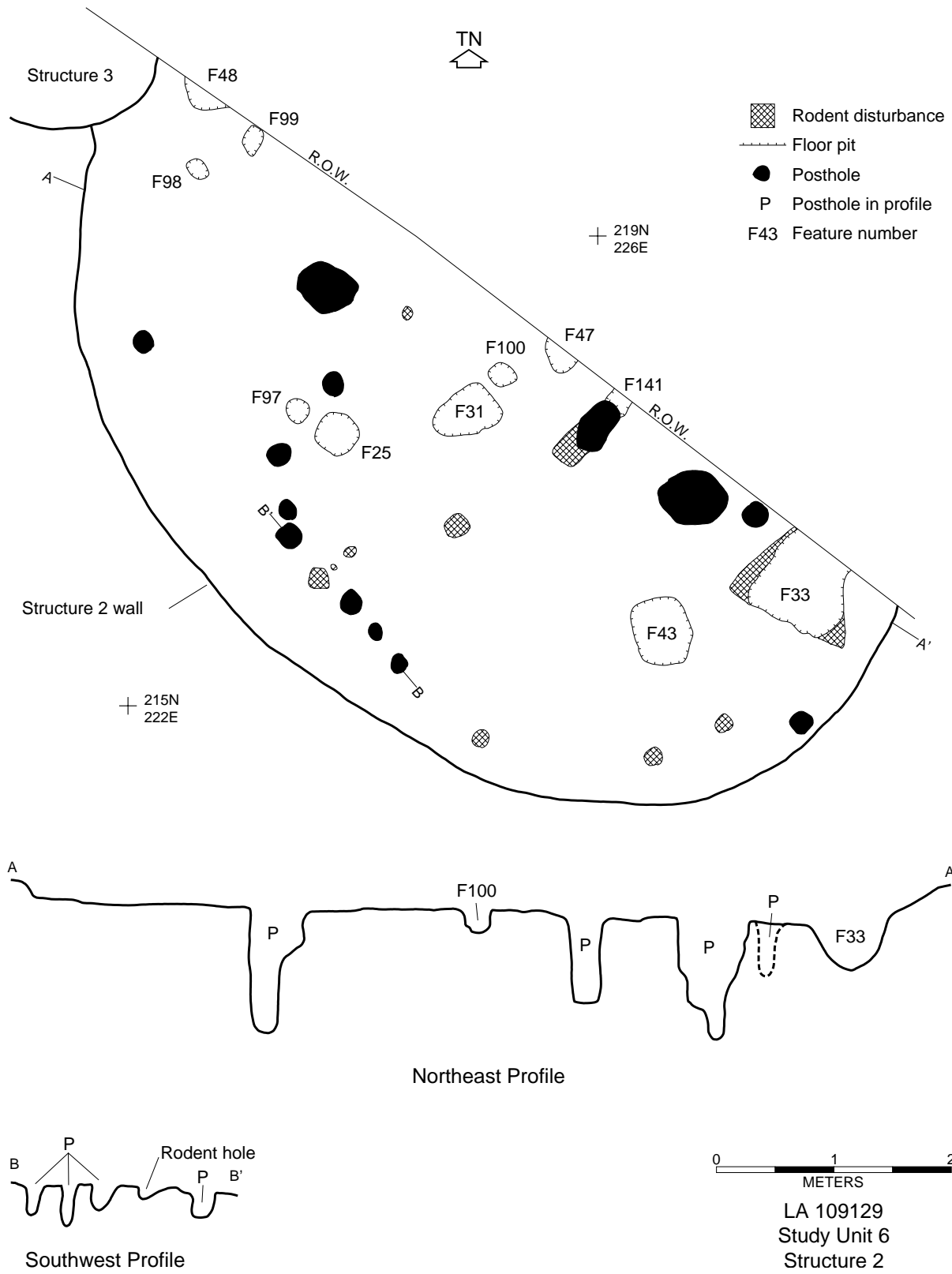


Figure 9.8 Study Unit 6 Structure 2.

Table 9.2 Structure 2 features, LA 109129.

Feature Number	Shape	Orifice Size or Diameter (cm)	Depth (cm)	Function
25	Circular Basin	38	13	Ash Pit
33	Circular Bowl	72 by 69	45	Storage Pit
43	Oval Basin	63 by 52	22	Storage Pit
47	Circular Bowl	30 by 21	31	Storage Pit
48	Circular Basin	43	11	Storage Pit
100	Circular Bowl	20	15	Storage Pit
31	Oval Basin	54 by 36	13	Possible Metate Rest
97	Circular Basin	20	5	Pot or Metate Rest
99	Circular Bowl	23	6	Possible Pot/Metate Rest
98	Oval Bowl	21 by 14	12	Possible Cache Pit
141	Circular Basin	9 by 32	7	Indeterminate
		28	105	Posthole (Main Support)
		64 by 50	107	Posthole (Main Support)
		50 by 28	79	Posthole (Main Support)
		23	24	Posthole
no feature numbers assigned to these postholes		13	27	Posthole
		16	40	Posthole
		19	21	Posthole
		24	22	Posthole
		19	48	Posthole
		21	53	Posthole
		17	60	Posthole
		18	32	Posthole
		24	54	Posthole

Summary

Structure 2 is the largest structure found at LA 109129. Its large size suggests it may have been a community structure rather than a single family dwelling. A structure of similar size was found at a nearby site, LA 9193 (Allen 1970). At LA 9193 there was an intrusion of a later structure that destroyed many elements of the original structure. Allen (1970) speculates that the large, earlier structure represents special usage, possibly a kiva. It is possible that Structure 2 at LA 109129 was a kiva or early kiva-like construction. Its associated features, however, are no different from those with the other structures. Structure 2 was unique by virtue of its large size rather than any unique internal features. Most of the features in Structure 2 are postholes, with several storage pits and a few pot and/or metate rests also present. These would imply Structure 2 had a similar function as the other structures.

No hearth was found in its south half, but one likely exists in its unexcavated north half, outside the pipeline right-of-way. The roof of Structure 2 was probably supported by five large posts, one in each quadrant plus an additional support in its center. No evidence of an entryway was

discerned. The doorway was likely north or south of a large storage pit (Feature 33) in its east portion (Figure 9.8).

The small postholes in Structure 2 run parallel to the southern arc of the pithouse wall but curve inward near the center of the structure, forming a half circle approximately 4 m in diameter (Figure 9.8). When first exposed, an area of oxidized sediments was noted on the floor within this half circle and, in the stratigraphic profile (Figure 9.7), Strata 4 and 5 appear to have been deposited in a basin roughly this same size and in the same location as the arc described by the small postholes. Based on this evidence, it appears that a smaller pithouse may have been built over the east end of Structure 2 after it was abandoned and fell into ruins. This hypothesis could not be confirmed, however, since the northern half of Structure 2 was outside of the right-of-way and could not be excavated.

Structure 3

Structure 3 (Feature 9) is semisubterranean and bell-shaped. A portion of its north side extends outside the pipeline corridor boundary; therefore, its south half was excavated (Figure 9.9). Structure 3, near the center of the site, abutted



(a)



(b)

Figure 9.9 Photos of the (a) north profile and (b) excavated Structure 3 (Feature 9) at LA 109129.

and slightly overlaid Structure 2 (Figure 9.10). The excavated portion measured 2.7 m east-west and 1.28 m north-south. Its depth from the prehistoric ground surface was 50 to 56 cm. Its floor was a single use-compacted surface with four definable features and five postholes (Figure 9.11). One piece of ground stone was found at floor contact. A charcoal sample—conifer (cf. *Juniperus* 33%), cottonwood/willow (*Populus/Salix* 66%), and saltbush/greasewood (*Atriplex/Sarcobatus*, few)—yielded an age of 1680 ± 60 BP (Beta-96737) and a date of cal AD 395. The 2-sigma date range is cal AD 240 to 535.

Structure 3 fill is the same as that above the floor in Structure 2—a grayish brown sandy sediment with charcoal—Stratum 6. This stratum occurred uninterrupted across Structures 2 and 3. The abandonment and filling of these two structures would have had to occur at about the same time in order for this stratum to be continuous. This stratigraphic evidence, the small size of Structure 3, and the fact that it abuts Structure 2 suggest that Structure 3 may actually be an antechamber of Structure 2. The radiocarbon dates from the two structures vary significantly, however ($t = 2.035; .05$).



Figure 9.10 Photo of the north profile and completed excavation of Structures 2 and 3 at LA 109129.

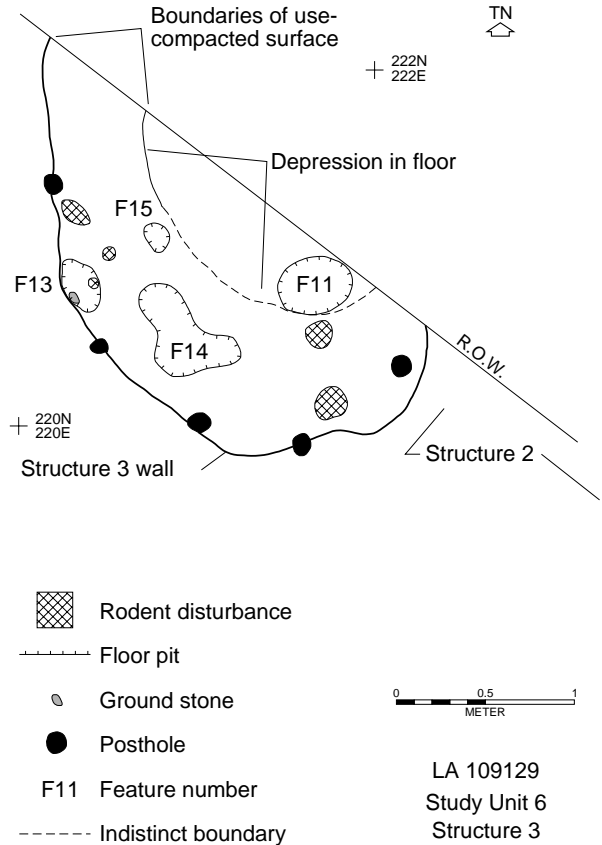


Figure 9.11 Study Unit 8 Structure 3.

Structure 3 originated at site elevation 100.14 to 100.08 m. Its floor elevation relative to site datum varied from 99.64 to 99.58 m. The floor surface sloped upward to meet the wall which belled out slightly from its exterior edge. The central floor area had a purposeful depression (Figure 9.9b), which stepped abruptly downward 12 cm in its western portion, but became less abrupt of a step as it progressed eastward until it was a continuous slope with no step on its east edge. The purpose of this step and depression is not known. Features associated with Structure 3 are described Table 9.3.

Storage Facilities

Structure 3 had four storage pits. One bell-shaped storage pit (Feature 11)—located at the east end of the structure—had fill that was a medium to dark stained sand mixed with charcoal. Artifacts recovered include animal bone, lithics, and ocher. A small storage pit (Feature 13)—along the south side of the structure at the juncture of the floor and wall—had rodent disturbance through its base. Its fill was a gray brown sand with charcoal. The ground stone fragment found at floor contact was over the opening of this pit. In addition to the ground stone fragment there were several pieces of

Table 9.3 Structure 3 features, LA 109129.

Feature Number	Shape	Orifice Size or Diameter (cm)	Depth (cm)	Function
11	Circular Bell	29 by 61	53	Storage Pit
13	Oval Basin	36 by 23	15	Storage Pit
14	Irregular Basin	24 by 48	20	Indeterminate; Possible Storage Pit
15	Circular Bowl	13	13	Storage Pit
no feature number assigned		10	27	Posthole
		12	17	Posthole
		11	42	Posthole
		11	11	Posthole
		11	33	Posthole
		20 by 15	39	Possible Posthole
Circular Bowl		19	14	Indeterminate

flaked lithics recovered from the pit fill. Another probable storage pit (Feature 14) was severely damaged by rodent activity, making its function difficult to ascertain. Its fill was a gray brown sand with no charcoal or artifacts. A bowl-shaped storage pit (Feature 15)—in the west central portion of the structure—had fill that was a lightly stained sand with a few flaked lithics but no charcoal.

Postholes

Five postholes—regularly spaced around the structure at the juncture of the floor and wall—were slightly angled inward to allow the posts to clear the aperture. The size and arrangement of the postholes suggest Structure 3 was brush covered. The size of Structure 3 and presence of only storage facilities in its floor implies its use as a large storage room. There is no discernible entryway, but one may be present in the unexcavated portion outside the pipeline corridor.

Structure 4

Structure 4 (Feature 10) is semisubterranean and the most complex architectural entity at LA 109129. This circular structure—4.5 m in diameter—has a bulge on its east side that functioned as an entrance. Structure 4 elevation relative to site datum varied from 99.87 to 99.75 m. The prehistoric ground surface sloped downward from north to the south. The structure had two stratified floors of compacted earth. The depths to the upper and lower floors—from the prehistoric ground surface—were 42 and 54 cm, respectively. The elevations of the upper and lower floors relative to site datum were 99.49 to 99.39 m and 99.45 to 99.30 m, respectively.

The upper floor had a collared hearth, a fire-cracked rock scatter, an ash pit, 10 storage pits, a wall niche, 10 postholes,

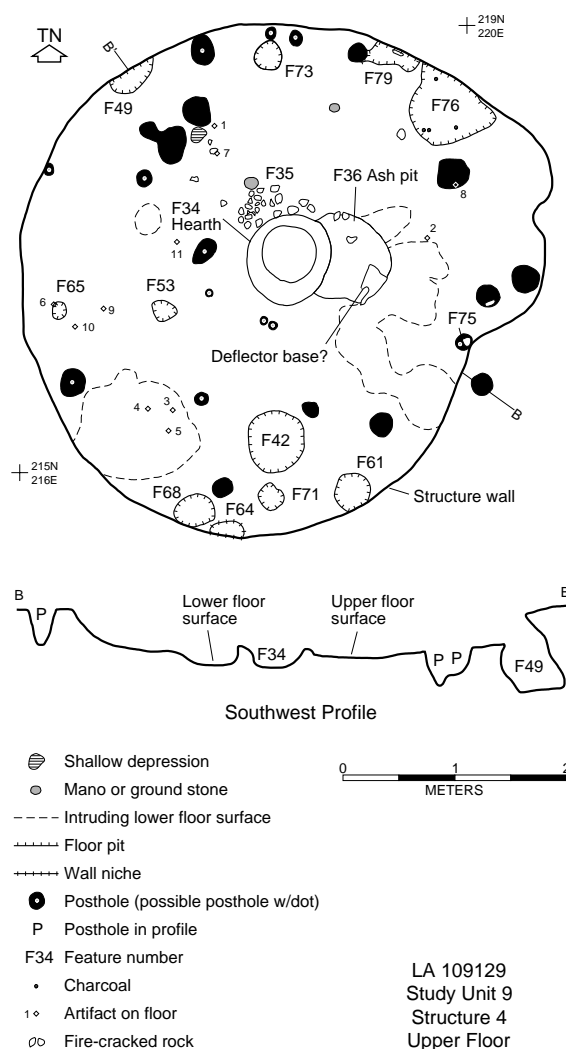


Figure 9.12 Study Unit 9 Structure 4 upper floor.

11 possible postholes, and a possible pot rest, for a total of 36 features (Figure 9.12). The lower floor had a hearth, 2 ash pits, 5 storage pits, 2 pot or metate rests, 7 possible pot rests, a posthole, and 3 possible postholes, for a total of 21 features (Figures 9.13 and 9.14). In addition to these features there was a human burial (Burial 2) in the entryway floor. The burial was an adult female who was 25 to 35 years of age at the time of death (see Volume 4). No artifacts were recovered from the lower floor, but 12–17 pieces of animal bone and five lithics were on the upper floor. Most of the bone fragments, located in the south and west quadrants of the upper floor, are of deer or deer-size mammals. The modified pieces of bone include three awl fragments and a gaming piece. Table 9.4 lists the floor artifacts by quadrant. Because the structure fill was a midden, the floor artifacts may have originated from the overlying refuse rather than from when the structure was abandoned. The presence of bone implements and projectile points, however, strongly suggests these items were left at the time of the structure’s abandonment.

Structure fill above the upper floor was burned roof fall, a midden like matrix, a culturally sterile subsurface matrix, and eolian and fluvial sands. The burned roof fall was a medium to dark gray brown sand with pockets of charcoal and pale brown compacted sand. The burned roof material—having burned and collapsed shortly after abandonment—had fallen directly onto the structure floor. The burned roof fall had fire-altered adobe fragments and burned support beams. The burned beams varied from 3 to 10 cm in diameter and 10 to 60 cm long. Burned roofing material was in several floor pits that were open when the roof collapsed. The structure fill above the roof fall contained a large quantity of artifacts—8,427 pieces of pottery, animal bone, and lithics. The depression caused by the collapsed structure was used for disposal of refuse by subsequent site

occupants, or was a secondary deposit having washed in from a nearby midden (SU 5). The roof fall, subsurface deposits, and structure fill were mottled with eolian and fluvial deposited sand. Root, rodent, and insect disturbance was visible throughout the fill.

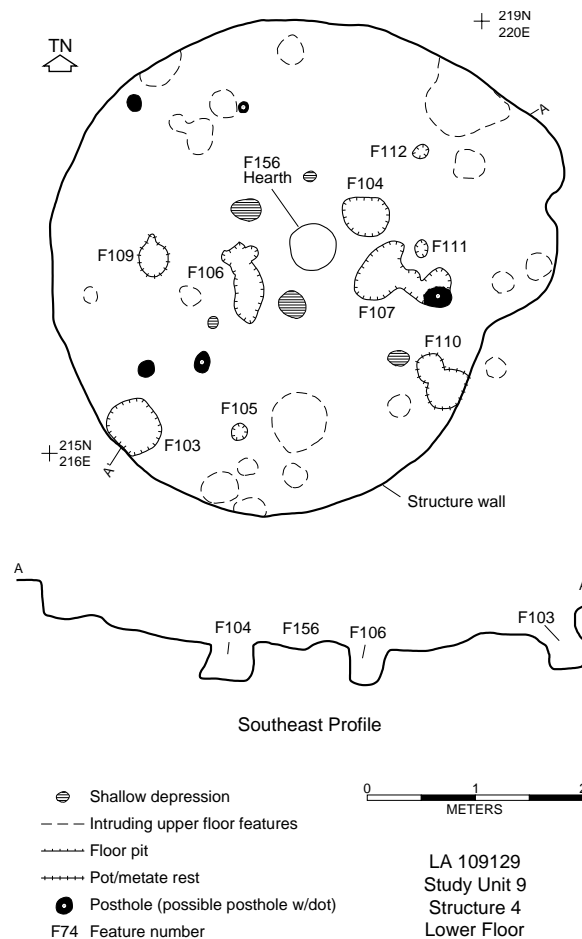


Figure 9.13 Study Unit 9 Structure 4 lower floor.

Table 9.4 Upper floor artifacts in Structure 4, LA 109129.

South Quadrant	North Quadrant	West Quadrant
awl fragment, deer/pronghorn right radius shaft	deer antler fragment	awl fragment (missing tip) deer-size long bone fragment
awl tip, deer-size long bone fragment	deer right scapula (nearly complete)	gaming piece, indeterminate size mammal, unidentified fragment
deer left metatarsal, grooved and snapped	chalcedony irregular core	deer left distal femur and left proximal tibia, burned
	2 obsidian projectile points	deer-size long bone fragment and unidentified fragment
	chalcedony projectile point	deer left mandible with PM2
	quartzite one hand mano	



(a)



(b)

Figure 9.14 Photos of the excavated upper (a) and lower (b) floors of Structure 4 at LA 109129.

After clearing the ash pit (Feature 36)—east of the hearth (Feature 34)—excavation revealed the lower floor. The fill between the upper and lower floors was in two strata. The upper stratum was a compact pale brown sand and the lower stratum was a loose fine ash. Not all areas between the floors had the lower stratum. The upper stratum covered most of the lower floor, going to the north wall of the structure and stopping short of the wall in the remaining areas of the structure. The fill between the floors had numerous artifacts that include a core, a projectile point, a biface, 470 pieces of debitage, and 261 pieces of animal bone. Table 9.5 summarizes the features associated with Structure 4. Some of the upper floor features could be contemporaneous with the lower floor while those indicated as being lower floor features can only be contemporaneous with the lower floor since they were capped by the fill between the two floors.

Hearth and Associated Features (upper floor)

A hearth (Feature 34) was just slightly north and east of the structure center. The same hearth base was used for both floors. On the upper floor an adobe collar was added to the hearth. The lower floor hearth may also have had a collar, but none was discernible because the hearth had been disturbed during construction of the upper floor. The hearth fill was a fine ash with little charcoal and no artifacts. The lower floor fill—loose ash between the floors—was evident beneath the collar of the hearth in the upper floor. An archeomagnetic sample was collected from the coping around the hearth. The resulting archeomagnetic date indicates firing occurred either before AD 700 or after 900 (see Appendix A). The four radiometric ages obtained from the site suggest an occupation date of approximately cal AD 500; therefore, the archeomagnetic date prior to AD 700 is more likely accurate.

North of the hearth was a scatter of fire-cracked rock (Feature 35) that included several pieces of ground stone. East of the hearth was an ash pit (Feature 36) whose fill was a fine ash interspersed with some fire-cracked rock and ground stone. The base of this ash pit was on the lower floor. After clearing the ash pit, excavation revealed a smoothed vertical area on the east side of the structure. This smoothed area was a matrix of compacted sand similar to the upper stratum of fill between the two floors. The smoothed area appeared to be where an upright stone slab, possibly a deflector, may have rested between the hearth and the entryway (Figure 9.12).

Storage Facilities (upper floor)

There were 11 storage facilities, including a wall niche (Feature 64), associated with the upper floor. Most of the storage facilities were around the perimeter of the structure at the juncture of the floor and the wall. There was a closely grouped cluster of five storage pits in the south portion of

the structure (Features 42, 61, 64, 68, 71). Three pits were along the structure wall and two were toward its center. Four storage pits were along the north wall (Features 49, 73, 76, 79) and the remaining two pits were in the west part of the structure. Table 9.6 lists the artifacts recovered from the storage pits. Pits in the north part of the structure contained considerably more artifacts than those in the south or west. This may be a function of the overlying midden debris gravitating into these pits. Considering that at least two of these pits were open when the structure roof burned and collapsed then the midden is a likely source of the artifacts.

The two storage pits (Features 42, 76), that were open when the structure roof burned and collapsed, had burned roof material in their fill (Figure 9.15). Their fill was a dark stained sandy sediment with a considerable quantity of charcoal. Burned beam fragments were collected from both features. Artifacts were scarce and limited to small flaked lithics and pieces of animal bone.

Three storage pits (Features 61, 64, 71) had brown sand fill with little charcoal and no artifacts. Another pit (Feature 68) had fill that was a brown sand with charcoal fragments. The pit also had a small obsidian projectile point and several large pieces of animal bone.

One storage pit (Feature 49) had fill consisting of two strata. The lower stratum was a light gray sand with discernible charcoal fragments and a few artifacts. The upper stratum—a medium gray sand with more charcoal—contained considerably more artifacts that include unfired clay pieces and a plain grayware ceramic pipe. Another pit (Feature 73) was unique because of its shape. This pit had an upper area that was bell-shaped and a circular shaft dug in its base that measured 32 cm in diameter and 37 cm deep. The shaft did not appear to be the result of rodent disturbance and there were no lower floor features in this area of the structure. The purpose for this feature's unusual shape is not known. Another pit (Feature 79) had a gray brown fill with little discernible charcoal and no artifacts.

Two storage facilities had fill that was a dark stained sediment. One (Feature 53) had discernible charcoal and no artifacts while the other (Feature 65) had little charcoal and considerable quantities of flaked lithics that included an obsidian projectile point, some ocher, and turquoise.

Lower Floor Features

Two ash pits (Features 104 and 107)—east of the central hearth—were associated with the lower floor (Figure 9.13). Their fill was a fine ash with moderate quantities of charcoal, but no artifacts. Five storage pits (Features 103, 105, 106, 111, and 112) also were in the lower floor. Feature 103 was against the southwest wall while Feature 105 was

Table 9.5 Structure 4 features, LA 109129.

Feature No.	Shape	Orifice Size or Diameter (cm)	Depth (cm)	Function	Comments
34	Circular Basin	80	20	Collared Hearth	Upper Floor
35	Irregular	50	35	FCR Scatter	Upper Floor
36	Irregular	56 by 140	5	Ash Pit	Upper Floor
42	Circular Bell	50 by 66	58	Storage Pit	Upper Floor
49	Circular Bell	36 by 38	50	Storage Pit	Upper Floor goes into the wall
53	Circular Bell	17 by 34	39	Storage Pit	Upper Floor
61	Circular Basin	0.37	20	Storage Pit	Upper Floor goes into the wall
65	Oval Bell	18 by 14 by 40 by 44	29	Storage Pit	Upper Floor
68	Circular Bell	30	34	Storage Pit	Upper Floor near the wall
71	Circular Bowl	23	20	Storage Pit	Upper Floor
73	Irregular Bell	35 by 27 by 42	77	Storage Pit	Upper Floor
76	Circular Bell	67 by 100	35	Storage Pit	Upper Floor goes into the wall
79	Circular Basin	30	12	Storage Pit	Upper Floor goes into the wall
64	Circular Shaft	29 by 59	6	Wall Niche	Upper Floor
75	Circular Bowl	15	10	Possible Posthole	Upper Floor at wall juncture
no feature numbers assigned to these postholes		16	20	Posthole	Upper Floor Postholes
		21	20	Posthole	
		23	45	Posthole	
		15	26	Posthole	
		13 by 18	17	Posthole	
		28	22	Posthole	
		32 by 26	48	Posthole	
		34 by 25	27	Posthole	
	18	23	Posthole		
	0.35 to 0.23	45	Posthole		
no feature numbers assigned to these postholes		0.11	9	Possible Posthole	Upper Floor Possible Postholes
		0.12	7	Possible Posthole	
		0.07	14	Possible Posthole	
		0.09	12	Possible Posthole	
		0.23	9	Possible Posthole	
		0.13	13	Possible Posthole	
		28 by 18	22	Possible Posthole	
		15	8	Possible Posthole	
	14	18	Possible Posthole		
	22	12	Possible Posthole		
	15 by 10	4	Possible Pot Rest	Upper Floor	
156	Circular Basin	80	7	Hearth	Lower Floor
104	Circular Bowl	41	34	Ash Pit	Lower Floor
107	Irregular Basin	74 to 53	33	Ash Pit	Lower Floor
103	Oval Bell	45 by 36 by 42	32	Storage Pit	Lower Floor goes into the wall
105	Circular Bell	15 by 20	23	Storage Pit	Lower Floor
106	Circular Bell	30 by 33	35	Storage Pit	Lower Floor
111	Circular Bowl	21	22	Storage Pit	Lower Floor
112	Circular Bell	10 by 12	18	Storage Pit	Lower Floor
109	Circular Basin	28	7	Pot or Metate Rest	Lower Floor
110	Oval Basin	42 by 27	10	Possible Pot or Metate Rest	Lower Floor near the wall
no feature numbers assigned to these postholes		27 by 18	4	Possible Pot Rest	Lower Floor
		11	9	Possible Pot Rest	
		10	8	Possible Pot Rest	
		12	4	Possible Pot Rest	
		20 by 15	4	Possible Pot Rest	
		12	4	Possible Pot Rest	
	26 by 18	7	Possible Pot Rest		
no feature numbers assigned to these postholes		18	34	Posthole	Lower Floor
		15	20	Possible Posthole	
		15	17	Possible Posthole	
	10	10	Possible Posthole	Lower Floor	
113	Circular Bell		50	Storage Pit	Structure 4 constructed over feature



Figure 9.15 Photo of Feature 76 with burned roof fall at LA 109129.

in the southern portion, the same area where five storage pits clustered in the upper floor. Another pit (Feature 106) was west of the hearth and two (Features 111 and 112) were in the east part of the floor. No artifacts were recovered from these storage pits. Another pit (Feature 103)—fill consisting of a dark gray ashy sand with a large quantity of charcoal—had an adobe fragment with brush impressions, possibly roofing material. One pit (Feature 105) had light gray sandy fill with very little charcoal while another pit (Feature 106) had a gray brown sandy sediment with considerable quantities of charcoal. For the last two storage pits, one (Feature 111) had dark gray ashy fill with little charcoal and the other (Feature 112) had a medium gray brown fill with moderate amounts of charcoal.

Two shallow, basin-shaped pits, interpreted as pot or metate rests, also occurred on the lower floor. One (Feature 110)

was along the southeast structure wall and the other (Feature 109) was in the structure's west central area (Figure 9.13). Several small ground stone fragments were in the dark gray sandy fill of Feature 110, but no artifacts were recovered from the lightly stained sediments of Feature 109. The structure's lower floor also had 10 small pits whose function could not be determined. Based on their size and shape, three may be postholes and the others are probably pot rests.

Postholes

Based on the pattern of postholes there appears to be a four post main support for the roof with additional posts along the inside perimeter of the structure. One perimeter post outside the structure was south of the entrance. The upper floor had three main support postholes, one in each quadrant except for the southwest. These postholes measured 23 to 35 cm in diameter and 45 to 48 cm deep. The main support posthole for the southwest quadrant was revealed with the lower floor features. It is not known why this posthole was capped by the upper floor since it was less than 18 cm in diameter and had a depth of 34 cm. There are 10 pits for which function cannot be determined. These pits may be postholes; however, they were not very deep. One pit was 22 cm deep and the remaining pits were 7 to 14 cm deep. Another pit (Feature 75) may be a posthole. It contained a piece of ground stone that was wedged against its east side. This pit measured 10 cm deep (Figure 9.12).

Summary

Structure 4 is believed to be a residence occupied by a single family. The presence of two floors implies it was used for successive seasons. The well-constructed hearth suggests cold weather habitation. A four post support system was used for the superstructure. Structure 4 may have been ritually abandoned, having been burned as part of a burial ceremony. There was no evidence of heat alteration on the bones of the human burial recovered from the structure floor, but a fire would need to be extremely hot for a long duration to burn the flesh and alter the bones. Burning a structure that contains a human burial would not have been uncommon. Structure 4 had also been constructed over a

Table 9.6 Artifact assemblage from Structure 4 upper floor features at LA 109129.

Artifact Type	Southern Storage Pits, Features 42, 61, 64, 68, 71	Northern Storage Pits, Features 49, 73, 76, 79	Western Storage Pits, Features 53, 65
Ceramic		1	
Faunal	325	905	81
Lithic, debitage	234	427	123
Lithic, tools, cores, etc.	9	16	5
Total	568	1349	209

Table 9.7 Structure 5 features, LA 109129.

Feature Number	Shape	Orifice Size or Diameter (cm)	Depth (cm)	Function
101	Oval Basin	70 by 58	15	Hearth
84	Oval Bell	31 by 21, Base 40	34	Storage Pit
85	Oval Bowl	45 by 30	22	Storage Pit
117	Oval Basin	23 by 20	11	Storage Pit
118	Circular Bowl	20	32	Storage Pit
120	Oval Bell	27 by 15, Base 26	46	Storage Pit
115	Oval Basin	16 by 10	9	Cache Pit
119	Circular Bowl	14	10	Possible Cache Pit
116	Circular Basin	12	4	Pot Rest
no feature number		7 by 10	6 to 13	4 Postholes

pre-existing feature (Feature 113), which is discussed below.

Structure 5

Structure 5 (Feature 17) is located in the southwest portion of the site (Figure 9.2). This area of the site is lower in elevation than the north portion. The structure fill is likely the result of natural occurring eolian and fluvial deposition. Elevation of the prehistoric ground surface, relative to site datum, was 99.93 to 99.90 m at the north edge of the structure and 99.75 to 99.73 m at its south edge. Structure floor elevation relative to site datum was 99.74 to 99.68 m. Structure 5 was oval and had a shallow dish-shaped profile (Figure 9.16). The structure was 3.05 m east-west by 2.55 m north-south and 3 to 21 cm in depth. It was dug into the culturally sterile sandy substrate. Structure 5 had a single floor that was use-compacted. Three lithics were on the floor, all in the west half of the structure. The lithics include a quartzite biface core, a chalcedony flake, and a chalcedony irregular core. The structure had four small postholes along its outer perimeter and nine internal features (Figure 9.17). Structure fill was a sandy matrix that was a light to dark gray sand. Numerous fire-cracked rock fragments were mixed with the fill but none were directly associated with the floor features. The fire-cracked rock may be refuse discarded in the structure after its abandonment; however, the fill did not appear to be a midden deposit. The nine features associated with Structure 5 are described in Table 9.7.

Hearth

The main hearth (Feature 101) was in the southeast quadrant. Slight oxidation was discernible along the hearth's west perimeter. Its uppermost 5 to 7 cm of fill was very dark while the lower fill was lighter with charcoal flecking. One flaked lithic and one piece of unburned clay were recovered from the fill.

Storage Facilities

Five storage pits were in the west half of Structure 5. Two storage facilities were dug into the structure wall—one (Feature 84) in the north wall and the second (Feature 120) in the northwest wall. Both pits had bell-shaped profiles and oval-shaped openings. Both pits also had lightly stained sandy fill. There was no charcoal in Feature 84 but Feature 120 had some charcoal flecking. One flaked lithic was recovered from Feature 120 and several lithics were recovered from Feature 84. Both features were disturbed by rodent burrowing. The remaining three storage pits were inside the structure at a distance of approximately 50 to 70 cm from its wall. Feature 85 was oval and had straight sides. The fill was lightly stained sediments with no charcoal or artifacts. Rodent disturbance was discernible in the walls. Features 117 and 118 were dug into the floor at an angle. Feature 117 angled to the south and Feature 118 angled to the east. The fill of Feature 117 was a medium to dark stained matrix with charcoal flecks and three flaked lithics. Feature 118 had lightly stained fill with very little charcoal and no artifacts.

Small Pits

There were two small features believed to be stash pits. Feature 115 was in the southwest of the structure floor near the main hearth (Figure 9.16). Its fill was a black sandy matrix with no artifacts. Feature 119, in the northwest part of the floor, had fill that was lightly stained sediments with no discernible charcoal or artifacts.

A probable pot rest (Feature 116) was in the southwest half of the structure floor. The pot rest was shallow and basin-shaped with fill consisting of a lightly stained sediment with no discernible charcoal flecking and no artifacts.



Figure 9.17 Photo of the excavated Structure 5 (Feature 17) at LA 109129.

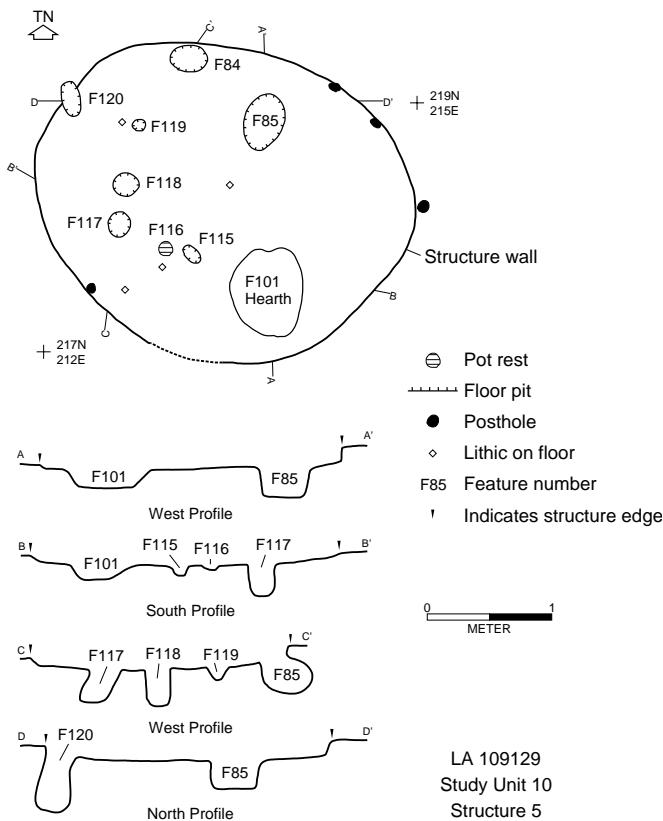


Figure 9.16 Study Unit 10 Structure 5.

Postholes

The four postholes along the outer perimeter of the structure include three along the east-northeast wall and one along the southwest wall (Figure 9.16). These postholes were 7 to 10 cm in diameter and 6 to 13 cm in deep.

Summary

The size of Structure 5 indicates it was probably occupied by a small family group. The presence of a prepared main hearth implies cold weather occupation. The size and arrangement of the postholes indicate Structure 5 was brush covered. No evidence of a doorway was discerned; however, the quantity of floor features in its west half and the placement of the postholes implies the entryway was along its southeast edge.

Extramural Features

Fifty-seven extramural features comprising 76 separate pit were around the five structures. Several pits had adjacent or abutting pits, only a few of which were assigned separate feature numbers. Five (Features 21, 22, 135, 136, and 137) feature numbers were assigned to pits discovered while digging a small trench to rebury the human remains (Figure 9.2). These features were not excavated because they were outside the pipeline corridor, but their locations and dimensions were recorded.

Table 9.8 describes the extramural features. Features found in proximity to each other are grouped together. Clustered features oftentimes involve one storage pit with one or more

Table 9.8 Extramural features, LA 109129.

Feature Number	Shape**	Size or Diameter (cm)	Depth (cm)	Function	Comments
1	Large Basin	140 by 130	16	Fire Pit	Several heat treated cores.
2	Large Basin	125	15	Firepit/Cremation Pit	1 Posthole in base Cremation Burial; Human Burial #2
21	Medium Basin	94	20	Fire Pit	Unexcavated; Found in reburial area.
34, 56	Large Oval Basin	130 by 117	31	Storage Pit	1 Posthole in base, 1 attached accessory pit feature 4, 2 adjacent accessory pits features 5 and 6.
	Medium Basin	60	18	Indeterminate	
	Small Bell	38 by 42	25	Indeterminate Possible	
	Small Bowl	37	37	Storage Pit Indeterminate Possible	
12	Large Bell	100 by 165	73	Storage Pit	2 Postholes in base
	Medium Basin	100	25	Fire Pit	Stratum 1: Secondary use firepit
18, 20	Large Basin	120	20	Storage Pit	Attached accessory pit feature 20
	Small Basin	40	20	Indeterminate	
22	Large Bell	95 by 120	80	Storage Pit	Unexcavated; Found in reburial area.
26	Large Basin	145	25	Storage Pit	1 Posthole in base
28	Medium Bell	100 by 170	55	Storage Pit	Human Burial #3
	Medium Basin	100	12	Fire Pit	Stratum 1: Secondary use firepit
29	Medium Bell	110 by 145	34	Storage Pit	
41	Large Basin	170	45	Storage Pit	
57	Medium Bell	97 by 122	35	Storage Pit	
58	Medium Basin	100	16	Storage Pit	Attached accessory pit, small oval basin, no separate feature #: 0.12 by 0.17 by 0.11
60	Medium Bell	106 by 120	35	Storage Pit	
72, 62, 82,	Large Bell	125 by 227	80	Storage Pit	3 Postholes on outside perimeter; 3 adjacent accessory pits, features 62, 82, 83.
83	Medium Basin	66	11	Indeterminate	
	Small Oval Basin	49 by 37	17	Indeterminate	
	Small Basin	36	12	Indeterminate	
77	Large Basin	115 120	30 15	Storage Pit	2 Overlapping pits with attached accessory pits, no separate feature #: 0.45 by 0.17
80, 127,	Medium Bell	121 by 160	45	Storage Pit	1 Posthole in base, 1 attached accessory pit, feature 127; 1 adjacent slab-lined pit, feature 128.
128	Small Basin	28	8	Indeterminate	
	Square	48	14	Slab-lined Pit	
86	Medium Bell	127 by 154	47	Storage Pit	3 Postholes in base
95	Medium Bell	104 by 112	53	Storage Pit	1 Posthole in base Human Burial #4
102	Large Bell	134 by 196	90	Storage Pit	1 Posthole in base
108	Medium Basin	96	43	Storage Pit	1 Posthole in base

Table 9.8 Continued.

Feature Number	Shape**	Size or Diameter (cm)	Depth (cm)	Function	Comments
114	Medium Basin	120	23	Storage Pit	1 Adjacent accessory pit, feature 123
123	Small Oval Basin	30 to 21	4	Pot or Metate Rest	
129	Large Bell	135 by 200	70	Storage Pit	1 Posthole on outside perimeter
140	Small Basin	42	5	Pot or Metate Rest	
142	Small Oval Basin	45 by 25	9	Pot or Metate Rest	
143	Small Bowl	25	15	Indeterminate Possible Posthole	
145	Small Basin	19	9	Pot or Metate Rest	
146	Small Basin	20	6	Pot/Metate Rest or Posthole	
147	Small Bowl	45	23	Indeterminate Possible Storage Pit	
148	Small Basin	45	10	Pot or Metate Rest	
149	Small Basin	28	5	Pot or Metate Rest	
152	Small Basin	25	6	Pot or Metate Rest	
153	Small Bowl	37	33	Indeterminate	
154	Small Basin	21	10	Pot or Metate Rest or Possible Posthole	
155	Small Bowl	20	15	Indeterminate Possible Posthole	
121	Medium Bell	92 by 45	45	Storage Pit	Heavily impacted by backhoe; 2 Dog Burials
122	Medium Basin	133	19	Storage Pit	1 Posthole in base
124	Medium Basin	105	29	Storage Pit	
126	Medium Bell	102 by 124	37	Storage Pit	Between Structures 2 and 4
130	Medium Bell		74	Storage Pit	Heavily impacted by backhoe
131	Medium Basin	71	13	Storage Pit	
135	Large Bell	72 by 165	78	Storage Pit	Unexcavated; Found in reburial area
137	Medium Bell	60 by 100	62	Storage Pit	Unexcavated; Found in reburial area
16	Medium Basin	80	10	Indeterminate	
136	Small Bell	24 by 35	28	Indeterminate	Unexcavated; Found in reburial area
139		16	14	Posthole	Posthole Cluster
		26	25	Posthole	
		21	27	Posthole	Main Post to Main Post:
		9	9	Posthole	2 m on north
		9	10	Posthole	2.25 m on south
		26	40	Posthole	2.2 m on west
		15	32	Posthole	1.75 m on east
		20	24	Posthole	
		11	11	Posthole	
		10	6	Posthole	
		12	10	Posthole	
		11	11	Posthole	
		31	54	Posthole	
		19	27	Posthole	
		10	3	Posthole	
		19	10	Posthole	
15	Small Basin	45	6	Indeterminate Possible Metate Rest	

* Dimensions given are diameter at opening, diameter at base for bell-shaped pits, and depth.

** Shape is circular unless specified as oval; Oval shaped features are given with maximum and minimum measurements at opening. Small, Medium, and Large designation is a function of diameter and depth.

smaller pits abutting it or are adjacent to it. These smaller features are described as “accessory” pits in Table 9.8. There are eight features with accessory pits, counting Feature 77 as two pits and the large cluster of features south of Structure 2 as one pit. These pits varied in size, shape, and depth, with storage pits usually being medium to very large in size with basin, bowl, and bell shapes. Accessory pits are small to medium size and have either basin or bowl shapes.

Twelve pits had one or more postholes dug through their base or along their outer edge. The presence of postholes in these pits suggests they were covered. Three of the pits with postholes also had accessory pits.

Three extramural pits contained human burials, of which two had primary burials (Feature 28/Burial 3 and Feature 95/Burial 4) of adult males. These pits are located along the southern periphery of the site (Figure 9.2). The third pit (Feature 2)—with a human cremation (Burial 1)—is located at the southeast edge of the site. There was one feature 3.5 m north of the cremation pit. The cremation pit was the most peripheral feature at the site. There may have been one or two additional pits in the southeast area of the site that may have been used for burying human remains. When the pipeline trench was dug, scattered remains of two humans were recovered from the spoil dirt. These remains may have been buried in Features 95, 102, or 130, which were also at the southern site periphery.

In addition to the human burials, one pit (Feature 121) contained two dog burials (Figures 9.18 and 9.19). One dog burial (Feature 125) was nearly complete with most elements in their proper anatomical position. There were no associated grave goods. The second dog burial (Feature 138) was represented only by a shattered cranium. The orientation of the single dog cranium precluded any of the post-cranial remains from ever having been buried articulated with it. It could not be determined whether any post-cranial remains of the second dog were in this pit since it had been severely disturbed by pipeline trenching. The trench spoil dirt was carefully examined, but no additional dog remains were found. This pit is also located near the site’s southern edge.

Two extramural features are believed to be hearths (Features 1 and 21). Feature 21 was left unexcavated because it is in the human reburial area outside the pipeline corridor. The other hearth, Feature 1, is north of the cremation pit near the site’s east edge (Figure 9.2). There are two secondary use hearths (Features 12 and 28) that were placed in abandoned, and subsequently filled, storage pits. Both of these hearths are in a heavily used area south of Structure 1.

Twenty-eight of the extramural features were probably used as storage facilities. There are 17 pits that are adjacent to, or abutting, the storage facilities. These pits may be associated with the processing of the stored materials. The following are descriptions of the extramural features. The features are discussed according to the area of the site in which they occur in order to better ascertain intrasite activities.

West Portion of Site

Five features are at the west edge of the site. The subsurface is sandstone bedrock in this area, and the features were dug in the loosely consolidated Zia Formation sandstone. A cluster of 16 postholes (Feature 139) may represent a small surface structure (Figure 9.20). This structure has four main posts, one in each corner of an approximately 2 m² area. Its dimensions, measuring from main post to main post, are 2 m on the north, 2.25 m on the south, 2.2 m on the west, and 1.75 m on the east. The main support postholes are 21 to 31 cm in diameter and 25 to 54 cm deep. Twelve additional postholes were in and around the square formed by the four main postholes. These smaller postholes measured 9 to 20 cm in diameter and 6 to 27 cm deep. Most of the small posts are along the south and east sides of the structure. Within the structure near its north central area was a shallow basin-shaped pit (Feature 151). The pit fill, which was the same as in the postholes, was a lightly stained brown sand with small charcoal flecks. Few artifacts were associated with this structure and pit. This surface structure may be a small ramada or a turkey pen.

The remaining three features in this cluster appear to be basin-shaped storage pits. Feature 122 had a medium to dark gray brown sandy fill that was about 20% charcoal. It contained numerous artifacts, including 24 animal bone fragments, 3 plain gray sherds, 128 pieces of debitage, a core, a hammerstone, 5 biface fragments, fire-cracked rock, vegetal remains, ocher, and ground stone. The composition of the fill indicates it may have been redeposited midden or refuse. Feature 131 had a light gray brown fill with small charcoal flecks. The only artifacts recovered from this pit were two animal bone fragments and seven pieces of flaked stone. Feature 124 had a projectile point fragment, 2 biface fragments, 45 pieces of debitage, 1 pottery sherd, and 46 pieces of animal bone. The pit fill was a dark brown sand with no discernible charcoal. None of these features had indications of heat alteration. Since they were dug into bedrock a fire would have altered the coloration of their walls as was the case for the hearths in Structure 1. Their most likely function was for storage.

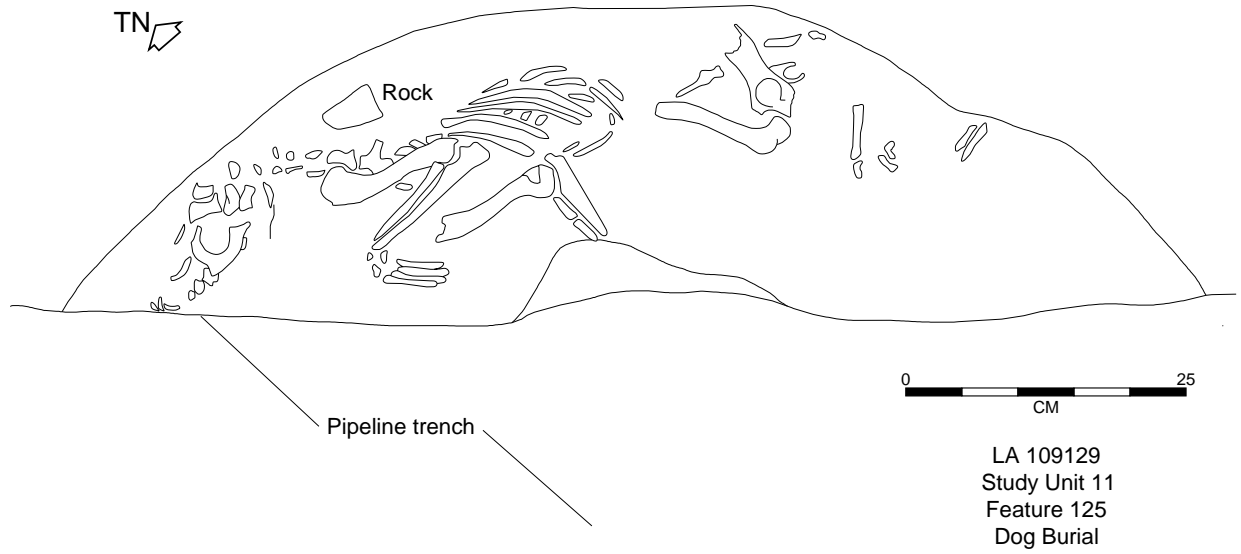


Figure 9.18 Study Unit 11 Feature 125 dog burial.



Figure 9.19 Photo of a dog burial at LA 109129.

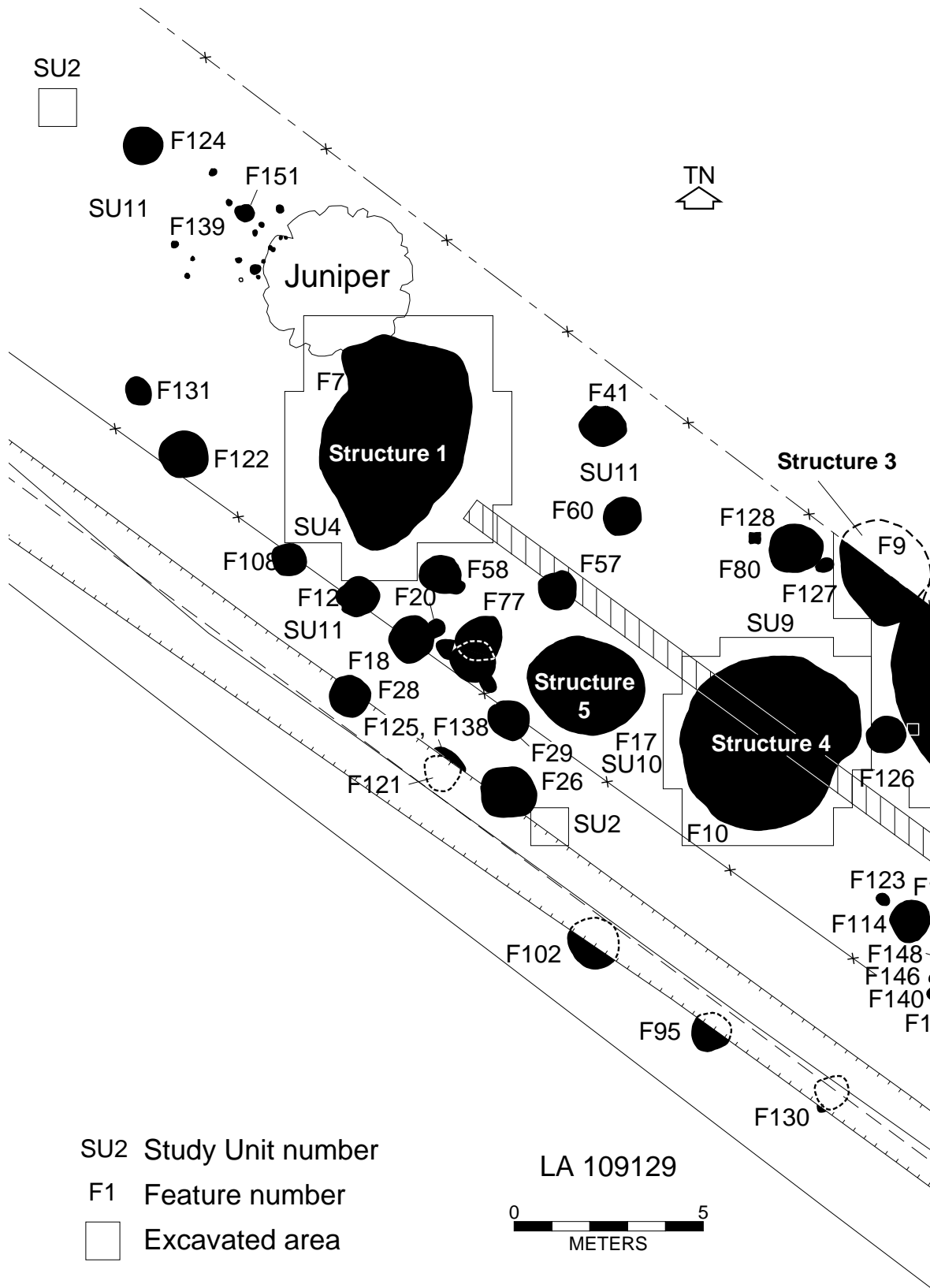


Figure 9.20 Plan of LA 109129 showing extramural features in the west portion of the site.

South of Structure 1 and southwest of Structure 5 was a cluster of nine probable storage pits (Features 12, 18/20, 26, 28, 29, 58, 77, 108, and 121) (Figure 9.20). The cluster indicates that this portion of the site was heavily or repeatedly used. Two of the pits (Features 12 and 28) had secondary use as hearths as evidenced by the first stratum of their fill. These hearths were both medium-sized basins with fill consisting of dark gray charcoal and sand mixed with ash. The basal fill in Feature 12 was redeposited re-used. The next higher stratum was an eolian and fluvial deposited sand and the top stratum was the hearth. Rodent disturbance was evident throughout the fill. The bottom of Feature 12 had two postholes; in the north and in the south. The north posthole—at the juncture of the pit wall and floor—was dug at an angle to allow the post to clear the aperture of the hearth. The south posthole was far enough from the wall to clear the hearth aperture without being angled. Artifacts from Feature 12 include 317 pieces of debitage, 4 pieces of ground stone, 2 projectile point fragments, a uniface, a scraper, 8 plain gray sherds, ocher, turquoise, and 485 pieces of animal bone. Carbonized conifer (cf. *Juniperus* 30%), saltbush/greasewood (*Atriplex/Sarcobatus*, few), cottonwood/willow (*Populus/Salix* 50%), and rabbitbrush/sagebrush (*Chrysothamnus/Artemisia*, few)—yielded a radiometric age of 1570 ± 60 (Beta-96740) and a date of cal AD 530. The 2-sigma date range is AD 390 to 630.

The fill beneath the hearth in Feature 28 was a pale brown sand mottled with ash and charcoal. Root and rodent disturbance was evident. Artifacts from this pit include a projectile point, 2 cores, 90 pieces of debitage, 309 animal bone fragments, a sherd, and fire-cracked rock. A human burial (Burial 3)—adult male—was placed at the base of this pit.

Features 18/20, 58, and 77 were medium to large basin-shaped pits with small basin-shaped pits adjoining their perimeters to give them a “key-hole” outline (Figure 9.21). The location of the smaller pits along the perimeter of the larger features varies in orientation. Feature 77 consists of two overlapping pits, each with an accessory pit on the inside. Feature 18 was the only pit in the cluster to have a separate feature number (Feature 20) assigned to its accessory pit. Fill from these pits was a light to medium gray brown sand with discernible charcoal. Artifacts from Features 18/20 include 111 pieces of animal bone, a core, chopper, biface, 73 pieces of debitage, and 3 plain gray sherds. Feature 58 had a small piece of worked shell, a plain/polished redware sherd, 9 plain gray sherds, 12 pieces of animal bone, 2 pieces of ground stone, a core, and 74 pieces of debitage. Feature 77 had a smudged plain gray and 28 plain gray sherds, 16 pieces of animal bone, 2 cores, a hammerstone, 3 pieces of ground stone, and 147 pieces of debitage. One ceramic is a

Glaze A sherd which probably washed into the pit from the north.

Features 18/20, 58, 77, and 29 were dug into the culturally sterile, loose sand that originated from the decomposing Zia Sandstone formation. During excavation it appeared that an old channel had been filled with the decomposing sandstone in this portion of the site. The subsurface sand was less compacted in this area compared to other site areas. Also, the matrix was not conducive to the preservation of features since features in this area had the least distinct boundaries of all the features excavated at this site. This loose subsurface matrix also occurred in the southern perimeter of Structure 1, which contributed to the difficulty in delineating its south wall.

A medium-size, slightly bell-shaped pit, Feature 29, was filled with a brown to yellow brown sand with abundant charcoal. This pit had a projectile point fragment, 2 cores, 145 pieces of debitage, 131 pieces of animal bone, 3 plain gray sherds, and ocher. The ceramics are from the pit surface. Feature 26, large basin-shaped pit, had a dark gray brown sand fill with discernible charcoal. A moderate amount of root and rodent damage was discernible. This pit had a biface, 23 pieces of debitage, 25 pieces of animal bone, and ocher. The base of this pit had a centrally placed posthole diameter of 40 cm in diameter and 30 cm deep. Feature 108 had medium to dark stained sand with discernible charcoal. This pit had 204 pieces of animal bone, a worked bone, 2 biface fragments, 2 cores, a hammerstone, a ground stone fragment, 146 pieces of debitage, and a piece of ocher. Roughly three-quarters of Feature 121 was cut away during pipeline trenching. This feature had two dog burials, 216 pieces of other animal bone, and 42 pieces of debitage. The fill was a gray brown sand with discernible charcoal.

Three storage pits (Features 41, 57, and 60) were clustered east of Structure 1 and north of Structure 5 (Figure 9.20). The fill of Feature 41 had considerable root and rodent disturbance but two distinct strata were discernible. The upper stratum was a mottled sediment with sand, redeposited subsurface matrix, and occasional charcoal fragments. The lower stratum was more compact, and had more subsurface matrix and less charcoal. Artifacts include a metate fragment, a core, a tested rock, a biface fragment, 51 pieces of debitage, and a bird bone. Two strata were also distinguishable in the fill of Feature 57 despite moderate rodent disturbance. The lower fill was a pale yellowish brown sand with sparse charcoal flecking, and its upper fill was a medium gray brown sand with discernible charcoal. This pit had 170 pieces of debitage, 2 plain gray sherds, 128 pieces of animal bone, kaolinite, hematite, a ground stone fragment, an obsidian biface fragment, and a maize cob. The



Figure 9.21 Photo of Feature 58 showing its key-hole outline at LA 109129.



Figure 9.22 Photo of Feature 80 with a posthole in its bottom and a small abutting pit (Feature 127) at LA 109129.

fill in Feature 60 was mostly eolian and fluvial sands that were slightly mottled with charcoal. Artifacts include 115 pieces of debitage, a biface fragment, a chopper, 3 cores, 2 utilized flakes, a hammerstone, a mano and a metate fragment, 4 pieces of plain gray pottery, 17 pieces of animal bone, ocher, a bean seed, a stone bead, and three small sandstone discs. Some root, rodent, and insect disturbance was discernible throughout its fill.

Three features were north of Structure 4 and west of Structure 3. One was constructed of upright sandstone slabs creating a square bin (Feature 128). Its fill was eolian and fluvial sands with no charcoal or staining, but rodent disturbance was evident. The only artifact was a ground stone fragment. This was the only feature at the site to have upright slabs. It may have functioned as a milling bin. About 30 cm east of this bin was a storage pit (Feature 80) with an accessory pit (Feature 127) on its east side (Figure 9.22). The fill in Feature 80 was a dark gray brown sand with abundant charcoal fragments, some 5 to 10 cm in maximum size. The fill also had large quantities of artifacts, suggesting that the pit had been used for refuse disposal. Artifacts include 3 cores, 3 biface fragments, 3 pieces of ground stone, 385 pieces of debitage, ocher, 905 pieces of animal bone, turquoise, shell, and a maize cob. Feature 127 had fill of medium gray sandy sediment with discernible charcoal. No Artifacts were recovered from the accessory pit.

Another storage pit (Feature 126) was positioned between Structures 2 and 4 (Figure 9.20). Both this feature and one edge Structure 4 were dug into the fill an earlier bell-shaped pit, Feature 113, which was clearly visible in profile in the east side of Structure 4. Feature 113 had been filled with a homogenous compact yellow brown sand with some charcoal flecking. Artifacts from that fill include 91 pieces of animal bone, 10 flakes, and 2 plain gray sherds. During the excavation of Feature 113, a flat piece of clay was found facing Feature 126, and other portions of the walls of Feature 126 had areas of clay as though it had been lined. Apparently the clay was used to plug the wall where Feature 126 encountered Feature 113. The fill in Feature 126 was a brown to gray brown sand with moderate amounts of charcoal. Pieces of unfired clay were found as well as 78 pieces of animal bone, 33 pieces of debitage, and a plain gray sherd.

Three storage pits (Features 95, 102, and 130) are at the south edge of the site, along the pipeline trench south of Structure 4 (Figure 9.20). The pipeline trench removed about 30% of Feature 95, which was a bell-shaped storage pit that was later used for internment of an adult male human (Burial 4). Its fill was a pale brown sand mottled with approximately 5% charcoal and 1% sandy subsurface matrix.

Beneath the human burial were two distinct strata. Immediately beneath the human remains was a layer of very dark loam. This dark loamy matrix was only beneath the burial and may represent a mat or hide placed in the pit to lay the body on. Beneath the dark loamy matrix was a compact very pale gray sand, a subsurface matrix. It occurred only beneath the dark loam in the area of the chest of the deceased. The burial had been placed in the west part of the pit (see Volume 4). Artifacts from this pit include 3 cores, a scraper, a metate, 72 pieces of debitage, 207 pieces of animal bone, a plain gray sherd, and a maize cob. Feature 95 had a posthole in its east wall near its juncture with the floor. The posthole measured 14 cm in diameter and 16 cm deep.

More than half (65%) of Feature 102, a large bell-shaped storage pit, was cut away by the pipeline trench. Its fill—two distinct strata—was a gray brown sand with an occasional lens of dense charcoal and a brown sand with little charcoal flecking. Artifacts include 3 ground stone fragments, a plain gray sherd, and 297 pieces of animal bone.

A bell-shaped storage pit, Feature 130 was almost entirely cut away by the pipeline trench. The remaining fill was gray brown sand with charcoal flecking. Artifacts include 3 flakes and 27 pieces of animal bone. Two human burials (Burials 5 and 6) may have been interred in this pit or in Feature 102. The origin of these two burials is uncertain because of disturbance from the pipeline trench.

East Portion of Site

There is a cluster of 15 features south of Structure 2 and east of Structure 4 (Figure 9.23). This cluster includes two storage pits (Features 114 and 129), nine shallow basin-shaped pits (Features 123, 140, 142, 145, 146, 148, 149, 152, and 154), and four deeper bowl-shaped pits (Features 143, 147, 153, and 155). These 15 features occur within a triangular shaped area that measures 5 m north-south by 3 m east-west (Figure 9.24). The two large storage pits are at the north end of the area with smaller pits between them and to the south.

Feature 129, at the northeast corner of the cluster, is a large storage pit that was filled pale brown sand mottled by charcoal fragments ranging from 2 cm to tiny flecks. It had flaked lithics and fire-cracked rock. There was a notch in the south perimeter of the pit that may have been for a post. Feature 114 is at the northwest corner of the cluster. This medium-size, basin-shaped storage pit had fill that was pale brown sand mottled with some charcoal. The only artifact was a piece of animal bone. Feature 123, located 20 cm northwest of Feature 114, was a shallow oval basin, possibly a metate rest. No artifacts were recovered.

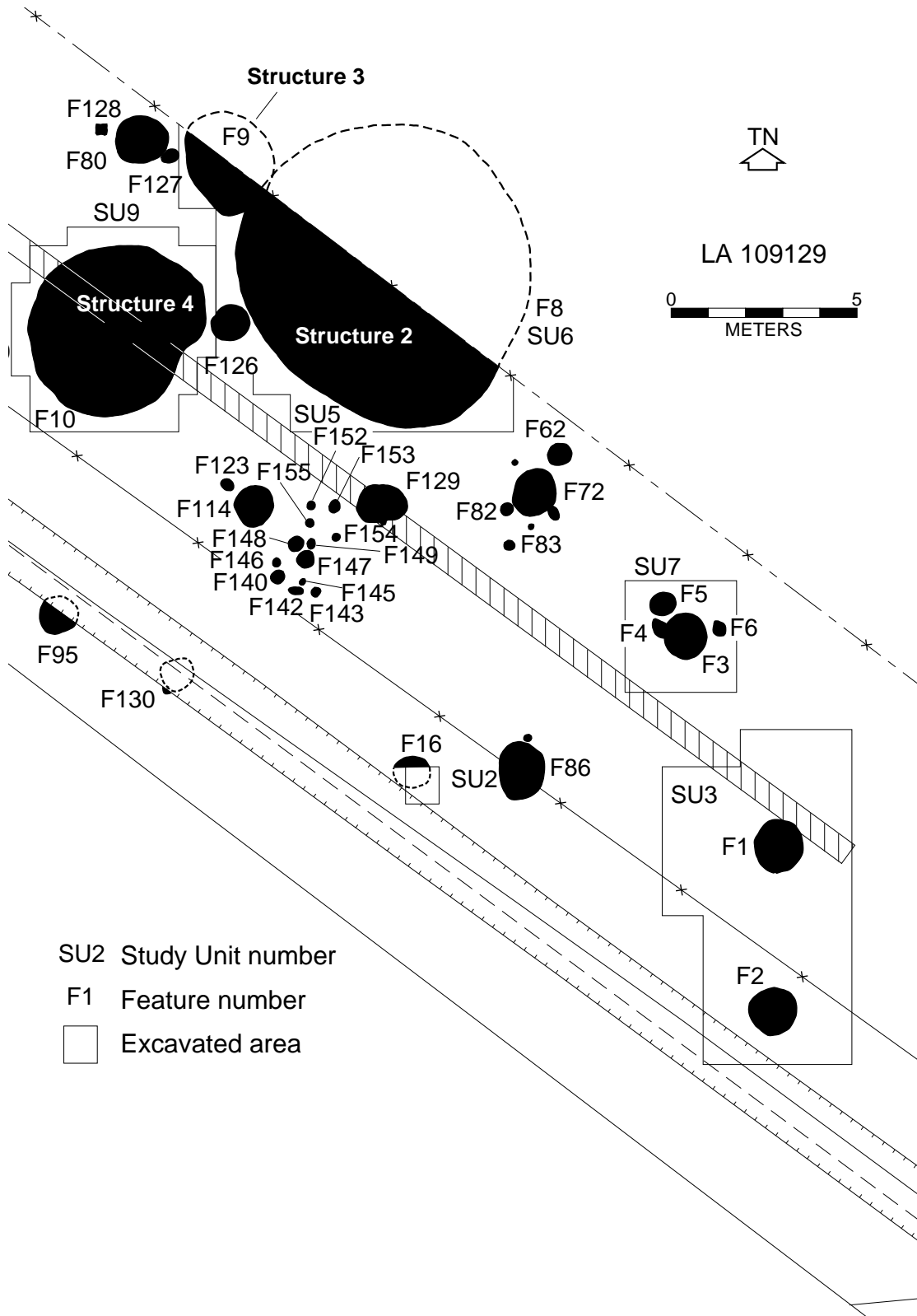


Figure 9.23 Plan of LA 109129 showing extramural features in east portion of site.



Figure 9.24 Photo of a cluster of features south of Structure 2 at LA 109129.



Figure 9.25 Photo of a cluster of features (Features 62, 72, 82, and 83) around a bell-shaped pit at LA 109129.

The other eight shallow basin-shaped pits were 19 to 42 cm in diameter and 5 to 10 cm deep. Most were circular with the exception of Feature 142, which was an elongated oval. These shallow features appear to be pot or metate rests. Feature 153 is typical of the four bowl-shaped pits. It has a diameter of 37 cm and a depth of 33 cm, and was probably used for short-term storage. The fill in most of the small pits was a yellowish brown to brown sand with slight to moderate amounts of charcoal. One exception was Feature 147 which had fill that was a fine ashy charcoal with some sand. The only small pit—in this cluster of features—that contained artifacts was Feature 153. Its artifacts include a few flaked lithics and a sherd. The features in this work area seem to relate to the processing or storage of materials.

A very large bell-shaped storage pit (Feature 72) and three adjacent smaller pits (Features 62, 82, and 83) are clustered immediately southeast of structure 2 (Figure 9.25). These pits appear to represent another activity area used for the processing of stored materials. The three small pits were filled with a medium to dark gray brown sand with charcoal. A few flakes were recovered from Features 82 and 83, but no artifacts were associated with Feature 62. The fill in the large bell-shaped pit (Feature 72) had three strata. Basal fill was a gray brown sand with considerable quantities of charcoal. Above this stratum was a brown sand with occasional charcoal fragments that appeared to be eolian in origin. Above this brown sand was another stratum of gray brown sand with large quantities of charcoal and ash that may represent redeposited hearth fill. The uppermost two strata were brown sand with varying quantities of charcoal with the least amount of charcoal being in the uppermost stratum. Artifacts from this pit include 2 projectile points, 2 biface fragments, a graver, a chopper, 2 cores, 283 pieces of debitage, 4 plain gray sherds, and 111 pieces of animal bone. Thin pieces of clay were observed on portions of the pit walls indicating the wall had been lined. Feature 72 had three probable postholes around its perimeter. The postholes along the southern and southeastern perimeter of the pit were placed approximately 15 cm from the pit's orifice. In contrast, the posthole near its northern edge was 35 cm from its orifice. Rodent disturbance in the southeast posthole caused it to become connected with Feature 72.

There was a second cluster of probable storage pits approximately 7 m southeast of Structure 2 (Figure 9.23). Feature 3 is the largest of these pits. Feature 4—a basin-shaped pit—abutted Feature 3 along its northwest edge, repeating the “key-hole” pattern observed in the features south of Structure 1. Feature 3 had a small posthole—measuring 20 cm in diameter and 12 cm deep—dug in the east side of its bottom.

The other two features in this cluster, Features 5 and 6, were fairly deep and are also believed to be storage pits. Their fill was a dark stained sand with charcoal. Rodent disturbance moderately impacted all them. Only a few artifacts were recovered, mostly fire-cracked rock fragments and flaked lithics. One piece of vitrified pumice was in Feature 5. A 3 m² area, that included these features, was shovel scraped in order to locate additional features or activity areas. The above features contained few artifacts, but the area surrounding them had 5 cores, a projectile point, 3 biface fragments, 4 scrapers, 2 mano fragments, 4 utilized flakes, 637 pieces of debitage, 2 Cibola whiteware sherds, 13 plain gray sherds, and 17 pieces of animal bone.

Two additional pits were found approximately 9 m south of Structure 2 (Figure 9.23). Feature 16 is a medium-size basin that had its south part removed while digging a 1 m² test unit. The pit fill was a lightly stained sand with small charcoal fragments. No artifacts were recovered. Feature 86, 2 m east of Feature 16, is a bell-shaped storage pit. Its fill was a medium gray brown sand mottled with charcoal. Artifacts include a projectile point, a biface, 3 ground stone specimens, 207 pieces of debitage, ocher, 32 pieces of animal bone, and an unknown type of glazeware sherd. Feature 86 had three probable postholes dug into the bottom of the pit near the juncture of its wall and floor. One posthole was near the pit's north wall and the other two postholes were along the pit's northeast wall. Rodent disturbance was noted throughout the fill.

The remaining two extramural features were at the far east end of the site. One, a hearth (Feature 1), had fill that was a dark ashy sand with large charcoal fragments. There were some areas with a pale brown clay-like matrix that may have been the result of slumping, such as from an horno-like structure. There was no oxidation on any of the pit walls or within the clayey matrix. Associated with this pit were several useable cores of various lithic material (i.e., chert, quartzite, chalcedony). These cores were heat altered and their presence indicates the feature was used, at least in part, for the heat treating of lithic material. Eighty six flakes were also recovered from the fill as were three pieces of animal bone, four plain gray sherds, and numerous pieces of fire-cracked rock.

Feature 2, a pit with a human cremation burial was approximately 3.5 m south of Feature 1 (Figure 9.23). This basin-shaped pit had fill that was a gray brown sand with a considerable quantity of charcoal and heat altered human bone. The human bone, in very small fragments, was blackened and calcined. The bones were evenly dispersed throughout the fill. At the base of the pit, in the southeast quadrant, was a probable posthole. Feature 2 may

Table 9.9 Artifact assemblage from LA 109129.

Provenience	Ceramics		Fauna		Lithics		Total		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Surface Collection	12	11.6	1	1.0	90	87.4	103	0.3	
Subsurface Testing	56	6.0	27	2.9	847	91.9	930	3.1	
Midden	38	1.5	119	4.6	2442	94.0	2599	8.8	
Structure 1	Fill	113	2.8	1316	32.6	2612	64.6	4041	13.6
	Floor	42	3.1	508	37.8	795	59.1	1345	4.5
Structure 2	Fill	16	0.8	992	48.4	1042	50.8	2050	6.9
	Floor	-	-	137	62.0	84	38.0	221	0.8
Structure 3	Fill	6	0.8	494	66.0	248	33.2	748	2.5
	Floor	-	-	19	48.5	21	52.5	40	0.1
Structure 4	Fill	37	0.8	1714	39.4	2599	59.8	4350	14.7
	Upper Floor	1	0.0	1312	61.7	816	38.3	2129	7.2
	Lower Floor	7	0.3	826	42.4	1115	57.3	1948	6.6
Structure 5	Fill	-	-	78	56.9	59	43.1	137	0.5
	Floor	1	0.2	26	50.0	25	50.0	52	0.2
Extramural Features	152	1.7	4234	47.3	4569	51.0	8955	30.2	
Total	481 †	1.6	11803	39.8	17364	58.6	29648	100.2	

† sherds identified to type

originally have been a hearth or storage pit that was reused for a human cremation. The posthole is a common occurrence in other storage pits of similar size and shape. Feature 2 is at the farthest point from any of the known structures at the site. Feature 2 may have been constructed at the south-east edge of the site solely for the purpose of cremating the human remains. There was no evidence to indicate whether there was prior use of the cremation pit. Artifacts associated with the burial include four obsidian projectile point fragments and an obsidian biface that are believed to be grave offerings.

An area 39 m² was shovel scraped around Features 1 and 2. This excavation yielded 2 cores, a tested rock, a projectile point, 7 biface fragments, 3 ground stone specimens, 3 utilized flakes, 1,022 pieces of debitage, 2 unidentified Cibola whiteware sherds, a polished plain gray sherd, a smudged plain gray sherd, 50 plain gray sherds, a gray sherd, a plain brown sherd, and 417 pieces of animal bone. Carbonized fragments of conifer (cf. *Juniperus*), saltbush/greasewood and maize yielded an age of 1530 ± 80 BP (Beta-96733) and a date of cal AD 555. The 2-sigma date range is cal AD 390 to 665.

ARTIFACTS AND SAMPLES

The most notable aspect of the artifact assemblage is its abundance. Table 9.9 summarizes the distribution of the artifacts throughout the site. Extramural features contain the highest percentage of the assemblage followed by the fill in Structures 1 and 4. The large quantity of artifacts from these features indicates refuse was deposited in those areas.

Lithics

Flaked lithics ($n = 17,261$) and ground stone ($n = 103$) account for the largest portion of the artifact assemblage. Table 9.10 summarizes the number and type of lithic material, ground stone, tools, and debitage found according to site provenience. There was a wide range of lithic material used, with chalcedony dominating, followed by obsidian, quartzite, basalt, and chert.

Mano and metate fragments make up about 60% of the ground stone assemblage, which also includes two pestles. The remainder of the assemblage is composed of “ground

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Table 9.10 Lithic artifact and material types at LA 109129.

	Structure 1		Structure 2		Structure 3			Structure 4		Structure 5	
	Fill	Floor	Fill	Floor	Fill	Floor	Fill	Upper Floor	Lower Floor	Fill	Floor
Ground Stone											
One-hand Mano	-	-	1	-	2	-	-	1	-	-	-
Two-hand Mano	-	-	1	-	-	-	-	-	-	-	-
Mano, unknown	9	1	4	-	1	-	4	-	-	-	-
Trough Metate	-	-	-	-	-	-	1	-	-	-	-
Metate, unknown	3	1	3	-	1	-	1	-	-	-	-
Pestle	1	-	1	-	-	-	-	-	-	-	-
Ground Stone, unknown	8	3	1	-	1	-	1	-	-	1	-
Ground Stone, other	-	-	1	-	-	-	1	-	-	-	-
Subtotal	21	5	12	0	5	0	8	1	1	1	-
Chipped Stone											
Debitage											
Angular Debris	893	272	328	11	52	4	746	184	293	12	3
Flake	1592	493	655	69	169	14	1715	600	805	40	20
Bifacial Thinning Flake	12	2	2	-	8	1	17	-	5	-	-
Sharpening Flake	-	-	-	-	1	-	-	-	-	-	-
Flake from hammerstone	2	-	-	-	-	-	-	-	-	-	-
Subtotal	2499	767	985	80	230	19	2478	784	1103	52	23
Tools, Cores, etc.											
Tested Rock	2	-	1	-	1	-	2	-	-	-	-
Irregular Core	21	3	12	-	4	-	22	7	3	4	1
Bifacial Core	-	1	-	-	-	-	1	-	-	-	1
Unidirectional Core	2	1	-	-	-	1	-	-	-	-	-
Hammerstone	1	-	4	-	2	-	1	1	-	-	-
Bifacial Chopper	-	-	-	-	-	-	-	-	-	-	-
Utilized Angular Debris	1	-	-	-	-	-	-	-	-	-	-
Retouched Angular Debris	1	-	-	-	-	-	4	1	-	-	-
Utilized Flake	16	6	6	2	-	-	9	4	-	1	-
Retouched Flake	10	2	6	-	2	-	11	3	1	-	-
Projectile Point	17	2	6	-	-	-	27	9	4	-	-
Biface	17	4	5	2	1	-	25	3	3	1	-
Uniface	1	1	3	-	-	1	3	1	-	-	-
Scraper	3	3	2	-	3	-	4	1	-	-	-
Drill	-	-	-	-	-	-	2	-	-	-	-
Graver	-	-	-	-	-	-	2	1	-	-	-
Subtotal	2612	765	1042	84	248	21	2599	816	1115	59	25

Surface Collection	Subsurface Testing	Midden	Extramural Features	Total	%
<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	
			-	4	0.0
			-	1	0.0
3		4	8	34	0.2
			-	2	0.0
1	2	2	6	20	0.1
			-	2	0.0
6	1	1	15	38	0.2
			-	2	0.0
10	3	7	29	103	0.6
8	358	589	3307	5060	29.1
57	447	1767	3076	11519	66.3
1	8	5	20	81	0.5
		1		2	0.0
			1	3	0.0
66	813	2362	4404	16665	96.0
	1		2	9	0.1
1	8	14	28		0.7
		1	3	7	128
			1	5	0.0
4	1		7	21	0.1
			3	3	0.0
		3	1	5	0.0
1	1		1	9	0.1
		15	18	77	0.4
1	4	4	17	61	0.4
1	6	5	11	88	0.5
3	7	23	33	127	0.7
	1	2	1	14	0.1
2	1	6	9	34	0.2
1	1			4	0.0
			1	4	0.0
14	31	73	136	596	3.4

Table 9.10 Continued.

Material Type	Surface Collection	Subsurface Testing	Midden	Extramural Features		Total	
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>	%
Chalcedony, clear	19	347	646	1002	21.9	4047	23.3
Chalcedony, opaque	18	117	664	1204	26.4	4544	26.2
Chalcedony, other	8	72	142	405	8.9	1398	8.1
Silicified Wood	2	8	69	171	3.7	478	2.8
Quartzite	10	137	399	604	13.2	2104	12.1
Orthoquartzite				1	0.0	1	0.0
Quartzitic sandstone	1		1			8	0.0
Quartz						1	0.0
Chert, brown	4	7	21	29	0.6	105	0.6
Chert, white	1	13	60	87	1.9	289	1.7
Chert, other	2	17	48	52	1.1	294	1.7
Jasper			1			1	0.0
Obsidian		7	6	227	5.0	1514	8.7
Obsidian, black opaque		1	5	6	0.1	29	0.2
Obsidian, Polvadera			2	6	0.1	40	0.2
Obsidian, Jemez	4	52	112	501	11.0	1245	7.2
Basalt	13	60	259	242	5.3	1181	6.8
Vesicular Basalt	4	2	1	9	0.2	28	0.2
Rhyolite		2		3	0.1	8	0.1
Latite	2		1	2	0.0	7	0.0
Tuff						1	0.0
Scoria						1	0.0
Volcanic, other	1	5	4	4	0.1	20	0.1
Limestone						2	0.0
Sandstone			1			1	0.0
Gypsum Crystal				14	0.3	16	0.1
other	1					1	0.0

Surface Collection	Subsurface Testing	Midden	Extramural Features		Total	
			<i>n</i>	%	<i>n</i>	%
19	347	646	1002	21.9	4047	23.3
18	117	664	1204	26.4	4544	26.2
8	72	142	405	8.9	1398	8.1
2	8	69	171	3.7	478	2.8
10	137	399	604	13.2	2104	12.1
			1	0.0	1	0.0
1		1			8	0.0
					1	0.0
4	7	21	29	0.6	105	0.6
1	13	60	87	1.9	289	1.7
2	17	48	52	1.1	294	1.7
		1			1	0.0
	7	6	227	5.0	1514	8.7
	1	5	6	0.1	29	0.2
		2	6	0.1	40	0.2
4	52	112	501	11.0	1245	7.2
13	60	259	242	5.3	1181	6.8
4	2	1	9	0.2	28	0.2
	2		3	0.1	8	0.1
2		1	2	0.0	7	0.0
					1	0.0
					1	0.0
1	5	4	4	0.1	20	0.1
					2	0.0
		1			1	0.0
			14	0.3	16	0.1
1					1	0.0

Table 9.11 Thickness (all flakes), LA 109129.

Provenience	<i>n</i>	Mean Thickness (mm)	<i>n</i> ≤ 5 mm	<i>n</i> ≥ 6 mm	% Thin	% Thick	
Surface Collection	58	5.4	39	19	67.2	32.8	
Subsurface Testing	455	4.1	363	92	79.8	20.2	
Midden	1772	3.7	1468	304	82.8	17.2	
Structure 1	Fill	1604	3.3	1347	257	84.0	16.0
	Floor	495	30	434	61	87.7	12.3
Structure 2	Fill	655	2.9	578	77	88.2	11.8
	Floor	69	2.4	61	8	88.4	11.6
Structure 3	Fill	178	3.3	149	29	83.7	16.3
	Floor	15	2.9	13	2	86.7	13.3
Structure 4	Fill	1732	2.8	1491	241	86.1	13.9
	Upper Floor	599	2.1	558	41	93.2	6.8
	Lower Floor	810	1.7	775	35	95.7	4.3
Structure 5	Fill	40	3.7	31	9	77.5	22.5
	Floor	20	2.5	19	1	95.0	5.0
Extramural Features	3095	2.9	2696	399	87.1	12.9	

stone unknown”—fragments too small to identify. The paucity of ground stone suggests either that useable milling stones were removed when the site was abandoned, or that processing material with ground stone tools was not a major task performed at the site.

Debitage, flakes and angular debris, account for most of the lithic assemblage (96%). Table 9.11 summarizes the thicknesses for all flakes. Flake thickness reflects the threshold between thicker flakes that are the result of core reduction and the thinner flakes that are a result of bifacial reduction or tool manufacture. The threshold appears to be about 5 mm (Elyea 1994; Hogan et al. 1983). Since most of the flakes from LA 109129 have a thickness of 5 mm or less, bifacial reduction and tool production appear to have been the predominant manufacturing trajectories employed by the inhabitants of the site. Bifacial reduction tends to be more characteristic of Archaic than Formative tool manufacture, although the distinction appears less pronounced for Basketmaker III than for the later Pueblo periods. Further, bifacial reduction is more likely to be employed in the manufacture of hunting implements—projectile points and biface knives—regardless of the temporal period. The predominately thin flake assemblage from LA 109129 may therefore result at least partly from the apparent emphasis on hunting. Also, the proportion of angular debris (29.1%) is higher than is typical of Archaic assemblages which, in combination with the high proportion of thin flakes, may be indicative of core reduction to produce the thin flake blanks commonly used by Formative groups to manufacture arrowpoints.

There are 596 cores and other flaked stone implements in the assemblage. Cores and tested rocks make up one-quarter of this tool assemblage; hammerstones, 4%; expedient tools, primarily utilized and retouched flakes, 26%; and facially flaked tools, 45%. Most of the cores are irregular or have an indefinite shape resulting from multidirectional flake removal. Irregular cores have been identified as the predominate form in Puebloan sites (Hogan et al. 1983). This core form results from a core-flake technology that focuses on the production of flakes suitable for use with little or no modification.

The relatively high proportions of cores and hammerstones is typical of Formative lithic assemblages, but the proportion of expedient tools is lower than expected and the proportions of facially flaked tools is much higher than expected. This difference provides additional evidence that core reduction at LA 109129 was directed partly toward the production of flake blanks and not exclusively to the manufacture of expedient tools.

The facially flaked tools are mostly projectile points and bifaces. Many of the latter are small and may be unfinished projectile points broken during manufacture or rejected because of material flaws and flaking errors. The assemblage also includes a number of scrapers, and a few drills and graters. This tool kit suggests an emphasis on hunting and processing game, an interpretation supported by the presence of a large vertebrate faunal assemblage.

Table 9.12 Turquoise, galena, pumice, and stone beads, LA 109129.

Artifact Type	Provenience																	
	Structure 1		Structure 2		Structure 3		Structure 4		Structure 5		Hearth Feature 1		Storage Pit Feature 3		Burial Feature 28		Storage Pit Feature 60	
	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt	<i>n</i>	wt
stone bead	1	0.2															1	0.2
turquoise	18	6.2	14	3.4	4	1.3	7	0.5	1	0.1	4	0.4			1	0.1		
galena			1	0.4			3	3.7					1	9.1				
pumice							1	6.3					1	8.1				

Key: wt = weight in grams

Slightly more than half (52%) of the projectile points are fragments. The complete points (Figure 2.26) are unnotched and stemmed arrowpoint forms typical of Basketmaker III assemblages. Only one dart point (Figure 2.26k) was recovered from the site.

Chalcedonies and obsidian are the most common raw materials used in the manufacture of flaked stone implements (Table 9.10). The chipped stone raw materials are available locally in the gravels in the Jemez Valley and nearby Jemez Mountains.

Structures 1 and 2 contained most of the turquoise and gypsum while Structure 4 had most of the galena from the site (Table 9.12). Most of these materials were recovered from the heavy fraction of flotation samples. The turquoise and galena specimens are all very small and none appear to have been worked. Their presence, however, suggests contact with peoples to the northeast in the Cerrillos area where these materials were mined prehistorically (Scurlock 1998:103).

Ceramics

The ceramic assemblage consists of 748 sherds, 481 of which could be identified to a type (Table 9.13). The identified specimens are mostly plain gray (87.3%). The most common vessel form is the jar (85.9%). There are 14 glazeware sherds, including Glazes A and C. Other researchers (e.g. McKenna 1994) have noted that it is common to find small quantities of Pueblo IV ceramics (Glaze A and grayware) on Developmental sites. It is not known whether these small, later ceramic scatters are offerings (as suggested by residents of the Pueblo of Zia), or represent debris from other activities. Most of the glazeware at LA 109129 is from the surface collection, subsurface testing, and the shovel scraping above Structure 1. With the exception of the glazewares the ceramic assemblage is typical of a

Basketmaker III period occupation. The ceramic assemblage also includes a lug handle, a ladle handle, and a pipe (Figure 9.27). The pipe, from the upper floor of Structure 4, appears to be unfired clay.

Faunal Remains

Although the faunal assemblage consists mostly of unidentified mammal bone fragments (Table 9.14), there are identified remains from a variety of small mammals, including cottontail, jackrabbit, and woodrat. The most numerous medium-size mammal is the domestic dog. Deer is the most abundant large mammal with a few pronghorn also present. These animals constitute the bulk of the meat (protein) portion of the diet.

Most cottontail is from the extramural features while most jackrabbit is from the fill of Structures 3 and 4, and the extramural features. Woodrat remains are mostly from Structure 1 and the extramural features while most carnivore specimens are from Structure 3. Most of the canine bone (91%) is associated with the two dog burials in Feature 121. The other fragments were scattered. All bobcat remains are from the fill of Structure 2. Deer remains are mostly from the fill of Structures 1 and 4 and pronghorn is mostly from the fill of Structures 1, 3, and 4. Interestingly, the midden yielded few bones ($n = 119$) while the fill in Structures 1 and 4, and the extramural features yielded the greatest quantity of bone. Structures 3 and 5 contained few animal bones.

Modified Bone and Shell

Kenneth L. Brown

The following summarizes the identification, classification, and description of the 36 modified bone and 4 shell specimens from LA 109129 (Table 9.15). The bones are discussed

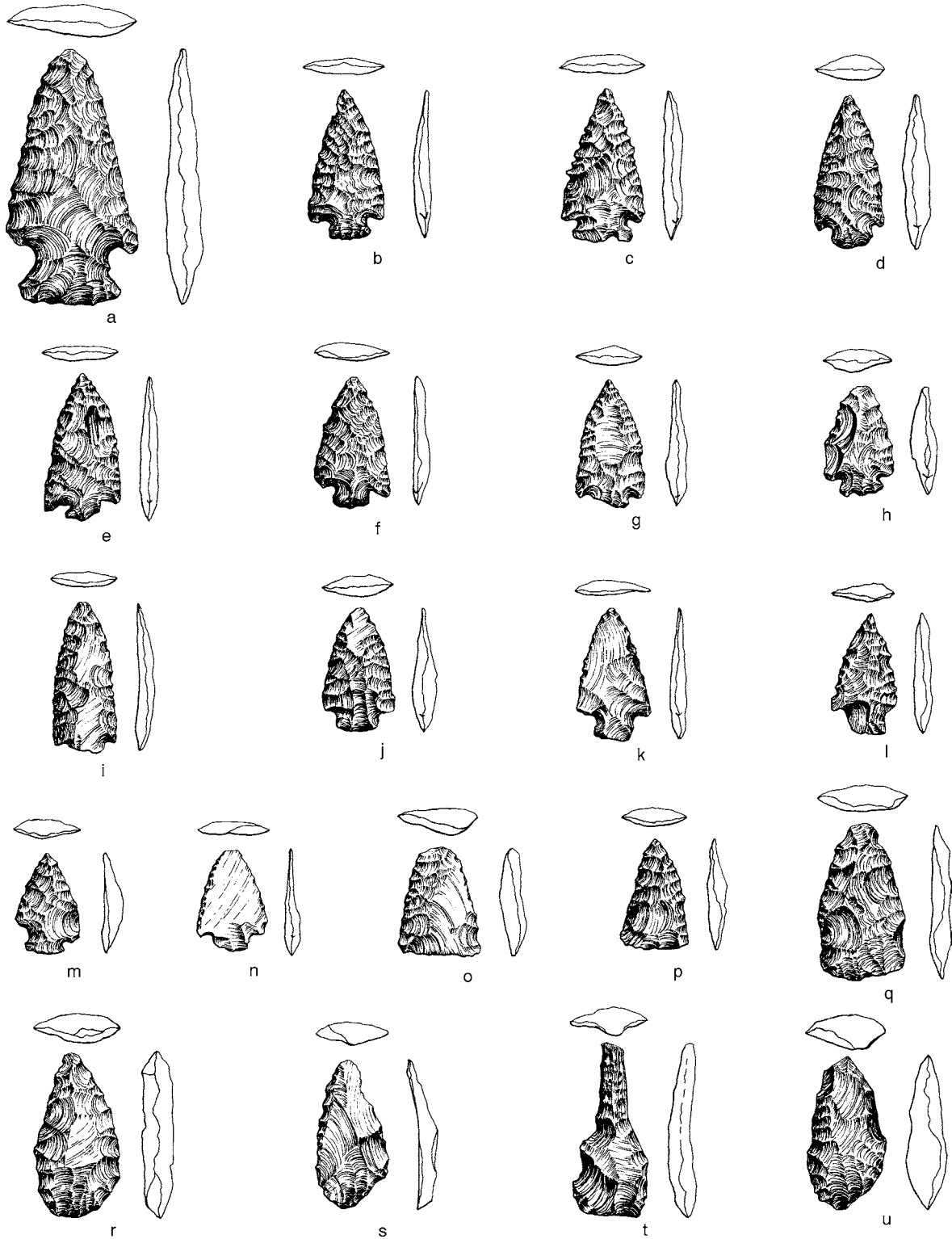


Figure 9.26 Illustrations of barbed arrow points from LA 109129 (actual size).

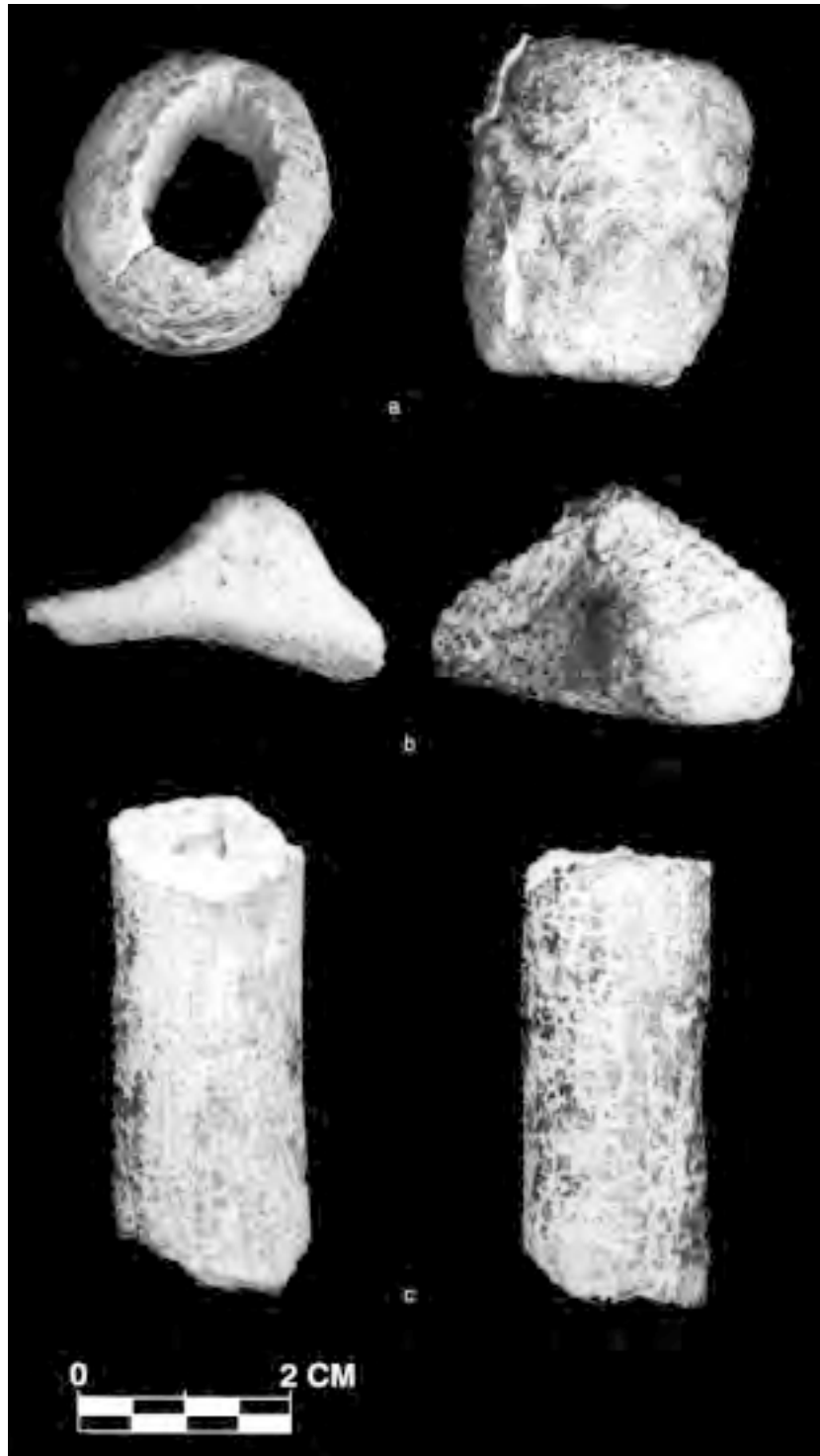


Figure 9.27 Photo of ceramic pipe, lug handle, and cylinder from LA 109129.

Table 9.13 Ceramic assemblage from LA 109129.

	Surface Collection	Subsurface Test	Midden	Extramural Features
	<i>n</i>	<i>n</i>	<i>n</i>	<i>n</i>
Ceramic Type				
unidentified Cibola whiteware			1	
unidentified Medium Line Cibola Whiteware		1		4
unidentified Hatched Cibola Whiteware			1	
White Mound Black-on-white	1			
unidentified Carbon/Gray	1			
unidentified Red-on-white				
Plain/Polished Redware		1		1
Polished Plain Gray			1	2
Smudged Plain Gray		1		2
Plain Gray	7	47	35	140
unidentified Clapboard Corrugated Gray				1
unidentified Indented Corrugated Gray				
Plain Brown				1
unknown Glazeware	1	6		1
Glaze C	1			
Glaze A	1			
Total	12	56	38	152
Vessel Type				
Bowl	5	8	1	7
Lug				2
Handle		1		1
Jar	7	47	35	131
Ladle			1	
Spindle Whorl/Disc				1
Ornament				1
Pipe				
Unknown			1	9

Structure 1		Structure 2		Structure 3		Structure 4			Structure 5		Extramural Features	Total <i>n</i>	Total %
Fill	Floor	Fill	Floor	Fill	Floor	Fill	Upper Floor	Lower Floor	Fill	Floor			
1	3											5	1.0
											4	5	1.0
												1	0.2
												1	0.2
1	4											6	1.3
3	2											4	0.8
4	5										1	11	2.3
4											2	7	1.5
1											2	4	0.8
94	28	16		6		37	1	7	1		140	420	87.3
											1	1	0.3
												1	0.2
1											1	1	0.2
3											1	11	2.3
												1	0.2
1												2	0.4
113	42	16		6		37	1	7	1		152	481	100.0
7	4										7	33	6.9
											2	2	0.4
3		1									1	6	1.2
102	38	14		5		35	-	-			131	413	85.9
1				1								3	0.6
		1									1	2	0.4
											1	1	0.2
						-	1	-				1	0.2
						2	-	9	1		9	20	4.2

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Table 9.14 Faunal remains from LA 109129.

Taxon	Structure 1		Structure 2		Structure 3		Structure 4		Structure 5		
	Fill	Floor	Fill	Floor	Fill	Floor	Fill	Upper Floor	Lower Floor	Fill	Floor
Anura (Toads and Frogs)											
<i>Bufo</i> sp. (Toad)					1	-					
<i>Chrysemys picta</i> (Painted Turtle)							1	-	-		
Colubridae (Colubrids)											
<i>Crotalus</i> sp. (Rattlesnake)											
Indeterminate size bird	3	-					-	1	3		
<i>Sylvilagus</i> sp. (Cottontail)	45	31	67	6	74	6	106	77	35	4	4
cf. <i>Sylvilagus</i> sp. (?Cottontail)					6	-	-	2	-		
<i>Lepus californicus</i> (Black-tailed Jackrabbit)	18	5	15	-	33	-	31	10	5	2	-
Rodentia (Rodents)											
<i>Spermophilus spilosoma</i> (Spotted Ground Squirrel)			1	-			-	1	-		
<i>Cynomys gunnisoni</i> (Gunnison's Prairie Dog)							-	1	-		
<i>Thomomys bottae</i> (Botta's Pocket Gopher)							4	-	-		
<i>Pero gnathus</i> sp. (Pocket Mouse)	1	-									
<i>Dipodomys</i> sp. (Kangaroo Rat)	1	-	1	-			3	-	-		
cf. <i>Dipodomys</i> sp. (?Kangaroo Rat)	1	1									
Muridae (Mice, Rats)											
<i>Peromyscus</i> sp. (White-footed Mouse)							-	1	-		
<i>Onychomys leucogaster</i> (Northern Grasshopper Mouse)							1	-	-		
<i>Neotoma</i> sp. (Woodrat)	14	1	10	-	1	-	2	3	-		
cf. <i>Neotoma</i> sp. (?Woodrat)	1	-	1	-	1	-	1	1	-		
Carnivora (Carnivores)											
Canidae (Dogs, Coyotes, Wolves, Foxes)											
<i>Canis familiaris</i> (Dog)	9	6					1	-	-		
<i>C. latrans/C. familiaris</i> (Coyote/Dog)	1	-									
<i>Felis rufus</i> (Bobcat)			2	-							
Indeterminate small carnivore			1	-							
Artiodactyla (Even-toed Ungulates)	37	16	6	2	8	-	23	7	2		
<i>Odocoileus</i> sp. (Deer)	47	2	2	-	1	-	25	1	1		
cf. <i>Odocoileus</i> sp. (?Deer)							1	-	-		
<i>Antilocapra americana</i> (Pronghorn)							1	-	-		
cf. <i>Antilocapra americana</i> (?Pronghorn)	-	1			1	-					
<i>Odocoileus/Antilocapra americana</i> (Deer/Pronghorn)	6	3	3	-	2	-	11	3	2		
Indeterminate deer-size ungulate	1	-									
Indeterminate mouse-size mammal	7	6	3	4	2	-	8	22	13	14	-
Indeterminate rabbit-size mammal	135	59	162	8	90	4	254	131	106	16	-
Indeterminate coyote-size mammal	3	1					2	-	3		
Indeterminate deer-size mammal	180	33	119	8	40	1	235	45	38	10	1
Indeterminate bison-size mammal							1	-	-		
Indeterminate size mammal	806	343	602	106	228	8	1001	1005	616	32	21
Total	1316	508	995	134	494	19	1715	1312	825	78	26

Taxon	Surface	Testing	Midden	Extramural Features	Total
Anura (Toads and Frogs)				4	4
<i>Bufo</i> sp. (Toad)					1
<i>Chrysemys picta</i> (Painted Turtle)					1
Colubridae (Colubrids)				1	1
<i>Crotalus</i> sp. (Rattlesnake)				1	1
Indeterminate size bird				1	8
<i>Sylvilagus</i> sp. (Cottontail)			3	236	694
cf. <i>Sylvilagus</i> sp. (?Cottontail)					8
<i>Lepus californicus</i> (Black-tailed Jackrabbit)				35	154
Rodentia (Rodents)					3
<i>Spermophilus spilosoma</i> (Spotted Ground Squirrel)					2
<i>Cynomys gunnisoni</i> (Gunnison's Prairie Dog)				1	2
<i>Thomomys bottae</i> (Botta's Pocket Gopher)					4
<i>Perognathus</i> sp. (Pocket Mouse)				1	2
<i>Dipodomys</i> sp. (Kangaroo Rat)				3	8
cf. <i>Dipodomys</i> sp. (?Kangaroo Rat)					1
Muridae (Mice, Rats)					1
<i>Peromyscus</i> sp. (White-footed Mouse)					1
<i>Onychomys leucogaster</i> (Northern Grasshopper Mouse)					1
<i>Neotoma</i> sp. (Woodrat)				16	47
cf. <i>Neotoma</i> sp. (?Woodrat)				2	7
Carnivora (Carnivores)				5	11
Canidae (Dogs, Coyotes, Wolves, Foxes)				3	5
<i>Canis familiaris</i> (Dog)				353	369
<i>C. latrans/C. familiaris</i> (Coyote/Dog)				13	14
<i>Felis rufus</i> (Bobcat)					2
Indeterminate small carnivore					1
Artiodactyla (Even-toed Ungulates)		3	1	18	123
<i>Odocoileus</i> sp. (Deer)	1			18	98
cf. <i>Odocoileus</i> sp. (?Deer)			1	2	4
<i>Antilocapra americana</i> (Pronghorn)				1	2
cf. <i>Antilocapra americana</i> (?Pronghorn)					2
<i>Odocoileus/Antilocapra americana</i> (Deer/Pronghorn)				5	36
Indeterminate deer-size ungulate					1
Indeterminate mouse-size mammal				40	119
Indeterminate rabbit-size mammal		9	41	405	1420
Indeterminate coyote-size mammal				20	29
Indeterminate deer-size mammal		9	40	187	945
Indeterminate bison-size mammal				2	3
Indeterminate size mammal		6	33	2861	7668
Total	1	27	119	4234	11803

Table 9.15 Modified bone and shell specimens, LA 109129.

SU	Feature Number	Taxon	Element	Description
		deer	antler tine	antler tine
4		deer-size	long bone shaft fragment	ground
4	7	rabbit-size	long bone shaft	tube
4	7	deer-size	unidentified bone fragment	gaming piece
6	33	indeterminate size mammal	unidentified bone fragment	gaming piece
6	47†	deer-size	unidentified bone fragment	gaming piece blank
6	48†	indeterminate size mammal	unidentified bone fragment	awl tip
9		deer/pronghorn	metapodial, proximal end and shaft	awl
9	10	painted turtle	nuchal	pendant, drilled
9	10	deer	metatarsal, distal end and shaft	grooved-and-snapped
9	10	deer/pronghorn	radius, proximal shaft	awl
9	10	deer/pronghorn	metatarsal, proximal end and shaft	awl
9	10	deer/pronghorn	metapodial, proximal end and shaft	awl handle
9	10	deer-size	unidentified bone fragment	gaming piece
9	10	deer-size	unidentified bone fragment	gaming piece
9	10	deer-size	unidentified bone fragment	gaming piece
9	10	deer-size	unidentified bone fragment	gaming piece
9	10	deer-size	rib shaft fragment	needle
9	10	deer-size	long bone shaft fragment	awl
9	10	deer-size	long bone shaft fragment	awl tip
9	10	deer-size	long bone shaft fragment	awl tip
9	10	deer-size	long bone shaft fragment	awl tip
9	10	deer-size	long bone shaft fragment	ground and striated
9	10	deer-size	unidentified bone fragment	ground
9	10	indeterminate size mammal	unidentified bone fragment	awl tip
9	10†	indeterminate size mammal	unidentified bone fragment	awl tip
9	10	indeterminate size mammal	unidentified bone fragment	gaming piece
9	10	indeterminate size mammal	unidentified bone fragment	gaming piece
9	10	indeterminate size mammal	unidentified bone fragment	gaming piece
9	35†	indeterminate size mammal	unidentified bone fragment	gaming piece fragment
9	42	deer-size	unidentified bone fragment	ground and grooved
9	105†	indeterminate size mammal	unidentified bone fragment	awl tip
9	107†	indeterminate size mammal	unidentified bone fragment	awl tip
9	112	deer-size	long bone shaft fragment	awl tip
11	12	deer-size	long bone shaft fragment	awl
			Shell	
6	8	<i>Olivella</i> sp. or <i>Agaronia testacea</i>	shell	bead, burned
9		freshwater shell	shell	pendant fragment
9	10	freshwater shell	shell	pendant fragment
11	58	freshwater shell	shell	pendant fragment

Key: † = heavy fraction from flotation

separately from the shell. Even though many of the specimens are complete or nearly complete, they have severely eroded surfaces as a result of soil conditions.

Artifact Typology

The typology used to organize the modified bone is based on those used by A. V. Kidder in *The Artifacts of Pecos* (1932), Beach and Causey in *Bone Artifacts From Arroyo Hondo Pueblo* (1984), and Brown and Brown (1993). The typology, at the most inclusive level, has five functional categories: (1) sewing and weaving, (2) ornaments, (3) stone knapping, (4) recreation, and (5) hide and food processing tools. In addition to the five broad functional categories there are four forms of modification that oftentimes occur on the same specimen. These categories are (1) ground, (2) grooved, (3) snapped, and (4) incised. The shell specimens consist of a bead and three pendants, and are therefore, all considered ornaments. The typology is based on four criteria: (1) function, (2) faunal source or taxon, (3) skeletal element, and (4) manufactured form. For some artifact types (e.g., awls and pendants) the function was assumed and the specimen was then classified according to the other three criteria. In other cases (e.g., bone tubes and spatula) the specimens were first classified according to form or raw material and its function was inferred after a search of the ethnographic and archeological literature (Beach and Causey 1984:190-191). In addition to literature searches, use-wear (e.g., polishing, abrasion, striations) provided information on how specimens were used.

Sewing and Weaving Implements

Awls. Kidder (1932:203) defines awls as tools with points that are sharp enough to have been used for perforating hides or for the manufacture of coiled basketry. In addition, Morris (1919:39) states that shorter awls were used in the manufacture of baskets. Awls vary considerably in design through time. It is usually accepted that most of the tools classified as awls were used in sewing hides or leather and in the manufacture of baskets (Beach and Causey 1984:192). The awls from this site (Figure 9.28 a-h) have only one main type of tip that consists of an elongated, sharp point. Other tip forms oftentimes found at Puebloan sites include short, quickly expanding sharp tips and blunt, rounded tips. The elongated, sharp tip is believed to have been used as a perforator to make small holes for sewing. The short, quickly expanding tip is believed to have been used as a punch, and the blunt, rounded tip form probably represent old, worn, unresharpened tools that may have been used to stretch the holes made by a punch or perforator (Beach and Causey 1984:193). The blunt-tipped specimens may also have functioned as flakers in stone tool manufacturing. The complete awls and awl tips recovered from LA 109129 all are indicative of having functioned as perforators to make small holes for sewing.

Some researchers believe the coloration of awls is a result of their functions. Stained or discolored awls are believed to represent use with hides while bleached specimens probably represent use with vegetal material. Realistically, however, distinguishing between awls used for hide working and awls used in basketry is not so straight forward. Both staining and bleaching have been recognized on the same specimen. It is likely that many specimens served multiple functions and were used in both working hides and basketry (Beach and Causey 1984:193-194).

The awls from LA 109129 are of a single size. All identified taxa and bone size indicates all of the awls are manufactured from large (deer and pronghorn) size mammal elements. Not present are awls manufactured from bird and small (cottontail, jack rabbit) mammal elements. There are several awl/needle tips in the assemblage, but they are too small to determine the size of the mammal element from which they are manufactured. Several technological styles of awls occur in this assemblage.

One awl style is the split long bone with an articular end retained and altered. In this style a long bone has been split longitudinally and its edges and concave surfaces are abraded. Metapodials were most oftentimes used to make these awls. The altered articular end forms the butt of the implement and represents its handle.

Another awl style is the splinter awl, which are specimens manufactured from pieces of splintered long bones. They are irregular in shape and the butts are either unmodified or are lightly abraded. The shafts usually exhibit a minimum amount of grinding to form a working tip. Specimens are sometimes sharpened at both ends, resulting in a double pointed awl. No double pointed awls occur in this assemblage.

Needles. These artifacts are classified differently from awls because they are long, thin or narrow, and have a single hole drilled near their proximal end. One specimen, made of a dog- or deer-size rib shaft, was recovered from the fill of Structure 4 (Figure 9.28i). Its tip, however, was damaged during excavation. It measures 113.0 mm long (incomplete measurement), 8.7 mm wide, and 3 mm thick. The hole in its proximal end measures 2.5 mm in diameter. The specimen is severely eroded.

Awl, Needle, and Pin Tips. These artifacts consist of the narrow, very pointed tips of broken awls or needles. The tips in this assemblage are very narrow and pointed, suggesting their use for piercing. They are all made of dense bone and are probably of awls or needles made from large to medium size mammal elements.

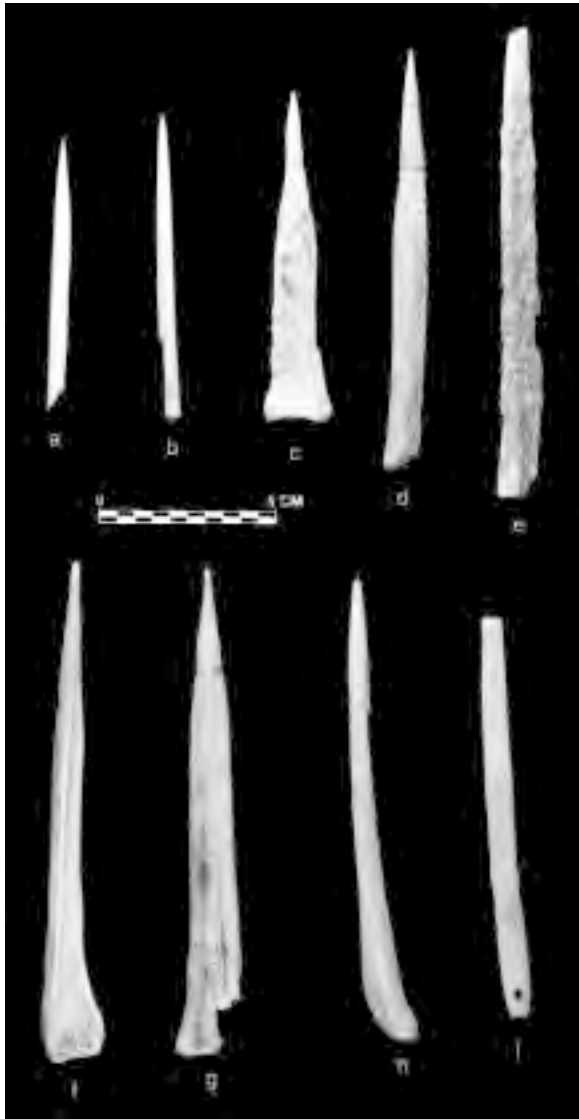


Figure 9.28 Photo of bone awls (a-h) and needle (i) from LA 109129.

Awl, Needle, and Pin Handles. These artifacts are the butt ends of implements, most likely awls. The specimen in this assemblage is made of dense bone and deer/pronghorn.

Ornaments

Tubes. Bone tubes are included with the ornaments even though some may have served purposes other than decoration. Nordenskiöld (1893:99) reported a necklace of eight bone tubes strung on a hide thong reported from Sprucetree House at Mesa Verde. Hodge (1920:134) reports finding hundreds of bone tubes in refuse heaps as well as in graves. Those associated with graves formed “necklaces for the dead.” Morris (1919:41) recovered more than 400 bone tubes at Aztec Ruin in association with child burials. Bone tubes are also reported to have been used as gaming pieces (Culin

1907:267). Another interpretation of the function of bone tubes is their use as bow or wrist guards (Morris 1919:41–42; Hodge 1920:126; Jeancon 1923:26). Bourke (1892:451–603) reports bone tubes were used as sucking implements in healing ceremonies. They were also used to help extract toxic substances (e.g., snake venom; Maddox 1923:130, 225). Other interpretations for the use of bone tubes include use as ceremonial objects and handles (Beach and Causey 1984:205).

Bone tubes are sections of the hollow shafts of long bones of birds and small mammals. The most common method employed to cut the sections was to saw a groove around the shaft of the bone with a flake knife and then snap the bone apart at the groove. Sometimes the shaft was sawed through completely.

Only two severely eroded bone tubes were recovered from LA 109129, both from the fill of Structure 1. The nearly complete specimen (Figure 9.29c) measures 14.1 mm long, 7 mm in outside diameter, and 4.1 mm inside diameter. The second specimen is a fragment of the tubular shaft. It measures 17.8 mm long. Diameters cannot be measured on this fragment.

Pendant. Pendants are believed to have been used as parts of necklaces and bracelets and in other decorative ways. They were made from a variety of skeletal elements from diverse taxa. Pendants are characterized as having at least one hole drilled through them for suspension or attachment purposes. One pendant was recovered from this site (Figure 9.29d). It is similar to what have been defined as pendants by other researchers. This specimen is a nuchal of a painted turtle. A single hole has been drilled through the middle of its anterior portion. The specimen measures 30.1 mm long, 18 mm wide, and 2.7 mm thick. The hole measures 3.2 mm in diameter.

Stone-Knapping Tools

Partially altered antler tines are interpreted as stone-knapping implements because they are usually described in the literature as flakers (Hodge 1920; Judd 1954:152; Kidder 1932:276–286; Lambert 1954; Morris 1986:508; Olsen 1979; Roberts 1929:129; Rohn 1971:230; Stanislawski 1963:288; Stubbs and Stallings 1953; Wheeler 1978:67–69). This interpretation does not preclude the possibility that these tools were used for other purposes. Examination of the tip of the antler tine from this site (Figure 9.29o) did not reveal any additional evidence for function because antlers oftentimes acquire considerable wear prior to being shed by the deer (Olsen 1979:348). This specimen consists of only a short tine that measures 32.8 mm long. Its butt end, which measures 9.6 mm in diameter, was severed by the grooved-and-snapped method. Its surface is severely weathered.

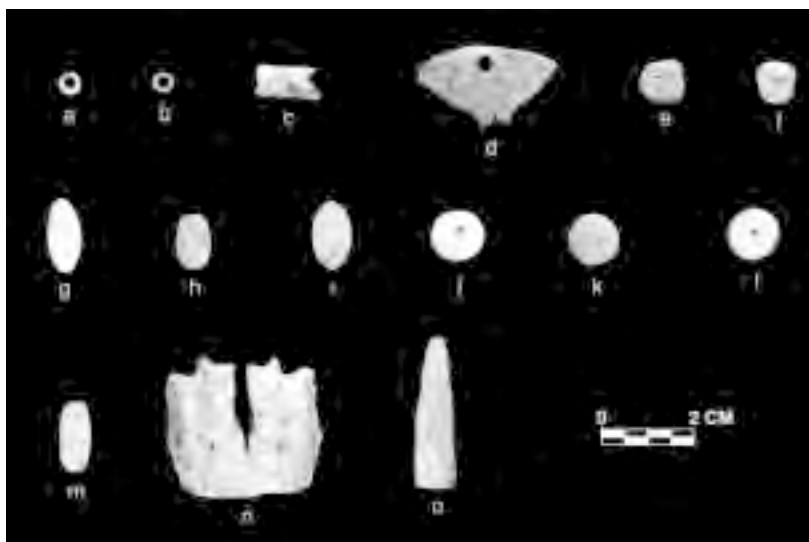


Figure 9.29 Photo of bone beads (a-b), tube (c), pendant (d), gaming pieces (e-m), grooved-and-snapped bone (n), and antler tine (o) from LA 109129.

Recreation (Gaming) Pieces

Gaming Pieces. Gaming pieces are small circular (disc) to ovoid-shaped pieces of dense, or sometimes cancellous, bone that have been worked on all surfaces. One or both face(s) oftentimes exhibits incised lines. These are like dice described in ethnographic collections (Culin 1907:48, 178–189). Several specimens were recovered from this site and all are similar to what other researchers have described as gaming pieces (Figure 9.29e–m). Circular specimens in this assemblage have incised lines on one face and a single small dimple in their center on the opposite face. Table 9.16 summarizes the characteristics and size of the gaming pieces. One obvious trend regarding differences between circular and ovoid specimens is their thickness. Ovoid specimens are substantially thinner (mean = 2.5 mm) than circular and square (mean = 3.8 mm) specimens.

Gaming Piece Blank. Gaming piece blanks are small irregularly-shaped pieces of dense bone that have been

abraded on all surfaces, but lack a uniform shape. These specimens are believed to represent unfinished gaming pieces, or products in the manufacture of gaming pieces. One gaming piece blank was recovered from Feature 48 in Structure 2. It measures 25 mm long, 11.5 mm wide, and 3.5 mm thick.

Unclassified Worked Bone

Grooved-and-Snapped. These specimens are usually long bones, consisting of shafts and articular ends, that exhibit portions that have been removed by use of the groove-and-snap technique. This procedure is characterized by incising, or grooving, the shaft or bone fragment to be cut to its desired length and either snapping the remaining portion of the bone, or completely cutting through the bone with a stone implement. One specimen, a deer metatarsal, was recovered from Feature 10 (Figure 9.29n).

Ground. Ground specimens are pieces of bone that exhibit evidence of abrasion, probably as a result of the use of sand

Table 9.16 Gaming pieces, LA 109129.

Feature Number	Level	Shape	Length (mm)	Width (mm)	Thickness (mm)	Comments Regarding the Faces or Surfaces
10	6	square	9.8	9.3	3.8	cancellous bone
10	8	circular	11.7	11.2	3.2	incised/dimple
10	6	circular	11.6	11.3	4.6	cancellous bone/dimple
10	7	circular	11.5	10.9	3.4	incised/dimple
10	6	ovoid	15.2	8.7	1.7	cancellous bone/smooth
10	7	ovoid	12.1	7.8	2.6	incised/smooth
10	7	ovoid	16.4	7.5	2.7	incised/smooth
7	4	circular	9.3	8.7	3.8	incised/dimple
33	6	ovoid	15.6	6.8	1.5	cancellous bone/smooth
35	6	ovoid	14.7		2.2	incised/smooth

Table 9.17 Shell artifacts, LA 109129.

FS	Figure	Feature Number	Identification
250			freshwater shell
268		†	freshwater shell, burned?
290			freshwater shell
295	9.29d		freshwater shell pendant fragment with drilled hole
363			freshwater shell
404	9.29a	8	<i>Olivella</i> spp. or <i>Agaronia testacea</i> bead fragment, burned
405			freshwater shell
444			freshwater shell
453		†	freshwater shell fragments, <i>Olivella</i> sp. fragment (marine)
465			freshwater shell
482			cf. freshwater shell
502	9.29c	10	freshwater shell pendant fragment with drilled hole
508		†	freshwater shell
601	9.29b	58	freshwater shell pendant fragment with drilled hole
601			freshwater shell
613			freshwater shell, <i>Olivella</i> sp. fragment (marine)
614			freshwater shell
692			freshwater shell
714			freshwater shell
112			Succineid, land snail
150		†	Succineid, land snail
5		†	unidentified

Key: † = heavy fraction from flotation

Olivella spp. available from the Gulf of California

stone or other hard gritty implements. Two specimens of deer-size long bone have been ground or ground and striated.

Shell

The shell artifacts were identified by R. Jane Bradley (Table 9.17). Although there are 22 specimens in the shell assemblage, only four are large, or complete enough to discern modification and/or their use as ornaments (Figure 9.30). The modified shell include three pendant fragments and a bead. The three pendant fragments are of freshwater shell and all exhibit small holes drilled through them. The bead, which has been burned, is of a *Olivella* spp. or *Agaronia testacea*. Both taxa are marine species that were probably acquired from the coast of California. This bead, therefore, represents an item of an extensive trade network that operated throughout the Southwest during the Puebloan period. Amongst the unworked shell specimens is a fragment of an *Olivella* spp. This specimen also represents an item contributed to the trade network. Because of its fragmentary condition it may be a fragment of a larger ornament.



Figure 9.30 Worked shell from LA 109129.

Summary

The types and quantities of bone implements and ornaments indicates hideworking, and possibly basketmaking, were performed at the site. The occupants also participated in recreational activities as evidenced by the presence of numerous gaming pieces. The sharpness of the awl/needle tips indicates piercing was the primary function of these implements. The most likely items to have been pierced would have been animal hides. The absence of awls made from dog- and rabbit-size animal elements indicates more robust implements were required for the types of activities conducted. Most likely the modification of deer hides would have required the use of these more heavy-duty durable awls.

Archeobotanical Remains

Flotation samples from LA 109129 totaling 2,578.9 liters of matrix were processed. Scanning for botanical remains was done for 23 flotation samples collected from 22 features (Table 9.18). Feature 12 had two samples collected from its fill. Carbonized remains of a wide variety of wild and domestic plants were recovered. The occurrence of wild taxa such as pigweed, goosefoot, bugseed, and purslane is not unusual. These are weedy annuals that are associated with disturbed habitats, such as those created by cultivation and other human activities. A wide variety of wild plants were used both for food and as herbal remedies and preventatives. Tobacco was recovered from Features 34 (hearth) and 103 (ash pit) which are both located in Structure 4. The clay tobacco pipe (see ceramic assemblage above) was also recovered from Structure 4. The wild taxa most frequently identified in the 22 features are goosefoot, bugseed, and dropseed grass. The cultigen maize is the only taxon identified in all 22 features (Table 9.18). Both wild and cultivated species were economically important for the occupants of LA 109129.

Coniferous taxa (e.g., pine, juniper) occur as charred wood fragments and/or charcoal. This suggests their use as fuel and construction materials. Low-elevation conifers, such as juniper and piñon, were available in the nearby Jemez and Sandia Mountains. A heavy reliance on conifers is indicated. Oak and cottonwood/willow were available locally in the Jemez Valley, but they form only a minor component of the wood assemblage.

SUMMARY AND INTERPRETATIONS

Cherie K. Walth

LA 109129 has a substantial Early Developmental or Basketmaker III period residential occupation based on four radiometric dates, architectural, ceramic, and archeomagnetic dating evidence. There appears to be a hiatus in the occupation with a later, much less intense, occupation during the early Classic or Pueblo IV period, as evidenced by a few glazeware sherds.

Five semi-subterranean structures were excavated (Figure 9.31). These structures were oval or circular in plan view and shallow basin- or dish-shaped in cross section. Circular, shallow structures are common in this region, with similar shapes and sizes being found in the Rio Puerco and Rio Grande valleys within the Albuquerque area. In Schmader's (1994:459) recent synthesis of excavated structures in the Rio Grande Valley, "Shallow structures were found to be contemporary with nearby deeper structures, ...All of the shallow structures appear to date no later than AD 730 while the deeper structures continued to be built

Table 9.18. Botanical remains from LA 109129.

Taxon/Feature Number	Structure 1		Structure 2				Structure 4				Structure 5		East Area		Middle of Site				South	
	23	24	33	43	47	34	42	49	103	104	113	101	1	3	12	18	29	80	62	72
<i>Chenopodium</i> spp. (Goosefoot)	c	c	c	c	c	c	c	c	c	c	c	c		c	c	c	c	c	c	c
<i>Amaranthus</i> sp. (Pigweed)	c	c			c	c		c	c	c					c	c				c
<i>Boerhaavia</i> cf. <i>coccinea</i> (cf. Spiderling)	c				c	c				c										
<i>Chenopodium/Amaranthus</i> (Goosefoot/pPigweed)	c	c		c		c			c	c		c	c		c	c	c	c		c
<i>Corispermum</i> sp. (Bugseed)	c	c	c	c	c	c	c	c	c	c			c			c	c	c		c
<i>Cycloloma</i> sp. (Winged Pigweed)	c	c			c	c	c		c				c		c					c
<i>Cucurbita</i> sp. (Squash/Coyote Gourd)										c										
Cyperaceae (Sedge Family)	c		c				c	c		c					c	c				
<i>Echinocereus</i> sp. (Hedgehog Cactus)									c			c			c	c	c			
Gramineae (Grass Family)					c	c		c	c						c	c		c		
<i>Nicotiana</i> sp. (Tobacco)						c			c											
<i>Cylindr Opuntia</i> sp. (Cholla)	c			c	c	c	c		c		c	c	c							c
<i>Descurainia/Sisymbrium</i> (Mustard)						c														c
<i>Eriogonum</i> sp. (Buckwheat)		c																		
<i>Helianthus</i> sp. (Sunflower)	c	c	c					c	c	c	c		c		c					c
<i>Phragmites communis</i> (Common Reedgrass)			c				c		c											
<i>Juniperus</i> sp. (Juniper)	c			c			c		c	c	c	c	c		c					c
<i>Pinus edulis</i> (Piñon)													c	c						c
<i>Pinus</i> sp. (Pine)																				c
Monocotyledonae (Monocot)																				c
<i>Physalis</i> sp. (Ground Cherry)									c											
<i>Platy Opuntia</i> sp. (Prickly Pear Cactus)	c	c	c				c	c	c				c		c					c
<i>Portulaca</i> sp. (Purslane)	c	c		c	c		c		c						c	c				c
<i>Sphaeralcea</i> sp. (Globe Mallow)	c														c					
<i>Sporobolus</i> sp. (Dropseed Grass)	c	c	c	c	c			c	c	c	c	c			c					c
<i>Salvia</i> sp. (Sage)			c	c		c							c							
<i>Oryzopsis hymenoides</i> (Rice Grass)		c				c		c	c						c	c	c			
Compositae (Sunflower Family)															c					
<i>Yucca</i> sp. (Yucca)																				c
<i>Yucca baccata</i> (Banana Yucca)									c						c					c
<i>Zea mays</i> (Maize)	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c	c

Key: c = carbonized



Figure 9.31 Photo of completed excavation at LA 109129 looking east.

until at least AD 900.” The structures at LA 109129 vary in size, with the small structures measuring approximately 3 m in diameter and the largest 7.5 m. One small structure (Structure 3) is also the deepest at 56 cm. The other small structure (Structure 5) is the most shallow at 21 cm. For this site, the deepest structure could be considered shallow in comparison with the deep structures in Schmader’s study (1994). One interpretation regarding sites with small and shallower structures is they represent earlier occupations such as Basketmaker III (AD 450 to 650). When early unslipped painted ceramics are also found, they are assumed to date to Basketmaker III/Pueblo I (AD 650 to 750). Using these criteria LA 109129 has a Basketmaker III period occupation.

A Basketmaker III period occupation is also supported by the occurrence of unpainted ceramics, predominately plain gray. The four charcoal samples yielded calibrated radiocarbon dates between AD 400 and 575. Analysis of an archaeomagnetic date, derived from the coping of the hearth in Structure 4, supports this date indicated its firing was either prior to AD 700 or later than AD 900. All of the chronometric dating therefore supports a Basketmaker III period occupation dating to approximately AD 400 to 600.

Regarding season of use, the botanical and architectural elements provide some information. First, the architectural evidence gleaned from the three structures that were excavated in their entirety (Structures 1, 4, and 5) indicates all had central hearths, suggesting cold weather occupation. The hearth in Structure 4 was well-made and included an adobe collar. There were two small hearths (side by side) in Structure 1 and a large basin-shaped hearth in Structure 5. Structure 2 may have had a hearth, but it was not in the portion excavated. Structure 3 probably did not have a hearth because it appeared to be functionally different, a probable storage room where cooking and heating were not done.

Another architectural element indicative of cold weather occupation is a substantial roof. Structures 1, 2, and 4 were probably covered with a substantial superstructure. These three structures had evidence of four main posts to support the roof in addition to smaller posts around their perimeters. In addition, several of the extramural storage facilities were probably roofed or covered as well. The architectural evidence seems to indicate Structures 1, 2, and 4 were occupied during the colder seasons. This does not preclude that they were occupied only during that time.

Structures 3 and 5 were probably brush covered. Structure 5 had a central hearth, but a relatively superficial roof. It could have been used during either warmer or colder seasons. The small surface structure (possible ramada) in the western portion of the site was probably brush covered.

Ramadas are usually interpreted as being warm weather sheltered spaces.

The architectural evidence, consisting of central hearths and substantial roofs for most of the structures, and covered storage facilities, indicates an occupation during colder weather. If the site was occupied seasonally, it’s reasonable to assume that when the inhabitants returned some features were abandoned and new ones constructed. Interpretation of the possible sequence of habitation (e.g., what structure and features came first, second, etc.) is only possible with a few of the features. Superpositioning was observed with Features 113, and 126, and Structures 2, 3, and 4. There is additional information to consider when determining the habitation and use sequence of features. First, Structure 2 had a midden above its fill. Therefore, the site must have been used for an unknown duration after Structure 2 was abandoned and filled. Part of the fill of both Structures 2 and 4 included redeposited subsurface matrix. Some storage pits, therefore, were dug after both of these structures were abandoned. Both Structures 1 and 4 had midden deposits in their fill suggesting they were abandoned and the site was later reoccupied.

Structure 3 was at the extreme western edge of Structure 2. It is not clear which structure was constructed first, or if they were used concurrently. Structure 3 would not have impeded the use of Structure 2, and could have been used as a backroom for storage. It appeared to be conjoined much like an antechamber. If Structures 2 and 3 were contemporaneous, however, roofing them would have been awkward, but as with antechambers, possible. Charcoal samples yielded radiometric ages that were significantly earlier for Structure 3 than for Structure 2 ($t=2.04$). When the larger range of dates afforded by the 95% probability is considered, however, there is an overlap in time of 110 years. The radiometric ages, while tantalizing, are not conclusive for Structure 3 predating Structure 2.

Besides determining when the structures and features were used, it is just as important to determine when they were abandoned. Stratum VI was continuous across both Structures 2 and 3. This implies they were abandoned and filled at approximately the same time. If Structure 2 was used following the abandonment of Structure 3, it was probably for a short duration because there were no eolian or fluvial sands on their floors.

The proximity of Structures 2 and 4, and Feature 126 strongly suggests they were not all in use at the same time. It is possible that Structures 2 and 4 were occupied at the same time, but it is unlikely because of the narrow corridor between them. Feature 126 was not in use when Structure 4 was occupied because it would have made entering the structure difficult. Also, Feature 126 was not likely in use

when Structure 2 was inhabited because of its proximity to the perimeter of the structure.

Feature 113 predates Feature 126 and Structure 4 since both of them were dug into Feature 113. Information that is missing concerns the relationship between Structure 2 and Feature 113. Figure 9.32 shows the probable chronological sequence of features given the following possibilities. Feature 113 could have occurred first as is shown on the top. Structure 2, shown in the middle, could also have occurred first. Both could have occurred simultaneously. If Feature 113 occurred first, then either Feature 126, or Structures 2 and 4 could have occurred next. On the other hand, if Feature 113 succeeded Structure 2, then either Feature 126 or Structure 4 could have been constructed next. Figure 9.32 suggests at least four episodes of habitation may have occurred.

The functions of the features appear to be limited. The five structures include three single family dwellings (Structures 1, 4, and 5), a storage room (Structure 3), and a multiple family dwelling or a community structure (Structure 2). The surface structure in the west part of the site was probably a small ramada.

The majority of features inside and outside of the structures were used for storage. There were 52 pits inside structures and 32 pits outside the structures that probably functioned as storage facilities. These 84 pits, of the 153 total number of features assigned, are slightly more than 50% of all features. In conjunction with many of the storage pits were smaller pits that appeared to be pot rests or metate rests. These smaller pits were likely used for processing stored items. A similar pattern of storage pits was seen at LA 57024 about 25 km to the southeast (Schmader 1994:162–163). The larger storage pits at LA 57024 also had small accessory pits associated with them and some exhibited the same “key-hole” outline as did several of the pits at LA 109129. Cactus pollen was recovered in high quantities from the pits at LA 57024, implying those pits were used to store that particular plant food.

There was use of some of storage pits for refuse disposal, as hearths, for human burials, and for dog burials. There were few hearths outside the structures. Two probable hearths (Features 1 and 21) were built in abandoned storage pits. This pattern indicates most of the cooking was done inside the structures.

The configuration of storage pits and other facilities inside the structures had some similarities. Storage facilities were located at or near the juncture of the floors and walls. They tended to be grouped together, with groupings mostly in the southern and northern portions of Structures 1 and 4, which left more open space in the eastern and western

portions. Structure 5 had pits clustered in its eastern portion. Structures 2 and 3 were not completely excavated, so the full patterning of their floor features was not discernable.

Examining the placement of extramural features and structures provides some information regarding the spatial organization of the site. A first impression is that the structures are inside a ring of extramural features, mostly storage pits. This is, the majority of the storage pits and associated features are around the perimeter of the site. Storage pits and processing areas tend to occur south of the structures with only a few occurring in the eastern and western portions of the excavated area.

In summary, this was a habitation site for several families during the Basketmaker III period. The abundance of artifactual material suggests it was occupied for some duration, or repeatedly occupied. Structures were centrally located with storage facilities, and subsistence and maintenance tasks often being performed south of the structures.

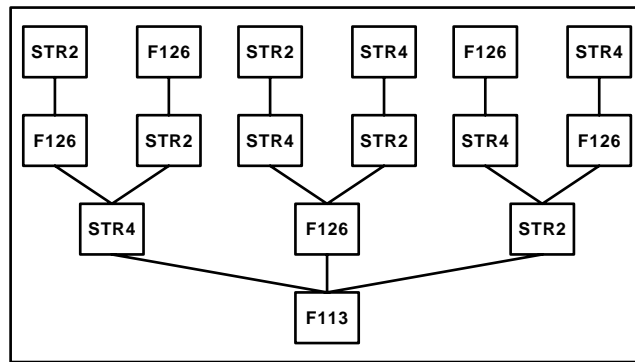
The abundance of vertebrate faunal material and flaked stone tools and debitage suggests hunting and processing of game were important tasks. Deer and some pronghorn, as well as smaller mammals like cottontail, jackrabbit, and woodrat, constituted the bulk of the meat portion of their diet. A few maize cobs were recovered. This agricultural crop undoubtedly was an important source of carbohydrates in their diet. Wild plants were probably also collected and used for food and other purposes. Game provided resources for tools, ornaments, and clothing, as well as food.

LA 109129 compares favorably with other early Formative sites in the region. Diverse structural and site components are a common factor in the Rio Puerco and Middle Rio Grande valleys (McKenna 1995). Sites located in the region that have had excavated structures include a pitstructure site near Santa Ana Pueblo (Allen and McNutt 1955), LA 9193 (Allen 1970), the Sheep Chute site (LA 25860), (Ferg 1983), the Joe and Matthew site (LA 25852) (Hammack 1983a), and LA 25869 (Hammack 1983b).

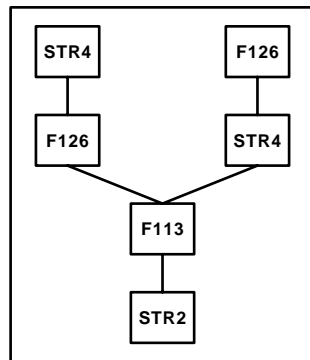
Excavated pitstructures at those sites have usually been circular, shallow, and semi-subterranean. They oftentimes have a four post roof support, a central hearth with an adobe collar, ash pits, ventilator shaft, and few other interior features. There are a few notable differences in the architecture at LA 109129 compared to that at these other sites. LA 109129 structures did not have ventilator shafts but many interior features. Only one structure (Structure 4) at LA 109129 had a collared hearth while another structure (Structure 3) appeared to be for storage as opposed to use as a dwelling. These differences may be attributed to the slightly earlier (AD 400–600) period of occupation at LA 109129. Most of the excavated structures at other sites in the region

date to the latter part of the early Developmental period, closer to AD 900.

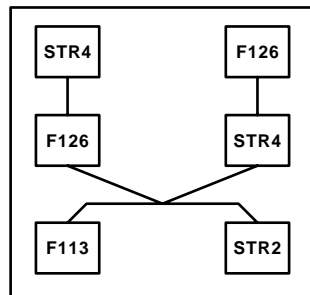
Extramural storage facilities or storage rooms are rare or absent at the other sites; instead, hearths seem to be the most common extramural feature. LA 109129 departs radically from the other sites in this respect. There were numerous extramural features, most being for storage, with few hearths. Perhaps LA 109129 was used specifically for processing and storage of foodstuffs for fall and winter habitation, whereas the other sites had few storage facilities and represent spring and summer habitations. Alternatively, the differences could have temporal significance.



Shows sequence of features if Feature 113 were constructed first



Shows sequence of features if Structure 2 were constructed first



Shows sequence of features if Structure 2 and Feature 113 were used at the same time

Figure 9.32 Chronological sequence of feature construction and use at LA 109129.

Chapter 10

LA 109137

Byrd A. C. Bargman

LA 109137 is an early/middle Archaic residential occupation overlooking a tributary of Arroyo Ojito (Figure 1.1). Arroyo Ojito—a perennial water source—empties into the Rio Salado, a tributary of the lower Jemez River. The site—0.4 km northwest of Cucho Mesa and 0.45 km west of NM 44—is on the east-facing slope of a northeast-southwest trending ridge. Soils are shallow eolian and alluvial deposits covering sandstone bedrock. Modern vegetation includes shadscale, fourwing saltbush, prickly pear cactus, needle-and-thread grass, alkali sacaton, and blue grama grass. One-seed juniper occurs on the ridge but not on the site.

The 1995 survey reported LA 109137 as a 38 by 32 m lithic scatter that had been impacted by previous pipeline construction. The existing MAPCO pipelines are southwest of the site. A two-track road and the TEX/MEX CO₂ pipeline traverses the site's north edge. An earthen berm created during previous pipeline construction bisects the site from northeast to southwest. An assemblage of lithic tools, a Bajada projectile point base, and lithic materials was recorded.

INVESTIGATION STRATEGY

LA 109137 was tentatively dated to the early Archaic period based on a Bajada projectile point. The absence of features and the severity of disturbance, in conjunction with the shallowness of the deposits above bedrock, suggested a short-term encampment. Data recovery focused on identifying the spatial distribution, density, and diversity of the artifacts. A surface collection was done by piece plotting all artifacts within a 126 m² area (Figure 10.1). Shovel test pits (STPs) were dug along the pipeline centerline and in the site area within the pipeline corridor. A manual shovel scrape was done to remove the culturally sterile overburden and to search for activity areas. Shovel tests were followed by hand-excavation of a 1 m² unit. This test unit was expanded to uncover a large ash stain (Feature 1). Excavation of contiguous 50 cm² units in the area of the stain revealed a structure with four associated features.

RESULTS

The 10.5 by 12 m surface collection recovered 4 sherds and 51 lithic artifacts, including tools, cores, and a Bajada projectile point. Many of the lithics were in clusters ranging in size from 3 to 11 items. These artifact clusters may have resulted from erosional activity.

Shovel Test Pits

Fourteen shovel test pits were established to search for subsurface cultural deposits. One group of 10 shovel test pits was placed in a 16.5 by 0.5 m area along the pipeline centerline. These 10 shovel test pits—placed at 2 m intervals—were excavated to depths of 12 to 38 cm. The stratigraphy within these pits was fairly consistent, with eolian sands overlying alluvial deposits which in turn rested on sandstone bedrock. Shovel Test Pit 4 exhibited minor discoloration in its north wall. Further investigation determined it to be from recent thermal activity, possibly during previous pipeline construction. No artifacts or cultural deposits were noted. The second group of four shovel test pits was in a 8.5 by 0.5 m area and was placed perpendicular to the first row of shovel test pits, commencing at Shovel Test Pit 8. These shovel test pits were in the area with the highest artifact density and the best potential for contextual integrity. The four test pits were dug at 2 m intervals and varied in depth from 28 to 30 cm. A gray ashy sand, revealed in Shovel Test Pit 13, was designated Feature 3. Minimal scraping in the vicinity of Feature 3 did not delineate its boundary. A 1 m² unit placed in the stain revealed a deposit of black ashy sand.

A 5 by 7 m area—gridded in 1 m² units—around Shovel Test Pit 13 (Study Unit 2) was shovel scraped, removing 2 to 10 cm of eolian sand. Eighty-one lithics were recovered from the interface between the upper eolian and lower alluvial deposits. An ashy stain (Feature 1) was revealed, which was determined to be a structure.

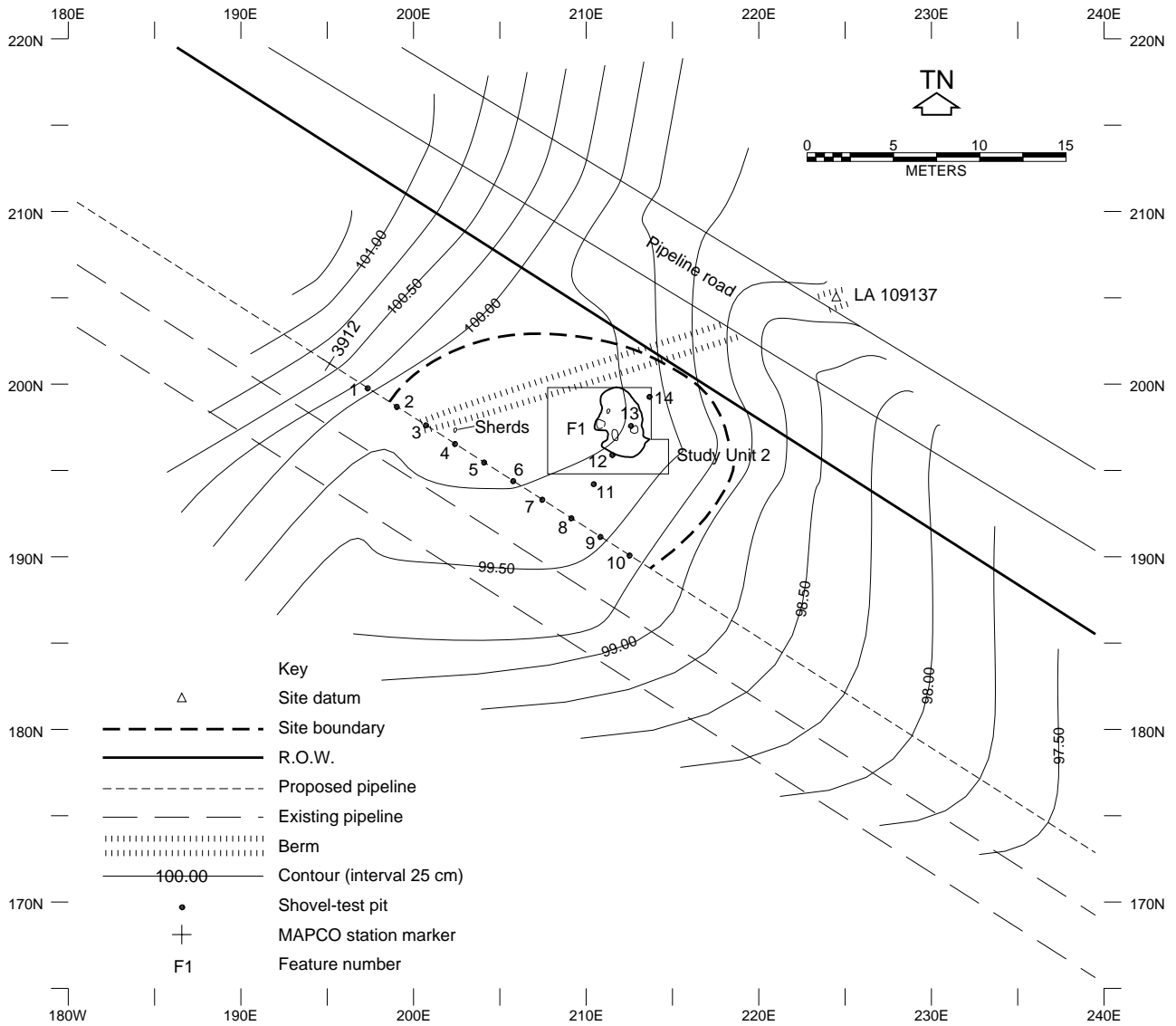


Figure 10.1 Site map of LA 109137 showing location of shovel test pits, excavated area, and Feature 1.

Structure

Feature 1 was an irregular oval depression measuring 3.8 by 2.7 m (Figure 10.2). The structure's northwest and southwest margins were eroded, but its east and west boundaries were well-defined (Figure 10.3). The fill was a very dark ashy sand that varied in depth from 2 to 11 cm. Thirty-seven lithic artifacts were recovered from the fill. Most of the lithics are quartzite flakes with no cortex. The flakes have a mean thickness of 3 mm. Fire-cracked rock, weighing 5.2 kg, was found in the middle of the structure. The homogeneity of the structure fill suggested a single depositional episode. The structure floor was a slightly convoluted surface that was compacted sand mixed with a moderate amount of clay. No evidence of formal floor treatment could be discerned. A ground stone fragment and one lithic item were recovered from the structure floor. Flotation samples collected from the structure fill yielded an abundance of uncharred remains of goosefoot (*Chenopodium* spp.), purslane (*Portulaca* sp.), prickly pear cactus (*Opuntia* sp.), and hedgehog cactus (*Echinocereus* sp.). The uncharred condition of these specimens suggests they are not associated with the occupation. Charcoal from the fill—identified as piñon, juniper, and conifer—yielded a radiocarbon date of 1120 ± 50 BP (Beta-92308) or cal AD 960 with a 95% confidence interval of AD 800 to 1015. This date suggests a Formative occupation that is inconsistent with other evidence from the site. The charcoal sample may have been contaminated by more recent organic material, or there may have been an ephemeral Formative component at LA 109137. The major occupation at the site dates to the Archaic period, however.

Postholes

There were four postholes around the perimeter and two in the interior of the feature. Postholes averaged 10 cm in diameter and 2 to 3 cm in deep. They seem to be placed opposite each other, forming a circular arrangement.

Floor Features

An interior hearth (Feature 2), measuring 60 by 54 cm with a depth of 10 cm, was first encountered as an amorphous concentration of black and gray ashy sand measuring 82 by 59 cm (Figure 10.4). Excavation revealed an upper stratum of carbonized material 16 cm thick. This stratum was subdivided into two levels, the upper 6 cm being roof fall covering the feature and the lower 10 cm the fill of the hearth basin. Intense oxidation occurred 2 to 4 cm below the basin, and oxidized sand with some clay and charcoal, mottling was present up to 14 cm below the bottom of the feature. Artifacts were absent in this lowest stratum underlying the cultural remains, but carbonized remains of

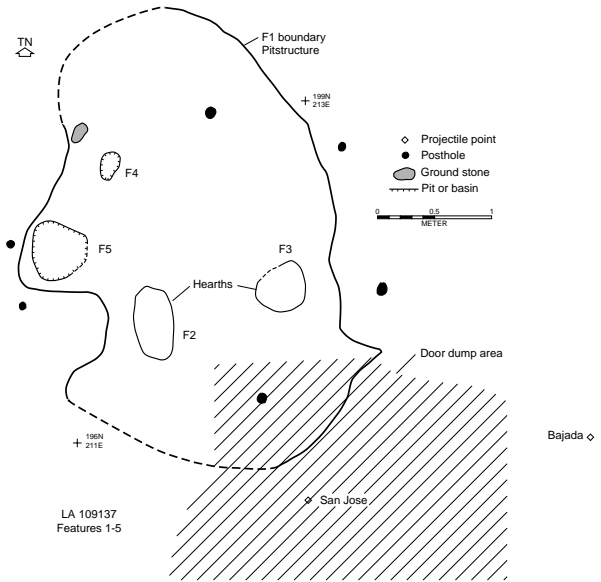


Figure 10.2 Plan of structure (Feature 1).

goosefoot (*Chenopodium*) and purslane (*Portulaca*) were recovered from flotation samples.

A second hearth (Feature 3) measuring 40 cm in diameter was found along the east perimeter of the floor, 75 cm west of Feature 2. Shovel Test Pit 13 encountered the west-northwest edge of the hearth, revealing its discolored fill. The hearth was capped by the densely stained sands found throughout the structure fill. The hearth fill was a black sand matrix with small charcoal pieces. Some portions of the hearth fill were mottled with red clay and pockets of light sand. Rodent and root disturbances were discernible from the hearth's northwest wall and extending into Shovel Test Pit 13. The round hearth had inward-sloping walls and a relatively flat bottom. Its interior wall was a prepared clay and sand finish that was mottled to a bright reddish brown. Artifacts were absent. Uncharred seeds of goosefoot (*Chenopodium*) and purslane (*Portulaca*) and carbonized remains of prickly pear cactus (*Opuntia*) and dropseed (*Sporobolus*) were recovered from the flotation sample collected from Feature 3. Given the relatively small size of the structure, it is doubtful that the two hearths were used simultaneously. More likely, Features 2 and 3 reflect repositioning of the hearth sometime during the occupation of the structure.

A charcoal sample identified as conifer (cf. *Juniperus* 50%), saltbush/greasewood (*Atriplex/Sarcobatus* 50%), and sunflower (Compositae, few) from Feature 3 yielded a radiocarbon date of 4200 ± 60 BP (Beta-96713) or 2875, 2790, and 2780 cal BC with a 95% confidence interval of 2910 to 2590 BC. This date is within the range of the San



Figure 10.3 Photo of the structure (Feature 1).



Figure 10.4 Photo of the interior hearth (Feature 2) of the structure.

Jose phase of the Oshara Tradition, or the middle Archaic period. This date coincides with the early San Jose projectile point recovered just outside of the structure (Figure 10.5a).

A storage pit (Feature 4)—measuring 18 by 25 cm with a depth of 7 to 10 cm—first appeared as a 10 cm circular discoloration in the northwest part of the structure. The west half of the storage pit had a prepared vertical wall and a flat bottom. The eastern, downslope portion of the pit was not well preserved, showing evidence of erosion. Its dark sandy fill contained 20 lithics that were mostly quartzite flakes with no cortex. These flakes have a mean thickness of 3.2 mm.

An oval basin (Feature 5)—measuring 63 by 44 cm and having a depth of 6 to 13 cm—was located in the west part of the structure. The basin's fill was a mixture of heavily

stained sand, organics, some clay, and plant roots. Three very small flakes were recovered from the fill. The north, west, and south walls of the basin sloped gently toward the center. Approximately half of the east wall was missing, probably a result of erosion. Uncarbonized remains of goosefoot (*Chenopodium*) and purslane (*Portulaca*) were recovered from the flotation sample.

ARTIFACTS AND SAMPLES

The artifact assemblage is composed of 205 lithics, 4 sherds, and archeobotanical remains.

Lithics

The surface collection yielded the largest portion of the artifact assemblage ($n = 48$, 23.4%), with the structure (Feature 1) containing the next greatest quantity ($n = 41$, 20%). Many

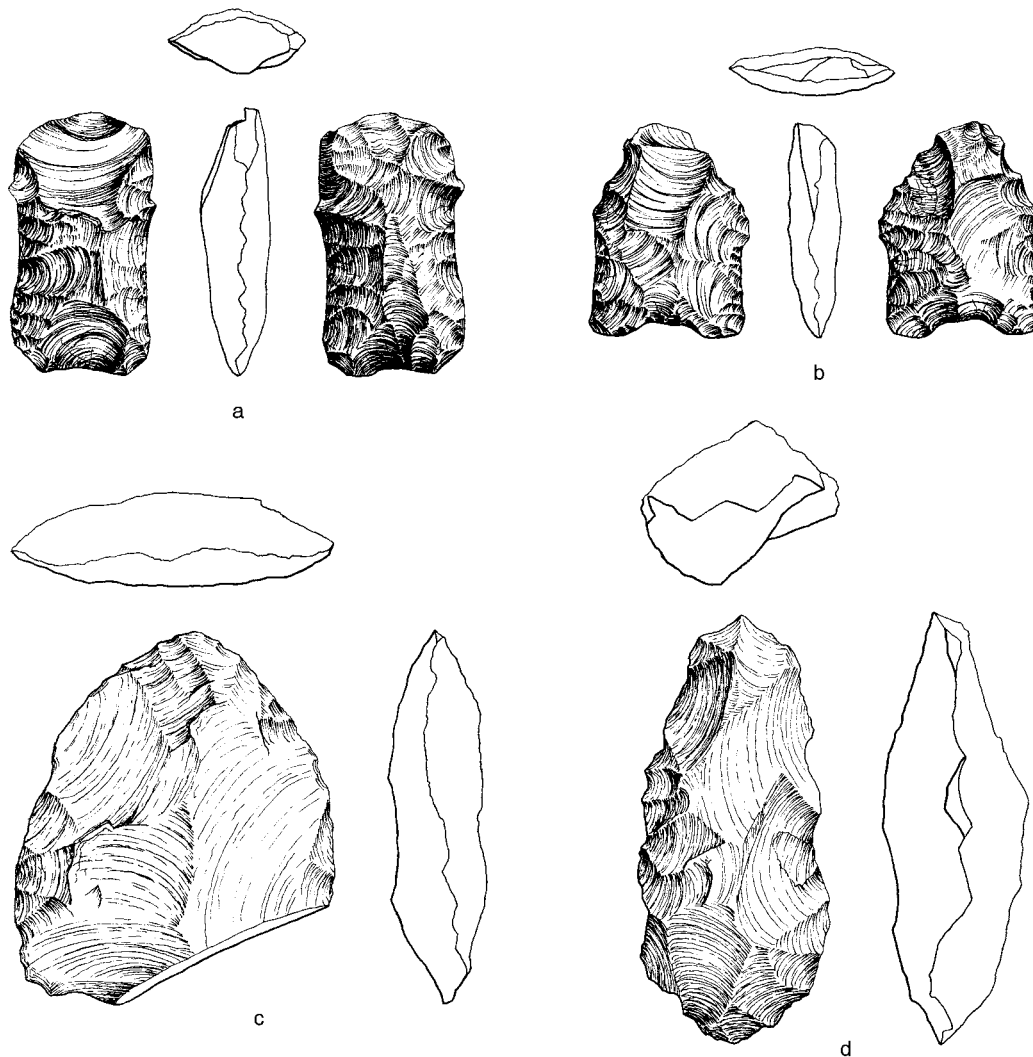


Figure 10.5 Illustrations of (a) San Jose and (b) Bajada style projectile point, (c) biface fragment and (d) large biface.

of the lithics recovered during the surface collection occurred in clusters ranging in size from 3 to 11 items. The surface assemblage includes angular debris, flakes, cores, retouched flakes, utilized flakes, and a Bajada projectile point made of Polvadera obsidian, (Figure 10.5b) which was found on the surface approximately 2.25 m east of the structure. The structure, in contrast, yielded only angular debris, flakes, and a slab metate. Two other slab metate fragments were recovered from the eolian sand overlying the structure. The presence of these artifacts indicates the processing of plant foods occurred at the site.

The largest artifact concentration at the site consists of 32 artifacts, including several tools and a San Jose point, in a 2 by 3 m area immediately southeast of the structure and encompassing the southeastern edges of the structure floor. Ethnoarchaeological research (Binford 1983) indicates that hunter-gatherers frequently clean the interior of the residence, often dumping the refuse just beyond the doorway. The position of this artifact concentration suggests that it is such a door dump.

A second artifact concentration, containing the ground stone, was located in the west-central part of the structure floor surrounding Features 2, 4, and 5. The artifact assemblage in this area suggests food processing, and tool manufacture and maintenance activities. These tasks are typical of residential activities found on hunter-gatherer sites.

Predominant lithic materials are fine-grained quartzite and local cherts and chalcedonies (Table 10.1). The structure and surface collection exhibit the greatest variety of material, but they are also the largest samples. The interior hearth (Feature 2) contained only three types of raw material while the storage pit (Feature 4) and refuse dump near the structure entrance each contained seven material types. With the exception of some of the obsidian, all the materials are available locally in exposed gravels.

Ceramics

The ceramic assemblage is composed of four Dinetah Gray sherds that were found on the surface at the base of the earthen berm near STP 4, approximately 10 m west of the structure (Figure 10.1). There is a protohistoric Navajo component at LA 27099, a site located on a ridge just to the northwest of LA 109137, outside of the pipeline right-of-way. Since the sherds were found at the base of the ridge slope, immediately below LA 27099, it seems likely that they were eroded from that site and are not related to the artifacts and features at LA 109137.

Archeobotanical Remains

Matrix collected from LA 109137 as flotation samples totaled 302.35 liters. Eleven flotation samples, from five features (Table 10.2), were scanned for identifiable macrobotanical remains. Except for carbonized remains of dropseed (*Sporobolus* sp.) and prickly pear (*Opuntia* sp.) from Feature 3, all other botanical specimens were uncharred. The uncharred specimens are probably not associated with the archeological assemblage.

SUMMARY AND INTERPRETATIONS

The data recovery at LA 109137 revealed a structure with interior features, a concentration of lithic debris immediately southeast of the structure, and a dispersed scatter of lithics primarily to the east of the structure. A radiocarbon assay obtained from the hearth within the structure indicated a middle Archaic occupation (4200 ± 60 BP). The presence of a hearth and storage facilities within the structure suggests a winter occupation. This size structure could house a small family.

Limited use of the site area during the Formative and protohistoric periods is also possible. A Formative period radiocarbon date from the fill of the structure suggests there may have been a thermal feature on top of the structure that was not detected during the excavation. The protohistoric occupation is reflected by the four Dinetah Gray ceramics found northwest of the structure.

Table 10.1 Lithic artifact and material types, LA 109137.

	Surface		Area Above Structure	Structure			Refuse Area	Total	
	Scrape	Collection		Fill and Floor	Hearth	Storage Pit		<i>n</i>	%
Artifact Type									
Angular Debris	4	8	4	6	1	4	6	33	16.1
Flake	19	28	11	34	7	16	21	136	66.3
Core, Irregular	4	5	2		1		2	14	6.8
Core, Unidirectional			3					3	1.5
Flake, Utilized		2	1					3	1.5
Flake, Retouched	2	4	1				1	8	3.9
Projectile Point		1					1	2	1.0
Biface	1						1	2	1.0
Uniface	1							1	0.5
Metate, Slab			2	1				3	1.5
Total	31	48	24	41	9	20	32	205	100.0
Material Type									
Chalcedony	3	3		5		2		13	6.3
Silicified Wood		1	3	1			1	6	2.9
Quartzite	23	30	15	22	6	13	21	130	63.4
Chert	1	3	4	6	1	3	7	25	12.2
Obsidian	3	4		6	2	1	2	18	8.8
Obsidian, black opaque			1					1	0.5
Obsidian, Polvadera	1							1	0.5
Basalt		7				1		8	3.9
Volcanic, other			1	1			1	3	1.5
Total	31	48	24	41	9	20	32	205	100.0

Table 10.2 Botanical remains from LA 109137.

Taxon	Features (and Feature Numbers)				
	Structure 1	Hearths 2	Storage Pit 3	Basin 4	Basin 5
<i>Chenopodium</i> spp. (Goosefoot)	u	u	u	u	u
<i>Portulaca</i> sp. (Purslane)	u	u	u		u
<i>Sporobolus</i> sp. (Dropseed grass)			c		
<i>Opuntia</i> sp. (Prickly pear cactus)	u		c		
<i>Echinocereus</i> sp. (Hedgehog cactus)	u				

Key: c = carbonized, u = uncharred

Chapter 11

LA 110942

Peggy A. Gerow and Byrd A.C. Bargman

LA 110942 is a multicomponent site dating to the late Archaic and early historical periods. The site encompasses two proveniences situated approximately 54 m apart (Figure 11.1). Provenience 1 consists of a late Archaic structure, activity area, and hearth. Provenience 2, to the west, encompasses a large roasting pit and pit of unknown function, both of which date to the early historical period. The site is situated on a low terrace above a broad, unnamed drainage. The Jemez River is located about 1.6 km to the northeast (Figure 1.1, Map 6). Modern vegetation consists of juniper and saltbush.

PROVENIENCE 1

Peggy A. Gerow

Provenience 1 was discovered during the archeological trenching of the pipeline centerline prior to data recovery. The stratigraphy within the trench walls indicated a 20–30 cm thick lens of sand with charcoal flecking, pockets of charcoal-stained sediments, and a couple of lithic artifacts; all were located between 0.95 and 1.05 m below modern ground surface (Figure 11.2). The lens was thought to be a midden and the charcoal pockets were believed to be hearth remnants.

Investigation Strategy

Because of the cultural deposits' depth below modern ground surface, a backhoe was used to remove the eolian sand overburden to just above the charcoal-stained lens. This stripped area measured approximately 35 m long by 12 m wide. A grid was then established and the area was shovel-stripped to expose the ash and to probe for other features and associated artifacts.

Results

The shovel scraping revealed a small isolated hearth (Feature 1) and a circular area of staining (Feature 2) measuring

approximately 4 m in diameter, which proved to be the remnants of a structure. A fairly dense scatter of fire-cracked rock and lithic artifacts was present both within the stain and in the surrounding grids.

Isolated Hearth

Feature 1 had been partially removed by the backhoe blade during surface stripping. Excavation showed this hearth to be an oval basin measuring 39 by 35 by 12 cm deep (Figure 11.3). The eastern and southeastern edges were fairly intact, but the southwestern edge had been disturbed by rodent activity. Mottled ash and sands also extended out from the feature to the north and west (Figure 11.4).

The fill contained dark-stained sediments with small pieces of charcoal. One piece of angular debris was recovered. No radiocarbon date was obtained for this feature nor was the fill scanned for charred macrobotanical remains. Its position in the eolian sands above Feature 2 suggests that it represents a later occupational episode.

Structure

Given the diffuseness of the ash stain, Feature 2 proved difficult to excavate. The edges were discerned only by the gradation of the light gray, ash-stained sediments into the lighter brown sands surrounding it (Figure 11.5). Once excavated, the structure measured 5.3 m north-south by 4.5 m east-west. The light gray fill ranged from 2 to 5 cm thick. The floor was use-compacted and gradually sloped up to the edges. Numerous flakes and fire-cracked rock fragments were resting upon it. Five postholes, ranging from 9 to 15 cm in diameter by 7 to 10 cm deep, were arrayed along the western and southeastern perimeters (Figure 11.6). These posts probably supported a brush superstructure.

A radiocarbon sample obtained from the charcoal found in the fill yielded a ^{13}C adjusted date of 2080 ± 80 BP (Beta-92293) or 60 cal BC with a 95% confidence interval of

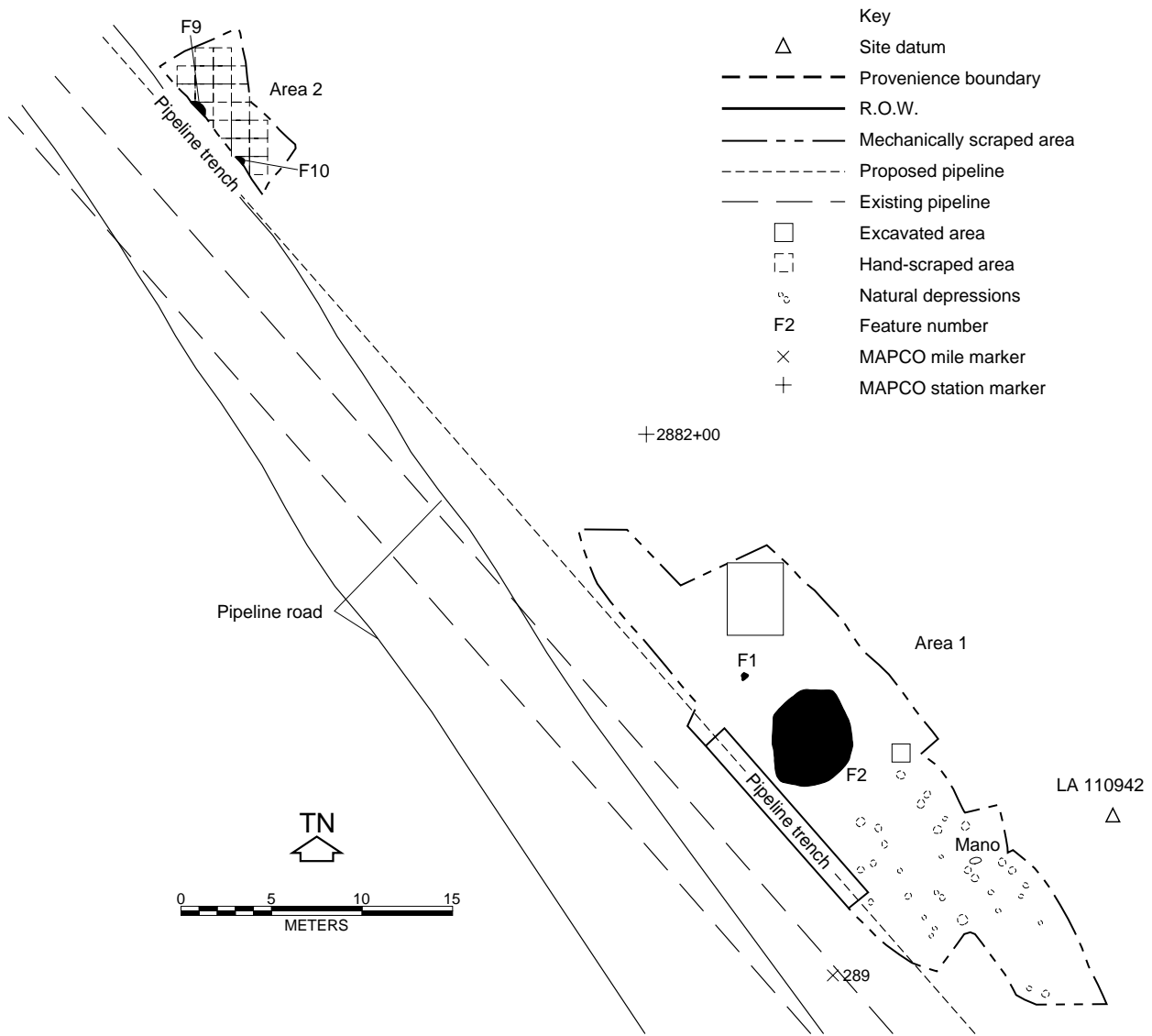


Figure 11.1 Site map of LA 110942 showing location of proveniences and data recovery units.

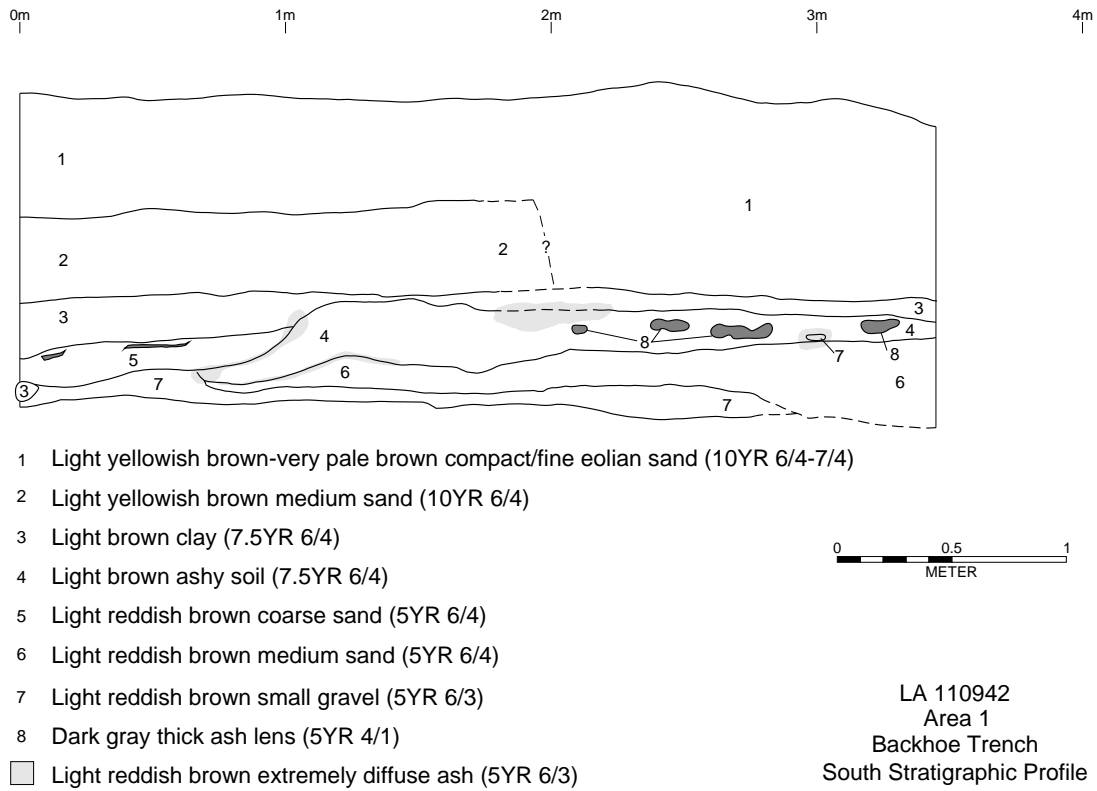


Figure 11.2 Stratigraphic profile of backhoe trench.

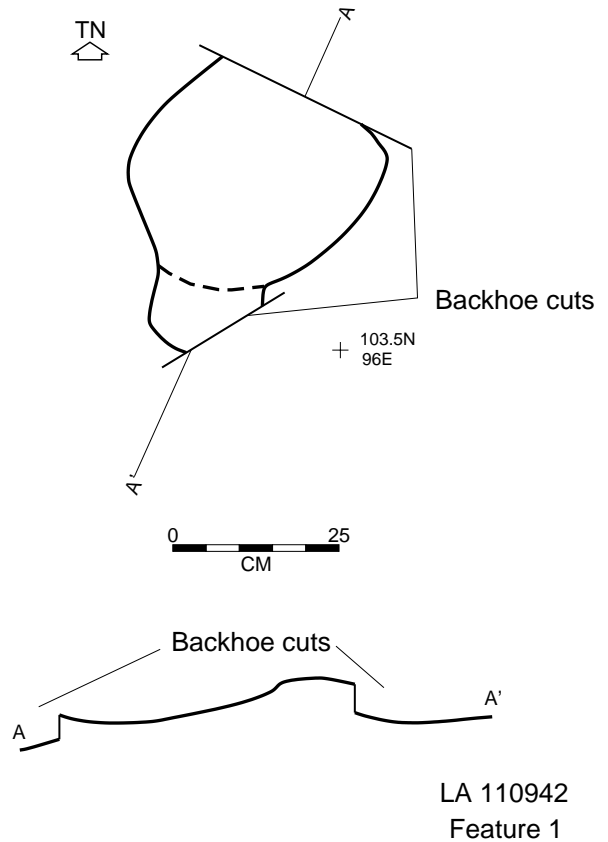


Figure 11.3 Plan and profile of Feature 1.



Figure 11.4 Photo of Feature 1 before excavation, LA 110942.



Figure 11.5 Photo of the structure (Feature 2) before excavation, LA 110942

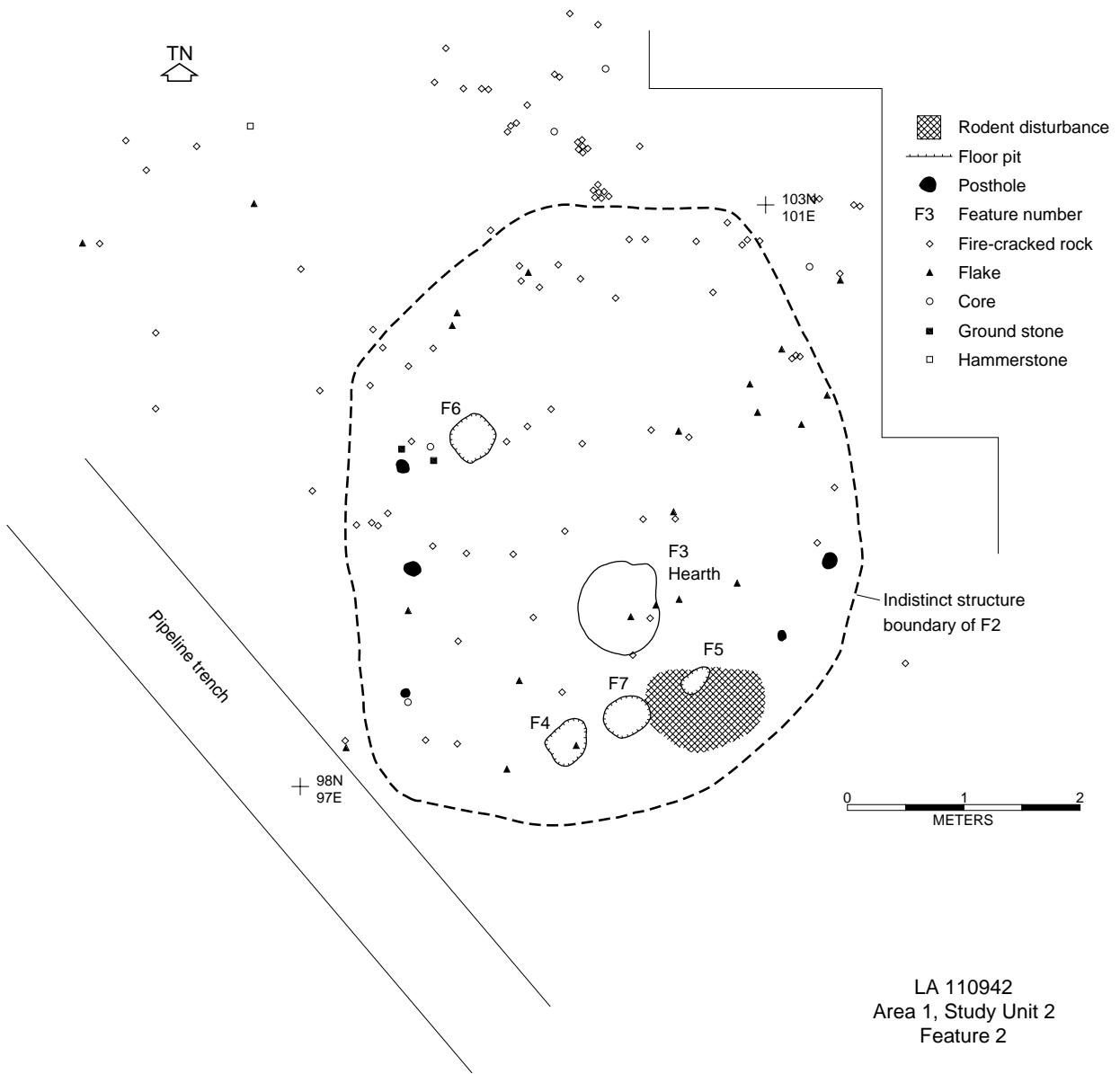


Figure 11.6 Plan of the structure (Feature 2) after excavation.

360–250 BC to AD 90. This date suggests a late Archaic occupation.

Five floor features were present, four in the southeastern quadrant and one in the northwestern quadrant (Figures 11.6 and 11.7). Four appeared to be storage pits and the fifth may have been a hearth. An amorphous concentration of ash-stained sediments was present below Feature 5, but this proved to be the result of rodent activity and not a subfloor feature. Seven flakes and two pieces of angular debris came from this staining.

Hearth. Located in the southeastern quadrant, Feature 3 was an oval pit measuring 84 cm north-south by 70 cm east-west and 20 cm deep. The southern wall of the pit was steep while the northern edge sloped up gradually (Figure 11.8). The fill contained light gray-stained sediments with small fragments of charcoal. The macrobotanical sample had evidence of charred yucca, goosefoot (*Chenopodium*), and maize (*Zea*) cupules. Nineteen flakes and two pieces of angular debris were found in the fill. Although no oxidation was evident, the location of this pit near the center of the structure suggests that it may have been a hearth.

Storage Pits. Three of the possible storage pits were arrayed in a line to the southeast of the hearth, between it and the southeast edge of the structure depression. Feature 4 was a steep-sided pit located about 65 cm southwest of

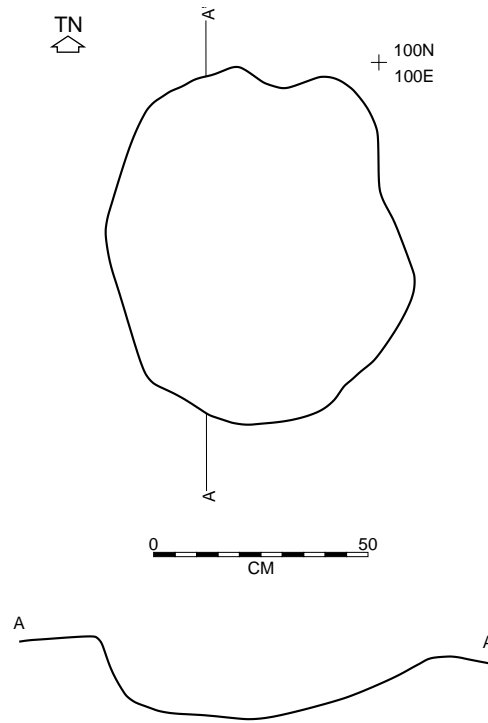
Feature 3. It measured 41 cm north-south by 36 cm east-west and had a depth of 13 cm (Figure 11.9). The fill had dark-stained sediments with small pieces of charcoal. No oxidation was visible along the sides or bottom. The macrobotanical sample yielded evidence of charred maize (*Zea*) cupules. No radiocarbon sample was obtained from this feature. Seven flakes were found in the fill. The steepness of the sides and the presence of corn cupules suggest this may have been a storage pit.

Feature 7, about 25 cm northeast of Feature 4, was a small oval pit measuring 48 cm north-south by 41 cm east-west with a maximum depth of 17 cm (Figure 11.9). The bottom was uneven, mostly because of rodent disturbance, and the sides were straight-sided. The fill was of mottled light gray-stained sediments with very little charcoal. Macrobotanical samples taken from the fill yielded evidence of charred goosefoot (*Chenopodium*), yucca (*Yucca*), and maize (*Zea*) cupules. Twenty-three artifacts were recovered from the fill—twenty flakes and three pieces of angular debris. The shape of this pit suggests that it was also a storage feature.

Feature 5 was a steep-sided, oval pit located approximately 30 cm northeast of Feature 7. It measured 25 by 15 cm and had a depth of 12 cm (Figure 11.9). The fill contained dark-stained sediments with small flecks of charcoal. Small maize cupule fragments were present in the fill. No artifacts were



Figure 11.7 Photo of the structure (Feature 2) after excavation showing floor features, LA 110942.



LA 110942
Feature 3

Figure 11.8 Plan and profile of Feature 3, a possible hearth.

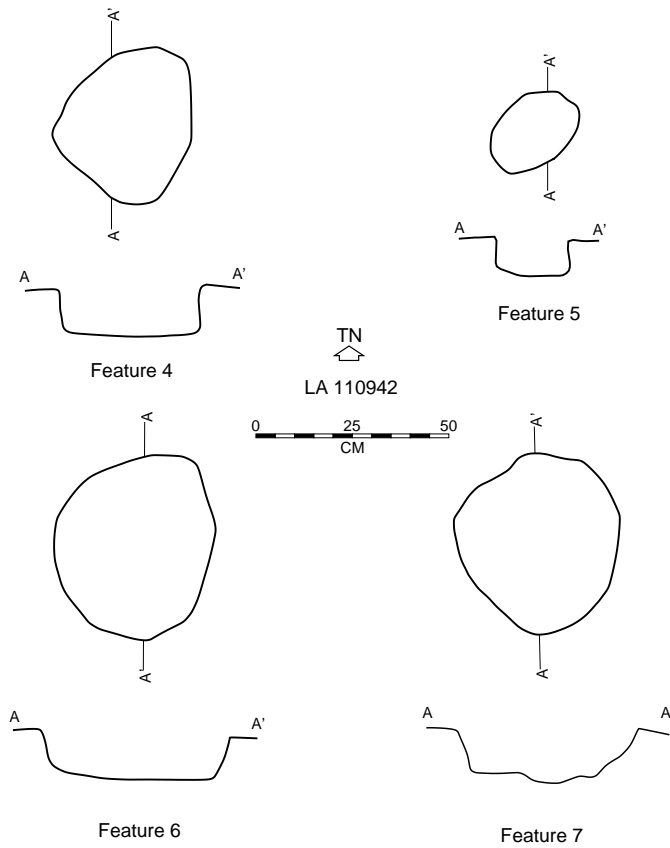


Figure 11.9 Plans and profiles of storage pits in late Archaic structure (Feature 2).

recovered. The shape of the feature suggests that it may have functioned as a small storage pit.

The fourth storage pit, Feature 6, was located in the northwest quadrant of the structure's floor. It was a vertical-walled, oval pit measuring 48 cm long by 42 wide and 15 cm deep (Figure 11.9). The fill contained mottled, light gray-stained sediments with small bits of charcoal. Four flakes and one piece of angular debris were recovered from this feature. The shape of Feature 6 suggests that it also functioned as a storage pit.

Extramural Grids and Natural Pits

Because of the large number of lithic artifacts exposed to the northwest of the structure during the backhoe stripping, twenty-four 1 m² units were shovel scraped to probe for subsurface features. No features were found in this area, but more than 600 lithics were recovered.

The backhoe scraping also revealed 32 small, clay-filled pits to the southeast of the structure (see Figure 11.1). These pits ranged between 20 and 44 cm in diameter and between 4 and 28 cm deep. No ash, charcoal, or artifacts were found in the fill. They appear to be natural phenomena and not cultural manifestations. It is not known how these pits were created.

Analytical Units and Artifact Assemblage

The excavations in Provenience 1 at LA 110942 recovered 2,115 lithic artifacts. A distribution map of these lithics shows two distinct clusters—one encompassing the structure and the other to the northwest of the structure (Figure 11.10). Chi-square showed that the material types within each cluster are significantly different, which suggests either different occupations or different activity areas within the same occupation. Because of the difference, the two clusters were designated as separate analytical units (AUs). Analytical Unit 1 consists of those artifacts in the cluster encompassing the structure. Analytical Unit 2 is the cluster in the northwest corner of the excavation area.

Flakes dominate the assemblages from both analytical units, followed by angular debris (Table 1.1). Analytical Unit 1 contained more formal and informal tools, as well as two cores and a tested rock. These latter artifacts suggest that core reduction activities were a primary activity within this area.

Chalcedonies dominate the raw material types for both analytical units. Analytical Unit 1 contains a greater percentage of cherts and quartzites, while Analytical Unit 2 has more silicified wood.

The majority of flakes within both analytical units measure # 5 mm thick—Analytical Unit 1 has 97.9% and Analytical Unit 2 has 93.5%. The mean thickness for flakes in Analytical Unit 1 is 1.6 mm and in Analytical Unit 2 it is 2.4 mm. The size of the flakes is indicative of late Archaic manufacturing trajectories, which is also supported by the radiocarbon assay. In addition, most of the flakes lack dorsal cortex (AU 1—94.3%, AU 2—91.8%). Both attributes suggest that tool manufacturing or refurbishment were also primary activities.

PROVENIENCE 2

Byrd A. C. Bargman

Provenience 2, located about 54 m northwest of Provenience 1, was discovered during the centerline trenching (Figure 11.1). Exposed in the trench wall were the north halves of a bell-shaped roasting pit and a large shallow basin (Figure 11.11). Radiocarbon assays from both features indicate a historical origin.

Investigation Strategy

The culturally sterile eolian deposits within a 9 by 3 m area were removed by a backhoe to a depth of approximately 10 cm above the features. A grid was then positioned over the scraped area and the remaining 6 to 10 cm of sand was removed by hand to expose the tops of the features. No artifacts were recovered from either the mechanical or the manual scraping.

Results

Feature 9 was a bell-shaped roasting pit measuring 1.25 m deep (Figure 11.12). The neck was 75 cm in width, while the slightly concave base measured 1.1 m. Approximately 60% of the cist had been removed during the trenching. The remaining orifice measured 12 by 52 cm. The walls were clay lined and exhibited heavy oxidation. Bright red sand was noted behind the lining, and trowel probes into the pit wall revealed that the matrix surrounding the pit had been oxidized from 4 to 8 cm beyond the wall. This is suggestive of extremely high temperatures or repeated use. The fill was loose, brown, eolian sand, which was slightly oxidized in some areas. This partially oxidized fill occurred throughout the roasting pit to a depth of 10 to 20 cm above the floor.

A prepared clay lip, located 20 cm above the floor, spanned the entire circumference of the pit at the widest portion of the bell. This lip, measuring 5 cm wide, served as a shelf-like protrusion into the feature and may have been used in

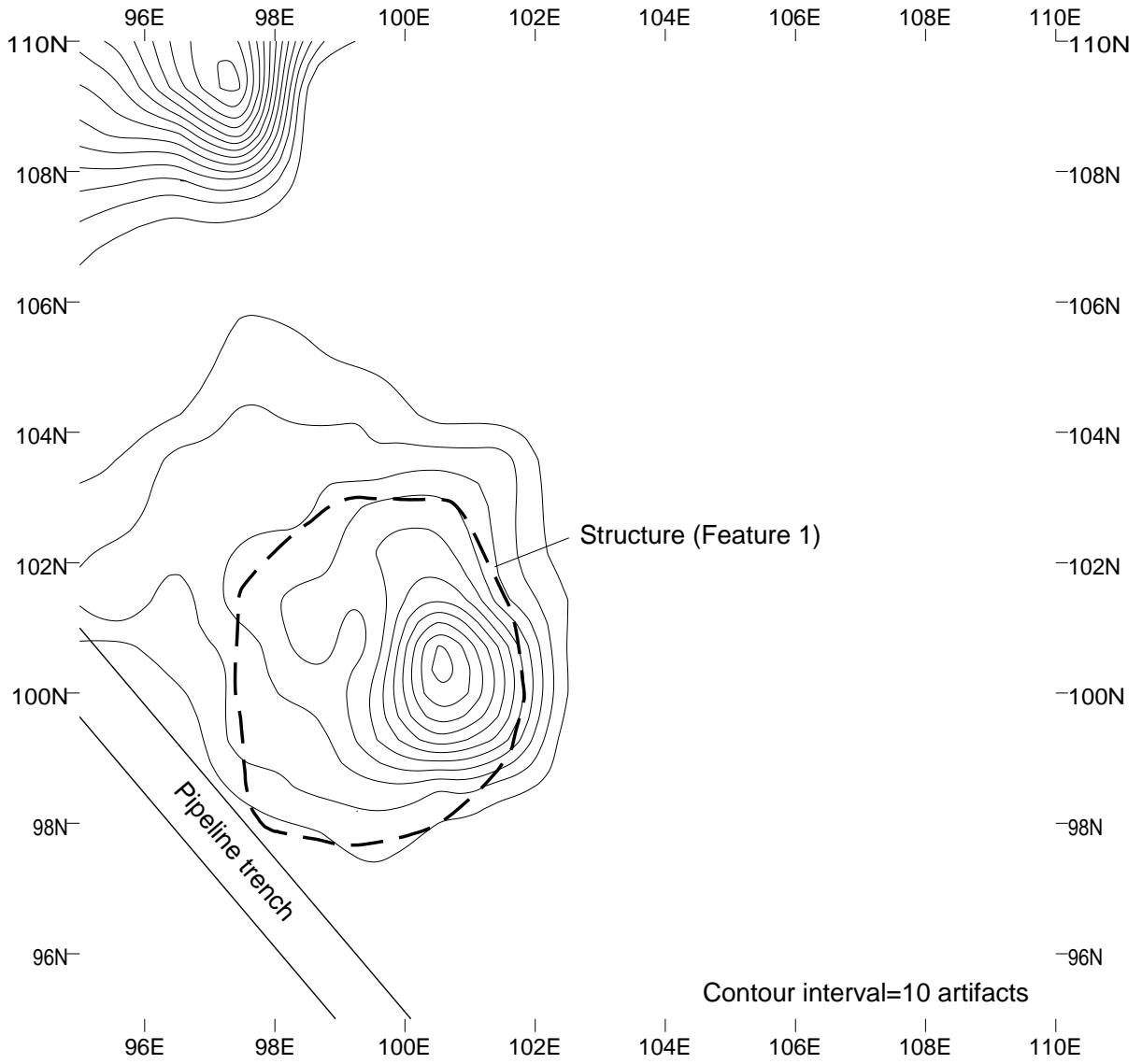


Figure 11.10 Distribution of lithic artifacts in Provenience 1.

Table 11.1 Lithic artifacts and material types by analytical unit.

Artifact Type	Analytical Unit					Total
	1		2		<i>n</i>	
	<i>n</i>	%	<i>n</i>	%		
Angular Debris	163	11.1	77	11.9	240	11.3
Flake	1272	86.5	556	86.2	1828	86.4
Flake, Bifacial Thinning	16	1.1	2	0.3	18	0.9
Flake, from hammerstone			1	0.2	1	0.0
Tested Rock	1	0.1			1	0.0
Core, Irregular	2	0.1			2	0.1
Chopper, Bifacial	1	0.1			1	0.0
Angular Debris, Utilized	2	0.1			2	0.1
Angular Debris, Retouched	1	0.1			1	0.0
Flake, Utilized	6	0.4	1	0.2	7	0.3
Flake, Retouched	2	0.1	3	0.5	5	0.2
Biface	3	0.2	3	0.5	6	0.3
Scraper			1	0.2	1	0.0
Knife	1	0.1			1	0.0
Metate, unknown			1	0.2	1	0.0
Total	1470	100.0	645	100.0	2115	100.0
Material Type						
Chalcedony, black inclusions	19	1.3	2	0.3	21	1.0
Chalcedony, red inclusions	7	0.5	2	0.3	9	0.4
Chalcedony, clear	387	26.3	148	22.9	535	25.3
Chalcedony, yellow	52	3.5	4	0.6	56	2.6
Chalcedony, opaque	336	22.9	147	22.8	483	22.8
Chalcedony, other	54	3.7	2	0.3	56	2.6
Silicified Wood	492	33.5	259	40.2	751	35.5
Silicified Wood, yellow	27	1.8	52	8.1	79	3.7
Quartzite, fine grained	19	1.3			19	0.9
Quartzite, medium/coarse	4	0.3			4	0.2
Chert, brown	25	1.7			25	1.2
Chert, gray	3	0.2			3	0.1
Chert, black	1	0.1			1	0.0
Chert, red			1	0.2	1	0.0
Chert, pink	10	0.7	7	1.1	17	0.8
Chert, white	7	0.5			7	0.3
Chert, other			1	0.2	1	0.0
Obsidian, Jemez	26	1.8	19	2.9	45	2.1
Basalt			1	0.2	1	0.0
Limestone	1	0.1			1	0.0
Total	1470	100.0	645	100.0	2115	100.0

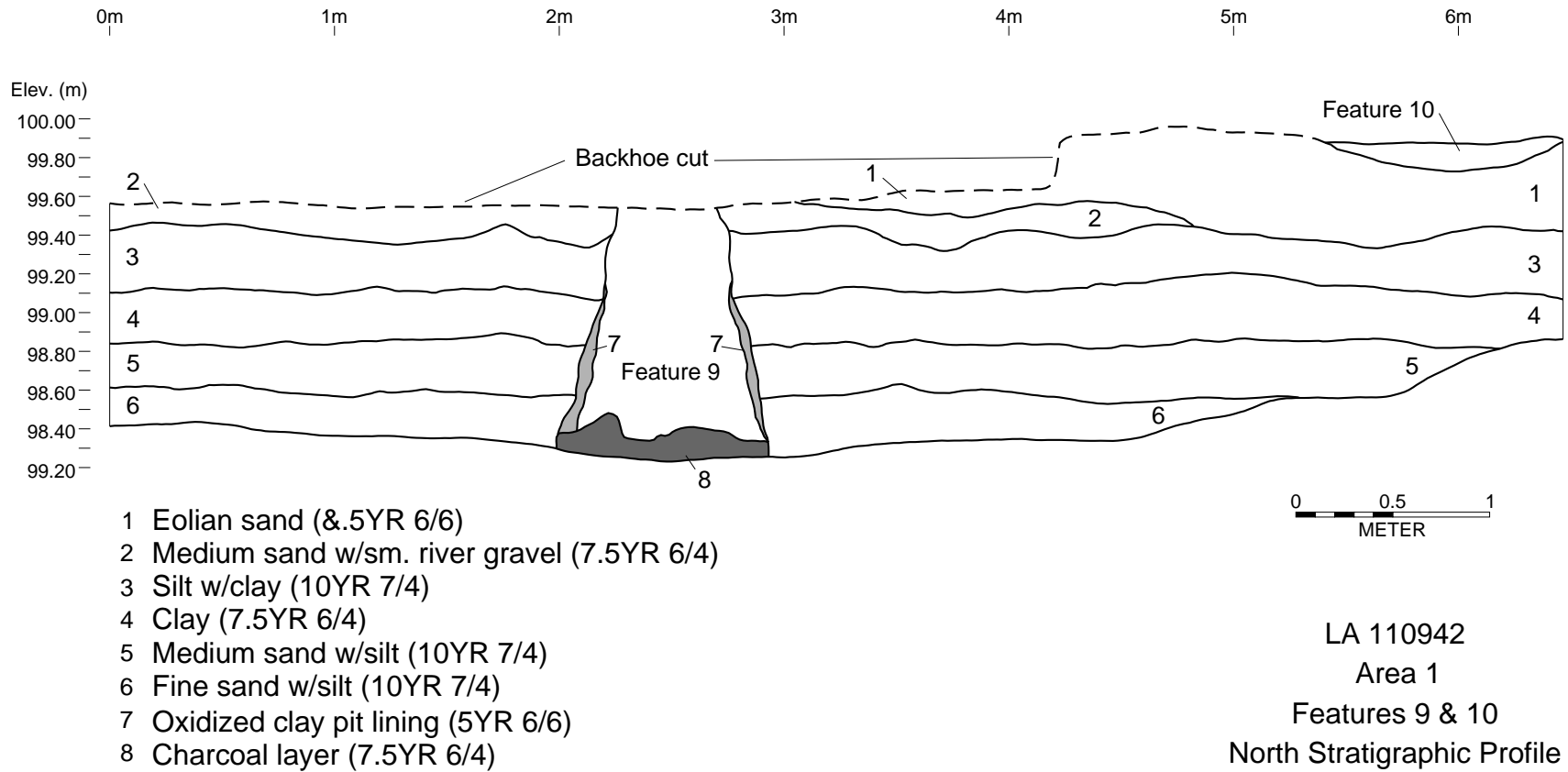


Figure 11.11 Stratigraphic profile of Features 9 and 10 in Provenience 2.

the roasting of green corn. This function is suggested by the dense charcoal lens in the bottom of the pit. A charred corncob (*Zea mays*) was recovered from the macrobotanical sample obtained from this lens. A radiocarbon sample taken from the charcoal yielded a ^{13}C adjusted date of 90 ± 50 BP (Beta-96739) or a 95% confidence interval of cal AD 1675 to 1775, AD 1800 to 1930.

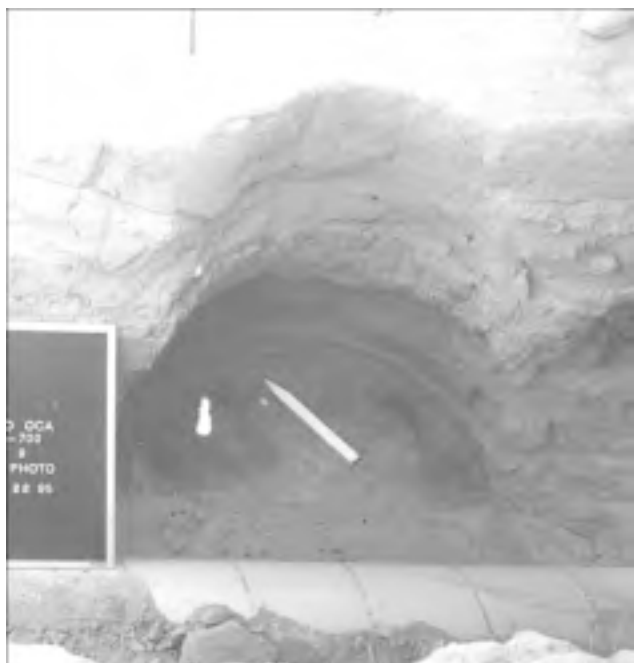
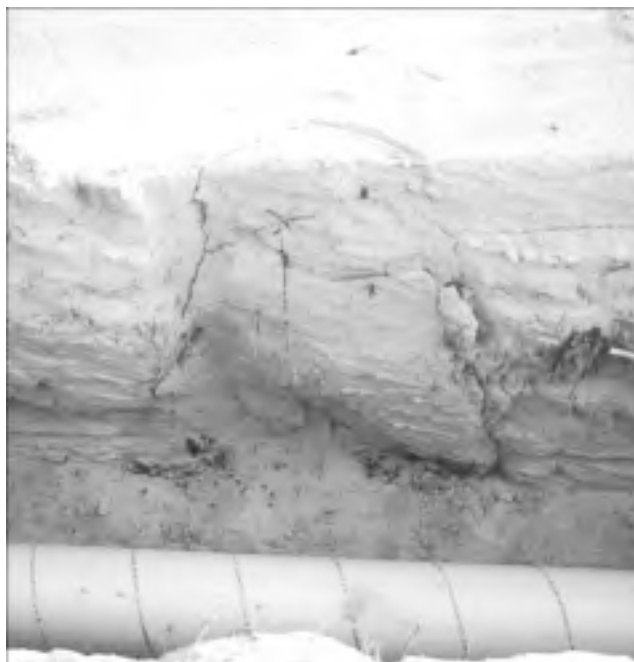


Figure 11.12 Photos of a cist (Feature 9) before and after excavation, LA 110942.

No artifacts were recovered from the fill, but a basalt metate fragment was found beneath the pit in the bottom of the trench. Although the exact provenience of this artifact is unknown, it is possible that it was removed from within the fill of the pit during trenching. Three indeterminate deer-size mammal bones were recovered from the fill; these bones were probably tossed into the pit after it was used for roasting corn. Additional carbonized botanical remains from the feature fill were juniper (*Juniperus*) and bugseed (*Corispermum*).

A shallow basin (Feature 10), measuring 64 by 74 cm and 10 cm deep, was located 3 m southeast of Feature 9. Approximately 50% of the pit, or its southwest portion, was removed during trenching (Figure 11.13). The fill contained gray-stained sediments with small bits of juniper charcoal. There was no evidence of interior oxidation. A radiocarbon date obtained from the charcoal yielded a ^{13}C adjusted date of 30 ± 60 BP (Beta-96744) or a 95% confidence interval of AD 1675 to 1740, cal AD 1810 to 1930. Four indeterminate rabbit-size mammal bones came from the fill. The proximity of Feature 10 to the roasting pit suggests that it may have been a part of the ventilator for the roasting pit. No shaft was found, but it may have been removed during trenching.

Artifact Assemblage

The artifact assemblage from this provenience consisted of the one metate fragment and 15 animal bone fragments. The metate fragment was manufactured from basalt and measured 36 by 23 by 15 cm. It was fire-blackened and only slightly ground on one side.

The faunal assemblage was primarily from indeterminate rabbit-size mammals ($n = 11$). The only identifiable fragment was a cottontail third metatarsal recovered from the trench spoil dirt. Seven pieces came from unprovenienced contexts and four were recovered from Feature 10. Three indeterminate specimens from a larger (deer-size) mammal were found in the roasting pit. The total assemblage probably represents economically important species, but the paucity of remains precludes interpretations regarding subsistence and butchering.

SUMMARY AND INTERPRETATION

LA 110942 is an extensive site encompassing two distinct proveniences. Because the site was completely buried, the exact extent and total number of features could not be determined. Radiocarbon assays obtained from features within both proveniences indicate occupations during the late Archaic for Provenience 1 and the early historical period for

Provenience 2.

In Provenience 1, the excavations exposed an isolated hearth, and a late Archaic structure with interior storage features and possible hearth, and a possible outside activity area. The isolated hearth was located in the eolian sands above the structure, which suggests this feature represents a different occupational episode. No radiocarbon date or macrobotanical remains were obtained, which precludes any assessment of chronology, seasonality, or subsistence.

The earlier occupation in Provenience 1 is marked by the structure and possible outside activity area. The structure was shallow with a probable brush superstructure and use-compacted floor. Although no doorway was evident, the dense concentration of lithics on the east/southeastern edge suggests this may have been a door dump marking the entryway. The size of the structure suggests that it accommodated a small family group. The presence of interior storage facilities and the macrobotanical remains suggest a fall/winter occupation. Both core reduction and tool manufacturing/refurbishment activities are indicated by the lithic assemblage.

The concentration of lithics to the northwest of the structure may mark an outside activity area, either associated with the occupation of the structure or a separate occupational episode. No features that might have provided datable remains were associated with this concentration. The lithic manufacturing trajectories suggest a late Archaic occupation, however. This concentration may also be associated with another structure that could lie outside the right-of-way.

Provenience 2, located about 54 m northwest of Provenience 1, consisted of a large roasting pit and an adjacent pit, which may have been part of the ventilation system for the roasting pit. Based on the radiocarbon dates from each feature, they appear to be contemporaneous. The volume of the cist and the intense interior burning suggest that it was used for green corn roasting.

Two similar features were found at LA 110953, a multi-component site located 4.8 km (3 miles) southwest of LA 110942 (see Chapter 19). Radiometric dates obtained from those two pits are contemporaneous with the dates obtained for the two features at LA 110942.

These three pits resemble the corn roasting pit described by Frank Cushing, an early ethnographer who lived at Zuni in the late 1800s. Cushing (1979:275–276) writes that after the harvest

another search is made through the field, this time for such corn as gives no promise of ripening. Blanketful after blanketful is picked, husks and

all, and carried to some distant hill where the soil is solid. Here, with sharp sticks, and hoes, a hole is dug resembling a well. At the top, it is cut larger around, to the depth of a foot or more and walled up neatly and solidly with sandstone. Below this wall, say a foot, the hole is gradually enlarged toward the bottom, until it embraces a room several feet in diameter and cone-shaped, the apex as it were, being the walled, circular opening. From the windward side of the hill, a trench is dug to a level with the bottom of the excavation. A hole or passage, about two feet in diameter is cut from the end of the trench to the interior [Figure 11.14]. Dry grass, old leaves, pitchy sticks, are thrown in from above, and arranged by a man who has entered through the trench. On top of these wood is piled until the hole is full. The mass is now fired.

Once the embers burned low, green corn stalks were thrown on top of the coals. The draught hole and opening to the pit were sealed, and the corn was steamed over night. In the morning, the hole was unplugged and the corn removed. This process artificially ripened the green corn and made for a complete harvest.

The three pits excavated at LA 110942 and LA 110953 are cone/bell-shaped, are built into solid ground, exhibit intense interior burning, have a thick layer of charcoal in their bottoms, and contain evidence of burned corn. Given their similarities to the pit described by Cushing these features are probably corn roasting pits located at the edge of or close by the fields.

A similar pit was excavated at Site NM:12:V2:98 located between Manuelito Canyon and Whitewater Arroyo in northwestern New Mexico (Anyon et al. 1983). This pit was cone-shaped and was completely lined with a 3–4 cm thick layer of puddled adobe, which was highly fired. It had a diameter of 1.25 m at its base, 68 cm diameter at the orifice, and a depth of 93 cm. An archeomagnetic sample obtained from the floor yielded a date of AD 960 ± 40 or 1425 ± 50. Because the site was an early Formative residence, the earlier date was reported for the pit.

When the archeomagnetic sample was submitted to the Archeometric Laboratory at Colorado State University, the lab did not have its own curve at that time. Since then the lab has developed its own curve and agreed to rerun the sample against their curve. The result of this new run showed that the sample yielded a new date that plotted over the AD 1600 loop. Therefore, it appears that this pit is more contemporaneous with the three pits found on the MAPCO sites. This suggests these pits may be associated with large scale historical agricultural practices.



Figure 11.13 Photos of a hearth (Feature 10) before and after excavation, LA 110942.

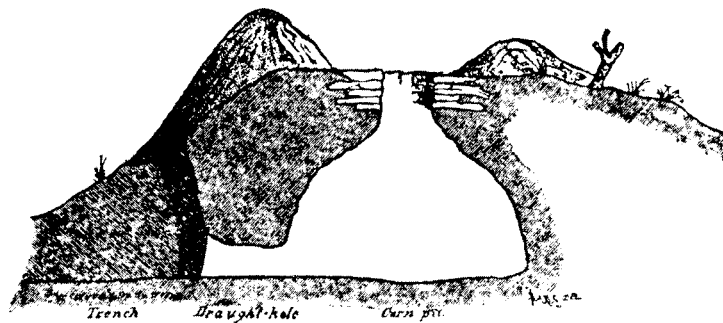


Figure 11.14 Zuni corn roasting pit (from Cushing 1979:275, Figure 60).

Chapter 12

LA 110943

Peggy A. Gerow

LA 110943—a hearth dating to the late Archaic period—was reported during the exploratory trenching done along the pipeline centerline prior to data recovery. The site is in a low dune field about 1.8 km (1.1 mile) southwest of the Jemez River (Figure 1.1). Vegetation is juniper with an understory of saltbush, greasewood, cholla, and ricegrass.

EXCAVATION STRATEGY AND RESULTS

Since the hearth was 1.25 m below the ground surface, mechanical equipment was used to remove the overburden. Twenty-four 1 m² units were hand-excavated in the area of the hearth (Figure 12.1).

Excavation revealed an irregularly shaped oval basin measuring 58 cm north-south by 62 cm east-west and 12 cm deep (Figures 12.2 and 12.3). The hearth fill was stained light to medium gray and contained charcoal pieces. No oxidation was discernible, but rodent burrowing was evident throughout the hearth fill. No artifacts were recovered and no macrobotanical samples were obtained. A charcoal sample of conifer and saltbush from the hearth (Feature 1) yielded a ¹³C adjusted age of 1820 ± 80 BP (Beta-92307), or a date of cal AD 225. Its 2-sigma date range is cal AD 45 to 410.

A light smear of ash, charcoal flecks, and stained sediments was noted along the northeast edge of the hearth. Since careful stripping of the smear revealed no additional features, it was probably the result of rodent burrowing and/or sheet wash. Further mechanical scraping in the vicinity of the hearth did not yield any additional evidence of cultural remains.

Excavation of the units around the hearth did not expose any additional features but did reveal stream gravels on both sides of the hearth. These gravels suggest the hearth was built on a small sandbar. Only one piece of chalcedony

angular debris was recovered from these units. Other artifacts may have been scoured away by flooding.

The stratigraphic profile of the trench indicates a series of eolian and fluvial deposits (Figure 12.4). At least four fluvial episodes are suggested by the layers of brown clay. These clay lenses vary from 2 to 6 cm thick and are separated by eolian sands. Coarser-grained stream sands are evident at the bottom of the trench.

SUMMARY AND INTERPRETATION

LA 110943 represents a short-term single-occupation episode dating to the late Archaic period. The small hearth appears to have been constructed on a sandbar situated in a stream or channel bed. The paucity of artifacts indicates a short-term, probably overnight, occupation. The absence of macrobotanical and archeofaunal remains precludes a determination of seasonality or subsistence activities.

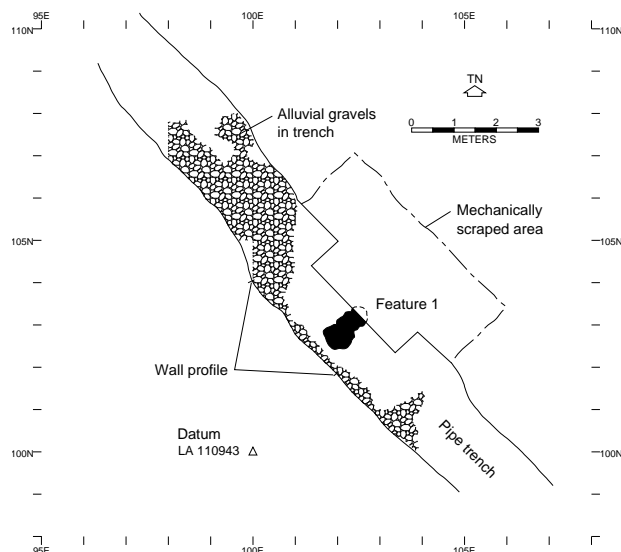


Figure 12.1 Site map of LA 110943 showing location of data recovery units.

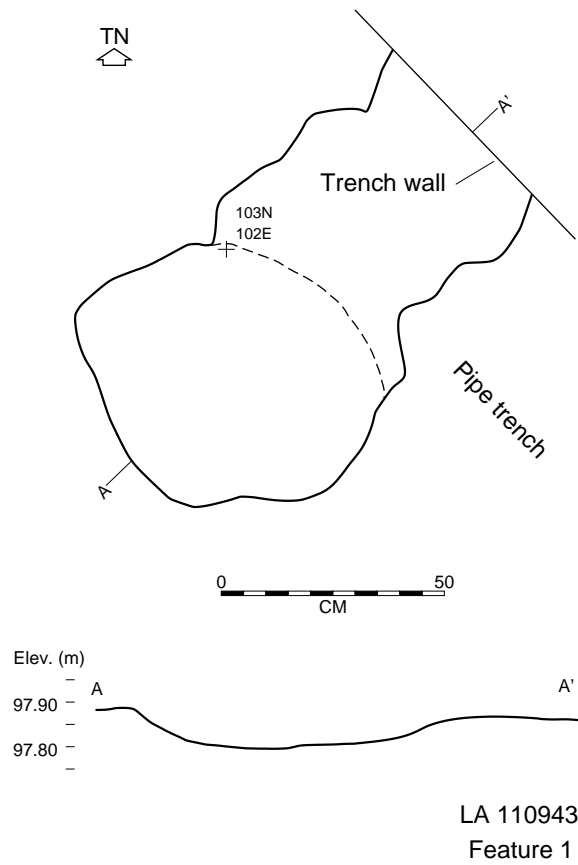


Figure 12.2 Plan and profile of Feature 1.

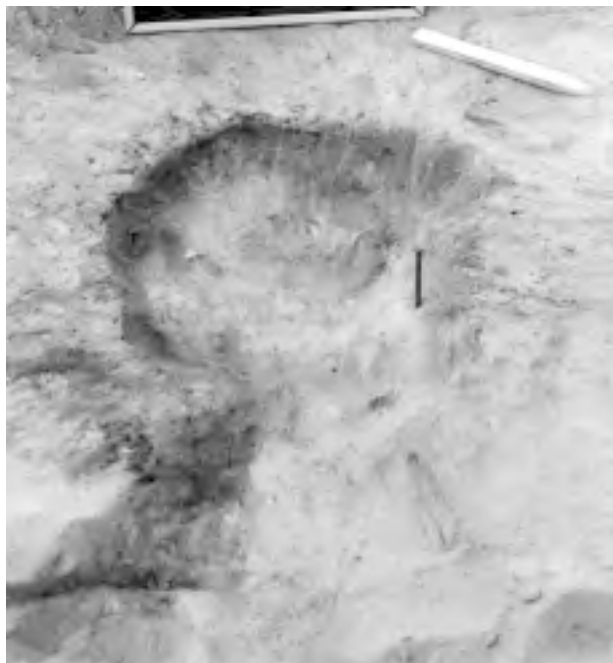
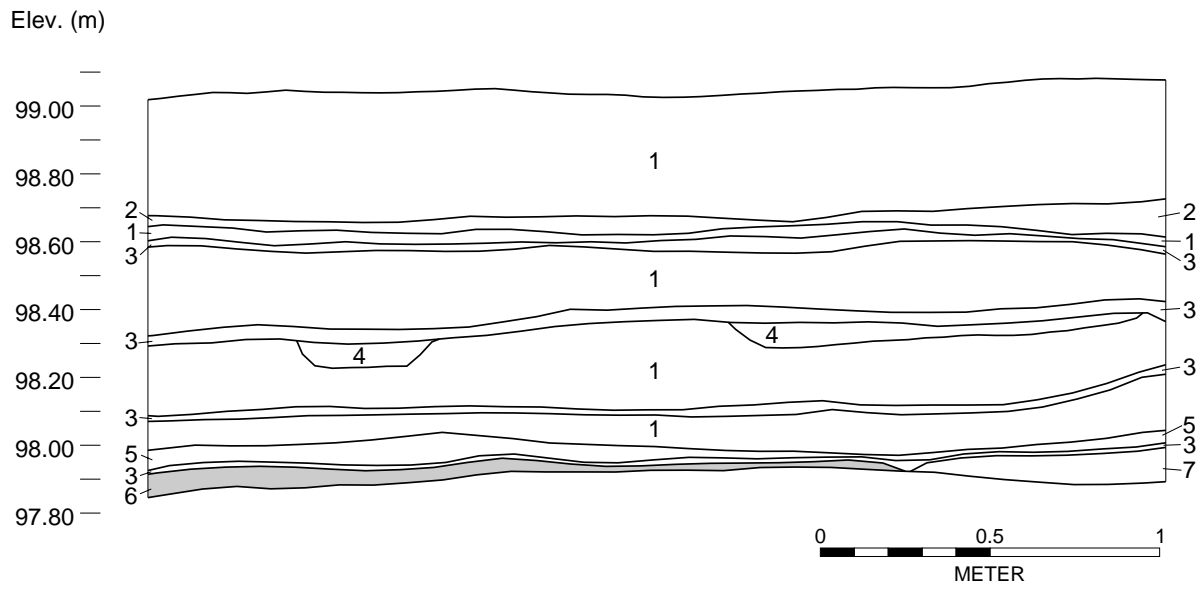


Figure 12.3 Photo of Feature 1 after excavation.



- 1 Light yellowish brown eolian sand (10YR 6/4)
- 2 Light yellowish brown to yellowish brown coarse sand (10YR 6/4-6/5)
- 3 Very pale brown clay (10YR 7/4)
- 4 White medium sand (2.5YR 8/2)
- 5 Light yellowish brown coarse sand (10YR 5/4)
- 6 Reddish brown, ash (5YR 4/3)
- 7 Yellowish brown medium to coarse sand (10YR 6/4)

LA 110943
 Southwest
 Trench Wall Profile

Figure 12.4 Stratigraphic profile of the backhoe trench.

Chapter 13

LA 110945

Charles M. Freuden

LA 110945 is an isolated pit feature that dates to the late prehistoric or early historical period. The pit was discovered during exploratory archeological trenching of the pipeline centerline prior to data recovery. The pit—in an unconsolidated sand deposit in a setting of alluvial washes and coppice dunes—is on an upper dissected terrace on the south side of the Jemez River (Figure 1.1). The scouring action of the moving sand has destroyed any trace of an occupation surface surrounding the pit. Nearby vegetation includes chamisa, snakeweed, sparse grasses and forbs, and a moderately dense stand of juniper.

INVESTIGATION STRATEGY AND RESULTS

Excavation began with the reopening of the backfilled pipeline trench. The trench was enlarged to prevent collapse and to reexpose the trench wall where the pit was first encountered. When the pit was again revealed, mechanical equipment was used to remove 90 cm of culturally sterile overburden, leaving a 10 cm thick deposit above the feature (Figure 13.1). A 1 by 2 m unit—with the long axis parallel to the pipeline centerline and grid north being pipeline north—was placed over the pit (Figure 13.2).

The remaining 10 cm of deposit above the pit was hand-excavated and the matrix sifted through 1/8-inch hardware cloth. No artifacts were recovered. At a depth of 1 m below ground surface the pit perimeter was delineated. The fill was carefully removed and collected for flotation. The pit was mapped, profiled, and photographed. A 5 cm thick level from beneath the pit and surrounding area was hand-excavated and screened. No artifacts were recovered from excavations outside of the pit.

The ash pit (Feature 1) measured 65 cm wide where it was truncated by the pipeline trench. Perpendicular to the pipeline trench it measured 75 cm long and 10 cm deep. Its fill

was mostly ash with some charcoal fragments and sand. A pocket of charcoal was noted along the south part of the pit floor. A single blocky piece of soot-stained sandstone—measuring 12 by 15 by 28 cm—was set on end in the pit floor and protruded into the overlying noncultural deposits. Several rocks observed in the trench spoil dirt had similar stains and appear to have been in the portion of the feature that was disturbed during trenching. The pit floor was sand with no indication of oxidation. A few insect casts and a burrow were found in the floor. Carbonized pine (cf. *Pinus*) and conifer (*Juniperus* sp.) from the fill yielded a date of 310 ± 50 BP (Beta-96731) or cal AD 1640. The 2-sigma date range is cal AD 1460 to 1670.

The artifact assemblage consists entirely of very small animal bone fragments ($n = 129$), all unidentified elements of an indeterminate size mammal. The entire assemblage was recovered from the heavy fraction of the flotation sample—20.8 liters—collected from the ash pit fill. All of the specimens, which together weigh 5.55 g, are calcined, which along with their fragmentary condition indicates they were exposed to extremely high temperatures. The fragmentary condition of the bone may also represent intensive bone processing for the removal of marrow and grease.

INTERPRETATION AND CONCLUSION

LA 110945 represents a single short-term event that likely dates between AD 1460 and 1670, or during the late prehistoric to early historical period. The absence of a living surface or artifacts precludes any specific interpretations. This area of the Jemez Valley is severely eroded. The absence of a discernible living surface with the pit, therefore, is not unexpected. The absence of oxidation indicates this pit's primary function was probably for storage and subsequently disposal of ash and charcoal probably from nearby hearths and activity areas.

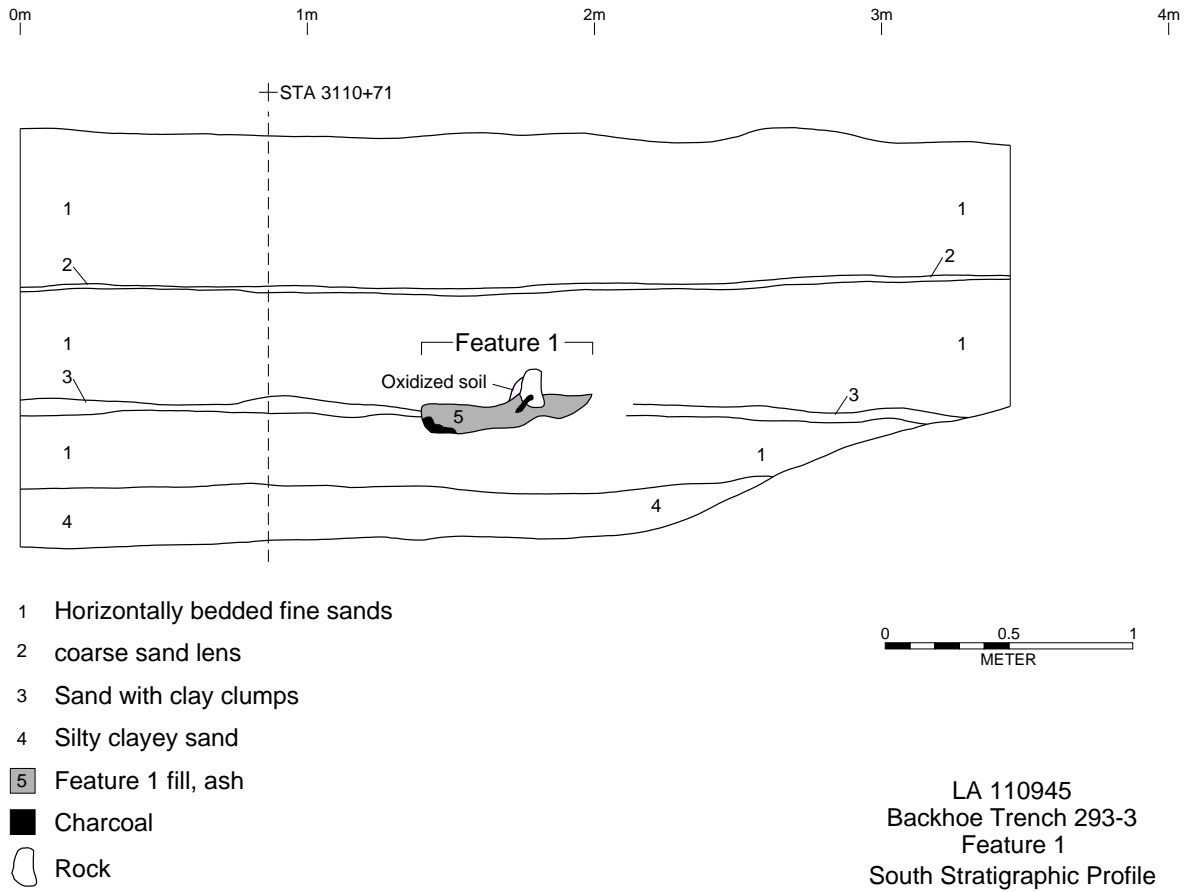


Figure 13.1 Northwest trench wall profile showing Feature 1.

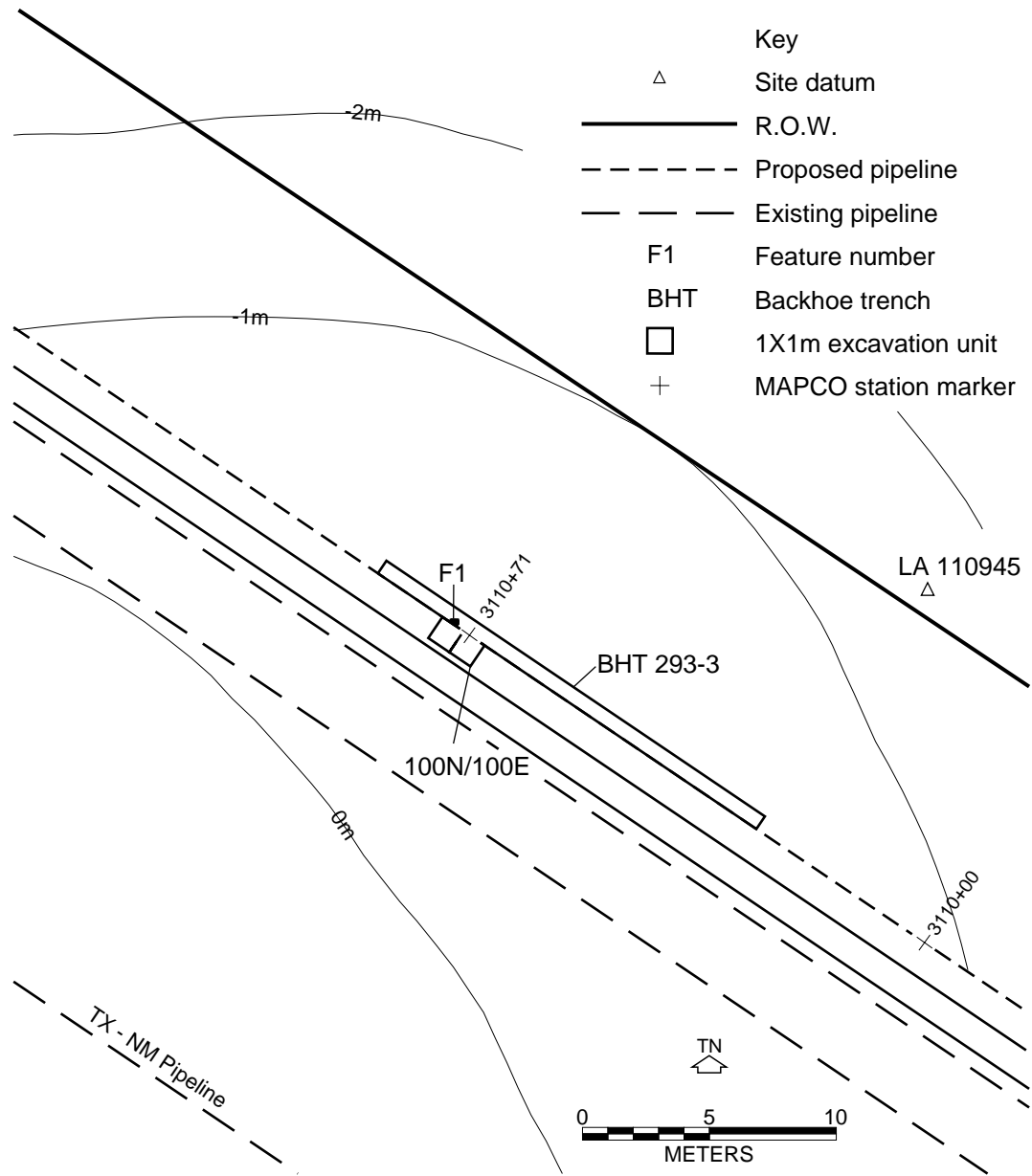


Figure 13.2 Site map of LA 110945 showing the location of Feature 1.

Chapter 14

LA 110948

Byrd A. C. Bargman

LA 110948 has a late Archaic residential occupation that was discovered during monitoring of the pipeline trenching. The late Archaic occupation, first revealed as a 4.5 by 0.5 m ash lens in the north and south walls of the pipeline trench, is represented by the remains of a structure that had an interior hearth and two storage pits. The site—0.5 km south of the Jemez River—is on a northeast facing slope and encompasses a 7 by 4 m area. The terrain is semi-stabilized coppice dunes on an old terrace (Figure 1.1). Nearby vegetation includes rabbitbrush, snakeweed, broom dalea, fourwing saltbush, and assorted grasses.

INVESTIGATION STRATEGY

Investigation focused on excavating the portion of the structure (Feature 1) exposed in the north wall of the pipeline trench. The structure's proximity to the existing MAPCO pipeline in the south trench wall prevented further investigation to the southwest (Figure 14.1).

Excavation began by removing the culturally sterile deposits from above the structure with the aid of mechanical equipment. Eolian sands 0.5 to 1 m thick were stripped from an area measuring 6 m northwest by 3.3 m southeast. These deposits were removed to within 5 cm of the top of the structure—yielding 14 lithic artifacts from an area measuring 9.3 m². This was followed by hand-excavating 4 cm of the remaining overburden to delineate the structure perimeter which yielded 71 lithic artifacts. The pipeline trench walls revealed the basin-shaped cross-section of the structure (Figure 14.2). After the perimeter of the structure was delineated, 14 contiguous 1 m² units were hand-excavated to remove the structure fill and investigate the associated features.

RESULTS

Structure

The excavated portion of the structure (Feature 1), which had an interior hearth and two storage pits, was a semicircular basin measuring 4.25 m in diameter and 11 cm deep (Figure 14.3). The complete dimensions are not known since excavation was restricted to its northern portion. The structure's edge was diffuse, being defined by the limits of the ash stain. Its compacted fill was mostly ashy sand with a moderate quantity of carbonates. The structure was excavated stratigraphically with only one major depositional episode observed. Carbonized goosefoot (*Chenopodium*) seeds were recovered from the archeobotanical sample collected from the structure fill. Three exterior postholes were found along the northwest edge. These severely eroded postholes measured 5 to 10 cm in diameter and 5 cm deep.

Hearth

The hearth (Feature 2) was first discerned as an ash concentration in the north part of the structure floor. After careful scraping the hearth perimeter emerged as a large black circular stain measuring 1.02 by 0.94 m and 10 cm deep. The fill was a very black ashy sand with severe rodent disturbance. Carbonized remnants of chenopods, juniper (*Juniperus*) seeds and cones, and grass (Gramineae), sunflower family achenes and uncharred goosefoot (*Chenopodium*), were recovered from the flotation sample collected from the hearth fill. The fill contained 120 lithic artifacts that display varying degrees of heat alteration. Many are resharpening flakes of various material types. The occurrence of resharpening flakes indicates tool manufacture and refurbishment.

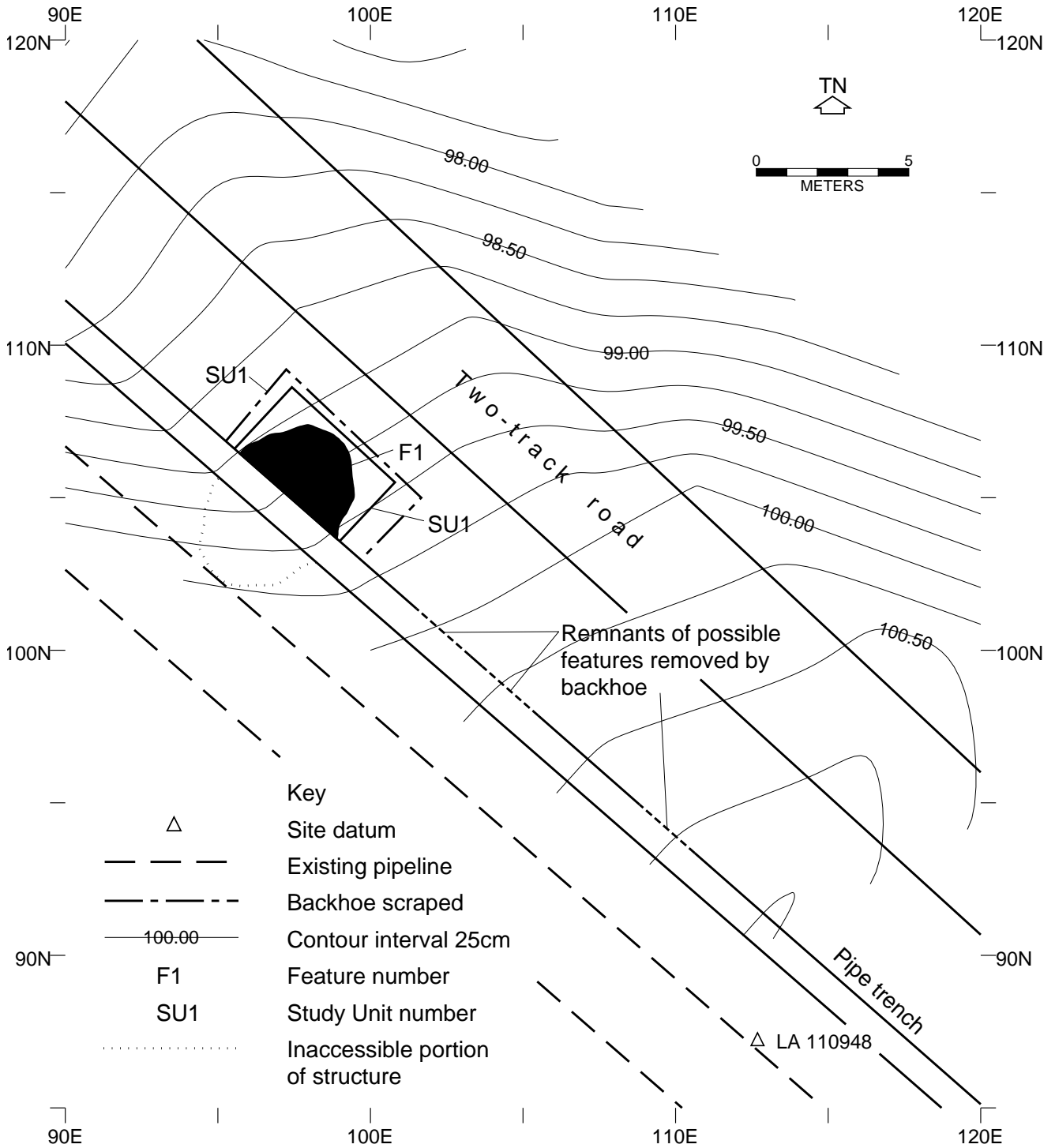
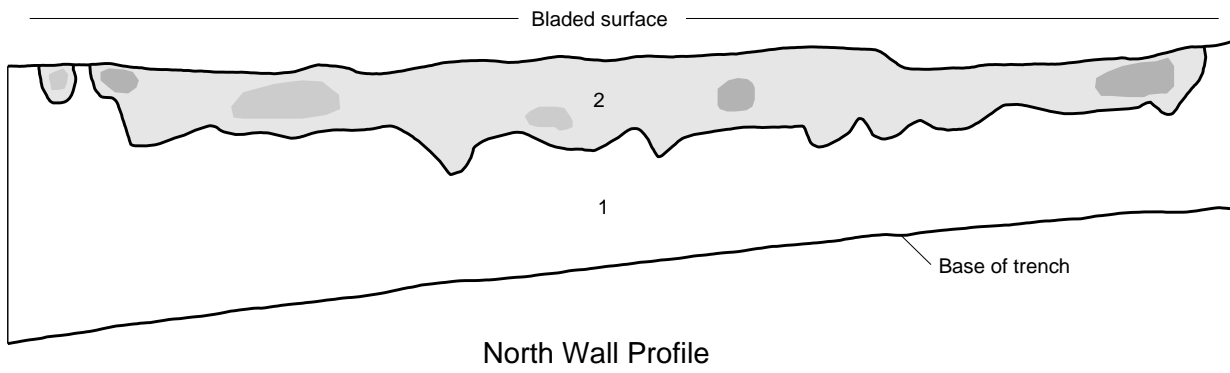
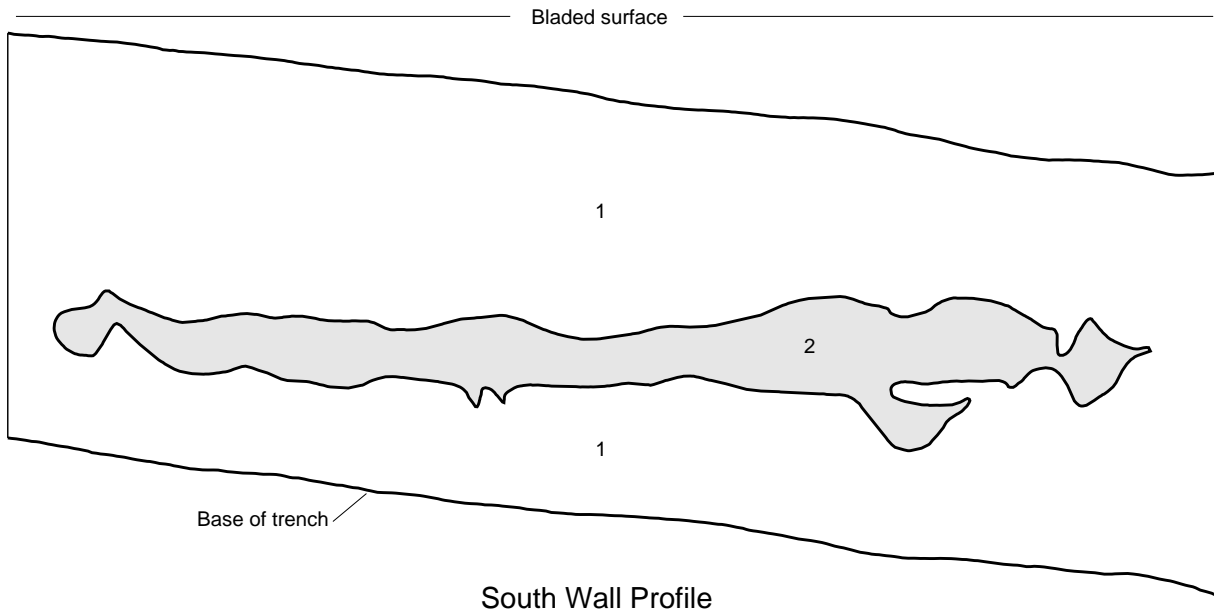


Figure 14.1 Site map of LA 110948 showing the locations of the features.



- 1 Light brown sand
- 2 Gray to black stained sand w/minor amounts of charcoal

LA 110948
Feature 1
Trench Wall Profiles

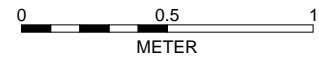


Figure 14.2 Profiles of the north and south trench walls showing Feature 1.

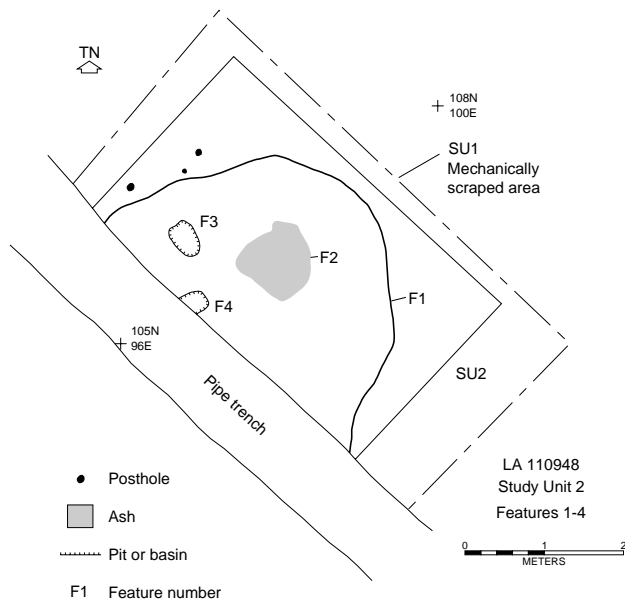


Figure 14.3 Plan view showing the location of the structure and associated features.

Storage Pits

Two storage pits (Features 3 and 4) were found in the west part of the structure floor, 50 cm from the hearth and each other. One pit (Feature 3) was an oval basin measuring 45 by 29 cm by 9 cm deep. Its sloped walls and stepped bottom had distinct boundaries, but no oxidation was noted. The fill was a homogenous gray ashy sand. Carbonized remnants of goosefoot (*Chenopodium*) and juniper (*Juniperus*) as well as tiny obsidian flakes were recovered from the flotation sample.

Approximately one-half of the other storage pit (Feature 4) had been removed by the pipeline trench. The remaining semicircular portion measured 29 cm in diameter and 11 cm deep. The fill was a very dark ashy sand. The flotation sample yielded carbonized remnants of juniper (*Juniperus*) and the heavy fraction contained tiny chalcedony flakes. The shape and depth of this storage facility suggests it may have functioned to cache implements or seeds.

Table 14.1 Lithic artifacts and material types, LA 110948.

Artifact Type	Other		Structure		Hearth		Storage Pits		Total
	n	n	%	n	n	%	n	n	%
Angular Debris		53	73.6	2	17	23.6		72	10.9
Flake	11	436	76.2	15	103	18.0	7	572	86.7
Flake, Bifacial Thinning		2	66.7	1				3	0.5
Core, Irregular	1							1	0.2
Flake, Utilized	1	1	50.0					2	0.3
Projectile Point		3	100.0					3	0.5
Biface	1	3	75.0					4	0.6
Mano, unknown		2	100.0					2	0.3
Mano, One-hand				1				1	0.2
Total	14	500	75.8	19	120	18.2	7	660	100.0
Material Type									
Chalcedony	8	350	75.4	7	96	20.7	3	464	70.3
Silicified Wood	1	52	85.2	3	5	8.2		61	9.2
Quartzite		12	80.0	1	2	13.3		15	2.2
Chert	3	40	70.2	4	9	15.8	1	57	8.6
Obsidian		2	100.0					2	0.3
Obsidian, black opaque					1	100.0		1	0.2
Obsidian, Jemez	2	30	68.2	3	7	15.9	2	44	6.7
Basalt		6	85.7	1				7	1.1
Sandstone		8	88.9				1	9	1.4
Total	14	500	75.8	19	120	18.2	7	660	100.0

Ash Stains

Examination of the pipeline trench revealed three ash lenses in its north wall 6 to 16 m east of the structure. These ash lenses averaged 2.5 m long and 2 cm thick, but no artifacts were associated with them. They were determined to be redeposited fill, possibly from fires on the ridge above the site.

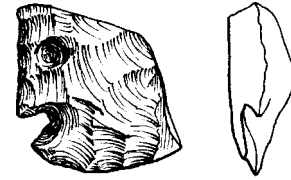


Figure 14.4 Fragmentary En Medio point from LA 110948.

ARTIFACTS

The artifact assemblage is composed of 660 lithics, 14 faunal specimens, and archeobotanical remains. They are sorted into five groups for analytical purposes: structure (Feature 1) fill; hearth (Feature 2); storage pits (Features 3 and 4); structure (Feature 1) floor; and extramural contexts.

Lithics

The lithic assemblage consists mostly of flakes and angular debris (Table 14.1) with only a few formal tools. Most of the debitage is chalcedony flakes with a mean thickness of 1.9 mm and ≥ 6 mm in length (96.3%). Only 7.4% of the flake assemblage has dorsal cortex. Most of the flake platforms are very small, indicating they are a product of resharpening. Formal tools include four bifaces and three projectile point fragments. One fragment appears to be from an En Medio projectile point (Figure 14.4). Ground stone implements are represented by three manos. Most of the lithics are from the structure and its interior hearth. The two storage pits contained only seven flakes. Lithic materials are mostly chalcedony, silicified wood, Jemez obsidian, and chert (Table 14.1).

Faunal Remains

The 14 bone specimens, all from the structure, are 2 unidentified long bone fragments and 12 unidentified fragments

of a mouse-size mammal. This size and condition indicate they represent intrusive remains not associated with the cultural activities at the site.

Archeobotanical Remains

Flotation samples from LA 110948 totaled 46.15 liters of matrix. Four flotation samples, one each from Features 1, 2, 3, and 4, were scanned for macrobotanical remains. Taxa include goosefoot (*Chenopodium* sp.), sunflower family, juniper (*Juniperus* sp.), and grass (Gramineae) (Table 14.2). The uncharred specimens are probably not associated with the archeological assemblage.

SUMMARY AND INTERPRETATIONS

LA 110948 may be a late Archaic residence based on recovery of a base of a probable En Medio-style projectile point. The occurrence of a large structure and the volume of hearth remains imply a winter occupation. Botanical remains from the interior hearth and storage pits indicate indoor food processing consistent with a winter occupation. The lithic assemblage indicates tasks related to tool manufacture and refurbishing, which are tasks associated with residential activities on late Archaic sites.

Table 14.2 Botanical remains from LA 110948.

Taxon	Structure	Hearth	Storage Pits	
			Feature 3	Feature 4
<i>Chenopodium</i> sp. (Goosefoot)	c	u/c	c	
<i>Juniperus</i> sp. (Juniper)		c	c	c
Gramineae (Grass Family)		c		
Heliantheae (Sunflower Family)		c		

Key: c = carbonized, u = uncharred

LA 110949*Peggy A. Gerow*

LA 110949 is an isolated hearth and small artifact scatter of probable Formative period affiliation that was discovered during the monitoring of pipeline construction. The site is on a broad terrace overlooking the Jemez River located about 1.2 km (0.75 mile) northeast (Figure 1.1). Vegetation is juniper scrubland with an understory of various brushes, cholla, and snakeweed.

INVESTIGATION STRATEGY AND RESULTS

During the trenching and blading of the pipeline corridor two potential cultural features were exposed—one in the pipeline trench wall and another Feature 2, in the bladed corridor. Further examination of the stain in the trench revealed it to be redeposited ash that did not warrant additional work.

The second stain, in the bladed pipeline corridor, proved to be cultural and associated with artifacts. A 3 by 3 m unit placed over the stain was fully excavated by hand (Figure 15.1). Units surrounding the feature were hand-stripped to expose any associated features and recover the artifacts. Hand-excavation revealed a shallow, oval basin measuring 92 by 47 cm and 13 cm deep (Figure 15.2). The fill was a dark-stained matrix with some charcoal and fire-cracked rock fragments. No oxidation was discernible nor were any artifacts recovered from its fill. Its entire fill was collected for flotation.

No radiometric date was obtained from the charcoal, and the flotation sample—28 liters—did not contain any carbonized botanical remains. Stripping of the units surrounding the feature resulted in the recovery of lithic specimens and 11 sherds. The lithic assemblage consists of 11 flakes, 7 pieces of angular debris, and 4 small red ocher fragments. Chipped stone materials are 16 pieces of chalcodony and 2 pieces of fine-grained quartzite. One of

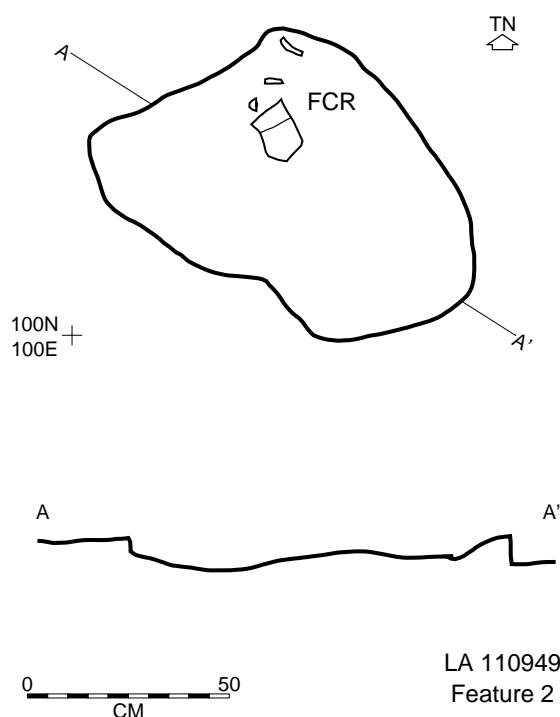


Figure 15.1 LA 110949 plan and profile of Feature 2.

the 11 sherds was a plain gray jar sherd. The remaining 10 sherds were unidentifiable.

SUMMARY AND INTERPRETATIONS

LA 110949 is a short-term, single-use campsite. The absence of diagnostic artifacts and a radiometric sample precludes a temporal designation, but the identified jar sherd indicates a Formative period affiliation. The lack of macrobotanical and faunal remains precludes any subsistence and seasonality determination.

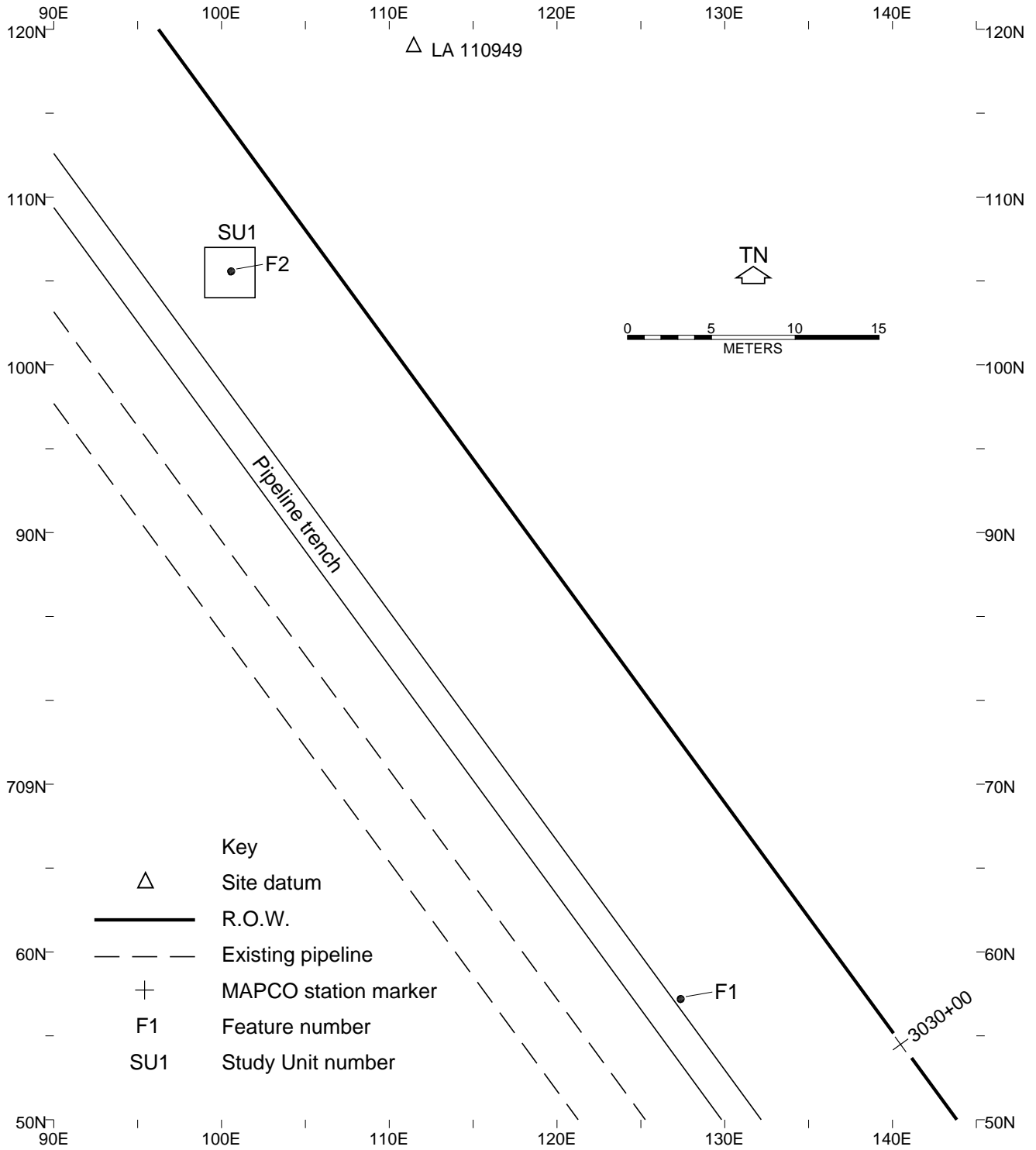


Figure 15.2 Site map of LA 110949 showing location of excavated area and Feature 2.

Chapter 16

LA 110950

Peggy A. Gerow

LA 110950 is a small ash feature, of modern origin, discovered during monitoring of the pipeline construction. The site is on a relatively flat and wide ridge overlooking the Jemez River located about 1.6 km (1 mile) to the northeast (Figure 1.1). Vegetation is scattered juniper, some low piñon, and grasses.

INVESTIGATION STRATEGY AND RESULTS

On the bladed ground surface the ash stain, which appeared to be intact, measured 58 by 54 cm. No artifacts were observed. A 3 by 3 m unit was placed on the stain to excavate it and to probe for subsurface artifacts and accompanying features (Figure 16.1).

Hand-excavation of the stain revealed it to be a shallow, ephemeral oval basin measuring 38 by 28 cm and 3 cm deep. The fill was a lightly stained sediment intermixed with small charcoal pieces and some white ash. No oxidation was noted. The charcoal fragments—some not completely

carbonized—were identified as juniper (*Juniperus* sp.). The incomplete carbonization of some of the wood fragments indicates the stain was probably of recent origin. This conclusion is supported by the absence of cultural materials in the fill and from the surrounding excavation units and by the flotation results which yielded both carbonized and uncarbonized seed remains. A recent origin was also verified by the radiocarbon assay, which yielded a modern age (Beta-92318).

SUMMARY AND INTERPRETATIONS

LA 110950, a small ash feature, is probably associated with construction of the previous pipelines. The modern date obtained from charcoal recovered from the feature fill, in addition to the absence of cultural remains, indicates the stain was modern and did not have cultural significance.

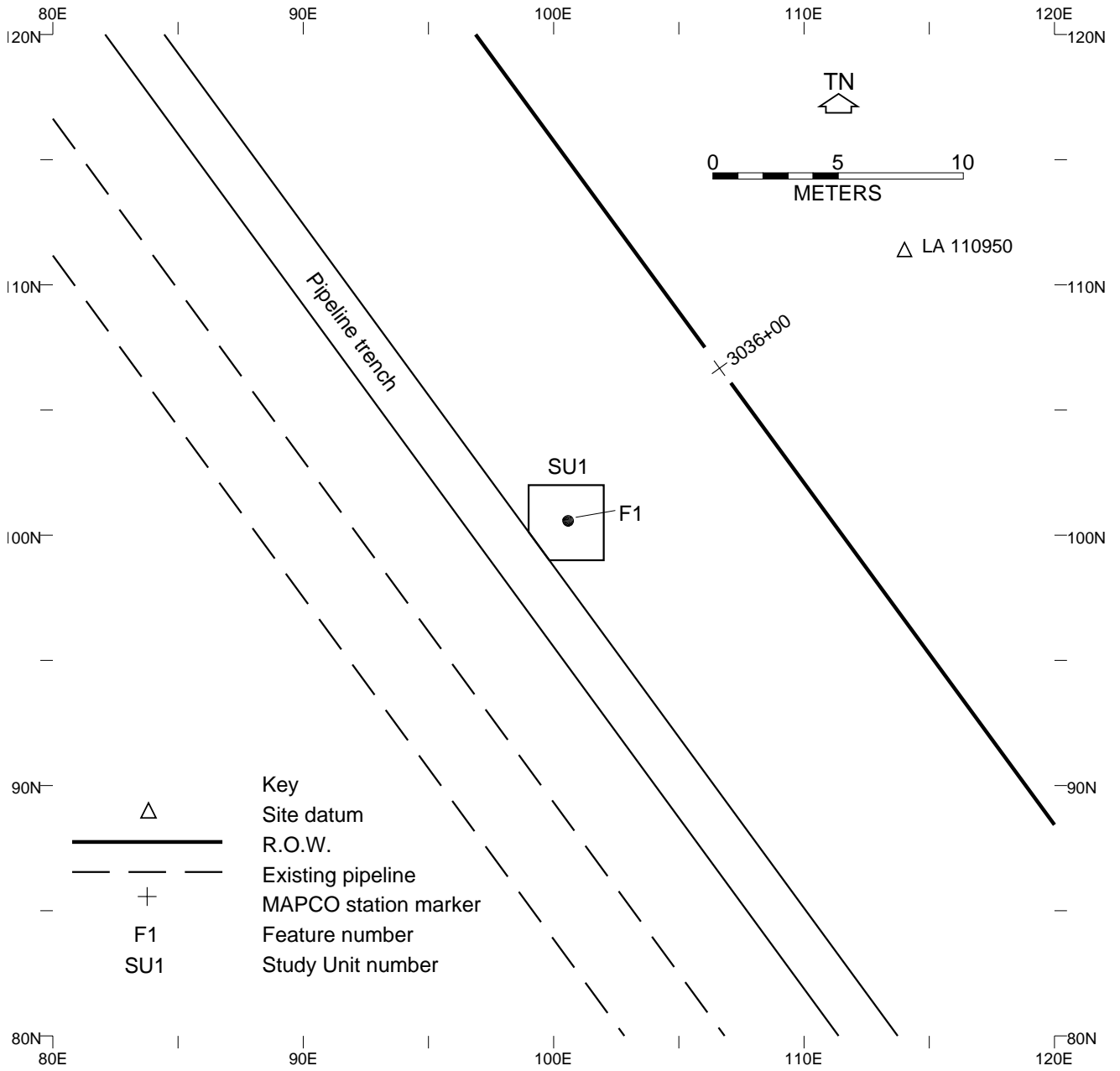


Figure 16.1 Site map of LA 110950 showing location of excavated area and Feature 1.

Chapter 17

LA 110951

Peggy A. Gerow

LA 110951 is an isolated late Archaic or early Formative ash stain discovered during monitoring of the blading of the pipeline corridor. This site, on a relatively broad and flat ridge, is approximately 1.6 km (1 mile) northwest of LA 109129 (Figure 1.1). Vegetation is scattered juniper, some low piñon, and grasses.

INVESTIGATION STRATEGY AND RESULTS

The stain, visible on the bladed ground surface, measured 80 by 50 cm. There were no discernible artifacts. A 3 by 3 m unit was placed over the stain to probe for subsurface features and artifacts (Figure 17.1).

Hand-excavation revealed the feature to be an oval basin measuring 86 by 80 cm and having a depth of 6 cm (Figure 17.2). The fill was a light- to medium-stained matrix with small charcoal flecks. No oxidation was noted. The entire feature fill was collected for flotation. A charcoal sample—

saltbush and conifer—recovered from the fill yielded a ^{13}C adjusted age of 1600 ± 70 BP (Beta 92316) and a date of cal AD 440 with a 95% confidence interval of AD 330–620.

No artifacts were recovered. The single flotation sample—12.5 liters—was scanned for macrobotanical remains. The only identified plant materials were uncharred juniper (*Juniperus* sp.) fragments that are probably not associated with the cultural remains.

SUMMARY AND INTERPRETATIONS

The radiometric date indicates an event dating to the late Archaic or early Formative period. The small size of the thermal feature, and the absence of artifacts and carbonized botanical remains, indicates a single-use episode not associated with food processing or tool maintenance activities. The absence of macrobotanical and faunal remains precludes any determination of subsistence or seasonality.

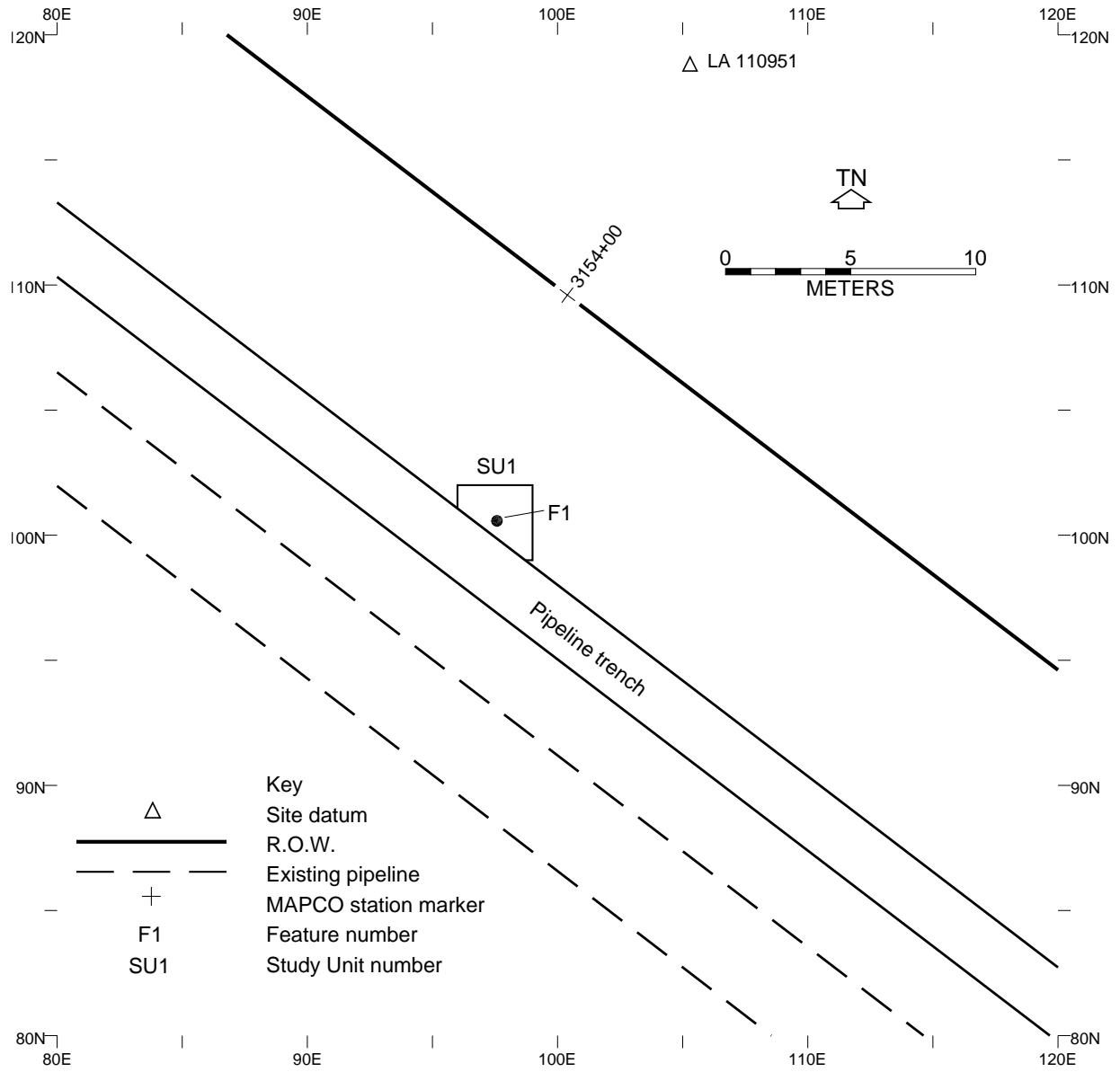


Figure 17.1 Site map of LA 110951 showing location of excavated area and Feature 1.

Chapter 18

LA 110952

Harding Polk II

LA 110952 is a large, low artifact density, multicomponent site with three structures and four hearths dating to the late Archaic period; a Developmental period structure, activity area, and 11 hearths; a Coalition/Classic period hearth; and an ephemeral historical component. The site, 0.7 km (0.4 mile) south of the Jemez River, is on lands administered by the Pueblo of Zia (Figure 1.1). Elements of the site are distributed along 240 m of the pipeline corridor. Investigation yielded a small prehistoric artifact assemblage composed of 24 flaked lithics, 3 pieces of ground stone, 103 ceramic sherds, and 25 animal bone fragments. The historical artifacts are five metal fragments, a piece of plastic, and a spent .22 caliber bullet.

The site occurs on a gentle, sandy, northeast-facing slope that is an upper terrace of the Jemez River. Nearby vegetation includes saltbush, snakeweed, globemallow, dahlia, nightshade, prickly pear, cholla, and various grasses. The surrounding juniper woodland has similar ground cover. LA 110952 is near the boundary of two physiographic zones that would have provided a variety of economic resources. The upper Jemez River terrace is suitable for agriculture and the adjacent dissected hills would have provided game and wild plants. The suitability of the terrace for agriculture is demonstrated by present-day Pueblo of Zia maize fields.

LA 110952 was recorded during monitoring of the pipeline construction (Figure 18.1). Six ash/charcoal stains (Features 1 to 6) were noted along 240 m of the corridor at varying depths in the pipeline trench walls. The six stains—occurring 35 to 160 cm below the modern ground surface—measured as much as 3 m long and 15 cm thick. Further investigations revealed 17 additional stains representing the remains of 14 hearths; four structures, some of which contained hearths; a posthole within a structure; a living surface/activity area; and three rodent burrows filled with ash and charcoal, for a total of 23 features (Figure 18.2).

INVESTIGATION STRATEGY

Data recovery began by locating previously identified features, identifying new features, and profiling the trench walls in those locations. Mechanical equipment was used to remove thick sandy overburden in seven locations totaling approximately 170 m² on the northeast side of the pipeline trench. As much as 150 cm of culturally sterile overburden was removed, depending on the depth of the feature in the trench wall. The seven scraped areas encompassed the full extent of the features exposed in the trench wall and a judgmentally determined area surrounding the feature to ensure no other cultural materials remained undiscovered. Hand-excavation of 69 1 m² units at the seven locations revealed 23 features. To facilitate data recording and analysis, clusters of features were assigned to a study unit. Five study units (SUs), containing 16 features, were defined (Table 18.1). Isolated features were not assigned to a study unit.

Four of the 23 features were found in the southwest wall of the pipeline trench, while portions of three other features were visible in both walls of the trench. Because of safety concerns and the proximity of existing pipelines, only two features in the southwest trench wall were hand-excavated. Flotation and charcoal samples were collected from the fill of unexcavated features. Similar samples were also collected from the fill in the southwest trench wall of those features that occurred in both trench walls.

The stratigraphy in the pipeline trench walls was complex. With the pipeline trench averaging 1.65 m deep, at least 10 strata were discernible at any one location. Profiles were drawn of the trench walls showing the location of features within the stratigraphic column. For features visible in both trench walls, both walls were profiled. Across the length of the site—along the pipeline trench—a range of 3.75 m was noted from the highest surface elevation to the lowest trench bottom elevation. Strata consisted of various colors and grades of sand interspersed with layers of dense caliche.

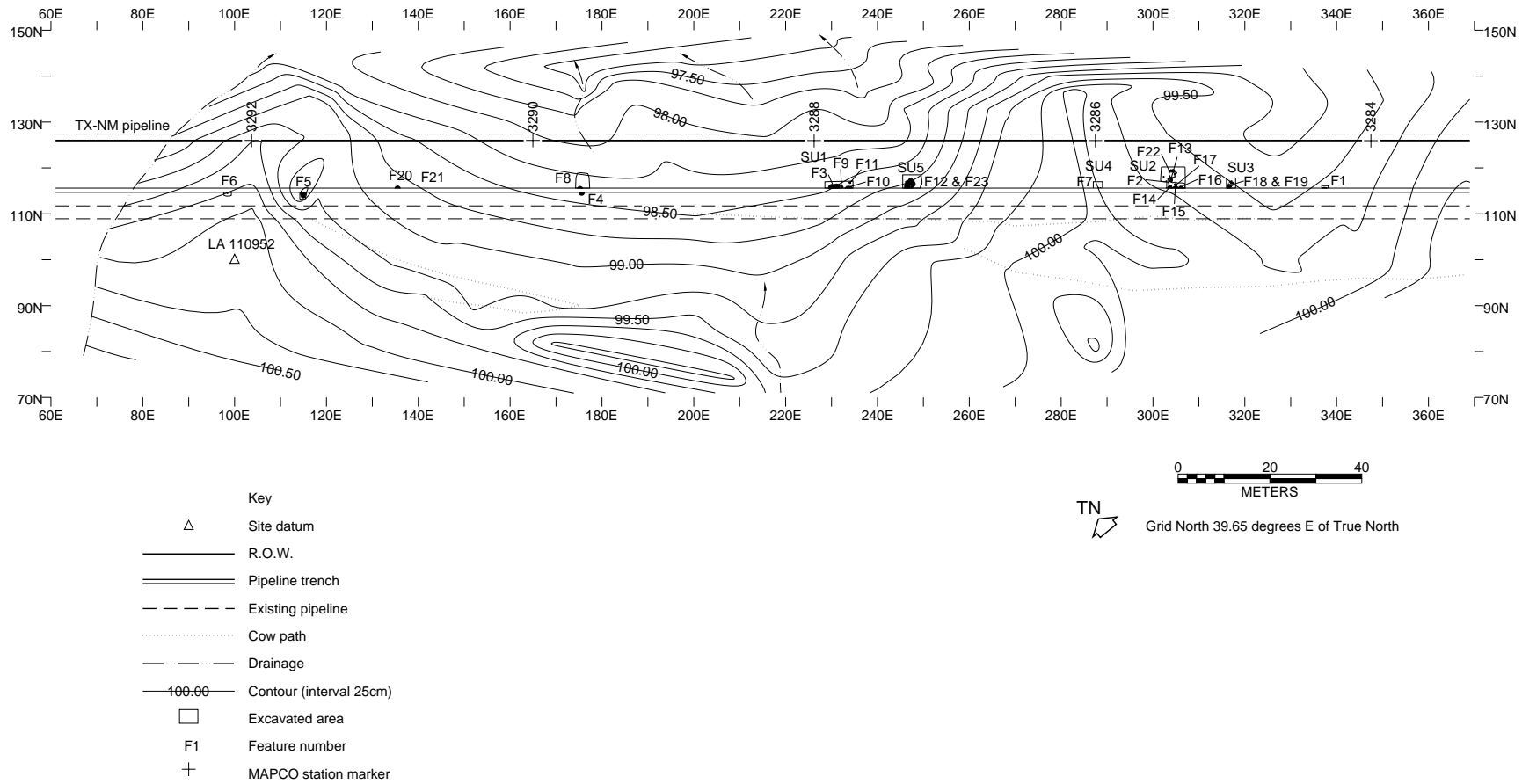


Figure 18.1 Site map of LA 110952 showing locations of excavated areas and features.

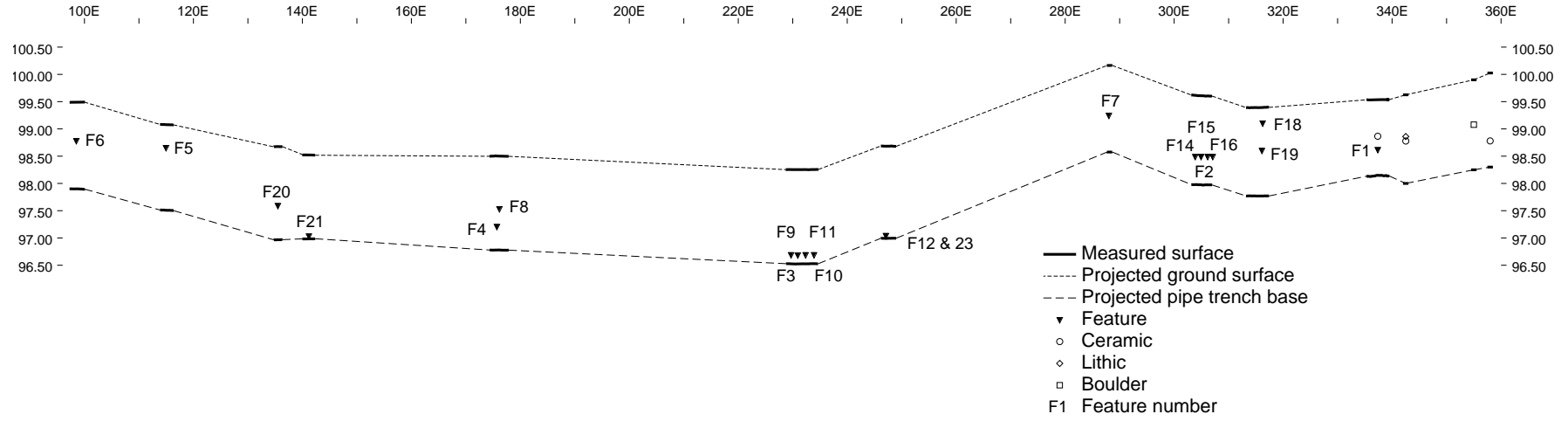


Figure 18.2 LA 110952 schematic trench profile showing the locations of the features.

Table 18.1 Study units at LA 110952.

Study Unit	Area Cleared by Equipment		Depth of Overburden (m)	Features within Study Unit
	Length (m)	Width (m)		
1	8	4.5	1.5	3, 9, 10, 11
2	4	4.5	1	2, 13, 14, 15, 16, 17, 22
3	7	3	0.25	18
	9.5	4.5	0.8	19
4	8	4.5	1.5	7
5	5	3.5	1.5	12, 23

The stratigraphic layering appeared to be a result of combined alluvial and eolian depositional events. Several distinct light- and dark-stained strata were discernible along portions of the trench wall. These strata were used to determine the relative sequencing of the cultural deposits. Cultural features usually appeared as ash/charcoal lenses within a stratigraphic layer. Using the pipeline trench as a site-long stratigraphic profile, at least seven and possibly as many as ten occupation episodes were identified.

RESULTS

Discussion of the cultural remains follows in chronological order from oldest to the most recent as determined from their stratigraphic placement, diagnostic artifacts, and radiocarbon dates. Table 18.2 summarizes the features and their cultural affinity.

The Late Archaic Period Occupation

Three structures (Features 3, 10, and 12), four hearths (Features 4, 8, 9, and 11), and a posthole (Feature 23) are assigned to the late Archaic period. The three structures and two of the hearths are clustered in the central part of the site, and are encompassed by Study Units 1 and 5. The other two hearths (Features 4 and 8) and two ash lenses that probably date to this period but appear to be noncultural (Features 20 and 21) are isolated features located 54 to 90 m northwest of Study Unit 1 (Figure 18.1).

Study Unit 1

Study Unit 1 contains two structures (Features 3 and 10) and two extramural hearths (Features 9 and 11). The structures, located 1 m apart, were exposed in both trench walls (Figures 18.3–18.5). Stratigraphically, the features in Study Unit 1 appear to predate those in Study Unit 5.

Structures. Feature 3 was a shallow, roughly circular depression filled with a dense ash/sand matrix with numerous

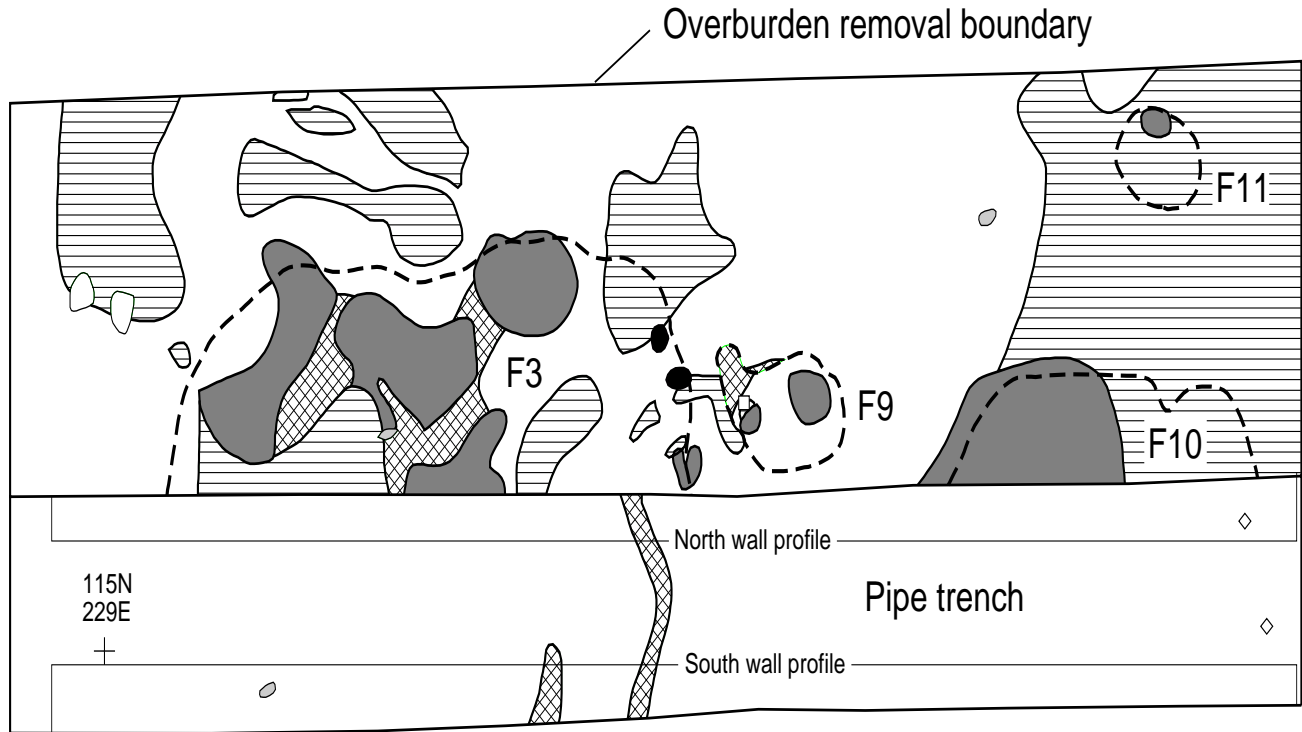
charcoal fragments. It was overlain by 1.6 m of colluvial sediments. In the trench wall the ash stain measured 2.1 m long and had a maximum thickness of 11 cm. The stain extended northeastward 80 to 90 cm from the trench and had an estimated diameter of 2.5 m. Its amorphous perimeter and the fact that the portion in the opposite trench wall remains unexcavated limited a precise determination of the amount of impact from the pipeline trench, but approximately 40% of the structure was apparently destroyed by pipeline construction. The structure fill—a light brown coarse sand with ash and charcoal—was extensively disturbed by rodent burrowing, blurring its perimeter. The structure floor undulated slightly and had a maximum depth of 19 cm. A shallow circular depression, which had a slightly higher density of ash and charcoal than the surrounding matrix, was noted in the center of the structure floor. This may have been the remnants of an interior hearth. Two small ash stains at its perimeter appeared to be postholes. Extensive bioturbation had obliterated any evidence of additional postholes. Two cobbles were outside the north perimeter of the structure. The center grid unit in the structure floor was dug an extra level, through the hearth floor, to look for cultural remains below the hearth.










Feature 3 contained 14 artifacts, mostly from the area near the central hearth. Artifacts include nine flakes or angular debris fragments, four pieces of ground stone, and three bone fragments. The flakes are chalcedony, silicified wood, quartzite, chert, and Jemez obsidian. Most of the flakes are very small, and approximately half may be the result of tool maintenance. One of the larger flakes exhibits evidence of utilization. Two pieces of sandstone ground stone are conjoinable. The bone fragments were too small to enable identification. No artifacts were recovered from the matrix surrounding the structure. Carbonized saltbush/greasewood (*Atriplex/Sarcobatus*), an unidentified diffuse porous wood, and juniper (*Juniperus*), which dominated the sample, yielded a radiometric age of 2730 ± 80 BP (Beta-92295) and a date of 845 cal BC. Its 2-sigma date range is 1030 to 790 cal BC.

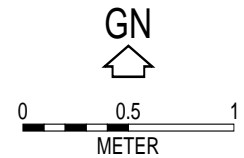
Table 18.2 Feature type and temporal affiliation, LA 110952.

Temporal Affiliation	Study Unit	Feature Number	Feature Type	Radiometric Age BP
late Archaic	1	3	structure	2730 ± 80 (Beta-92295)
		10	small structure	
		9	hearth	
		11	hearth	
	5	12	structure	2510 ± 130 (Beta-92300)
		23	posthole in structure	
		4	hearth	
		21	rodent burrow	
		8	hearth	
		20	rodent burrow	
Developmental	2	22	small structure	1110 ± 80 (Beta-92298)
		2	living surface/activity area	
		13	3 hearth cluster	
		14	hearth	
		15	hearth	
		16	hearth	
		17	hearth	
	5	5	hearth	250 ± 70* (Beta-92294)
		6	hearth	
		1	hearth	
3	19	hearth		
Coalition/Classic	3	18	hearth	
	4	7	rodent burrow	

*Spurious date resulting from contaminated sample.

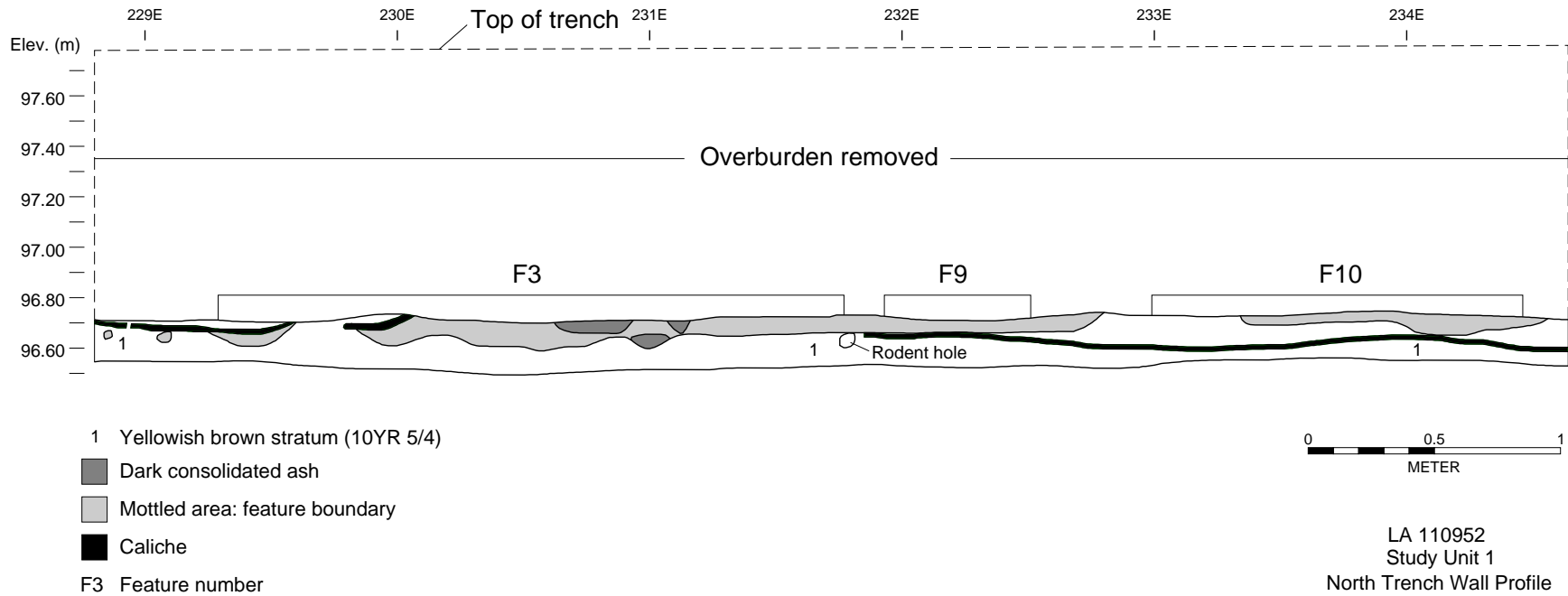


- | | |
|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
|  Dark ash area |  Ground stone |
|  Feature boundary |  Flake |
|  Caliche |  Rock |
|  Rodent disturbance |  Fire-cracked rock |
|  Posthole | F3 Feature number |



LA 110952
 Study Unit 1
 Features 3, & 9-11

Figure 18.3 Study Unit 1 Features 3 and, 9–11.



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Figure 18.4 Study Unit 1 north trench wall profile.

LA 110952

HARDING POLK II

The second structure (Feature 10) was a thin, amorphous ash/charcoal stain measuring 1.45 m long and 7 cm thick along the northeast trench wall and extending northward 40 cm from the trench. Like Feature 3, its fill was a loosely compacted, mottled, dark ashy sand with small charcoal fragments. This structure was sandwiched between two thin layers of caliche. Its northwest end exhibited a more dense ashy deposit, but no oxidation was noted. Three small lithic flakes—two of which were tiny Jemez obsidian retouching flakes—were recovered. Because of the ephemeral nature of this feature, it is only tentatively identified as a structure. Its size, shallowness, and the density of ash and charcoal indicate the feature is a small structure. Because these two structures (Features 3 and 10) occur in the same stratigraphic level, they are believed to be contemporaneous.

Extramural Hearths. A small basin-shaped hearth (Feature 9)—measuring 40 cm east-west by 60 cm north-south

and 6 cm deep—was adjacent to the southeast perimeter of Feature 3. A second small, basin-shaped hearth (Feature 11)—measuring 40 cm in diameter and 8 cm deep—was located about 60 cm northeast of the second structure (Feature 10). Their fill was a loosely compacted, mottled, dark ashy sand with small charcoal fragments. Feature 11 was dug into a thin caliche layer. Rodent disturbance was noted in and around Feature 9, but only in the northeast part of Feature 11. No oxidation was noted at the bottom of either hearth. No artifacts were recovered from Feature 9, but a single small Jemez obsidian retouching flake and an indeterminate size mammalian bone fragment were recovered from Feature 11. A small quantity of fire-cracked rock was also noted in the north part of Feature 9. The proximity of these hearths to the two structures indicates an association between them—Feature 9 with Feature 3 and Feature 11 with Feature 10.

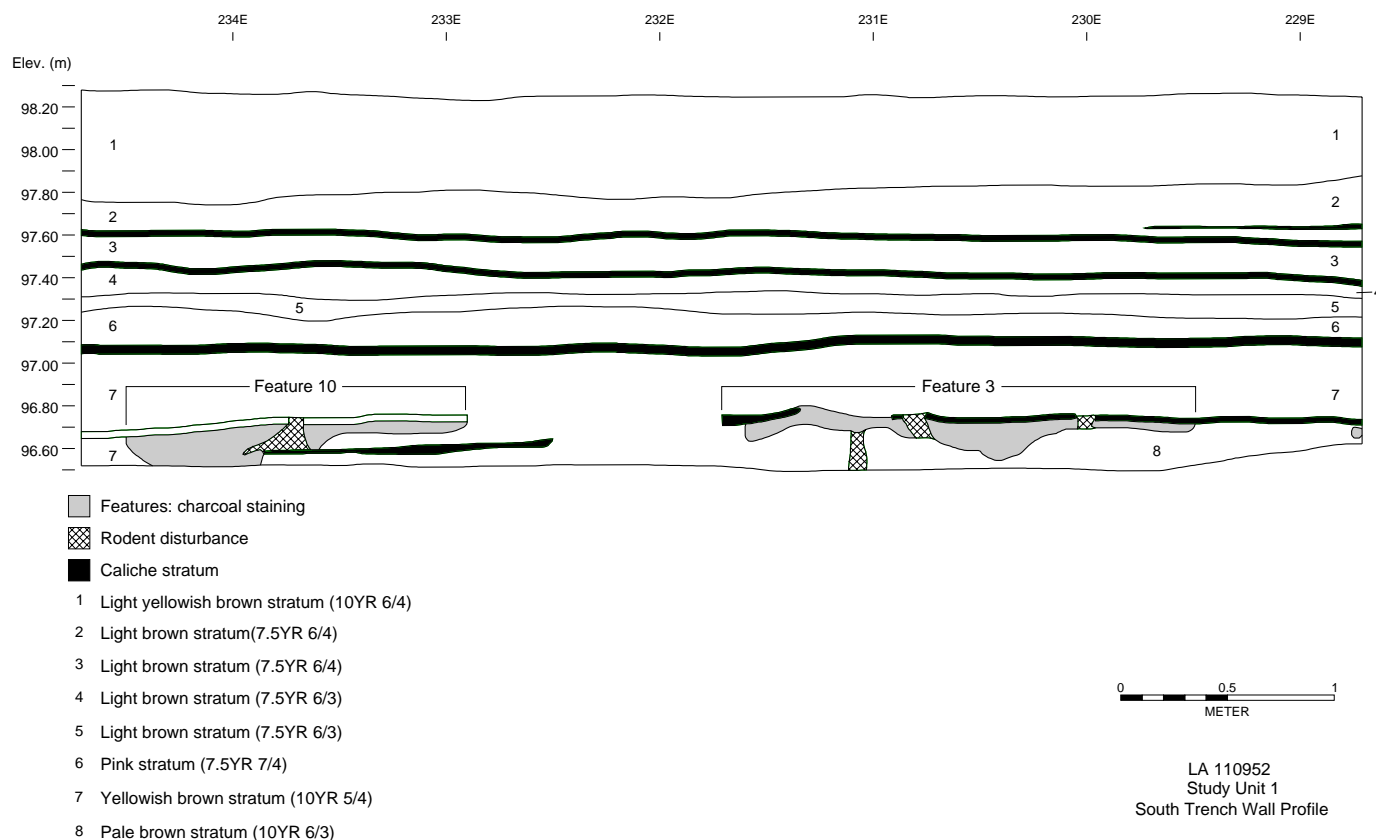


Figure 18.5 Study Unit 1 south trench wall profile.

Study Unit 5

Study Unit 5 contains a structure (Feature 12) with an interior posthole (Feature 23) (Figure 18.6). Approximately 1.5 m of overburden was removed from this 5 by 3.5 m study unit (Figure 18.7).

Feature 12 was a very shallow, roughly circular, semi-subterranean structure dating to the late Archaic period (Figure 18.8). It was buried beneath 1.6 m of overburden. In the pipeline trench wall its ash stain measured 1.5 m long and averaged 16 cm thick. Its boundary was poorly defined, but when the stain was fully exposed the feature measured approximately 2 m north-south by 2.4 m east-west. Its amorphous perimeter hindered an assessment of damage done by the pipeline trench, but less than 20% was believed to have been destroyed. The structure fill was a light brown coarse sand with small quantities of ash and charcoal and extensive rodent burrowing. The structure floor undulated slightly, with the lowest point being 19 cm deeper than the highest point of the floor. A shallow depression containing a higher density of ash and charcoal than the surrounding matrix was noted in the center of the structure floor. This location appears to be the remains of a hearth.

A probable posthole (Feature 23)—measuring 11 cm in diameter and 9 cm deep—was encountered along the southwest perimeter of Feature 12. The fill was a dark ashy sand that did not contain any artifacts. No oxidation or rodent disturbance was noted.

A small number of artifacts was recovered from this structure—6 pieces of debitage and 21 small bone fragments. The debitage consists of a piece of angular debris fragment and five chalcedony, quartzite, and very small Jemez obsidian flakes. The bone did not exhibit evidence of butchering or other modification. All but one of the bone fragments are of small mammals. Most of the artifacts were recovered from the southwest half of the structure.

Charcoal collected from Feature 12—consisting of rabbitbrush (*Chrysothamnus*), cottonwood/willow (*Populus/Salix*), a diffuse porous wood, and saltbush/greasewood (*Atriplex/Sarcobatus*) as the dominant portion—yielded a date of 2510 ± 130 BP (Beta-92300) or 765, 615, 600 cal BC with a 2-sigma date range from 905 to 365 cal BC. The saltbush/greasewood provides a good level of confidence in the radiocarbon date since it is a relatively short-lived perennial.

Isolated Hearths

A dark ash stain in the southwest wall of the pipeline trench was identified as an isolated hearth (Feature 4), dating to

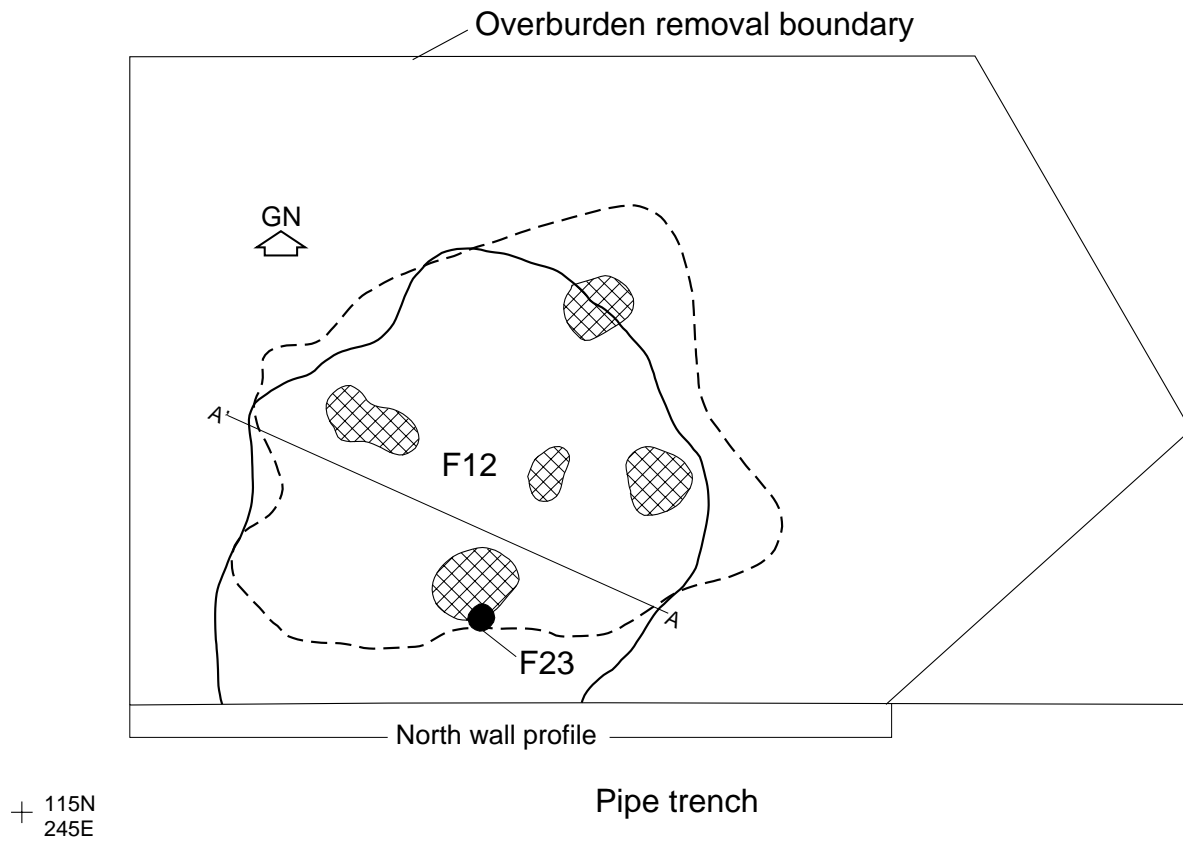
the late Archaic period. Occurring 1 m below the ground surface, it measured 82 cm long and had a maximum thickness of 9 cm (Figure 18.9). Its fill was a dark grayish brown, loose, medium-grain sand with ash and charcoal. This hearth was not excavated because of its proximity to an existing pipeline. No estimate of its extant portion could be made. Approximately one liter of fill was collected for flotation, but no artifacts were recovered. On the basis of size and composition, Feature 4 is identified as a hearth. In terms of its stratigraphic placement, Feature 4 was 35 cm higher than Feature 3, the nearest dated feature, but located 54 m southeast. Feature 4 was separated from Feature 3 by several distinct stratigraphic layers. Extrapolating from the Feature 3 radiocarbon date of 2730 ± 80 BP, we believe that Feature 4 also dates to the late Archaic period.





A second small isolated hearth (Feature 8)—an ash stain measuring 18 cm long and 8 cm thick—was encountered 1 m below the ground surface in the northeast wall of the pipeline trench (Figure 18.10). Excavation revealed it extended 13 cm beyond the trench wall and was circular with a shallow basin-shaped bottom. An estimated 50% of the hearth was destroyed by the pipeline trench. The hearth fill was a coarse-grained loose sand with ash and charcoal flecks. Mechanical equipment was used to remove overburden from an approximately 9 m² area surrounding the hearth.

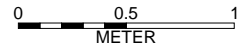
Ash Stains/Rodent Burrows

Feature 20 was a 4 cm thick ash lens that extended for 120 cm in the northeast wall of the pipeline trench (Figure 18.11). It was approximately 1 m below the ground surface. Mechanical equipment was used to remove overburden from a broad area surrounding the stain. Removal of overburden revealed extensive rodent burrowing in the level of the ash lens and a deep, 2 m wide erosional cut was noted in the stratigraphic profile immediately to the west. The erosional cut had filled sometime in antiquity. Excavation determined the ash lens (Feature 20) was redeposited charcoal and ash.

The second ash stain (Feature 21)—measuring 68 cm long and having a maximum thickness of 7 cm—was encountered in the southwest wall of the pipeline trench (Figure 18.12). This stain was not excavated because of its depth (approximately 1.6 m below the ground surface) and proximity to an existing pipeline. Close inspection determined that it represented charcoal and ash deposits displaced by rodent burrowing. This stain and Figure 4, at a distance of 33 m southeast, were 30 cm and 40 cm, respectively, below the same stratigraphic boundary. These two features are nearly contemporaneous.

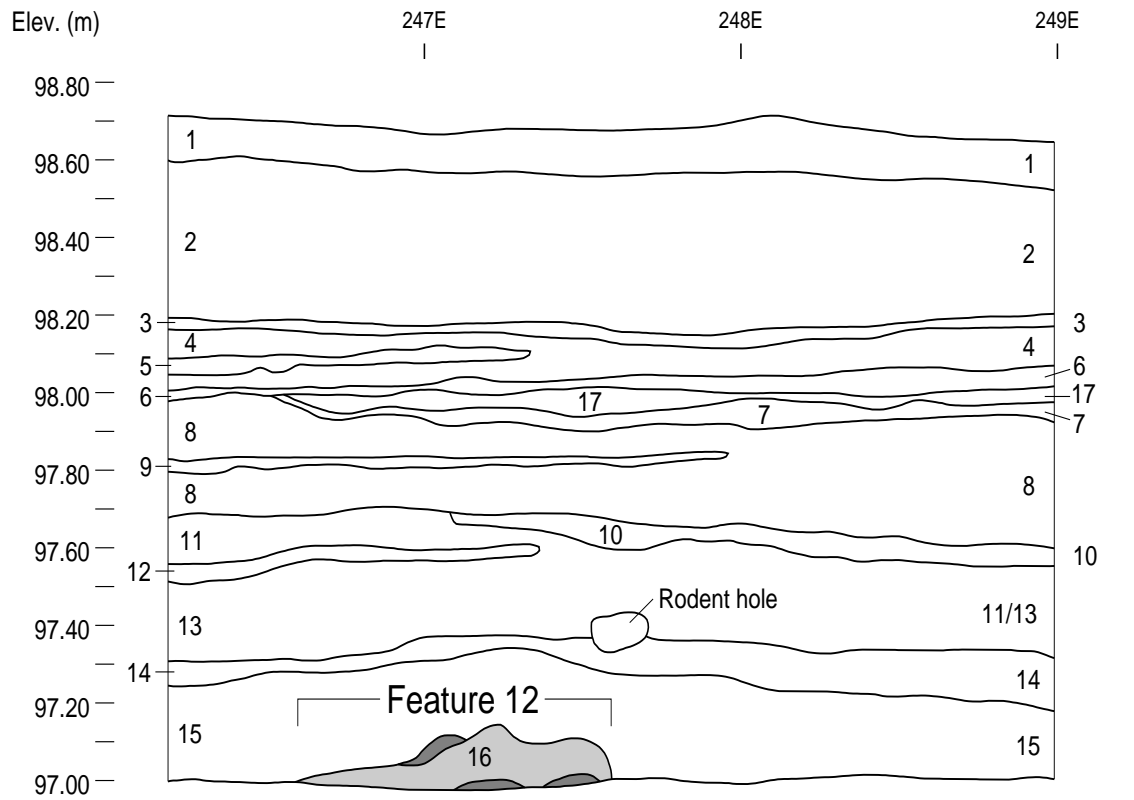


-  Feature 12 boundary
 -  Stain boundary
 -  Posthole
 -  Rodent disturbance
- F12 Feature number

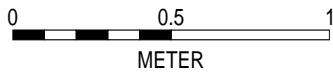


LA 110952
Study Unit 5
Features 12 & 23

Figure 18.6 Study Unit 5 Features 12 and 13.



- | | |
|--------------------------------------------|-----------------------------------------------------------|
| 1 Pinkish gray loose medium sand | 10 Pink fine sand |
| 2 Light brown fine to medium sand | 11 Light brown medium sand |
| 3 Light pinkish gray fine sand w/caliche | 12 Pinkish gray fine to medium sand |
| 4 Pink coarse sand | 13 Same as Strat 11 but grades to coarse sand |
| 5 Light pinkish gray very fine sand | 14 Light-to-pinkish gray medium sand w/caliche |
| 6 Light brown fine sand | 15 Light brown medium sand |
| 7 Light gray very hard fine sand w/caliche | 16 Feature 12: brown to dark brown medium sand w/charcoal |
| 8 Pink very fine sand | 17 Pinkish light brown coarse sand |
| 9 Pinkish gray hard fine to medium sand | |



LA 110952
 Study Unit 5
 North Trench Wall Profile

Figure 18.7 Study Unit 5 north trench wall profile.

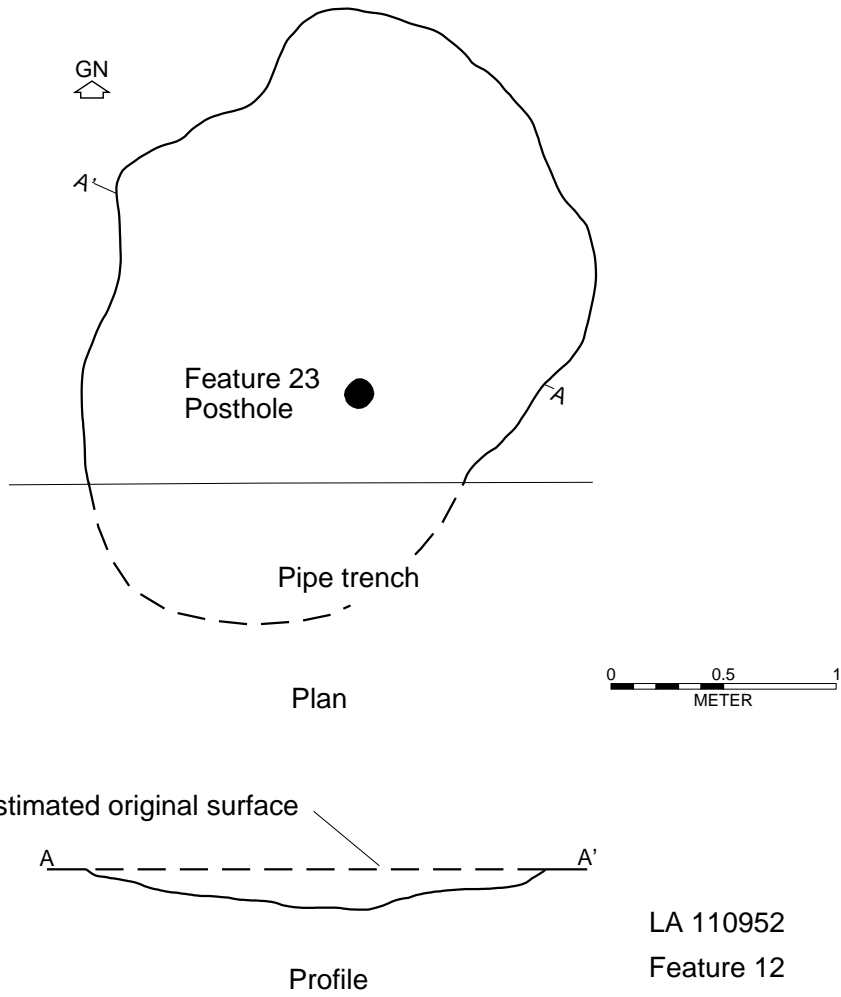
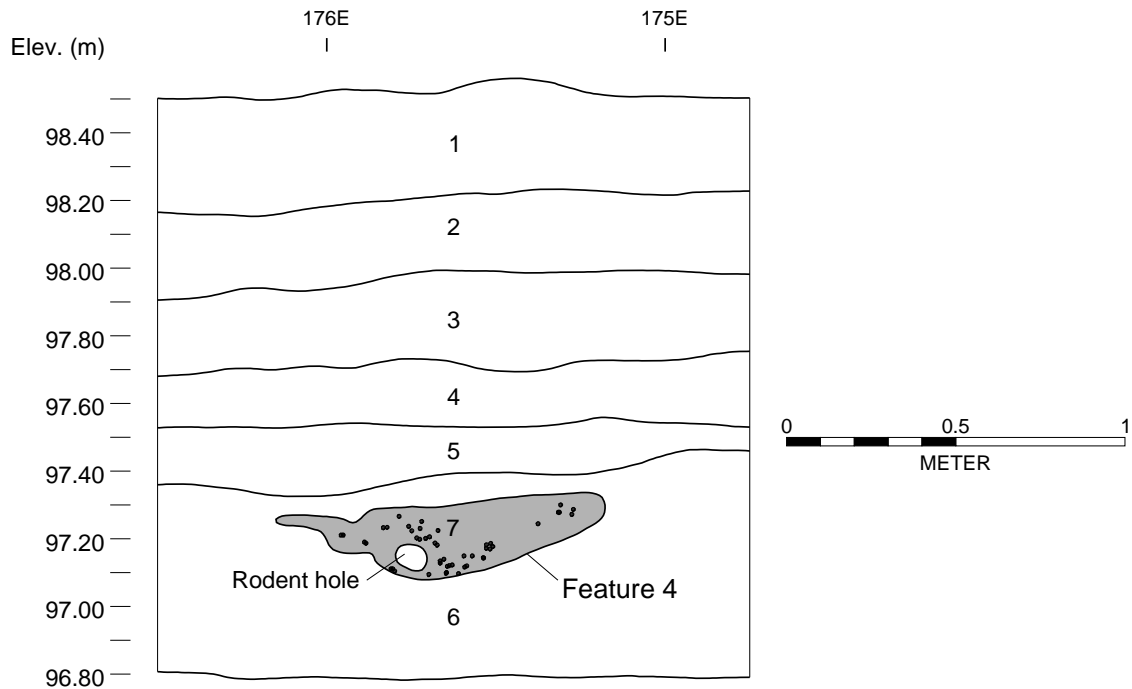


Figure 18.8 Feature 12 plan and profile.

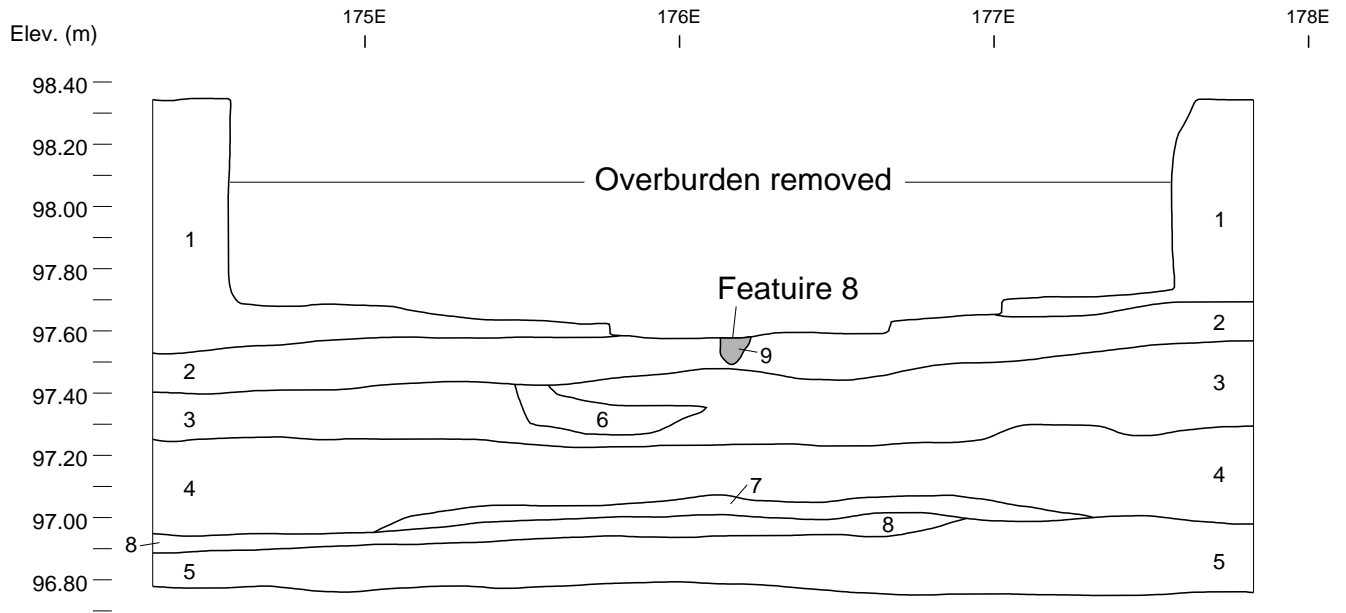


- 1 Pinkish light brown medium sand
- 2 Very light brown fine to medium sand
- 3 Pinkish light brown medium to coarse sand
- 4 Grayish light brown fine to medium sand
- 5 Pinkish gray hard fine sand w/caliche
- 6 Darker light brown medium sand
- 7 Very dark grayish brown medium sand w/ash & charcoal
- ⋯ Charcoal

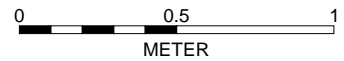
LA 110952
 Feature 4
 South Trench Wall Profile

Figure 18.9 Feature 4 in trench profile.

HARDING POLK II

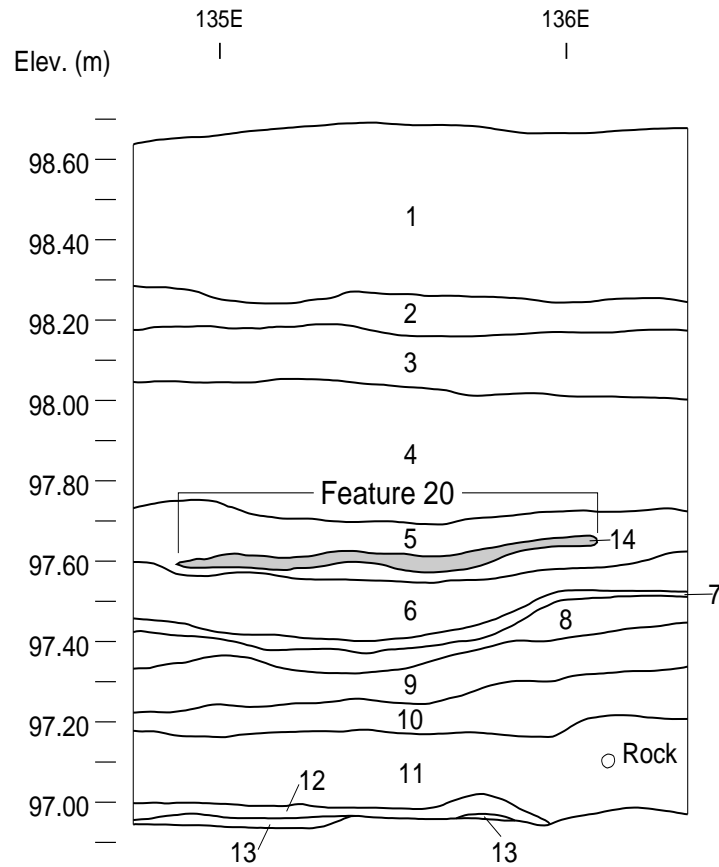


- 1 Reddish yellow loose sand (7.5YR 6/6)
- 2 Pink hard sandy clay (7.5YR 7/3)
- 3 Reddish yellow loose sandy loam (7.5YR 7/6)
- 4 Light brown loose sandy loam (7.5YR 6/4)
- 5 Reddish yellow loose sandy loam (7.5YR 7/6)
- 6 Pink hard sandy clay (7.5YR 7/3)
- 7 Reddish yellow loose sand (7.5YR 7/6)
- 8 Slightly hard sandy clay loam (7.5YR 7/4)
- 9 Ash stained feature fill

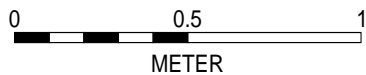


LA 110952
 Feature 8
 North Trench Wall Profile

Figure 18.10 Feature 8 in trench profile.



- | | |
|-------------------------------------------|-----------------------------------------------------|
| 1 Pinkish light brown medium sand | 8 Light brown medium sand |
| 2 Pinkish light brown medium sand | 9 Darker light brown fine to medium sand |
| 3 Light brown fine to medium sand | 10 Pinkish light brown medium sand |
| 4 Very light brown fine to medium sand | 11 Very light brown coarse sand |
| 5 Light brown fine sand w/charcoal flecks | 12 Light gray hard fine sand w/caliche |
| 6 Very light brown medium sand | 13 Light brown medium sand |
| 7 Pinkish light brown coarse sand | 14 Light brown fine to medium sand w/charcoal & ash |



LA 110952
 Feature 20
 North Trench Wall Profile

Figure 18.11 Feature 20 in trench profile.

HARDING POLK II

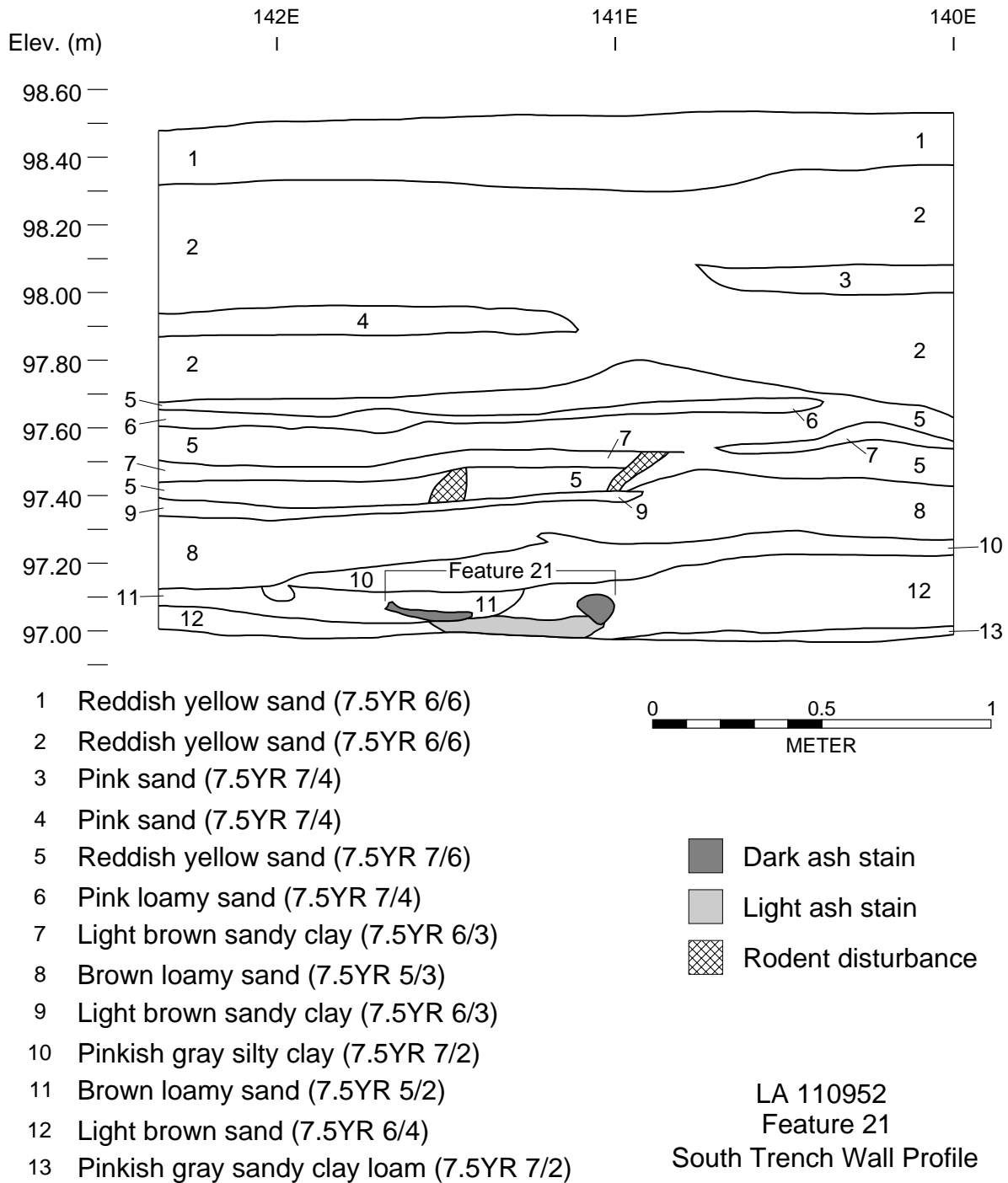


Figure 18.12 Feature 21 in trench profile.

Summary

Study Unit 1 contains two small structures that date to the middle of the late Archaic period. The larger, and more distinct, structure (Feature 3) had a central hearth and at least two postholes along its perimeter. Extensive rodent burrowing in that area may have eliminated traces of additional postholes. A small extramural hearth (Feature 9) was immediately southeast of this structure. The few artifacts from the structure suggest stone tool working and food processing activities. The second, smaller structure (Feature 10) was 1 m southeast of the first. An extramural hearth was found immediately northeast of the small structure.

Although no temporally diagnostic artifacts were recovered from Study Unit 1, a charcoal sample from the larger, more well defined structure yielded a radiocarbon date with a 2-sigma range of 1030 to 790 cal BC, or the middle of the late Archaic period. The patterning, proximity, and stratigraphic position of these features suggests that they are at least broadly contemporaneous.

Study Unit 5 encompasses a small structure (Feature 12) dating to the latter part of the late Archaic period. The structure contained one identifiable posthole. Severe rodent burrowing had eliminated traces of any other postholes. A concentration of ash and charcoal in a shallow depression in the center of the floor indicated a hearth. The artifacts, limited to the southwest half of the structure, may indicate an activity area where tool maintenance and food processing tasks were performed.

No diagnostic artifacts were recovered from this structure; however, a radiocarbon date from 905 to 365 cal BC places it in the latter part of the late Archaic period. This structure was 20 cm higher than the structures in Study Unit 1. Although there is an overlap in the radiocarbon date ranges, the stratigraphic difference indicates Study Unit 1 predates Study Unit 5 by an undetermined amount of time.

Based on their stratigraphic position, the two isolated hearth features (Features 4 and 8), probably date to the latter part of the late Archaic period but, because their distance from dated features is greater than 50 m, and the stratigraphic profile in the trench could not be clearly followed for that distance, their age can only be estimated. In contrast to the structures, these hearths represent ephemeral occupational episodes.

The Developmental Period Occupation

There is a hiatus in the occupation of the site from the latter part of the late Archaic to the early Developmental period. Radiocarbon dates indicate a gap of 980 to as much as 1500 years. The stratigraphic relationship of features and

study units, in conjunction with radiocarbon dates and the presence of ceramics, can be used to distinguish between Archaic components and later occupations (Figure 18.13). Based on this evidence, the features in Study Unit 2 and four isolated hearths are attributable to the beginning of the ceramic period.

Study Unit 2

The Developmental occupation at LA 110952 is primarily evidenced by seven features clustered in Study Unit 2 (Figure 18.1). The removal of the overburden in Study Unit 2 exposed a large, diffuse ash stain (Feature 2) that encompassed four large hearths (Features 14–17), three of which had been bisected by the pipeline trench (Figure 18.14). Another stain, representing two or possibly three smaller hearths (Feature 13) that adjoined a small structure (Feature 22), was noted toward the northeast (Figure 18.15).

Feature 2 marks a use surface surrounding the five hearths. The ash lens—noted in both trench walls—measured 3.5 m long and 5 cm thick (Figure 18.16). It extended north-eastward 1.2 m from the trench wall. Its amorphous boundaries and the fact that the portion in the southwest trench wall was not excavated precludes determining its full extent. About one-third of the ash stain was destroyed by the pipeline trench. The stain was a dark gray charcoal mixed with medium-grained sand with caliche flecking. Rodent burrowing was extensive throughout the fill. The bottom undulated slightly and the stain had a maximum thickness of 14 cm. No artifacts were recovered from Feature 2. Charcoal from Feature 2—primarily saltbush/greasewood (*Atriplex/Sarcobatus*), with some rabbitbrush (*Chrysothamnus*) and juniper (*Juniperus*)—yielded a radiocarbon date of 1110 ± 80 BP (Beta-92298) or cal AD 970 with a 2-sigma date range of cal AD 770 to 1040.

Hearths. Features 13 to 17 are five circular basin-shaped hearths (Table 18.3) within Feature 2. Hearth fill was caliche and sand with a high charcoal density. The absence of artifacts suggests short-term or specialized episodes of use.

Charcoal from Feature 14—rabbitbrush (*Chrysothamnus*), saltbush/greasewood (*Atriplex/Sarcobatus*), and juniper (*Juniperus*), with the latter two predominant, yielded a radiocarbon date of 1350 ± 60 BP (Beta-92303) or cal AD 670, with a 2-sigma date range of cal AD 615 to 790, which spans the early part of the Developmental period. The spatial clustering of Features 13 to 17 indicates repeated short-term use of this location.

Structure. Feature 22 was a circular ash stain measuring 1.8 m north-south by 1.65 m east-west and having a maximum depth of 4 cm. Its fill was a caliche and sand matrix with ash and charcoal flecks. The northeastern quadrant

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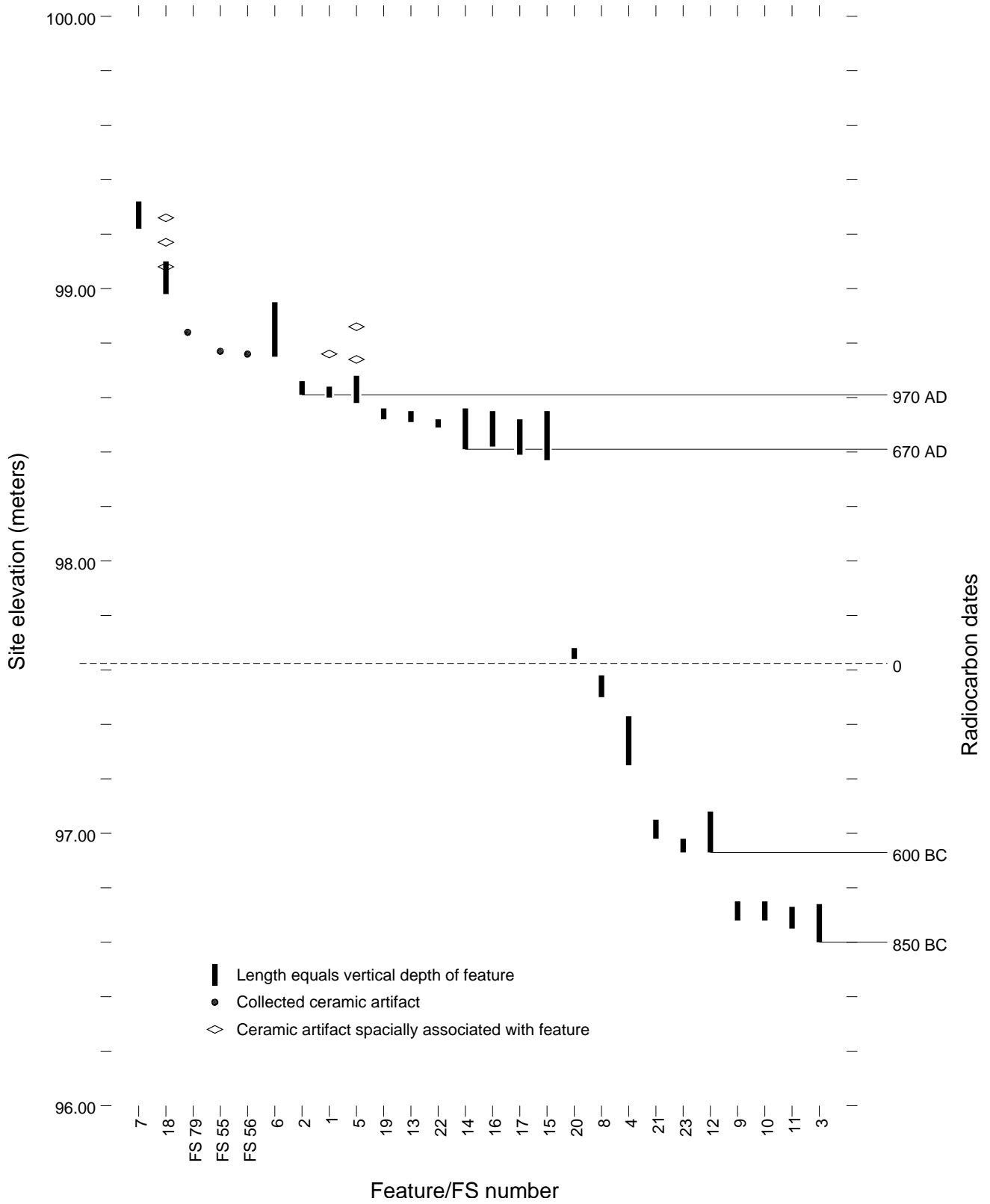


Figure 18.13 Schematic profile showing site elevations and associated radiometric dates.

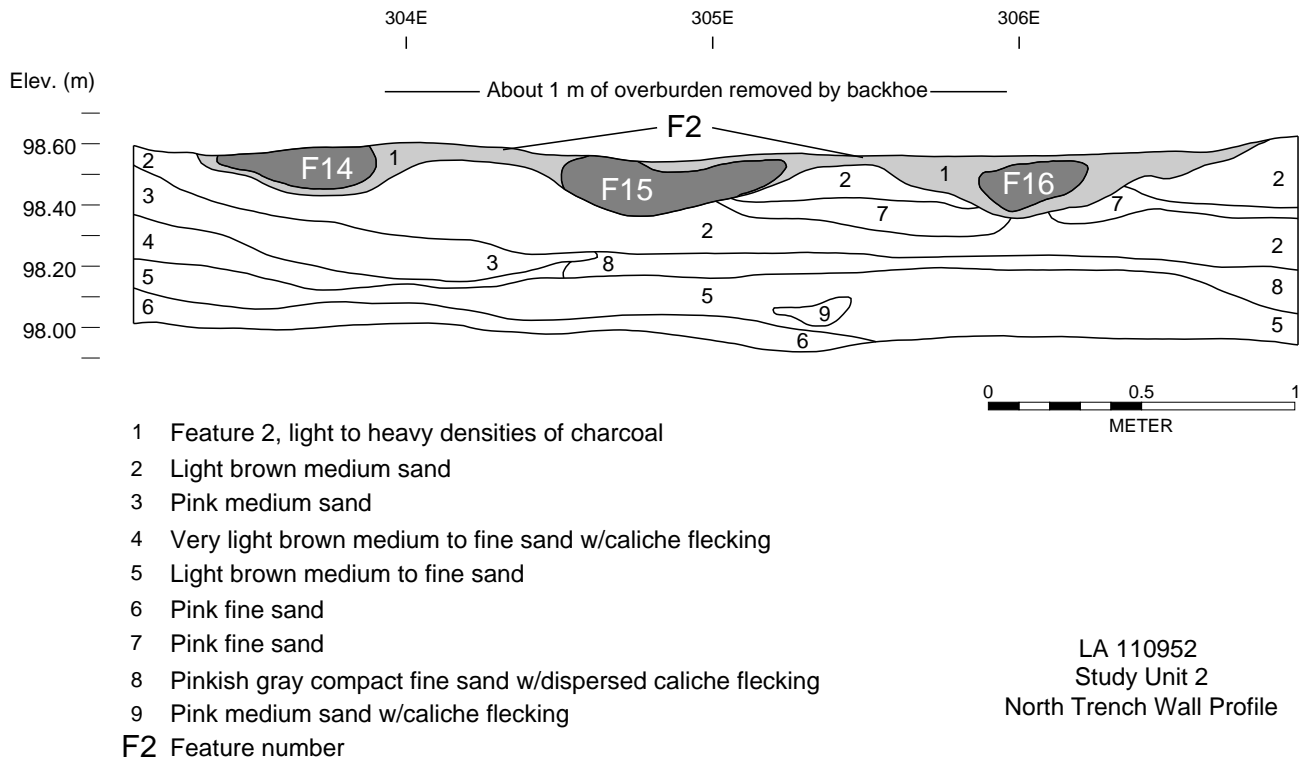


Figure 18.14 Study Unit 2 north wall profile.

contained a greater charcoal density. No artifacts were recovered, but a small quantity of burned clay was found in the matrix of two adjacent excavation units. The size of the ash stain and composition of the fill suggest that Feature 22 is the remnant of a small structure. The absence of postholes and interior features further suggests that the structure was not a domicile. It was more likely a makeshift shelter or windbreak, possibly erected near an outlying agricultural field.

Summary. Study Unit 2 has a cluster of five hearths surrounded by a use surface, and a small structure. Features 14 through 17 represent heavily used hearths, while Feature 13 appears to have had more ephemeral use. Charcoal samples from the use surface (Feature 2) and a hearth (Feature 14) yielded radiocarbon dates that only overlap for 20 years (AD 770 to 790) in the 2-sigma range. The charcoal sample from Feature 14 represents a discrete hearth used for a short time while the sample from Feature 2 came from a broader area that may represent the average date for the cluster of hearths.

Only a small quantity of cultural material was recovered from Study Unit 2. Some burned clay was recovered from units in, or adjacent to, the structure (Feature 22). A single corrugated grayware jar sherd was recovered from the spoil dirt left by the mechanical equipment. Although the sherd's

provenience and relationship to the features is unknown, the range of use of this ware type overlaps the radiocarbon date from Feature 2. The paucity of artifacts indicates Study Unit 2 represents several short-term occupations. Two radiocarbon dates indicate the occupations occurred during the Developmental period. Some food processing may have been conducted at this locus, but the evidence for repeated, short-term occupational episodes and presence of a small structure lacking interior feature suggests that these features are day-use field facilities associated with agricultural activities in the immediate site area (Sebastian 1983a).

Isolated Hearths

Two of the four isolated hearths (Features 1 and 19) are located in relatively close proximity to Study Unit 2. The others (Features 5 and 6) are located at the opposite side of the site, some 200 m to the northwest (Figure 18.1).

Feature 1 is a small basin-shaped hearth measuring 68 cm long, 4 cm thick, and 90 cm below the ground surface. The hearth extended 15 cm in the northern trench wall (Figure 18.17) and was roughly circular with a basin-shaped bottom (Figure 18.18). More than 80% of the hearth was destroyed by the pipeline trench. Its fill was a coarse loose

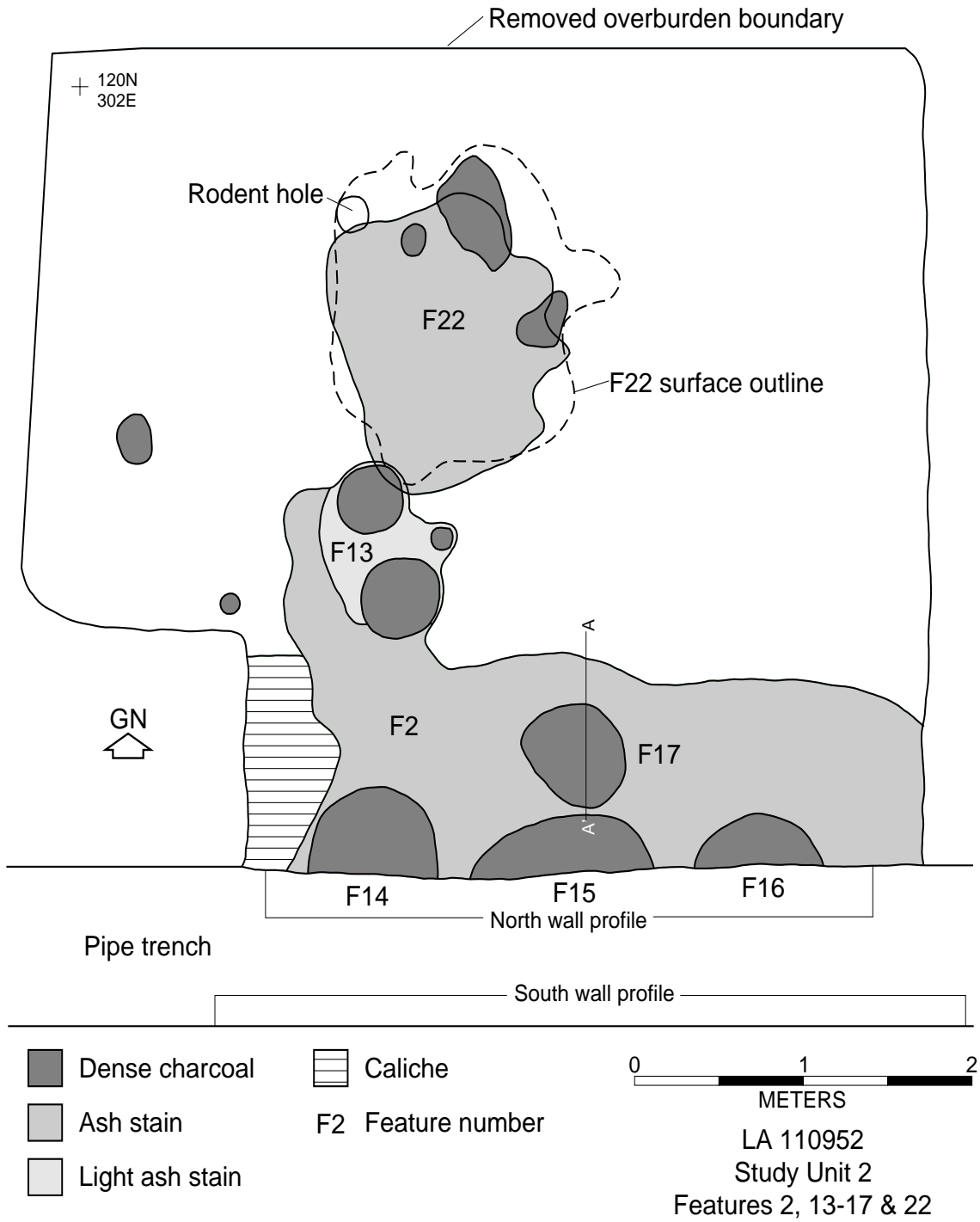


Figure 18.15 Study Unit 2 Features 2, 13–17, and 22.

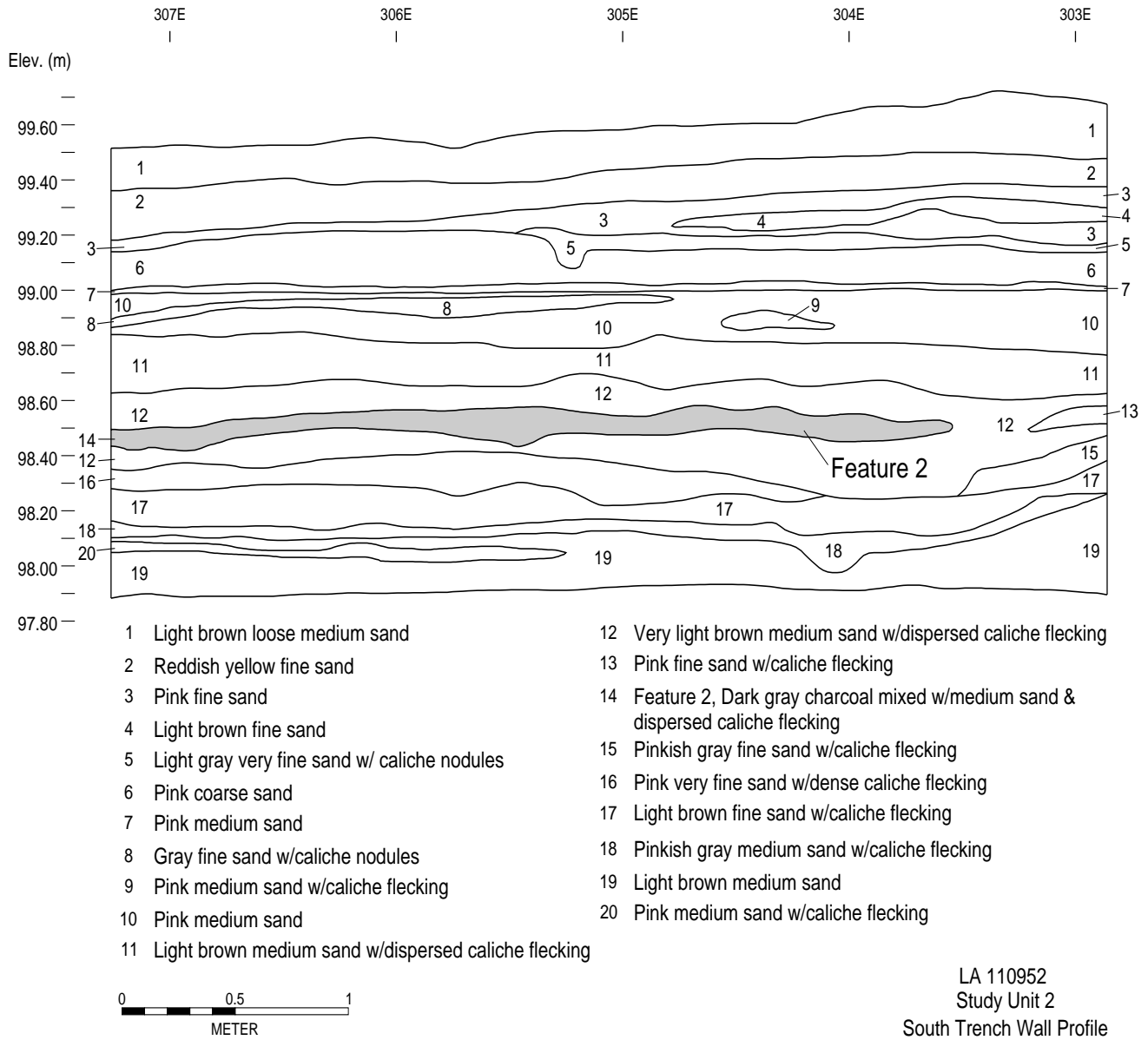


Figure 18.16 Study Unit 2 south trench wall profile.

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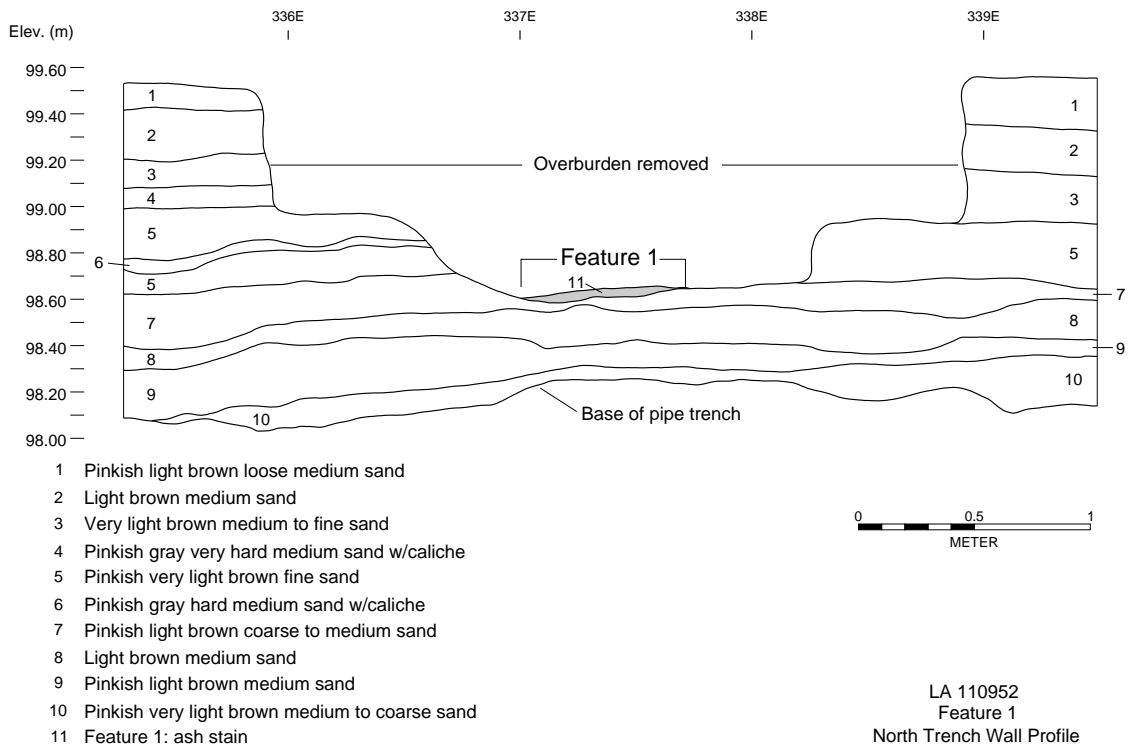


Figure 18.17 Feature 1 in trench profile.

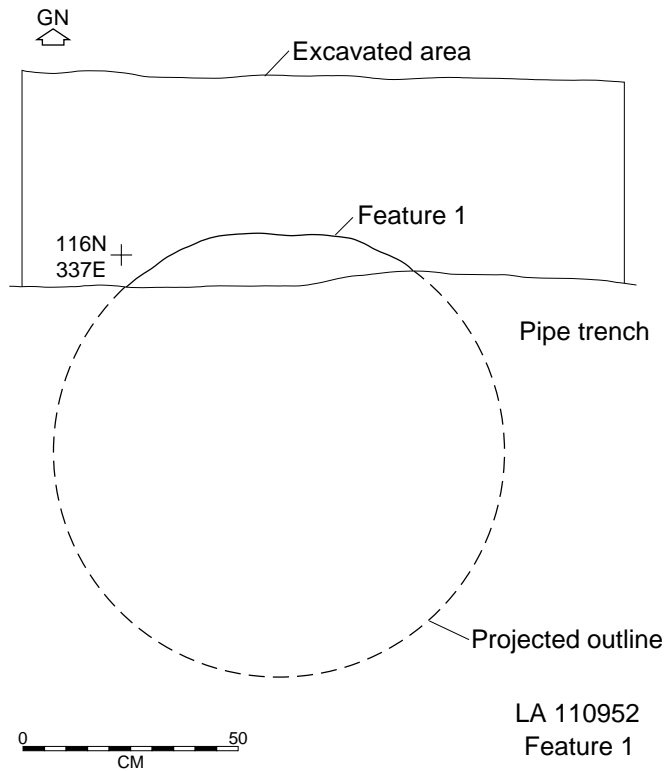


Figure 18.18 Feature 1 plan view.

Table 18.3 Hearths in Study Unit 2 at LA 110952.

Feature Number	Length (cm)	Width (cm)	Depth (cm)	Comments
13	85	54	4	cluster of 3 smaller hearths
14	76	48	14	bisected by trench
15	109	35	18	bisected by trench
16	76	28	18	bisected by trench
17	62	51	22	

sand with a few small rocks and a low density of ash and charcoal.

Three artifacts were recovered, a large quartzite flake and two plain grayware sherds. Six friable unidentified whiteware sherds were recovered from a stratum 10 cm higher in the southwest trench wall opposite the hearth, but these sherds could be associated either directly with the hearth or with the stratigraphic layer above it. Two artifacts, a fragment of a trough metate and a grayware sherd, were also recovered from the spoil dirt associated with the hearth.

Less than 20% of the hearth, estimated to have been nearly 1 m in diameter, remained after pipeline trenching. The early grayware sherds associated with the hearth indicate use no

earlier than the Basketmaker III period. This hearth lies at an elevation slightly above that of Study Unit 2, which is located 30 m to the northwest. The stratigraphic association is generally consistent with an Early Developmental date for Feature 1.

An isolated ephemeral hearth (Feature 19)—measuring 48 cm long, having a maximum thickness of 3 cm, and occurring at a depth of greater than 80 cm below ground surface—was discernible in both trench walls (Figure 18.19). This irregularly shaped hearth extended 13 cm into the trench wall. Approximately half of Feature 19 was destroyed by the pipeline trench. Its fill was a loosely compacted, light brown, fine-grained sand mottled with ash and charcoal. The mottling is attributed to rodent burrowing.

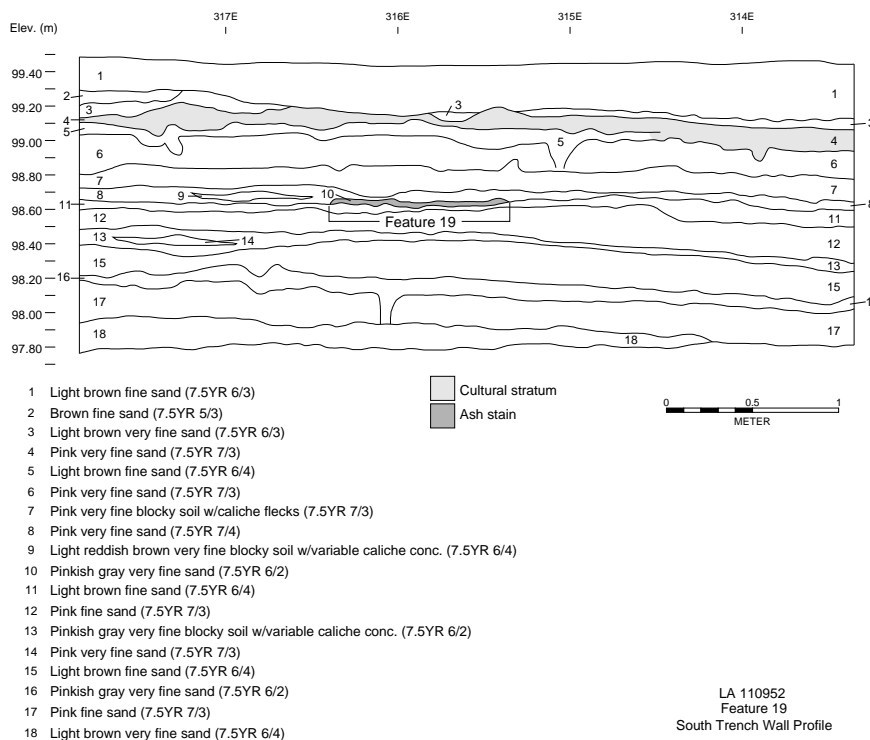


Figure 18.19 Feature 19 in trench profile.

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Mechanical equipment was used to remove overburden within a 9.5 by 4.5 m area around Feature 19. A 3 by 5 m portion of this larger area was hand-excavated to expose the hearth. No artifacts were recovered and no additional features were discerned. Feature 19 was at approximately the same stratigraphic level as Feature 1 and Study Unit 2, 20 m east and 8 m west, respectively. Although no firm date of use can be established for Feature 19, it is believed to be contemporaneous with Feature 1 and Study Unit 2. Since ceramics were recovered from Feature 1, and the later range for the calibrated radiocarbon date from Feature 2 in Study Unit 2 is AD 1040, it is believed Feature 19 is also associated with the Developmental period occupation.

Feature 5 is a large shallow hearth that is one of the original features observed in the pipeline trench during monitoring. Measuring 1.08 m long and 9 cm thick in the southwest wall of the pipeline trench, this hearth was encountered 35 cm below the ground surface (Figure 18.20). The hearth extended 1.2 m into the trench wall, was roughly oval, and

had a shallow basin-shaped bottom (Figure 18.21). Approximately 20% of the hearth was destroyed by the pipeline trench. The hearth fill was a coarse loose sand with ash and charcoal. Fourteen artifacts—a very small chalcedony flake and 13 sherds of an igneous-tempered plain grayware pottery—were recovered. Two large thermally altered rocks, measuring 10 by 10 by 20 cm each, were found in the east half of the hearth.

The hearth cannot be accurately dated, but it cannot antedate Pueblo I because it is at the same level as Feature 2, which was radiocarbon dated to AD 770 to 1040. Feature 5 may slightly predate Feature 6, a hearth located 15 m to the northwest and approximately 10 cm higher in the stratigraphic profile.

Feature 6 is a small basin-shaped hearth that is one of the original features observed in the pipeline trench during monitoring. This hearth measured 49 cm long and 17 cm thick in the pipeline trench southwest wall. It

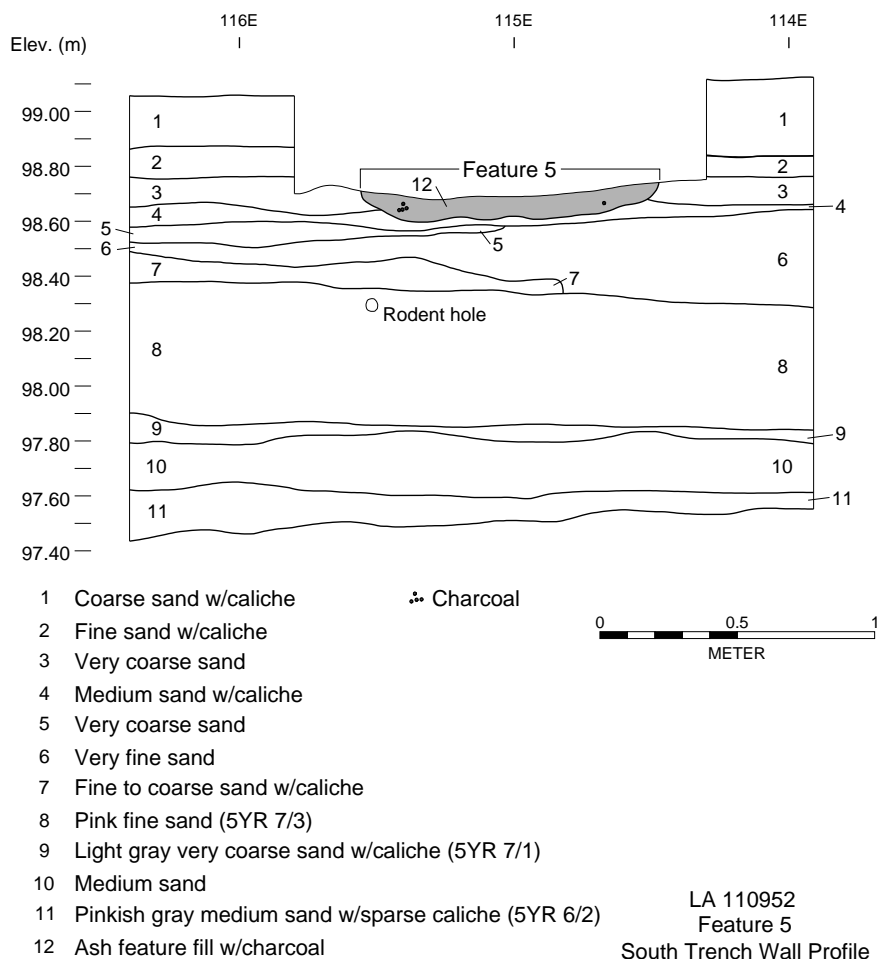


Figure 18.20 Feature 5 in trench wall profile.

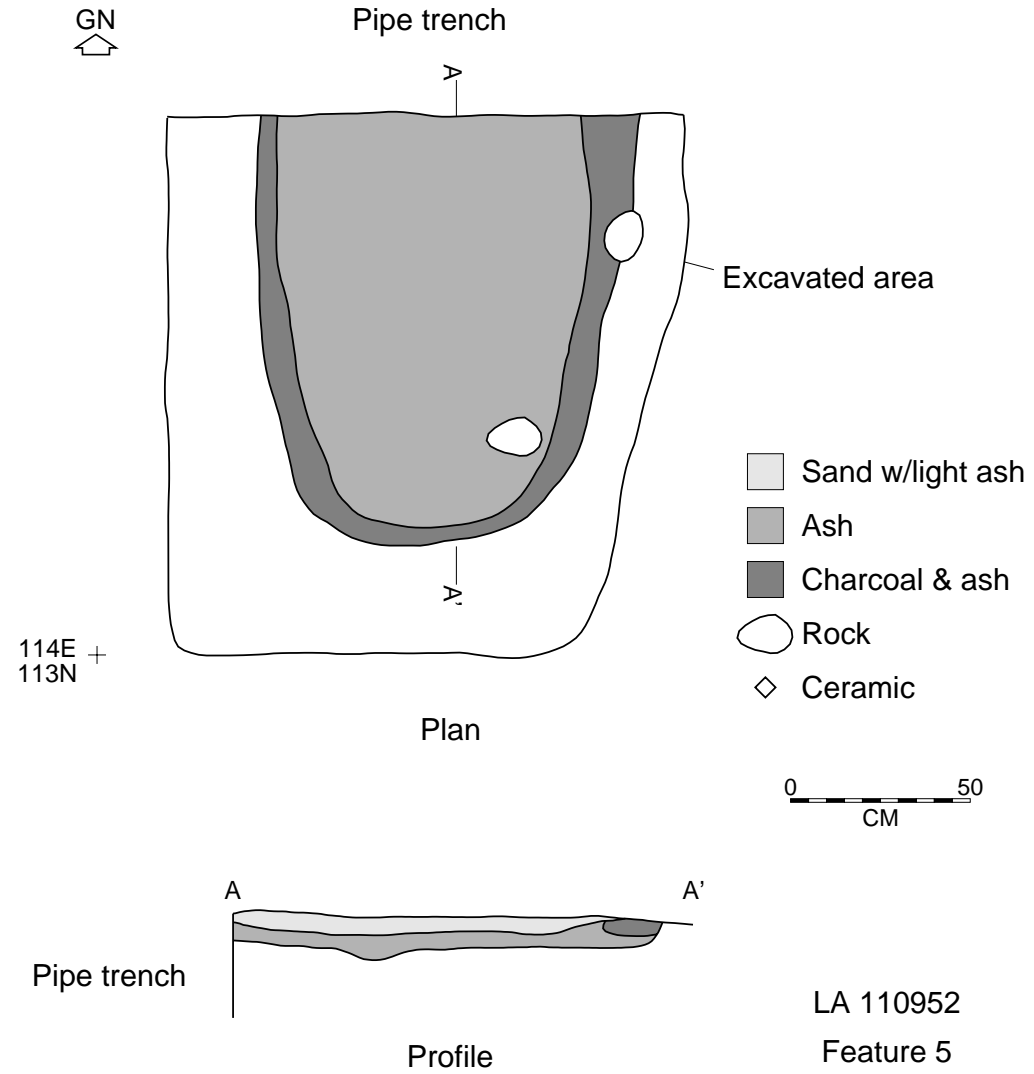
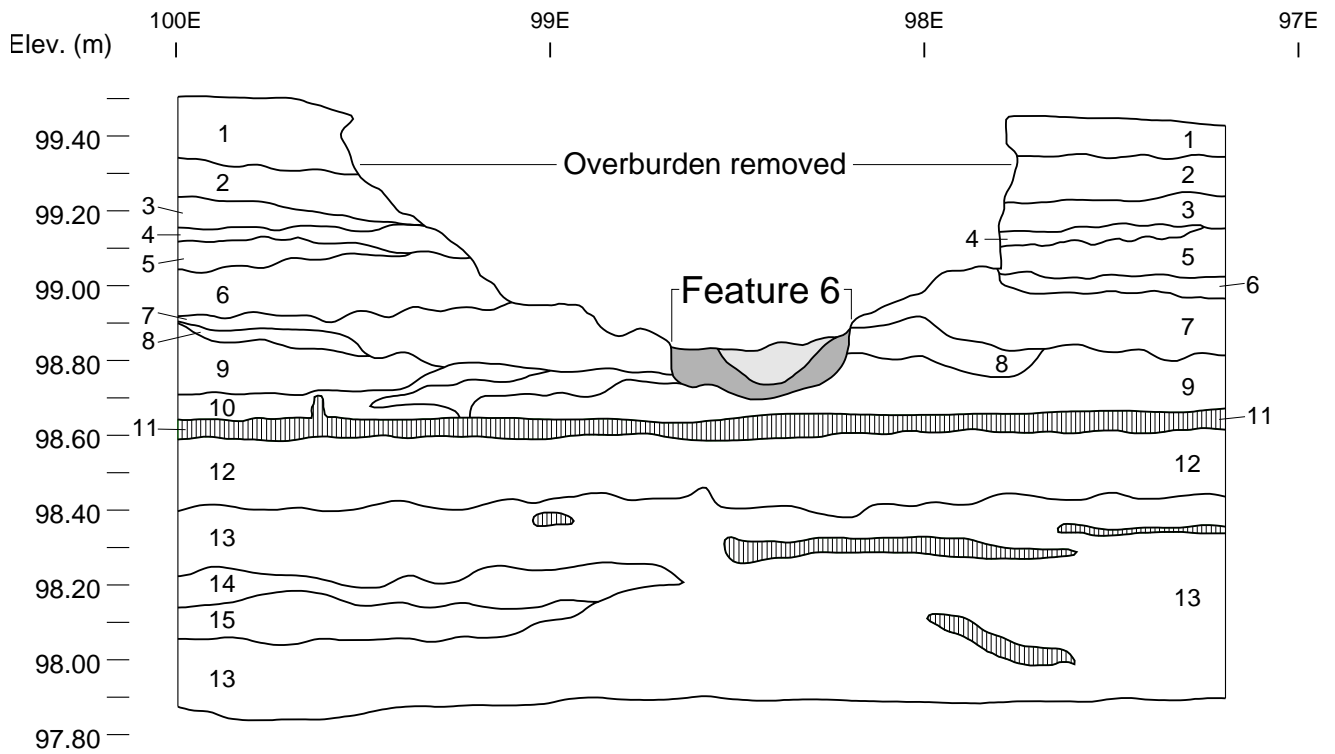





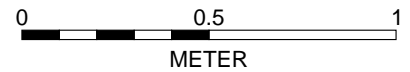
Figure 18.21 Feature 5 plan and profile.

HARDING POLK II



- 1 Light brown fine sand
- 2 Light brown very fine sand
- 3 Light brown fine sand
- 4 Light brown very fine sand
- 5 Light brown fine sand
- 6 Pinkish gray fine sand w/caliche flecks
- 7 Pinkish gray fine sand w/caliche flecks
- 8 Light brown fine sand
- 9 Light brown very fine sand
- 10 Light brown very fine sand
- 11 Pinkish gray fine sand w/caliche
- 12 Brown fine sand
- 13 Grayish brown fine sand
- 14 Pinkish gray fine sand w/caliche flecks
- 15 Light brown fine sand

-  Feature fill
-  Eolian sand
-  Caliche-laden stratum



LA 110952
 Feature 6
 South Trench Wall Profile

Feature 18.22 Feature 6 in trench profile.

originated 60 cm below the ground surface (Figure 18.22) and extended 27 cm into the trench wall. It was oval with a shallow basin-shaped bottom (Figure 18.23). About half of the hearth was destroyed by the pipeline trench. Its fill was a fine-grained loose sand with ash and charcoal flecks. Its upper portion had been dished out and filled with a sandy eolian material. No artifacts were recovered.

Charcoal from Feature 6—predominately saltbush/grease-wood (*Atriplex/Sarcobatus*) with some material that resembled rabbitbrush (*Chrysothamnus*)—yielded a radiometric radiocarbon date of 250 ± 70 BP (Beta-92294) or cal AD 1655 with a 2-sigma date range of cal 1475 to 1825, 1835 to 1880, and 1915 to 1950. These results probably indicate a contaminated charcoal sample since the overlying strata did not appear to be disturbed. Feature 6 is believed to slightly postdate Feature 5 since it was stratigraphically 10 cm higher. As noted above Feature 5 likely dates to the Developmental period; therefore, Feature 6 most likely dates to the Developmental period as well.

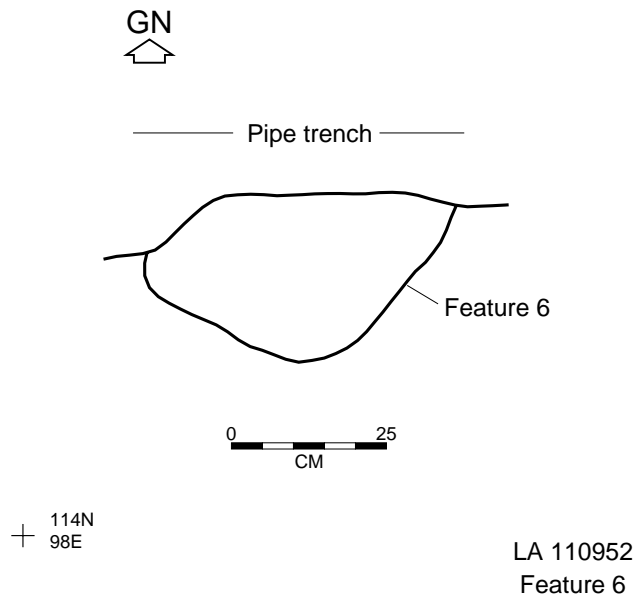


Figure 18.23 Feature 6 plan view.

The Coalition/Classic Period Occupation

The Coalition/Classic period occupation is represented by a hearth (Feature 18) and a small ash stain (Feature 7). Both isolated features are located in the southeastern part of the site (Figure 18.1).

Hearth

Feature 18, an ephemeral hearth, was a long thin ash lens in the northern pipeline trench wall. It measured at least 1.9 m long and had a maximum thickness of 6 cm and was 25 cm below ground surface (Figure 18.24). It was oval and extended eastward 1.9 m from the trench (Figure 18.25). Since this hearth lay in a diffuse ash-flecked deposit, its boundary was difficult to delineate and there is no way to estimate how much had been destroyed by the pipeline trench. The hearth fill was a light brown fine-grained sand with ash and charcoal. No artifacts were recovered.

A backhoe was used to remove overburden from a 7 by 3 m area around Feature 18. The surrounding matrix contained four lithic artifacts and nine sherds. The lithic artifacts are two chalcedony flakes, a fine-grained quartzite flake, and a piece of quartzite ground stone. The pottery is two corrugated grayware jar sherds, an unknown glazeware jar sherd, and two bowl and four jar sherds of Santa Fe Black-on-white. These ceramics indicate an occupation during the first half of the fourteenth century, or the late Coalition or early Classic period.

Stratigraphically, Feature 18 represents the most recent occupation at the site. The small quantity of artifacts and ephemeral nature of this hearth indicates a short-term occupation. The predominance of jar sherds suggests transportation and storage of liquids, probably water. The single ground stone fragment indicates some plant processing.

Ash Stain

Feature 7 is a small ash stain in the pipeline trench northern wall. This small stain—measuring 22 cm long, 4 cm thick, and 90 cm below ground surface—extended 3 cm into the trench wall and was roughly circular with a shallow basin-shaped bottom (Figure 18.26). At least 70% of the stain was destroyed by the pipeline trench. The stain fill was a dark, loosely compacted, coarse-grained sand with ash and charcoal. A flotation sample was collected, but no artifacts were recovered. Mechanical equipment was used to remove 1.5 m of overburden from 36 m² (8 by 4.5 m) surrounding the stain. No additional cultural deposits were discerned, but the matrix had numerous rodent burrows. This ash stain is believed to be cultural material redeposited from another nearby source, most likely features outside of the pipeline right-of-way.

The Historical Occupation

The historical component is limited to a diffuse surface scatter of recent trash surface and a bullet for a small-caliber firearm.

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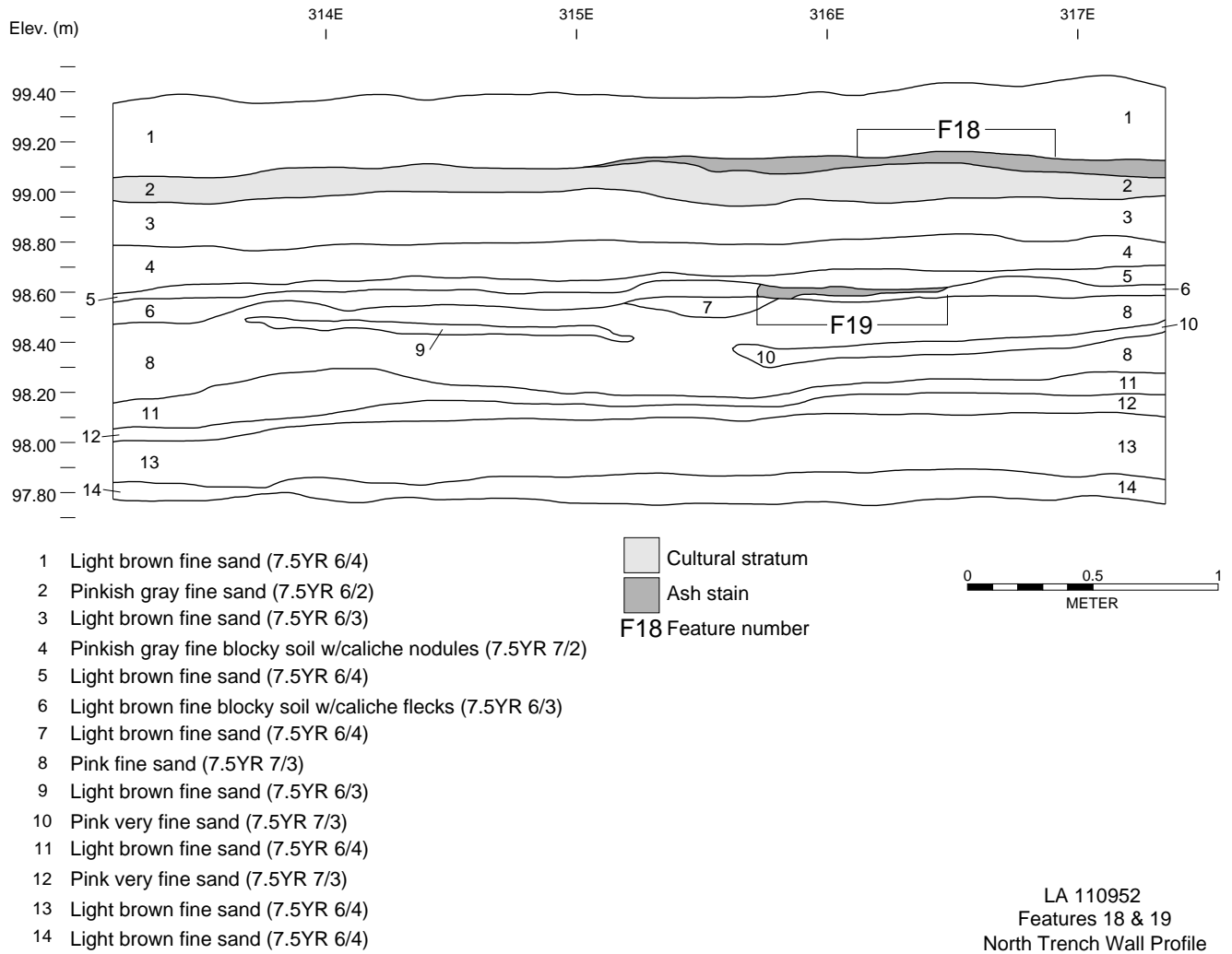


Figure 18.24 Features 18 and 19 in trench profile.

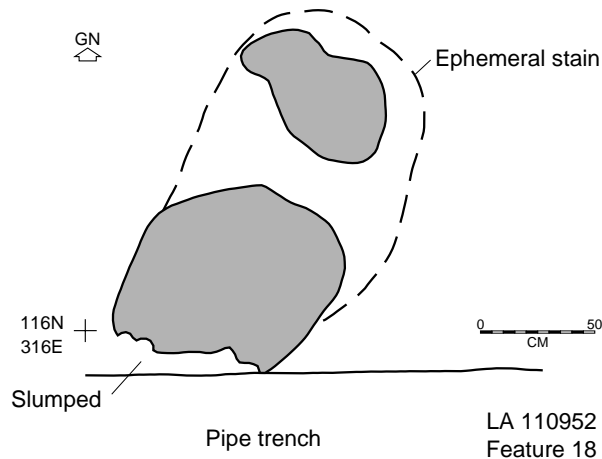


Figure 18.25 Feature 18 plan view.

ARTIFACTS AND SAMPLES

The prehistoric artifact assemblage consists of 27 lithics, 103 ceramics, 25 animal bone fragments, and macrobotanical remains. The historical component is represented by 5 metal fragments, a piece of plastic, and a spent .22 caliber bullet. The number of prehistoric artifacts is small considering the size of the site and the number of features. The artifact distribution was sporadic, with some features containing no artifacts. Several artifacts recovered from the surface or spoil dirt lack contextual information.

Lithics

The lithic assemblage contains 23 chipped stone and four ground stone artifacts (Table 18.4). Almost all of the specimens are very small, with only one measuring more than 5 mm thick. Study Unit 1, which has two late Archaic structures, has the largest number of lithics—seven flakes, retouched flake, and three pieces of angular debris. Material types include chalcedony, silicified wood, quartzite, chert, and obsidian (Table 18.4). Study Unit 5, another late Archaic structure, yielded five flakes and a piece of angular debris (quartzite, chalcedony, and obsidian). Study Unit 3—with Developmental and Coalition/Classic components—yielded more ceramics than any other locus but only two chalcedony and one gypsum flake. One isolated hearth (Feature 1) yielded a quartzite flake, and a second (Feature 5) yielded a chalcedony flake. A retouched basalt flake was recovered from the southwest pipeline trench wall—30 cm above an activity area with associated hearths (Feature 2)—at a level corresponding to a nearby ephemeral hearth (Feature 18) that dates to the Coalition/Classic period. Flake measurements are summarized in Table 18.5.

Two of the four pieces of ground stone are conjoinable pieces from the oldest structure at the site (Feature 3). One

piece of ground stone was recovered from Study Unit 3, in the same stratum as Feature 18. This artifact indicates that some plant processing occurred during the Coalition/Classic period occupation. The last piece of ground stone is a thermally altered, exhausted metate fragment. This trough metate fragment was recovered from the spoil dirt near a small isolated hearth (Feature 1); therefore, its relationship to the hearth is not known. All of the lithic materials in the assemblage are available in locally exposed gravels.

Ceramics

Although 103 of the 113 identifiable, sherds were identifiable to type, only 33 sherds are from study unit or feature contexts. Many are small fragments. Table 18.6 summarizes the ceramic types and vessel forms. The large number of jar sherds (97.1%) is indicative of liquid transport and storage, and is consistent with other evidence suggesting that Formative features at the site were day-use field facilities utilized by individuals or small groups while tending their crops.

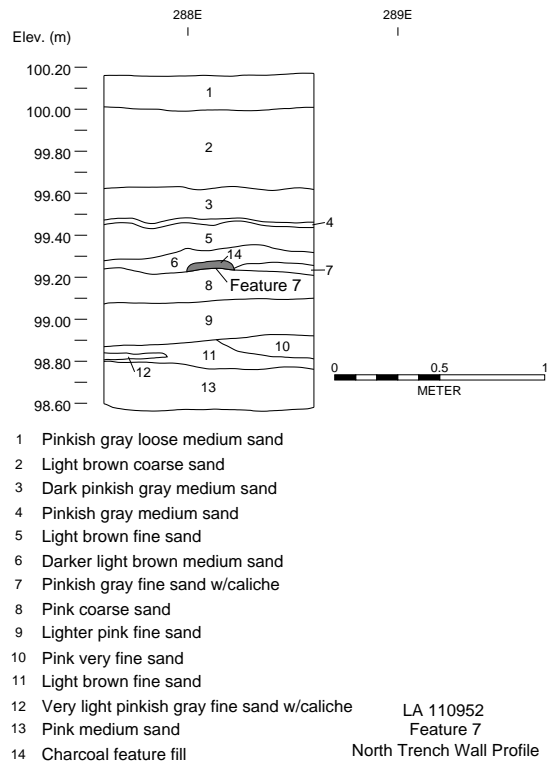


Figure 18.26 Feature 7 in trench profile.

A few friable plain grayware sherds are from isolated loci in the pipeline trench wall at the east end of the site. Their position in the stratigraphic profile indicates pottery does not occur below an elevation of 98.75 m (site elevation)

Table 18.4 Lithic artifact and material types, LA 110952.

Artifact Type	Other	Late Archaic		Developmental and Coalition/Classic	Developmental		Total	
		Structures SU 1	Structure SU 5	Hearths SU 3	Hearth SU 4	Hearth Feature 5	<i>n</i>	%
Angular Debris		3	1			1	5	18.5
Flake		7	5	3	1		16	59.3
Flake, Retouched	1	1					2	7.4
Ground Stone, unknown				1			1	3.7
Metate, unknown		2			1		3	11.1
Total	1	13	6	4	2	1	27	100.0
Material Type								
Chalcedony		3	1	2		1	7	25.9
Silicified Wood		1					1	3.7
Quartzite, fine grained		1	3	1	2		7	25.9
Chert		2					2	7.4
Obsidian		4	2				6	22.2
Basalt	1						1	3.7
Sandstone		2					2	7.4
Gypsum Crystal				1			1	3.7
Total	1	13	6	4	2	1	27	100.0

and no feature that could potentially contain ceramics was below 98.37 m. In contrast, no Archaic feature occurred higher than 97.68 m, for a separation of 59 cm between ceramic and non-ceramic-bearing strata.

Faunal Remains

The faunal assemblage (Tables 18.7) consists of four mammal bone fragments from Study Unit 1 and 21 fragments from Study Unit 5, the two oldest components at the site. Taxon and element identifications are limited because of the fragmentary condition of the bone. The animal size and element represented by the four fragments from Study Unit 1 could not be determined. Twenty fragments from Study Unit 5 were determined to be from a rabbit-size mammal and one from a deer-size mammal. No butchering or other modification was discerned on any of the specimens. The prevalence of rodent burrows in the site's deposits indicates that at least some of the bone are intrusive as a result of rodent activity.

A single piece of unidentified shell was recovered from the flotation sample of fill from Feature 8, a small isolated hearth. The specimen does not exhibit modification. It is probably a locally available land snail or freshwater mussel.

Archeobotanical Remains

Forty-two samples—from 15 features—totaling 789.7 liters were processed by flotation. Scanning selected samples for macrobotanical remains resulted in the identification of a limited number of taxa (Table 18.8). In Study Unit 1, the structures (Features 3 and 10) and one extramural hearth (Feature 11) yield charred chenopod, cheno-am, ricegrass, and Gramineae. The structure in Study Unit 5 (Feature 12) yielded a similar range of specimens. The goosefoot suggests a late summer-early fall occupation. Ricegrass, on the other hand, tends to ripen in late spring to early summer, although a fall crop is sometimes produced in years with heavy summer rains. Thus the late Archaic occupations likely occurred in late summer-early fall, but may have spanned most of the warmer part of the years. The Developmental features yielded a macrobotanical assemblage that includes goosefoot, maize, globe mallow, and ricegrass. Like the late Archaic assemblage, this suggests primary use in the late summer-early fall, with the possibility of an early summer occupational episode. The diversity of remains recovered from individual features is lower for the Developmental than for the Archaic period, however. This finding is consistent with other evidence indicating that Developmental occupations were of shorter duration than those of the late Archaic.

Table 18.5 Flake measurements for LA 110952.

Study Unit	<i>N</i>	Minimum	Maximum	Mean	Median	s.d.
Thickness						
0	1	14	14	14.0	14.0	.
1	7	1	3	1.6	1.0	1.0
3	3	2	5	3.3	3.0	1.5
5	5	1	4	2.4	2.0	1.1
Length						
1	6	4	17	7.7	6.5	4.9
3	3	8	11	9.7	10.0	1.5
5	3	7	23	13.0	9.0	8.7
Width						
1	6	3	10	6.3	6.5	3.1
3	3	11	18	14.7	15.0	3.5
5	3	10	19	13.0	10.0	5.2

SUMMARY AND INTERPRETATIONS

LA 110952 is a large multicomponent site with features dating from the late Archaic period to the Coalition/Classic period. Data recovery focused on 23 features, including at least four structures and various associated intramural, extramural, and isolated hearths, as well as several postholes. Three stains are the result of bioturbation. The pipeline trench revealed a stratigraphic profile across the 240 m long site. The site stratigraphy is complex and exhibits numerous layers of alluvial and eolian deposition, that was useful in relative dating of the components. A few sherds were recovered from some of the upper strata/features. The lowest of the ceramic-bearing strata/features indicated a boundary between the late Archaic and Developmental periods. Results of radiocarbon dating indicate the stratigraphically lower features are associated with the late Archaic period. The distance between features/study units suggests that there were multiple occupations during each temporal period represented.

The earliest use of the site seems to be residential while the more recent use tends to be isolated hearths. This trend indicates that at least some of the late Archaic occupations were of longer duration whereas the more recent Formative occupations represent short-term use episodes. The paucity of artifacts from the later occupations seems to bear this out. The carbonized botanical remains suggest that both Archaic and Formative use of the site occurred primarily during the summer and early fall. The numerous structures, hearths, and storage pits indicate use of LA 110952 during the late Archaic period followed by at least a thousand-year hiatus that was followed by Developmental and Coalition/Classic period occupations.

Table 18.6 Ceramic types from LA 110952.

Ceramic Type/ Vessel Form	Late Archaic	Developmental			Developmental and Coalition/Classic	Other	Total	
	Study Unit 5	Study Unit 2	Feature 1	Feature 5	Study Unit 3		<i>n</i>	%
Plain gray Jar	1		3	13		67	84	81.6
Unidentified corrugated gray Jar		1			2		3	2.9
Unidentified whiteware Jar			6				6	5.8
Santa Fe Black-on-white Bowl					2	1	7	6.8
Santa Fe Black-on-white Jar					4		4	3.9
Unknown glazeware Jar	1				1	1	3	2.9
Total	2	1	9	13	9	69	103	100.0

Table 18.7 Faunal remains from LA 110952.

Taxon	Other	Late Archaic Structures in Study Unit 1	Late Archaic Structure in Study Unit 5	Total
Indeterminate rabbit-size mammal			20	20
Indeterminate deer-size mammal			1	1
Indeterminate size mammal	1	3		4
Total	1	3	21	25

Table 18.8 Botanical remains from LA 110952.

	Feature No.															
	Late Archaic					Developmental										
	3	9	10	11	12	1	5	6	13	14	15	16	17	19	22	
Taxon/number of samples	9	1	2	1	5	2	2	1	2	3	3	2	2	1	6	
<i>Chenopodium</i> sp. (Goosefoot)	c		c	u	c							c			u	
<i>Portulaca</i> sp. (Purslane)					u											
<i>Oryzopsis hymenoides</i> (Indian Ricegrass)	c				c								c			
<i>Sporobolus</i> sp. (Dropseed Grass)	u														u/c	
<i>Juniperus</i> sp. (Juniper)					c							c				
<i>Zea mays</i> (Maize)							c									
Gramineae (Grass Family)	c		c												c	
cf. Gramineae (?Grass Family)	c			c	c		u								c	
<i>Chenopodium/Amaranthus</i> (Goosefoot/pigweed)	c				c		c								u	
cf. <i>Croton</i> sp. (?Croton)	u			u				u							u	
<i>Sphaeralcea</i> sp. (Globemallow)							u	c		c						
<i>Dithyrea wislizenii</i> (Spectacle pod)					u											
Euphorbiaceae (Spurges)					u										u	

Key: c = carbonized, u = uncharred

Chapter 19

LA 110953

Byrd A. C. Bargman and Peggy A. Gerow

LA 110953 is a multicomponent site dating to the Pueblo III–Pueblo IV and historical periods. The Pueblo III–Pueblo IV or Coalition-Classic component is marked by a pitstructure, activity area, and midden; the historical component encompasses two roasting pits, activity area, and midden. The site is located 1 km (0.6 mi) south of the Jemez River on a northeast facing slope within semi-stabilized dunes of an upper terrace (Figure 1.1). The modern vegetation consists of one-seed juniper, snakeweed, fourwing saltbush, broom dalea, rabbitbrush, and blue grama grass.

INVESTIGATION STRATEGY

LA 110953 was discovered during the monitoring of the centerline trenching. Exposed in the trench walls were the remains of two roasting pits and a smaller pit in the north wall, a small pit in the south wall, and an 11 m long dark stained lens on both sides of the trench walls (Figure 19.1). These features were located between 26 and 55 cm below modern ground surface. The data recovery focused on the investigation of the three pits and ash stain in the north wall, the pit in the south wall, and probing for additional features in the right-of-way. The close proximity to the existing MAPCO pipelines restricted extensive excavation of the stain in the south trench wall.

Both manual and mechanical scraping were done to remove the overburden from a 7 m by 29 m area on the north side of the trench. Limited manual scraping was done in 30–50 cm by 22 m area on the south side of the trench to expose the top of the charcoal lens. These procedures exposed two roasting pits, a pitstructure, two extramural activity areas, and a midden on the north side of the trench, and the rest of the midden and a portion of the ventilator to one of the roasting pits on the south side (Figure 19.2).

RESULTS

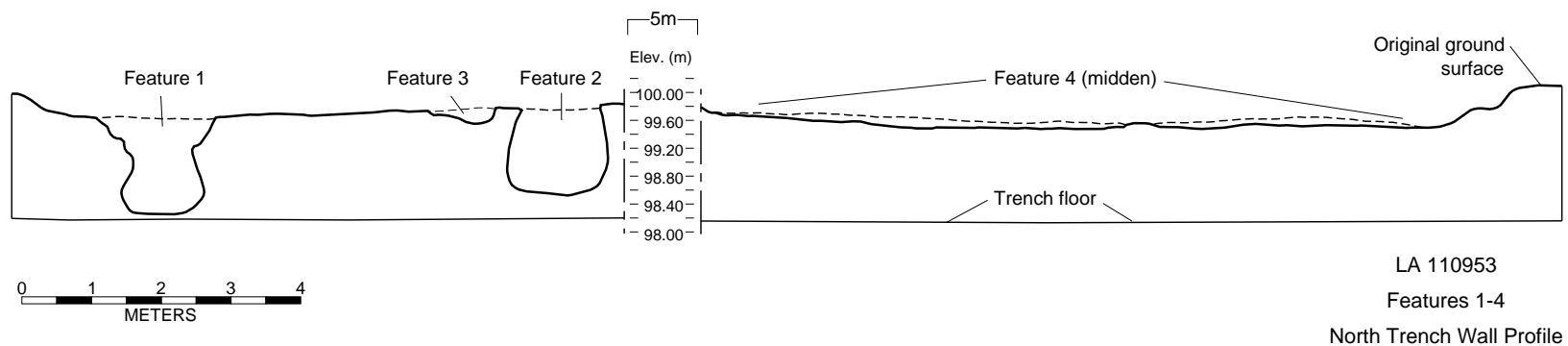
Puebloan Occupation

The Puebloan occupation encompasses a pitstructure (Feature 6) and associated floor features, a midden (Feature 4), and an extramural activity area (Figure 19.2). The extramural area is on the northern edge of the right-of-way, which suggests that other features may be present outside the excavation area. Given the fact that there were no surface indications of this site, the probability of additional features is highly likely.

Pitstructure

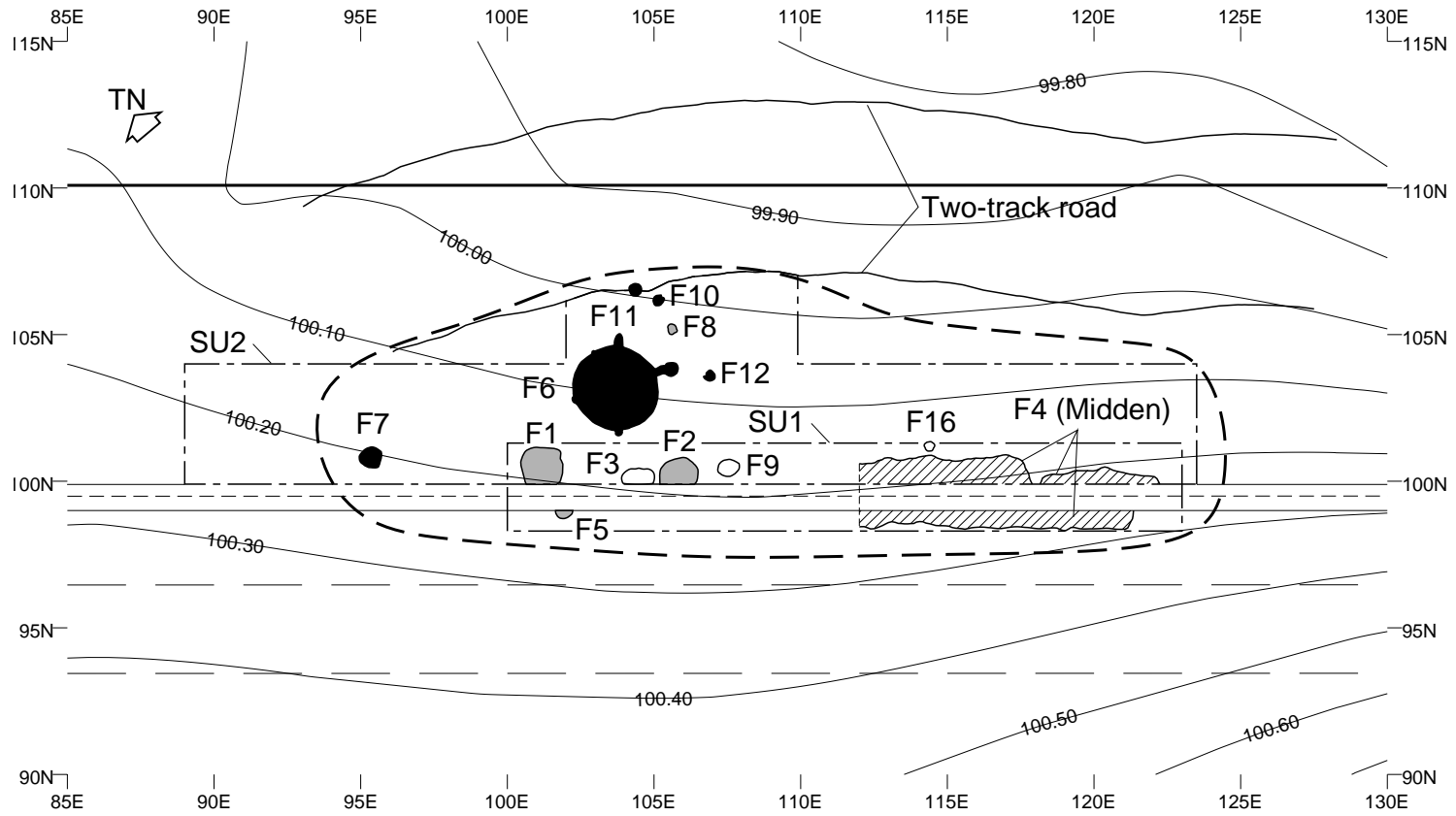
Dug into the Zia Sandstone Formation, the pitstructure (Feature 6) is circular and measures 3 m in diameter and 60 cm deep. A centrally located 1 m² unit was excavated to sample the fill and to locate the floor. This unit, excavated in 5 and 10 cm levels, yielded 34 ceramics, 7 lithics, 2 ground stone fragments, and 3 pieces of bone. The structure fill exhibited four depositional episodes (Figure 19.3). The two uppermost strata were eolian deposits containing decomposing sandstone in varying degrees of compaction. The third stratum, which contained most of the artifacts, was an ashy sand matrix with clay lenses and charcoal. The fourth and lowest stratum was pale sand with ash, carbonates, and a lens of fine pink/white talc. A fine ash and white talc or beads of carbonates covered the floor, which appeared to be decomposed plaster and ash.

Once the floor was located in the control unit the remaining fill was removed in quadrants to within 5 to 10 cm above the floor. This remaining fill was excavated in 1 m² units and screened to recover any floor artifacts. One



LA 110953
 Features 1-4
 North Trench Wall Profile

Figure 19.1 Profile of north trench wall showing exposed features.



- | | | | | |
|------------|------------------------|---------------------------|------------------------------------|------------------|
| Key | | Feature chronology | | 0 5 10
METERS |
| --- | Site boundary | ■ | Pueblo III - IV (including midden) | |
| | Study Unit boundary | ■ | Historical | |
| ———— | R.O.W. | □ | Unknown, possibly historical | |
| - - - - - | Proposed pipeline | | | |
| ———— | Existing pipeline | | | |
| ———— | Pipeline trench | | | |
| ———— | Contour interval 10 cm | | | |
| F2 | Feature number | | | |
| SU2 | Study Unit number | | | |

LA 110953

Figure 19.2 Site map of LA 110953 showing location of features and data recovery units.

hammerstone was found lying on the floor. The floor surface texture varied, with some portions having a very compact preparation of sand and clay and other parts having an unprepared sandstone surface. Unlike the floor, the walls exhibited no preparation (Figure 19.4). A charcoal sample (cf. *Juniperus*) taken from the outer rings of a roof beam found on the floor yielded a ^{13}C adjusted date of 750 ± 70 BP (Beta-96278) or cal AD 1290 with a 95% confidence interval of cal AD 1215 to 1405. This date indicates a Pueblo III–Pueblo IV occupation, which is consistent with the date range of the ceramics recovered.

Excavation to the floor exposed five postholes, two ladder support holes, and four floor features—a hearth (Feature 13), a warming pit (Feature 14), and two possible storage pits (Features 15 and 17). The ventilator system (Feature 18) was also revealed in the east wall (Figure 19.5). The postholes are arrayed near the north, east, and northwest edges of the floor. With the exception of the one on the north, these postholes measured 5 cm in diameter and 5 cm deep. The northern posthole was 20 cm in diameter and about 16 cm deep. This posthole was set at a 45° angle away from the structure, and probably represents one of the major support posts for the superstructure.

Two small ladder support holes are located about 40 cm southwest of the hearth. These holes are 50 cm apart and measured 5 cm in diameter by 5 cm deep. Their presence, combined with the location of the ventilator system, indicate a roof entrance.

The ventilator system (Feature 18) was 1.1 m east of the central hearth. The ventilator tunnel, oriented to the east, had a horizontal shaft that was 60 cm long. The exterior opening to the shaft, which measured 50 by 40 cm, narrowed to 20 by 25 cm at the tunnel and shaft juncture. The interior opening of the tunnel was 15 cm at its base and 30 cm at its top. Floor preparation material stopped at the mouth of the tunnel, creating almost a coped lower edge.

The central hearth (Feature 13) had an interior diameter of 45 cm, an exterior diameter of 55 cm, and a depth of 18 cm. A 5 cm thick coping rimmed its outer edge. This coping was charred rather than oxidized (Figure 19.6). The interior walls were prepared and oxidation was present on the northern wall. The fill was a fine gray ash and sand matrix. A macrobotanical sample yielded charred corn (*Zea mays*) cupules. One flake and two pieces of angular debris were also recovered from the fill.

A large ground sandstone slab lay across the east edge of the hearth. When the slab was set on edge it was in alignment between the hearth and the ventilator suggesting that it probably served as the deflector (Figure 19.7).

A circular depression (Feature 14), measuring 30 cm in diameter and 7 cm deep, was 75 cm northeast of the hearth. A raised edge was around three-quarters of the rim. The fill was a sandy matrix with moderately dense ash. The west portion of the depression was oxidized. A macrobotanical sample from the fill contained no charred remains. The size, shape, and location of this pit suggest it functioned as a warming pit. No artifacts were recovered from the fill.

A small pit (Feature 15), 18 by 20 cm and 12 cm deep, was about 7 cm northwest of the hearth. The sides and bottom had a prepared interior. The fill was mostly sand with a minor amount of ash. No artifacts were recovered nor were any charred remains noted. This feature may have been a remodeled posthole that was used as a storage facility.

A circular storage niche (Feature 17) was at the juncture of the pitstructure wall and floor on the southern edge of the structure. It has an exterior diameter of 25 cm that expanded into an interior diameter of 35 cm. The niche extended 12 cm into the structure wall and 17 cm below the structure floor. The hole angled away from the floor at a 45° angle. The structure floor preparation had been built up around the lower edge of the niche (Figure 19.8). The upper 9 cm of fill in the niche was brown sand with few charcoal flecks and the lower 8 cm of fill was a fine white powder, possible carbonates, with brown sand. Seven lithics were recovered from the fill. This niche appears to have originally been a posthole that was reshaped into a storage facility.

Extramural Activity Area

Four pits that may be associated with the Puebloan occupation were exposed during the scraping activities. Three are clustered north-northeast of the structure (Features 10, 11, and 12) and one (Feature 7) is southwest of the structure (Figure 19.2). All four appear to be thermal facilities.

Feature 7, an oval basin measuring 82 by 77 cm by 14 cm deep (Figure 19.9), is on the western edge of the site about 7 m southwest of the structure. The fill was light gray, ash-mottled sand with flecks of charcoal. Most of the feature had been disturbed by roots so that its edges were delineated primarily by compaction and texture rather than staining. No oxidation was visible and no artifacts were recovered from the fill. The size and shape of the pit suggest it may have been used for roasting activities.

Feature 10 is a shallow hearth about 3 m northeast of the structure. It measured 35 by 34 cm with a depth of 8 cm (Figure 19.10). The fill was a dark-stained ash with small pieces of charcoal. No oxidation was noted. The macrobotanical sample yielded charred corn cupules. One flake, an unknown glazeware sherd, and a sherd too small to type came from the fill.



Figure 19.3 Photo of stratigraphy within the control unit dug in the pitstructure.



Figure 19.4 Photo of pitstructure after excavation.

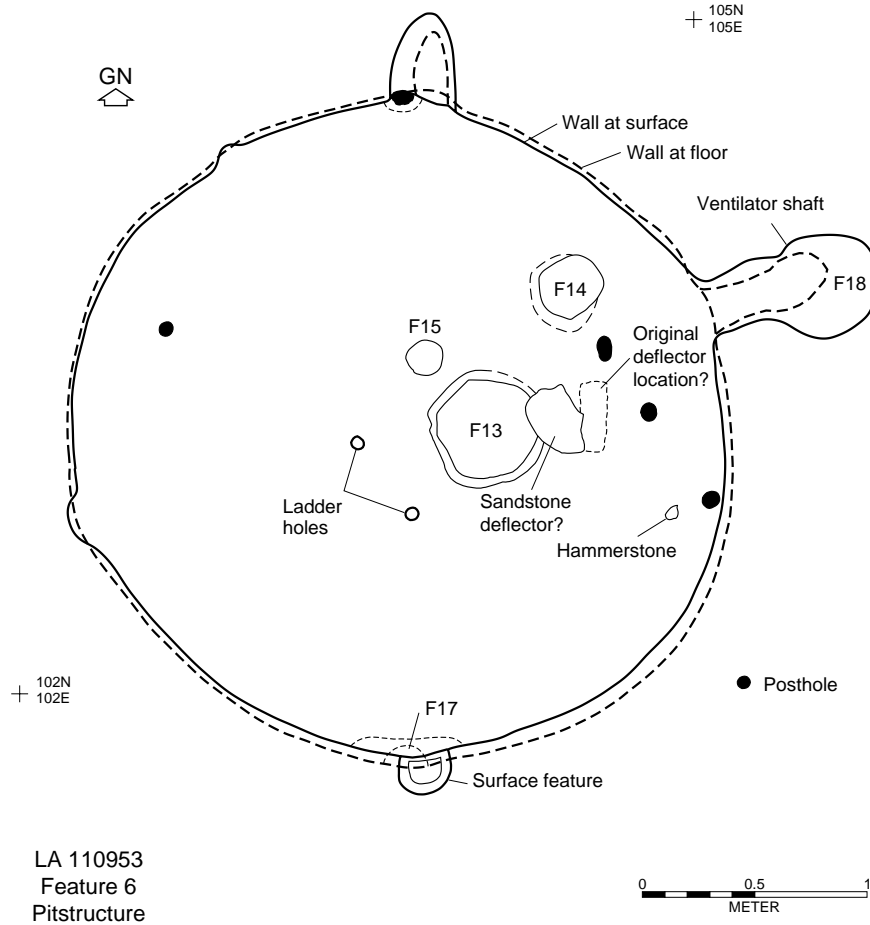


Figure 19.5 Plan of structure after excavation showing floor features and ventilator system.



Figure 19.6 Photo of central hearth showing charred coping.



Figure 19.7 Photo of alignment of hearth, sandstone slab, and ventilator.



Figure 19.8 Photo of storage niche (Feature 17) after excavation.



Figure 19.9 Photos of Feature 7 before and after excavation.

Located about 1 m northwest of Feature 10, Feature 11 is also a shallow hearth measuring 40 cm in diameter by 9 cm deep at its center (Figure 19.10). The fill was a very dark ash in the center that tapered out to a more mottled ash/sand matrix at its edges. The macrobotanical sample yielded evidence of charred corn cupules and kernels and a charred watermelon (*Citrullus*) seed. This latter specimen is probably intrusive into the fill. An unknown glazeware sherd and one flake came from the fill.

Feature 12, located 1.5 m east of the structure, is an oval basin measuring 37 by 27 cm by 13 cm deep (Figure 19.10). The fill was a sandy loam with small flecks of charcoal. Slight oxidation was present on its bottom. An indeterminate charred plant part came from the macrobotanical sample. No artifacts were found in the fill.

Midden

A large sheet midden (Feature 4), measuring approximately 5 by 11 m, is in the eastern part of the site (Figure 19.2). The pipeline trench bisected the midden east to west, exposing it in both trench walls. The overall size of the midden is not known because its proximity to two existing pipelines on the south restricted further investigation. Hand-excavation of 32 complete and 22 partial 1 m² units revealed the midden varied 2 to 10 cm thick. The midden matrix, a heavily stained and mottled ash/sand, contained 262 ceramics, 133 lithics, 16 pieces of bone, and carbonized seeds. Almost half of the sherds recovered from the midden (44%) were too small to type. Of the 147 typable sherds, most are plain ($n = 80$) or corrugated ($n = 14$) graywares. Painted types include Santa Fe/Wiyo Black-on-White; Lincoln Black-on-red; Glaze A, C, and unknown; and an unidentified Zia (Pumane) polychrome. Except for the Pumane Polychrome, this assemblage, is consistent with a late prehistoric, Pueblo III-IV occupation. Flotation samples yielded carbonized remains of wheat (*Triticum*, sp.), goosefoot/pigweed (*Chenipodium/Amaranthus*), purslane (*Portulaca*, sp.), and grasses (Gramineae).

A sample of the carbonized wheat grains from the midden yielded an age of 230 ± 60 BP (Beta-96729) or cal AD 1665 with a 95% confidence limit of cal AD 1515 to 1585, 1625 to 1825, 1835 to 1880, and 1915 to 1950. This date is inconsistent with the ceramic assemblage from the midden which, except for nine Puname sherds, dates to the prehistoric Puebloan occupation. The presence of the wheat in the midden may result from dumping ash cleaned out of Feature 16, a small hearth at the edge of the midden with charred wheat in its fill, or a historical hearth for parching wheat may have been built over the midden but was missed during excavation.

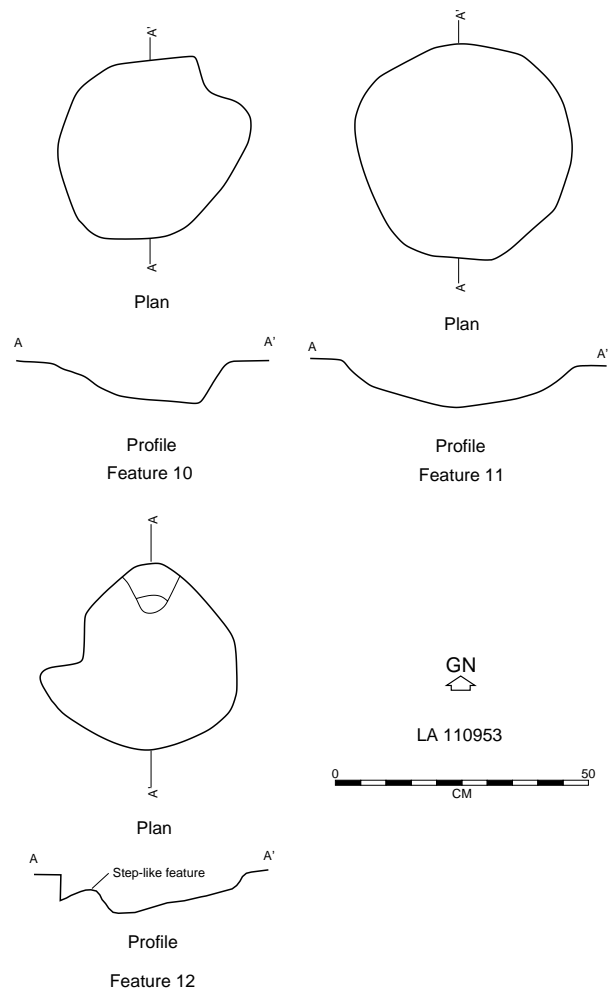


Figure 19.10 Plan and profile of three extramural pits, Features 10, 11, and 12.

The Historical Occupation

The primary historical occupation encompasses two corn roasting pits (Features 1 and 2) and two hearths (Features 8 and 16). A third roasting or storage pit (Feature 9) may also be associated with this occupation. Features 1, 2, and 9 were truncated by the pipeline trench (Figure 19.2).

Roasting Pits

Two large roasting pits (Features 1 and 2) were in the south part of the site. These pits were oriented east-west with their openings a few meters apart. Both pits were visible in the north trench wall during monitoring of the pipeline construction.

Feature 1, 1.55 by 1.75 m and 1.4 m deep, was bell-shaped (Figure 19.11). Approximately 25% of its south edge was removed by the pipeline trench. Its upper portion had

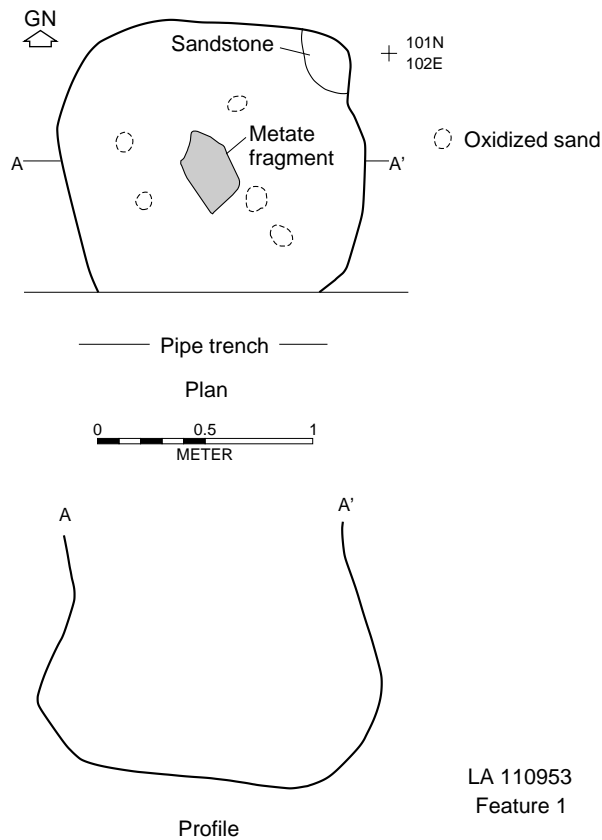


Figure 19.11 Plan and profile of Feature 1, a large roasting pit.

sloping walls that stepped inward to the neck. The lower portion belled out to a 1.65 m diameter and had a basal diameter of 1.4 m. The interior of this lower portion had remnants of chalky plaster on 15% of its wall surface. A slab metate fragment was in its bottom (Figure 19.12).

Three strata composed the fill of this pit (Figure 19.13). The first and uppermost stratum was 30 to 50 cm of gray-stained sand with clay pockets and charcoal fragments. A thin lens of charcoal was at the base of this stratum. Macrobotanical samples from this stratum yielded goosefoot/pigweed (*Chenopodium/Amaranthus*), wheat (*Triticum* sp.), and sunflower (*Helianthus* sp.).

The second stratum was 1 m of sand with decomposing sandstone fragments that were in two levels. The upper 40 cm was a pale brown sand that was moderately compacted with small sandstone fragments and the lower 60 cm was a pink compacted sand with large sandstone fragments. A shallow lens of sand with charcoal flecks was between these two levels. A macrobotanical sample from this second stratum yielded charred corn (*Zea mays*).

The lowest stratum, 50 cm thick, was a dense concentration of charcoal, unburned wood, ash, and mottled sand. Portions of the wall were heavily charred. A macrobotanical sample from this stratum yielded carbonized goosefoot (*Chenopodium* sp.), bean (*Phaseolus*, sp.), corn (*Zea mays*), and wheat (*Triticum*, sp.).

Two charcoal samples, one from the upper stratum and one from the charcoal lens in the feature bottom, yielded ^{13}C adjusted dates of 80 ± 50 BP (Beta-96726) and 70 ± 50 BP (Beta-96724), respectively. These dates have 95% confidence intervals of cal AD 1675 to 1770 and cal AD 1800 to 1940 for the first sample, and cal AD 1680 to 1755 and

cal AD 1805 to 1940 for the second. Both dates suggest a Spanish colonial, Mexican, or U.S. Territorial period use. What appears to be the remains of the ventilator for this pit was found on the south wall and designated Feature 5 (Figure 19.14). This feature, partially truncated by the trench, is a small pit (or opening) measuring 49 by 45 cm by 50 cm deep. At the bottom a shaft, 20 cm in diameter, extended down through the trench wall. A sandstone rock, 15 by 25 cm, capped the shaft. The horizontal portion connecting the pit to the ventilator opening was removed during trenching. The fill was a dark-stained sand with small charcoal fragments. No artifacts were recovered.

The second roasting pit (Feature 2) lies 4.5 m east of Feature 1 and has an orifice of 68 by 90 cm, a basal diameter of 1.1 m, and a depth of 1.2 m (Figure 19.15). Approximately 40% of the pit had been removed by the pipeline trench (Figure 19.16). The fill was compacted sand with charcoal fragments and sandstone in various stages of decomposition. A lens of charcoal was concentrated near its bottom. Slight oxidation was evident on one wall and on the bottom. The macrobotanical sample yielded evidence of carbonized wheat (*Triticum*, sp.) and purslane (*Portulaca*, sp.). A charcoal sample, identified as conifer (cf. *Juniperus* 95%) and hardwood (5%), yielded a ^{13}C adjusted date of 70 ± 50 BP (Beta-96727) or a 95% confidence interval of cal AD 1680 to 1775 and cal AD 1805 to 1940. This date is statistically the same as those from Feature 1, which suggests the two pits may be contemporaneous. Four lithics, 14 sherds, and 89 pieces of animal bone were recovered from the fill. All are intrusive.

A 15 cm diameter hole was in the pit west wall of Feature 2 about 40 cm above the bottom. This hole sloped upward at an angle up to Feature 3, an unknown pit immediately to the west of Feature 2. A large sandstone rock capped this hole. Feature 3 was probably the ventilator for the roasting pit.

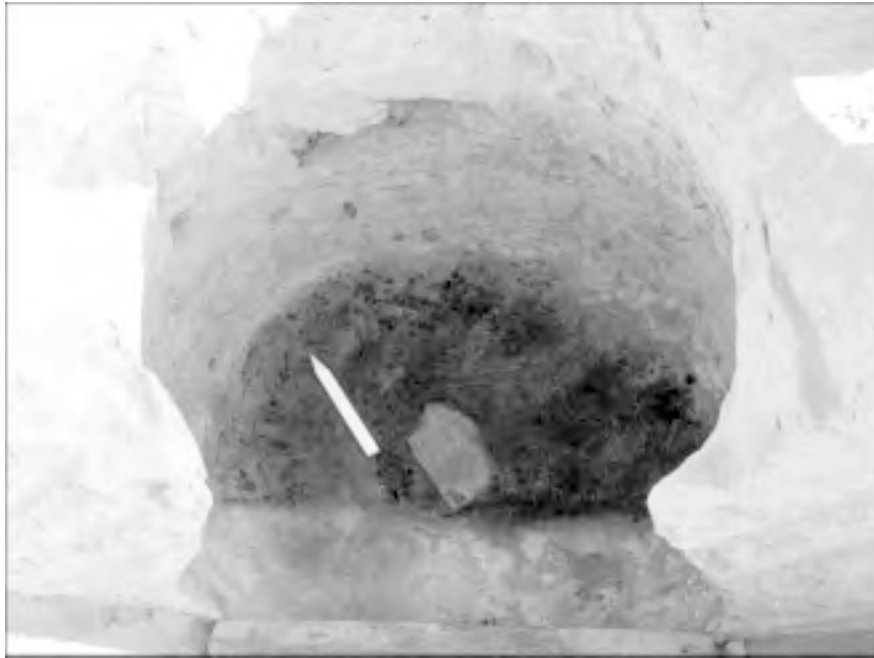
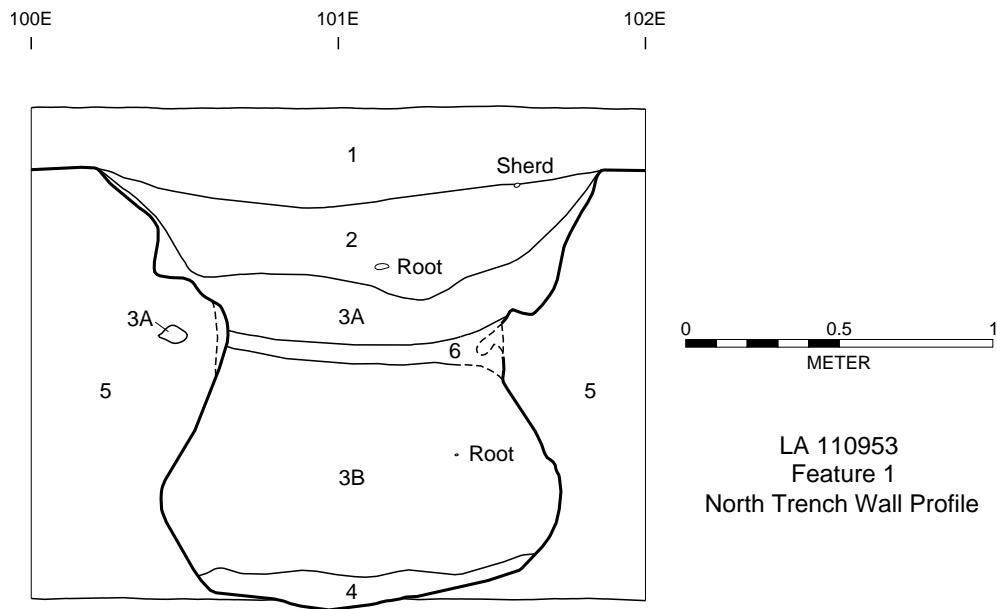


Figure 19.12 Photo of Feature 1 after excavation.



LA 110953
Feature 1
North Trench Wall Profile

- 1 Light yellowish brown eolian sand (10YR 6/4)
- 2 Light brown sand w/moderate charcoal flecks & few sm. chunks (7.5YR 6/3)
- 3A Very pale brown-mottled reddish brown sand (10YR 7/3)
- 3B Pink-mottled reddish brown sand (7.5YR 7/4)
- 4 Black charcoal chunks (<1-4cm) w/ashy sand (2.5YR 2.5/1)
- 5 Very pale brown sterile sand (10YR 7/3)
- 6 Sterile laminated sands
- Sterile intrusion into feature fill

Figure 19.13 Profile of stratigraphy within Feature 1.



Figure 19.14 Photo of Feature 5 in the south trench wall before excavation.

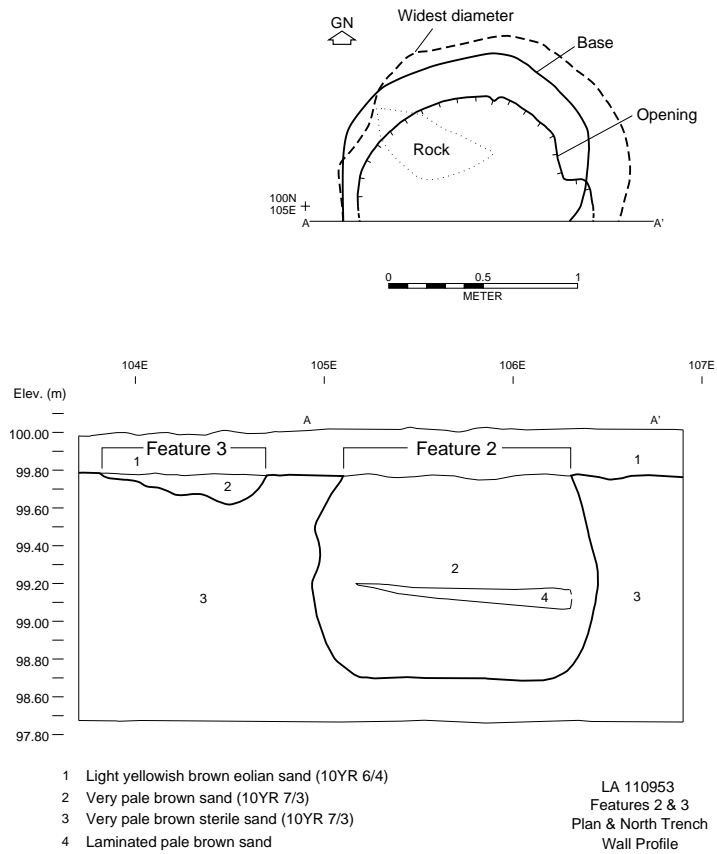


Figure 19.15 Plan and profile of Feature 2, a large roasting pit.

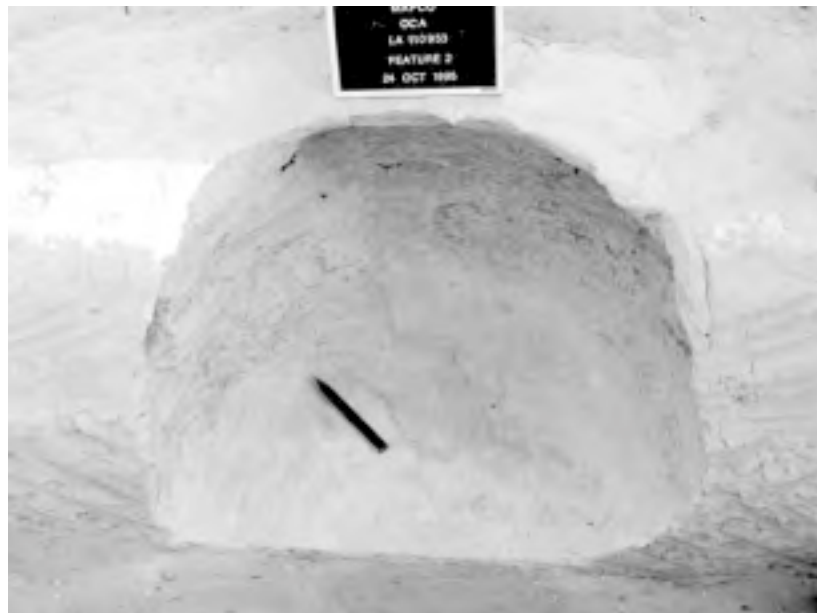


Figure 19.16 Photo of Feature 2 after excavation.

Both roasting pits are similar to the one found in Provenience 2 of LA 110942 and to the corn roasting pit described by Cushing (1979) during his work at Zuni in the late 1800s (see Chapter 11). The presence of charred wheat, bean, and wild plants in the fill of both features probably results from refuse dumping into the roasting pits.

A third roasting pit, or possible storage pit (Feature 9), is 3 m east of Feature 2. This pit measured 57 by 69 cm and had a depth of 61 cm (Figure 19.17). It resembled Feature 2, only smaller. The interior was in good condition, with wall slump puddled near its bottom. The fill was very loose tan sand with no ash or charcoal. The texture and density of the fill matrix delineated the pit from the surrounding Zia Sandstone. A charred corn cob was recovered from the macrobotanical sample. Also recovered from the fill were four lithics and five ceramics.

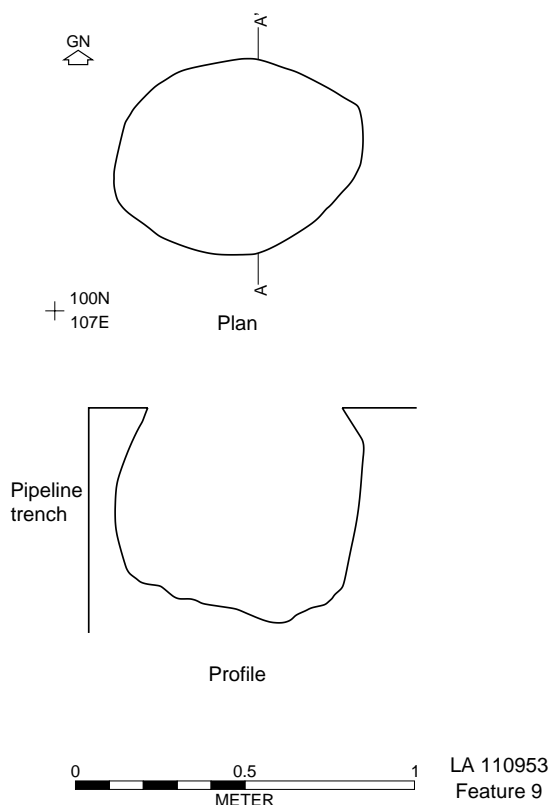


Figure 19.17 Plan and profile of Feature 9.

Hearths

Feature 8 is a small hearth located about 4 m northeast of Feature 2. It measured 50 by 55 cm by 8 cm deep (Figure 19.18). The fill was black-stained sand with small charcoal pieces. A radiocarbon sample yielded a ^{13}C adjusted date of 80 ± 70 (Beta-96730) or a 95% confidence interval of cal AD 1665 to 1950. Statistically this date is the same as those

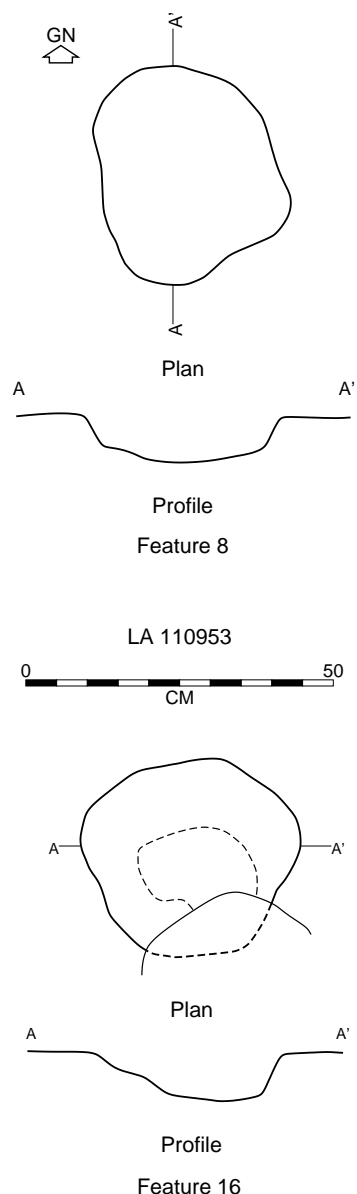


Figure 19.18 Plans and profiles of hearths probably associated with the historical component at LA 110953.

obtained for the two roasting pits, which suggests the three may be contemporaneous. The macrobotanical sample yielded charred corn kernels (*Zea mays*). One chalcedony flake was recovered from the surface and probably is not related to the hearth.

The last feature associated with the historical occupation is a small hearth (Feature 16) at the north edge of the midden approximately 8 m southeast of Feature 2. It measures 30 by 27 cm by 11 cm deep (Figure 19.18). The fill was a dark gray ash with small charcoal flecks. A macrobotanical sample yielded evidence of charred

wheat (*Triticum*) and goosefoot (*Chenopodium*). No oxidation was noted nor were any artifacts recovered from the fill.

ARTIFACTS AND SAMPLES

The artifact assemblage is composed of 313 lithics, a stone bead, 623 ceramics, 472 animal bones, and macrobotanical remains.

Lithics

The lithic assemblage is mostly flakes and angular debris with few formal tools (Table 19.1). Most of the assemblage is from the midden (Feature 4) and the structure (Feature 6). With the exception of a few isolated flakes and angular debris the historical two roasting pits (Features 1 and 2) did not contain many lithic artifacts. Those that were within the fill of these two features are probably intrusive.

Chalcedonies dominate the raw materials followed by basalt and quartzite (Table 19.1). All are probably of local origin except for the some of the obsidian.

A red stone bead (Figure 19.19) was recovered from the floor of the structure (Feature 6). The bead measures 6.4 mm in diameter, 2.3 mm thick, weighs 1.7 grams, and has a bidirectionally drilled hole measuring 1.9 mm in diameter. This specimen represents an ornament made from locally available material.

Ceramics

All of the ceramics ($n = 623$) were analyzed with 433 being identified to a ware type (Table 19.2). The dominant ware types are Indented Corrugated Grayware, Plain Gray, and unknown glazewares. A variety of other wares occur in low frequencies. Most of these wares date to the prehistoric Puebloan occupation. The nine Zia sherds are a Puname polychrome and date between 1670 and 1750 (Harlow 1973), a date range consistent with the dates recovered from the two roasting pits (Features 1 and 2) and a hearth (Feature 8).

Jars represent 68.4% of the assemblage, of which 81% are Plain Gray and corrugated wares. Bowls compose 24.7% of the assemblage, of which 39% are glazewares and 23% are Santa Fe Black-on-white. The jar to bowl ratio is nearly 3:1, which indicates a normal domestic assemblage (Sebastian 1983a). Most of the ceramics are from the midden, including the Zia sherds. Large quantities also came from the structure (Feature 6) and the surface scrape.

Faunal Remains

The faunal assemblage ($n = 472$) was recovered primarily from the two historic roasting pits, Features 1 and 2 (Table 19.3). Most of the identified taxa from these two pits are small rodents and/or lizards, although mourning dove, woodrat, and coyote/dog bones were recovered from Feature 2. The lizards and small rodents are considered intrusive to the cists and are not considered economically important to the site inhabitants. The lizards would have been attracted to the cists for shelter from extreme temperatures in heat and cold while the small rodents would have been attracted to the stored grain. Support for the lizards and rodents being intrusive also comes from the elements represented which include nearly their entire skeleton.

Economically important taxa identified in the assemblage include turkey, mourning dove, indeterminate duck-size and turkey-size birds, cottontail, jackrabbit, woodrat, coyote/dog, deer, and deer/pronghorn. The high identifiability of the assemblage (46%) indicates that intensive bone processing to acquire marrow and grease was not employed. Deer is represented by a humerus and deer/pronghorn by a femur from the midden. Turkey, recovered from the structure (Feature 6) fill, is represented by a fibula and tibiotarsi. Lagomorph elements include the femur, scapula, radius, and tibia. These are all meat-bearing elements. Their occurrence in the structure (Feature 6) fill and midden are not unexpected. They are associated with the Pueblo III–Pueblo IV occupation.

One bone specimen from the pitstructure (Feature 6) is modified. This specimen is a sharp tip of a broken awl. The thickness and density of the bone indicates it is of a rabbit-size mammal long bone. The tip was broken near the end of the awl. The tip measures 20 mm long, 4 mm wide, and weighs 0.18 g.

Archeobotanical Remains

Matrix totaling 367.3 liters was processed by flotation. Selected samples were scanned for identifiable taxa (Table 19.4). Economically important taxa associated with the Pueblo III–Pueblo IV occupation are goosefoot, purslane, and maize. The occurrence of watermelon and wheat are attributed to contamination by a later historical occupation. Juniper and saltbush probably represent fuel for fires and/or construction material.

The historical occupation has the cultigens sunflower, bean, wheat, and maize. The occurrence of goosefoot and purslane is not unexpected. Juniper and pine probably represent fuel

for the fires used in the processing of maize, wheat, and possibly other agricultural products.

SUMMARY AND INTERPRETATION

LA 110953 is a multicomponent site dating to the Pueblo III–Pueblo IV and Spanish colonial–U. S. Territorial periods. The earlier occupation consists of a pitstructure, midden, and extramural activity area, marking this as a residential occupation. Given the time period and the interior features within the structure this is probably a year-round occupation. The use of square pitrooms during the Classic period is not uncommon but the circular pithouse is unexpected and raises the question as to whether an earlier structure was reused by later Puebloan occupants. The pitstructure, dug into sandstone, could easily weather erosion and be refurbished at a later time. This is speculative, however, as no earlier ceramics or radiocarbon dates were recovered from this site.

A Spanish colonial–U. S. Territorial period occupation is indicated by the dates obtained from the roasting pits (Features 1 and 2), a hearth (Features 8), and the presence of Zia matte-paint ceramics. These features are probably part of a historical activity area adjacent to agricultural fields of corn and wheat. Given the proximity of Zia Pueblo, this area was probably a day-use or overnight use area.

The areal extent of the site was not delineated owing to the amount of overburden covering the features. It is highly probable that other features are present outside the pipeline right-of-way. Further investigations in the areas outside the right-of-way may answer some of questions raised by our excavations. Clearly, more ethnographic research is needed to address agricultural practices of the historical period, especially those related to plant and grain processing.

Table 19.1 Lithic artifacts and material types by feature at LA 110953.

	Feature Number												Total	
	0	1	2	4	6	8	9	10	11	13	17	<i>n</i>	%	
Artifact Type														
Angular debris	16	1	1	34	25		1	1		2	3	84	26.8	
Flake	31		3	94	66	1	3		1	1	4	204	65.2	
Flake, Bifacial Thinning					1							1	0.3	
Core, Irregular	3			3	1							7	2.2	
Hammerstone					1							1	0.3	
Flake, Utilized					1							1	0.3	
Flake, Retouched					1							1	0.3	
Projectile Point	1											1	0.3	
Biface				1								1	0.3	
Scraper	1											1	0.3	
Drill					1							1	0.3	
Ground Stone, unknown				1	3							4	1.3	
Mano, unknow					2							2	0.6	
Metate, unknown					4							4	1.3	
Total	52	1	4	133	106	1	4	1	1	3	7	313	100	
Material Type														
Chalcedony, black inclusions			1		1							2	0.6	
Chalcedony, red inclusions					1							1	0.3	
Chalcedony, clear	2			13	18							33	10.5	
Chalcedony, yellow	1			1								2	0.6	
Chalcedony, opaque	6		1	26	22	1	2				6	64	20.4	
Chalcedony, green inclusions				1								1	0.3	
Chalcedony, other	11			21	26			1			1	60	19.2	
Silicified Wood	4			13	4							21	6.7	
Silicified Wood, platy	2											2	0.6	
Silicified Wood, yellow				1	1							2	0.6	
Quartzite, fine grained	7		1	18	3		1					30	9.6	
Quartzite, medium/coarse					2							3	1.0	
Chert, gray	2			1								3	1.0	
Chert, pink				1								1	0.3	
Chert, white	5	1		3	3		1			3		16	5.1	
Obsidian				1								1	0.3	
Obsidian, Jemez	2			9	2							13	4.2	
Basalt	10		1	22	14				1			48	15.3	
Basalt, vesicular					2							2	0.6	
Sandstone				1	7							8	2.6	
Total	52	1	4	133	106	1	4	1	1	3	7	313	100	

Table 19.2 Pottery types and vessel forms by feature at LA 110953.

	Feature Number										Total	
	0	1	2	4	6	8	9	10	11	<i>n</i>	%	
Pottery Type												
Unidentified Cibola Whiteware	5		2	4	14						25	4.0
Unidentified Narrow Line Cibola Whiteware		2									2	0.3
Unidentified Cibola Grayware	6			8	3						17	2.7
Plain Gray	13	2	3	80	7						105	16.9
Unidentified Clapboard Corrugated Gray	2		1	4	4		1				12	1.9
Unidentified Indented Corrugated Gray	14		1	10	105		1				131	21.0
Lincoln Brown-on-red				4							4	0.6
Unknown Glazeware	36		7	18	13		1	1	1		77	12.4
Glaze C				3							3	0.5
Glaze A				1			1				2	0.3
Zia Unidentified				9							9	1.4
Santa Fe Black-on-white					25		1				26	4.2
Wiyo Black-on-white					4						4	0.6
Santa Fe/Wiyo Black-on-white				3	4						7	1.1
Unknown ceramic	2			3	4						9	1.4
Too small to type		37	4	115	27	1	1	1			190	30.5
Total	115	8	18	262	210	1	6	2	1	623	100	
Vessel Type												
Bowl	21	2	4	25	53		1		1		107	17.2
Handle					1						1	0.2
Jar	42	2	7	115	126		4				296	47.5
Unknown	52	4	7	122	30	1	1	2			219	35.2
Total	115	8	18	262	210	1	6	2	1	623	100	

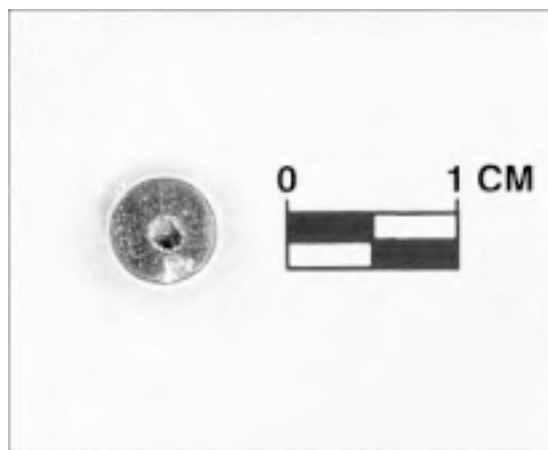


Figure 19.19 Photo of stone bead recovered from structure.

Table 19.3 Archeofaunal remains by feature at LA 110953.

Taxon	Feature Number					Total	
	0	1	2	4	6	<i>n</i>	%
cf. <i>Crotaphytus collaris</i> (?Common Collared Lizard)			2			2	0.4
<i>Crotaphytus collaris</i> / <i>Gambelia wislizenii</i> (Collared Lizard/Leopard Lizard)			1			1	0.2
cf. <i>Phrynosoma</i> sp. (?Horned Lizard)			3			3	0.6
<i>Meleagris gallopavo</i> (Turkey)					3	3	0.6
<i>Zenaida macroura</i> (Mourning Dove)			3			3	0.6
Indeterminate duck-size bird					1	1	0.2
Indeterminate turkey-size bird					4	4	0.8
<i>Sylvilagus</i> sp. (Cottontail)				1		1	0.2
<i>Lepus californicus</i> (Black-tailed Jackrabbit)					5	5	1.1
Rodentia (Rodents)			2			2	0.4
<i>Thomomys bottae</i> (Botta's Pocket Gopher)					1	1	0.2
<i>Perognathus</i> sp. (Pocket Mouse)	66	37				103	21.8
cf. <i>Perognathus</i> sp. (?Pocket Mouse)	1					1	0.2
Cricetinae (New World Mice and Rats)	15					15	3.2
<i>Peromyscus</i> sp. (White-footed Mouse)	22	2				24	5.1
cf. <i>Peromyscus</i> sp. (?White-footed Mouse)	2					2	0.4
<i>Onychomys leucogaster</i> (Northern Grasshopper Mouse)	65	3				68	14.4
cf. <i>Onychomys leucogaster</i> (?Northern Grasshopper Mouse)	1	2				3	0.6
<i>Neotoma</i> sp. (Woodrat)			4		5	9	1.9
cf. <i>Neotoma micropus</i> (?Southern Plains Woodrat)			1			1	0.2
<i>Canis latrans</i> / <i>C. Familiaris</i> (Coyote/Dog)			1			1	0.2
<i>Odocoileus</i> sp. (Deer)				1		1	0.2
<i>Odocoileus/Antilocapra americana</i> (Deer/Pronghorn)				1		1	0.2
Indeterminate mouse-size mammal	139	21				160	33.9
Indeterminate rabbit-size mammal		1	1	5	11	18	3.8
Indeterminate coyote-size mammal			2	3		5	1.1
Indeterminate deer-size mammal		20	4	5	3	32	6.8
Indeterminate size mammal	2					2	0.4
Total	2	332	89	16	33	472	100

Table 19.4 Botanical remains from LA 110953.

Taxon	Feature Number										
	Midden	Pueblo III–Pueblo IV						Historical			
		Extramural Hearths			Pitstructure			Roasting Pits		Hearths	
	4	10	11	12	6	13	14	1	2	8	16
<i>Chenopodium</i> (Goosefoot)								c			c
<i>Chenopodium/Amaranthus</i> (Goosefoot/Pigweed)	c							c			
<i>Helianthus</i> (Sunflower)								c			
<i>Portulaca</i> (Purslane)	c								c		
<i>Citrullus</i> (Watermelon)			c								
<i>Phaseolus</i> (Bean)								c			
<i>Triticum</i> (Wheat)	c							c	c		c
<i>Zea mays</i> (Maize)		c	c		c	c		c		c	
Gramineae (Grass Family)	c								c		
Chenopodiaceae (Goosefoot Family)					c						
<i>Atriplex canescens</i> (Fourwing Saltbush)			c								
<i>Juniperus</i> (Juniper)		c						c	c		
<i>Pinus</i> (Pine)								c	c	c	

Key: c = carbonized remains

Chapter 20

LA 110954

Peggy A. Gerow

LA 110954 was reported during the monitoring of the pipeline construction. A shallow hearth was exposed in the pipeline trench wall. The site lies near the base of a small west-facing dune. The Jemez River is located about 0.9 km (0.6 mile) to the north (Figure 1.1). Vegetation is scrubland with an overstory of sparse juniper and piñon and an understory of grama grass, bunch grass, sage, rabbitbrush, and prickly pear cactus.

INVESTIGATION STRATEGY AND RESULTS

Since the feature was 43 cm below the modern ground surface, initial work removed the overburden to expose the stain. A 1 m² grid unit was placed over the scraped area (Figure 20.1). Hand-excavation of the stain revealed a hearth measuring 22 cm north-south by 30 cm east-west and 2 cm deep (Figures 20.2 and 20.3). The north edge of the hearth was truncated by the pipeline trench. The hearth fill was small charcoal pieces and white–light gray ash. Rodent disturbance was discernible above and west of the hearth. Oxidation was evident on the hearth bottom. No artifacts

were associated with the feature. A single radiometric date was obtained from carbonized juniper fragments collected from the fill. The sample yielded a ¹³C adjusted age of 190 ± 60 BP (Beta-96732) or cal AD 1675, 1775, 1800, 1945 with a 95% confidence interval of AD 1640 to 1950.

The artifact assemblage consists of four small bone fragments recovered from the fill. These fragments are from an animal of indeterminate size, which precludes any meaningful interpretation regarding subsistence or seasonality. A single flotation sample—1.3 liters—from the hearth was scanned for botanical remains. The only identified plant remains were uncarbonized juniper (*Juniperus* sp.) branchlet/leaf scales.

SUMMARY AND INTERPRETATION

LA 110954 appears to be a small historical campsite, possibly related to herding activities. No subsistence or seasonality information was obtained from the macrobotanical or faunal remains.

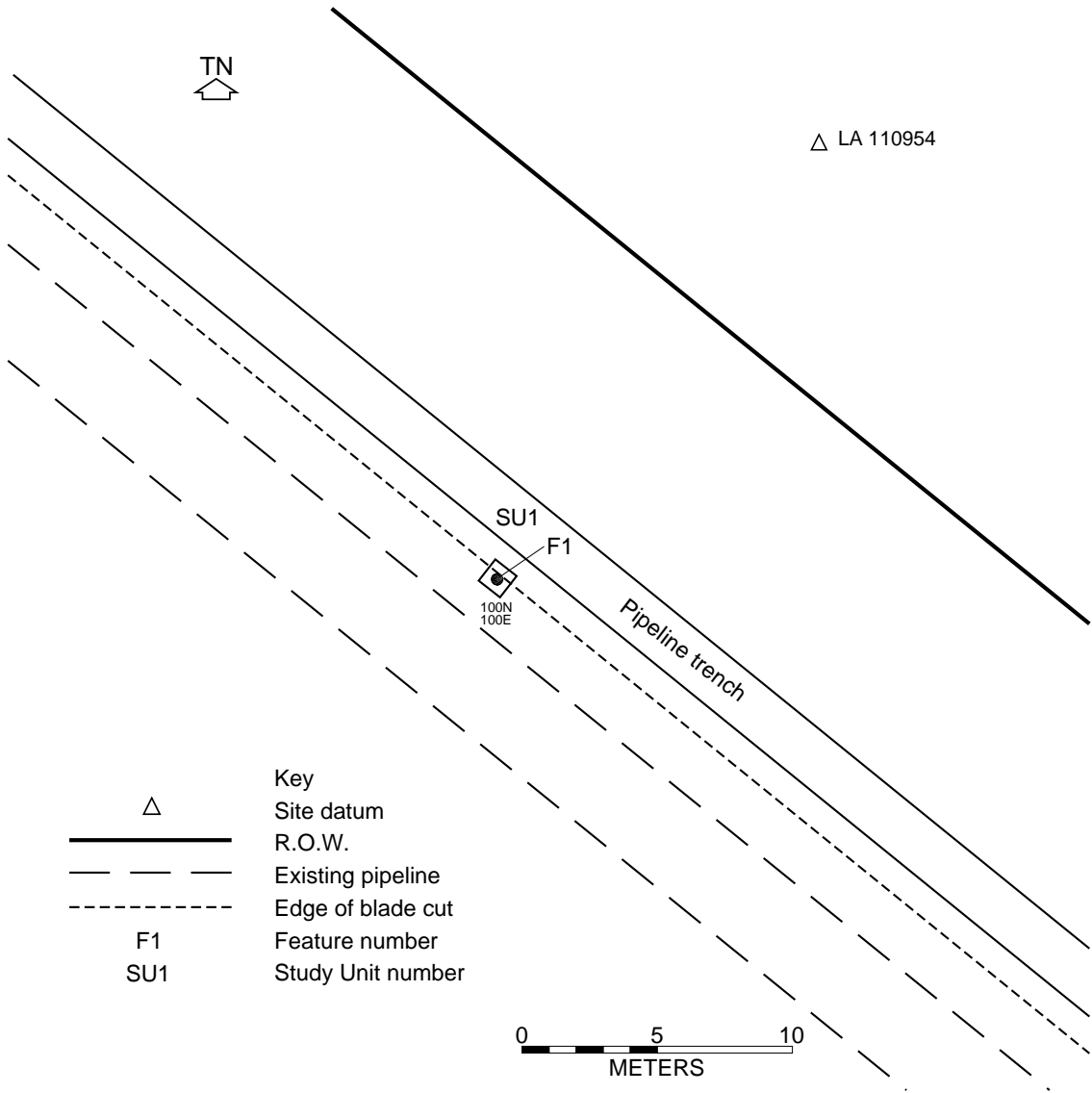
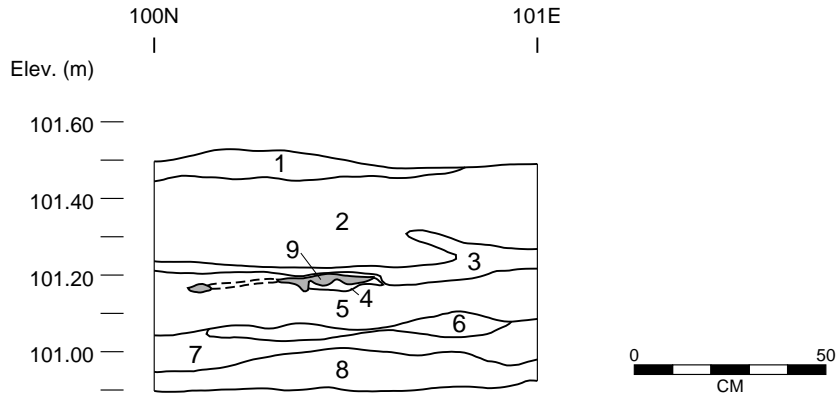


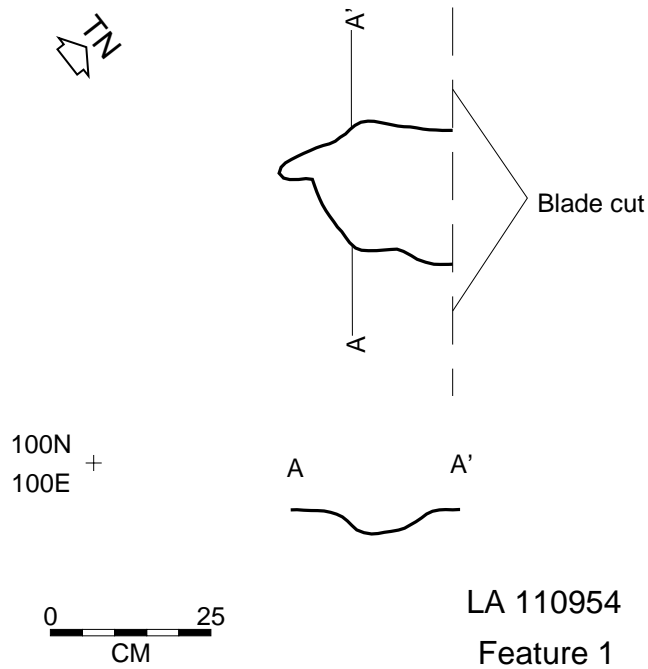
Figure 20.1 Site map of LA 110954 showing location of excavated area and Feature 1.



- 1 Light yellowish brown medium-coarse sand (10YR 6/4)
- 2 Reddish yellow medium-fine sand (7.5YR 6/8)
- 3 Brownish yellow multicolored coarse sand (10YR 6/6)
- 4 Reddish yellow oxidized fine sand (7.5YR 6/8)
- 5 Very pale brown fine sand (10YR 7/4)
- 6 Pale brown fine sand (10YR 6/3)
- 7 Light yellowish brown very fine sand (10YR 6/4)
- 8 Brownish yellow medium-fine sand (10YR 6/6)
- 9 Gray ash Feature 1 fill

LA 110954
Feature 1
South Trench Wall Profile

Figure 20.2 Feature 1 south trench wall profile.



LA 110954
Feature 1

Figure 20.3 Plan and profile of Feature 1.

Chapter 21

LA 110955

Janette M. Elyea

LA 110955 is a middle Archaic period site located about 1.3 km (0.8 mile) south of the Jemez River in an area of juniper grasslands (Figure 1.1). This deeply buried site, discovered during pipeline trenching, lies in alluvial and colluvial sands 1.5 m below the modern ground surface. The site has a low density lithic scatter, two sherds, an ash lens, and three hearth features.

INVESTIGATION STRATEGY AND RESULTS

Two features were discovered during the pipeline monitoring. Feature 1 was 95 cm below the surface along the south trench wall and Feature 2 was 1.6 m below the surface along the north trench wall 12 m east of Feature 1. Owing to the depth of the features a backhoe was used to remove 1.25 to 1.5 m of overburden in the area of Feature 2 (Figure 21.1). This was a 10 by 2 m area along the north edge of the pipeline trench (SU 1). The area adjacent to Feature 1 (SU 2) did not have overburden removed owing to the absence of cultural remains on the north side of the trench. The area south of the trench could not be investigated because of the proximity of existing pipelines.

Study Unit 1

Most work was in Study Unit 1. Monitoring of the pipeline trench revealed an ash stain at the bottom and in the north wall of the trench. Initial investigations of this stain suggested it might be an ephemeral structure (Feature 2). Excavation of the stain, however, could not define its shape or delineate its boundary. The stain, in 4.5 m² of the excavated units, was most prominent in two adjacent units. Within these two units the stain was 10 to 23 cm deep and the fill was a light ash with a few charcoal flecks. The other units had ash that was 4 to 6 cm deep and contained a few charcoal flecks.

Material collected from the stain contained a mix of conifer and saltbush/greaswood (*Atriplex/Sarcobatus*) charcoal

and one burned maize (*Zea mays*) cupule. Unfortunately, there was too little carbon from this sample for a conventional radiocarbon date. The presence of corn within the sample suggests a post-1000 BC date for the occupation, however.

A Middle Archaic hearth (Feature 3) was beneath Feature 2 on the south side of our excavation area. The pipeline trench had truncated the hearth, with the remaining portion measuring 41 by 19 cm and 27 cm deep. Charcoal from the fill was identified as sagebrush (cf. *Artemisia tridentata*) which yielded a radiocarbon date of 3860 ± 70 BP (Beta 96735) or 2310 cal BC with a 95% confidence interval of 2485 to 2125 cal BC.

One additional feature (Feature 4) was 2.5 m north of Feature 3. This round basin was 45 cm in diameter and 22 cm deep. It did not exhibit oxidation and the ashy fill did not have charred macrobotanical remains or enough charcoal for a radiocarbon date.

Artifacts from this excavated area include 126 lithics and 2 sherds. The sherds are of a whiteware jar and a grayware jar. Both are from the north end of the excavated area and neither is associated with any of the features. The lithics are mostly chalcedony flakes, but also included are four unknown metate fragments and a graver (Table 21.1). The faunal assemblage consists of nine bone fragments: one from an indeterminate-size bird, three from artiodactyla, and one from a large, three from very small, and one from indeterminate-size mammals. These bones occurred throughout the excavation units with no discernible pattern. We were unable to discern differences between the materials adjacent to Features 3 and 4 and those from the ash lens (Feature 2).

Study Unit 2

Feature 1 was the remaining portion of a hearth. Approximately half of the feature was intact and the other half was

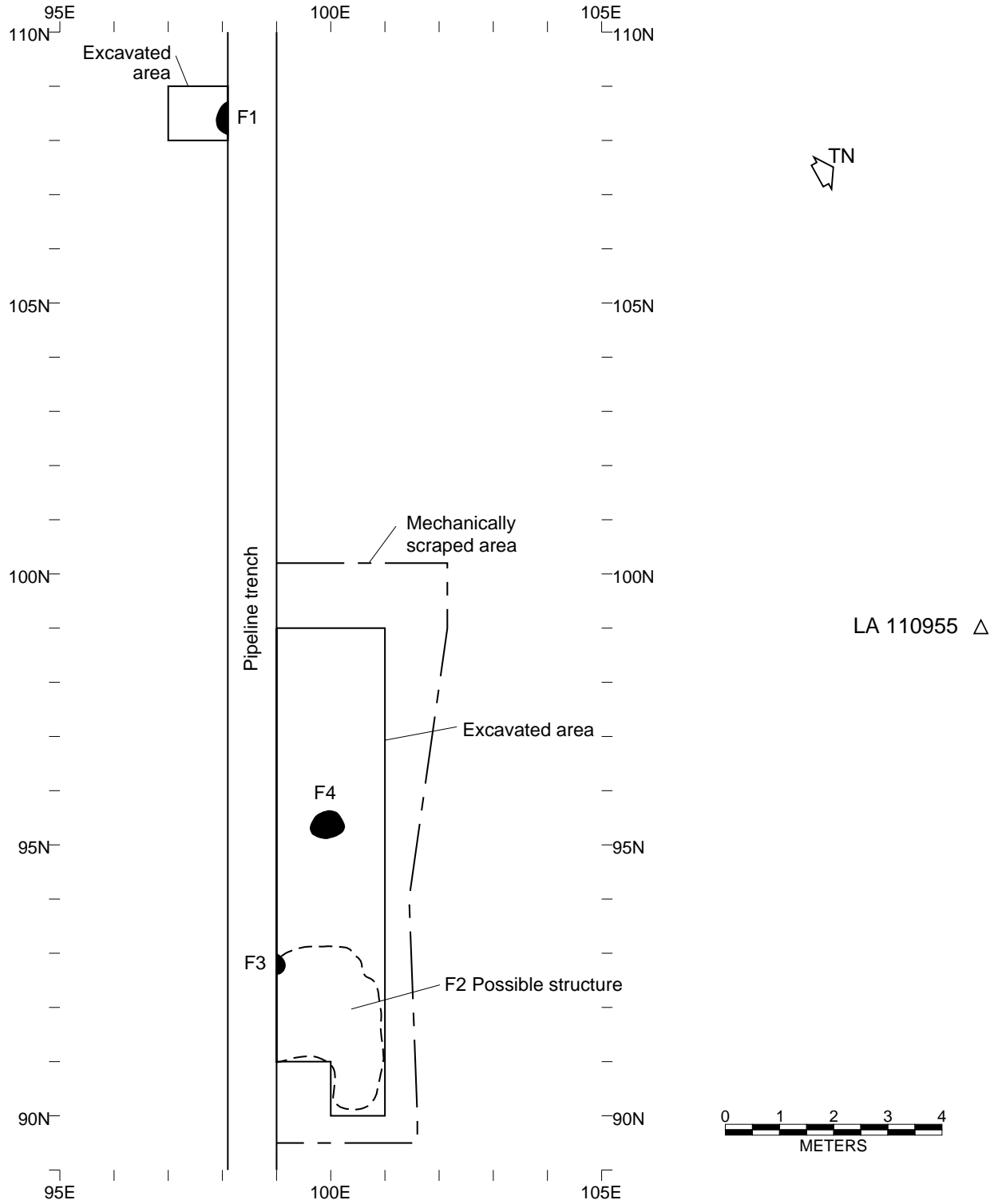


Figure 21.1 Site map of LA 110955 showing location of excavations.

Table 21.1 Lithic artifact and material types, LA 110955.

	Study Unit				Total	
	1		2		<i>n</i>	%
	<i>n</i>	%	<i>n</i>			
Artifact Type						
Angular Debris	15	11.9		15	11.6	
Flake	101	80.2	3	104	80.6	
Core, Irregular	5	4.0		5	3.9	
Graver	1	0.8		1	0.8	
Metate, unknown	4	3.2		4	3.1	
Total	126	100.0	3	129	100.0	
Material Type						
Chalcedony, black inclusions	1	0.8		1	0.8	
Chalcedony, red inclusions	3	2.4		3	2.3	
Chalcedony, clear	12	9.5	1	13	10.1	
Chalcedony, yellow	2	1.6		2	1.6	
Chalcedony, opaque	30	23.8		30	23.3	
Chalcedony, other	10	7.9		10	7.8	
Silicified Wood	28	22.2		28	21.7	
Silicified Wood, platy	1	0.8		1	0.8	
Silicified Wood, yellow	1	0.8		1	0.8	
Quartzite, fine grained	12	9.5	1	13	10.1	
Chert, brown	1	0.8		1	0.8	
Chert, tan	1	0.8		1	0.8	
Chert, gray	1	0.8		1	0.8	
Chert, fossiliferous	2	1.6		2	1.6	
Chert, white	3	2.4		3	2.3	
Chert, other	1	0.8		1	0.8	
Obsidian, black opaque	1	0.8		1	0.8	
Obsidian, Jemez	10	7.9	1	11	8.5	
Basalt	2	1.6		2	1.6	
Sandstone	4	3.2		4	3.1	
Total	126	100.0	3	129	100.0	

removed by the pipeline trenching. A 1 m² was excavated around the hearth remnant. The hearth was a round basin with a 21 cm depth and 67 cm diameter. The fill was an ashy sand and the bottom was slightly oxidized. Rodent disturbance was present along the southwest arc of the feature. Three flakes of chalcedony, fine-grained quartzite, and Jemez obsidian (visual identification) were recovered from the excavated unit. The hearth did not contain enough charcoal for a radiocarbon date, and flotation of the fill did not recover macrobotanical remains.

SUMMARY AND INTERPRETATION

LA 110955 contains the remains of multiple occupational episodes dating from the middle Archaic to the Formative period. The ash lens that contained the corn could date from either the late Archaic period or Formative period. We also do not know the nature of this occupation. It may represent a use area associated with a late Archaic structure, or it could be an agricultural field facility associated with a later Formative occupation. In either case, it is likely that the ash lens is associated with cultural remains that lie outside the pipeline right-of-way.

The middle Archaic occupation appears to be a short-term encampment dating to about 2100 BC. This is based on the radiocarbon dated remains from a hearth (Feature 3). The other undated hearths may also date to the Archaic period. The ceramics recovered from the site are not directly associated with the corn-bearing ash lens and probably relate to a later occupational episode.

Chapter 22

LA 110957

Harding Polk II

LA 110957 is a habitation with at least three cultural strata dating to the late Archaic period or earlier. The presence of three sherds on the surface indicates an ephemeral Formative component. The site—on land administered by the Pueblo of Zia—is 1.1 km (0.7 mile) south of the Jemez River and 1.1 km (0.7 mile) southeast of the MAPCO San Isidro pump station (Figure 1.1). LA 110957 is situated on a gentle northeast-facing slope that is an upper terrace of the Jemez River. The area is characterized by a sandy alluvial slope with shallow swales draining northeastward toward the river. Vegetation is a juniper woodland with fourwing saltbush, broom snakeweed, purple dahlia, nightshade, prickly pear and cholla cacti, groundsel, and various grasses.

INVESTIGATION STRATEGY

LA 110957 was discovered during monitoring of the pipeline construction. The monitors reported three ash stains (Features 1 to 3) exposed at varying depths in the walls of the 1.55 to 1.85 m deep pipeline trench. The stratigraphy exposed in the pipeline trench was complex, with at least ten discernible strata that are various colors and grades of sand interspersed with layers of caliche. The stratigraphic sequence appears to be a result of combined alluvial and eolian processes. A comparison of the strata—where cultural features occur—revealed at least three occupation episodes.

Data recovery was done in two phases. Initially, mechanical equipment was used to remove 50 to 90 cm of overburden from above each of the three ash stains. These excavations were designated Study Units 1 to 3 (Figure 22.1). Removal of the overburden revealed six additional stains. The nine stains were investigated by hand-excavating 22 1 m² units, 13 of which partially extended into the pipeline trench. Few artifacts were recovered. Two stains (Features 2 and 7) were not excavated. Feature 7—in the

southwest wall of the pipeline trench—was too close to an existing pipeline and Feature 2 was determined not to be cultural.

Study Unit 1

Study Unit 1 at the northwest end of the site was mechanically stripped of approximately 80 cm of overburden removed from an area measuring 5.5 m northwest-southeast along the pipeline trench and 4.5 m northeast-southwest, encompassing approximately 25 m². Three features (Features 3, 8, and 9) are in this study unit. Six contiguous excavation units were hand-dug to expose the stains.

Study Unit 2

Approximately 90 cm of overburden from Study Unit 2—7.25 m from Study Unit 1 in the central portion of the site—was removed with mechanical equipment from an area measuring 5.25 m northwest-southeast along the pipeline trench and 3.25 m northeast-southwest, encompassing approximately 17 m². Four stains (Features 1, 2, 6, and 7) were located within this study unit. Eight contiguous excavation units were hand-dug to expose the stains.

Study Unit 3

Study Unit 3—7 m from Study Unit 2 at the southeast end of the site—had two stains (Features 4 and 5) in two different stratigraphic levels. Approximately 55 cm of overburden was removed with mechanical equipment and an additional 40 cm was removed to expose the more deeply buried stain, Feature 5. The mechanically bladed area measured 5.5 m northwest-southeast along the pipeline trench and 4.5 m northeast-southwest, encompassing approximately 25 m². Eight contiguous excavation units were hand-dug to expose the stains.

HARDING POLK II

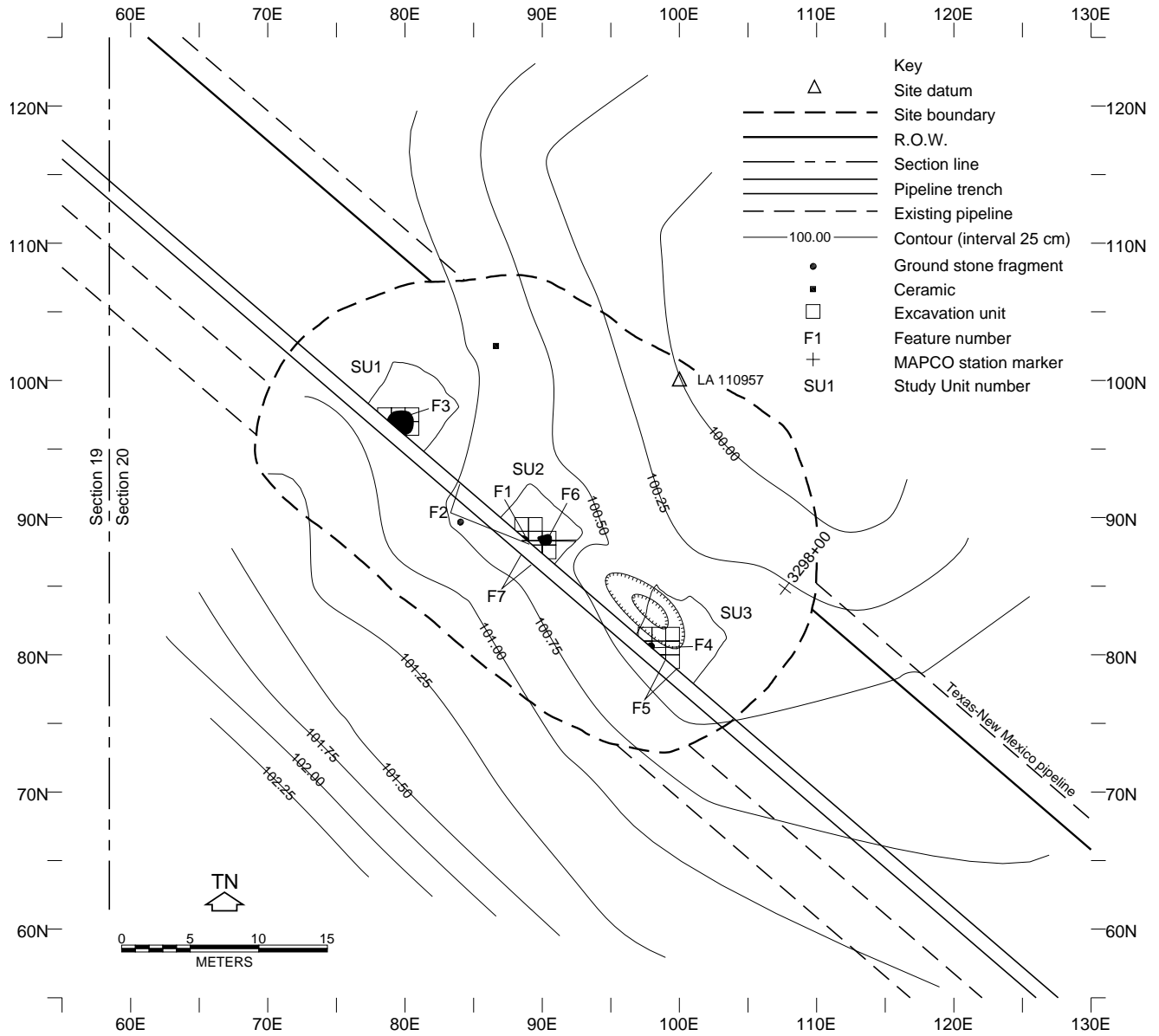


Figure 22.1 Site map of LA 110957 showing location of excavated areas, study units, and features.

RESULTS

Stratigraphy

The stratigraphy exposed in the pipeline trench was complex. At least ten strata—various colors and grades of sand interspersed with layers of caliche—were discernible. Cultural Stratum 1 was stratigraphically the highest, and most recent cultural layer. It contained Features 3, 8, and 9. The middle cultural layer, Cultural Stratum 2, contained Features 1, 4, 6, and 7. Cultural Stratum 3 is stratigraphically the deepest and oldest cultural layer. It contained Feature 5. All but one of the stains were associated with a cultural stratum. Feature 2 was a 6 m long 20 cm thick dark stain that was in the surface deposits. It was determined to be noncultural and likely was decaying organic matter.

Cultural Stratum 1

Structure

A small circular structure (Feature 3) was one of the original stains discerned in the pipeline trench wall (Figure 22.2). It measured 1.8 m along the edge of the pipeline trench and 1.5 m northeast-southwest, and was no greater than 15 cm thick. Pipeline trenching destroyed approximately 20% of the structure. The fill was a fine-grained loose dark ashy sand with small charcoal fragments. The cultural stratum (Figure 22.2, Stratum 6) was sandwiched between two caliche layers (Strata 5 and 7) and the perimeter of the structure was diffuse. Two large loci within the stain contained a darker and more ashy matrix. A low rise—75 cm in diameter and several centimeters high—straddled the two darker stains in the center of the structure. A noncultural stone and a bone fragment were recovered from its northern portion. The latter is a long bone fragment of a small rodent. It is probably unrelated to the human occupation. Rodent burrowing was noted in this portion of the structure. A small quantity of fire-cracked rock was noted in the northeast portion of the structure. Feature 3 had an interior posthole (Feature 8) and a small hearth (Feature 9).

A small quantity of charcoal from Feature 3—conifer (*Gymnospermae*) and saltbush/greasewood (*Atriplex/Sarcobatus*) with the latter predominating—yielded a radiometric age of 2380 ± 110 BP (Beta-92296) or 405 cal BC. The 2-sigma date range is 795 to 185 cal BC.

A small posthole (Feature 8), measuring 12 cm in diameter and 8 cm deep, was centrally located within a low rise in the center of the structure (Feature 3). Its fill consisted of a dark ashy sand and there was no evidence of oxidation or artifacts (Figure 22.3).

A small circular hearth (Feature 9)—approximately 20 cm in diameter and 4 cm deep—was near the northern edge of

the structure (Feature 3). The hearth fill was a dense charcoal and ash concentration, but no oxidation was noted. The hearth contained two pieces of fire-cracked rock and another fragment of fire-cracked rock was noted approximately 30 cm east (Figure 22.3).

Summary

Cultural Stratum 1 had three stains at the northwest end of the site. The stains were a small structure (Feature 3) with a central posthole (Feature 8) and a small hearth (Feature 9). They are believed to be contemporaneous. A charcoal sample yielded a radiocarbon date attributable to a late Archaic period occupation. The arrangement of the features is consistent with late Archaic habitation structures. Because of the small size of the structure a single central support post may have been sufficient to support the roof. The paucity of artifacts is also typical of late Archaic period structures. Ethnohistorical research suggests that the interior of the structures utilized by hunter-gatherers are cleaned of debris regularly (Binford 1983). Material removed in the process of cleaning was usually dumped immediately outside the doorway. No artifacts were found outside the structure to support this activity. The presence of fire-cracked rock and ground stone indicates food preparation immediately to the west of the hearth. A sleeping area may have been located on the opposite side of the structure where artifacts were removed during cleaning. The paucity of artifacts and relatively shallow cultural deposits indicates an occupation of short duration. The shallow depth of the deposits suggest the structure may have been exposed to erosion prior to being buried by natural processes. The very small mammal bone and observed rodent burrows indicate disturbance.

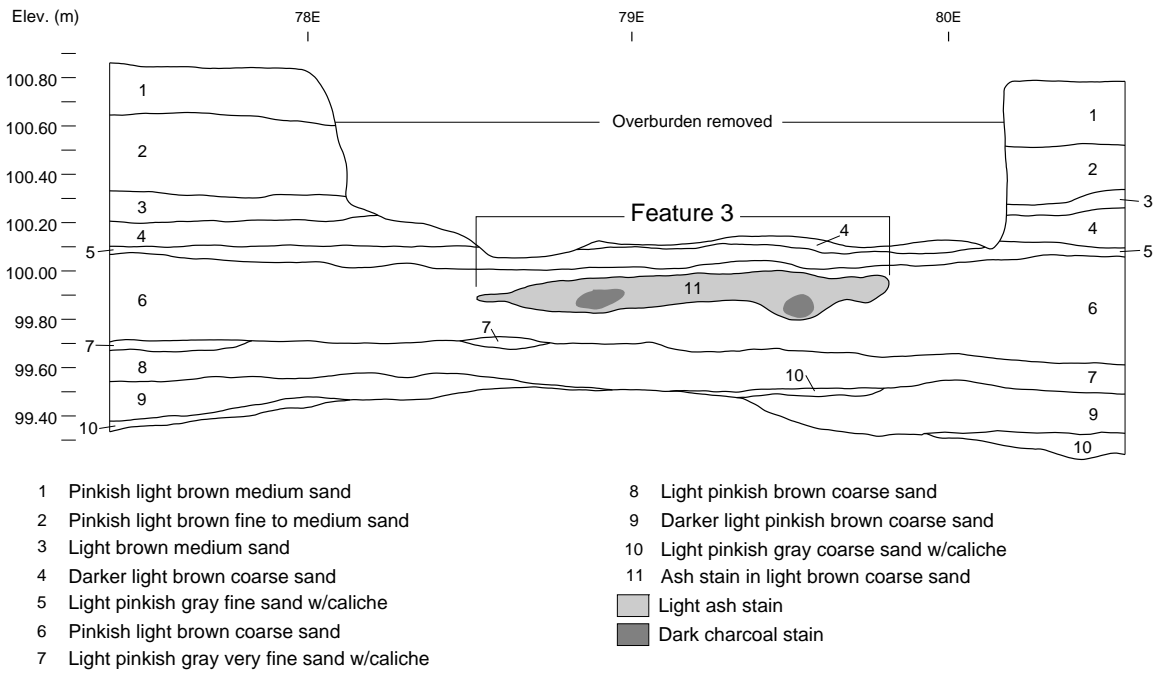
Cultural Stratum 2

Cultural Stratum 2 is marked by three features in Study Unit 2 and one feature in Study Unit 3. The stratigraphic position of these features indicates that they predate the late Archaic structure in Cultural Stratum 1, and that they are broadly contemporaneous, although they probably represent multiple occupational episodes.

Study Unit 2

A basin-shaped hearth (Feature 1)—measuring 42 cm northwest-southeast by 15 cm wide northeast-southwest and 8 cm deep—was in the central part of Study Unit 2 (Figure 22.4). Mechanical equipment was used to remove 95 cm of overburden (Figure 22.5). Approximately 65% of the hearth had been removed by the pipeline trench. The hearth fill was a sandy matrix with a low density of ash and charcoal.

HARDING POLK II



LA 110957
Feature 3
North Trench Wall Profile

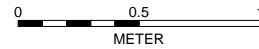


Figure 22.2 Feature 3 north trench wall profile in Study Unit 1.

+98N
+82E

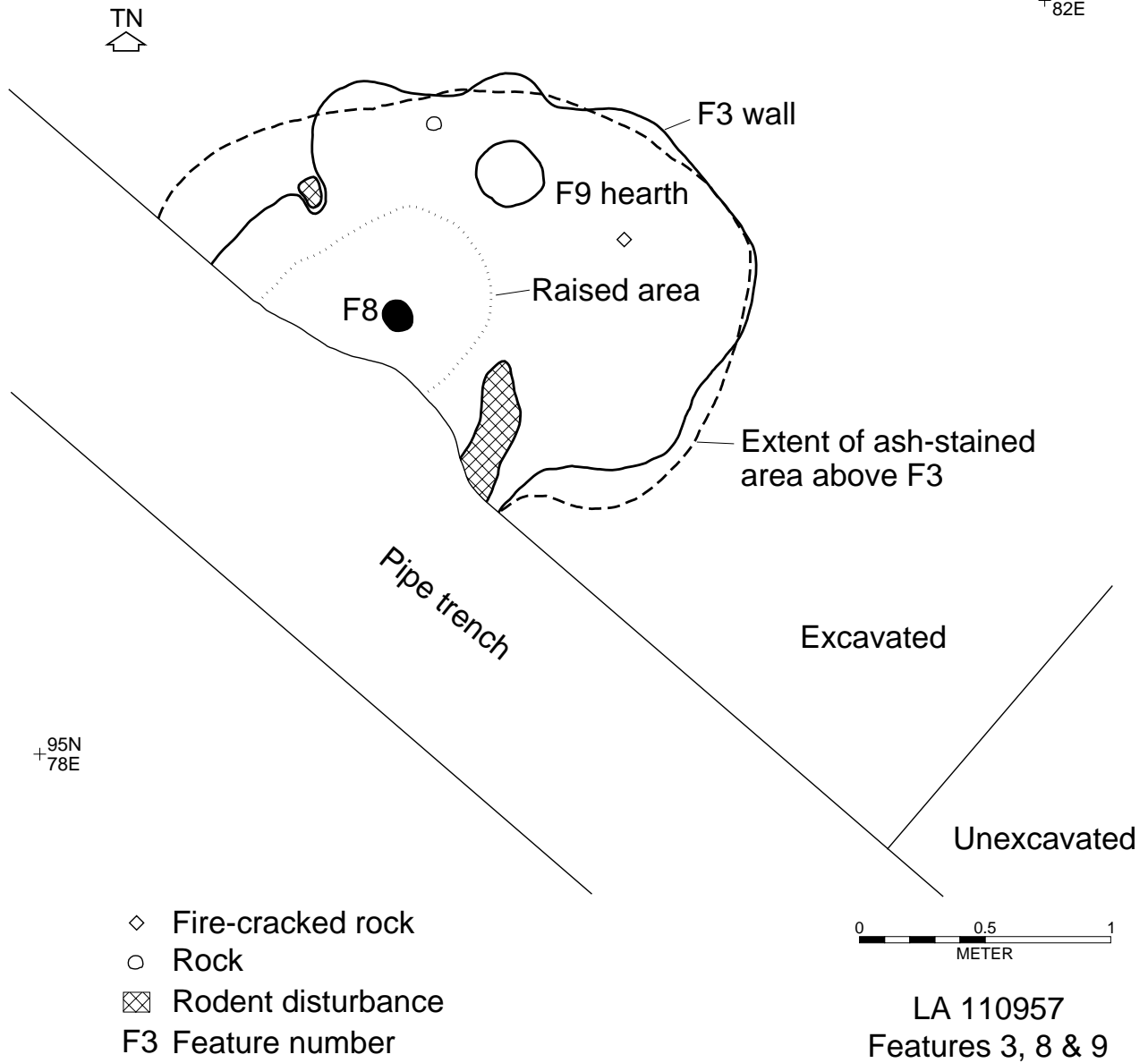


Figure 22.3 Features 3, 8, and 9 in Study Unit 1, Cultural Stratum 1.

A second hearth lens (Feature 7)—measuring 50 cm along the trench wall and having a maximum depth of 14 cm—was 80 cm below ground surface in the southwest wall of the pipeline trench (Figure 22.6). The hearth fill was a light ashy sand with a few small limestone fire-cracked rocks. Because of safety concerns this hearth was not excavated because it was too close to an existing pipeline. No artifacts were noted in the hearth fill other than a piece of fire-cracked rock. Two chert flakes were in the trench wall in the same stratum at a distance of approximately 1.7 m southeast of the hearth. Feature 7 was located at the same elevation and stratum as Feature 1.

A circular ash and caliche deposit (Feature 6)—measuring 73 cm north-south by 85 cm east-west and 2 to 3 cm thick—was 1 m east of Feature 1 in the same stratum. The ash and caliche deposit was bisected by the pipeline trench. The west half of Feature 6 was hand-excavated. A thin ashy layer beneath the caliche was exposed (Figure 22.4). The east half of the feature was collected for flotation, but no artifacts were recovered. The thin ash layer beneath the caliche may be redeposited material from Features 1 or 7.

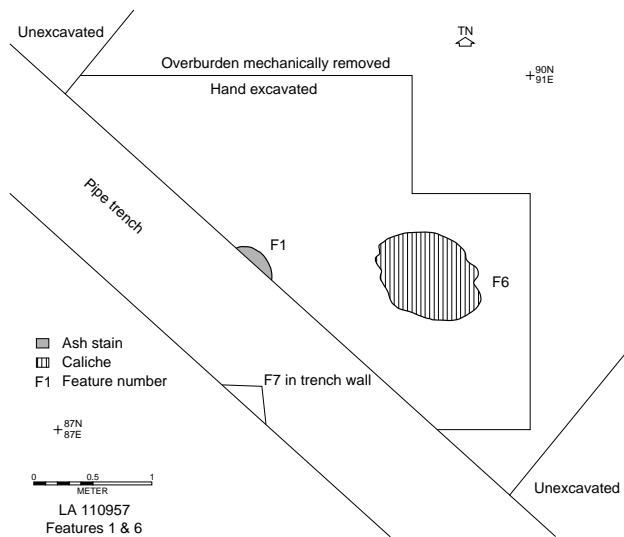


Figure 22.4 Features 1 and 6 in Study Unit 2, Cultural Stratum 2.

Study Unit 3

An ephemeral hearth (Feature 4)—measuring 63 cm north-west-southeast along the edge of the trench by 37 cm northeast-southwest and 6 cm deep—was 11.5 m southwest of Feature 1 in Study Unit 3. Feature 4 was also bisected by the pipeline trench (Figure 22.7). The feature fill was a gray brown sand with small charcoal flecks within a slightly lighter stain. Rodent burrowing was evident throughout its fill and no artifacts were recovered. The hearth was encompassed by a larger (2 by 3.3 m), more diffuse ash stain.

Given its amorphous margins, this larger stain probably reflects trampling of ash and charcoal removed from the hearth during repeated use.

Summary

Cultural Stratum 2 has four features—two small hearths (Features 1 and 7), a large diffuse hearth within a larger ash stain (Feature 4), and a concentration of caliche with questionable cultural affinity (Feature 6). The three hearths—truncated by the pipeline trench—are of indeterminate age, but stratigraphic sequencing indicates they predate Cultural Stratum 1 by an undetermined length of time. Cultural Stratum 2 likely dates to the late Archaic period.

Cultural Stratum 3

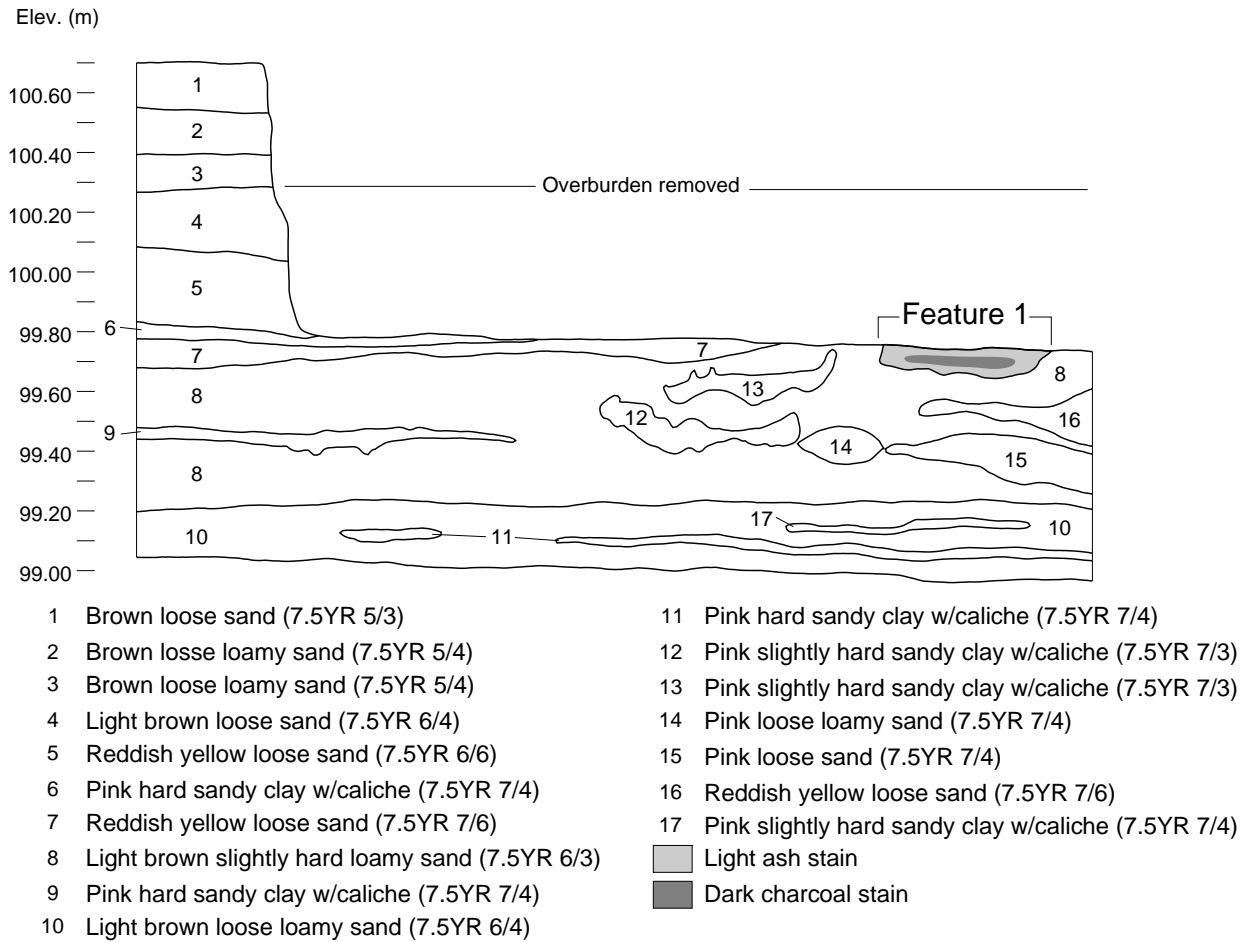
Cultural Stratum 3 is marked by a possible structure (Feature 5) in Study Unit 3 located stratigraphically below Feature 4 (Figure 22.8). Most of the structure was apparently cut away by the pipeline trench, leaving only an ash lens approximately 1.5 m long and 10–25 cm thick. Excavation revealed that the lens extended only about 20 cm into the trench wall (Figure 22.9). A light ashy stain extended for at least 60 cm with faint traces of the stain extending another 80 cm. A posthole—measuring 10 cm north-south by 12 cm east-west and 4 cm deep—was located at the eastern edge of the stain. The posthole had a dark ashy sand fill. The presence of this posthole and the size and density of the ash stain suggest that Feature 5 may be the remnant edge of a structure. Stratigraphic sequencing indicated that Feature 5 predated the other two cultural strata by an indeterminate amount of time. Cultural Stratum 3 may therefore date to the middle or late Archaic period.

ARTIFACTS AND SAMPLES

The artifact assemblage from LA 110957 consisted of 14 flaked lithics, 3 sherds, a piece of ground stone, 11 bone fragments, and archeobotanical remains. Several small fire-cracked rock fragments were recovered from a hearth (Feature 7). None of the artifacts is temporally diagnostic. The small assemblage and absence of formal tools precludes a determination of site function. A radiometric date obtained from charcoal recovered from the small structure (Feature 3) indicates a late Archaic occupation. The ceramics collected from the surface do not relate to any of the buried features.

Lithics

The lithic assemblage is mostly flakes and angular debris (Table 22.1). Lithic material is mostly chalcedony, with



LA 110957
Feature 1
North Trench Wall Profile

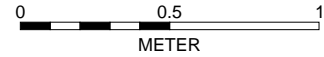


Figure 22.5 Feature 1 north trench wall profile, Study Unit 2.

lesser quantities of silicified wood, chert, and obsidian. Three of the lithics were recovered from unprovenienced locations within SU 2 (spoil dirt from removal of overburden) and two flakes were recovered from the trench wall in the same stratigraphic level as a hearth (Feature 7). The metate, made of a fine-grained quartzite, was also recovered from the surface and does not relate to the features. The paucity of lithic artifacts precludes any interpretations regarding stone tool manufacture and use.

Ceramics

The ceramic assemblage is three plain gray utility ware sherds. One sherd is from a bowl and two are from a jar. The three sherds were recovered from surface contexts and do not relate to any of the buried features. The presence of a few sherds indicate an ephemeral Formative period presence at the site.

Faunal Remains

The faunal assemblage is eleven bone fragments recovered from the area around the ash and caliche deposit (Feature 6) and east of a hearth (Feature 1) in Study Unit 2 (Table 22.2). Most of the bone are of small-size mammals; however, three deer/pronghorn tooth fragments and an indeterminate dog-size mammal bone fragment were also recovered. Seven of those were calcined. The eleventh fragment, probably intrusive, is a long bone of a mouse-size mammal recovered from the fill of the small structure (Feature 3). The paucity of faunal remains precludes interpretations regarding subsistence and butchering.

Archeobotanical Remains

Matrix totaling 214.75 liters was processed by flotation. Flotation samples from Features 1, 3, 4, and 9 were scanned for macrobotanical remains. Scanning found only uncharred remains of spurge (*Euphorbia* sp.) in the one sample from Feature 9, a hearth. The uncharred condition of the specimens suggests they are not associated with the archeological assemblage.

SUMMARY AND INTERPRETATION

LA 110957 has primarily late Archaic components represented in at least three stratigraphic occupations and an ephemeral Formative component on the surface. Nine features were identified, of which one was determined to be noncultural and a second is of unknown cultural affinity. Seven features were excavated and one could not be excavated because of its proximity to an existing pipeline. The stratigraphy exposed in the pipeline trench wall provided a relative chronology of the features. Each occupation is represented by one or more features. The earliest feature

(Feature 5) is an ambiguous ash stain that may be the edge of a small structure. Three hearths (Features 1, 4 and, 7) and an ash and caliche concentration (Feature 6) are broadly contemporaneous. The most recent occupation is a small structure (Feature 3) with an interior posthole (Feature 8) and hearth (Feature 9). A radiocarbon date from this small structure indicates a late Archaic occupation. A small quantity of artifacts was recovered from both provenienced and unprovenienced contexts. While small artifact assemblages potentially limit interpretation, Elyea and Eschman (1983:92) concur with Vierra (1980:351) that small, low artifact density sites are characteristic of task-specific loci used by hunters and gatherers. The few ceramics from the surface indicate at least a cursory presence of a Formative period component.

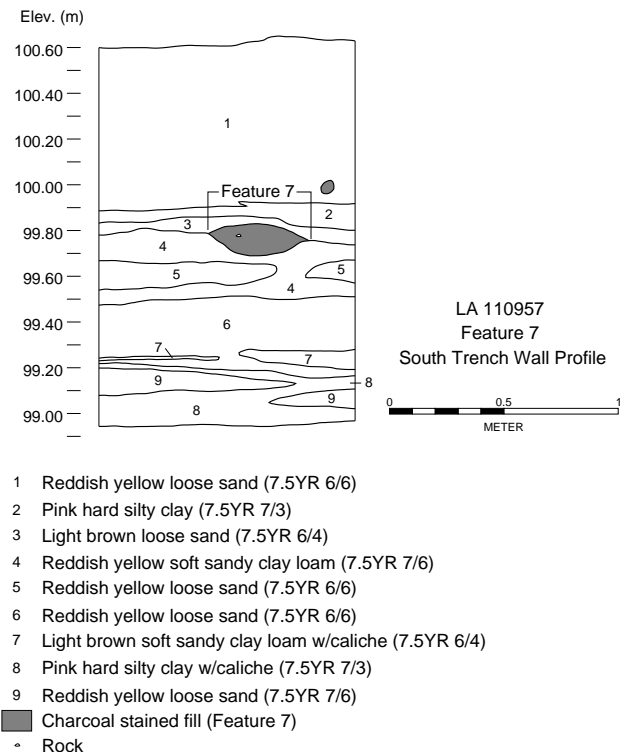


Figure 22.6 Feature 7 south trench wall profile, Study Unit 2, Cultural Stratum 2.

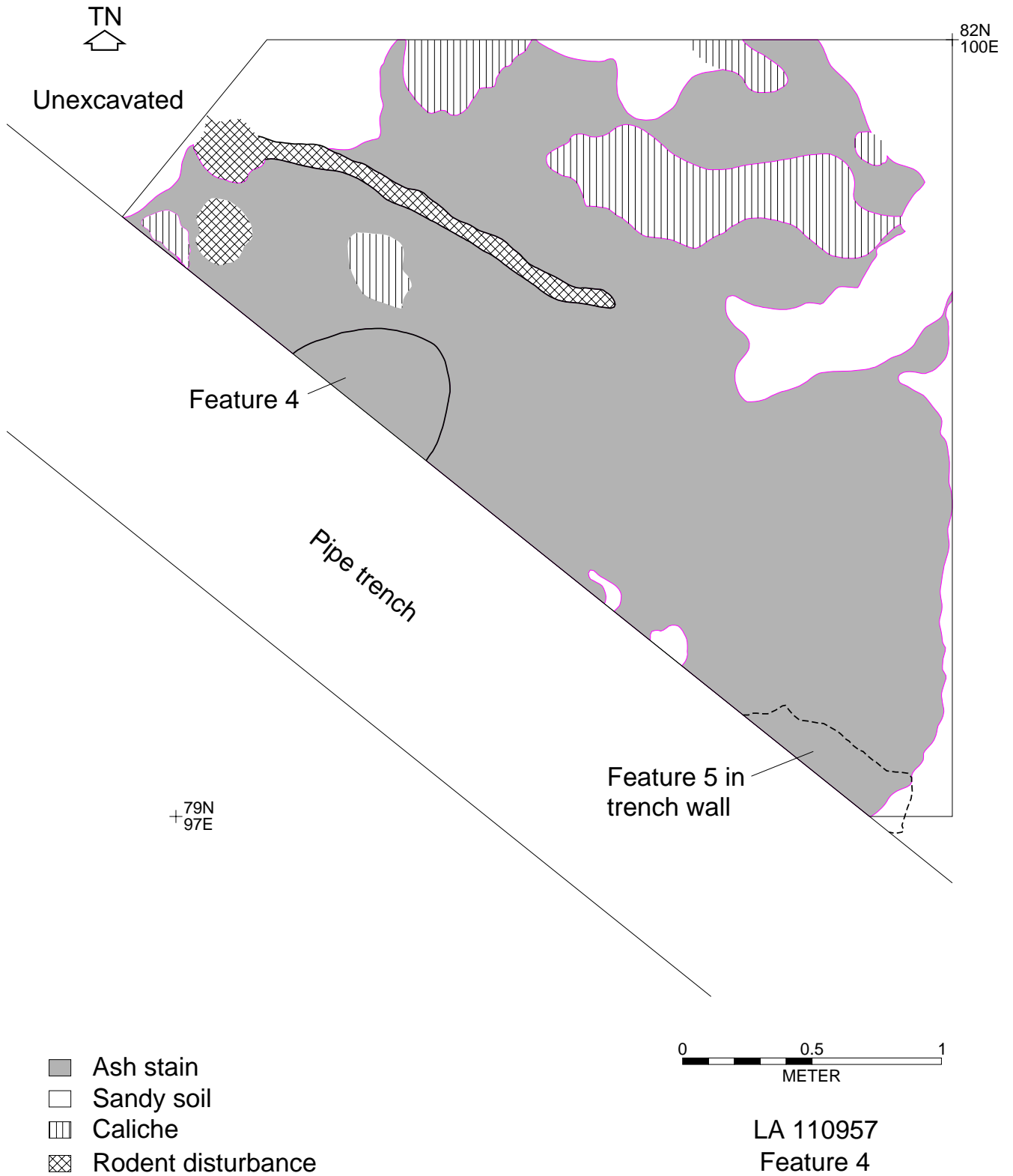


Figure 22.7 Plan of Study Unit 3 showing Feature 4 and surrounding diffuse ash stain, Cultural Stratum 2.

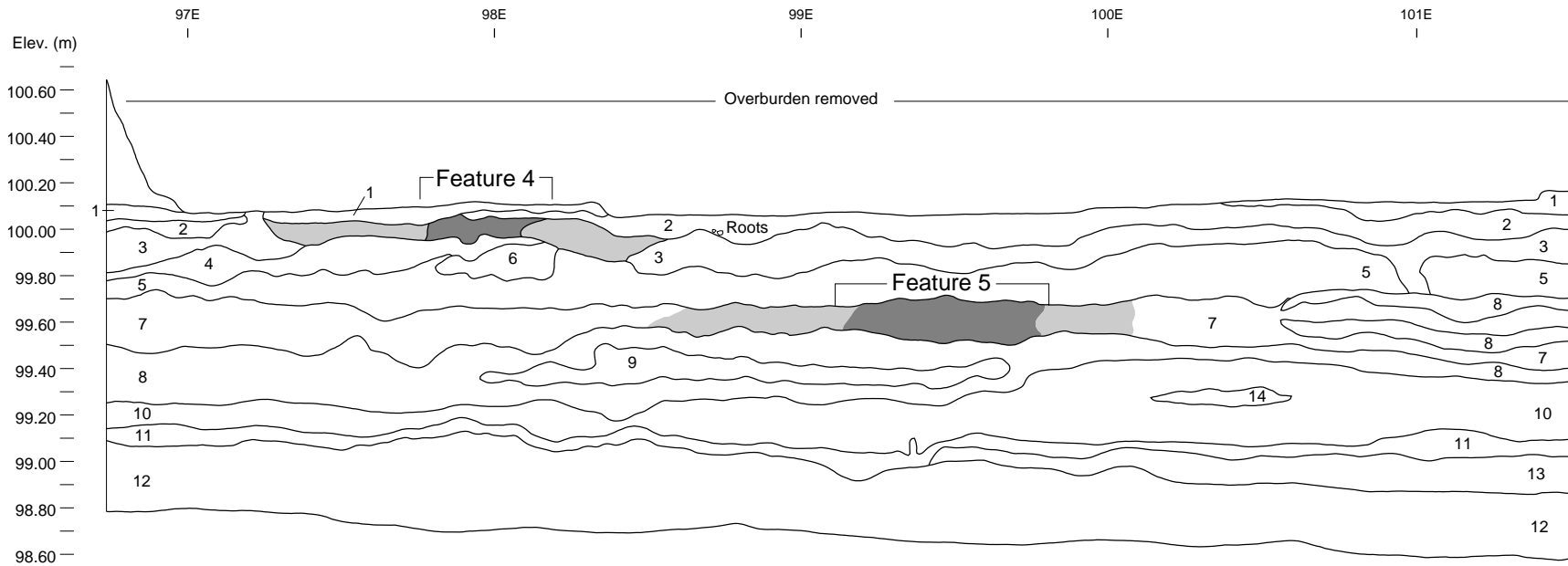
HARDING POLK II

Table 22.1 Lithic artifact and material types, LA 110957.

	Surface	Central Site Area Study Unit 2	<i>n</i>	Total %
Artifact Type				
Angular Debris	2	2	4	26.7
Flake	1	9	10	66.7
Metate, unknown	1		1	6.7
Total	4	11	15	100.1
Material Type				
Chalcedony	2	4	6	40.0
Silicified Wood	1	2	3	20.0
Quartzite, fine grained	1		1	6.7
Chert, other		2	2	13.3
Obsidian		3	3	20.0
Total	4	11	15	100.0

Table 22.2 Faunal remains from LA 110957.

Taxon	Structure Feature 3	Central Site Area Study Unit 2	<i>n</i>	Total %
<i>Odocoileus/Antilocapra americana</i> (Deer/Pronghorn)		3	3	27.3
Indeterminate mouse-size mammal	1		1	9.1
Indeterminate rabbit-size mammal		6	6	54.5
Indeterminate dog-size mammal		1	1	9.1
Total	1	10	11	100.0



- | | |
|------------------------------------------------------------|-----------------------------------------------------------------|
| 1 Light brownish gray hard sandy clay w/caliche (10YR 6/2) | 9 Light brown loose sand (7.5YR 6/3) |
| 2 Pinkish gray loose sand (7.5YR 6/2) | 10 Pale brown loose sand (10YR 6/3) |
| 3 Light pinkish gray loose sand (10YR 6/3) | 11 Light gray soft sand w/caliche (10YR 7/2) |
| 4 Light pinkish gray slightly hard sand (7.5YR 6/3) | 12 Light brown loose sand (7.5YR 6/4) |
| 5 Pinkish gray hard sand (7.5YR 7/2) | 13 Light pinkish gray soft sand (10YR 6/2) |
| 6 Light brown hard sand (7.5Yr 6/3) | 14 Pinkish gray slightly hard sand w/caliche flecks (7.5YR 6/2) |
| 7 Pinkish gray slightly hard sand (7.5YR 7/2) | Light ash stain |
| 8 Pinkish gray soft sand w/caliche | Dark charcoal stain |

LA 110957
 Features 4 & 5
 North Trench Wall Profile

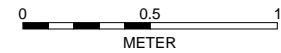


Figure 22.8 Features 4 and 5 north trench wall profile, Study Unit 3.

HARDING POLK II

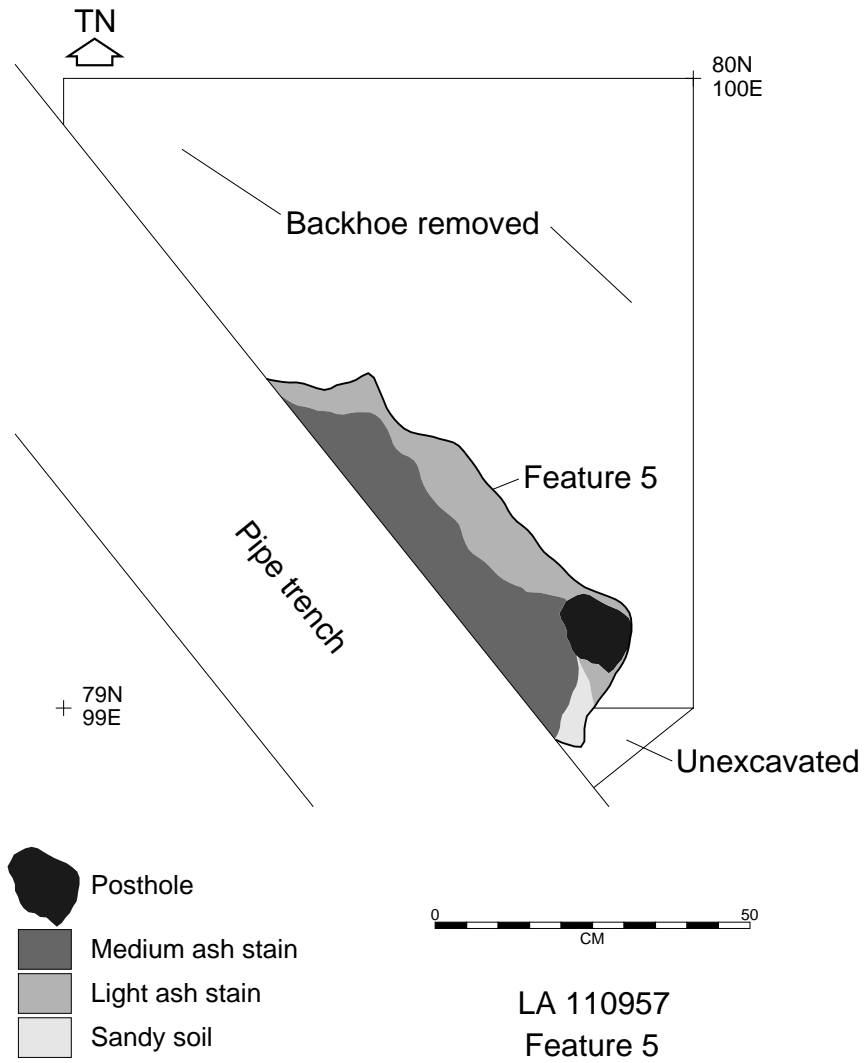


Figure 22.9 Plan of Feature 5 in Study Unit 3, Cultural Stratum 3.

Chapter 23

LA 110958

Cherie K. Walth

LA 110958—a single hearth dating to the late Classic or Pueblo IV period—is 1.2 km (0.75 mile) northeast of the Jemez River and 300 m southeast of NM 44. The site is on the north side of a gentle sloping hill (Figure 1.1). Vegetation is a juniper savanna, with joint-stem dahlia, snakeweed, chaimisa, and prickly pear and cholla cacti, interspersed with junipers. The topography is coppice dunes of pale brown eolian sand.

INVESTIGATION STRATEGY AND RESULTS

LA 110958 was reported during the monitoring of pipeline trenching. Since construction crews had already laid the pipe and backfilled the trench, mechanical equipment was used to remove the overburden from a 4 by 4 m area to a depth of 42 cm below the bladed surface, or immediately above the hearth.

A site datum and grid was established and aligned with true north. The remaining overburden was hand-dug in 1 m² units and all matrix was sifted through 1/8-inch hardware cloth. Shovel scraping exposed the hearth and an area extending more than one meter around it (Figure 23.1). The upper fill was dry-screened and the lower fill was collected for flotation.

The pipeline trench had removed the west half of the hearth (Feature 1). The fill was in two strata. The upper stratum was eolian and fluvial sands and the lower stratum was a very fine ash with occasional charcoal fragments. The lower stratum of ash was collected for flotation. The only artifact

recovered was a kangaroo rat tibia fragment, probably intrusive. The hearth—measuring 1.4 m along the trench wall, 42 cm from the trench edge eastward, and 24 cm deep—had an oxidized base and rim. Upon removal of the hearth fill a small pit was discerned. The pit—measuring 18 cm in diameter and 14 cm deep—had a mottled sandy ash fill. The purpose of this small pit is not evident, but it may have been either a posthole or an accessory roasting pit. No artifacts were recovered from the area immediately surrounding the hearth. A charcoal sample—saltbush—from the hearth yielded an age of 440 ± 40 BP (Beta-92306) or cal AD 1450. The 2-sigma date range is cal AD 1420/1505 to 1595/1620.

Two flotation samples from the hearth, totaling 64.8 liters, were processed by flotation, and scanned for macrobotanical remains. The scan identified uncharred remains of globemallow (*Sphaeralcea* sp.). The uncharred condition of the remains strongly suggests they are not associated with the hearth.

SUMMARY AND INTERPRETATION

LA 110958 is a single hearth that did not yield any diagnostic artifacts. A charcoal sample yielded a date of AD 1450, or a Pueblo IV period occupation. This hearth may represent an outlying activity associated with LA 109131, which is located a short distance east and up slope, or a single short-term episode of use by an individual or small group.

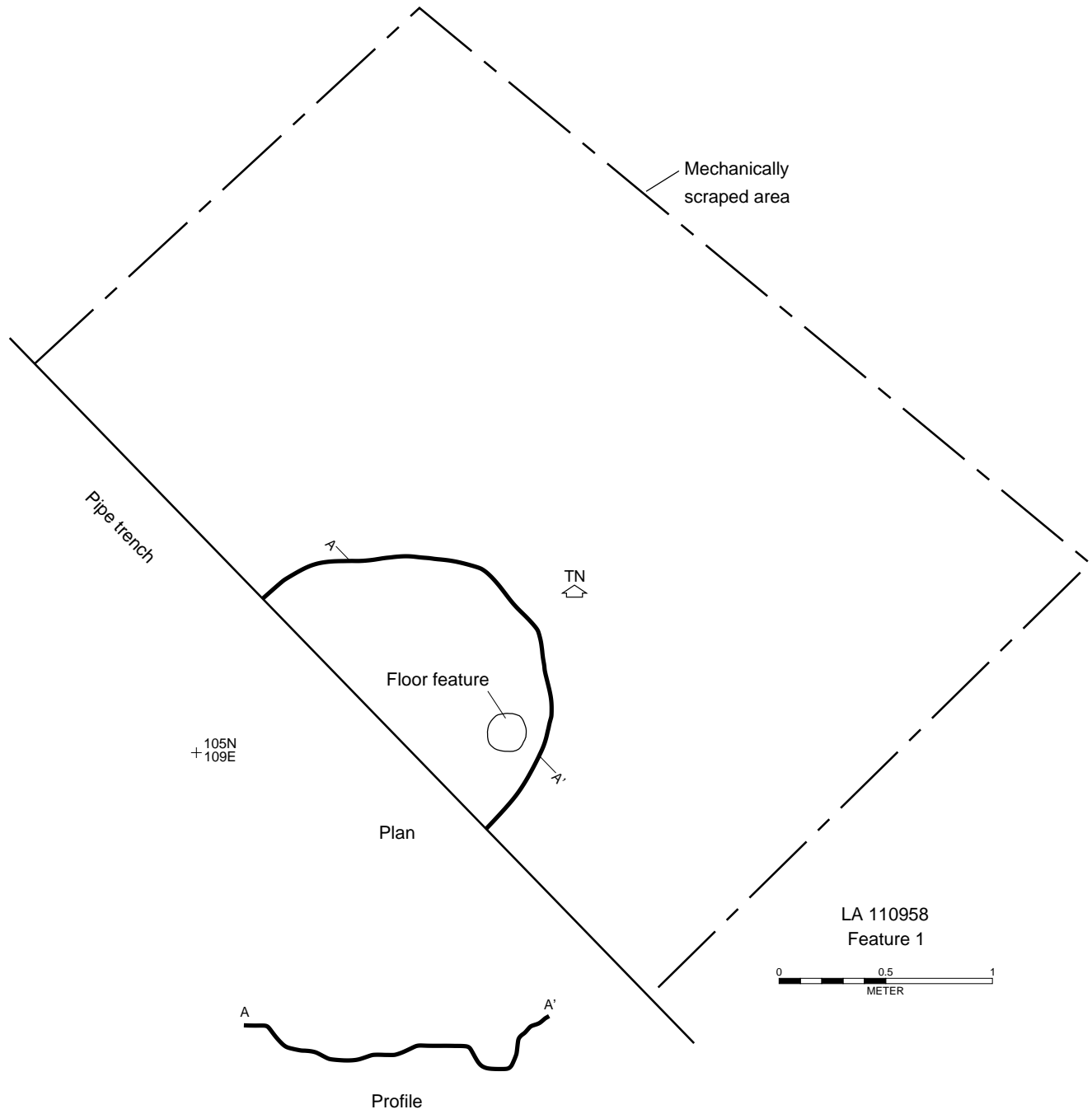


Figure 23.1 LA 110958 plan view and profile of Feature 1.

Chapter 24

LA 110960

Peggy A. Gerow

LA 110960 is a small late Archaic campsite consisting of five hearths and a pit of unknown function, and an ephemeral Formative component. Radiocarbon assays from two of the hearths indicate the site dates primarily to the late Archaic period. Limited use during the Formative period is suggested by a few ceramics in the east part of the site. The site is located on a slight terrace south of the Jemez River floodplain. The river lies about 1 km (0.6 mile) to the northeast (Figure 1.1). Vegetation is sparse stands of juniper and piñon with an understory of cholla, bunch grass, prickly pear, and short grasses.

INVESTIGATION STRATEGY

The site, found during pipeline trenching, was reported by monitors to consist of a possible pitstructure (Feature 1) located about 35 cm below the modern ground surface. The pipeline trench bisected the feature. Initial work focused on the mechanical stripping of a 3.5 m north-south by 15 m east-west area on the north side of the trench to expose the top of Feature 1 and to probe for additional subsurface features. To expose the remaining portion of the feature on the south side of the trench (over the existing pipeline), the crew manually removed the overburden from a 1.5 by 8 m area (Figure 24.1). A core, several flakes, and eight sherds were recovered during the mechanical stripping. One additional ash stain (Feature 6) was revealed east of Feature 1.

RESULTS

Feature 1

Excavation of Feature 1 proved to be perplexing. Its profile in the trench wall clearly indicated it was a pit, but whether or not it was a pitstructure is unknown (Figure 24.2). The pit measured 2.5 m in diameter by about 85 cm deep (Figure 24.3). The fill was a mottled light gray-stained sand with small charcoal flecks. There was no evidence of oxidation. The feature walls were discerned on the basis of sand grain size at the point of contact with the natural strata

and, as such, were irregularly shaped. No postholes were evident either along the pit perimeter or on its floor, nor were any floor features found. The floor was marked by a natural light brown clay stratum. No radiocarbon date was obtained for this feature, nor were any macrobotanical remains recovered. Two lithic artifacts and twelve mouse-sized mammal bones were recovered from the pit fill.

Feature 1 is clearly some type of intentionally dug pit, but its function is not known. It may represent an unfinished pithouse that was abandoned before completion, but this is only speculation. Four small hearths were found in Level 2 of the pit fill (Figure 24.4), clearly indicating that the pit antedates the hearths. Three of the hearths were found on the south side of the pipeline trench and one was on the north side. All originated apparently 10–15 cm below the stripped surface and all had been truncated by the pipeline trench.

Feature 2, located on the north side of the pipeline trench, was an oval basin measuring 51 cm north-south by 45 cm east-west and 10 cm deep (Figure 24.5). The fill was a mottled ash, charcoal, and light gray-stained sediment. No oxidation was evident, but there was heavy evidence of bioturbation throughout the fill. Carbonized saltbush from the hearth yielded a ^{13}C adjusted date of 1690 ± 70 BP (Beta 92310) or cal AD 390 with a 95% confidence interval of AD 220 to 540, which suggests a late Archaic occupation. No artifacts or macrobotanical samples were recovered.

Feature 3, the center hearth on the south side of the pipeline trench, had an undulating bottom. The pit shape is not known since most of it had been removed by the trench. The remaining portion of the hearth measured 48 cm long by 16 cm wide and had a maximum depth of 10 cm (Figure 24.5). The fill was mottled, light gray-stained ash with charcoal-flecking. Some oxidation was visible along the hearth's north edge. No artifacts were recovered from the fill, nor were any carbonized remains present. No radiocarbon date was obtained for this hearth.

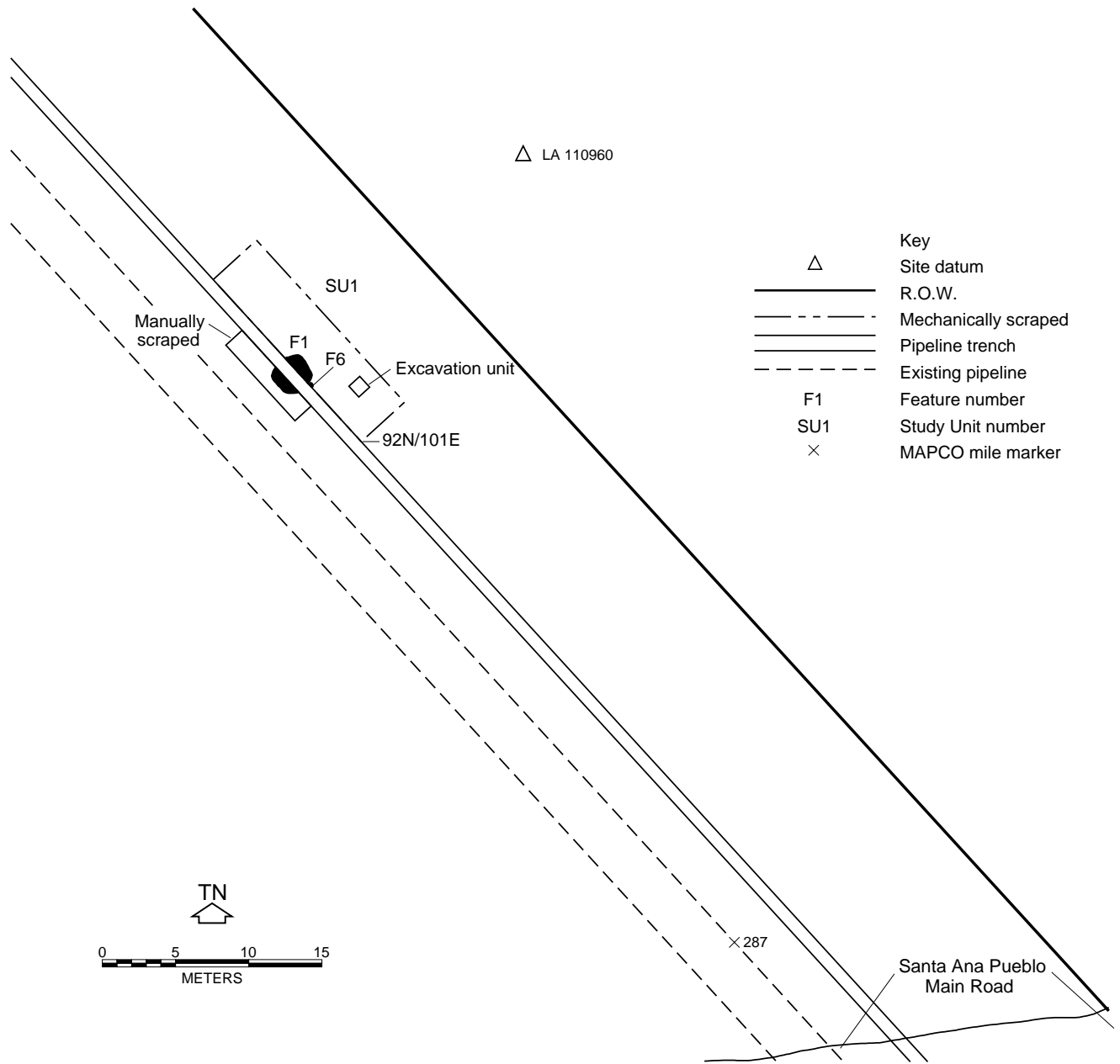


Figure 24.1 Site map of LA 110960 showing the excavated area and feature.

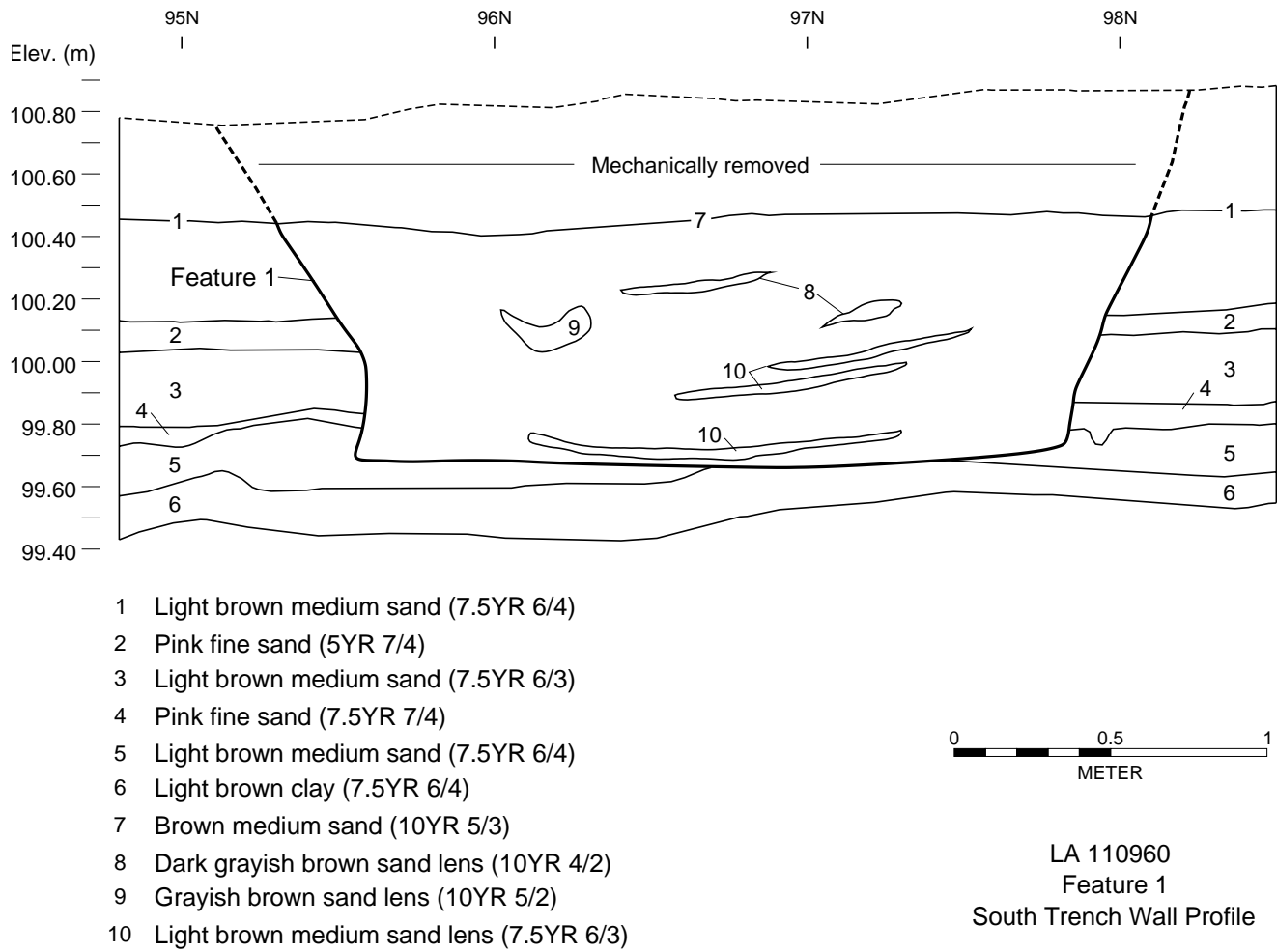


Figure 24.2 Feature 1 profile before excavation.

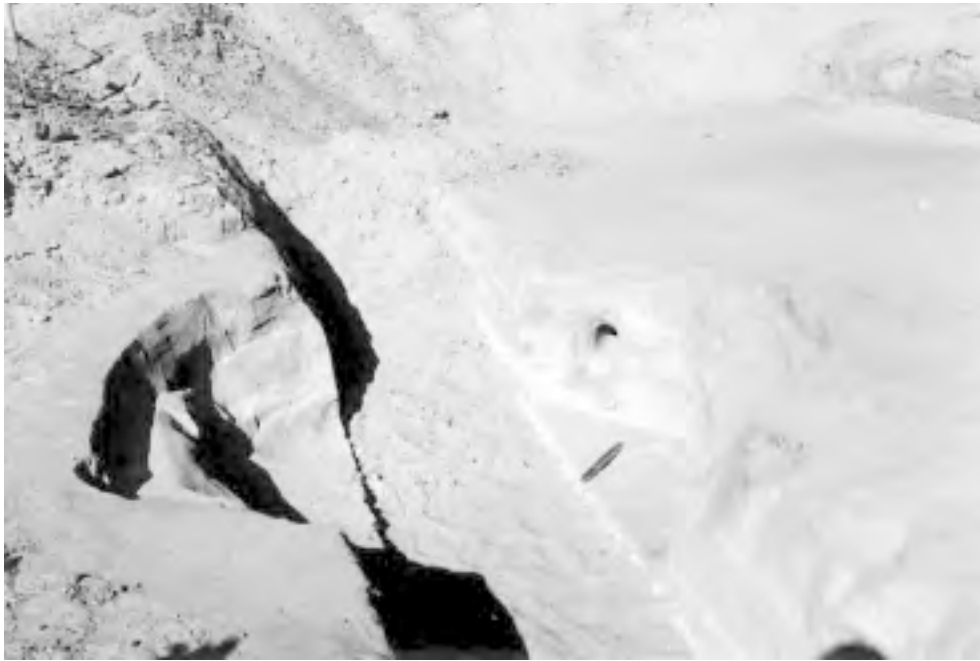
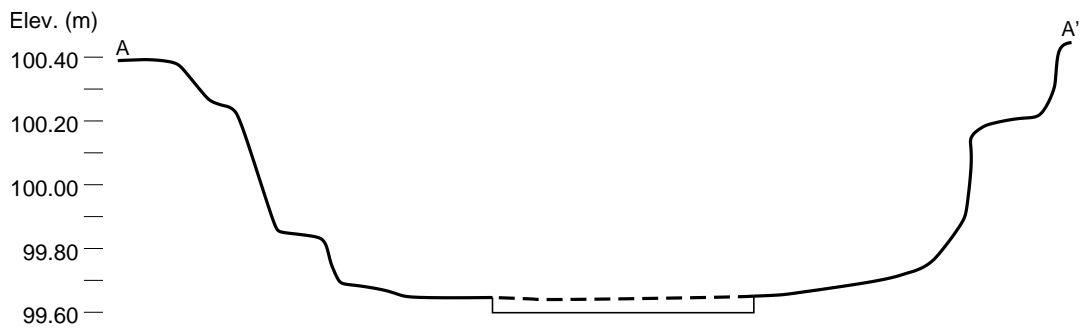
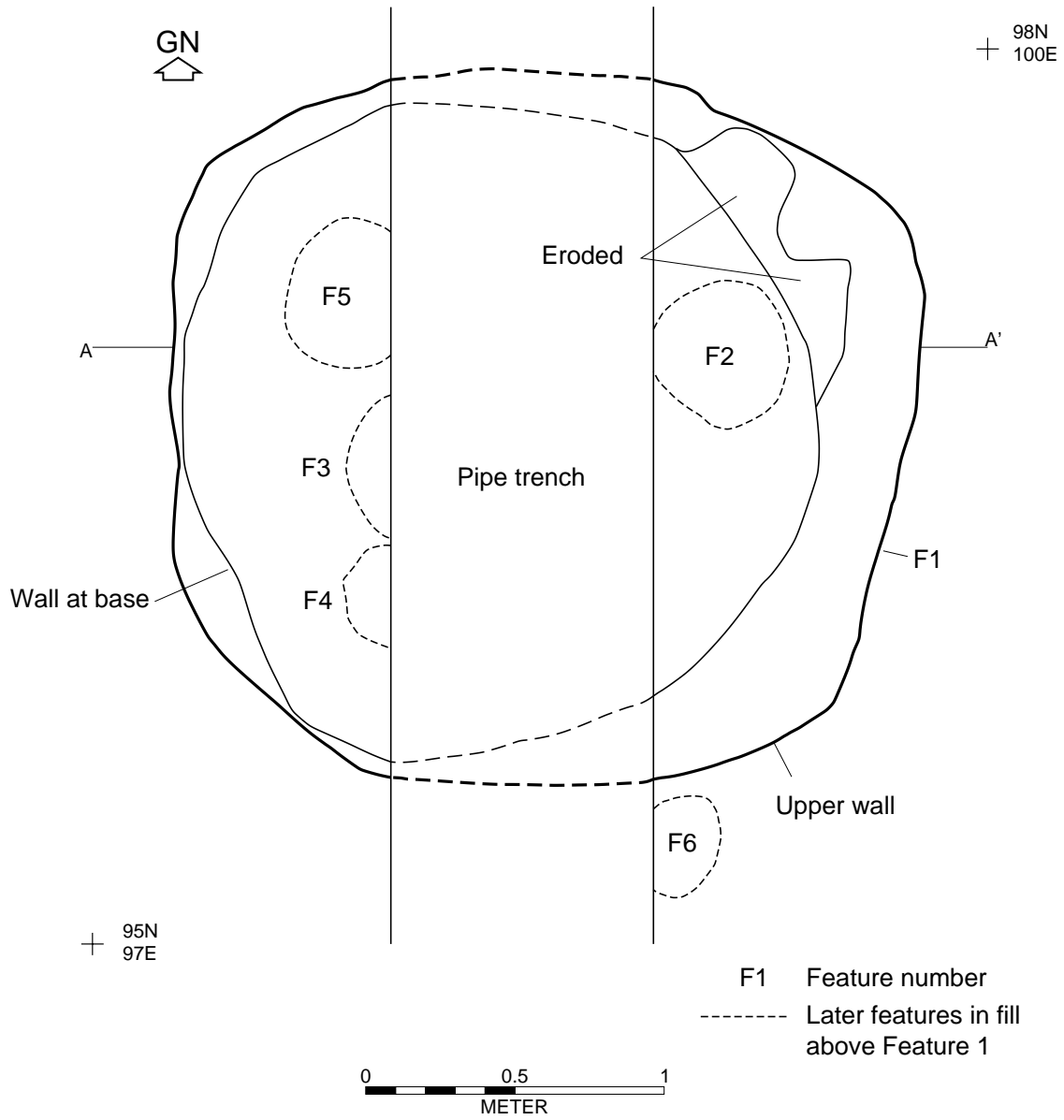


Figure 24.3 Photo of the pit feature (Feature 1) at LA 110960.



LA 110960
Features 1-6

Figure 24.4 Feature 1 plan view and profile after excavation.

Feature 4, located immediately east of Feature 3, was a steep-sided pit. Approximately half of the hearth had been removed by the pipeline trench. The remaining portion measured 35 cm north-south by 23 cm east-west and 21 cm deep (Figure 24.5). Fill was mostly a light gray ash with small charcoal pieces. No oxidation was noted. As with Feature 3, no artifacts or carbonized plant remains were recovered, nor was a radiocarbon date obtained.

Feature 5, located about 13 cm northeast of Feature 3, was a shallow oval basin measuring approximately 44 cm north-south by 40 cm east-west (an incomplete measurement owing to truncation by the pipeline trench) and 6 cm deep (Figure 24.6). The fill was a mottled, dark gray–stained sediment and ash with small charcoal flecks. No oxidation was visible along the sides and bottom. Heavy rodent disturbance was evident throughout. Five lithic artifacts and four rabbit-size bone fragments were recovered from the fill. These latter items appear to be intrusive, probably the result of rodent disturbance. No carbonized plant remains were present in the fill, nor was a radiocarbon sample obtained.

Feature 6

Feature 6, about 8 cm east of Feature 1, was exposed during the mechanical stripping of the area (Figure 24.4). This hearth was an oval basin measuring approximately 34 cm by 24 cm with a depth of 7 cm (Figure 24.7). The fill was a light gray ash and mottled brown sand with charcoal fragments. Carbonized saltbush and rabbitbush from the hearth fill yielded a ^{13}C adjusted date of 1880 ± 60 BP (Beta-92312) or cal AD 130 with a 95% confidence interval of cal AD 15 to 260, which

suggests a late Archaic occupation. No artifacts were recovered from the fill, but the macrobotanical sample yielded carbonized goosefoot (*Chenopodium* sp.) seeds. These seeds suggest a late summer/early fall occupation.

In addition to the feature excavations, a 1 m² unit was placed in the area where a core had been uncovered during the mechanical stripping (Figure 24.1). This unit was hand-excavated to a depth of 20 cm. The fill was a compacted light brown sand. No artifacts were recovered.

ARTIFACTS AND SAMPLES

Eight lithic artifacts, 8 ceramics, and 16 bone fragments were recovered during the excavation. Most of the lithics ($n = 5$) are from Feature 5, and most of the faunal remains are from Feature 1. The ceramics are from the east edge of the mechanically stripped area.

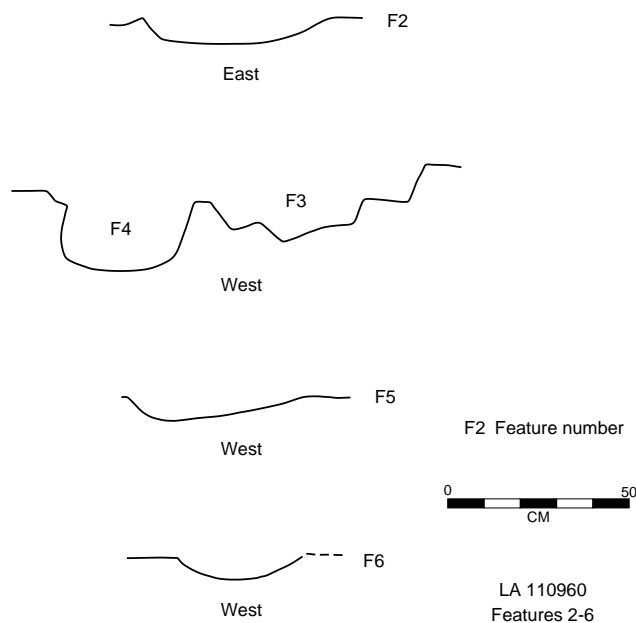


Figure 24.5 Profiles of Features 2, 3, 4, 5, and 6.

Lithics

The lithic artifacts are four flakes, three pieces of angular debris, and one irregular core. Chalcedonies ($n = 5$) dominate the raw materials, followed by two pieces of silicified wood, and one of chert. These items, although limited, suggest core reduction activities.

Ceramics

The ceramics are seven Plain Gray and one Clapboard Corrugated gray jar fragments. The Plain Gray sherds are from the same vessel.

Faunal Remains

Twelve indeterminate very small (mouse-size) mammal bone fragments and four indeterminate small (rabbit-size) mammal bone fragments were recovered. The mouse-size specimens are from Feature 1 and the rabbit-size specimens are from Feature 5. Because of their indeterminate nature, no meaningful interpretations regarding seasonality or butchering strategies can be ascertained.

Archeobotanical Remains

Matrix totaling 8.3 liters from Feature 4 and 3.2 liters from Feature 6 was processed by flotation. Carbonized goosefoot (*Chenopodium* sp.) seeds were identified from Feature 6, suggesting it was used during the late summer/early fall.



Figure 24.6 Photo of Feature 5, a hearth.



Figure 24.7 Photo of Feature 6, a hearth.

SUMMARY AND INTERPRETATION

LA 110960 appears to be a small campsite dating primarily to the late Archaic period. There is a statistically significant difference in the radiocarbon dates from Features 2 and 6 at the 0.05 level ($t = 2.06$), which suggests different occupational episodes. The dearth of artifacts indicates these occupations were probably short-term (i.e., overnight). The carbonized goosefoot seeds from Feature 6 suggest that at least one of the occupations was during the late summer/early fall.

Limited use during the Formative period is indicated by the eight sherds from a single pot that were recovered from the area to the east of the feature cluster. The spatial separation between the features and the ceramics suggests none of the features is associated with the Formative occupation. Given the lack of radiocarbon dates for the hearths, this assumption is only speculative.

Chapter 25

LA 110961

Harding Polk II

LA 110961 is a small late Archaic/Basketmaker II period camp site that also has an ephemeral Formative component. The site is a dense flaked lithic scatter associated with an 8 by 4 m ash stain. Eleven features, some overlapping, indicate multiple late Archaic occupations. The Formative component—marked by sherds from at least two plain grayware jars and two glazeware bowl sherds—overlies the Archaic component.

The site is 1 km (0.6 mile) southwest of the Jemez River, 170 m northeast of NM 44, and 7.3 km (4.5 miles) west of the access road to the Pueblo of Santa Ana (Figure 1.1). LA 110961 is situated on a northeast facing terrace of the river. The area is characterized by a gentle sandy slope with juniper woodland. Eolian and alluvial deposits occur, with surface eolian sand overlying interbedded strata of sand, clay, and pebbly sand. Occasional broad and shallow tributaries of the Jemez River have exposed concentrations of water worn cobbles. Surface visibility is very good with a moderate vegetative cover of purple dahlia, broom snakeweed, rabbitbrush, prickly pear cactus, narrow leaf yucca, and various grasses. Similar vegetation occurs in the wooded area, but much more sparsely. The terrain is level enough to be suitable for agriculture and the sandy soil provides good drainage.

LA 110961 was revealed during the monitoring of the pipeline trenching. The site was recorded as a 6.5 m long ash and charcoal stain exposed in both walls of the pipeline trench. The stain—no greater than 10 cm thick—gradually sloped downward toward the southeast. Excavation revealed eight hearths, two roasting pits, and a storage pit (Figure 25.1) with late Archaic affinity.

STRATIGRAPHY

The pipeline trench exposed the stratigraphy to a depth of 1.15 m. Profiles were drawn of 6.5 and 7.5 m long segments of the north (Figure 25.2) and south (Figure 25.3) walls of the pipeline trench. The stratigraphy was complex—

mixed eolian and alluvial deposits—with at least ten different strata expressed as various colors and grades of sand, rocky, clay, and caliche. Rodent burrows were also discernible in the pipeline trench walls.

Surface deposits were characterized by a light brown, medium-grained eolian sand that was about 25 cm thick. Most of this stratum was mechanically removed. The cultural stratum—measuring no greater than 10 cm thick—was a light-grayish brown, medium-grained ashy sand with numerous charcoal fragments. Immediately beneath the cultural stratum was a medium-grained tan sand layer that was approximately 15 cm thick. In plan view the 30 cm overlapping boundary between the cultural stratum and the culturally sterile sand was marked by a slight reddening of the deposits.

The south half of the site had a dense reddish brown clay and caliche stratum interbedded between the cultural stratum and the underlying sand. This dense clay and caliche stratum eventually pinched out the cultural stratum and increased in thickness to 25 cm at the south end of the site. This stratum contained numerous charcoal flecks; however, their occurrence was probably the result of natural processes. No artifacts were recovered from this stratum.

INVESTIGATION STRATEGY

LA 110961 was originally recorded as a long dark ashy stain in both walls of the pipeline trench. Mechanical equipment removed 25 cm of sandy overburden from a 8 by 24 m (185 m²) area to expose the cultural stratum. Mechanical equipment could not be used on the southwest side of the pipeline trench because of the stain's proximity to existing pipelines.

Data recovery included hand-excavating 83 1 m² units. Because the site grid was aligned to true north twelve of the 83 units partially extended into the pipeline trench. Many of the partial units were contiguous, forming a 1 m wide by

HARDING POLK II

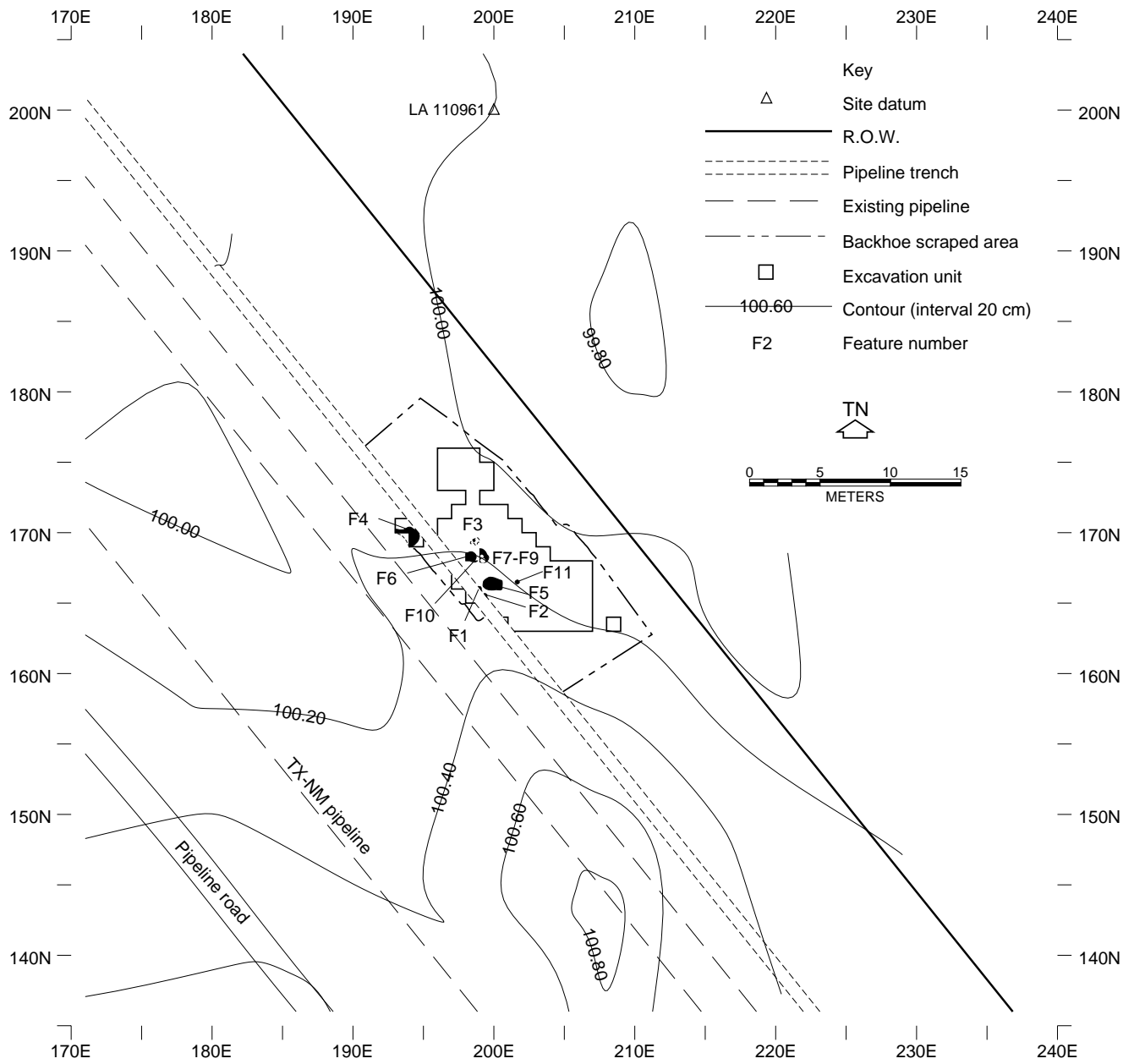
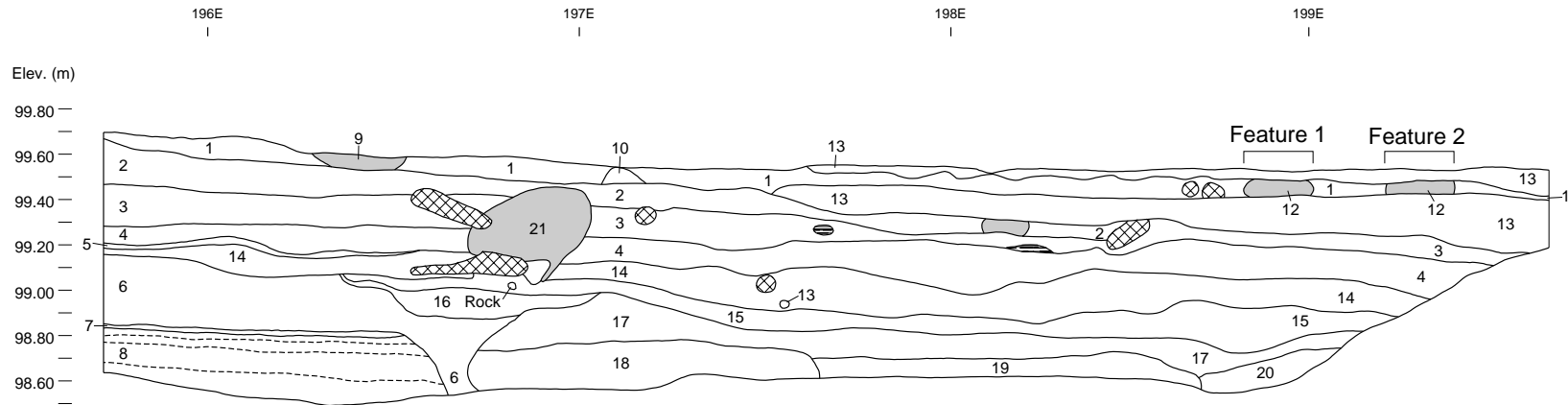
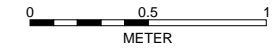


Figure 25.1 Site map of LA 110961 showing location of excavated area and features.



- | | |
|-------------------------------------------------------------------------|--------------------------------------------------------------|
| 1 Light grayish brown medium loose sand w/light ash staining & charcoal | 14 Light brown fine to medium soft sand w/some caliche |
| 2 Light brown coarse to medium soft sand | 15 Light brown medium soft sand |
| 3 Pinkish light brown medium soft sand | 16 Light grayish brown fine soft sand |
| 4 Light brown fine to medium soft sand | 17 Light brown fine to medium soft sand |
| 5 Grayish light brown coarse loose sand | 18 Light pinkish brown medium slightly hard sand |
| 6 Pinkish light brown pebbly to very coarse very loose sand | 19 Pinkish light brown pebbly to very coarse very loose sand |
| 7 Pinkish brown clayey hard caliche | 20 Pinkish light brown coarse soft sand |
| 8 Very light grayish brown fine soft sand w/ many depositional events | 21 Dark grayish brown medium sand w/ash & charcoal staining |
| 9 Dark brown ash and charcoal stained deposit | Ash stain |
| 10 Light pinkish brown fine soft sand | Caliche |
| 11 Very light pinkish brown very fine loose sand w/some caliche | Rodent disturbance |
| 12 Very dark brown fine sand w/ash and charcoal staining | Small depositional events |
| 13 Pinkish gray caliche & fine very hard sand | |



LA 110961
Features 1 & 2
North Trench Wall Profile

Figure 25.2 Features 1 and 2 north trench wall profile.

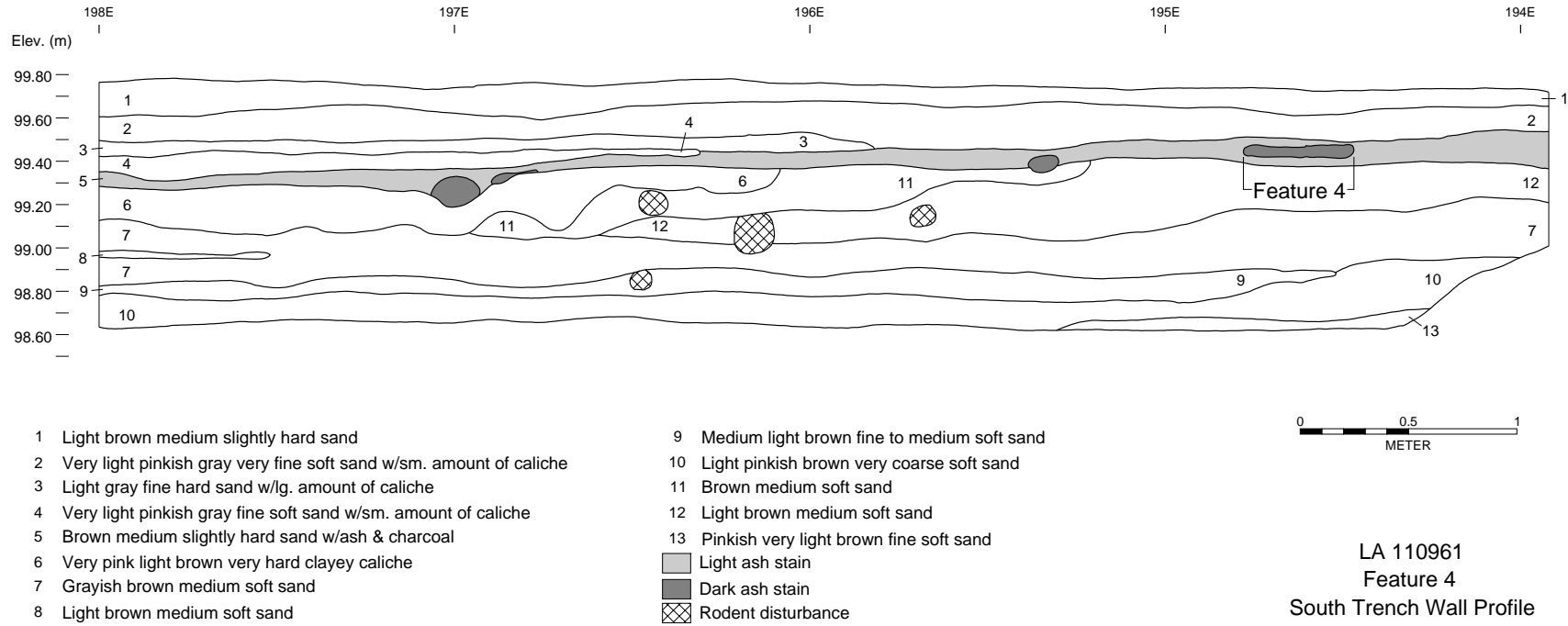


Figure 25.3 Feature 4 south trench wall profile.

9 m long block excavation on the southwest side of the pipeline trench (Figure 25.1). The site has been severely disturbed by rodent burrowing.

Excavation was extended at least 1 m beyond the ashy cultural deposit in all directions to ensure a clear delineation of the stain. A small area on the southwest side of the pipeline trench was hand-excavated to delineate the stain boundary. The north area of the site did not warrant extensive excavation since only a small quantity of artifacts were recovered, and the deeper deposits proved to be culturally sterile.

Another factor in determining the limits of the excavations was the dramatic drop in the quantity of artifacts. The core site area yielded a large quantity of artifacts, oftentimes hundreds of artifacts from a single level in a single unit. Artifact density decreased sharply as distance from the dark stain increased in a block of 12 contiguous 1 m² units extending north of the primary excavation area.

RESULTS

Eleven features were identified (Table 25.1)—a cluster of six (Features 3, 6, 7, 8, 9, and 10) near the north end of the ashy stratum, four (Features 1, 2, 5, and 11) near the center of the stain, and one (Feature 4) in the southwest side of the pipeline trench beyond the ashy matrix. Most of the features exhibited some degree of rodent disturbance. Nine of the features are hearths or roasting pits, one is a storage pit, and one is a possible posthole.

Hearths

Three of the hearths were among the features clustered near the center of the ash stratum. Feature 1—28 cm long in the trench wall northwest-southeast by 15 cm northeast-southwest and 7 cm deep—had been partially destroyed by the pipeline trench (Figure 25.4). Its fill was a dark hard ashy sand with small charcoal fragments. Five lithic artifacts were recovered from its fill. The fill had partially leached into the underlying dense clay. Rodent burrowing was prevalent and there was no oxidation.

A small basin-shaped hearth (Feature 2) was also bisected by the pipeline trench. This hearth—measuring 30 cm along the edge of the trench and 8 cm deep—had fill that was a dark ashy compact sand. Extreme oxidation and rodent disturbance was noted in its northeast portion. Artifacts from its fill include 22 small flaked lithics. No tools were recovered. The hearth also contained approximately 1 kg of fire-cracked rock. A flotation sample from the fill yielded charred fragments of dropseed.

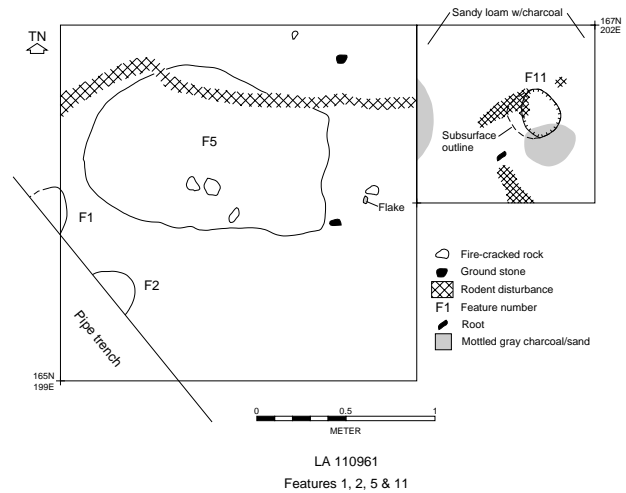


Figure 25.4 Feature cluster near center of ash stratum, Features 1, 2, 5, and 11.

Another basin-shaped hearth (Feature 11) was 1.6 north-east of Feature 2. This hearth—measuring 27 to 30 cm in diameter and 18 cm deep—had no obvious oxidation. Rodent burrowing was prevalent throughout the loose, sandy, charcoal-flecked fill. This hearth contained more artifacts than any other single feature at the site. Its assemblage is composed of 487 flaked lithics, a metate fragment, 2 utilized flakes, a retouched flake, 2 bifaces, and a scraper. Eight pieces of fire-cracked rock, weighing 1 kg, were also recovered. The large quantity of lithics from this small hearth indicates chipped stone tool manufacturing and/or maintenance.

The other four hearths were clustered near the north end of the ash stratum (Figure 25.5). Feature 6 is a circular basin-shaped hearth. Feature 6 fill was a loosely compacted, very dark gray ashy sand with abundant charcoal and charred fragments of chenopod, dropseed grass, and globemallow. Oxidation was noted in its southeast corner of the hearth basin, and several fire-cracked rock fragments were in the fill. This hearth—measuring 60 cm east-west by 75 cm north-south and 16 cm deep—contained 85 flaked lithics. None of the lithics is larger than 2 cm and most are less than 1 cm in size. Tools include a retouched flake and a scraper. Several small pieces of red ocher were also noted. The dark ashy soil, the fire-cracked rock, and oxidation of surrounding matrix indicates Feature 6 is a large hearth. The presence of mostly small flakes and debitage indicates tool manufacture and/or maintenance occurred in the vicinity of the hearth. A charcoal sample—saltbush/greasewood (*Atriplex/Sarcobatus*)—yielded a date of 1730 ± 60 BP (Beta-92315) or cal AD 340. The 2-sigma date is cal AD 160 to 435.

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Table 25.1 Summary of features at LA 110961.

Feature Number	Feature Type	Length (cm)	Width (cm)	Depth (cm)	Artifacts	Radiometric Age	Notes
1	probable hearth	28	15*	7	5 flakes		bisected by trench no oxidation
2	small hearth	30	15*	8	19 flakes 3 rectangular debris 1 kg of FCR		bisected by trench heavy oxidation
3	possible posthole or rodent burrow	11	11	6	16 flakes		ghost ash stain spreads out to south from feature
4	roasting pit?	170+	140	7	1 flake 3 angular debris 3 FCR	1770 ± 100 BP	located outside main ash stain, full size unknown
5	roasting pit?	125	90	10	246 flakes 41 angular debris 2 utilized flake 2 retouched flake 16 bone 1.5+ kg FCR	2050 ± 80 BP	heavy oxidation
6	large hearth	75	60	16	69 flakes 14 angular debris 1 retouched flake 1 scraper about 3 FCR some ochre	1730 ± 60 BP	
7	large hearth	92	66	13	157 flakes 28 angular debris 1 biface 1 scraper 9 bone FCR, ochre	1960 ± 70 BP	slight oxidation
8	probable hearth	20	20	7	none		no oxidation post dates Feature 7
9	storage pit	25	25	26	16 flakes 2 angular debris 2 ground stone		no oxidation post dates Feature 7
10	hearth	50	50	7	7 flakes 3 bone	1880 ± 70 BP	heavy oxidation post dates Feature 6
11	hearth	30	27	18	440 flakes 41 angular debris 2 utilized flakes 2 bifaces 1 retouched flake 1 scraper 1 ground stone 1 kg FCR		heavily bioturbated

*represents approximately half this dimension, since the feature was bisected by the trench

Feature 6 overlapped the western edge of a second large, irregularly-shaped hearth (Feature 7). Feature 7—measuring 92 cm east-west by 66 cm north-south and 13 cm deep—had a slightly reddish oxidized matrix beneath its gray ashy fill. Rodent burrowing had blurred its perimeter.

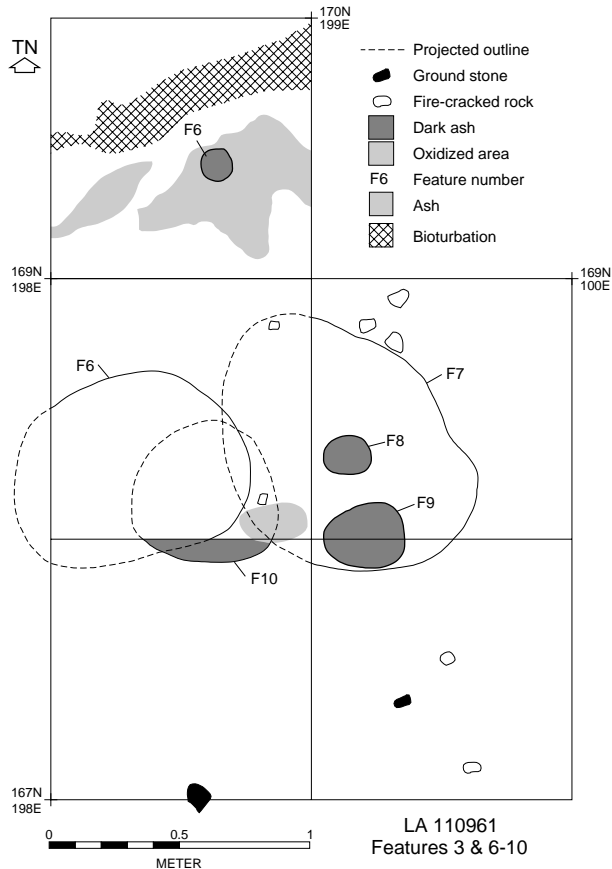


Figure 25.5 Feature cluster near north edge of ash stum, Features 3 and 6 through 10.

Feature 7 also contained a large quantity of lithic artifacts. The lithic assemblage is composed of 157 flakes, 28 pieces of angular debris, a small biface, and a small scraper. The large number of very small flakes that indicate tool manufacture and/or maintenance tasks. In addition to the lithics there were nine bone fragments. All but one bone fragment are of small-size mammals, the other being that of a medium-size mammal. Four of the nine bone fragments are calcined. Flotation of the hearth fill also yielded charred pigweed, cheno-ams, and dropseed. A charcoal sample—saltbush/greasewood (*Atriplex/Sarcobatus*, dominating), conifer (*Gymnospermae*), and juniper (*Juniperus*)—yielded a date of 1960 ± 70 BP (Beta-92314) or cal AD 65. The 2-sigma date is 100 cal BC to cal AD 225.

Feature 10, a smaller basin-shaped hearth, overlapped both Features 6 and 7. This hearth—measuring approximately 50 cm in diameter and 7 cm deep—had reddish colored oxidation in its base. The fill was a light gray ashy sand with small charcoal fragments. No rodent disturbance was noted. A small number of artifacts, 16 flakes, were recovered, as were three calcined fragments of very small-size mammal bone. Charcoal—saltbush, juniper, and conifer—from Feature 10 yielded a date of 1880 ± 70 BP (Beta-92314) cal AD 130. The 2-sigma date is cal 5 BC to cal AD 330.

The levels of origin for Features 6, 7, and 10 vary by less than 10 cm. This, and the degree of disturbance in the area where the three hearths overlap, made it impossible to determine the sequence of construction. Statistical comparison of the radiocarbon dates indicates no significant difference between the date from Feature 10 and those from Feature 6 ($t = 1.63$) and Feature 7 ($t = 0.87$) at the 0.05 level. The dates from Features 6 and 7 are significantly different ($t = 2.49$), but this could be a function of the material being dated. Wood from long-lived species like juniper and most conifers has a greater potential for built-in age bias than shrub species like saltbush or greasewood. The presence of juniper and conifer charcoal in the radiocarbon sample from Feature 7 could therefore result in an earlier date than the sample from Feature 6, which consisted solely of saltbush/greasewood, even if the two hearths were contemporary. Consequently, the most that can be said about the relationship among Features 6, 7, and 10 is that they evidence multiple occupational episodes during the late Archaic-Basketmaker II period.

The fourth feature in this cluster (Feature 8), classified as a probable hearth, is a small circular basin measuring 20 cm in diameter and 7 cm deep. It was dug into the fill in Feature 7 (Figure 25.5). Its fill was a blacky ashy sand. No artifacts, oxidation, or rodent disturbance were noted.

A possible posthole or rodent burrow (Feature 3)—a small circular ash stain measuring 11 cm in diameter and 6 cm deep—was immediately north of the cluster of Features 6 through 10. The fill was a dark gray loosely compacted sand with charcoal flecks. A less dense ashy stain extended from around its south half (Figure 25.5). This amorphous stain was likely the result of rodent burrowing. The fill contained 16 flakes.

Storage Pit

A storage pit (Feature 9) was dug into the fill of Feature 7 near its southern perimeter (Figure 25.5). The pit was a circular basin, measuring 25 cm in diameter and 26 cm deep (Figure 25.6). The fill was a light gray ashy sand. No oxidation or rodent burrowing were noted. Its artifact assemblage is 2 pieces of angular debris, 16 small flakes,

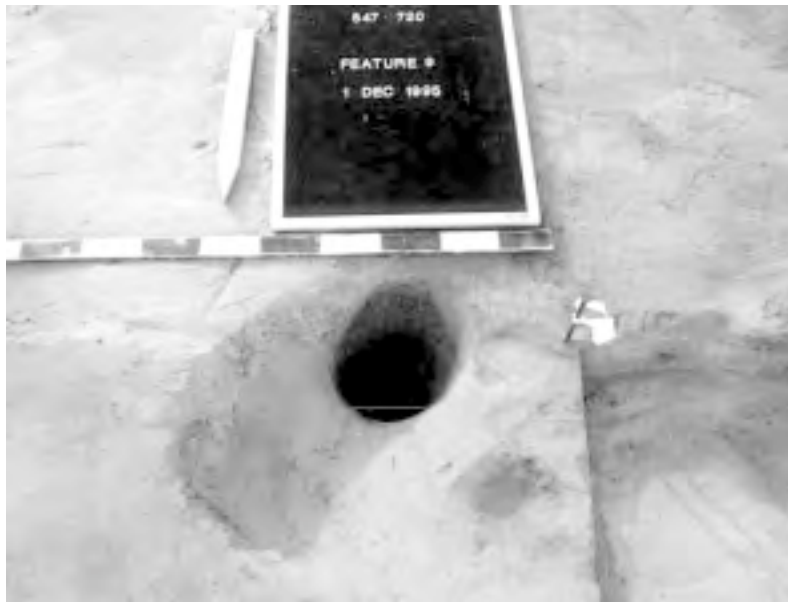


Figure 25.6 Photo of a small storage pit (Feature 9) at LA 110961.

and 2 conjoinable metate fragments. No bone was recovered but flotation of the fill yielded charred pigweed and dropseed.

Like Feature 8, Feature 9 appears to post date Feature 7 but its relation to other features in the cluster is unclear. As noted previously, Feature 7 has a high artifact density. Because Features 7 and 8 were built over Feature 7, it seems likely that some of the artifacts recovered from Feature 7 are actually trampled debris from later occupational episodes.

Roasting Pits

A probable roasting pit (Feature 4) (Figure 25.7) was in the southwest side of the pipeline trench and beyond the ashy culture-bearing stratum. The roasting pit fill was an ashy sand with charcoal flecks. Rodent burrows, filled with alluvial clay, occurred throughout the pit fill. Only a portion of the roasting pit was excavated because it extended toward an existing pipeline (Figure 25.8). The exposed portion of the roasting pit measured a minimum of 1.7 m east-west by a minimum of 1.4 m north-south. It had a maximum thickness of 7 cm. Several pieces of fire-cracked rock were noted in the pit fill, and four very small flakes were recovered from its surrounding matrix. A charcoal sample identified as saltbush/greasewood (*Atriplex/Sarcobatus*, dominant) and conifer (Gymnospermae) yielded a radiocarbon date of 1770 ± 100 BP (Beta-92317) or cal AD 250. The 2-sigma date is cal AD 55 to 530. Flotation of the feature fill yielded charred fragments of pigweed and dropseed.

A large basin-shaped roasting pit (Feature 5) was immediately northeast of Features 1 and 2 near the center of the ash stratum (Figure 25.4). This roasting pit—measuring 125 cm east-west by 90 cm north-south and 10 cm deep—had fill that was ashy sand with charcoal flecks. A flotation sample from the fill included charred pigweed, purslane, and seepweed. There was substantial oxidation beneath its fill and rodent burrowing was prevalent.

Several fire-cracked rock and ground stone fragments were in the south part of Feature 5. The artifact assemblage from this roasting pit is 291 flaked lithics of which two are utilized flakes and two retouched flakes. Sixteen animal bone fragments were also recovered. The bone fragments all represent elements of indeterminate small-size mammals. Thirteen of the bone fragments are calcined, indicating the bone was subjected to hot fires. The bone probably represents food refuse that was discarded in a fire. A charcoal sample—saltbush/greasewood (*Atriplex/Sarcobatus*), cottonwood/willow (*Populus/Salix*), and juniper (*Juniperus*) as the dominant portion and a carbonized juniper cone fragment—yielded a date of 2050 ± 80 BP (Beta-92311) or 40 cal BC. Its 2-sigma date range is 345 to 310 cal BC and 210 cal BC to cal AD 120.

The calcined bone fragments indicate the pit was used for disposal of food refuse. The large quantity of small flakes indicate tool manufacture and/or maintenance. Radiocarbon dating indicates Feature 5 has a late Archaic affiliation and is the earliest dated feature at the site.

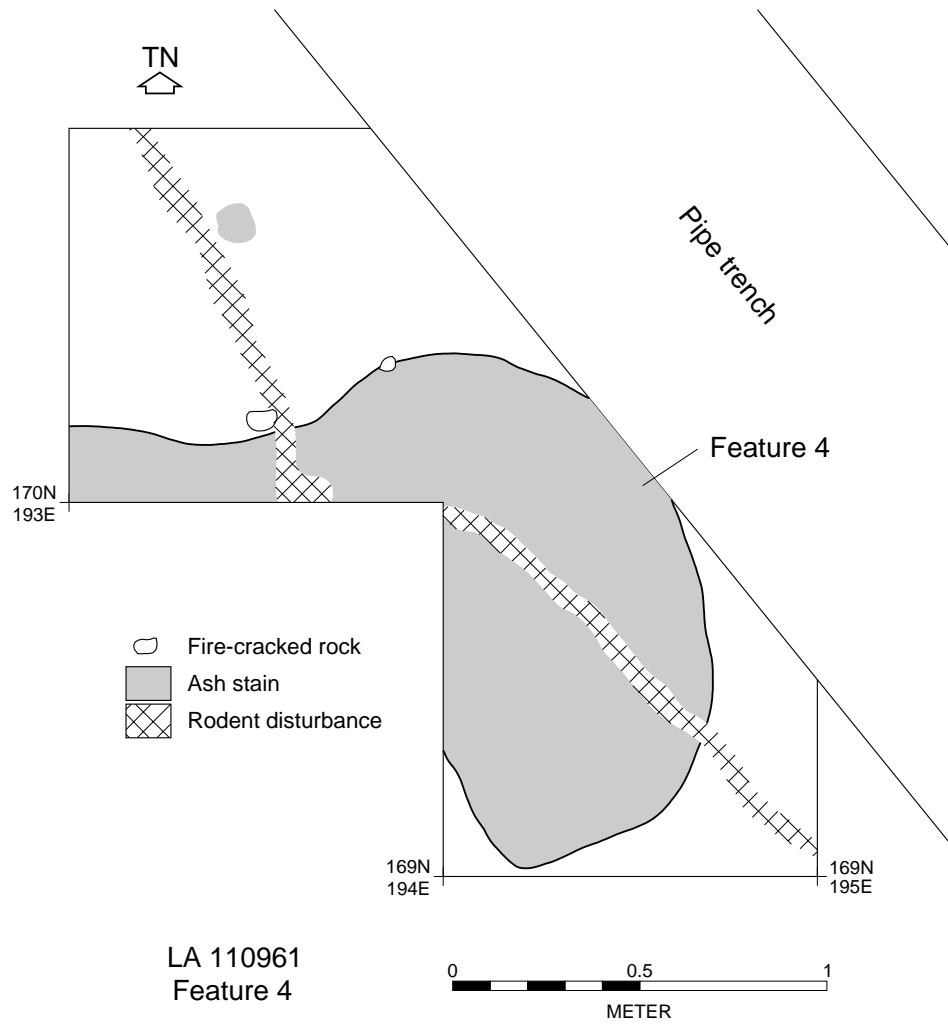


Figure 25.7 Feature 4.



Figure 25.8 Photo of a roasting pit (Feature 4) at LA 110961.

ARTIFACTS AND SAMPLES

The site artifact assemblage is composed of 9,144 lithics, 186 ceramics, 152 faunal specimens, and macrobotanical remains. Beyond the perimeter of the dark stain the quantity of artifacts dropped dramatically. The artifact assemblage is large considering the size of the site. The assemblage is mostly lithics with 8,312 artifacts recovered from extramural contexts.

Lithics

The lithic assemblage consists largely of very small flakes, but also includes some larger flakes, cores, a projectile point mid-section, other tools, and a small quantity of ground stone (Table 25.2). No temporally diagnostic artifacts were recovered but the debitage seems characteristic of late Archaic lithic reduction strategies. The flakes are small; mean flake thickness is 1.6 mm, and almost 98% of the flakes are thinner than 6 mm. In addition, mean platform size (platform length x width) is 7.82 mm. These attributes suggest an emphasis on bifacial reduction and tool manufacture and maintenance typical of late Archaic assemblages. The tool assemblage is similar to the En Medio phase tool kit. Irwin-Williams (1973:11–14) notes that the En Medio phase tool kit consists primarily of flake scrapers and knives, and crude choppers and pounders. Only one chopper was recovered from LA 110961, but flake scrapers and knives—classified and retouched flakes—are fairly numerous. Despite being recovered from the ashy matrix, few of the lithics exhibit heat alteration. The dominant material is chalcedony; however, silicified wood is also well represented. Cherts and obsidians occur in lesser, but substantial, quantities (Table 25.2). Small quantities of quartzites, basalt, sandstone and gypsum crystal also occur.

The sixteen ground stone fragments include five metate and one mano fragment. Most of the ground stone is from units immediately north and south of the cluster of Features 6 through 10. Only Features 9 and 11 contained ground stone. Sandstone and quartzite are the preferred materials. A considerable number of water-worn cobbles were noted in the nearby swales. The occurrence of these water worn rocks within the cultural stratum indicates they were collected for later use, either as lithic raw materials or heating elements. Eleven very small ocher fragments were also recovered. Three of the fragments are from Feature 5 and six are from the units surrounding the cluster of Features 6 through 10.

Ceramics

The entire ceramic assemblage was analyzed with 150 of the 186 sherds being identified to type. The sherds tend to be clustered at the north end of the site and only marginally

overlapped with the buried cultural deposits dating to the late Archaic-Basketmaker II period. The presence of these sherds prompted additional excavations at the north end of the site. Most of the sherds were recovered from the stratum overlying the Archaic cultural deposits. All but two of the identified sherds are a plain grayware that spans the Basketmaker III to Pueblo IV periods (ca. AD 400 to 1350), although it is rare after the Pueblo I period. Many of the sherds exhibit an identical fabric which suggests they are from the same vessel. The grayware sherds include seven rims and several neck portions of at least two jars. All of the rim sherds are tempered with sand.

Two glaze-painted bowl sherds are unidentifiable glazeware fragments. One is a glaze-on-red bowl fragment and the other is from a polychrome bowl. Both are tempered with basalt. Although there is a slight overlap in use dates, it is unlikely that these two sherds are contemporaneous with the plain gray sherds, given the rarity of plain graywares after the Pueblo I period.

Faunal Remains

The faunal assemblage, consisting mostly of small animal bone fragments, tends to be associated with the cluster of Features 6 through 10 although only Features 5, 7, and 10 yielded bone (Table 25.3). A small cluster of bone was noted at the southeast extent of the ashy stain. Most of the bone is very fragmented with only one that could be identified to genus, cottontail (*Sylvilagus* sp.). Almost three quarters of the fragments (112) are of indeterminate rabbit-size mammals. Of the remaining 40 bone fragments, all but six represent deer- or bison-size mammals. None of the bone exhibits butchering marks or other modification. Burning is evident on 130 specimens, of which 117 are calcined, which is indicative of high temperatures and/or prolonged exposure to fire. The large quantity of calcined specimens suggests that they are part of the hearth cleaning debris. The fragmentary condition of the bone further suggests processing to extract marrow and grease prior to their disposal in a fire.

Archeobotanical Remains

Matrix totaling 158.6 liters was processed by flotation. Seven flotation samples, from seven features (Table 25.4) were scanned for botanical remains. Given the limited number of flotation samples and features, a wide variety of carbonized wild plant remains are identified. The few uncharred specimens are probably not associated with the archeological assemblage. The plant taxa associated with the late Archaic period suggests a late summer to fall occupation.

Table 25.2 Lithic artifact and material types, LA 110961.

Artifact Type	Extramural Area	Features										Total	
		Hearths							Roasting Pits		Storage Pit	n	%
		1	2	3	6	7	10	11	4	5	9		
Angular Debris	898		3		14	28		41	3	41	2	1030	11.3
Flake	6936	5	19	16	69	157	7	440	1	245	16	7911	86.5
Flake, Bifacial Thinning	25									1		26	0.3
Tested Rock	2											2	0.0
Core, Irregular	3											3	0.0
Core, Bifacial	2											2	0.0
Hammerstone	1											1	0.0
Chopper, Bifacial	1											1	0.0
Angular Debris, Utilized	5											5	0.0
Angular Debris, Retouched	2											2	0.0
Flake, Utilized	61							2		2		65	0.7
Flake, Retouched	21				1			1		2		25	0.3
Projectile Point	1											1	0.0
Biface	30					1		2				33	0.4
Uniface	1											1	0.0
Scraper	17				1	1		1				20	0.2
Ground Stone, unknown	10											10	0.1
Mano, unknown	1											1	0.0
Metate, unknown	2							1			1	4	0.0
Metate, Slab	1											1	0.0
Total	8020	5	22	16	85	187	7	488	4	291	19	9144	99.8
Material Type													
Chalcedony	5407	4	18	14	75	116	6	351	4	226	14	6235	68.2
Silicified Wood	1852	1	4	2	2	50	1	110		41	2	2065	22.6
Quartzite	41									2		43	0.5
Chert	498				7	16		12		6	1	540	5.9
Obsidian	34					1		5		1		41	0.4
Obsidian, Jemez	139				1	4		8		15	1	168	1.8
Basalt	36							1				37	0.4
Sandstone	12							1			1	14	0.2
Gypsum Crystal	1											1	0.0
Total	8020	5	22	16	85	187	7	488	4	291	19	9144	99.9

HARDING POLK II

Table 25.3 Faunal remains from LA 110961.

Taxon	Extramural Area	Features			Total	
		Roasting Pit	Hearths		n	%
			5	7		
	n	n	n	n	n	
<i>Sylvilagus</i> sp. (cottontail)	1				1	0.7
Indeterminate mouse-size mammal	2				3	3.3
Indeterminate rabbit-size mammal	88	16	8		112	73.7
Indeterminate dog-size mammal	26		1		27	17.8
Indeterminate deer-size mammal	4				4	2.6
Indeterminate bison-size mammal	2				2	1.3
Indeterminate size mammal	1				1	0.7
Total	124	16	9	3	152	100.1

Table 25.4 Botanical remains from LA 110961.

Taxon	Features							
	Hearths				Roasting Pits		Storage Pit	
	2	6	7	10	4	5	9	
<i>Chenopodium</i> sp. (Goosefoot)		c						
<i>Amaranthus</i> sp. (Pigweed)						u		
<i>Chenopodium/Amaranthus</i> (Goosefoot/Pigweed)		c	c	c	c	c		
<i>Portulaca</i> sp. (Purslane)						c		
<i>Sporobolus</i> sp. (Dropseed Grass)	c	c	c	c	c	c	c	
<i>Juniperus</i> sp. (Juniper)						c		
cf. Gramineae (?Grass Family)						c		
Gramineae (Grass Family)	c	c	c	c	c	c	c	
cf. <i>Croton</i> sp. (?Croton)						u		
<i>Euphorbiaceae</i> (Spurge Family)							u	
cf. <i>Sarcobatus</i> (?Greasewood)			c	c				
<i>Sphaeralcea</i> sp. (Globemallow)		c	u	u				
<i>Boerhaavia</i> cf. <i>coccinea</i> (Red Spiderling)			c					
Maluaceae (Mallow Family)							c	

Key: c = carbonized, u = uncharred

SUMMARY AND INTERPRETATION

Based on five tightly clustered radiocarbon dates, the primary occupation at LA 110961 dates to the late Archaic/Basketmaker II period. The large quantity of artifacts and overlapping features, together with the macrobotanical remains suggest repeated, short-term occupations from late summer to fall. The small size of the occupation areas further suggests that only a small group of people occupied the site at any given time. The artifact assemblage indicates stone tool production and/or maintenance, and animal and plant resource procurement and processing were important tasks. Plain grayware sherds from at least two vessels mark a later episode of use, probably dating to the early Formative period, and two glazeware-sherds evidence an ephemeral late Formative use episode.

The small size of LA 110961 fits Irwin-Williams' (1973:14) description of En Medio phase dune ridge sites. Irwin-Williams argues that these sites are indicative of a dispersed mobile population with a very strong seasonal annual economic cycle. She believes that group fissioning and seasonal dispersal of the late Archaic population may have occurred in response to increased population pressure in the Arroyo Cuervo region of the Rio Puerco. This site may represent one of the small groups who were extending their ranging to other nearby drainages and exploiting the seasonally available resources along the Jemez River. Furthermore, the location of this site, between the Jemez River and the steeply dissected hills to the southwest, would have provided a diverse resource base favored by seasonally mobile groups practicing a hunting and gathering subsistence economy. An increased population would have, over time, reduced the available resource base.

LA 110961 is restricted in size, occupying an area of just over 100 m². Biella and Chapman (1979:65) indicate Archaic sites in the Cochiti Reservoir area range in size from 8 to 40,000 m², however, those greater than 500 m² tend to be composed of more than one spatially discrete provenience. Each provenience tends to be small in area and exhibits greater artifact densities and more hearth facilities whereas the remainder of the site is characterized by very low densities of artifacts (Biella and Chapman 1979:65). At LA 110961 the stratigraphic extent of cultural deposits was established, but absolute horizontal limits of cultural activity were not. The restriction of OCA's investigation to the pipeline corridor precluded determining the presence of other buried proveniences. Consequently, we cannot rule out the possibility that the cultural deposits described here are only one provenience of a much larger site.

Although the vertebrate faunal assemblage is small, the bone fragments are representative of all mammal-size categories, which indicates utilization of diverse faunal resources. Most of faunal remains represent rabbit-sized mammals, but only one bone fragment in the assemblage is identifiable to species—cottontail. The high percentage of burned and calcined bone indicates food preparation and disposal of food refuse in hearths.

Environmental effects of increased exploitation of available resources may be reflected in the archeological record. The earliest dated feature (Feature 5) had juniper wood as fuel for fires. All later dated features (Features 4, 6, and 7) have saltbush/greasewood as their fuel, which indicates a possible change in vegetation about two thousand years ago. A variety of carbonized wild plant remains associated with the late Archaic period suggests a late summer to fall occupation. The few uncharred specimens are probably not associated with the archeological assemblage.

Chapter 26

LA 111586

Harding Polk II

LA 111586 is a middle Archaic period hearth that was recorded during the monitoring of pipeline construction. A basin-shaped ash and charcoal stain was encountered near the bottom of the northeast wall of the pipeline trench. The hearth had only been slightly disturbed by the pipeline trench.

The site is 4.2 km (2.6 miles) southeast of the Rio Puerco in an area characterized by rolling grassy hills (Figure 1.1) near the crest of a southeast-northwest trending ridge that has a broad northeastern view of the surrounding terrain. The ridge slope drains toward the headwaters of Arroyo Alamo 460 m to the northeast—a tributary of the Rio Salado. Vegetation is ricegrass, broom snakeweed, dwarf sage, hedgehog cactus, cholla, fourwing saltbush, and wheat grass. Widely spaced juniper trees occur in the vicinity but not in the immediate site area.

INVESTIGATION STRATEGY AND RESULTS

Data recovery focused on exposing and excavating the hearth (Feature 1) and searching for additional features nearby. Mechanical equipment was used to remove approximately 0.9 to 1.2 m of overburden from the hearth. Overburden was removed from an area measuring approximately 36 m² (Figure 26.1). Seven 1 m² units were hand-excavated. A diffuse faint red stain was noted 4 m north-northwest of the hearth (Feature 1), but no additional features were discerned.

The circular hearth measured 64 by 48 cm and 14 cm deep (Figure 26.2). The entire hearth fill was collected for flotation. A single chert flake was recovered from near the top of the hearth fill. The fill consisted of a dark ash with hard compacted clay caliche with some burned sand. There was no evidence of oxidation beneath the ash/charcoal deposit.

A charcoal sample—conifer (cf. *Juniperus* 95%), saltbush/greasewood (*Atriplex/Sarcobatus* 5%), and sunflower (Compositae < 1%)—yielded a radiocarbon date of 4190 ± 60 BP (Beta-96746) or 2870, 2795, 2770 cal BC with a 2-sigma date range of 2905 to 2585 cal BC.

The six contiguous excavation units were dug to depths varying from 6 to 13 cm below the top of the hearth. No additional cultural remains were discerned. The ephemeral reddish stain noted approximately 4 m north of the hearth was tested with a single 1 m² unit. No cultural materials were recovered and the stain was determined to be natural. The artifact assemblage is a single chert flake and a few macrobotanical remains. The entire hearth fill, totaling 25.3 liters, was processed by flotation. Scanning of the macrobotanical sample yielded a carbonized specimen of what is probably goosefoot (*Chenopodium* sp.).

SUMMARY AND INTERPRETATION

LA 111586 represents an isolated single-use short-term camp dating to the middle Archaic period. The site was likely used by a single individual or small group while hunting and/or foraging. The Arroyo Alamo serves as a corridor between two major water courses—the Rio Puerco and the Rio Salado. This location would have been ideal for intercepting game moving between the two. The site location commands an excellent view of the Arroyo Alamo drainage, and little could have passed without notice. In addition to game, this passage would have provided Archaic hunter-gatherers access to a diverse variety of plant resources. In a relatively short distance the terrain changes from a perennial drainage, the Rio Puerco, to the divide between drainages, to Ojito Spring, and then to another perennial drainage, the Rio Salado. A wide variety of plants grow along this route and would have been attractive to hunters and gatherers.

HARDING POLK II

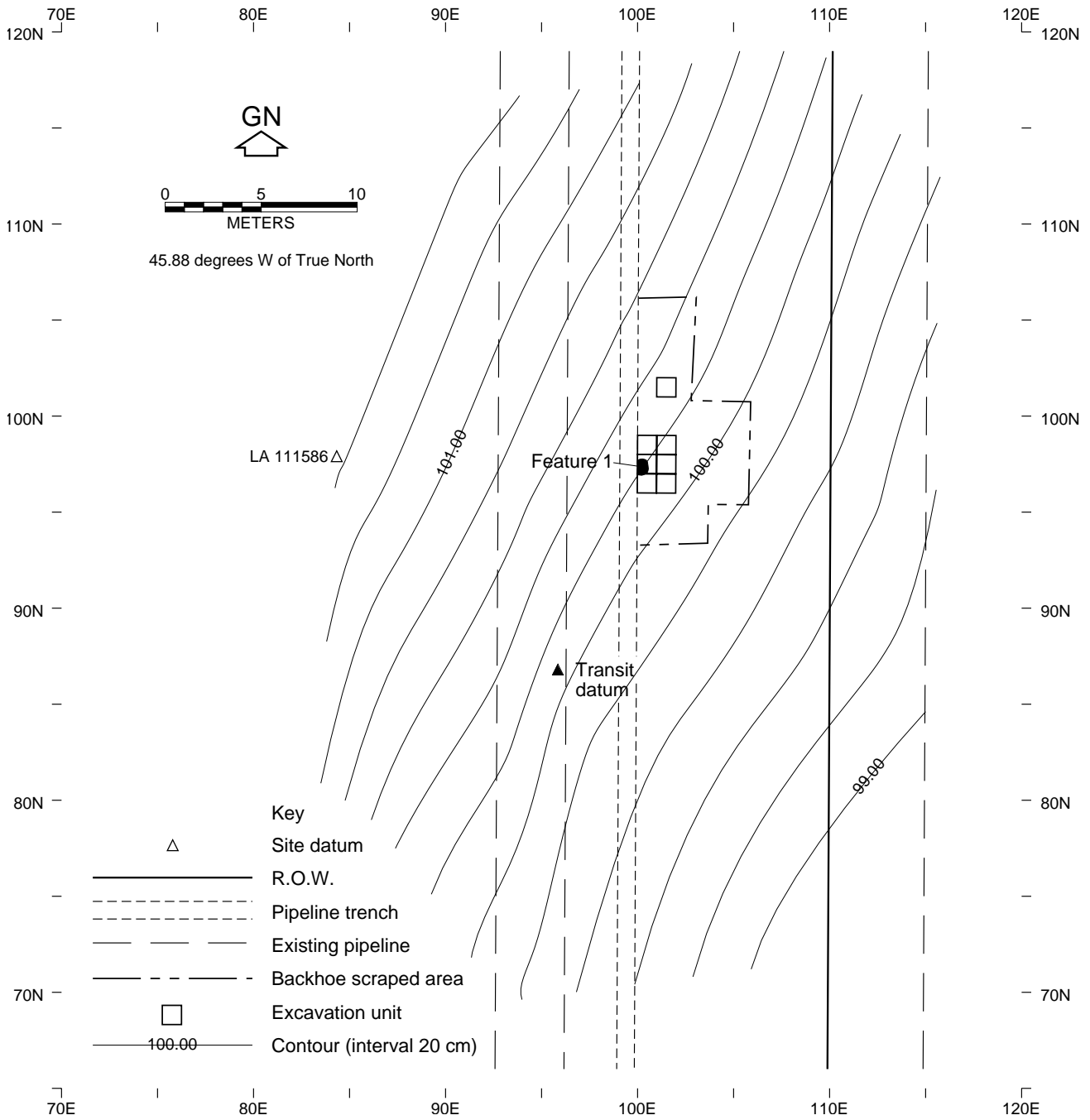


Figure 26.1 Site map of LA 111586 showing location of scraped area, excavated area, and Feature 1.

LA 111586
Feature 1

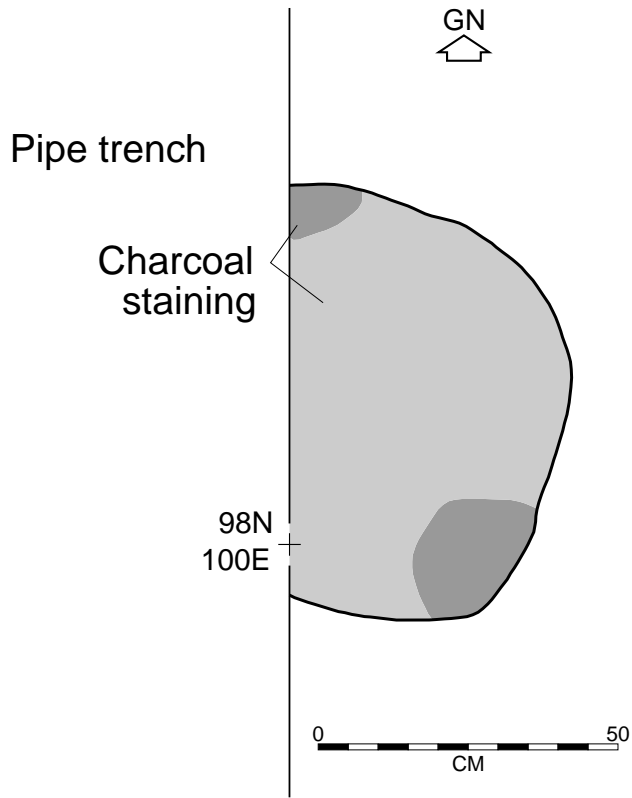


Figure 26.2 Plan of Feature 1.

Chapter 27

LA 112660

Harding Polk II

LA 112660 was reported during the 1995 survey as having late Archaic and Formative period occupations (Bradley et al. 1998:435). LA 112660 is on the east side of the Sandia Mountains in the Town of Tejon Grant (Figure 1.1). The Gonzales Canyon drainage, 100 m distant, meanders around the east side of the site. The site is on gently sloping terrain with an east to northeast view of the surrounding terrain. Vegetation is an open piñon and juniper woodland with an understory of sparse grasses, mostly grama grass, broom snakeweed, narrowleaf yucca, and prickly pear and cholla cacti. Soils are gravelly silty sandy loam. A shallow ephemeral drainage denotes the site's southwest boundary. Impacts to the site have been minor, with three existing pipelines and an access road skirting the site's north edge. Minor sheet erosion has caused some deflation.

PREVIOUS INVESTIGATIONS

During the 1995 survey, the site—measuring 63 m east-west by 52 m north-south—was reported as being an ash and charcoal stain and a limestone rock concentration. Two features were recorded within a small lithic and ceramic sherd surface scatter (Bradley et al. 1998:435): an ash and charcoal stain and a linear alignment of limestone cobbles and small boulders. Both features are outside the pipeline corridor, as is most of the site. The low-density lithic scatter ($n = 32$) was mostly flakes (84%), of which one-third was bifacial thinning flakes. Most of the lithics were obsidian (50%) with lesser quantities of chalcedony, chert, and quartzite. A single obsidian serrated projectile point midsection was noted. Five gray utilityware jar sherds with schist temper were recorded. The projectile point fragment suggests a late Archaic occupation whereas the ceramics indicate a Formative component. The two features were of indeterminate affiliation.

INVESTIGATION STRATEGY AND RESULTS

Data recovery included a controlled surface collection within the pipeline corridor and monitoring the pipeline construction (Figure 27.1). A grid of 1 m² units was placed on the pipeline corridor for the controlled surface collection, but no artifacts were noted. Since there were no surface artifacts within the pipeline corridor the data recovery strategy was altered to include the hand-excavation of 10 shovel test pits (STPs). The test pits were placed along two parallel transects—five pits each—aligned with the pipeline centerline. The two transects were 5 and 10 m from the pipeline centerline, respectively. The shovel test pits along each transect were spaced 10 m apart. None of the shovel test pits was dug deeper than 40 cm.

No artifacts were collected from either the controlled surface collection or the 10 shovel test pits. No buried cultural stratum was discerned. A large siltstone primary flake from the surface near the two-track access road is the only artifact recovered from the pipeline right-of-way.

SUMMARY AND INTERPRETATION

LA 112660, which has evidence of late Archaic and Formative period occupations, was determined to be outside the boundary of the pipeline corridor. The recovery of a single flake from within the pipeline corridor is probably the result of slope wash. Results of shovel testing indicate the site does not extend into the pipeline corridor. A siltstone artifact is not unexpected at this site since siltstone is readily available in the area. The flake differs from those observed during the 1995 survey in that it is a primary flake and is larger than any item noted previously. Furthermore, fully 84% of the survey assemblage was flakes with no cortex. The mean size of the flakes recorded during the survey is less than half the size of the siltstone flake collected during data recovery.

HARDING POLK II

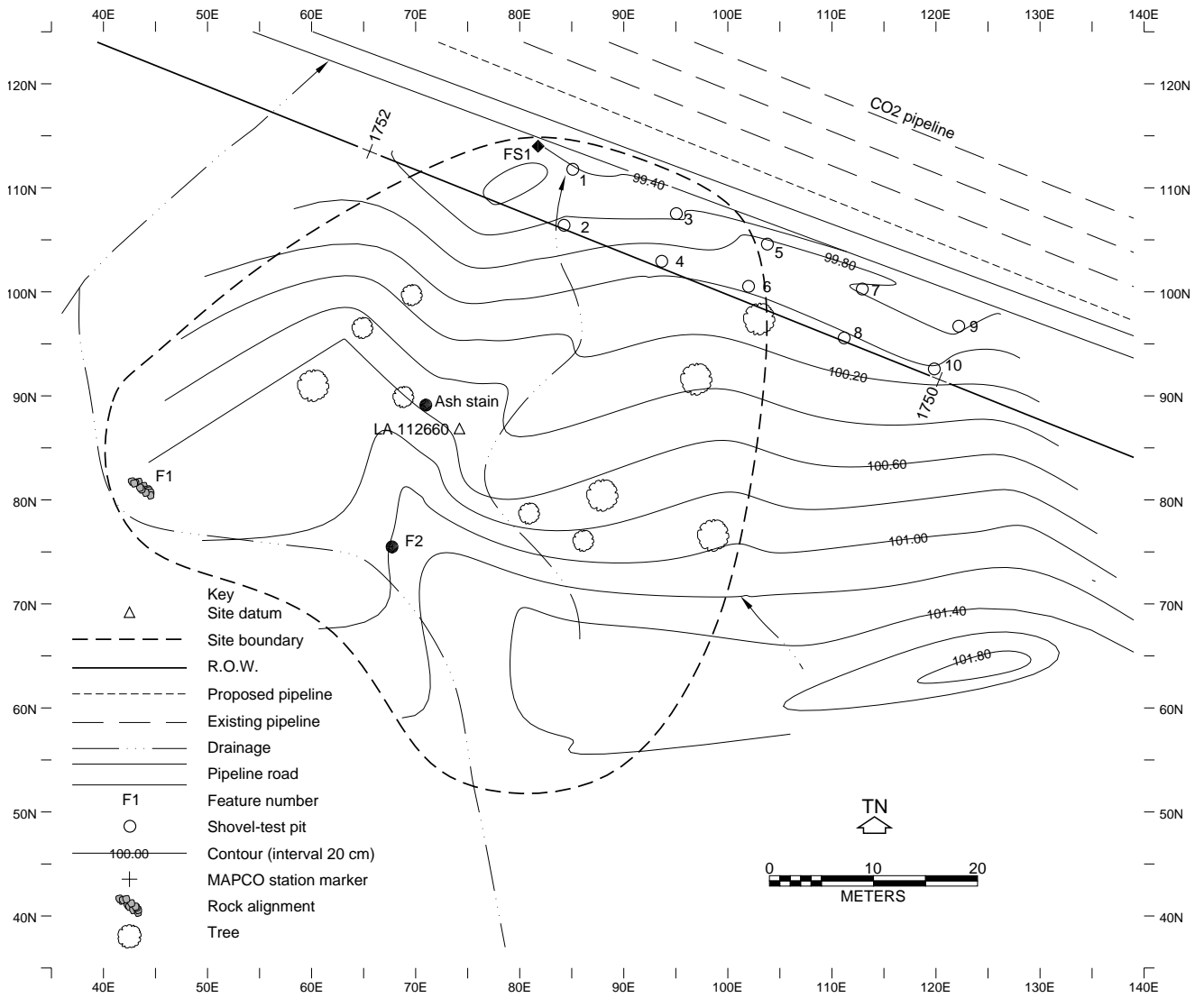


Figure 27.1 Sit map of LA 112660 showing location of shovel test pits and surface artifact.

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APPENDIX A

RADIOMETRIC AND ARCHEOMAGNETIC DATES

Appendix A. Radiocarbon dates obtained from the Jemez and Las Huertas Canyon sites investigated during the MAPCO Project.

LA Number	Feature	Beta #	age BP 1-sigma	cal date intercept	cal date 2-sigma	material dated
25675	6	92326	3710 ± 80	2120, 2080, 2050 BC	2325 to 1890 BC	oak, piñon, juniper, foresteria, saltbush
25851	1	96711	4070 ± 60	2585 BC	2870 to 2795 BC 2770 to 2460 BC	conifer (cf. <i>Juniperus</i>), <i>Atriplex/Sarcobatus</i> -few
25851	1	96748	3940 ± 80	2460 BC	2605 to 2190 BC	<i>Atriplex/Sarcobatus</i> -few
25862	14	96715	1260 ± 70	AD 775	AD 650 to 960	conifer (cf. <i>Juniperus</i> -49%), <i>Atriplex/Sarcobatus</i> -49%, <i>Populus/Salix</i> , <i>Compositae</i> -few
25862	18	96717	920 ± 90	AD 1065, 1075, 1155	AD 975 to 1280	<i>Populus/Salix</i> -66%, conifer (cf. <i>Juniperus</i> -33%)
25862	25	96718	930 ± 40	AD 1055, 1090, 1150	AD 1020 to 1215	conifer (cf. <i>Juniperus</i> -60%), <i>Pinus</i> -40%
25862	20	96720	modern			conifer (cf. <i>Juniperus</i> -90%), <i>Populus/Salix</i> , <i>Atriplex/Sarcobatus</i> , <i>Compositae</i> -few
25862	8	96721	1180 ± 50	AD 880	AD 720 to 760, AD 760 to 985	conifer (cf. <i>Juniperus</i>)
25862	19	96722	1170 ± 100	AD 885	AD 665 to 1035	<i>Populus/Salix</i> -90%, unidentified hardwood-few, <i>Atriplex/Sarcobatus</i> -few
25864	6	92297	2500 ± 60	760, 634, 560 BC	800 to 405 BC	juniper, saltbush
25864	7	92299	2150 ± 80	180 BC	385 BC to AD 25	juniper, rabbitbrush, saltbush, doveweed
25864	22	92302	2060 ± 60	45 BC	195 BC to AD 75	juniper
25864	2	92304	2360 ± 100	400 BC	785 to 185 BC	juniper
27632	8	92323	70 ± 50	none	AD 1680 to 1755, AD 1805 to 1940	<i>Pinus ponderosa</i>
27632	1	92324	1620 ± 100	AD 430	AD 225 to 645	conifer, saltbush
27632	6	92325	1680 ± 70	AD 395	AD 225 to 550	juniper, saltbush, rabbitbrush, maize
27632	SU 1	92327	1930 ± 110	AD 85	180 BC to AD 370	conifer
27632	SU 4	92328	1300 ± 50	AD 695	AD 650 to 865	juniper, saltbush, rabbitbrush
109129	1	96733	1530 ± 80	AD 555	AD 390 to 665	conifer (cf. <i>Juniperus</i>), unidentified frothy material, mix conifer and <i>Atriplex/Sarcobatus</i> , saltbush, maize
109129	8	96736	1510 ± 60	AD 575	AD 425 to 655	conifer (cf. <i>Juniperus</i> -49%), <i>Populus/Salix</i> -49%, <i>Atriplex/Sarcobatus</i> -few
109129	9	96737	1680 ± 60	AD 395	AD 240 to 535	conifer (cf. <i>Juniperus</i> -33%), <i>Populus/Salix</i> -66%, <i>Atriplex/Sarcobatus</i> -few
109129	12	96740	1570 ± 60	AD 530	AD 390 to 630	conifer (cf. <i>Juniperus</i> -30%), <i>Atriplex/Sarcobatus</i> -few, <i>Populus/Salix</i> -50%, <i>Chryso/Artemisia</i> -few
109137	1	92308	1120 ± 50	AD 960	AD 800 to 1015	piñon, juniper, conifer
109137	3	96713	4200 ± 60	2875, 2790, 2780 BC	2910 to 2590 BC	conifer (cf. <i>Juniperus</i> -49%), <i>Atriplex/Sarcobatus</i> -49%, <i>Compositae</i> -few
110942	2	92293	2080 ± 80	60 BC	360 to 250 BC, AD 90	maize, piñon, cottonwood, yucca, saltbush
110942	9	96739	90 ± 50	none	AD 1675 to 1775, AD 1800 to 1945	conifer (cf. <i>Juniperus</i>)
110942	10	96744	30 ± 60	none	AD 1685 to 1740, AD 1810 to 1930	conifer (cf. <i>Juniperus</i>)
110943	1	92307	1820 ± 80	AD 225	AD 45 to 410	saltbush, conifer

110945	1	96731	310 ± 50	AD 1640	AD 1460 to 1670	mix of conifer (cf. <i>Pinus</i> and <i>Juniper</i>); too small to ID
110950	1	92318	modern			juniper
110951	1	92316	1600 ± 70	AD 440	AD 330 to 620	saltbush, conifer
110952	6	92294	250 ± 70	AD 1655	AD 1475 to 1825, 1835 to 1880, 1915 to 1950	rabbitbrush, saltbush, juniper
110952	3	92295	2730 ± 80	845 BC	1030 to 790 BC	saltbush, juniper
110952	2	92298	1110 ± 80	AD 970	AD 770 to 1040	saltbush, juniper, rabbitbrush
110952	12	92300	2510 ± 130	765, 615, 600 BC	905 to 365 BC	saltbush, rabbitbrush, cottonwood
110952	14	92303	1350 ± 60	AD 670	AD 615 to 790	juniper, saltbush
110953	1	96724	70 ± 50	none	AD 1680 to 1775, 1805 to 1940	conifer (cf. <i>Juniperus</i> -80%), <i>Quercus</i> <i>Pinus</i> -trace
110953	1	96726	80 ± 50	none	AD 1677 to 1770, 1800 to 1940	conifer (cf. <i>Juniperus</i>)
110953	2	96727	70 ± 50	none	AD 1680 to 1755, 1805 to 1940	conifer (cf. <i>Juniperus</i> -95%), unidenti hardwood-5%
110953	6	96728	710 ± 70	AD 1290	AD 1215 to 1405	conifer (cf. <i>Juniperus</i>)
110953	4	96729	230 ± 60	AD 1665	AD 1515 to 1585, 1625 to 1825, 1835 to 1880, 1915 to 1950	caryopses-wheat grains (<i>Triticum</i> sp.)
110953	8	96730	80 ± 70	none	AD 1665 to 1950	cf. Compositae (<i>Artemisia</i> type-80%) (cf. <i>Juniperus</i> -20%)
110954	0	96732	190 ± 60	AD 1675, 1775, 1800, 1945	AD 1640 to 1950	conifer (cf. <i>Juniperus</i>)
110955	2			would not run		
110955	3	96735	3860 ± 70	2310 BC	2485 to 2125, 2065 to 2060 BC	cf. <i>Artemisia tridentata</i>
110957	3	92296	2380 ± 110	405 BC	795 to 185 BC	saltbush, conifer
110958	1	92306	440 ± 40	AD 1450	AD 1420 to 1505, 1595 to 1620	saltbush
110960	2	92310	1690 ± 70	AD 390	AD 220 to 540	saltbush
110960	6	92312	1880 ± 60	AD 130	AD 15 to 260	saltbush, rabbitbrush
110961	5	92311	2050 ± 80	40 BC	345 to 310 BC, 210 BC to AD 120	juniper, cottonwood, saltbush
110961	7	92314	1960 ± 70	AD 65	100 BC to AD 225	saltbush, juniper, conifer
110961	6	92315	1730 ± 60	AD 340	AD 160 to 435	saltbush
110961	4	92317	1770 ± 100	AD 250	AD 55 to 530	saltbush
110961	10	92319	1880 ± 70	AD 130	5 BC to AD 330	conifer, saltbush
111586	1	96746	4190 ± 60	2870, 2795, 2770 BC	2905 to 2585 BC	conifer (cf. <i>Juniperus</i> -94%), <i>Artiplex/Sarcobatus</i> -5%, Compositae



Department of Anthropology
Archaeometric Laboratory
Fort Collins, Colorado 80523

12/11/95

Dr. William Doleman
Office of Contract Archaeology
1717 Lomas Blvd. NE
Albuquerque, NM 87131

Dear Bill:

Enclosed please find the archaeomagnetic report for the AM sample collected from LA109129. We worked long and hard on processing this sample. The initial set of results were much more scattered than I would have expected from a well plastered, central hearth in a New Mexican pithouse. After the initial demagnetization run at 5 mT, the sample improved a great deal, but, then, did not improve after that at subsequent demagnetization runs of 10 and 15 mT. In fact, it seemed to progressively deteriorate at each demagnetization step beyond the 5 mT level. You indicated in your field notes that the feature had only a medium burn, and lab results bear this out. Since the sample's magnetism seems to "blow out" with demagnetization, it may not have been one of those well baked, orange features. It looks like the sample was collected from the raised portion of the coping rather than the inside edge. Could it be that this raised portion was not in the fire of the hearth?

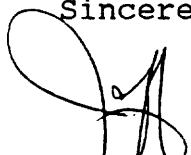
Be that as it may, we noticed that throughout the processing, six of the samples were well clustered in the center of the distribution of directions. When we looked at your sketch of the collection to find out where the tight set of six were located around the coping, we noticed that they were all in the center of the collection area. The magnetic directions of the specimens tending to come from the north and south ends of the collection area are much more scattered. It looks to me like the best results are coming from the center of the collection area. Therefore, I am reporting the sample with five of the end specimens removed. While five "outliers" is an unusually large number of outliers, I feel that the remaining six best represent the TRM direction of the original burn. Even with these five specimens removed from the set, the sample had a fairly large α_{95} value.

RADIOMETRIC AND ARCHEOMAGNETIC DATES

What does the mean location of these six specimens indicate for a date? Using the latest version of the SW master curve (see note) as a reference, this sample probably was fired either before AD 700 or after AD 900. I realize that you are expecting a date that is almost the opposite of this (i.e. between AD 700 and 900), but in none of the demagnetization steps, with or without outliers removed, did the sample plot up along the AD 800 loop. Our visual estimation of the possible date ranges are given on the bottom of the plot figure.

If you have any questions, please feel free to contact me.

Sincerely,



Jeffrey L. Eighmy, Ph.D.
Director

Note: We are using SWCV595 as a reference curve. I am enclosing a copy of the documentation on this curve (Tech Series # 7). See Table 2 and Figure 1 at the end of the publication. LaBelle and I are preparing a short journal article on the SWCV595 curve.

ARCHAEOMETRIC LABORATORY REPORT

Archaeometric Laboratory
 Department of Anthropology
 Colorado State University
 Fort Collins, Colorado 80523
 (303) 491-7408 or 491-5784

Sample I.D. LA 109129-1 Feature I.D. Feat 34
 Site Latitude 35.48° N Site Longitude 253.28° E
 Site Declination 10.93° E Expected Date AD 700-900
 Collector Bill Doleman Date Collected 10/10-12/95

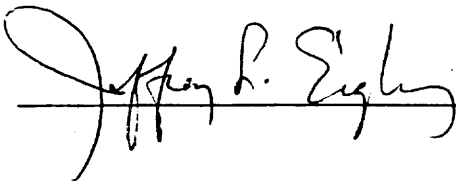
Laboratory Analysis

Demagnetization Steps (mT)	<u>NRM</u>	<u>5.0</u>	<u>10.0</u>	<u>15.0</u>
Alpha 95 (degrees)	<u>11.19</u>	<u>3.12</u>	<u>5.44</u>	<u>6.01</u>
Precision Parameter - k	<u>36.79</u>	<u>461.71</u>	<u>152.74</u>	<u>125.32</u>
Inclination (degrees dip)	<u>60.11</u>	<u>55.25</u>	<u>53.39</u>	<u>57.71</u>
Declination (degrees E)	<u>5.60</u>	<u>1.82</u>	<u>3.59</u>	<u>356.50</u>
Mean Sample Intensity (E-08 Tesla)	<u>13.981</u>	<u>1.534</u>	<u>1.610</u>	<u>1.251</u>
No. Specimens Collected/ No. Specimens Used	<u>11/6</u>	<u>11/6</u>	<u>11/6</u>	<u>11/6</u>
Specimen # of Outlier(s)	<u>1, 2, 4, 11, 12</u>			

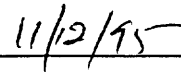
Final Processing Results

Demagnetization Level Used	<u>50.0</u>
Paleolatitude (degrees N)	<u>88.49</u>
Paleolongitude (degrees E)	<u>331.21</u>
Error Along the Great Circle - EP (degrees)	<u>3.16</u>
Error Perpendicular to the Great Circle - EM (degrees)	<u>4.44</u>

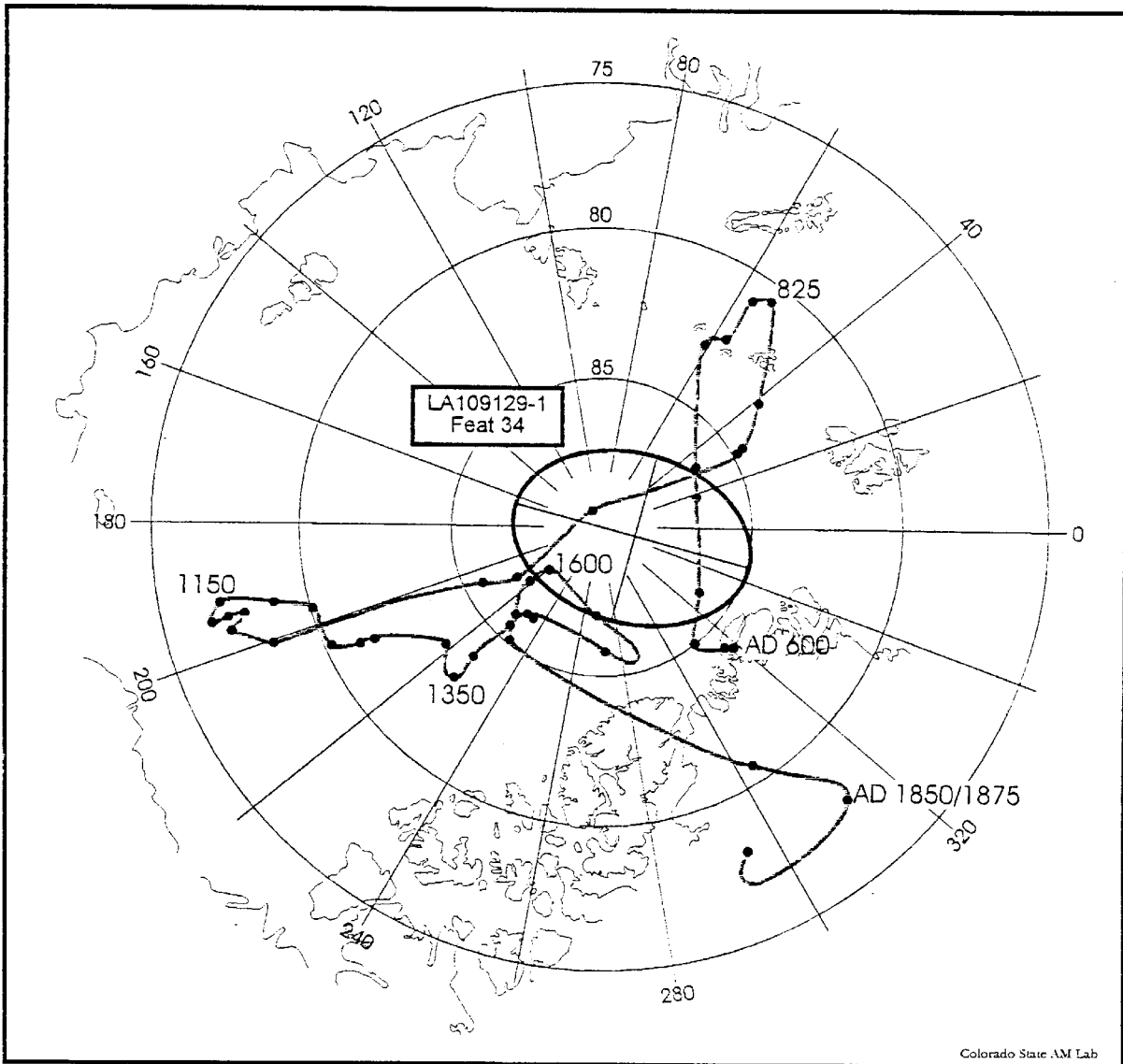
Signed



Date

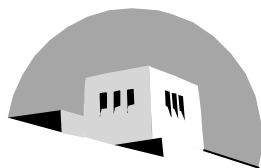


Southwest Archaeomagnetic Master Curve SWCV595



Visual Date Range(s):
AD 650-725
AD 900-975
AD 1475-1625

Figure A.1 Southwest Archaeomagnetic Master Curve SWCV595 with LA 109129 hearth (Feature 34) plotted.



The University of New Mexico