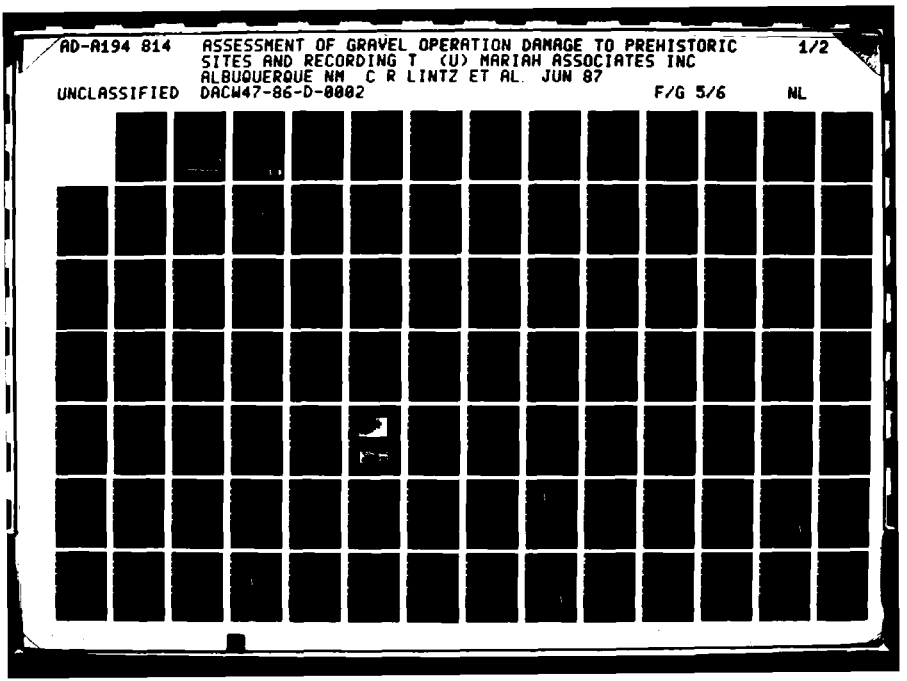
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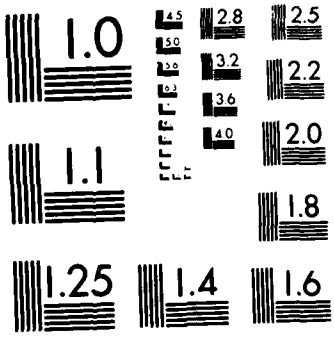

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ASSESSMENT OF GRAVEL OPERATION DAMAGE TO PREHISTORIC SITES AND RECORDING THE SANTA FE TRAIL WITHIN THE JOHN MARTIN RESERVOIR PROJECT AREA, BENT COUNTY, COLORADO

Christopher R. Lintz

and

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Amy C. Earls, et al.

Prepared for
U.S.Army Corps of Engineers
Albuquerque District
New Mexico

1987

MARIAH ASSOCIATES, INC.
ENVIRONMENTAL SCIENTISTS

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Nick Trierweiler, and John C. Acklen

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Contract No. DACW47-86-D-0002, DM00005 and DM0003

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June and July 1987

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June 1987

ACKNOWLEDGEMENTS

The brief reconnaissance of the John Martin Reservoir could not have been accomplished without the help of numerous individuals. Mark Stark was the Army Corps of Engineers administrative contact at the John Martin Reservoir and provided confirmation on property boundaries. Richard Carrillo, free lance historical archaeologist at La Junta, provided information about the Science Applications, Inc. survey procedures and examined the historic artifacts collected from testing of Santa Fe Trail Segment 8. Dr. Leslie Wildersen, State Archaeologist, and Rhoda Lewis of the Colorado Historical Society provided information about the Colorado site files. Helen Pustmueller, University of Denver, assisted with curatorial arrangements for materials and records from the project.

ABSTRACT

This report describes the results of a cultural resource assessment of gravel quarry impacts on five prehistoric sites (5BN198-5BN202; JM-72-JM-76) previously recorded by Science Applications, Inc. and limited surface reconnaissance of the Santa Fe Trail segments (5BN391) within the U. S. Army Corps of Engineers (ACOE) property at the John Martin Reservoir, Bent County, Colorado.

The gravel quarry operations conducted in the E 1/2 of NE 1/4 of the NW 1/4 of Section 35 and the NE 1/4 of the SE 1/4 of the NW 1/4 of Section 35 Township 22S, Range 51W, have severely impacted all of site 5BN202 (JM-76) and the northeast edge of Site 5BN199 (JM-73); the other sites have not been affected by the gravel pit operations. The recent reevaluation by Mariah Associates, Inc. indicates that problems may exist in the identification and quantification of artifacts; and the reported location of some sites [5BN198 (JM-72); 5BN138 (JM-03)].

Aerial photographs were used to identify potential segments of "The Santa Fe Trail." In some places, several alternate routes were noted. Ten localities were visited for ground examinations of the trail. Early trail remnants were verified at eight localities. Surface topography was mapped at five localities and subsurface excavations were conducted at two other localities to examine the extant remnants of the trail. Surface visibility of the Santa Fe Trail differs according to slope, soil conditions, vegetation coverage, and shore line erosion. Some more impressive segments are suitable for preservation or development as interpretive displays.

We recommend that one lithic site (5BN201) be avoided and monitored; trail Segments 1 and perhaps 9/10 are suitable for interpretative development.

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1.0 INTRODUCTION

This report is submitted in fulfillment of the Scope of Services, DACW47-86-D-0002, DM0003, between the U. S. Army Corps of Engineers, Albuquerque District (ACOE) and Mariah Associates, Inc. Field work was conducted October 13-17, 1986. This letter report briefly discusses the John Martin Reservoir project background, assesses damage and discusses the five sites near the gravel quarry, examines and discusses segments of the Santa Fe Trail, summarizes fieldwork results, and offers recommendations.

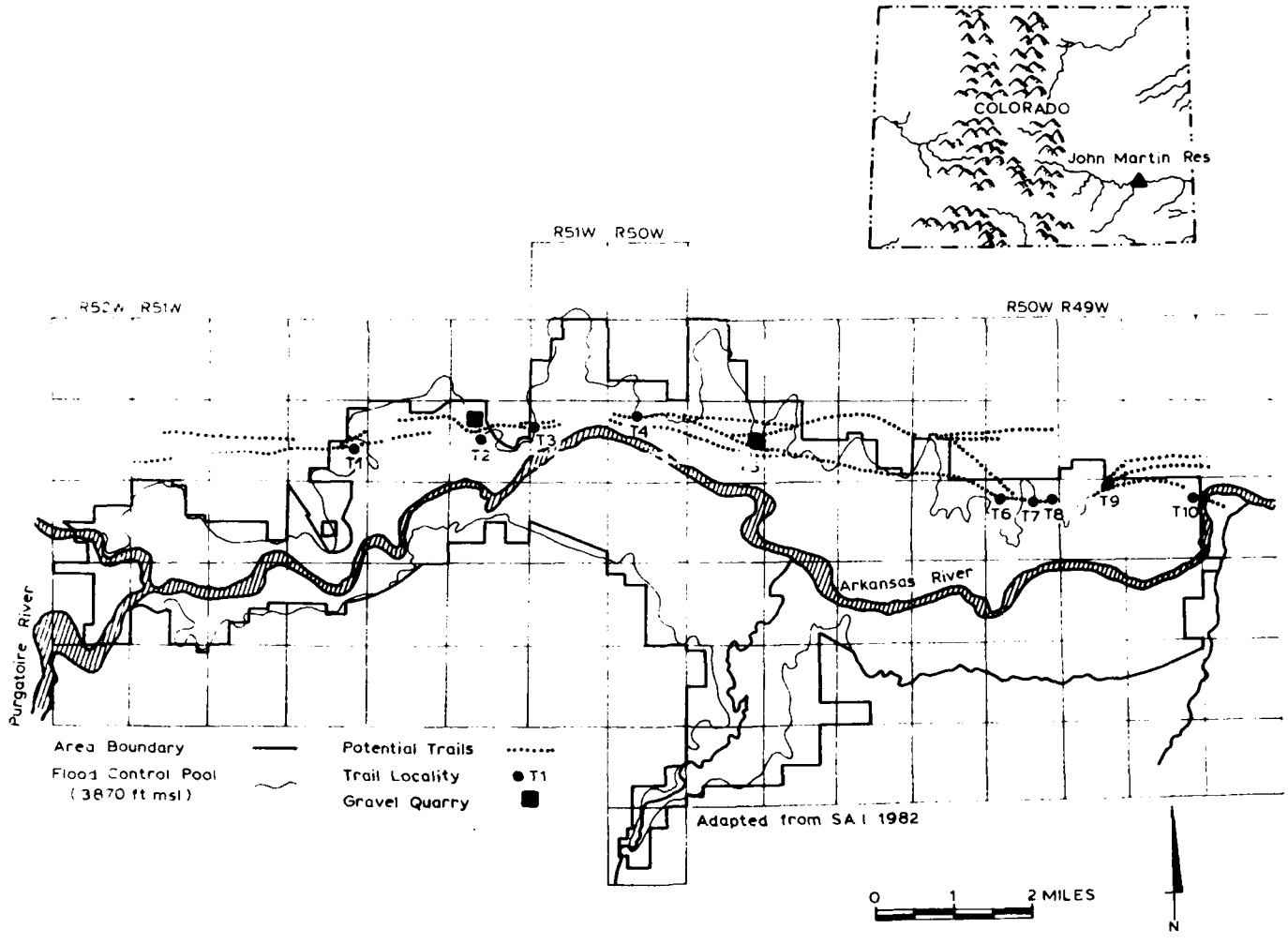
2.0 PROJECT BACKGROUND

John Martin Reservoir is a floodwater protection structure on the Arkansas River between the towns of Las Animas and Hasty in Baca County, southeastern Colorado (Figure 2.1). The dam was completed in October 1948 (U.S. Army Corps of Engineers nd.a). Few cursory cultural resource surveys had been conducted near the reservoir prior to an extensive survey during 1980 by Science Applications, Inc. (SAI 1982). A total of 133 archaeological sites and 103 isolated finds was located in a 6276.9 ha. area (ibid: 5). SAI implemented a non-collection policy for temporally diagnostic materials. The SAI surveyors could not locate traces of the Santa Fe Trail (ibid: 244, 286).

Since completion of the SAI survey, County supported gravel quarrying operations on leased ACOE property have encroached upon five prehistoric sites. Mariah Associates, Inc. was requested to evaluate the damage to prehistoric sites near the gravel quarry operations and to locate and record remnants of the Santa Fe Trail within the John Martin Reservoir boundaries (Figure 2.1).

The field crew consisted of Jon Frizell, Karen Kramer, and Steve Kuhn under the direction of Christopher Lintz. John Acklen spent two days in the project area serving as quality assurance officer. Illustrations were prepared by Roman Fojud and the report was produced by Joann Oliver.

Figure 2.1 Project Map of John Martin Reservoir Showing Santa Fe Trail Routes and Gravel Quarry Locale.



3.0 SITE ASSESSMENT

The Scope of Services for assessing gravel quarrying impacts on five prehistoric sites requested that supplements to the existing Colorado site form update, change and correct information based on current conditions; that site boundaries be located and defined; that surface features be described, quantified and plotted; that the artifact assemblage be quantified as to the density and frequency of artifacts; and that the integrity and research potential of each site be evaluated. In addition, the extent of gravel pit operations was to be plotted.

3.1 METHODS

Copies of the Colorado (Site) Inventory Record completed by SAI for the five sites potentially impacted by the gravel pit operations and project area maps were obtained from the ACOE. Metal rebar datum stakes placed by SAI (1982:107) could not be found on any of the five study sites. Site locations were determined from observations of artifacts in areas generally corresponding to site locations indicated on project area maps. Once a site area was located, the survey crews wandered outward from the discovered artifacts and pin flagged newly observed artifacts until the site boundaries were delineated. Site boundaries were defined on the basis of a marked decrease in the density of materials coupled with distinct breaks in topography and/or aspect. Since none of the SAI site datums was found, a new rebar stake was set as a site datum marked with an aluminum tag labeled "MA265C-JMXXX."

A base line transect oriented to the long axis of the site (5BN199; JM-73) or to magnetic north (all other sites) was established and marked with pin flags at 10 m intervals. From this, a series of secondary transects perpendicular to the base transect and also marked in a 10 m interval segments was laid out to the limits of the site. Survey crew members walked specific transects and recorded within each 2 m x 10 m segment the kinds and quantities of artifacts on the site. These transect segments thus encompass a detailed field analysis and tabulations on 20% of the site area and delimit concentrations and tool frequencies across subareas of the site. At 5BN198 (JM-72) and 5BN200 (JM-74) flagged artifacts not inside the transect egments were also recorded as a check against the 20% sample. In addition, Colorado Cultural Resource Reevaluation forms were completed and photographs were taken at each site. No test excavations were conducted at any site.

In addition to reevaluating these sites, a sketch map of the existing gravel pit was compiled from paced distances. This map coupled with existing topographic maps indicate the extent of disturbance to this locality.

3.2 RESULTS

The use of SAI site forms and project maps were only partially helpful in locating prehistoric sites. The site forms proved to be of limited use because individual site maps with the forms contained vague topographic detail and few identifying landmarks. Bearing locations on site forms often

referenced landmarks not visible from the site and may have been added to the forms after fieldwork was completed. Furthermore, no site datums from the SAI survey were found. In one instance. 5BN198 (JM-72), the site location on the project map is inconsistent with the site form. Examination of both areas revealed the presence of artifactual debris in the vicinity of that indicated on the site forms; thus the project map is in error. No cultural materials were found in the reported vicinity of 5BN202 (JM-76); however, the existence of a new borrow pit at the reported location suggests that the site was destroyed.

All reexamined sites consisted of a very light scatter of prehistoric materials on deflated, cobble strewn surfaces. No surface features were observed at any site. Detailed examinations of all borrow pit edges, creek banks, road cuts, and animal burrows suggest that these sites exist solely as surface lithic scatters.

3.2.1 Site Reevaluation.

The following section briefly summarizes each of the five sites requiring reevaluation. This summary is intended to supplement information available on the Colorado Site Inventory Reevaluation forms, the topographic and orthoquad maps and field forms which will be submitted at a later date with materials to be curated.

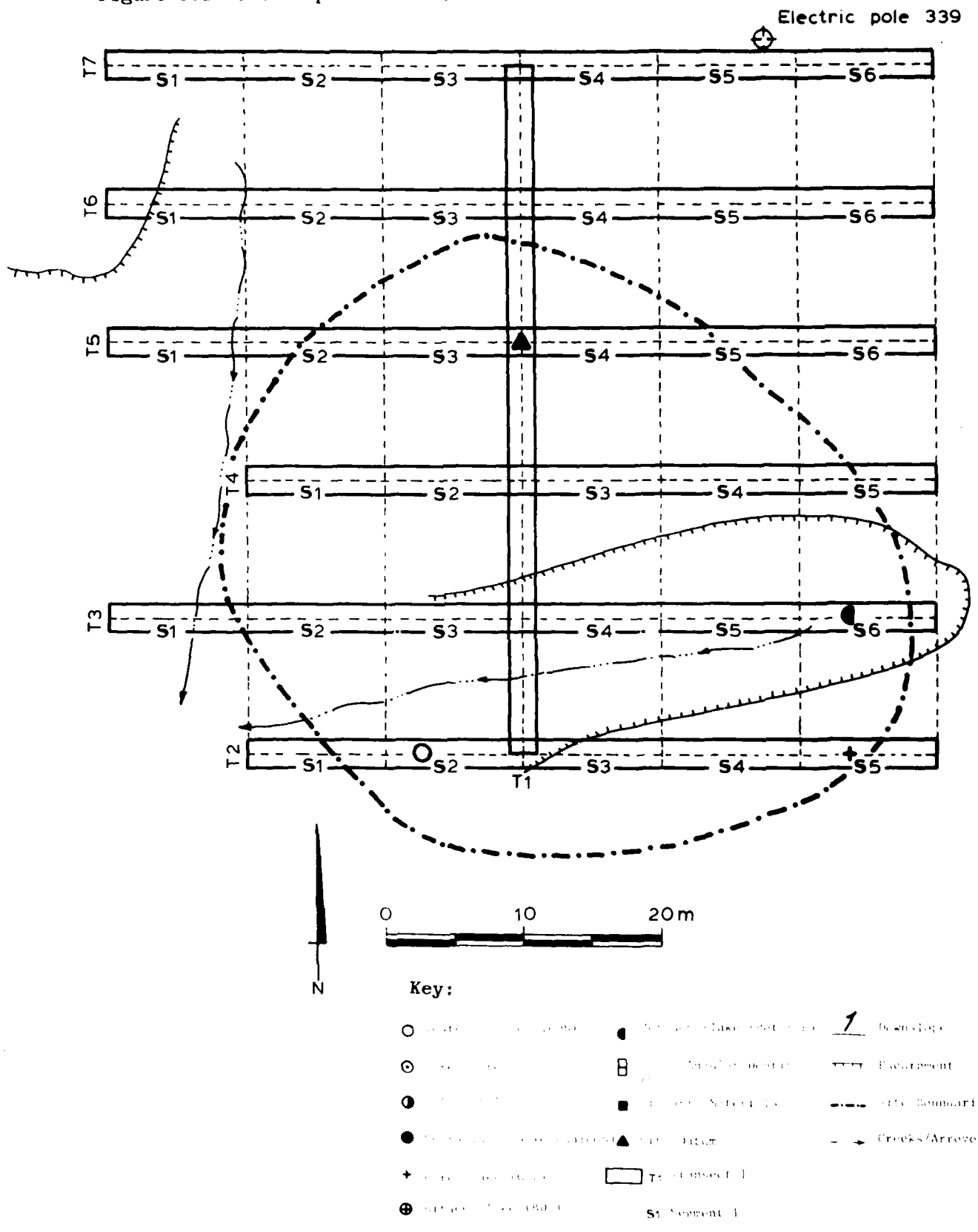
3.2.1.1 5BN198 (JM-72). This site has been misplotted on the project area maps. Correct site location is approximately 90 m east of the indicated location (UTM Zone 13, 666700E, 4218300N). Cultural materials occur east of a gully, and the site is defined to the south and northwest by other lateral gullies. Electrical power pole (#339) is located 28 m at N39°E from the Mariah site datum.

Most observed materials occurred on a slight rise between several intermittent drainages; however, due to sparse density of material and fortuitous grid layout, materials from the systematic transects only occurred south of the lateral drainage. The materials on the south knoll were more abundant but did not occur within the sample transect segments. Estimated site size is 45 m N-S by 48 m E-W (1698 m^2) and includes all of the low knoll and portions of the north slope of the hill towards the south (Figure 3.1). Seven east-west oriented transects ranging from 50-60 m long were established on the site and tabulations were also made of surface materials outside the transect segments. No materials were collected.

SAI personnel recorded 40 items consisting of 13 unmodified and nine modified flakes, two hammerstones, and 15 cores, and one utilized core. The Mariah reevaluation recorded two flakes and one tested cobble core from the 20% transects, and an additional five flakes, and three cores/angular debris from areas outside the transects. The artifact assemblage based on the current survey (three items from a 20 percent sample) is estimated to include approximately 15 items.

The site has not been impacted by gravel quarry operations.

Figure 3.1 Site Map of 5BN198, John Martin Reservoir.



This lithic scatter has limited research potential. It has an estimated tool density of 0.009 items per square meter and the assemblage shows limited diversity. No further research is recommended.

3.2.1.2 5BN199 (JM-73). This site is correctly plotted on project maps. It is located on a southwest trending slope with the greatest density of material oriented along a northeast to southwest axis. A main cobble-filled gully is south-southeast of the site, and a second main gully is towards the east. The northwest portion of the ridge slope has a large but shallow deflation basin, where most cultural materials tend to be concentrated (Figure 3.2).

Materials are scattered along the ridge slope crest. The northeast portion of the site has been impacted by gravel pit operations. The site measures approximately 60 m NE-SW by about 40 m NW-SE, with an extant area of approximately 1963.5 m^2. The greatest density of materials is along the north or higher slope area within 10 m of gravel quarry limits.

One transect, 60 m long, was oriented northeast to southwest and seven 40 m long transects were perpendicular to the first. Four observation segments (2 m x 10 m) were used to monitor materials across the site. No tabulations of materials outside the transect segments were made and no artifacts were collected.

SAI personnel report 91 items from the site including 76 unmodified flakes six modified flakes, three hammerstones, 12 cores and one biface. Materials tabulated for the reevaluation survey transects include ten unmodified flakes, two modified flakes, nine cores/tested cobbles/angular debris pieces, and one biface. On the basis of the 22 items observed in the 20% survey transects, an estimated 110 items may be present with most materials tending to cluster towards the north end of the site.

Recent quarry operations have removed an unknown amount from the north-northeast end of the site. The extent of gravel pit impact on site 5BN199 can not be determined since the SAI site datum was not found.

This lithic scatter has limited research potential. It has an estimated artifact density of 0.056 items per square meter and displays limited diversity in the tool assemblage. No additional cultural resource work is recommended.

3.2.1.3 BN200 (JM-74). This site is accurately plotted on the west slope of the southern knoll containing the gravel quarry. An old north-south trending road associated with early gravel quarry activities near the crest of the hill forms the eastern boundary of the site.

The site extends from the west edge of the old road downslope 47 m towards the valley floor and for a distance of some 65 m north-south along the west slope as indicated by a concentration of prehistoric and historic cultural remains. The north and south boundaries are poorly delineated, and a few items may extend around the north edge of the knoll. The main site area encompasses 2463 m^2 (Figure 3.3).

Figure 3.2 Site Map of 5BN199, John Martin Reservoir.

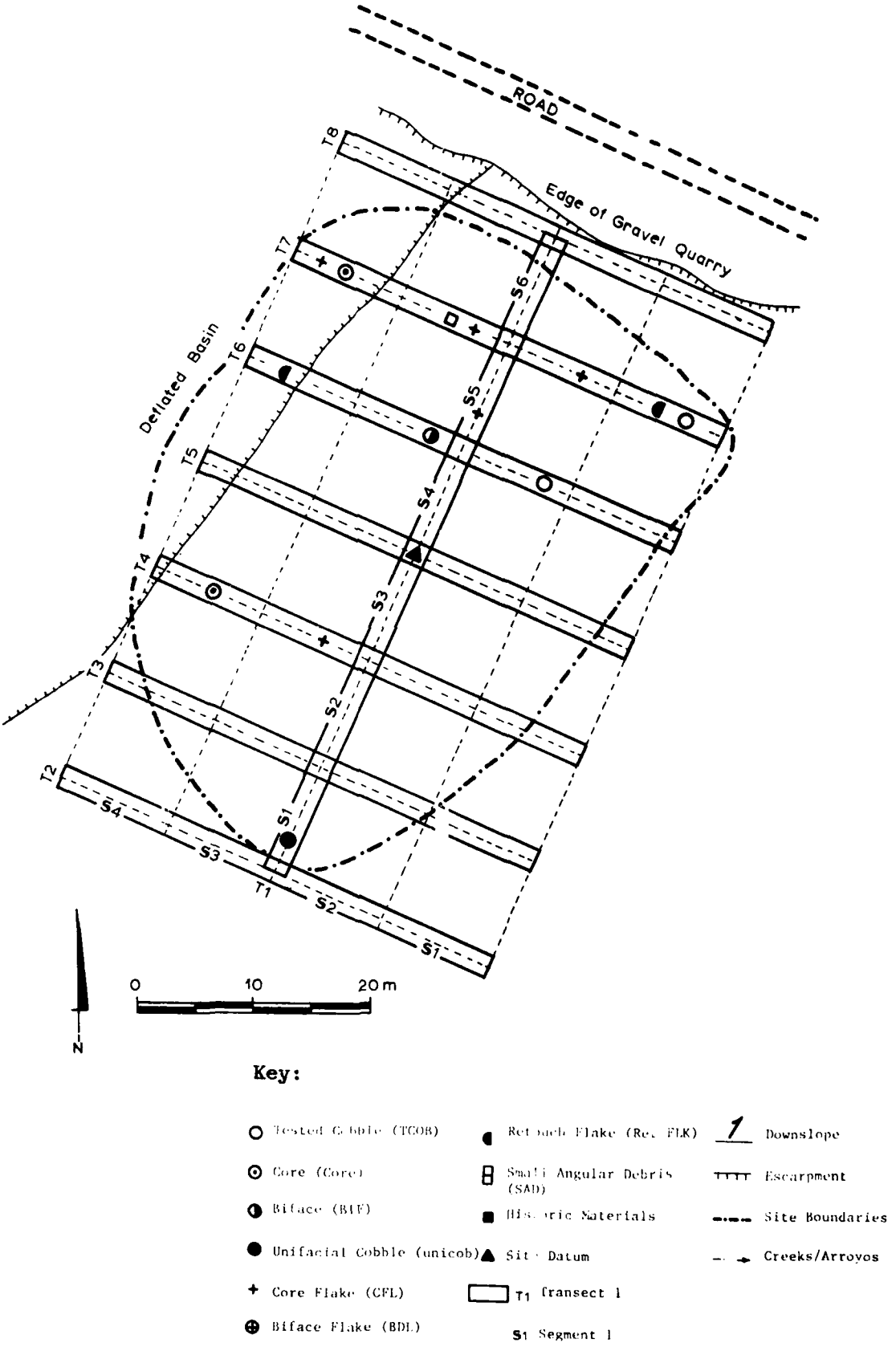
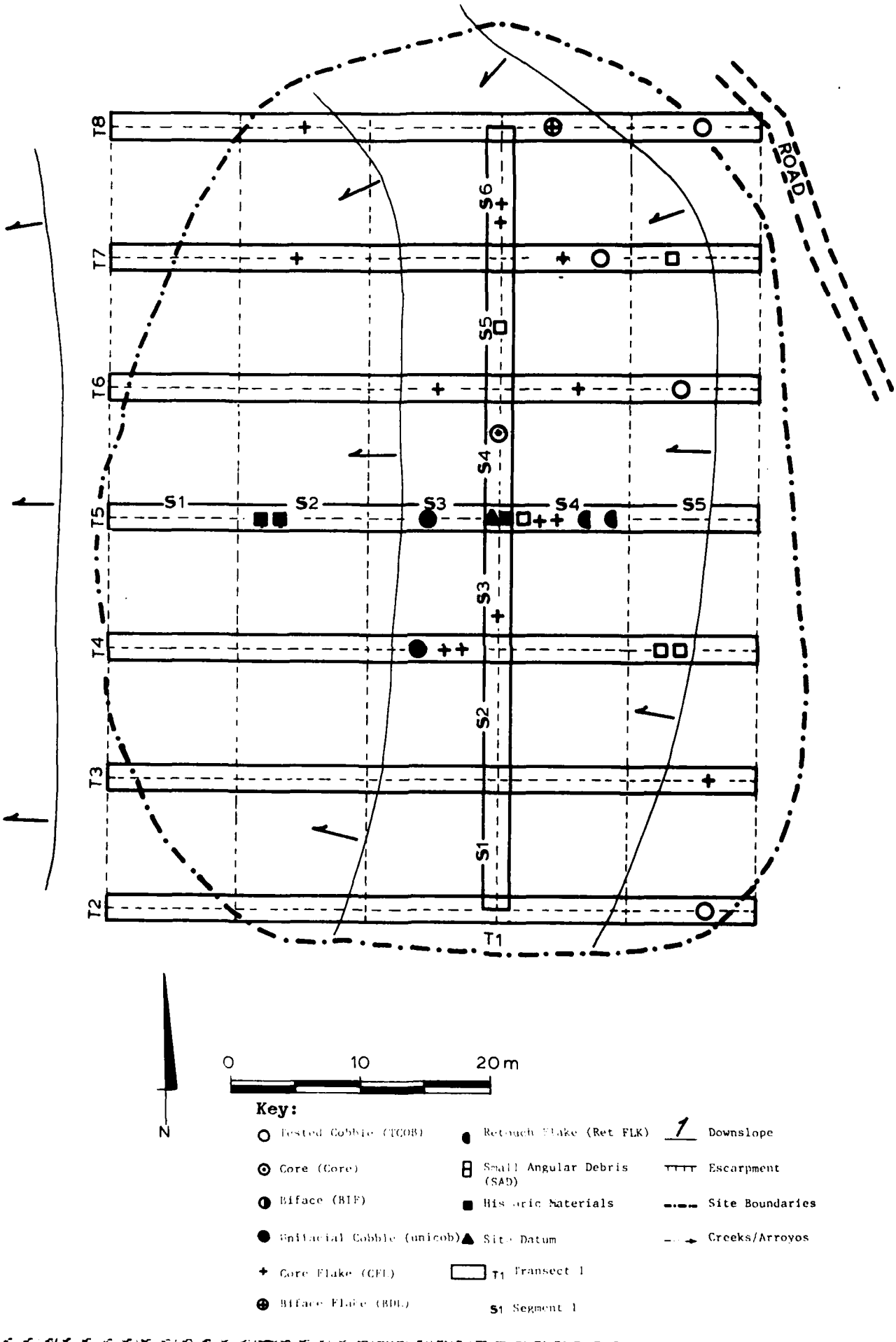


Figure 3.3 Site Map of 5BN200, John Martin Reservoir.



A 60 m long north-south transect was established along the west slope and seven other transects, each 50 m long and oriented perpendicular to the first were set out. Artifact tabulations were compiled for these eight transects and a separate tabulation was made for general surface materials outside the transects. No materials were collected.

SAI personnel recorded 101 artifacts at JM-74. Usually a sample of 100 artifacts was regarded as "representative" for analysis (SAI 1982:107); thus, it is uncertain whether the previous inventory reports a selected sample, or a total site analysis. Among the items previously reported were nine unmodified flakes, 37 modified flakes, 28 cores, two hammerstones, 16 miscellaneous tools, and 11 core scrapers/choppers. The Mariah survey encountered 15 unmodified flakes, two modified flakes, 12 tested cobbles/cores/angular debris and 31 historic artifacts from the 20% sample transect survey. Based on these 29 prehistoric and 31 historic items from a 20% sample, an estimate of 116 prehistoric artifacts and 155 historic items may be present at the site. A cursory tabulation of materials outside the transect areas recorded an additional eight unmodified flakes, two unutilized flakes, seven core/unifacial cobbles/angular debris fragments and 14 historic artifacts. Historic artifacts include stoneware crockery, purple, aqua, brown and clear glass, wire nails, plastic bottles, a mule shoe, automobile tire chains, and some two-strand wire. The difference in expected artifact quantities calculated from the transects (prehistoric N=116) as opposed to actual artifacts recorded (prehistoric N=46) is attributed to the less systematic procedure of locating materials outside the transect.

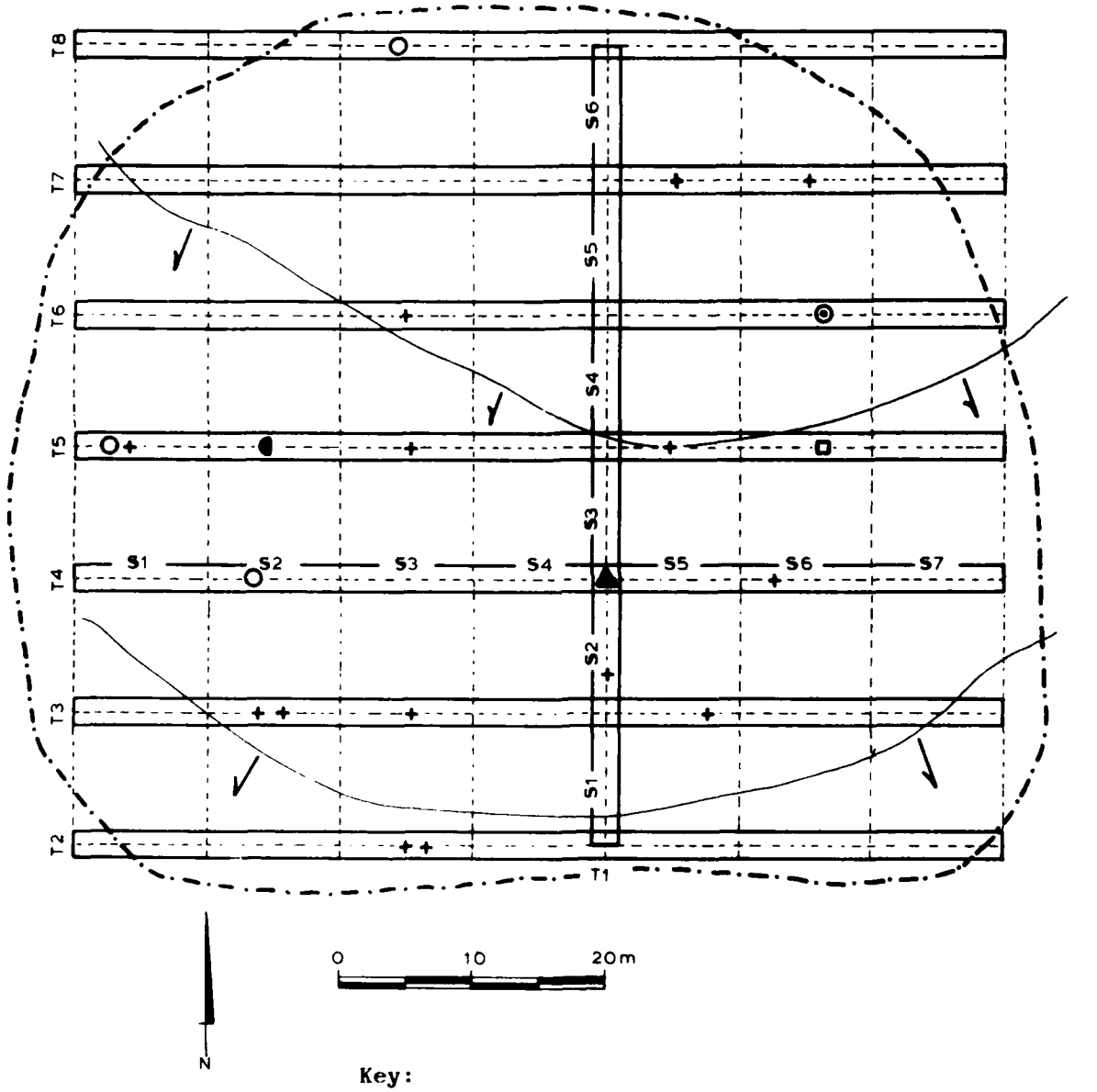
No recent quarrying impacts have affected the site. The early road possibly associated with quarrying activities may have caused some damage to the east edge of the site.

This lithic scatter has limited research potential. The site has an estimated artifact density of 0.122 prehistoric and historic artifacts per square meter area, and the variability of the tool assemblage is limited. The historic materials may date to several periods during the late nineteenth century and early twentieth century. Some materials could date to the latter periods of Santa Fe Trail usage, but most post-date this period. This later material may relate to a trash scatter associated with or following the early quarrying activities. No further work is recommended for this site.

3.2.1.4 5BN201 (JM-75). The site is accurately located on the lower slope/upper terrace south of the hill containing the gravel quarry. Although the U.S.G.S. maps indicate that the Santa Fe Trail passes through the north edge of the site, no surficial evidence of the trail was detected.

The site is defined by a concentration of prehistoric materials, although isolated artifacts occur in the gravel deposits far beyond the site boundaries. A slight drainage divide and the base of the hill form the west and north boundaries, respectively. The greatest concentration of materials occurs in this 75 m E-W by 650 m N-S area. Thus, the main site area encompasses some 3578 m^2 (Figure 3.4).

Figure 3.4 Site Map of 5BN201, John Martin Reservoir.



A 60 m long north-south baseline was established prior to the laying out of seven east-west transects each divided into seven ten-meter segments. Only materials from these survey transects were recorded. No collections were made at the site.

SAI personnel recorded 154 artifacts from the site including 101 unmodified flakes, 18 modified flakes, 14 cores, nine chopper/scraper cores, three miscellaneous tools, four hammerstones and one handstone. The present survey of the 20% site sample transects recorded 15 unmodified flakes, two modified flakes, five tested cobbles/cores/angular debris fragments and one piece of fire-cracked rock. These 23 items suggest that the site has an assemblage containing approximately 115 artifacts.

The site has not been impacted by gravel quarry operations.

The site has limited research potential. Based on the present survey, the site has a potential artifact density of 0.032 items per square meter. The reported site assemblage contains groundstone artifacts and the present survey recorded possible fire-cracked rocks. Thus, the site contains a more diversified tool assemblage and possibly some features. The site should be avoided, and monitored to ascertain impending impacts. If the site is threatened, appropriate mitigative actions should be undertaken.

3.2.1.5 5BN202 (JM-76). The location of this site is uncertain. Project maps and supporting documentation indicate that the site may have been in an area of recent quarry activities on the hilltop adjacent to the mid-section line road. The site boundary and size are unknown.

The cut face of the recent quarry and the surface surrounding the quarry were inspected for signs of cultural features or artifactual remains. None was found. Dense pea-sized gravel adjacent to the quarry indicates that a gravel pile may have accumulated in this area and that the original ground surface is not visible.

The SAI survey reports 30 unutilized flakes, two flake scrapers, 17 utilized flakes, five unutilized cores, five scraper cores, five core choppers, one hammerstone and four miscellaneous tools. The absence of any cultural remains near the recent quarry area suggests that this site has been completely destroyed.

3.3 DISCUSSIONS

Concerns arose during the fieldwork about the comparability of information reported on the original site records and results obtained from the reevaluation. Data replicability problems center on the issues of site location, and artifact identification.

As discussed above, the locational problems stem from vague site descriptions/maps coupled with the absence of SAI site datum stakes. A SAI datum found near excavations at Trail Locality 8 was a rebar stake which contrasts with a series of wooden stakes found near the quarries. These

wooden stakes were spaced at regular intervals along cardinal directions and probably represent a grid system used to estimate gravel reserves. If SAI rebar datums were ever present at sites near the quarry, they may have been removed to prevent tire punctures during quarry operations.

The problem of artifact identification replicability may be linked to the inability to locate and/or recognize comparable kinds of reported materials. The different intensity of survey (20 vs 100 percent) resulted in some variability in the quantities of recovered materials. At 5BN198 and 5BN201, the adjusted material densities from the 20% intensive resurvey were 39 to 40 percent below that reported from the entire survey; while at 5BN199 and 5BN200, the adjusted densities were 52 and 32 percent above that of the total survey (Table 3.1). Such variability may reflect sampling differences. Attempts to check differences in assemblage density and composition was hindered by the absence of original site datum points and vague topographic markings on the original site forms. Without such reference locations, the point plotted artifact maps proved to be of little use.

Problems potentially exist in the actual artifact identifications. Artifact terminology on the site form inventories was nonstandardized (SAI 1982:340). Considerable reclassification of tool forms has occurred during the computer coding of field data which has diminished real differences in the previously reported site assemblage composition. In some instances (e.g., 5BN200 [JM-74]), utilized flakes reportedly outnumbered unmodified flakes by five to one. Such high tool ratios were not replicated during the 1986 reassessment.

Table 3.1 Comparison of Site Areas and Artifact Densities From Sites Near The Gravel Quarry, John Martin Reservoir, Bent County, Colorado.

Site Number	Group	Site Area m^2	Coverage	Number of Artifacts	Density	Density Percent Difference
5BN198 (JM-72)	SAI	1760	100%	40	0.02272	-39
	MA	1698	20%	3	0.00883*	
5BN199 (JM-73)	SAI	3200	100%	93	0.02906	+52
	MA	1963	20%	22	0.05603*	
5BN200 *JM-74)	SAI	2500	100%(?)	100	0.04000	+32
	MA	2463	20%	60	0.12180*	
5BN201 (JM-75)	SAI	1935	100%	154	0.07958	-40
	MA	3578	20%	23	0.03214*	
5BN202 (JM-76)	SAI	2012	100%	70	0.03478	ND
	MA	Site not located		-	-	

* Mariah Associates, Inc. artifact density values adjusted for 100% site coverage based on 20% sample.

Numerous irregularly fractured cobbles and spalls were observed at these gravel terrace sites; however, the majority of items did not display

definite platforms, bulbs of percussion, or other percussion characteristics, nor did the cobbles show patterned knapping characteristics. In some cases, freshly spalled surfaces occurred adjacent to extant cracks in the cobble. These items were not regarded as culturally modified artifacts, but rather they appeared to be relics from frost spalled cobbles.

In summary, considerable disparity exists in the kinds of tools reported between the 1980 and the present survey. Since the artifacts reported from the sites are generally not formalized tools which are often sought by artifact collectors, the difference in site assemblage composition is not attributed to subsequent vandalism. Earlier investigations clearly did not employ rigorous material definitions and possibly some survey crew members regarded some natural spalls as artifacts.

4.0 SANTA FE TRAIL ASSESSMENT

Previous surveys in the John Martin Reservoir failed to find on-ground traces of the Santa Fe Trail within the Corps of Engineers property, even though the route is indicated on topographic maps and clearly is distinguishable on aerial photographs (SAI 1982:244,286). Thus, the scope of services requires that further efforts be made to locate traces of the trail and define the location(s) and extent (length, breadth, etc.) of the trail within the John Martin project area. A summary of work performed in order to record, test and describe sections of the Trail was required, and trail boundaries are to be plotted on 7.5' topographic maps and orthophoto plates, and a Colorado site form was to be completed for the Santa Fe Trail. The maps and forms will be submitted to ACOE with materials to be curated.

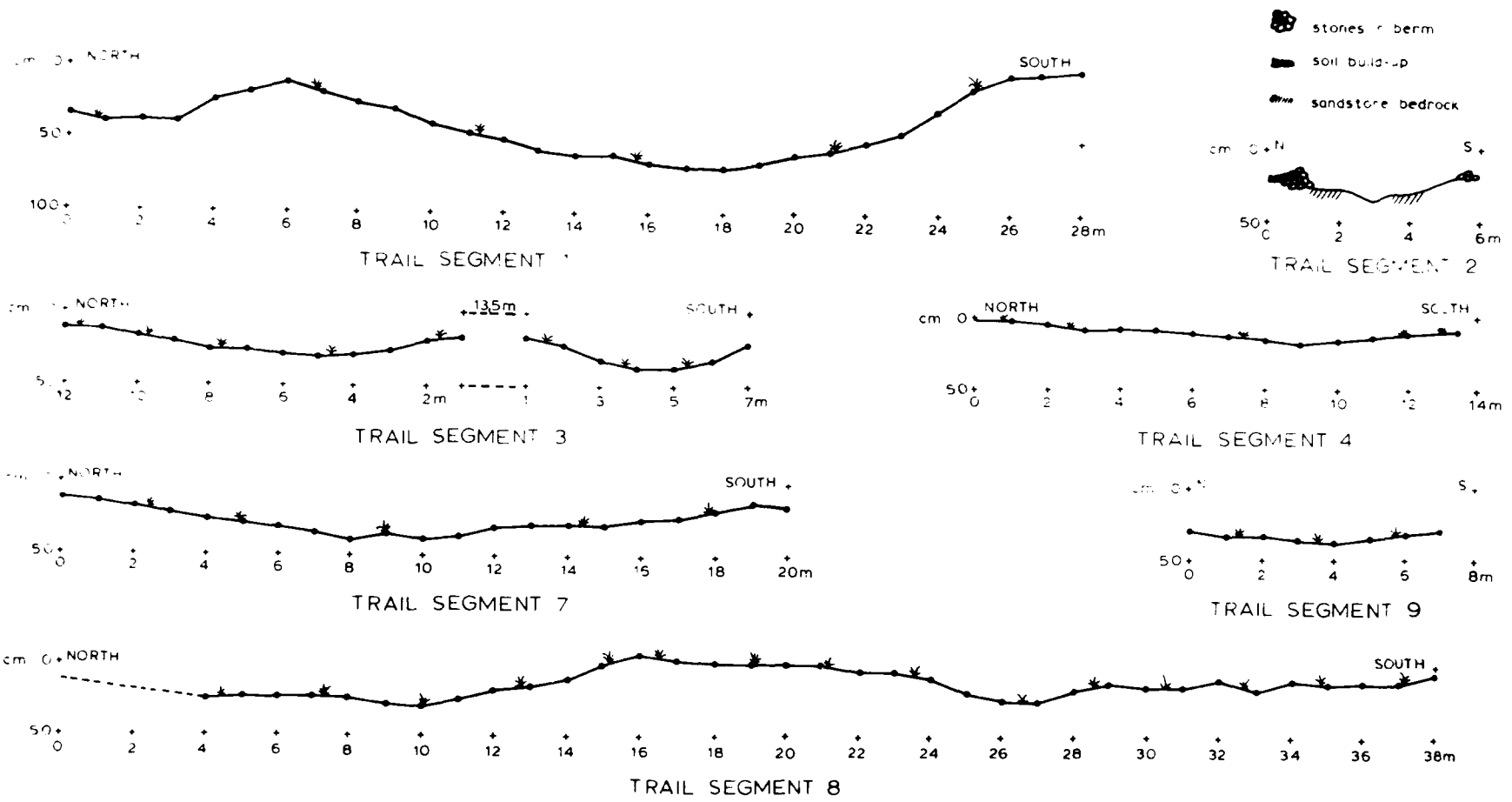
4.1 METHODS

A set of aerial photographs dated 10-12-80, orthophoto plates and topographic maps showing the north bank of John Martin Reservoir was obtained from ACOE. Examinations of the aerial photos revealed that segments of the trail were highly visible. The trail appeared on these photographs as dark linear noncontinuous segment patterns which crosscut different fields, topographic settings and vegetation zones and would align with other similar patterns. Over certain parts of the project area, several alternate non-parallel potential routes were evident. A "Trail Form" loosely adapted after the Chacoan Road System Form (Kincaid 1983) was employed to ensure observation consistency (Appendix A). The series of trails within the John Martin Reservoir was assigned Colorado Site Number 5BN391.

Ten segments of the trail were chosen for examination along the 11 mile length of the routes within the project area (see Figure 2.1). Segments were selected to examine various kinds of topography/vegetation communities and/or suspected special features (forks, parallel trails, alternate routes, etc.) evident in the aerial photographs. In general, segments were attributed to various routes of the Santa Fe Trail if reasonable alignments were traceable and converged/diverged from the known trail routes evident in the aerial photographs.

At each location, 35 mm photographs were taken and a trail form was completed. In addition, at Trail Segments 1, 3, 4, 7, 8 and 9, the surface topography perpendicular to the trail orientation was recorded by means of measures below a level line stretched across one or more segments of the trail (Figure 4.1). Finally, narrow trenches approximately 0.5 m wide and 2-3 m long were excavated perpendicular to the trail orientation at Segments 3 middle route) and 8 (north and south routes). The primary goal was to record subsurface trail features, rather than to collect materials. Thus, the fill from these areas was <u>not</u> screened but profiles and soil descriptions/photographs were obtained. These will be submitted to ACOE with fieldnotes and other items to be curated. Only artifacts recovered

Figure 4.1 Cross Section of Santa Fe Trail Localities 1, 2, 3, 4, 7, 8 and 9.



from excavations (north route, Trail Segment 8) were collected; they undoubtedly relate to trash materials from 5BN138 (JM-3) which represents a dump. All tested areas were backfilled.

4.2 RESULTS

4.2.1 Trail Locality 1. (SE/SE/NE Section 33, T22S, R51W)
UTM Zone 13, 664380E, 4217650N.

Aerial photos (10-12-80; plate 1-4) clearly show these parallel trail segments oriented east-west which exit an unnamed northern tributary of the Arkansas River and cross some sage hills. Ground examination of this area located these prominent trail segments. The northern trail measures approximately 5 m wide and 20 cm deep, whereas the trail 5 m to the south is 17 m wide and 40-60 cm deep. No appreciable vegetation change was noticed between trail and off trail localities. Locality 1 provided the clearest indication of an incised trail found on ACOE property. No subsurface testing was conducted and no artifacts were found.

The aerial photograph also indicated an unidentified mark located some 122 m north of Locality 1 and oriented SW-NE immediately south of and paralleling an old meander scar. The ground check of this area could not discern topographic or vegetative features suggestive of an alternate converging trail. This mark may represent another trail or perhaps a slight erosional escarpment along the old meander scar. The mark is not continuous, but roughly aligns with other marks located in the center, N 1/2 of NE 1/2 of Section 34, T22S, R51W. Further field work is required to verify if this indeed represents a trail segment.

4.2.2 Trail Locality 2. (SE/NW/SE/NW Section 35, T22S, R51W)
UTM Zone 13, 666720E, 4217680N.

This locality is on a terrace south of the gravel quarry operations and was the first segment examined. In the absence of comparative trail examples, observations at this locality were made on a probable early road or trail which differs significantly in width and linear border attributes from other examined trail segments. Aerial photographs (10-12-80, plates 1-5) do not show clear indications of the trail in this vicinity because of the extensive gravel quarry operations and homogenous color values of the photographs.

Ground examinations located a distinct roadway on the lower terrace, south of 5BN201 (JM-75) which was deflated to bedrock but contained distinct parallel large cobble berms 4.4 m apart on either side of the route. Cobbles in the berms measured up to 40 x 25 cm, although most were 13 x 20 cm in diameter. The presence of berms made of large cobbles suggests that some rock displacement and/or soil and rock excavation with subsequent deflation occurred at this locality. No "ruts" were cut into the bedrock exposures. Nothing was available for excavation and the only early historic artifacts located in this vicinity occurred on site 5BN200 (JM-74), approximately 100 m north of this locality.

Although at first believed to be part of the trail, subsequent comparisons with other segments suggest that the narrow width and cobble berm morphology are uniquely different. Furthermore, attempts to trace these segments and link them to other segments failed. This locality is currently regarded as an early road, perhaps associated with the gravel quarry operations and is not thought to be a part of the trail. If a relatively straight trail segment is assumed between aerial photographic observation points near the vicinity of Locality 2, then the Santa Fe Trail should have been located approximately 122 m north of Locality 2. This alignment places the trail within the boundaries of Site 5BN200 (JM-74) and extending across 200 m of the old and new gravel quarry location.

4.2.3 Trail Locality 3. (NW/SW/NW, Section 36, T22S, R21W)
UTM Zone 13, 667730E, 4217880N.

Aerial photos (10-12-80, plate 1-6) delineate multiple parallel trail segments extending from Gageby Creek toward fields on the west. Ground examination of this area recorded three parallel trail segments as indicated by slight depressions and noticeable vegetation changes. Forms were completed for all three alignments and profiles were drawn for the south and middle segments. A test trench was also excavated across the middle trail. No artifacts were found.

The southern route measured 11 m wide and about 12 cm deep. Vegetation in this area consisted of dense stands of sunflowers *(Compositae)*. The middle route was 13.5 m to the north and consisted of a 6.5 m wide area depressed 20 cm in the middle. This route was filled with dense side oat grama grass *(Bouteloua curtipendula)*. The northern route was 118 m to the north and consisted of a 42.5 m wide area marked by a slight depression and dense stands of sunflowers.

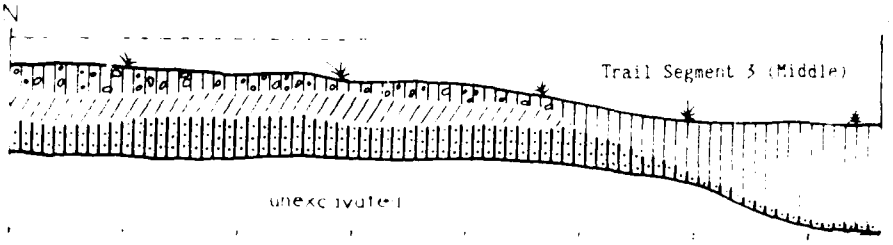
Test excavations focused on a trench perpendicular to the trails's axis and encompassing both the interim and north extern portions of the middle trail segment. The test trench profile indicated that a humic soil horizon dips from 5-10 cm outside the trail to 45 cm deep inside the trail area (Figure 4.2). No difference in soil compaction was evident inside vs outside the trail.

4.2.4 Trail Locality 4. (SE/NE/NW Section 31, T22S, R50W)
UTM Zone 13, 670030E, 4218190N.

Aerial photographs (10-12-80, plate 1-6) indicate two potential routes in this hilltop area. The location listed above marks a ground verified east-west segment of the trail. A second unconfirmed route oriented from northwest to southeast is visible on the photos some 150 m to the south along the edge of the hill.

The verified route was marked by a subtle swale in the land form which was most visible in a close-cropped area within an extensive prairie dog community. Here the trail is 13.3 m wide and is marked by a 12 cm deep depression. Vegetation differences in this close-cropped area were subtle but present; unfortunately, species characterization is difficult due to the close-cropped nature of the pasture. Found in the vicinity south of

Figure 4.2 Profiles of Test Trenches, Santa Fe Trail Localities 3 and 8.

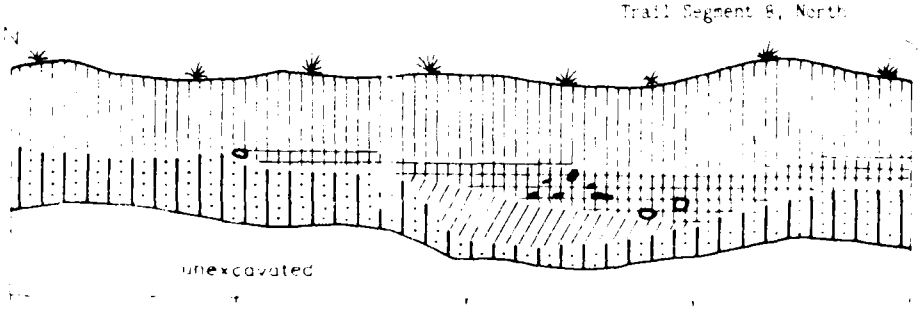


10YR 4/4 Dark yellowish brown silty clay loam with gravel inclusions.

10YR 3.5/3 Dark brown silty clay loam without gravel.

10YR 5/4 Yellowish brown silty clay loam with small gravel and very pale brown mottles.

7.5YR 7/3 Very pale brown clay with small pebble inclusions.

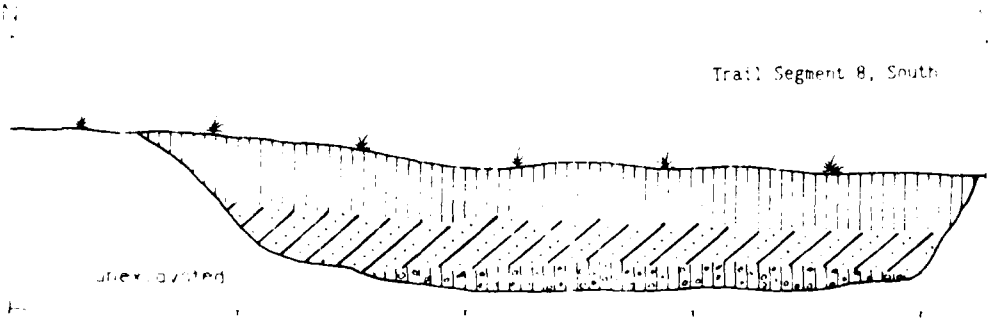


10YR 3.5/3 Dark brown fine clayey loam with some charcoal and rusted metal inclusions.

2.5YR 5/4 Light olive clay with many pebble inclusions, some charcoal and rusted metal.

2.5YR 5.5/4 Light olive clay with fine clayey loam; culturally sterile aeolian deposit.

10YR 6/6 Brownish yellow clayey sand with large pebbles; culturally sterile.



10YR 6/6 Brownish yellow clayey silt with some gravel.

10YR 6/6 Brownish yellow clayey silt with increased gravel and caliche.

10YR 6/6 Brownish yellow clayey silt with increased gravel at base.

the trail at this location were 10-15 unidentified pieces of purple glass, a center-fired cartridge (ca. 38 caliber) without any headstamp, and 100 m to the east, a piece of black enameled stoneware crockery. Some of these items may relate to the trail usage. Attempts to trace this northern route and to locate the southern route failed due to dense grass cover outside the limits of the prairie dog community.

4.2.5 Trail Locality 5. (NE/NE/SE, Section 32,T22S, R50W)
UTM Zone 13, 672300-672700E, 4217200-4217600N.

Aerial photographs (10-12-80, plate 1-7) indicate the possible presence of three routes. The southern and middle routes are clearly evident below (south of) the fill terraces. The southern route is oriented E-W and extends from an unnamed tributary draw towards the floodplain. The middle route is oriented WNW to ESE and extends across the foot slopes. The northern route is tentatively suggested to cross the middle of the hilltop approximately 67 m to the north of the middle trail. No artifacts were found in this locality.

Ground inspection of this area revealed that the southern two potential route areas have been heavily impacted by shoreline erosion and lake terrace development. No ground evidence for the southern and middle routes was visible and high water debris extended almost to the midsection line corner.

Attempts to verify the northern route were also unsuccessful. No distinct topographic or vegetation changes were found in the approximate area of the northern trail. Either the subtle marks on the aerial photos do not reflect trails, or the evidence is not present at this locality.

4.2.6 Trail Locality 6. (NE/NW/NW, Section 1, T23S, R50W)
UTM Zone 13, 67740E, 4216780N.

Aerial photographs (10-12-80, plate 1-9) indicate multiple parallel trail routes in this vicinity. All are oriented east-west and are distinguished by dense yucca *(Yucca sp.)* growth within the trail region as opposed to predominantly grama grass *(Bouteloua spp.)* outside the trails. At this location the route is minimally incised into the hillside and hilltop. No formal dimensions of the trails were recorded at Locality 6, but aerial photographs indicate that the routes are spaced approximately 38 m apart. No materials were observed in this trail segment.

4.2.7 Trail Locality 7. (SW/NE/NE, Section 1, T23S, R50W)
UTM Zone 13, 678780E, 4216760N.

This locality is within the Daughters of the American Revolution (DAR) fenced portion of the Santa Fe Trail. In 1908, the DAR and the State of Colorado fenced a segment of the Trail, approximately 335 m by 24 m. A parking area, turn-style gates, a concrete path across the Trail and a granite trail marker next to the path were established. Extensive rodent burrows occur within the fenced area and heavy pedestrian traffic has obliterated much of the trail within the fenced segment. No significant vegetation changes were evident. Measurements and surface topography were recorded on a segment west of the path. At this location, a single route 19 m wide and 28 cm deep was recorded. No artifacts dating to the Trail period were recovered.

vegetation changes were evident. Measurements and surface topography were recorded on a segment west of the path. At this location, a single route 19 m wide and 28 cm deep was recorded. No artifacts dating to the Trail period were recovered.

4.2.8 Trail Locality 8. (SE/NE/NE, Section 1, T23S, R50W)
UTM Zone 13, 679060E, 4216730N.

Aerial photographs (10-12-80, plate 1-10) reveal the presence of two distinct parallel trail routes 6 m apart in the area west of the section line road. Ground examinations showed that the northern trail is about 16 m wide and 30 cm deep, whereas the southern trail is also about 16 m wide and approximately 12-25 cm deep with an undulating surface. Dense stands of yucca were present in the two trail routes in contrast to the predominant grama grass covered slopes.

Considerable historic materials were present at this locality. A series of 10 concrete caps 18 m apart and aligned perpendicular to the trail axis was found near the testing area. Each had a small pipe protruding from the top. Their function is unknown. Abundant early historic artifacts were observed on the surface of the northern route. At the intersection of this trail segment with the modern section line road, the site datum for 5BN138 (JM-03) was encountered. Apparently materials from 5BN138 represent early trash dumped along the roadside into gullies formed by ruts of the Santa Fe Trail.

Two test trenches were excavated at Locality 8. Test Trench 1, was a 2.0 m x 0.5 m trench cut perpendicularly to the orientation of the northern trail. Excavations encountered abundant historic materials (Table 4.1).

Table 4.1 Historic Artifacts from North Trench Excavation of the Santa Fe Trail, Locality 8, John Martin Reservoir.

Ceramic
1 salt glaze stoneware bowl rim fragment
1 salt glaze stoneware crock rim fragment - interior lip
1 salt glaze unidentified stoneware
Glass
3 purpled jar/bottle fragments - undecorated
1 clear glass/vase rim fragment with impressed snowflake motifs
4 light aqua single strength window glass sherds - 2mm thick
Metal
1 rim of thin deep kettle/dutch oven
6 unidentified tin can scraps
1 solder dot - "hole in top" - can - 20 oz.
1 "JAYANELL" button

The stratigraphic profile revealed a marked depression 35 cm deep filled with 10 cm aeolian clayey silt which in turn was capped by a 7 cm lens of culturally rich historic materials presumably washed from 5BN138. This lens was covered with 18 cm of clay loam with some artifacts. No noticeable compaction or soil structure was found beneath the trail area.

A second trench (T.T.2) 2.0 m x 0.5 m was excavated 17 m south of Test Trench 1. This profile revealed a soil profile with increased gravel near the base and a 9 cm thick developed caliche layer ranging from 15-24 cm below surface. No noticeable soil compaction was evident within the profile other than that attributed to an increased occurrence of gravels. No artifacts were observed or recovered.

4.2.9 Trail Locality 9. (NE/NW/NW, Section 5, T23S, R49W)
UTM Zone 13, 680840E, 4217040N.

Aerial photographs (10-12-80, plate 1-12) show the convergence of three trail segments at this locality. The northern two routes pass north of the ACOE property jurisdiction and only the southern route is within the project area. Ground examination of this area showed that the various routes paralleled and crossed each other, rather than forked. The routes are not easily discernable. The trails tend to be 7 to 11 m wide and only 12 cm deep. No major vegetation changes are present on ACOE property, but the trails are easily distinguishable by stands of sunflowers where the northern two segments ford a tributary on private land. No artifacts were observed at this locality.

4.2.10 Trail Locality 10. (SE/NE/NE, Section 5, T23S, R49W)
UTM Zone 123, 682020E, 4216880N.

Aerial photographs (10-12-80, plate 1-12) indicate that the trail follows an unnamed lateral tributary southeast of Verhoeff Springs, before it leaves the creek, crosses a low hill and fords the Arkansas River. Ground examination of this hilltop area located portions of the trail 19 m wide and incised 14 cm into the terrain. No vegetation difference was noted at this locality. The only artifact observed was a 45 or 50 caliber center-fire cartridge without any headstamp. No trail profiles were collected from this locality.

4.3 DISCUSSIONS

Morphological comparisons of the Santa Fe Trail with ancient and modern roadways focus on both the macro linear patterns of the overall system and micro topographic and cross sectional details at specific locations. Although few studies have examined the archaeology of roads, major comparative information in North America is available from intensive analysis of ancient and modern roadways emanating from Chaco Canyon (Kincaid 1983).

4.3.1 Macro Linear Patterns

Both modern and prehistoric Chacoan roadways are typically rectilinear segments. Recent reports of prehistoric roadways characterize them to be surprisingly linear in spite of topographic obstacles. Nials (1983:6-27) reports that Chacoan roads "do not normally deviate in direction for minor local topographic features such as hills, mesas and canyons unless that feature represents a significant barrier to travel." Typically such minor obstacles are breached by means of ramps, steps, road-cuts or other labor intensive forms of terrain modification. The prehistoric road systems rarely display broad sweeping curves, but more often the major course adjustments are made by abrupt angular or dogleg changes. In this regard, prehistoric roads tend to be more linear than modern thoroughfares. Limited comparisons within the Bonito Quadrangle map between the modern Blanco Trading Post-Chaco Canyon Road and the approximately parallel prehistoric North Road from Chaco Canyon reveal that the prehistoric road was straighter, and encountered less elevation change than the modern road (Nials 1983:6-28). This suggests that ancient Chacoan roads were engineered by design and surveyed to obtain more efficiency than some modern road segments.

Aerial photographs of the Santa Fe Trail portions within the John Martin Reservoir delineate from two to four meandering but approximately parallel interbraided routes with numerous forks within a corridor 366 to 1220 m wide on the north side of the Arkansas River. Crop patterns on photographs and dense ground cover prevent accurate counts of all forks and complete delineation of all trail segments. The southern-most trail crosses the heads of minor gullies near the present dam axis, but drops to the higher terrace edge to traverse the mouths of several major north-south tributaries and emerges from the floodplains only when the terrace narrows due to the proximity of the river channel. In contrast, most trail meanders along the northern route relate to realignments necessary to bypass minor north-south gullies or to efficiently utilize natural east-west draws and low points in ridges for reducing slope and total topographic change within the deeper tributaries. The location of Verhoeff Springs (north of the present dam) probably also influenced the direction of the northern route. The intermediate routes are mainly short segments less than 1.5 miles (2.4 km) long which primarily serve as connective links between the northern and southern routes. Although observations from modern topographic maps are limited due to the absence of recorded topography below the lake level, existing maps indicate that the southern-most route closest to the river had to negotiate more gullies and experience more relief change than the northern-most route. Topographic measurements of trail locations within Sections 34-36 in Range 50W indicate that the southern route crosses seven gullies, with a cumulative topographic change (up and down) of 320 feet (98 m), whereas the northern route traverses only three gullies with a cumulative topographic change of 260 feet (79 m), even though there is no appreciable difference in the lengths of the two trail segments. All Santa Fe Trail routes near the John Martin Reservoir stay close to the river, rather than traverse the flatter plains utilized by the modern Highway 50 located 1.5 miles (2.4 km) further north. In this regards, the relatively rugged topography traversed by the

trail makes it less efficient than alternate potential routes located further from water.

4.3.2 Micro Topography and Cross-Sectional Details

The micro topography and cross-sectional details of ancient and modern roadways reveal major differences from that recorded for the Santa Fe Trail. Aside from elaborate steps, ramps and roadcuts, the seemingly mundane segments of the prehistoric road systems emanating from Chaco contain complex attributes derived from construction or maintenance (Nials 1983:Table 6-1). These attributes can include such features as either terrain following, cut, fill or cut-and-fill profiles with surface traces usually 8-10 m wide, shallow (less than 35 cm) to deep parabolic negative topographic expressions, rarely positive topographic expressions, occasionally berms (usually of stony materials) flanking the roads and the presence of some artifacts. Trenching across prehistoric roads reveals that post-utilization sediments within the roadway are typically sandier, less compact, lighter in color and thicker than surface sediments outside the roadway, and perhaps significantly, the soils beneath the roadway did not display evidence of platy structure (Nials 1983:6-47).

Modern roads display a range of variability depending on the nature of maintenance. Non-machinery maintained roads tend to be two to three meters wide, terrain-following routes with little to no topographic expression. Machinery maintained roads may be ten or more meters wide with cut, fill, or cut-and-fill profiles. Negative topographic expressions (parabolic, angular, rutted, gullied) and positive topographic expression (parabolic and angular) are common for machinery-maintained roads as are the presence of earthen berms on roadways not having "negative border elements." Historic artifacts are present but not common along roads post-dating 1930; but materials are considerably scarcer along earlier roads. Trenches excavated across historic two-track roads used mainly by wagons revealed the presence of platy soil structure directly below the two rut areas which extended to a depth of 35 cm. The plates were approximately concentric to the ruts and were attributed to soil compaction by vehicular use (Nials 1983:6-47).

The micro topography at segments of the Santa Fe Trail examined during the present study consists of terrain-following and cut profiles. None of the examined trail segments display a clear set of "wheel ruts," but in general, the trail segments consist of shallow (less than 35 cm deep) parabolic topographic expressions often accompanied by marked or subtle changes in vegetation. At Locality 5, no surface indications were found; however, some routes in this area may have been destroyed by extensive beach erosion. Surficial evidence measured at 8 localities indicates that the trail averages 15.8 m wide (range is 5 to 42.5 m) and 21.65 cm deep (range 12 to 60 cm deep). The broader trail widths undoubtedly reflect the imprecise alignment of vehicles as they traverse the plains. Earthen or stony berms are not associated with the Santa Fe Trail segments. Close examination of one potential fork area (Locality 9) revealed the presence of converging routes which never quite aligned within the examined segment.

Each route likely reflects different use episodes even though the sequence could not be discerned from surface indications.

In general, few artifacts were observed which may date to the period of trail usage and no hearths or other kinds of features left by travellers were noted. Artifacts found during excavations at Locality 8 are believed to be turn-of-the-century colluvially deposited trash eroded from 5BN138 which was discarded in gullies formed in the trail where it intersected the north-south Caddoa to Hasty road. Elsewhere, historic materials potentially dating to the trail period were encountered at 5BN200 north of Locality 2 (purple, aqua, brown glass, crockery, center-fire cartridge without a headstamp, a mule shoe); at Locality 4 (purpled glass, crockery and center-fire cartridge without a headstamp); and at Locality 10 (a center-fire cartridge without a headstamp). Since the absolute dating of these artifacts remains imprecise, the recognition and dating of the various trail routes remains problematic. The trail passes close to limestone military boundary markers (Section 34 and 35, T22S, R51W) identified on the Kreybill 7.5' Topographic Quadrangle Map as affiliated with Old Fort Lyon and Fort Bent (Bent's New Fort). Both identifications are erroneous, since Fort Wise (Old Fort Lyon) and Bent's New Fort were built between 1852 and 1860 at Big Timbers, approximately ten miles east of Caddoa Creek and well outside ACOE property (SAI 1983:247,252; Nell's 1881). These markers within and adjacent to ACOE property probably relate to New Fort Lyon, which was established in 1867.

Rocky berms 60 to 80 cm wide and 5 to 15 cm tall were only recorded at Locality 2. However, in retrospect, this segment may not represent the Santa Fe Trail since it is considerably narrower (4.4 m wide) and is not aligned with other trail segments evident from aerial photographs. Furthermore, no artifacts believed to date to the trail period were found along the route at Locality 2. The presence of berms suggests that Locality 2 represents a constructed roadway, rather than a worn trail.

Trenching conducted at Localities 3 and 8 revealed that between 35 and 45 cm of dark, organic rich fill has accumulated within the trail. Most of the high organic material is attributed to a greater moisture retention of the overlying fill coupled with a greater density of vegetation cover resulting in higher organic decomposition. In all instances, the trail contact with the underlying stratum is marked by an abrupt boundary. A noticeable depression in the substratum 60 cm wide and 10 cm deep in the north profile at Locality 8 which was filled with non-laminated, aeolian derived clay loam may represent remnants of a wheel rut or a gully within the trail, but no platy structure or differential compaction was noted in the substructure beneath the depression. No comparable depressions were found elsewhere, although the presence of comparable attributes might have been missed from the short length of the test trenches. Alternatively, soil disturbances caused by wheeled vehicles and draft animals may have initiated erosion which resulted in a uniform parabolic depression which subsequently filled with aeolian deposits after the trail was abandoned. The absence of observed platy structure in the trail substratum may be due to soil texture at the tested sites, erosion within the abandoned trail, or from the shallow depth of excavations (ca. 5-10 cm) into the substratum.

Although the Santa Fe Trail (like modern and presumably ancient thoroughfares) accommodated travel in both directions, the morphology of the Trail conforms closer to Beck's (1979:18-19) definition of a path rather than a roadway. A path is a geomorphic feature caused by friction and wear with minimal labor investment and without substantial planned alteration of the course. Based on human judgment, paths follow the easiest, most direct route between two geographical points. In contrast, roads may occasionally be geomorphic, but usually involve considerable labor investment which includes survey, engineering construction and maintenance. Within this context, the Santa Fe Trail resembles a "path" more than either the ancient or modern roadways around Chaco Canyon.

5.0 SUMMARY

Recent investigations on ACOE property surrounding the John Martin Reservoir have assessed the impact of gravel quarry operations and located segments of the Santa Fe Trail. The gravel quarry operations may have destroyed one site (5BN202) and possibly damaged portions of another (5BN199). However, three other sites were not impacted. Most sites offer minimal research potential and marked discrepancies were encountered between the assemblages identified by the 1980 survey and the present survey. The replicability of basic research results should be of great concern to researchers interested in the John Martin region.

Attempts to locate the Santa Fe Trail(s) were successful in 8 of 10 tries. Aerial photographs indicate that the trail actually consists of 1-4 distinct interbraided routes spaced up to three-quarters of a mile (1.2 km) apart. Measured trail segments indicate that the routes average 15.8 m wide (range 5-42.5 m) and 21.65 cm deep (range 12-60 cm). Insufficient time and funds were allocated to verify the existence of all alternate routes identified from aerial photographs. Artifactual remains at Trail Localities 4, 10 and at site 5BN202 may reflect debitage/camps associated with the Trail usage. In general, the identification, verification and age determination of purported trail segments rests primarily on photogrammetric interpretations, rather than conclusive field evidence.

6.0 RECOMMENDATIONS

The following recommendations are provided for the five prehistoric sites and segments of the Santa Fe Trail on ACOE property.

1. Sites 5BN198, 199 and 200 have limited research potential, low artifact density and limited assemblage variability. No further work is recommended for these sites.

2. Site 5BN201 also offers limited research potential. It too has a low density of materials but a slightly greater diversity in the tool assemblage and some potential for features as indicated by the fire cracked rock. This site should be avoided if possible, otherwise mitigation actions will be necessary.

3. Site 5BN202 may have been destroyed by gravel quarry work. No assessment was possible because of massive disturbance in the vicinity of the site.

4. Portions of the Santa Fe Trail were recognized and verified at several locations; but other alternate routes were not sufficiently examined to validate their existence. Alternate trail routes tentatively identified from aerial photographs but not visited should be examined to confirm their identifications. At that time, all identified trail and potential trail segments on ACOE property should be avoided and preserved for future study.

5. Choice locations for interpretative segments of the trail were observed at Locality 1 (17 m wide, 40-60 cm deep). This is the only observed deeply incised trail segment visited within the project. Nials (1983:6-15) reports that roads less than 35 cm deep may not be visible under certain lighting conditions. Locality 1 retains considerable integrity, is not near developed areas and will not infringe upon adjacent landowner's privacy. Other sections of interest are Localities 9-10 where three shallow trail segments converge. Although this area is near existing recreation areas, two of the trail segments are on private land. The shallow depths of the trails in this area (12-14 cm deep) will hinder thier visibility under certain lighting conditions especially if the sunflower vegetation differentiation is removed.

Development of any trail segment must consider the pedestrian impacts. The existing DAR trail section (Locality 7) is difficult to distinguish even though it is incised 28 cm deep because of rodent burrows and pedestrian activities.

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nd.b Scope of Services, John Martin Reservoir, Gravel Operation Assessment of Damage to Prehistoric Sites and Recording Santa Fe Trail. Agreement between ACOE and Mariah Associates, Inc.

APPENDIX A:

Santa Fe Trail Form

MARIAH ASSOCIATES INC.
SANTA FE TRAIL FORM

Trail Segment No._____; Field Locality No._____.
USGS Quad Name_____. ___1/4of___1/4of___1/4,Sect___,T___,R
UTM Zone _____, N_____, E_____.
N_____, E_____.
Physiographic Situation:

Aspect (exposure) _____; Slope_____; Elevation_____.
Nearest Drainage Name _____; Distance_____(m).

Soil Type: Clay_____; Silt_____; Loam_____; Sand_____;
Gravel_____; Rocky _____; Bedrock_____.

Vegetation in Trail:

Vegetation Next to Trail (if different):

Extent of Erosion:

Trail
Segment Geometry: Linear____; Curvilinear_____; Fork_____.

Orientation:_____.
If Fork, Converges_____ or Diverges_____, Towards_____;
Dominant Trails is to the _____(direction).

Trail Width_____(m); Number of Ruts_____.

Rut Width Range_____-_____; Rut Depth Range _____-_____.
Trail Type: Focused _____; Diffused_____.
Surface Topo Evidence: None_____; Shallow Ruts _____;
Deep Ruts_____; Deep and Shallow _____.
Trail Obstacles:

Trail Features:

Observed Artifacts:

Historic Reuse (road; fence etc.):

Modern Cultural and Natural Impacts:

Testing Preformed (Y/N)_____; Number of Units _____.
Photos (Roll-Frames)_____.

Crew Designations/Names_____.Date_____.

EVALUATION OF OLD LAS ANIMAS (5BN176), A LATE NINETEENTH CENTURY TOWN ON THE ARKANSAS RIVER, BENT COUNTY, COLORADO

Prepared for

U. S. Army Corps of Engineers
Albuquerque District
New Mexico
Contract No. DACW47-86-D-0002, DM00005

Prepared by

Amy C. Earls, Richard F. Carrillo,
Nick Trierweiler, and John C. Acklen

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July 1987

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ABSTRACT

This report describes the results of an archaeological and historical evaluation of the late nineteenth century town of Old Las Animas by Mariah Associates, Inc. Old Las Animas is located on U.S. Army Corps of Engineers land at John Martin Reservoir in Bent County, southeastern Colorado. Evaluation of the site was performed through detailed site mapping, recording of 69 surface features, controlled surface collection of 960 m^2 from eight architectural areas, and test excavations of structural and nonstructural feature areas.

Eight architectural areas were defined on the site. Historical research allowed block numbers and street names to be placed tentatively on these areas. Artifact assemblages confirmed the historically documented occupation span of 1868-1887. Old Las Animas is significant as a well preserved example of a pre-railroad town in Colorado; its growth was tied closely to nearby Fort Lyon, to which it offered goods and services.

Damage to this significant site includes hand dug pot holes, heavy machinery disturbance, vehicle traffic, grazing, and small mammal burrowing. Machine disturbance is largely confined to railroad property south of the ACOE fence and relates to backhoe activity by a local bottle collector and to raising of the railroad bed during 1940s dam construction. Between 19 and 29 percent of recognized surface features on both sides of the fence have been disturbed significantly. Test excavations showed that intact stratigraphy and artifacts remained in disturbed surface features not impacted by heavy machinery. Approximately 1330 m^2 of the 105,400 m^2 site area has been disturbed by heavy machinery; this total represents only four percent of recognizable features and less than one percent of the site surface.

Recommendations for future work involve protective measures, remote sensing, and suggestions for archaeological and historical work. In addition to aerial remote sensing to provide additional information on the location of the bridge, the site should be fenced to prevent opportunistic access for pothunting. Archaeological work should entail detailed mapping of certain site areas, surface collection from transects across each architectural area, and feature-based block excavations. Historical work should involve additional archival work in Bent County and in Denver.

ACKNOWLEDGMENTS

Work at Old Las Animas was facilitated by many people in present-day Las Animas and La Junta. As always, John Schelberg and Sandy Rayl of the Albuquerque Corps of Engineers were very helpful. We would like to thank Russell Smith and Mark Stark of John Martin Reservoir. The friendly staffs of Pat's Cafe, Daisy Mae's Diner, and Medina's Restaurant, all in Las Animas, kept archaeological crews well fed and happy. People who expedited the historical research were Frank Scalzi, Chief of Library Services, and staff members Norma Horin and Sue Wagner of the Fort Lyon Library, as well as Galen Moss, Chief of Security at Fort Lyon. Also helpful were Patti Nickell, Bent County Clerk; Diana Bonewell, Deputy County Clerk; Debbie Medina, Motor Vehicle Clerk; and Jerry Bryant, proprietor of the Bent County Abstract Company. A special thanks goes to the fine field crew, including Richard Carrillo, who contributed many useful methodological suggestions in the field as well as an excellent overview chapter; Darryl Newton, who helped set in the baseline grid and produced the informative site map; Andrea Barnes, who worked hard and provided many useful nicknames; and Craig Birrell and Ramona "Stretch" Avallone, who moved a lot of dirt and kept us in good humor.

In Albuquerque, Mollie S. Toll of the Castetter Ethnobotanical Laboratory, University of New Mexico, graciously provided vegetation identifications. Nick Trierweiler directed artifact processing and performed artifact analysis. Louella Chavez performed artifact processing and word processing. Nancy Cochran directed word processing. Darryl Newton drafted the site maps and Roman Fojud drafted the plans and profiles.

1.0 INTRODUCTION

This report summarizes the results of an archaeological and historical evaluation by Mariah Associates, Inc., of site 5BN176, which represents the remains of the town of Old Las Animas, also known as Las Animas City. Objectives of the evaluation were to determine the site's physical integrity and potential for nomination to the National Register of Historic Places. Archaeological field tasks to obtain that information involved detailed site mapping, recording of surface features, controlled surface collection of different architectural areas, and test excavations of structural and nonstructural feature areas. The work was performed under contract No. DACW47-86-D-0002 and Delivery Order DM00005.

The site is located in southeastern Colorado, nearly two river miles downstream from the Purgatoire's confluence with the Arkansas River and approximately five miles east of present-day (West) Las Animas. The site of the old town is on the south bank of the Arkansas River, approximately 1 mile southwest of Fort Lyon Veterans' Hospital, which is on the same site as the second Fort Lyon, occupied from 1867-1889. A single track of the Atchison, Topeka and Santa Fe Railroad passes through the site south of U.S. Army Corps of Engineers land. South of the railroad are a dirt road and cultivated fields.

The site (JM043 in the SAI survey of 1982) is located in the S 1/2 of the NE 1/4 of Section 8, T23S, R51W. The area of the site north of the railroad covers 105,400 m^2, including cultural materials south of the ACOE fence. Adverse impacts to the site include machinery disturbance, hand dug pot holes, grazing and small mammal and vegetative disturbance. Machinery disturbance occurs primarily south of the ACOE fence and is related to raising of the railroad bed in conjunction with John Martin Dam construction in the 1940s and to backhoe activity by a local bottle collector.

Archaeological and historical fieldwork took place in March of 1987. Field notes, photographs, and artifacts will be curated at Denver University.

The report is organized in the following manner. An overview of the site's setting is followed by a chapter detailing historical and archaeological field methods. This chapter explains how Mariah observations differed from SAI perspectives and how those differences structured the execution of mapping, feature recording, surface collection, and test excavation. Chapter 4.0 contains surface and subsurface feature descriptions and artifact analysis. Chapter 5.0 provides the historical context of site occupation and summarizes the evaluation based on both archaeological and historical data. This chapter details site significance and the site's potential eligibility for inclusion on the National Register of Historic Places. Finally, Chapter 6.0 provides recommendations for future work at the site.

2.0 SITE SETTING

The site is located in the westernmost 20% of the U.S. Army Corps of Engineers lands at John Martin Reservoir, southeastern Colorado (Figure 2.1). The site's elevation ranges from 3860-3870 feet. At present the northwest portion of the site (architectural Area B) is the closest to the Arkansas River.

Sandstone outcrops occur at the river bank north of Area B, where the river bends to the north before dropping to the south again below Fort Lyon. The sandstone in this outcrop is pitted and oxidized to varying degrees; it appears to have been used for construction in parts of Area B. Another small outcrop occurs downslope from Feature 26 in Area B. Large outcrops of finer grained sandstone are present within 5-7 miles south of the site, on ridges of the sandhills in the vicinity of Highway 101 and Rule Creek. These latter outcrops probably provided most of the building stone for the town of Old Las Animas.

The site soils are Bankard sandy loam and Bankard loamy sand (Friedman 1982:30). Clean sand beneath was reached in the Feature 11 test pit at approximately 2 m depth. The site surface is covered with river pebbles and gravels, indicating river flooding probably prior to 1940s dam construction. Major floods along the Arkansas River are known to have taken place around 1890 and 1920.

The site itself is covered primarily with sagebrush, Russian thistle, and bunch grass (Figure 2.2). Other vegetation on the site's surface is listed in Table 2.1. Vegetation in the site vicinity included thick stands of tamarisk (salt cedar) and willow, and some cottonwood. Ground cover is uniform with few bare areas. Grass root mats are common in the top 10 cm of soil.

Fauna observed include sandhill cranes, magpies, wild turkeys, partridges, and rattlesnakes. Probably also present but not observed are cottontail, jackrabbit, antelope, and deer.

Figure 2.1 Location of Old Las Animas Within John Martin Reservoir, Old Las Animas Evaluation Program, ACOE, 1987.

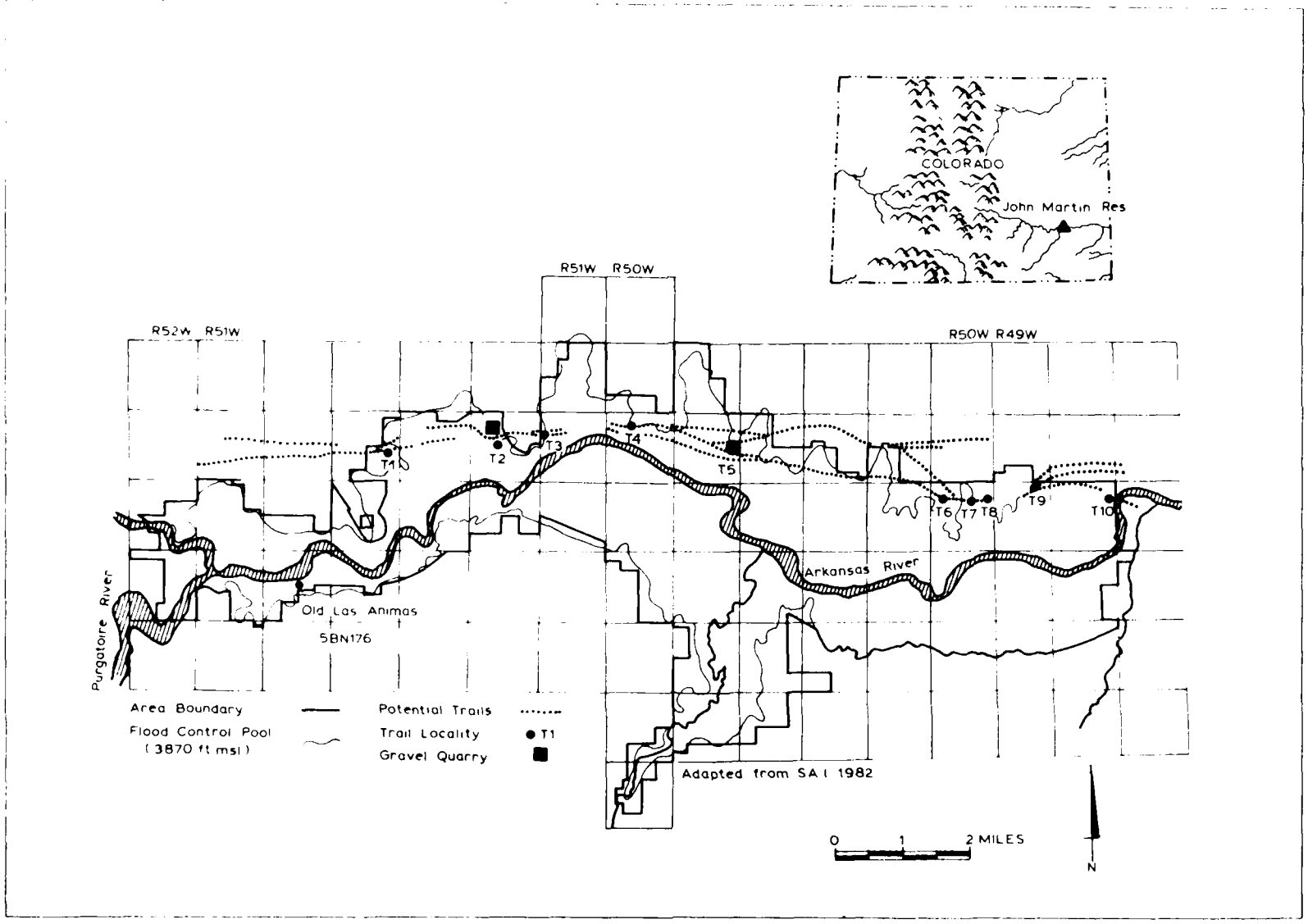


Figure 2.2 Vegetation Coverage and Road Numbers, Old Las Animas Evaluation Program, ACOE, 1987.

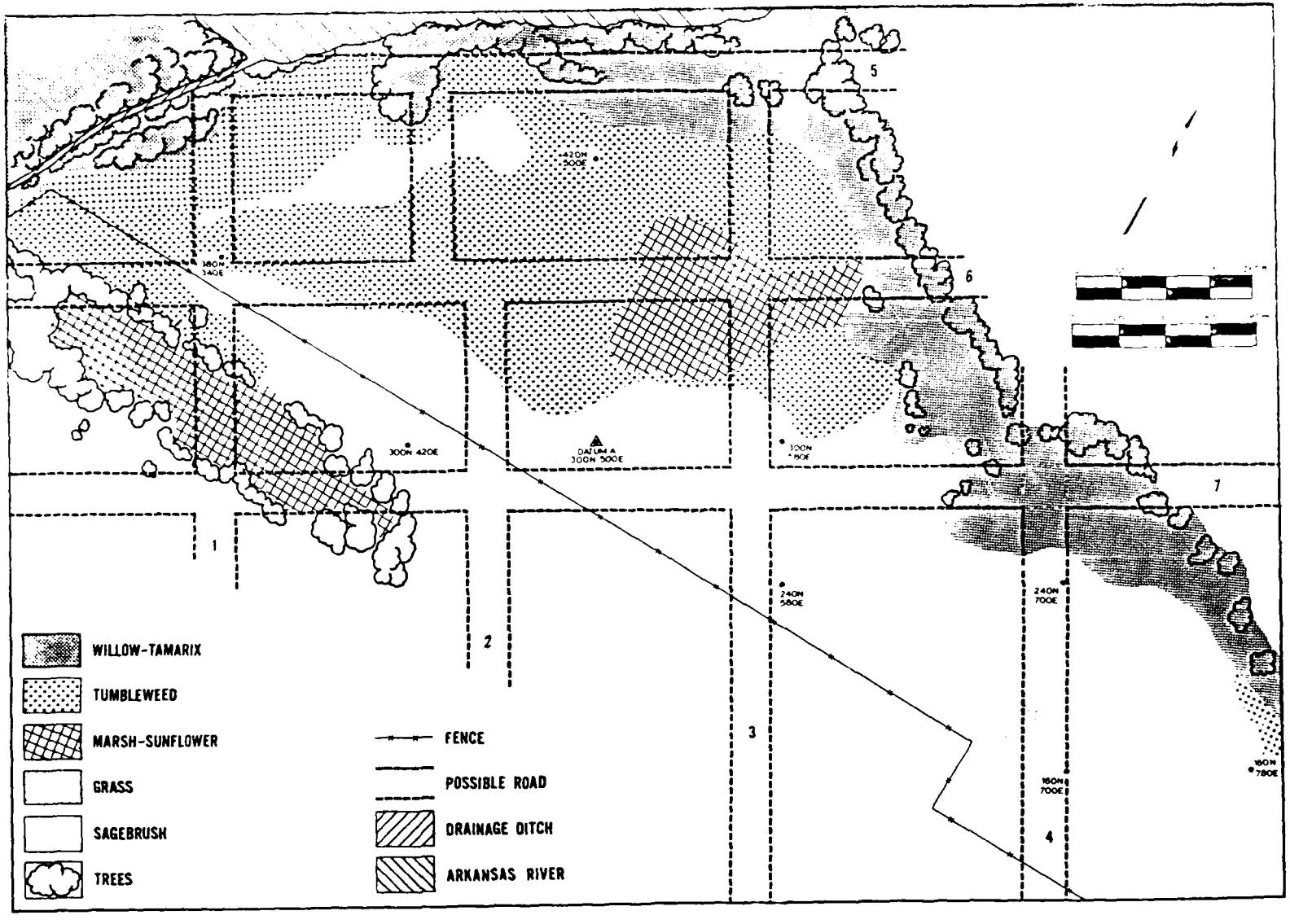


Table 2.1 Site Vegetation, Old Las Animas (5BN176)*, Old Las Animas Evaluation Program, ACOE, 1987.

Sagebrush Area;	
Argemone sp.	Pricklepoppy
Artemisia ludoviciana	Louisiana wormwood
Bouteloua gracilis	Blue grama
Chrysothamnus greenei	Rabbitbrush
Panicum obtusum	Vine mesquite
Tumbleweed area:	
Kochia scoparia	Belvedere summer-cypress
Machaeranthera cf. *tanacetifolia*	Aster
Mentzelia pumila	Golden blazing-star
Marsh-sunflower area:	
Helianthus annuus	Common sunflower
Sporobolus sp.	Dropseed grass
Willow area:	
Eriogonum sp.	Buckwheat
Phragmites communis	Common reed
Tamarix cf. *pentandra*	Tamarix (introduced)
Ulmus pumila	Siberian elm (introduced)
Barren area:	
Muhlenbergia porteri	Bush muhly

* Identifications provided by Mollie S. Toll of Castetter Ethnobotanical Laboratory, University of New Mexico

3.0 FIELD METHODS

Work at Old Las Animas was approached from both historical and archaeological perspectives. There were significant differences between Mariah and earlier SAI observations at the site. Consequently, Mariah's observations at the site differ from the framework of the U.S. Army Corps of Engineers' scope of work, which was based on the SAI report and brief reconnaissance by Corps archaeologists at the site in April of 1986. These points of differences are discussed at the chapter beginning and lay the groundwork for a discussion of historical and archaeological field methods.

3.1 DIFFERENCES BETWEEN MARIAH AND SAI OBSERVATIONS

The site of Las Animas City was located during the survey conducted in 1980 by Science Applications Inc. with the assistance of a local informant. Due to its admitted size of over 96,000 m^2, the site was mapped in two days using both a Brunton compass and tape and a transit and stadia rod. The results revealed a series of 22 architectural features. Features recorded were apparently the most distinctly visible, such as contiguous stone foundation remains. It was assumed that many features had not been recorded due to the thick, brushy ground cover (Friedman 1982:298). The site is described by Friedman (1982:298) as follows.

> The features at the site consist of sandstone foundations, depressions, rubble piles, stone walls, and scattered artifacts. The range of artifact types is large, although most appear to be domestic in nature. They include tin cans, ceramics, bottle glass, window glass, nails and similar kinds of refuse. Although the artifacts described were not in themselves chronologically diagnostic, the period of occupation for this site is known from other sources, to have been from 1869 to 1887. The[r]e is also a prehistoric component at this site (Friedman 1982:298).

He also stated some observations concerning the alignments of the feature.

> The site map shows that many of the features are lined up NE to SW, an alignment which orients them towards Fort Lyon. Comparing this to the original plat for Las Animas City . . ., it can be seen that the streets in the town ran NE to SW, and were aligned towards Fort Lyon (Friedman 1982:298).

Mariah's more labor intensive examination of Old Las Animas was able to distinguish many more than 22 features at the site. In fact, 69 features were identified over the site, including some relatively undisturbed features south of the Corps of Engineers fence. More importantly, Mariah surface and subsurface examination was able to determine that, although hand dug and machinery disturbance had occurred on Corps of Engineers land, most of the site on this property was intact and well preserved.

Several factors account for the Mariah and SAI differences. First, Mariah cleared vegetation in Area A and elsewhere to facilitate mapping and excavation. This clearing made features easier to define than before. Second, the SAI site form recorded heavy disturbance; Mariah work found this

to be true south of the fence, but not on Corps property. The explanation for this discrepancy is that SAI identified dugouts and cellars/basements as large potholes. Examples are a "large pothole - 10 m diameter" and a "large pothole - stone around edge". The former is Feature 11; the latter is what this report describes as a dugout. Even the most dedicated amateur would have to spend a great deal of time to excavate a 10 m diameter hole and leave no evidence of back dirt! Excavation showed that Feature 11 was an intact cellar. For purposes of this report, disturbance by amateur collectors was defined as holes or bladed areas denuded or partially denuded of vegetation, containing visible spoil dirt or a pile of culled artifacts.

Mariah field recording distinguished well defined contiguous stone alignments, marginally defined alignments, both with associated cellar or storage pit depressions; stone concentrations; stone scatters; and dugouts (rectilinear/oval depressions with scattered stones at the rim), as well as nonstructural privies (one proved to be a trash pit), trash scatters, corrals, and other activity areas. Some of these features are difficult to distinguish under dense vegetation; Richard Carrillo provided the necessary background to recognize these features based on his work on sites of the same time period in Pinon Canyon, fifty miles to the west of the project area.

Attempts to correlate the comprehensive Mariah site map with the SAI map (Friedman 1982:Figure 8.3) were not completely successful. Three SAI datums were located; these are SAI Datum D (found in Mariah Area E), Datum A (found in Mariah Area C) and Datum C? (found in Mariah Area A; refer to site maps in Chapter 4 for exact loctions). The Mariah map was superimposed generally on the SAI map using ACOE boundary markers 102 and 103 as points of triangulation. Neither feature distances nor bearings appear to correspond closely with those recorded on the Mariah map. In general, however, we suspect that the following general feature correspondences hold (Table 3.1).

Table 3.1 Correspondence of Mariah and SAI Surface Feature Numbers, Old Las Animas Evaluation Program, ACOE, 1987.

Mariah Feature No.	SAI Feature No.
1, 3	14, 13
60 - 62	22
54 - 55	21
56	20
scatter in Areas A & E	5 - 10, 16 - 19
11, 13	11, 12
23, 25	1, 2
30	3
32	4
22	depression
28	stone circle

These differences between the Mariah and SAI perspectives structured Mariah surface and subsurface work at the site. First, there were 69 instead of 22 features. As a result, time was diverted from subsurface to surface mapping and feature description to better describe site variability. Second, disturbance was less than expected. As a result, subsurface artifact densities were very high in some areas (particularly Area A) and cultural deposits very deep in some features (Features 7 and 11). High densities and deep deposits meant that a number of test pits required more than the estimated 4 person days/test pit.

Sampling all but one of the architectural areas provided information important to understanding the site's structure and occupational history. This feature and architectural area variability, once recognized, was incorporated into the surface collection and testing program. The 960 m^2 of surface collection was stratified by architectural area also. Test pits were placed in all but two of the architectural areas.

3.2 HISTORICAL METHODS

The basic historical problem consisted of finding the specific location of the archaeological remains on U.S. Army Corps of Engineers land in relation to the 400 acre town limit defined on the 1867 plat map (Figure 3.1). A series of steps were taken using both archaeological and historical data: 1) Initial attempts were made to relate the positions of features to areas where no features occurred; areas without features were thought to represent potential streets, especially if these represented linear alignments. 2) The next step was to use historical data including maps, deeds, and newspaper accounts, to define general areas within the site. Particularly useful was a photograph of the town taken in 1874 (Figure 3.2). 3) The third and final step consisted of combining both sets of data to arrive at a highly likely plat location for the areas defined archaeologically.

A series of eight distinct areas were defined and identified as potential block/lot locations representing habitation and commercial areas within the town. Over a period of two ten-day field sessions, intensive examination of the site area and localities on the north side of the Arkansas River was undertaken.

The initial step consisted of spending two days walking over the area attempting to delineate potential street locations. This effort resulted in three northeast-southwest oriented streets being defined in addition to two northwest-southeast oriented cross streets. At this point, the street locations in conjunction with the plat map could not be ascertained. The main objective was to locate two major avenues, Carson and Bridge. It was thought that once these were located we would be able to ascertain the position of the archaeological features.

It was decided that further historical research at Fort Lyon was warranted. The data found at Fort Lyon were extremely useful, particularly a map made in 1868 (Figure 3.3) which shows a relationship between the town and the fort that agrees with the archaeological pattern. One important aspect about the map is that it can also be keyed into the plat (see Figure 3.1).

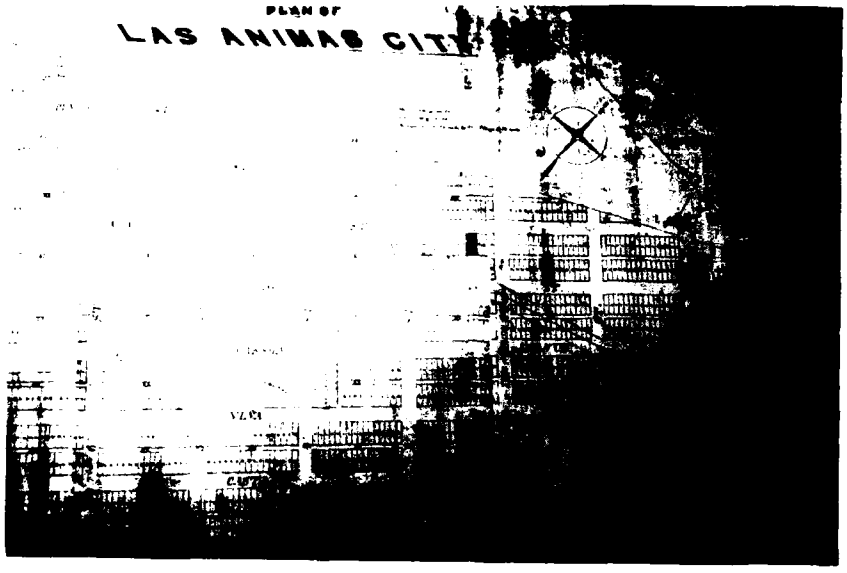
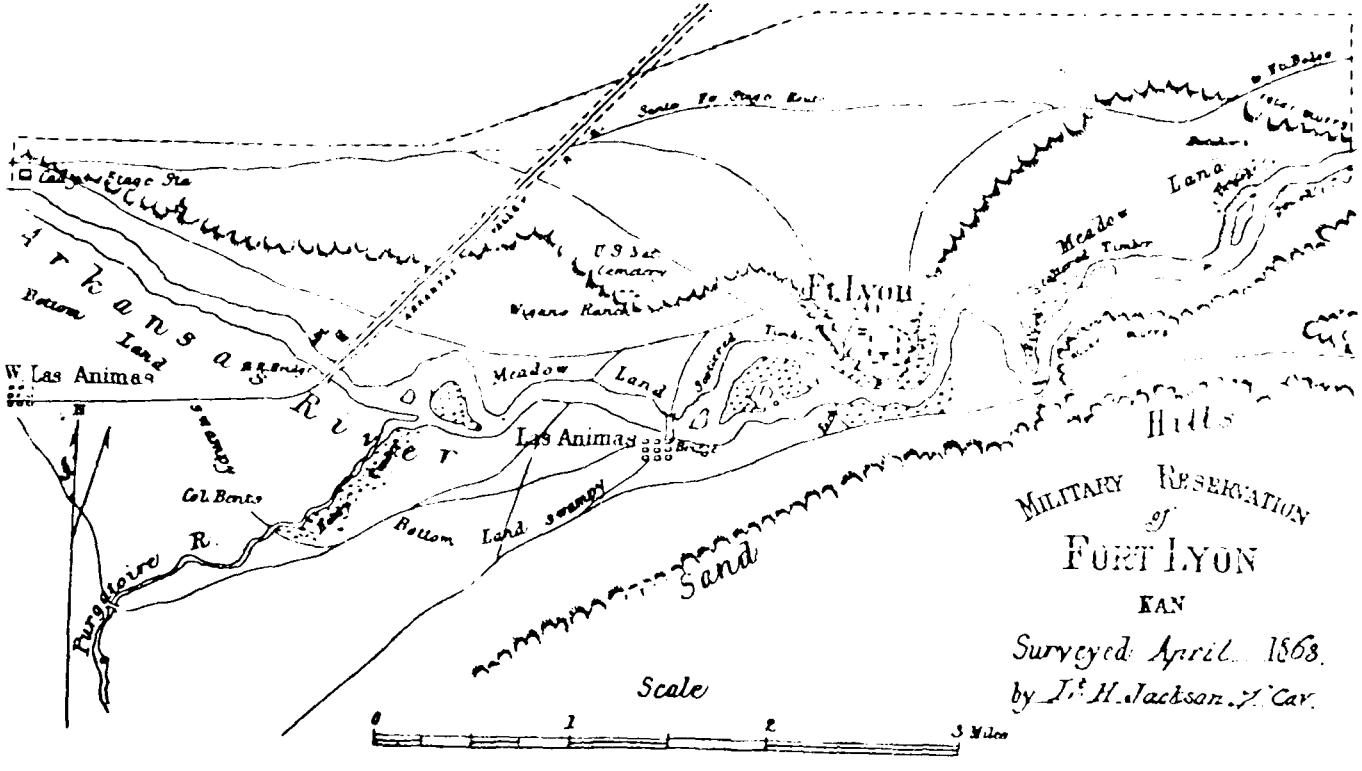


Figure 3.1 Plan of Las Animas City, January 1, 1867 (Courtesy Bent County Clerk), Old Las Animas Evaluation Program, ACOE, 1987.

Figure 3.2 Photograph of Old Las Animas, 1874 (Friedman 1982:Figure 8.5), Old Las Animas Evaluation Program, ACOE, 1987.

Figure 3.3 Jackson Map of Fort Lyon, Southeastern Colorado, 1868 (Book Committee 1987:6), Old Las Animas Evaluation Program, ACOE, 1987.



Next, corroborating information was gathered from Mr. Galen Moss, Chief of Security, who is also an amateur historian and a member of the Bent County Historical Society. He indicated, based on his knowledge of the area, that the road crossing between the fort and Las Animas City would have been located in the vicinity of 15th Lane, located approximately one-half mile west of the fort, and oriented on a North-South axis. This area is referred to by the local population as "Jungle Town." This label may refer to the blacks who comprised the 5th and 10th Cavalry (and those who lived in Las Animas City) who stayed in the area after completing their military commitments, just as many Anglo-Americans did.

It was then decided, based on the research to that point, that the north side of the river should be examined for possible evidence of the bridge, such as piers or possible road locations leading north from the river. One noticeable feature was the obvious changes which had occurred in the river channels of the Arkansas. It was not possible, given the limited amount of time, to examine the entire river bank on the north side because the area was quite marshy and small streams of running water were present, many of them 4-5 feet across and 2-3 feet deep. A basic orientation was observed, however, which placed a probable road location generally north and opposite the site area where archaeological testing was concentrated. The location corresponds closely with the 1868 Jackson map.

Other areas along the river were examined on the town (south) side, and the following patterns were observed.

1) The area east and north of the site would not have been suitable for fording, especially constructing a bridge, based on the many changes in the river channel in the area. Additionally, the corresponding north side area also was very swampy. Presently, this area is represented on the 1868 Jackson map by the large central horseshoe-shaped island, east of the smaller island (Figure 3.3).

2) The next detail consisted of attempting to locate both Bridge and Carson avenues on the site. The first reference was the photograph of the town taken in 1874 (Figure 3.2), and the archaeological configuration of foundations in Area A. The photograph appears to represent Carson Avenue looking northeasterly based on the local topography. Bridge Avenue in this photograph may be represented by the extensive blank space to the left of the wagon and oxen, or the area may represent a series of as yet undeveloped empty lots. The second alternative for Bridge Avenue location is the blank area near the lower left portion of the photograph which also appears to be a road area, where a series of three structures and an empty lot are clustered. This area appears to correspond with the southwest corner of Area A where similar foundation alignments generally correspond with those at the center of the photograph along the left side. Area A is also the location which may represent the intersection of Bridge Avenue with Carson. The featureless linear alignment which is thought to represent Bridge Avenue is not perpendicular with Carson Avenue, but rather oriented in a westerly direction toward the river. It corresponds with Feature 26, located

> near the bank of the river and consisting of large cut stones and a circular excavated area. The earthen mounds located to the west and southwest of this feature may represent the earth removed from this area. The Feature 26 area is thought to represent the potential location for bridge abutments (refer to Chapter 4).

Two following references in the form of deeds were located with the assistance of Mr. Jerry Bryant, proprietor of the Bent County Abstract Company. These two deeds were instrumental in assisting in orienting the archaeological features. One is tied directly to the sale of the bridge. The initial legal instrument was a quit claim deed dated August 27, 1873, from Jose Garcia Martinc to Henry H. Rule for $150.00. The property is described as follows.

> "Sixty feet front by one hundred and twenty feet deep lying and being on the north side of the street running from the Fort Lyon Bridge in a westerly direction, said tract of land is fronting Lots 5 and 6 in Block 86, and directly on the opposite side of the street from said Lots 5 and 6, Block 86, Bent County, Colorado (S & D 1873).

Beginning in 1874, the impact of the Kansas Pacific arriving in West Las Animas the previous year began to have adverse effects on Las Animas City. The conveyance warranty deed is dated July 9, 1874, and was executed from John L. Craig to the Commissioner of Bent County for $1200.00; it involves

> That portion of a certain wooden bridge built and standing on the 16th day of April 1874 [&] formerly across the Arkansas River located at the foot of Bridge Avenue in the Town of Las Animas. Extending across said river together with all approaches, abutments, piers, privileges, rights, franchises and appurtainances thereunto belonging and, also all that certain piece or parcel of land being and situated within the distance of fifty feet from under & around said bridge on the south bank of said River (Deed Book 1:560).

John Craig obtained the bridge on a $1500.00 judgment against the Fort Lyon Bridge Company, which had built it in 1870. The Old Las Animas bridge may not have been a primary crossing as the 1868 Jackson map shows a ford one mile downstream, just southwest of Fort Lyon (Deed Book 1: 560; Figure 3.3). A second ford was located one and one half miles upstream, at the conjunction of the Purgatoire and Arkansas rivers. Since the Las Animas bridge charged a toll, it may have been used primarily during periods of high water when the fords were impassable for wagons.

3.3 ARCHAEOLOGICAL FIELD METHODS

3.3.1 Introduction

The purpose of field studies at Old Las Animas was to obtain an accurate and thorough description of the site, its individual features, activity areas,

and condition; these data are required to determine whether the site retains sufficient integrity to support National Register nomination. Field studies involved preparation of a comprehensive town map, recording of all discrete surface features, and test excavation of selected features to document the integrity, complexity and depth of archaeological deposits present at the site.

Prior to the initiation of field work, a plat map of the town of Las Animas was obtained from the Bent County courthouse; the plat was dated 1867, two years before the actual founding of Las Animas. The planners of Las Animas were clearly optimistic about the future of their community; the plat depicts a community composed of broad avenues (100 feet wide), cross streets, city parks, and city blocks, the latter measuring 480 feet by 260 feet.

An ongoing task was the attempt to correlate archaeological surface feature clusters and breaks in artifact distribution with city blocks and streets. Historical research focused on locating photographs and maps of the town that would provide a basis for tying in the archaeological feature clusters to particular areas of the town and even particular street names. Where surface remains suggested building alignments along a road, as in areas A and E, a ground reference point was particularly valuable.

A preliminary field task included a comprehensive surface reconnaissance during which structural and nonstructural features were located and flagged. Prominent features in Area A, the locus of most intense testing, were stripped of the dense vegetation which obscured their definition. Vegetation also was removed from grid lines and test pits.

3.3.2 Horizontal and Vertical Provenience

Once prominent architectural features were cleared of vegetation, the datum was established in the vicinity of the architecturally most complex area of the site. Datum location did not correspond to datums established during SAI survey; comprehensive surface reconnaissance located three previous subdatums, thought to correspond with SAI's subdatums A, C, and D, in Mariah's areas C, A, and E. From datum, baseline segments were established with transit, stadia and tape over the length and width of the site for the purpose of establishing a replicable grid system over the entire site area. Baselines were not laid out on cardinal directions but rather according to the orientation of avenues and blocks portrayed on the community plat and structures visible archaeologically. Northern baseline segments were 330° and eastern segments were 60°. Due to the shape of the site area and baseline orientation selected, simple quadrant baselines were not feasible. The actual baseline is stepped in appearance; it includes four northern segments and four eastern segments (see Chapter 4). All points of intersection on the baseline are marked by tagged and orange painted rebar to facilitate relocation during future data recovery projects.

In order to avoid negative grid designations, datum was nominated as 300 m north 500 m east; elevation was arbitrarily designated at 10.00m below an imaginary point in the sky. Each area to be excavated was gridded using tape or tape and transit off an existing baseline segment. Each test unit was

designated by the intersection of grid coordinates at the southwest corner of the unit. Vertical control was maintained through the use of subdatums established is the vicinity of test units; all subdatum elevations were referenced to the elevation of main datum.

Once provenience was established over the site area, a comprehensive site map was prepared which depicted surface architectural and nonarchitectural features, disturbances and test units excavated. All elements were plotted off baseline grid points. In architecturally complex areas, features were mapped with reference to established grid points. Outlying features were mapped by angle and taped distance measurements to feature corners; angle and distance were converted into cartesian grid coordinates and subsequently plotted. All grid provenience was established off the existing baseline using transit, stadia, and tape.

3.3.3 Surface Collection

A total of 960 square meters of the site area was surface collected; this area was designed to sample approximately 10% of the total surface area of 96,000 square meters identified by SAI survey. Collection units were selected to sample the range of feature types and to obtain collections from different areas of the site in order to yield assemblage data amenable to intrasite functional and temporal analysis. Surface collection was accomplished through block units which ranged in size from $9m^2$ to $225m^2$.

Block size was designed to coincide with cultural feature boundaries including stone alignments and trash scatters. Collection unit size variability corresponds to feature size variability. Collection units were placed on each site area except the small and poorly defined Area F. All units were laid out on grid lines and provenienced by their southwest grid coordinates. All artifacts collected were catalogued on Field Inventory Forms which specify provenience, lot number, date, contents, and comments.

3.3.4 Testing Procedures

Test excavation units were placed within structural features adjacent to but outside of architectural features and in small structural outbuildings or extramural features such as privies, roads, and stone concentrations. Excavation and recording procedures varied slightly depending upon the type of feature deposit under investigation. Large architectural features represented two-thirds of the tested units and extramural/outbuilding features one-third of the tested sample. Certain excavation procedures were constant and these will be described in the following paragraphs. Variations in recording and excavation procedures will be discussed in the following section.

All excavations were performed by hand. Levels were commonly excavated in 10 cm increments. When recognizable strata could be differentiated, these were excavated separately and broken into sublevels of 10 cm. This procedure facilitates comparison of units of equal volume of soil and calculation of artifact density. All soils excavated during test excavation were screened through one-quarter inch hardware cloth. Level and strata information were recorded on Data Forms which specified provenience information, depth of

levels, artifacts recovered, level and strata description and rationale for excavation. Artifacts were also catalogued on Field Inventory Forms which specified provenience, level, lot number, contents, and comments.

Scaled stratigraphic profiles were recorded for every unit excavated; all soil horizons and strata were described using standard scientific terms and Munsell terminology. Flotation samples were collected from features with suspected integrity of deposits or abundance of plant materials. The locations of all soil samples collected were plotted on field forms; samples were also recorded on sample forms which specified sample number, sample provenience, associated feature, and comments. All test units were photographed in black and white and color transparencies.

The most detailed excavation and recording procedures were reserved for structures which retained architecture. Initially, an attempt was made to define wall tops and expose wall corners. Artifacts recovered from wall top definitions were collected, provenienced on field inventory forms, and catalogued by material type and feature number. No attempt was made to provenience these artifacts as to grid or level. Fill from wall top definition was not screened. Disturbance resulting from these activities was minimal.

Once the structure was defined, grid provenience was introduced and the feature was mapped. Sometimes when several features were closely associated, these were mapped together. Once mapped, test pit locations were selected. Test pits were typically 1 x 1 m and 1 x 2 m units placed against a wall or halfway down a depression slope. Every effort was made to sample a variety of contexts including buildings of different sizes and function. Test excavations within or adjacent to structures were designed to yield data amenable to assessing feature condition, stratigraphic complexity, architectural detail, and feature function as extrapolated from recovered artifactual assemblages. Once test excavation was accomplished, Structural Feature Data and Wall Data forms were completed. The Structural Feature Data form included a description of feature type, shape, orientation, condition, interior dimensions, interior diagonal dimensions, fill, floors, entrances, interior features, and functional inferences. Additional subsurface features were assigned letter designations corresponding to the surface feature number, such as Feature 2A, a trash pit, in Surface Feature 2, a contiguous stone alignment. Subsurface features were recorded on feature forms.

Wall Data Forms specified the length, width, and height of each wall, building materials used, element modifications, size element ranges, construction detail, and types of corners (e.g., abutted or interlocked).

The sample of outbuilding/extramural contents was smaller than that of main building contexts. Examples of nonarchitectural features include privies, wells, and roads. Excavation procedures in nonarchitectural features were identical to those previously described. In addition, the feature was mapped and recorded on a standard Feature Form. Information required to complete this form include a general description, the location of test pits within the feature, feature dimensions, fill description, shape, construction detail, and disturbances.

3.3.5 Documentation of Untested Features

Of particular concern during the present study were dismantled structures which were surely occupied or used during the brief florescence at Las Animas but which left little trace archaeologically. Examples of these features include dismantled wooden frame houses which were detectable only by the presence of pier stones, coal dumps which indicate the presence of dismantled structures, and wells or privies which were also typically associated with dismantled structures. Features with low visibility appear to be by far the most common features present on the site. Documentation included feature description, dimensions, disturbance, general artifacts observed and general comments. Descriptions are located in section 4.2.

4.0 SURFACE AND SUBSURFACE FEATURE DESCRIPTIONS BY AREA

4.1 OLD LAS ANIMAS SURFACE FEATURES

Variables recorded for surface features were architecture, vegetation, artifacts, disturbance, associated features, and possible function. Architectural attributes monitored included description of general shape, building material size and shape, bonding matrix, and dimensions. Building element sizes are given for the maximum length; categories are small (less than 15 cm), medium (15-25 cm), large (greater than 25 cm) and massive (40-50 cm). For general location of the features refer to the overall site map (Figure 4.1). Details of each architectural area are included at the beginning of each architectural section.

4.1.1 Area A

Surface features in Area A are features 1-9. These are discussed in numerical order. This area contains the most complex architecture on the site (Figure 4.2).

4.1.1.1 Feature 1

Feature 1 is a rectilinear contiguous stone alignment (Figure 4.3). Generally, only the foundation remains; however, the east-west cross wall dividing the rectanglular structure into north and south rooms retains 1-3 lower courses of the stone wall. Entrances are not definable in the portions of the foundation exposed by wall trenching. Building material is sandstone slabs, blocks and irregular stones on the foundation course and roughly shaped sandstone blocks and rubble on the remaining courses above the foundation. No bonding matrix is visible on top of the foundation stones; most of the courses were apparently dry laid. Dimensions are 11 m east-west by 5 m north-south. No disturbance except for that caused by sagebrush roots was noted. Artifact density was moderate in the south room, including purple and aqua bottle glass, metal wagon parts, and ceramics. The north room was collected before these observations were made. The Feature 1 and Features 2-4 south walls apparently face a road. To the east are less well defined building stone scatters and a scatter of scrap metal. Large size, contiguous stones, and substantial nature of the remaining stones suggest a possible commercial establishment.

4.1.1.2 Feature 2

Feature 2 consists of a rectangular contiguous stone alignment (Figure 4.4). Only the south and west walls are well defined. Only the foundation and one to three courses above remain. A possible doorway exists in the south wall 2 m east of the southwest corner. Building material consists of sandstone slabs, roughly shaped blocks, and rubble. There are one to three courses of material along the west wall; walls are incompletely defined and exposed elsewhere. Some of the sandstone blocks are discolored a black to rust brown color, probably from oxidation. There is a small remnant of homemade concrete containing river pebbles and gravels along the west wall. Other blocks were apparently dry laid. Dimensions are 7 m east-west by 11 m

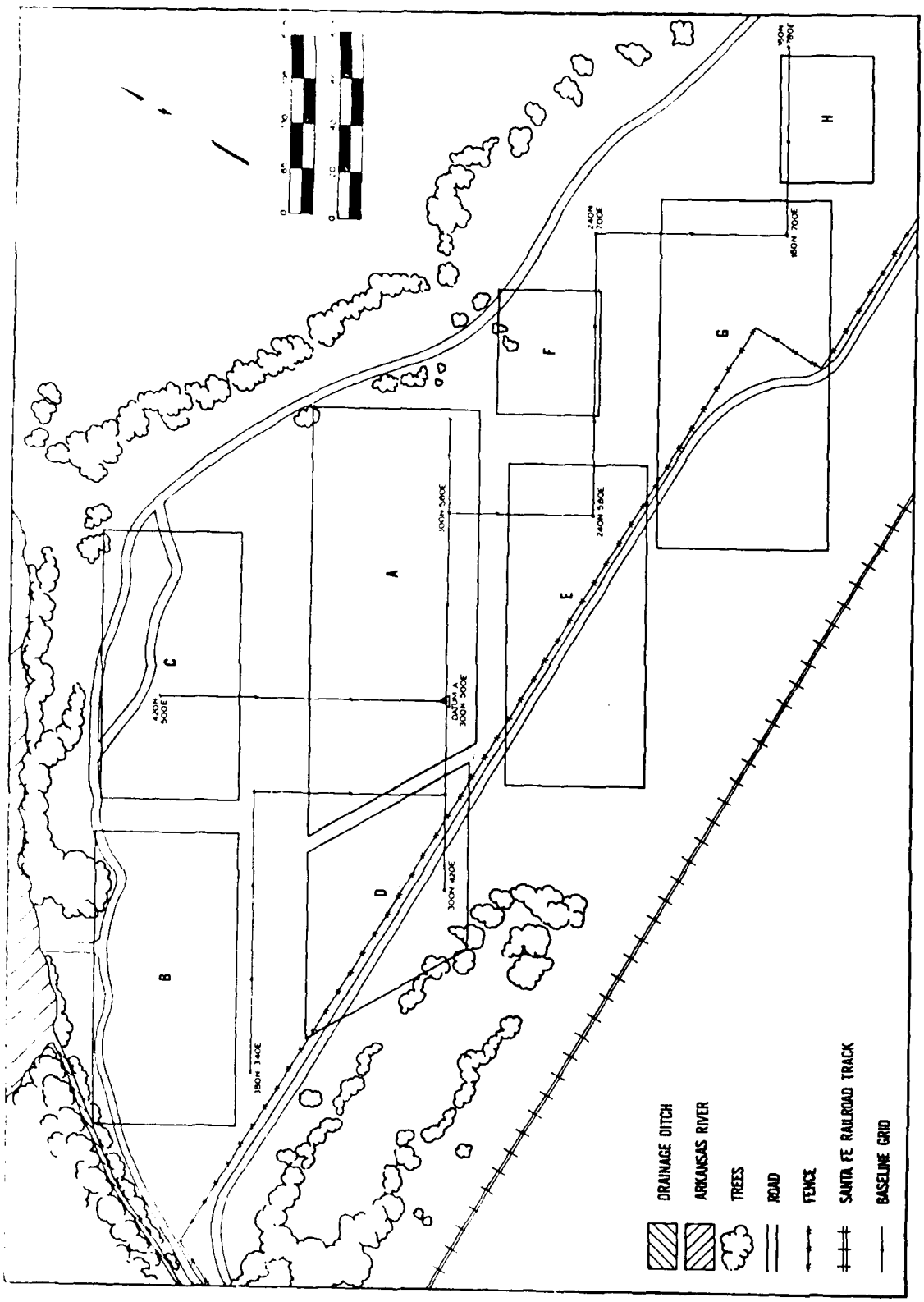


Figure 4.1 Architectural Areas, Old Las Animas Evaluation Program, ACOE, 1987.

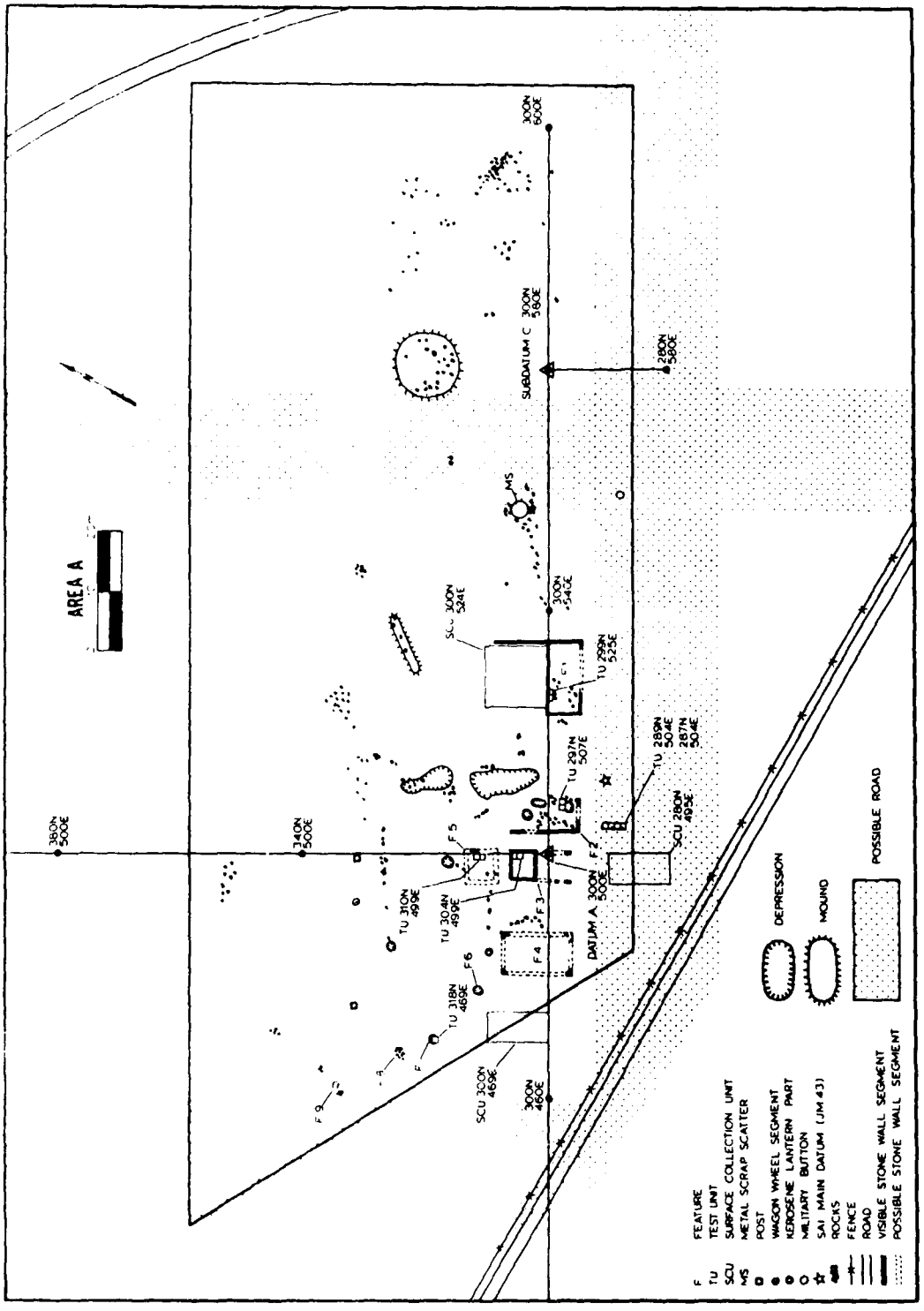


Figure 4.2 Architectural Area A, Old Las Animas Evaluation Program, ACOE, 1987.

Figure 4.3 Plan View of Surface Feature 1, Old Las Animas Evaluation Program, ACOE, 1987.

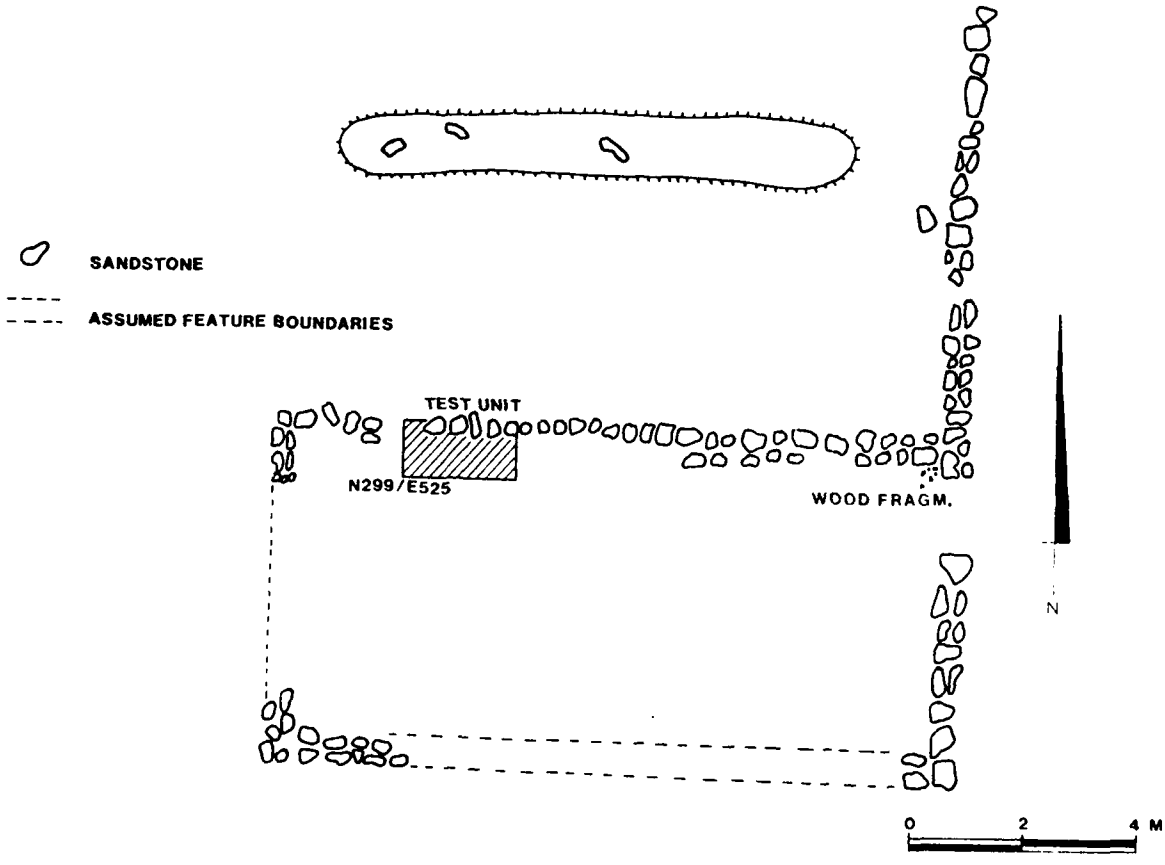
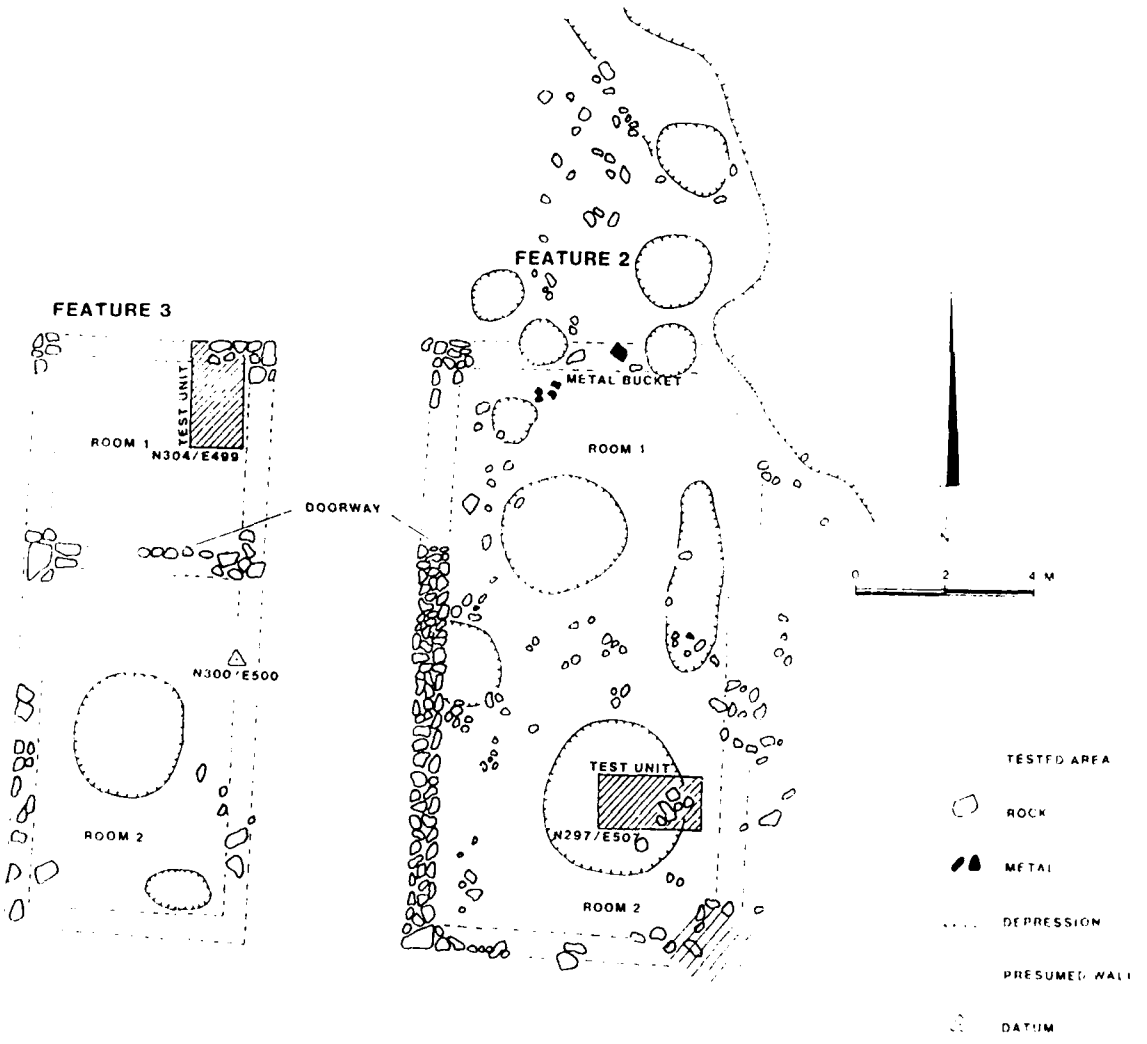


Figure 4.4 Plan View of Surface Features 2 and 3, Old Las Animas Evaluation Program, ACOE, 1987.



north-south. Disturbance appears limited to sagebrush roots. Four depressions in the interior probably represent cellar/pier pits, rather than pothunting activity, as they are relatively shallow and were covered with the same vegetation as the rest of the feature. Moderate artifact scatter includes wagon parts, bucket remnants, large mammal bone, window glass, cast iron stove parts, purple and aqua glass, and burned tar. Associated features are Feature 1 on the east and Feature 3 on the west. Although less clearly defined than Feature 1, Feature 2 could also be a commercial establishment because of its size and substantial foundations.

4.1.1.3 Feature 3

Feature 3 is another rectilinear contiguous stone alignment (Figure 4.4) on the north side of an east-west trending road in the town (Figure 4.2). This structure retains foundation stones, some of them massive blocks exposed in the test pit in the north room, and one to two courses above the foundation. An entrance is not evident, but could be contained in the poorly defined south wall. The north room is well defined by wall trenching and surface exposure. The test pit in the northeast corner of the north room revealed sandstone slab and, more commonly, block construction with some smaller, irregularly shaped pieces of rubble. All of the components are roughly shaped. All of the stones appear to be dry laid. Light disturbance is evidenced by several recent cattle mandibles on the feature surface, as well as sagebrush roots. Dimensions are 11 m north-south by 5 m east-west. Moderate artifact density includes tin can fragments, a zinc fragment (not a Mason jar lid), purple and aqua glass, undecorated whiteware ceramics, burned large mammal bone, and window glass. Associated features are Feature 5 to the north, Feature 2 to the east, and Feature 4 to the west. The substantial nature of foundation remains and contiguous placement of the foundation suggest a possible commercial establishment.

4.1.1.4 Feature 4

Feature 4 is a rectangular contiguous stone alignment. Horizontal slabs, roughly shaped blocks, and smaller rubble of irregular shape comprise the building materials. A possible cross wall divides the structure in half (north and south) approximately 5 m north of the south wall, but rubble is scattered throughout the feature interior. Remains represent a foundation and probably discards from the dismantling process. Some stones possess the rust to black stain on one or more faces representing chemical weathering. This does not appear to be burning or rust deposits from metal association; discolored stones do not occur in concentrations. The mortar is tempered with fine gravels. Four interior depressions are present: one along the south edge of the south wall; one approximately 2 m long in the southeast corner and oriented north-south; a large one in the north center of the feature, north of the possible crosswall and roughly circular with back dirt mounded in the center (similar to Feature 11); and one along the interior edge of the north wall. An entrance could be located on any of the poorly exposed walls. Dimensions are 7 m east-west by 11 m north-south. Moderate artifact density includes undecorated white ironware ceramics, window glass, purple and amber bottle glass, coal, an immature jackrabbit femur, a leather strap, and cast iron metal parts. Disturbance consists of sagebrush roots and, east of the feature, the bleached bones of a dead calf. One brick is included in the linear rubble scatter 1 m east of the east wall. Aside from the predominant

sagebrush cover bunch grass is present in the north center or the west half and in a swale east of the feature and the rubble scatter. Feature 4 is associated with Features 3 and 5 on the east and Feature 6 on the northwest. Size of rooms and apparent substantiality of the foundation suggest a possible commercial establishment.

4.1.1.5 Feature 5

Feature 5 is an apparent (based on subsurface information) contiguous stone alignment just north of Feature 3. Feature 5 is poorly defined through much of its extent, although the test pit, aligned with the east wall of Feature 3 to the south, exposed one to two courses of contiguous architecture. The north wall of Feature 5 may be as much as 14 m or more north of the south wall, judging from scattered surface stones, depressions, and mounding in the feature. Construction materials are the usual massive sandstone blocks, horizontal slabs, and smaller rubble, all roughly shaped. Bonding matrix is occasional concrete remnants with gravels visible on a small percentage of the few exposed building stones. Dimensions suggested by surface stones, mounding, and depressions may be 5 x 9 m and perhaps 5 x 12 m or 5 x 14 m, but may include more than one room.

Moderate artifact density includes undecorated whiteware ceramics, tin cans, window glass, purple and aqua bottle glass, olive glass, and to the northwest (possible associated features), undecorated white ironware plate and bowl fragments, lead glazed crockery, and an amber beer bottle base ("MC Co").

Disturbance includes small mammal burrows and sagebrush roots. Depressions north of the defined Feature 5 may represent potholes because they are deeper than similar cellar pit depressions in other features in this area. These depressions do not appear recent, however, and no obvious spoil pile is present. Associated features are scattered stone alignments extending 20 m to the north and similar alignments to the east; these are shown on the Area A map, but were not assigned feature numbers. The adjacent area to the east contains less easily discernible mounding (wall areas?) and depressions (cellar pits?). Feature 5 could be another commercial establishment, depending on its actual size.

4.1.1.6 Feature 6

Feature 6 is a small (less than one 1 m diameter) circular depression with a few scattered stones outside the depression rim. The depression appears to be the only remnants of the feature. It is located approximately 4 m northwest of the northwest corner of Feature 4. It may represent a privy or well, based on the absence of window glass. The sides slope steeply, but if the depression was disturbed, there is no evidence of backdirt or an artifact spoil pile: the surrounding artifacts are scattered, rather than concentrated. The moderate artifact density around the rim includes clear, purple, and aqua bottle glass; charcoal; bone; a pontil base olive wine bottle; and a leather belt part (punched). A heavy growth of bunch grass is just southwest of the depression. Sagebrush cover surrounds the depression. Probably associated are Feature 4, to the southwest, and another possible structure directly east, identified by scattered stones, depressions and mounding. Additional stone alignments are approximately 3 m to the west and southwest.

4.1.1.7 Feature 7

Feature 7 is a small (90 cm x 110 cm) depression which appears to have been dug out by a pothunter to a depth of 60-80 cm. Only the depression remains. One piece of sandstone approximately 1 m to the northeast and two small river cobbles to the southeast are all that remains of possible pier stones. Disturbance is heavy but localized, being limited to the depression. Artifact density is high, though also localized. Much burning is evident, especially burned tar and wood. A probable pothunter's backdirt pile is to the east of the pit, covered with a large piece of burned tar and fabric. Also present are purple, aqua, and amber bottle glass; window glass; leather belt parts; sun-bleached cattle vertebrae and phalanges; an undecorated ceramic fragment marked "Royal Stone China/Wedgewood and Co.", a burned fragment of a milled plank, bits of metal; and a complete metal wash basin. Zinc scraps occur 8 m east; these are two large pieces 13 x 25 cm and 15 x 20 cm of thin pressed zinc with straight edges, possibly used as roof or siding material. Associated features are the Feature 8 stone concentration 4 m to the north, a depression and glass scatter to the east, and scattered stones to the south/southeast. The feature appeared to be a disturbed privy based on surface examination, but excavation suggested it was a trash pit.

4.1.1.8 Feature 8

Feature 8 is a marginally defined pier stone alignment approximately 4 m north of Feature 7. Apparently only the foundation remains. Small depressions and most of the building stones are present on the west side of the feature - this area may represent the southwest corner of the feature. Building materials are the usual medium sized (15-20 cm length) roughly shaped blocks noted on earlier features, with larger foundation stones visible. All stones appear to be dry laid. Dimensions are difficult to determine because of the marginal alignment definition. The structure could be 6 m east-west by 4-6 m north-south. Disturbance appears limited to sagebrush roots and an old pink pin flag from the 1980 SAI survey. Sagebrush covers the feature vicinity. Moderate artifact density includes amber, olive, purple, and aqua bottle glass; undecorated white ironware ceramic; a metal strap; and four hole-in-top tin cans. Most artifacts occur to the north and south of the structure interior. Associated features are Feature 7 to the south and Feature 9 to the northwest. Function is probably a domestic structure, based on the small size and location on the back side of this town block. The absence of window glass may suggest an outbuilding function.

4.1.1.9 Feature 9

Feature 9 is an apparent pier stone alignment with a depression. The depression, however, has been recently dug into by pothunters, judging by the large lightly vegetated backdirt pile with much rubble along the northeast rim. Building materials are the usual roughly shaped small blocks and smaller irregular rubble. Sandy mortar tempered with tiny pebbles occurs on some of the rubble surfaces and on a river pebble probably used in chinking. Many stones were apparently dry laid. Dimensions appear to be 4 x 4 m, but are difficult to discern on the basis of marginal alignment and pothunter backdirt. A possible related structure to the north and northeast is a very marginal rubble scatter. Heavy but localized disturbance consists of an apparent pothole 40 cm deep with associated backdirt. Vegetation is

sagebrush, bush mulhy, and rabbitbrush. Concentration of stones along the the possible west wall of the depression may represent pothunter spoil. Moderate artifact density includes aqua and purple bottle glass, burned large mammal long bone, and a hole-in-top tin can. Associated features are Feature 8 to the south and possible road between Area A and D. Thirteen meters east is an upright post associated with a shallow depression probably originally part of a backyard fence. The structure may have been a habitation, although it lacks surface evidence of window glass.

4.1.2 Area D

Area D contains a moderate amount of architectural variability, including one of the two large depressions on the site (Feature 11), a contiguous stone alignment and part of another, and other, more marginal features (Figure 4.5).

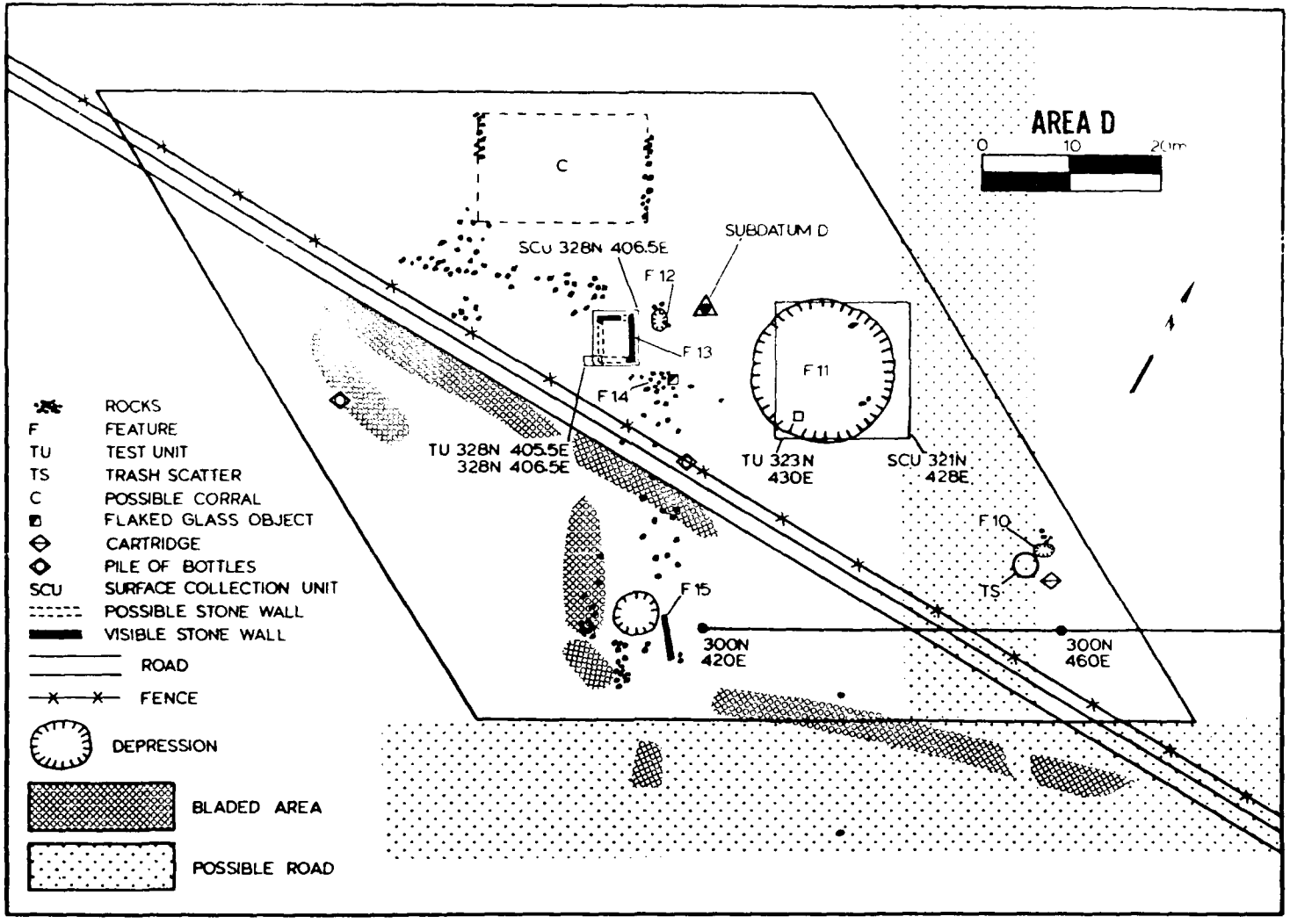
4.1.2.1 Feature 10

Feature 10 is a marginally defined spaced stone alignment and depression. The depression is oriented north-south and the best defined stone alignments are approximately 1 m north of the north end of the depression. Building materials are roughly shaped blocks of small to medium size; no large blocks are visible on the feature surface. Some of the exposed stones are chinking stone size. No mortar is present. Length is probably no longer than 8 m, based on the southernmost extent of rubble. Width is possibly 4 m, but both dimensions are difficult to define. Disturbance appears limited to sagebrush roots. Artifact density is moderate and includes metal hoops; hand soldered meat cans; undecorated white ironware ceramic; purple, aqua, clear, olive, and amber bottle glass; window glass; bleached large mammal bones; and an inside-primed .38 centerfire cartridge. Associated is Feature 7 to the northwest. Probable function is a habitation based on relatively small size and ephemeral nature of architectural remains, combined with presence of window glass. Most trash occurs at the south end of the feature.

1.1.2.2 Feature 11

Feature 11 is a large circular depression representing a barn or large basement. A test pit placed on the south end encountered a cellar wall dug into sterile soil and, nearly 2 m below surface, a rubble alignment resting on massive foundation blocks at the base of the wall (at the top of a level of sterile river sand). Leather scraps, wood, and nails were found until the foundation was reached. The depression is approximately 15 m in diameter, and several large sandstone blocks are present at the rim. Building materials include roughly shaped slabs, blocks and smaller, more irregular rubble. Depth is slightly greater than 2 m. The north side of the depression slopes gradually, while the south half is more abrupt. A large mound of spoil dirt occurs in the south half of the depression, just north of the test pit. The height of this mound is 50-75 cm. Spoil dirt could represent pothunter activity, but no fresh pits or denuded areas were evident. Artifact density was low, confined to barrel hoops and a few other artifacts on the surface. For subsurface artifact density figures, refer to later sections of this report (Section 4.3). Associated features are Features 12 and 13 on the west. Probable function is the basement of a large commercial establishment.

Figure 4.5 Architectural Area D, Old Las Animas Evaluation Program, ACOE, 1987.



4.1.2.3 Feature 12

Feature 12 is a depression with stones around the rim. Building materials are roughly shaped sandstone blocks, including massive ones two on the northern rim, and more irregular rubble of smaller size. No evidence of mortar was found. Probable dimensions of the depression are 2.5 m north-south by 2 m east-west. Distance to possible southeast corner stones is 7 m. Distance from the east depression edge to the east extension of Feature 13 is 2.5 m. Stones are present in the center of depression, indicating potential pothole disturbance, with possible backdirt on the east rim, where vegetation is less dense. However, pothunting activity is not clearly indicated or recent. Large sagebrush and vine mesquite or blue grama occur on the feature. Artifact density is low, with only pieces of yellow lead glaze stoneware and aqua bottle glass evident. Associated features are Feature 11 to the east and Feature 13 to the immediate west. In fact, the eastern extension of the north wall of Feature 13 appears to run directly into the Feature 12 depression. Function is possibly a habitation or outbuilding of Feature 13, based on relatively small size and lack of architectural definition.

4.1.2.4 Feature 13

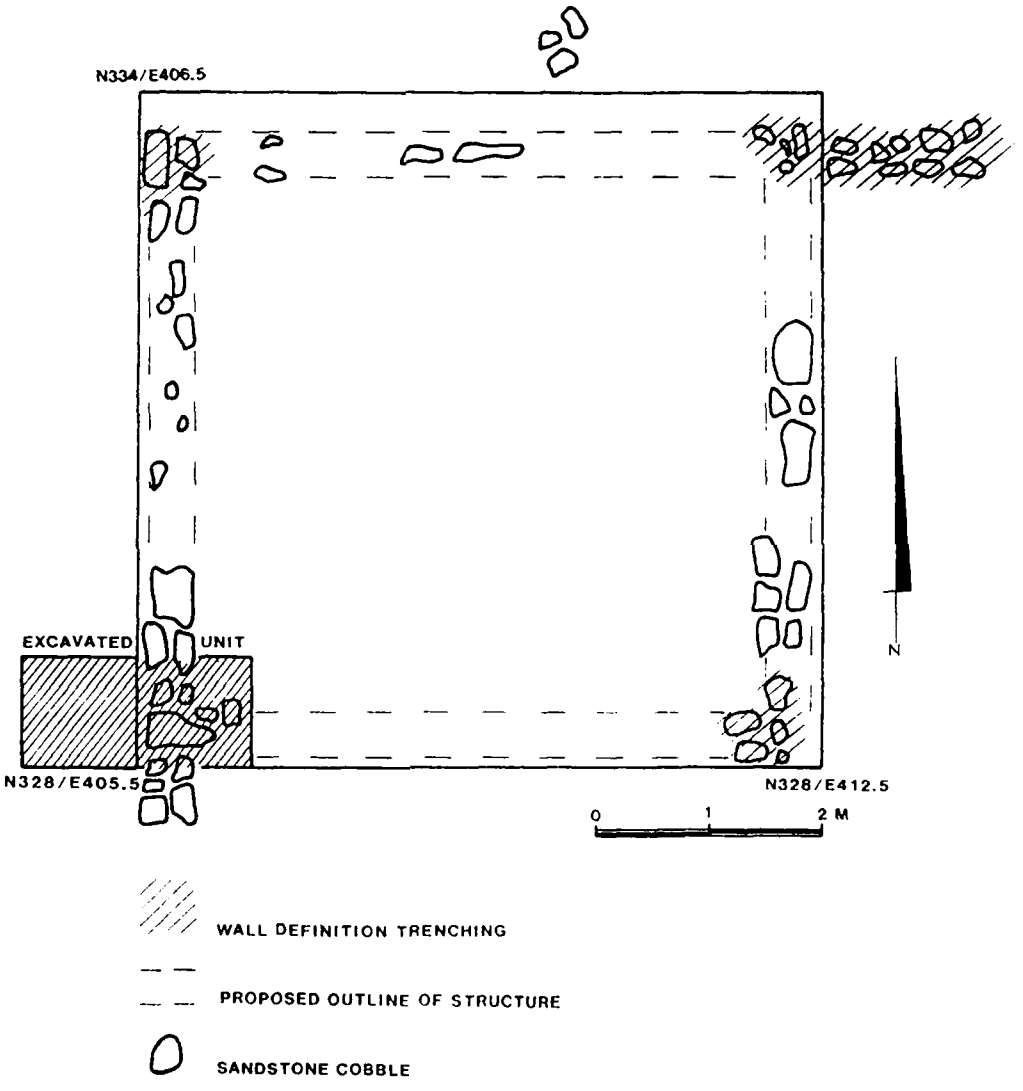
Feature 13 is a contiguous stone alignment (Figure 4.6) with only shallow depressions associated. All four wall corners were defined by shovel trenching, which showed that corner stones were not present. Massive foundation stones occur in the southwest corner and along the wall. Elements are horizontal slabs, roughly shaped blocks, and irregular, smaller rubble. Foundation stones are exposed by a test pit in the southwest corner, which showed chinking stones placed under massive slabs, perhaps to level them. Dimensions are approximately 6 x 6 m. Disturbance is apparently limited to sagebrush. Grasses occur in most of the interior. Artifact density is low and confined to glass. Associated features are Feature 12 and Feature 14, the latter to the east/southeast. Contiguity and size of foundation suggests a habitation.

4.1.2.5 Feature 14

Feature 14 is a marginally defined stone concentration. Portions of an east-west wall and north-south wall appear to be contiguous; however, the feature resembles a somewhat dispersed stone concentration in the center, with some outlying stones to the southeast. The marginality of alignments prevents identification of an entrance. Building materials are roughly shaped sandstone blocks and more irregular rubble of a smaller size. One brick occurs at the south end. There is no evidence of mortar.

Dimensions are 6-7 m east-west by 5-6 m north-south. Disturbance appears limited to sagebrush roots although bleached large mammal bones occur at surface. Blue grama and bunch grass are present at the west end. Light artifact density includes purple, amber, and aqua bottle glass; particularly at the east end of the feature, window glass; a ginger beer bottle fragment; and metal, the latter at the west end of the feature. Associated features are Feature 13 to the northwest, Feature 12 to the north, and Feature 11 to the east. Feature 14 appears to represent a habitation or outbuilding, based on its limited size and the ephemeral nature of the architecture.

Figure 4.6 Plan View of Surface Feature 13, Old Las Animas Evaluation Program, ACOE, 1987.



4.1.2.6 Feature 15

Feature 15 is a partially intact contiguous stone alignment in the midst of backhoe disturbance south of the Santa Fe Railroad fence. The feature is composed of sandstone blocks and slabs, and smaller, more irregular rubble. Ten percent or so of the stones are a discolored rust to black color. There is no evidence of mortar. A relatively high proportion of the visible stones is massive in size, similar to those at the base of Feature 11 and in Feature 3. Disturbance is heavy and was caused by a backhoe. Apparently, parts of the south and east wall alignments remain, as well as a possible east-west cross wall; however, sandstone rubble piles on disturbed mounds and at the base of the mounds were probably aligned by the backhoe. High artifact density has probably been artificially raised by subsurface disturbance. Artifacts include one basalt flake, coal chunks, window glass, aqua and amber bottle glass, brown lead glazed crockery (with an unglazed, striated interior), and metal hoops. There is a high density of window glass. The depression at the north end of Feature 15 appears to be machine disturbed, judging by the dense vine mesquite and sunflower cover. An area to the east of the alignment is covered with sagebrush and bunch grass and appears undisturbed. The eastward extension of the alignment suggests a building addition in this area. A feature to the northwest of Feature 15 is disturbed and could not be recorded. The remaining curved alignment to the north-northwest of Feature 15 is probably disturbed, judging by its unusual curve, mounded backdirt to the north, and sunflower vegetation. The area west of Feature 15 has open sagebrush cover and may be intact. The area to the south has narrowleaf bush muhly, yucca and cover and mounding, suggesting intense disturbance. Contiguity and size of the foundation stones and alignment with the south ends of Feature 4 and Feature 1 suggest this building was originally a commercial establishment along the same east-west trending road.

4.1.3 Area B

Area B is composed of many marginally defined stone alignments (Figure 4.7). This area is the location of Bridge Avenue as it approaches the bridge.

4.1.3.1 Feature 17

Feature 17 is a marginally defined spaced stone alignment. Elements are small to medium size sandstone blocks, with smaller chinking stone size rubble. No mortar is present. Only scattered foundation stones appear to remain, except at the north end of the structure, where building rubble is concentrated. Several pieces of rubble are pitted in appearance and colored rusty orange, suggesting they were quarried from the local sandstone outcrop ("bedrock" on Figure 4.7). Dimensions are probably 9 x 12 m. Disturbance is light, consisting of a beer can deposited in the soil at the east end of the feature. A two track road runs east-west 4 m north of the feature, and the river is only 30-40 m to the northeast. Vegetation is open bush muhly and rabbitbrush, with no sagebrush. Apparent gopher disturbance is represented by low denuded mounds. Vegetation is similar for most of the west end of Area B near the sandstone rubble mounds. Concentrations of sagebrush occur to the southeast and east. Occasional narrowleaf yucca is present. Artifact density is light, confined to hole-in-top tin cans, one a lard bucket, and a basalt flake. No glass was observed.

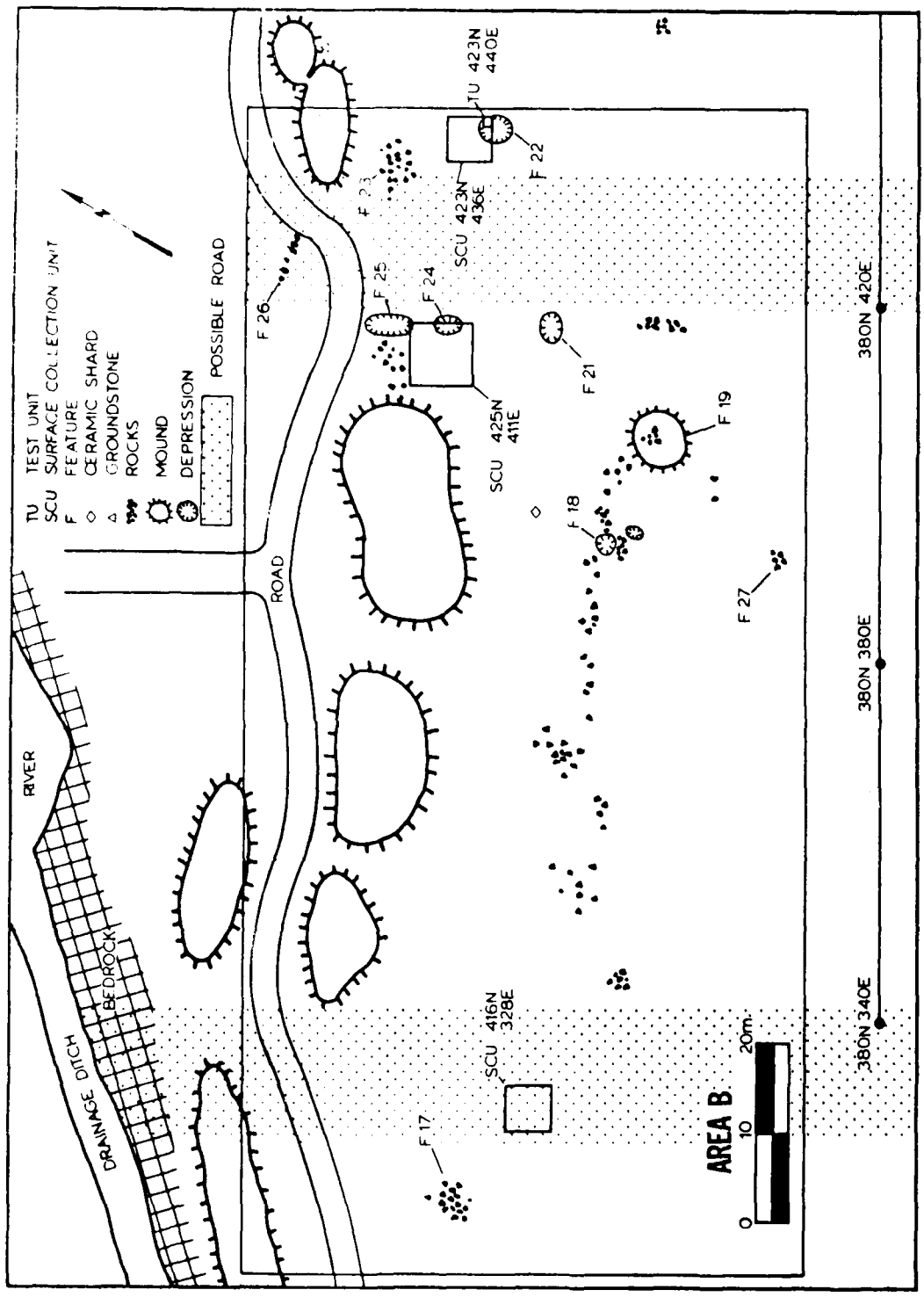


Figure 4.7 Architectural Area B, Old Las Animas Evaluation Program, ACOE, 1987.

4.1.3.2 Feature 18

Feature 18 is an oval depression with scattered stones around the rim and a smaller depression to the south. No stones show evidence of mortar. Only the apparent pier stones for a superstructure remain. Elements are roughly shaped sandstone (not pitted as above), shaped into rough blocks of small-large size and assorted smaller, irregular rubble. Rubble is concentrated in the northwest corner. Some pieces of brick red sandstone occur. Estimated dimensions are 8 x 5 m including the small depression in the southwest corner. Light disturbance consists of gopher mounds and some sagebrush roots. The feature is covered with scattered sagebrush, and blue grama, with rabbitbrush to the east and bunch grass southwest of a small depression. Moderate artifact density includes hole-in-top tin cans; metal; undecorated white ironware ceramic; window glass; coal; and purple, aqua, and amber bottle glass. Associated features are the rubble mound to the north and Feature 19 to the south. Function is probably a dugout or cellar of a habitation.

4.1.3.3 Feature 19

Feature 19 is a marginal rectilinear spaced stone alignment on a slightly mounded (10-12 cm high) area. Building elements are roughly shaped sandstone blocks of medium and large size, with smaller, chinking stone size pieces of rubble. Building rubble is concentrated at the north end of the feature. Four of the stones are pitted and of the rusty orange color typical of the nearby outcrop at river's edge. None of the stones show evidence of mortar. Dimensions are approximately 14 m north-south by 10 m east-west, judging by presence of stones and mounding, which is particularly marked along the north and east walls. Moderate disturbance includes a small section of wire fence with planks, gopher mounds, and sagebrush roots. A small depression 40 cm in diameter is present at the south end (exterior?) of the feature. Moderate artifact density includes a hole-in-top tin can on the feature's west side, window glass, amber and aqua bottle glass, charcoal, and a large mammal long bone. A large metal hoop occurs 4 m east of the feature. Associated features are Feature 18 to the northwest and a rubble concentration 8 m east. The feature could be a habitation or store. An associated feature to the east consists of a 3 x 4 m rubble concentration on an area of slight mounding. Small size and proximity to Features 19 and 21 suggest an outbuilding function.

4.1.3.4 Feature 21

Feature 21 is an ovate/rectilinear depression with a few scattered stones around the rim. All that remains of the original building is the depression and remains of the foundation pier stones. Elements are four small to medium size roughly shaped sandstone blocks and smaller chinking stones. Blocks may derive from the nearby outcrop. No mortar is evident. Disturbance appears limited to sagebrush roots and grazing. Moderate artifact density includes small metal pieces, a cow tooth, charcoal, aqua and olive bottle glass, window glass, a tin lard bucket, a basalt flake, a hole-in-top can, and a leather belt or strap piece. Dimensions are approximately 8 m east-west by 6 m north-south. Associated features are the tiny rubble mound 5 m to the west, which may represent an outbuilding. This structure probably is a dugout habitation. The depression is approximately 25 cm deep at the deepest point.

4.1.3.5 Feature 27

Feature 27 is a small shallow depression (less than 30 cm diameter), with rubble scattered around the rim and beyond. Building stones are small to medium size roughly shaped blocks with smaller river pebbles. One of the blocks is a deep brick red. The scatter of stones is similar to other marginally defined features in the area, which consist of a concentration of stones at the north end. This feature would be classified as one of these spaced stone structures if any stones were evident to the south or if the depression were bigger. One medium size block does occur approximately 16 m south of the northeast corner of the feature, but no stones are visible in association with it. Blocks do not evidence mortar. Dimensions are 1 x 2 m. Disturbance includes gopher mounds. Light artifact density includes amber glass, a hole-in-top meat tin can 6 m to the south, and an undecorated white ironware cup fragment. Associated features are Feature 18 and Feature 19 to the north and northeast and a circular bunch grass area 12 m to the south. The feature appears to be on the backyard and side of a town block. Vegetation is grama, straight tumbleweed, and scattered sagebrush. Four meters east is one pier stone and a hole-in-top tin can.

4.1.3.6 Feature 24

Feature 24 is a spaced stone alignment or depression. The northwest and northeast corners are defined, producing dimensions of 8 m east-west by 6 m north-south (few stones are present in the south, so the feature is difficult to define). Building stones are small to medium roughly shaped sandstone blocks with no evidence of mortar. The depression is approximately 1x2 m with its long axis north-south. The area does not appear disturbed. Snakeweed, grama, and sagebrush occur on the feature. Refer to later sections for results of the 7x7 m surface collection. High artifact density to the east and west of the feature includes undecorated white ironware ceramics; the base of a ginger beer bottle; charcoal; amber, purple, and aqua glass; a hole-in-top tin can; and two sardine cans (one opened by a circular cut). A stone concentration 5 m west contains three tin cans, including one meat can. Feature 25 is adjacent to the north. Function of this feature was probably a habitation.

4.1.3.7 Feature 25

Feature 25 is immediately north of Feature 24 and consists of a 1.5 m diameter depression with building stones around the rim and scattered outside. Building stones range from medium to large size; none feature any mortar. Light disturbance consists of gopher mounds and a two track 3 m north of the feature. Moderate artifact density (south end of the feature was collected and is discussed later in this chapter) includes undecorated white ironware ceramic; a hole-in-top tin can ; and aqua, olive, and amber glass. Vegetation is blue grama grass, and rabbitbrush in the depression. Associated features are a rubble concentration 3m to the west (noted above) and a spaced stone structure 3 m to the east. The latter is approximately 4 m east-west by 5m north-south. Function of Feature 25 is as an outbuilding or cellar for the larger Feature 24, and similar to other outbuildings on either side.

4.1.3.8 Feature 23

Feature 23 is a fairly well defined spaced stone alignment with no depression located on approximately 5m south of the two track road leading to the river bank sandstone outcrop. Sandstone block construction consists of roughly shaped small and medium size blocks and smaller chinking size, more irregular stones. Numerous river pebbles are present. This area may have been flooded by the river, only 40m or so away at present. The alignment is best defined in the north, with its northeast corner and parts of the west wall well defined, while the south wall is not clear, making north-south dimensions uncertain. Numerous pieces of basalt are present on the feature, but no flakes. No evidence of mortar is present. Sandstone blocks probably came from the nearby outcrop. East-west dimensions are 5-6 m, north-south dimensions are 4 m, based on the best definition of the east wall. However, another stone occurs in alignment with the east wall 3 m farther south. Disturbance includes gopher mounds and an ant bed to the west. Moderate artifact density includes metal straps; purple and aqua bottle glass; window glass; and undecorated ironware ceramic. Vegetation includes bush muhly and blue grama grass as in the Feature 25 depression. Associated features are Feature 26 just north of the road, 15 m north of this feature, and Feature 22, approximately 18 m to the southeast. Small mounds occur 3 m northeast of the feature. Five meters west of the feature is a hole-in-top can. Seven meters to the northwest and cut by the two track is a small stone alignment with an undecorated whiteware ceramic bowl fragment and a small lard bucket. Function is probably a habitation, based on window glass presence.

4.1.3.9 Feature 22

Feature 22 was tested by a 1 x 1 m pit. The feature consists of a depression with scattered and very few building stones around the rim. The depression and trash scatter define the feature. No evidence of an entrance is evident. The few rubble stones are small and medium size sandstone blocks, roughly shaped. There is no evidence of mortar. Dimensions are roughly 3-4 m in diameter with the depression fairly shallow. Light insignificant disturbance consists of sagebrush roots. Vegetation includes numerous sagebrushes, Russian thistle, and bush muhly. Moderate artifact density includes amber, aqua, and olive bottle glass; a tin can top; lard bucket; leather belt; hole-in-top (small) can; a chert flake; clear bottle glass; charcoal; and zinc scraps pressed flat as if for roof or siding. Zinc is similar to that observed east of Feature 7. Just northeast of the depression is a fairly heavy concentration of sagebrush, which continues northeast to Feature 28. Associated features are Feature 23 to the northwest, Feature 20 to the southeast, and Feature 28 to the northeast. Function is probably a cellar or dugout for habitation. Further artifact information is available in summaries of surface and subsurface artifacts later in this chapter (Section 4.3).

4.1.3.10 Feature 26

Feature 26 is located just north of the two-track road. It consists of spaced stone alignments and a sandstone quarry. An outcrop occurs at the lower end of the slope from the road to the river; erosion below the outcrop has formed a 25-100 cm high bank where tamarisk and willow grow. Approximately 3 m north of the road are three massive sandstone blocks,

aligned and oriented southeast to northwest. Additional alignments occur on the feature, mostly trending north-south, but these are not well defined. Five meters east of the central massive block is a north-south alignment, intermittently running approximately 4-5 m. Seven meters to the northeast of the central block is a ten to twenty year old twelve gauge shotgun shell. One meter to the west of the northernmost block is a small depression with medium sized rubble occurring at the rim; the latter feature is similar to privies defined elsewhere on the site. In the depression is a basalt flake fragment. Another basalt flake occurs farther downslope. Few other artifacts were seen; these include tin can fragments and a modern sanitary tin can top, as well as a piece of clear glass on the eastern part of the feature. No evidence of mortar was found. Moderate disturbance consists of the modern artifacts and sagebrush roots, as well as slopewash down the approximately fifteen percent slope. Vegetation includes grama grass over much of the feature, prickly pear, sagebrush, narrowleaf yucca, rabbitbrush. Function may relate to quarrying activities such as roughing out sandstone blocks. Gopher holes and gopher mounds occur on the feature. The river is less than 10 m northeast of the feature. The feature area is covered with river pebbles and gravels probably indicating some flooding.

4.1.4 Area C

Area C contains depressions, contiguous stone alignments, and marginally defined stone alignments (Figure 4.8). This area appears to have contained habitations.

4.1.4.1 Feature 20

Feature 20 consists of primarily noncontiguous stone alignments and a depression. A 1 x 1 m test pit was placed in the feature. A short segment of the north and east walls is contiguous; the remainder consists of spaced stones. Building elements consist of medium to large sandstone blocks, roughly shaped, and a scattering of smaller elements. Orangish red brick occurs in the north area of the main room, scattered through the depression, and in the test pit. Some pebbles occur on the surface, but the surface is not littered with them as on Feature 26. The main room of the feature (the room containing the depression) measures 4 x 4 m. South of this is an addition, represented by scattered spaced stone alignments measuring 5 m east-west by 4 m north-south. North of the main room is another addition of spaced stone alignments, 5 m east-west by 4 m north-south. Additional rooms 1 m-2 m to the north and northeast of the north room are represented by small scatters and trash mounds covered with coal debris. Most stones appear dry laid. A small chunk of mortar occurred next to the best defined alignment on the north wall of the main room. Sandstone blocks are small to medium size with several massive blocks. Most are elongated blocks. Disturbance includes sagebrush, which is dense over the feature area, gopher mounds, and gopher or snake holes. Moderate disturbance is represented primarily by vegetation. Vegetation includes narrowleaf yucca, bunch grass, bush muhly, and rabbitbrush. Approximately 7 m southeast of the main room is a large mound with matted vegetation.

Artifact density is high, particularly in the north and northeast portions of the feature. The 5 x 5 m surface collection unit is discussed later (Section 4.3). Artifacts are large barrel hoops; purple slate (may

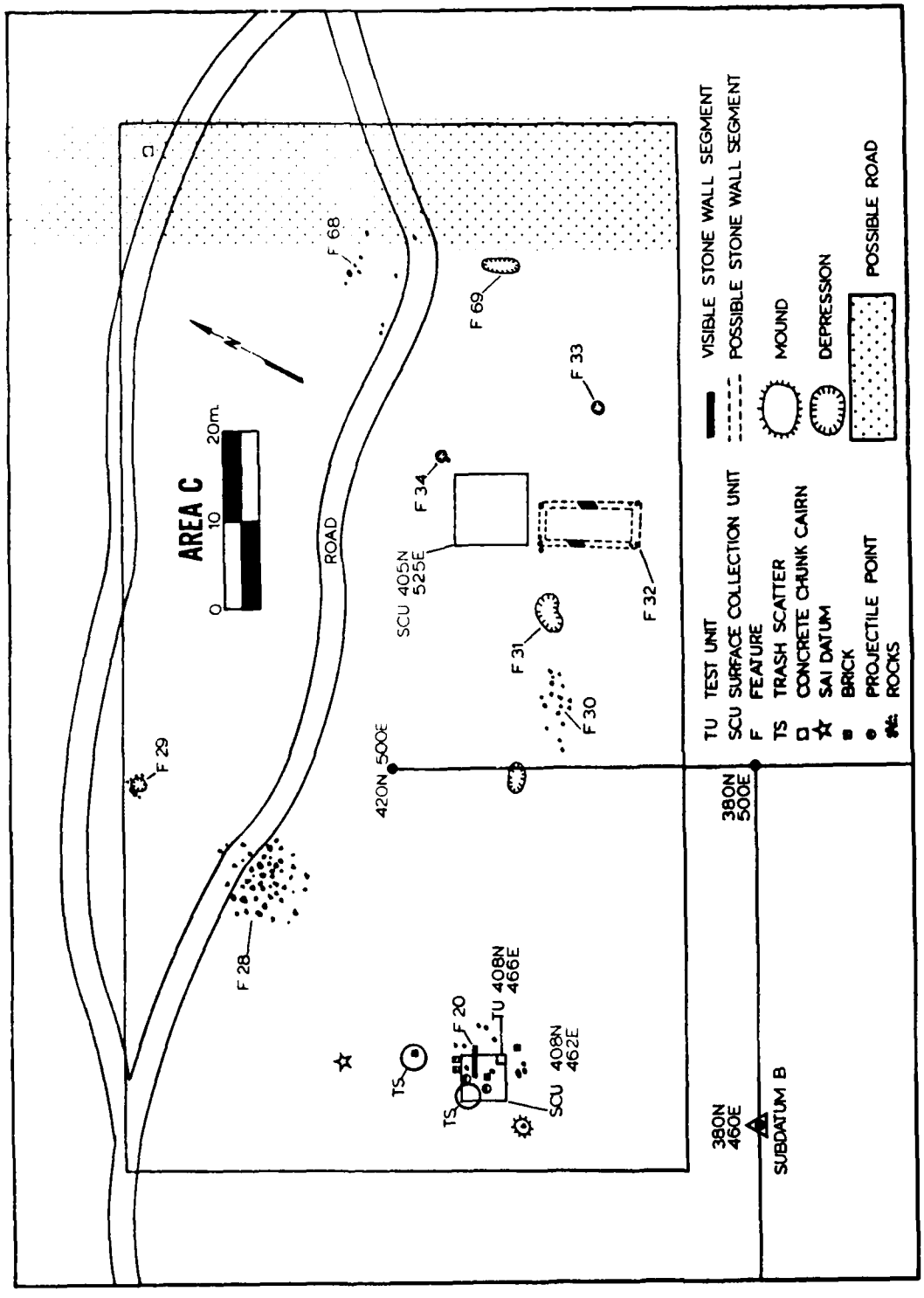


Figure 4.8 Architectural Area C, Old Las Animas Evaluation Program, ACOE, 1987.

represent roofing material); coal; undecorated ironware ceramic; bleached large mammal bone; purple, amber, and aqua glass; a sardine can and window glass. Associated features are Feature 22 to the northwest and Feature 28 to the northeast. Eleven meters southwest of the main room depression is a small rubble scatter of small to medium size and just north of the scatter is a kerosene can with press fit top. The area between Feature 20 and Feature 22 is marked by fairly open vegetation, including grama grass, sagebrush (dense near Feature 20), some yucca and rabbitbrush in the north area of the feature. To the south, Russian thistle occurs (Figure 5.2).

4.1.4.2 Feature 28

Feature 28 is a very marginally defined spaced stone alignment. Just east of the scattered stone area is a possible bulldozer cut, evidenced by a rock pile at its west end pushed from the two-track road which cuts this feature at the north end. The road appears to have provided access for some kind of heavy machinery. The bulldozer cut area has different vegetation from the rubble scatter, containing blue grama, Russian thistle, a small tree, and more open vegetation. The stone scatter contains bush muhly and scattered sagebrush. Still farther east, beyond the "bulldozer cut", is a stone scatter approximately 2 m east-west by 2-3 m north-south. This could represent a small outbuilding of some sort. Alignments in the "bulldozer cut" are more similar to previously defined features in Area B than is the stone scatter to the west. This may indicate that the area has not been bulldozed. The "cut" area measures 4 m east-west by 5 m north-south. Directly north of the bulldozer area is more mounding and a jumble of rocks and river pebbles similar to the stone scatter. The scatter itself could be a quarry or sandstone shaping area, based on the density of rubble. Blocks are roughly shaped sandstone of small and medium size, with no large blocks evident. No mortar is apparent. The entire area including the bulldozer cut is slightly mounded. Dimensions of the entire feature are approximately 13 m east-west by 17m north-south. Disturbance includes the two track, which cuts into the north edge of the feature, and the potential bulldozer cut on the east side of the feature, as well as sagebrush roots and river flooding, the latter indicated by numerous pebbles and gravels on the feature surface. Rodent or snake holes are present near the northwest corner. A recently broken green glass bottle also reflects disturbance.

Artifacts include purple glass, coal, a jackrabbit ulna (bleached), and tin cans including one milk size with no top or bottom; a barrel hoop was located just west of the feature. Aqua glass and bleached large mammal bone, charcoal, and amber glass are also present. Artifact density is quite low considering the size of the feature and the density of rubble. Associated are Feature 29 to the north and Feature 20 to the southwest. Function is apparently dissimilar from marginally defined features elsewhere on the site. A potential habitation to the east of the quarry/work area was possibly destroyed by the machine disturbance.

4.1.4.3 Feature 29

Feature 29 is a marginally defined spaced stone alignment. It apparently comprises two rooms, with a cross wall between them. The east room has a slight depression on the west side. Dimensions are 1 m north-south by 2 m east-west, with a depression in the center. The ground is covered with river

gravels and pebbles, probably from river floods over the last century. Artifact density is light. Artifacts include amber glass and a basalt flake. Building stones are primarily small to medium, with one large stone. No evidence of mortar is apparent. Disturbance appears light and includes gopher mounding outside the feature. Vegetation consists of sagebrush on the western end, vine mesquite, and grama grass near the cross wall. Ground cover is somewhat obscured by grass vegetation and only two artifacts were seen. Function is probably an outbuilding based on the small size. Associated is Feature 28 to the southwest, approximately 9 m distant.

4.1.4.4 Feature 30

Feature 30 is a marginally defined spaced stone structure approximately 3-4 m east-west by 10-12 m north-south. Poor definition and dense sagebrush cover make dimensions difficult to state. The north wall is well defined as is the central portion. A massive stone occurs on the west and the east-west alignment is fairly well defined, but the south wall is poorly defined. Rocks are scattered outward from these apparent dimensions on all sides. Function may be one habitation with associated outbuildings or a cluster of outbuildings. Building stones are small to medium sandstone blocks, with one massive block in the center of the feature. No evidence of mortar is present. An east-west trending crosswall is slightly mounded. The center of the feature is fairly well mounded. The depression is oriented east-west paralleling the wall adjacent to the south. Stones occur in the depression. A small depression is 2 m northeast of the east wall corner. Disturbance includes gopher mounds and sagebrush roots. Sagebrush cover is mostly confined to the northern half of the feature; in the southern half is blue grama grass. Ground cover is fairly dense, and artifacts are not easily visible. Purple and amber glass, an undecorated ironware ceramic bowl fragment, burned bone, and olive bottle glass are present. Associated 8 m to the west is a small marginally defined spaced stone alignment, possibly an outbuilding. To the north is a fairly dense cover of unknown composites extending to the tamarisk near the river bank. To the east is Feature 31. Function is based on the feature's small size, paucity of artifacts, and absence of good alignments. Also present is brown lead glaze crockery and a ginger beer bottle fragment.

4.1.4.5 Feature 31

Feature 31 is a marginally defined spaced stone alignment with best defined alignments in the northern part of the feature, mounding in the center, and little wall definition in the south. Dimensions are apparently 7 m north-south by 6 m east-west. Building materials are small to medium size sandstone, roughly shaped. There is no evidence of mortar. The ground surface is obscured by sagebrush. Moderate artifact density includes purple and window glass, brown lead glaze crockery, undecorated white ironware ceramic, and chunks of coal. Disturbance is light, limited to sagebrush roots and gopher mounding. Central mounding is offset by a slight depression at the north end of the feature, south of the north wall. Associated features are Feature 30 to the west and Feature 32 to the east. Function is probably a habitation, based on the structure's size and the amount of crockery and ceramics.

4.1.4.6 Feature 32

Feature 32 is a contiguous stone alignment, with east, north and west walls having intermittent contiguous alignments. This feature is consistent with the pattern in Area B and C of the north wall being better defined than other walls. Building materials are small to large, including two massive blocks. No evidence of mortar was found. Slight mounding in the center of feature contains rubble, possibly indicating an east-west cross wall, but this is not well defined. Dimensions are probably 9-10 m north-south by approximately 6 m east-west. These are tenuous, however. Light disturbance is confined to gopher mounds and sagebrush roots. Gopher mounds are common in this area, based on mounding and loose soil. Vegetation includes sagebrush, vine mesquite, and bunch grass, the latter in the depression along the east wall alignment and along the south wall. A trash area is located to the northeast. Moderate artifact density in the northern portion includes undecorated white ironware ceramics; much window glass; portions of tin cans; part of a metal lug for a basin; two buttons; one of them a milk glass; four hole button, and one with a loop stud on the back of a spherical dark aqua body. Associated features are Feature 31 to the west and Feature 33 approximately 10 m to the east. Features 30-32 are all in east-west alignment. The feature's function could be a habitation (fairly large for this site area) or a commercial establishment, possibly a store.

4.1.4.7 Feature 33

Feature 33 is a small depression, approximately 1 m in diameter, perhaps 30 cm deep, with some blocks at the rim and scattered outward. Artifacts are high density and include olive and amber bottle glass, tin can fragments, metal, undecorated white ironware ceramics, charcoal, coal, and bleached large mammal bone. This feature is just east of Feature 32. No features are apparent to the east. Feature 34 is to the northwest. Function could be a well, privy, or trash hole like Feature 7, which it resembles; Feature 33, however, has a higher artifact density. Feature 33 could be a pothole, based on a denuded area at the southeast rim, but this does not appear recent.

4.1.4.8 Feature 34

Feature 34 is defined by its northwest corner of three sandstone blocks of small to medium size and chinking stones. The depression east-southeast of stones may indicate a pit. The area south of the depression is covered by bunch grass. Sagebrush occurs in the depression. Bunch grass also occurs at the northeast corner and blue grama at the south end. A 4 x 4 m area approximately defines the area of vegetation change. Disturbance consists of sagebrush roots and gopher mounding. As with other features in Area C and the east end of Area B, the ground is covered with small pebbles from previous flooding. Moderate artifact density includes amber, aqua, and window glass; bleached large mammal long bone; undecorated white ironware ceramics; and a charcoal scatter west of the feature in a slight mounded area, also associated with Feature 33. Many coal pieces occur at the northwest corner near wall alignments. Associated features are Feature 33 to the south and Feature 32 to the west. Its small size suggests the feature was not a habitation.

4.1.4.9 Feature 69

Feature 69 is located approximately 8 m south of the two-track road. It consists of a very marginally defined spaced stone structure with a possible northeast corner represented by three pieces of building rubble. A single stone may be part of the northwest corner. East-west dimensions are 5-6 m; lack of stone prevents north-south definition. Building stone is small to medium size pieces of roughly shaped sandstone; only four to five pieces are present. No mortar is visible. The feature area is covered with pebbles and gravels. Moderate disturbance is represented by fairly extensive gopher mounds, particularly in the northern portion. Vegetation is sagebrush, with bunch grass at the northeast corner, rabbitbrush, blue grama, and bush muhly. Approximately 1 m inside the northeast corner is a slight depression, possibly representing a cellar pit. Light artifact density includes a chert flake, window glass, tin can, burned bone, metal pieces, undecorated white ironware ceramic cup, and a bleached large mammal rib or long bone fragment. Associated features are Feature 34 to the west, Feature 33 to the southwest, and Feature 68 to the north. The feature could have been a habitation, represented mostly by the dugout depression.

4.1.4.10 Feature 68

Feature 68 is a large, deep depression with sandstone blocks scattered around the rim forming a linear alignment to the east and south. The south wall is best defined, contrary to Area B structures. Sandstone elements are small to large, with more large blocks than in Areas B and C. The southeast corner is a cluster of six stones, two of them massive. The depression is probably 40 cm deep and unusually wide. Small pebbles and gravels and some river cobbles occur on the feature surface. A possible ground stone occurs at the south end of the feature. Moderate disturbance includes a large tamarisk tree in the depression. Vegetation is scattered sagebrush at the rim, prickly pear, bunch grass on the east, north, and southeast, and bush muhly at the rim. Low artifact density includes a tin can piece. No other artifacts were visible under the fairly dense vegetation. Associated are Feature 69 and a post marker/cairn approximately 12 m northeast of the feature; the cairn is made of homemade concrete blocks with river pebble inclusions and some blocks formed in molds, based on their flat surface.

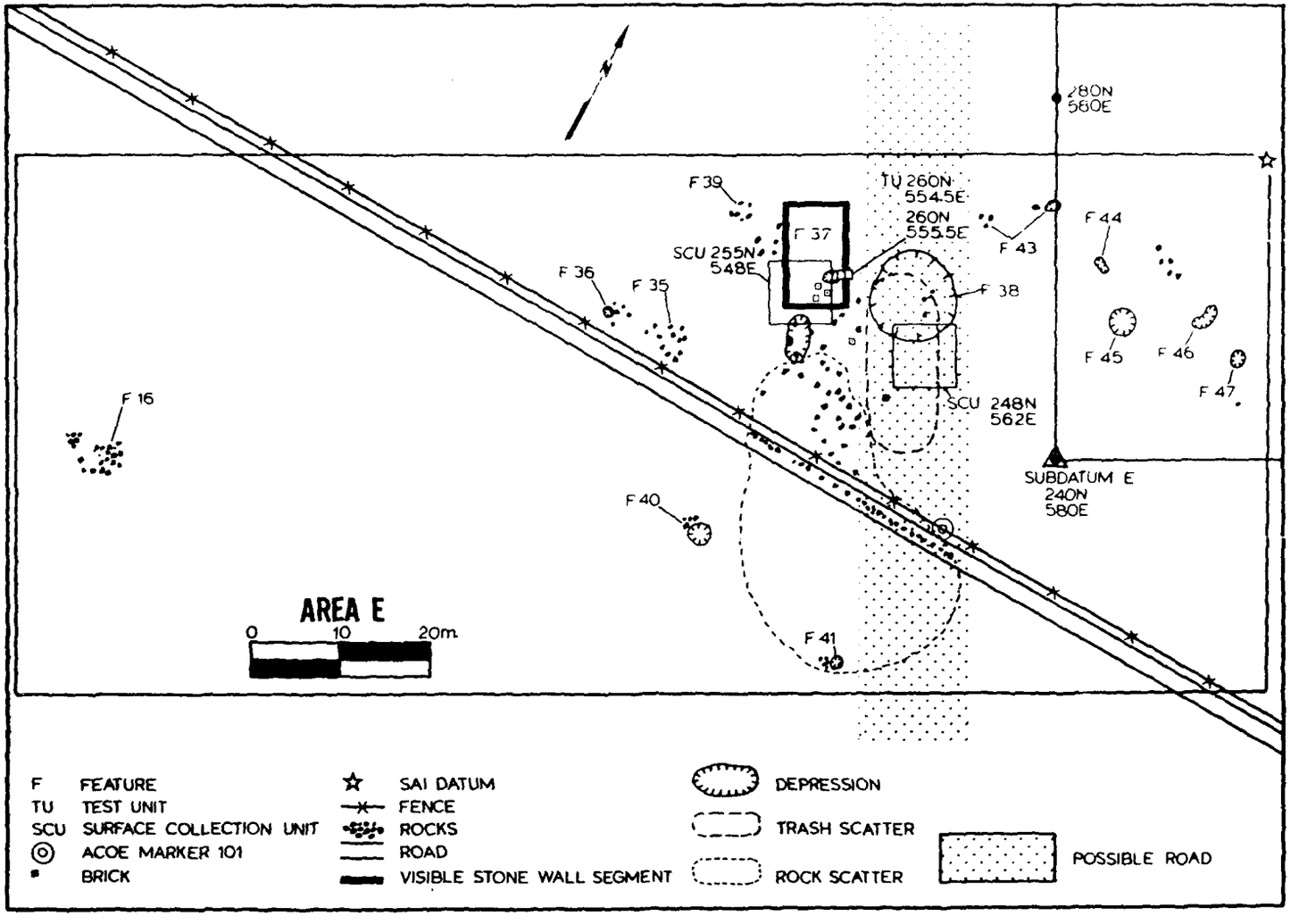
4.1.5 Area E

Area E is located primarily north of the Santa Fe Railroad fence (Figure 4.9). Features include a contiguous stone alignment, several small depressions, and a large trash/rubble scatter.

4.1.5.1 Feature 35

Feature 35 consists of a marginally defined spaced stone structure measuring approximately 6 m east-west by 4 m north-south. Elements are small and medium size sandstone blocks, roughly shaped; there is no evidence of chinking stone size pieces or mortar. Only seven stones are presently visible, outlining the structure. There is no apparent depression. Moderate artifact density includes amber glass, two hole-in-top tin cans, aqua glass, window glass, undecorated white ironware, purple glass, and metal scraps. Two meters to the north is an east-west trending alignment of spaced stones in an

Figure 4.9 Architectural Area E, Old Las Animas Evaluation Program, ACOE, 1987.



area that is more cleared of vegetation, covered with bush muhly and rabbitbrush. Construction material on the north area also consists of small and medium size sandstone blocks. Artifact types are the same as above but artifact density is moderate to high. Disturbance is light, consisting of sagebrush roots. Associated features are Feature 35 and Feature 36 to the west. Function of the two alignments is probably a habitation.

4.1.5.2 Feature 36

Feature 36 consists of another marginally defined spaced stone alignment. It apparently consists of two separate buildings or rooms. The feature in the open vegetation to the west measures 6 m north-south by approximately 5 m east-west, although these dimension are tenuous and based on only a few scattered stones. A little more than 1 m south of this first northwest feature is another spaced stone alignment, which measures approximately 2 m east-west by 1 m north-south. This second feature is predominantly located in open terrain, in a mounded area with five scattered sandstone blocks. The feature is located just north of the fence, and trash located south of the fence may relate either to this feature or to bulldozer disturbance. Blocks are medium and large size sandstone, with some smaller blocks and chinking stone size pieces. No evidence of mortar was found. Disturbance appears light and is represented by sagebrush roots and fence construction activity. Artifact density is moderate or high if one includes the area south of the fence which has other artifacts. Artifacts include window glass, brown lead glaze crockery, tin cans, metal pieces, metal hoops, bleached large mammal foot bones, and amber, olive, clear, and aqua glass. Vegetation to the south consists of dense sagebrush, bush muhly, bunch grass, and occasional rabbitbrush. Associated features are Feature 35 to the east and other features south of the fence, not definable because of bulldozer disturbance. The feature was probably a habitation consisting of two separate buildings or an addition to one structure. Feature 36 is located just south of Carson Avenue, defining the northern extent of Area E.

4.1.5.3 Feature 39

Feature 39 is located several meters west of Feature 37 and consists of a spaced stone alignment and fairly dense trash scatter. To the northwest of Feature 37 is a possible storage room measuring 3 x 3 m. One meter south of that is another poorly defined spaced stone alignment, with a possible north wall measuring 3 m east-west. Brick lies 4 m west of the center west wall of Feature 37. Other stone alignments are northwest of the northwest corner of Feature 37. Disturbance appears to be light, with no gopher mounds. Pebbles and gravels from possible river flooding are scattered over the feature's surface. Vegetation consists of sagebrush, bush muhly, bunch grass, and rabbitbrush, but vegetation is fairly open and sagebrush is not dense. Moderate artifact density includes aqua, amber, purple, and window glass; tin can fragments; and metal pieces. In the southern part of the feature, approximately 8 m from the southwest corner of Feature 37 is more trash including undecorated white ironware and yellow lead glaze crockery with unglazed interior. This trash scatter probably relates to the eastern part of Feature 35. Associated are Feature 35 and Feature 37. Function is probably an outbuilding related to Feature 37.

4.1.5.4 Feature 37

Feature 37 is the only contiguous stone alignment in Area E (Figure 4.10). For surface and subsurface artifacts, refer to the discussion in Section 4.3. Building stone elements are predominantly large, medium, and small sandstone blocks, roughly shaped, with smaller pieces of chinking stone size. A possible entrance is located on the south wall, near the southeast corner, approximately 1-2 m west of southeast corner. The entrance is marked by a passageway extension to the south of this feature. Bricks are present; these are a grayish red color, not the bright red color in Feature 20. Evidence of mortar was a piece of chalky white matrix with gravel inclusions. Disturbance appears limited to a possible pothole near the east wall, partially excavated by the test pit, gopher mounding, and sagebrush roots throughout the feature. Moderate artifact density includes window glass, metal spikes, modern twelve gauge shotgun shells in the entrance, amber glass, undecorated white ironware sherds, bleached large mammal bone fragments, modern green glass, and a large coal chunk. Associated are Feature 39 to the west, Feature 35 to the east-southeast, and a rubble scatter to the south. Probable function is a large habitation or store, based on the size of the structure, outbuildings, and stability of the foundation.

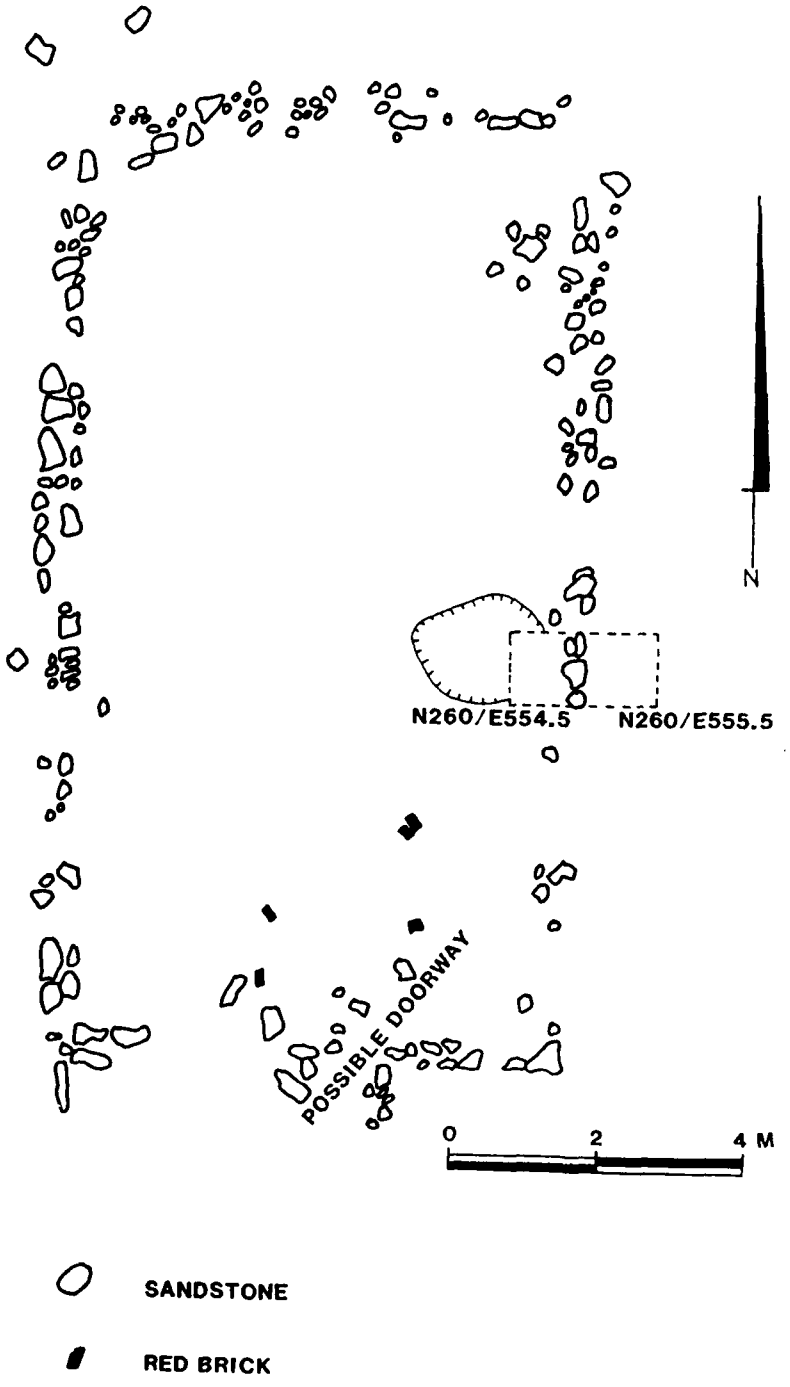
South of Feature 37 is a fairly extensive stone scatter and moderate to high artifact densities. There are definable alignments in these rocks, but their extensiveness is such that it is difficult to distinguish separate features. Elements range from small to large roughly shaped sandstone blocks, with no evidence of mortar. These appear to be spaced stone alignments. The scatter extends approximately 4 m south of the fence into an area of bladed and mounded disturbance. Vegetation is fairly dense sagebrush, with some bunch grass. This area is somewhat clear of vegetation, especially south of the fence where disturbance is greatest. Disturbance includes the backhoe cut and sagebrush roots. Moderate artifact density includes coal; purple, amber, and aqua glass; tin cans; metal scraps; window glass; and porcelain (J & G partial maker's mark). Function probably concerns outbuildings associated with Feature 37. Associated are Feature 35 and Feature 39.

Backhoe disturbance south of the fence has produced a linear berm paralleling the fence with small to massive building stones occurring in an apparent alignment which is purely disturbance related.

4.1.5.5 Feature 16

Feature 16 is located south of the Santa Fe Railroad fence and consists of a spaced stone structure with possibly contiguous elements included in the foundation. Stone and artifact densities are fairly high. On the west side of the feature there is a cluster of stones atop the surface which could relate to this disturbance or to the original dismantling of the feature. Sandstone elements include small, medium, and large blocks, roughly shaped, showing no evidence of mortar. There are smaller chinking stone size pieces. The ground is littered with pebbles and gravels. There are at least two definable corners with contiguous stones, one in the southeast and one in the northeast. Disturbance includes backhoe activity in the cleared area. Other cleared areas are to the west, and south to the tracks. Vegetation consists of sagebrush, blue grama, and tumbleweed. Gopher mounds are present in the vicinity but not on the feature surface. Moderate artifact density includes

Figure 4.10 Plan View of Feature 37, Old Las Animas Evaluation Program, ACOE, 1987.



purple, amber, and aqua glass; window glass; olive glass; undecorated white ironware; brown lead glaze stoneware crockery; bleached bone; a leather belt; a large spike; nails; a tin can; metal scraps; metal hoops; and corrugated zinc. East of the feature is a small lard bucket. The backhoe track runs north-south and is mounded on either side. Feature 16 is fairly extensive and associated with now unidentifiable features. It appears to have been a moderate sized habitation, based on remaining alignments.

4.1.5.6 Feature 40

This feature consists of a depression with stones at the northwest and south rim. The area could be a pothunter's pit, with possible backdirt to the east and south containing metal scraps. The feature resembles others on the site not thought to have been disturbed, however, with no discrete pile of spoil items. Trash scatter extends 4 m to the northwest and approximately 5 m to the south. The pit is located 7 m south of the backhoe mounding along the fence line. Artifacts are amber, aqua, olive, and purple glass; large lard buckets; tin cans; metal scraps; and undecorated white ironware sherds. Disturbance may include potting and sagebrush roots. Vegetation is fairly open and consists of bush muhly, blue grama, sagebrush and prickly pear. Ten meters to the east is Feature 41, a stone scatter possibly related to backhoe disturbance. Function could have been a cellar pit in a habitation. Associated are Feature 37 to the northeast and backhoe disturbance to the east, plus Feature 41 mentioned above.

4.1.5.7 Feature 41

Feature 41 consists of a marginally defined stone alignment, with some mounding in an area of 1 x 1.5 m rubble. Scattered stone alignments were probably disturbed by bulldozer activity. No definite alignments were observed. Moderate artifact density includes purple, amber, and aqua glass; tin cans; large mammal long bone fragments; brown lead glazed crockery; a yellow lead glazed sherd; a ginger beer bottle fragment; window glass; and coal. Sandstone elements range in size from small to medium, with smaller chinking stone pieces. There are river gravels and pebbles over the surface. Sagebrush, blue grama, and prickly pear are feature vegetation. A small depression to the southeast less than 15 cm deep and less than 1 m diameter, probably retains some integrity. Disturbance is heavy. Associated is the bulldozer disturbance south of the fence. Probable function is a habitation or store, based on the large scatter of rubble, although no contiguous alignments remain.

4.1.5.8 Feature 38

Feature 38 is an extensive spaced stone alignment with a fairly large depression in the north end. The feature measures approximately 9 m north-south by 6 m east-west. The measurement may include a small southern room. This feature was recorded before surface collection was made, and density of artifacts is high. Building elements consist of medium, small, and one large sandstone block. The depression is approximately 1.5-2 m in diameter. Disturbance is light to moderate, consisting of sagebrush roots in the depression and on the northern and eastern portions of the feature, gopher mounding to the south in the trash scatter, and a clear glass and a brown glass beer bottle of recent origin. Vegetation includes sagebrush, grama

grass, and an unknown composite. Except for the northeast area, vegetation is open. Amber, aqua, purple, and window glass; undecorated white ironware; coal; metal hoops; a bent nail; and bleached large mammal long bone are present. Associated is Feature 37 directly to the west. The western and northern areas of the feature slope gently down to the depression from an area 5 m east of Feature 37. Function could have been a habitation. Trash scatter continues for a considerable distance to the south and includes undefinable building stone alignments, although a good deal of rubble is present.

4.1.5.9 Feature 43

Feature 43 is a poorly defined spaced stone alignment, defined by three massive stones on the west and three to four scattered small and medium stones on the east. Feature area contains bush muhly and small (young) sagebrush. The northwest portion has denser sagebrush. The depression at the eastern end is fairly deep, approximately 40 cm and less than 1 m in diameter, with small scattered stones at the rim. No mortar is visible. Numerous pebbles and gravels are visible. Artifacts are purple (includes purple glass stopper) and aqua glass, metal scraps, wire handle (lard bucket?), bleached fragments of a large mammal long bone, purple slate, two tin cans, and window glass. Feature 38 trash extends to the area of this feature. From the massive block to the possible southeast corner is 6 m. Blue grama and bush muhly are present. Light disturbance consists of sagebrush roots. Associated are Feature 43 to the immediate west, Feature 38 and Feature 37. Function was probably a privy, well, or cistern.

4.1.5.10 Feature 44

Feature 44 consists of a 1.5-2 m diameter depression, with two blocks of small and medium size sandstone at the rim. High artifact density includes charcoal, aqua glass, purple glass, undecorated white ironware, stove pieces, and tin can pieces. The depression is approximately 30 cm deep. The depression is surrounded by sagebrush on all sides except a slight opening on the west. There is an area of backdirt and dense artifacts on the west rim, indicating possible potting disturbance, and sagebrush root disturbance. Vegetation includes sagebrush, grama grass, and rabbitbrush. No mortar is evident near the two sandstone blocks, which are roughly shaped. Associated are Feature 45 immediately to the east, Feature 43 to the west, and Feature 46 approximately 8 m east.

4.1.5.11 Feature 45

Feature 45 is a large depression which has been potted, based on spoil dirt containing many artifacts. The depression is approximately 2.5 m in diameter. Four pieces of sandstone rubble are visible at the southeast corner of the depression; these may have been moved from their original location. No evidence of mortar or contiguous stone alignments was found. Blue grama grass occurs in the depression, with sagebrush at the edge of the depression and densest to the north. Vegetation to the south, east and west is more open, covered with bush muhly. Disturbance is thought to be high, as is artifact density. Artifacts include a metal strap, an undecorated white ironware saucer and deep bowl, spikes, nails, aqua glass, purple glass, leather, stove parts, window glass, purple slate, charcoal, a copper or brass washer, and a yellow lead glaze stoneware vase. This feature may originally have been a

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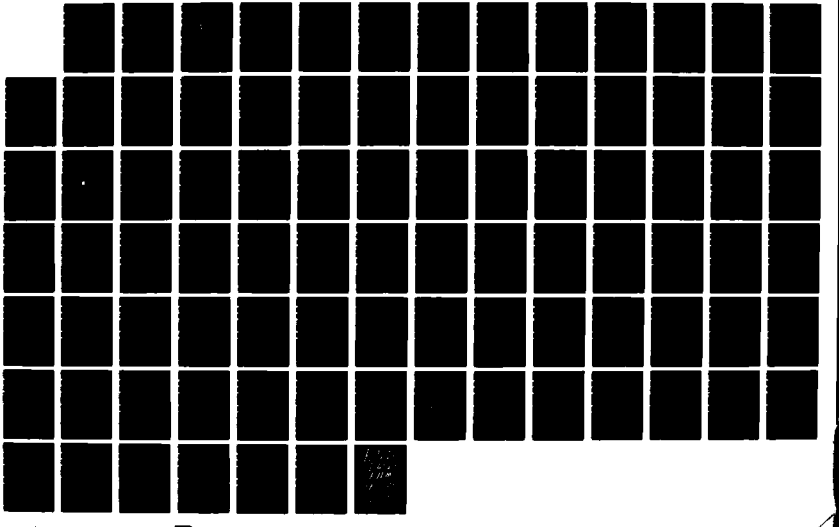
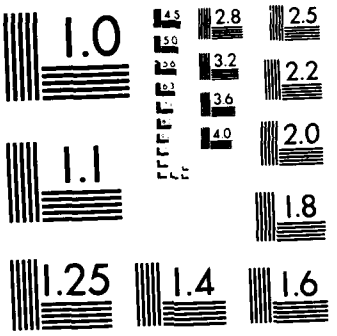




structure that was potted or a privy that was enlarged. Associated are Feature 44 to the north, Feature 46 to the east, and Feature 43 to the west.

Between Feature 45 and 46 is a short stone alignment trending northeast-southwest. This could represent a spaced stone alignment.

4.1.5.12 Feature 46

Feature 46 is an approximately 2 m east-west by 1.5 m north-south depression thought to have been disturbed by pothunting; however, the spoil pile is not extensive. Building stones are present in the depression and to the northwest; these stones may connect the feature to the alignment above. Purple and aqua glass, undecorated white ironware, coal, bleached animal bone, leather, metal scraps, window glass, and olive glass occur. Vegetation is vine mesquite, and grama grass, with sagebrush along the rim. Moderate artifact density was observed. Associated are Feature 44 and 45 to the west and Feature 47 to the east. Function could be a potted cellar, structure, or privy.

4.1.5.13 Feature 47

Feature 47 consists of two depressions, approximately 4 m apart. The one to the northwest is less than 15 cm deep; the one to the southeast is less than 35 cm deep. The depression to the southeast has some evidence of burrowing and spoil dirt on its southeast rim; the remainder of the rim is covered with sagebrush. The southeast depression is less than or equal to 1 m in diameter; the northeast depression is approximately 1-1.5 m in diameter. Hardly any sandstone is present; one small piece is approximately 3 m to the southeast of the northwest depression and a medium size block is 2-3 m south of that. Moderate disturbance includes pothunting or burrowing on the southeast depression. Sagebrush, snakeweed, narrowleaf yucca, and a thistly weed are plants present. Some mounding in a noncultural area near this feature suggests that the disturbance may be rodent activity. Moderate artifact density includes undecorated white ironware; bleached large mammal bone; purple, aqua, and window glass; tin can fragments; metal scraps; and charcoal. Two twelve gauge shotgun shells indicate bird hunting. Virtual absence of building stone suggests depressions represent a privy or outbuilding. Associated is Feature 46 to the northwest.

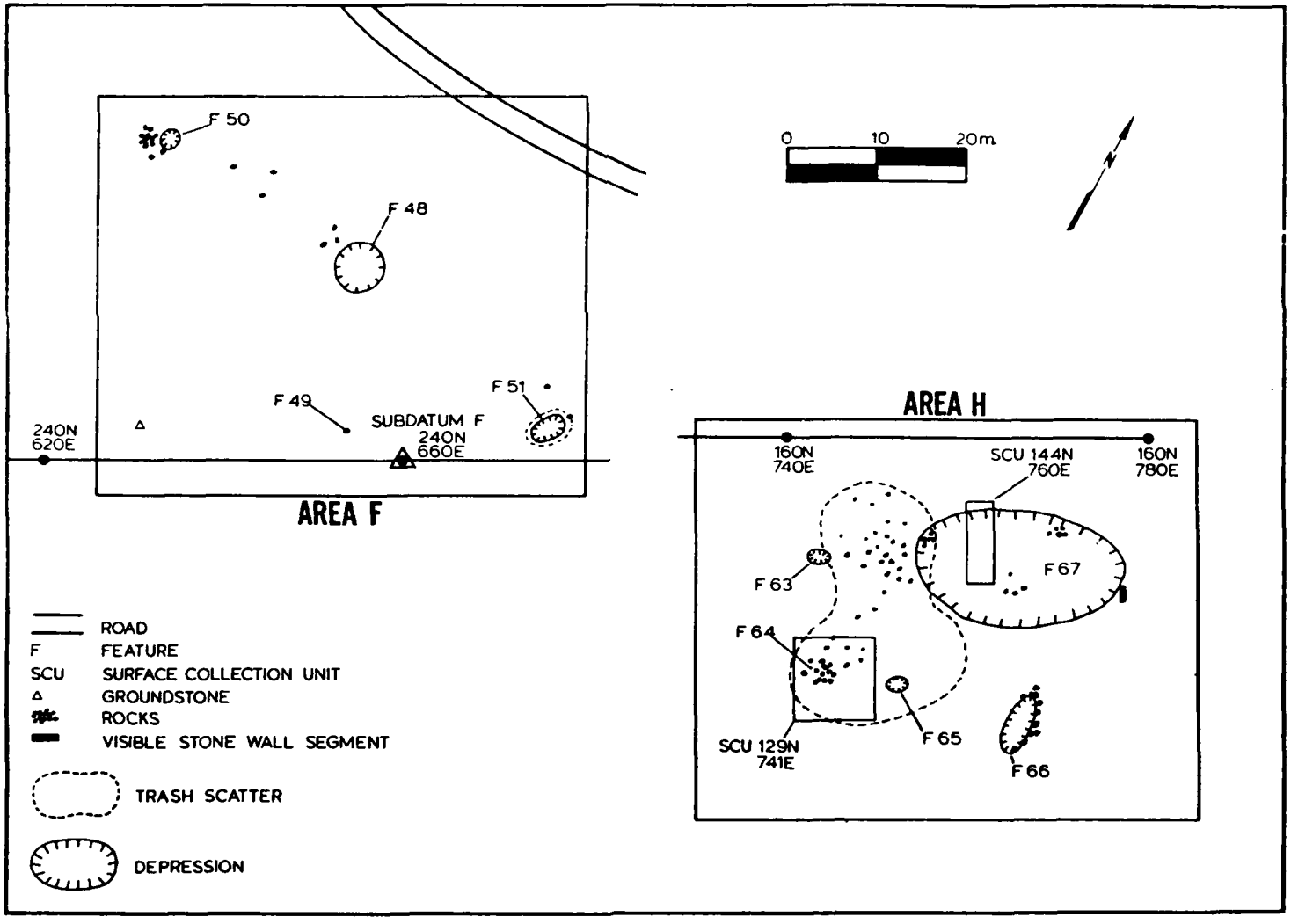
4.1.6 Area F

Area F is a small, poorly defined architectural area east of Area E (Figure 4.11). The area contains four features.

4.1.6.1 Feature 50

Feature 50 consists of a depression with sandstone rubble blocks at the rim and additional stones on a mound at the northern end. Building materials are small to large sandstone blocks. There is no visible mortar. Northern blocks occur in an area of low vegetation, possibly representing pothunters' discard. However, the depression itself is quite overgrown with sagebrush and does not appear recent. The depression is approximately 2 m in diameter. Distance from the northern stone concentration to the three rubble blocks to the south is approximately 6 m. East-west dimensions are 2 m. Disturbance

Figure 4.11 Architectural Areas F and H, Old Las Animas Evaluation Program, ACOE, 1987.



includes sagebrush roots. Vegetation also includes large sunflowers and is quite dense. Additional stones scattered out from the depression are difficult to observe because of the dense vegetation. Low artifact density is suggested by an absence of visible artifacts. Pebbles and gravels cover the feature surface. Associated is Feature 48 to the southeast. Function could be a dugout or small habitation, although the apparent low artifact density suggests a lack of trash disposal.

Feature 50 and Feature 48 are separated by a drainage once thought to be a road.

4.1.6.2 Feature 48

Feature 48 is a fairly large depression which has been potted, associated with a short 4 m alignment approximately 2 m to the northwest. The four to five building stones are small and medium size sandstone blocks with no evidence of mortar. Heavy disturbance is indicated by denuded areas at the depression rim. The depression is approximately 75 cm deep at its deepest point. Vegetation is rabbitbrush, grama grass, and sagebrush at the northwest, northeast, and southeast corners. Sagebrush is dispersed throughout the feature area. The depression is approximately 3 m in diameter. High artifact density includes amber glass, purple glass, charcoal, tin can parts, window glass, and, 3-4 m to the southeast, undecorated white ironware. Associated are Feature 50 to the northwest and Feature 49 to the southeast. The feature could have been a habitation, although building stone is apparently confined to the northwest portion of the depression. A grayish brown salt glazed stoneware (interior unglazed) jar is approximately 8 m southeast of the feature.

4.1.6.3 Feature 49

Feature 49 is a marginally defined spaced stone structure located just southeast of Feature 48. There is a cluster of building rubble in the south and three to four additional stones in the northeast and northwest corners. Dimensions are 6 m north-south by 3 m east-west. Building stones are small to large with no evidence of mortar. Light disturbance from young sagebrush is possible. Sagebrush is moderately dense, with open spots covered with grama grass and bush muhly. Light artifact density includes window glass, a tin can fragment, and the crockery piece mentioned above, plus undecorated white ironware. A trash scatter occurs approximately 7 m north of the northern wall of the structure. A small piece of red sandstone occurs in the trash scatter, possibly indicating former presence of a structure. There is some gopher mounding just east of the structure. Associated are Feature 48 to the northwest and Feature 51 to the northeast. Function could be a habitation based on the presence of window glass and marginal spaced stones.

4.1.6.4 Feature 51

The depression recorded as southwest of the major flagstone on this feature is very slight, more of an open area with large artifacts including a stove part, spikes, undecorated white ironware, window glass, and olive glass bottle with a pontil base. Vegetation is small sagebrush, some rabbitbrush, and bush muhly. There is no evidence of disturbance. Building stones are

small to large sandstone blocks, roughly shaped. The structure was marginally defined, and may represent a habitation or outbuilding.

4.1.7 Area G

Area G is a large area of scattered building stone, discrete features, and a large blowout (Figure 4.12).

It is noticeable that areas F and G, unlike A to E to the west, contain little evidence of bleached large mammal bone, probably related to post-1912 ranching. Area G is homogeneous in plant cover, with young sagebrush occurring in a fairly dispersed pattern.

4.1.7.1 Feature 42

Feature 42 consists of a depression, 1-2 m in diameter, with many stones around its rim. Six of these stones are quite massive. Building materials are small to massive sandstone blocks, roughly shaped. There is no evidence of mortar. Disturbance is minimal, limited to the backhoe cut 7 m away near the fence. The backhoe cut is marked by a lack of vegetation. The only visible vegetation is sagebrush and blue grama grass. Artifact density is low; the only artifacts visible are coal and a tin can piece, occurring at the north rim of the depression along with most of the stones. Stones do occur all along the rim of this depression, unlike others in areas A-D. Associated is Feature 41 approximately 30 m to the west. Function is probably a dugout or storage cellar.

Some 20 m to the southwest is an area of composite vegetation, containing an undecorated white earthenware sherd. This area is denuded of vegetation along presumed wall areas, with sagebrush in the center of rooms. The north room is approximately 5 x 5 m in size. Artifact density is light, and this vegetation change could relate to gopher activity.

4.1.7.2 Feature 55

Feature 55 is located on both sides of the Santa Fe Railroad fence. High artifact density includes a purple glass bottleneck, olive glass, aqua glass bottle base, an undecorated white ironware bowl, amber glass bottleneck, tin can and other metal fragments, window glass, purple slate, and coal. Building stones extend some 14 m paralleling the fence on the northern side; also on this side is a cluster of building rubble along the north wall near the center of this 14 m marginally defined alignment. Alignments extend approximately 4 m south to the fence and 1-2 m south of the fence. South side artifacts include an undecorated white ironware bowl, purple glass, an aqua glass painkiller bottle fragment, leather fragments, and a lug from a brown mottled lead glaze crockery stoneware piece. This trash occurs in an open area approximately 3 m south of the alignment paralleling the fence, where there is a small cluster of four to six stones. Building stones are sandstone, small to large size, roughly shaped. There is some evidence of chinking stones and mortar with small gravel temper. There are gravels and pebbles over the feature's surface. The alignment paralleling the fence to the south is approximately 5 m long. Total dimensions are approximately 8 m, east-west width is approximately 6 m but the extension on the northern side of the fence is 14 m long. There is a two-track road on the north side which has probably

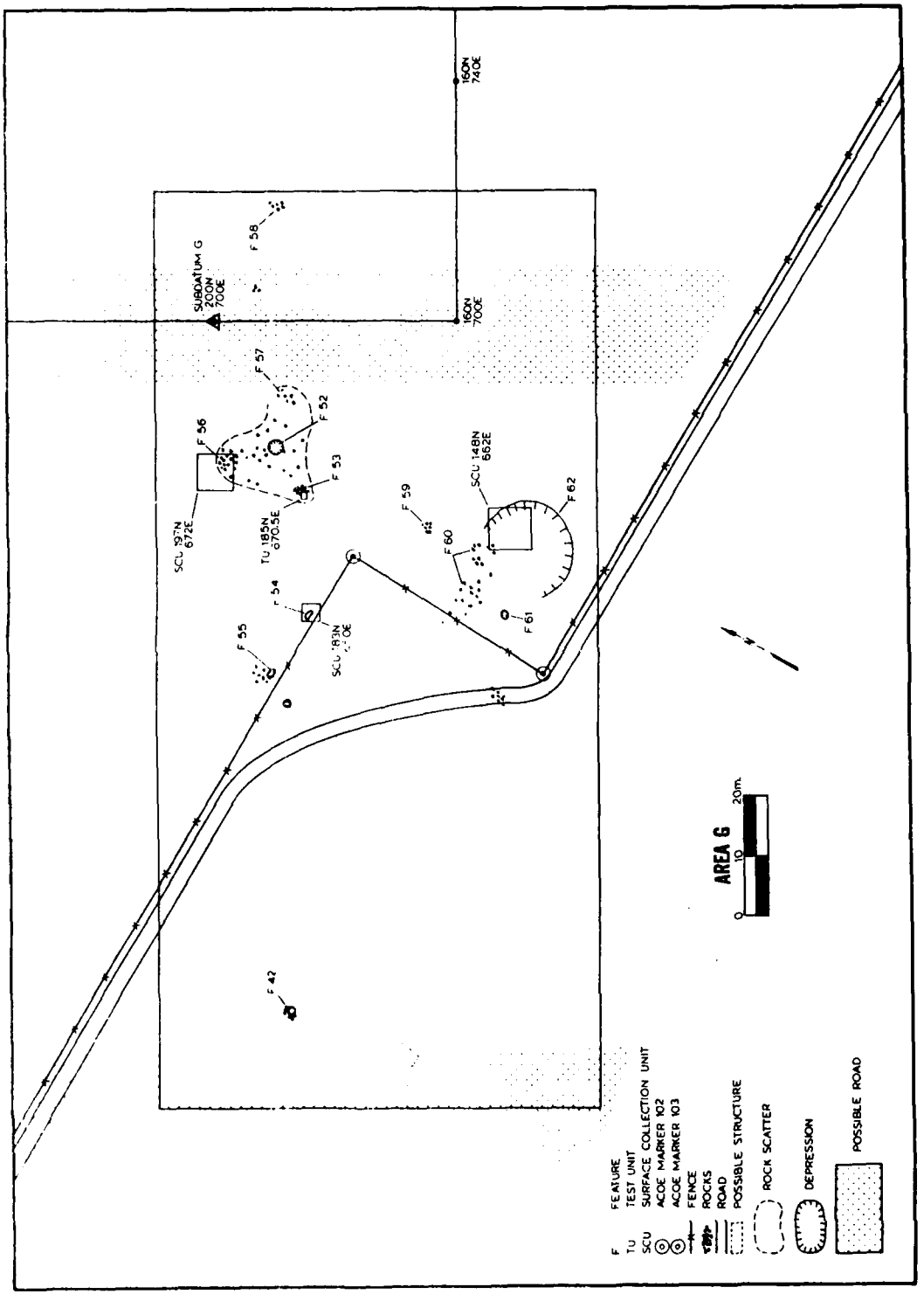


Figure 4.12 Architectural Area G, Old Las Animas Evaluation Program, ACOE, 1987.

disturbed the feature. This track extends from the fence jog to 60 m to the west. Additional disturbance may have been caused by sagebrush roots. There is no evidence of gopher activity in the area. Associated is Feature 54 to the east, the alignments of which may overlap with Feature 55. Function is possibly a disturbed habitation. Vegetation on the feature (open) contrasts with fairly dense sagebrush south of the fence in this area.

4.1.7.3 Feature 54

Feature 54 is located north of the fence. Artifacts observed after the surface collection (see Section 4.3 for surface counts) are undecorated white ironware, aqua glass, and tin can pieces. Artifacts and building stones do not appear to occur south of the fence. Dimensions are 3 m north-south by 5 m east-west. Small and occasional medium size sandstone blocks were used. There is no evidence of mortar. The feature has been disturbed by the two track road and by sagebrush roots. Additional vegetation includes grama grass and bush muhly similar to Feature 55 to the west. Associated are Feature 55 and Feature 53. Function is a possible small structure, probably an outbuilding of Feature 55.

4.1.7.4 Feature 53

Feature 53 is a somewhat unusual concentration of sandstone building rubble, localized in a 2 x 3 m area. This feature was tested by a 1 x 1 m test pit, which found no clear evidence of alignments, but did find rubble in the north and south walls. For subsurface artifact counts, refer to Section 4.3 of this chapter. Additional small to medium building stones are dispersed in a 5 x 8 m area around the concentration. Moderate artifact densities include purple glass, tin can fragments, aqua glass, undecorated white ironware, coal, and large metal hoops. Building stone continues east and north of this feature to form a triangular scatter (see Figure 4.11). There is no evidence of mortar. Sandstone consists of medium to large blocks with one massive stone and smaller chinking stone size elements. Light disturbance appears limited to sagebrush roots. Vegetation is sagebrush, blue grama grass, bush muhly, and rabbitbush. Associated are Feature 52 to the northeast and Feature 56 to the north-northeast. Function was possibly a nonhabitation structure, based on absence of window glass.

4.1.7.5 Feature 56

Feature 56 is a marginally defined spaced stone alignment approximately 5 x 5 m. However, additional building stone outside the alignment makes dimensions difficult to determine. Artifacts include amber glass and a piece of dark stone tempered ceramic with a gray glaze and smudged interior. Elements are small, medium, and occasionally large in size with no evidence of mortar. There are pebbles and gravels over the feature surface. Aqua and purple glass and yellow lead glazed stoneware with unglazed striated interior occur. Disturbance appears minimal, confined to sagebrush roots. Vegetation also includes bush muhly, cholla, and occasional rabbitbrush. Vegetation in the feature and to the south and east is covered with young sagebrush, not as dense as in areas to the west. Function is possibly a habitation or outbuilding. Light artifact density and absence of window glass argues against a habitation function. Associated are Feature 53 and Feature 52.

4.1.7.6 Feature 52

Feature 52 is a fairly shallow and large (approximately 2 x 3 m) depression surrounded by stone alignments north-south and east-west. The depression's bush muhly covered rim resembles some depressions thought to be potted. This depression has mounding in the center and appears like a young version of Feature 62, the blowout. The cause of this depression is uncertain. Building stones are small and medium size with rare large elements of sandstone blocks and some smaller chinking size elements. Artifact density is moderate. Artifacts are undecorated ironware; leather; purple, amber, window, and olive glass; a metal spike, and a meat can with a large solder hole. No evidence of mortar is present. The depression may indicate disturbance but is probably natural. Disturbance is suggested by modern twelve gauge shotgun shells. Vegetation is fairly open. The depression contains grama grass, with sagebrush and bush muhly to the south. Associated are Feature 53, Feature 56, and Feature 57. Function is probably structural.

4.1.7.7 Feature 57

There is a good west wall alignment and scattered stones to the south and east. Building materials are small, medium, and large sandstone elements with no mortar. A small mammal skull and maxilla is present. Purple, amber, and window glass; tin can fragments; a meat can; white ironware; and yellow lead glaze crockery are evidence of light artifact density. Pebbles and gravels are present on the feature surface. Dimensions are approximately 3 m east-west by 4 m north-south. Minor disturbance relates to sagebrush roots and small mammal burrowing. Vegetation is sagebrush, bush muhly, and rabbitbrush. Sagebrush is young and dispersed. Associated are Feature 52 and Feature 56. Function is an outbuilding, based on the feature's small size. Seventeen meters east is the remainder of a homemade concrete marker, hardened in a wooden container based on grain direction at side and bottom. Broken fragments occur at ground surface.

4.1.7.8 Feature 58

Feature 58 is a coherent cluster of sandstone building rubble. With the exception of one stone approximately 2 m to the west, this structure is 1.5 m east-west by 2 m north-south. A cluster of medium and large sandstone blocks shows no evidence of mortar. The sandstone has chalky white patination on one surface. The east wall contains small blocks. There are no stones to the north. The east and west sides form a horseshoe shape. Very low artifact density consists of one piece of aqua glass 3 m to the east. Light disturbance relates to sagebrush roots; no gopher mounds are present. Vegetation is bush muhly, sagebrush, rabbitbrush; vegetation is open with dispersed sagebrush. Associated is Feature 57 approximately 20 m to the west. Function is probably storage or special propose; the feature is too small to have been a habitation.

A possible privy is associated with Feature 55 south of the fence. This consists of a less than 1 m diameter depression with pieces of metal, window glass, nails, and aqua and purple glass bottlenecks. Two small to medium pieces of sandstone building material are at the rim and in the depression. Depression contains little vegetation and is surrounded by fairly dense sagebrush. Function could be a privy or well for the Feature 55 habitation.

4.1.7.9 Feature 59

Feature 59 is a marginal stone alignment with a cluster of stones 2 m in diameter containing two massive stones and other large and medium stones. The dimensions are difficult to determine. There is a north-south alignment at the south end that could be an entrance.

The center of the structure and the eastern alignment do not form a clear rectilinear structure. Orientation appears northeast-southwest in relation to the grid. Medium, small, and massive blocks of roughly shaped sandstone with straight edges and chalky white patination are similar to Feature 58. Denuded areas are at the southern end. This denudation could relate to pothunting since blocks at the southern end are on top of the ground, not embedded. Other stones are embedded. Vegetation consists of rabbitbrush and scattered sagebrush, with an open pattern and fairly good ground visibility. There is no evidence of mortar. Light artifact density includes tin can fragments, purple glass, and undecorated white ironware. The surface is covered with pebbles and gravels.

Between Features 59 and 60, but closer to Feature 60, is a trash scatter with tin can pieces; metal straps; bent spikes; aqua, olive, and purple glass; and undecorated whiteware.

4.1.7.10 Feature 61

Feature 61 is a small depression, less than 1 m in diameter, with only metal artifacts present. There are small and medium sandstone blocks scattered at the edge and north of the feature. There is no evidence of mortar. The depression itself contains blue grama grass, with sagebrush along the western and southern rims. Vegetation to the north is more open. Associated with Feature 60, this feature is probably a privy.

4.1.7.11 Feature 60

This feature consists of many pieces of sandstone rubble over an area measuring 15 m north-south. Artifacts include window glass, tin can scraps, undecorated white ironware, and coal. Results of the surface collection on the eastern portion of the feature and artifact density are discussed in Section 4.3. A small depression is near the eastern portion; this may represent pothunting as there is a small backdirt pile in the southern half of the depression and scattered rubble in the northern half. East-west dimensions are approximately 14 m. The only alignments are in the eastern portion. Building stone elements are small to large sandstone blocks with occasional massive stones. These are roughly shaped with no evidence of mortar. The eastern wall alignment is 5 m north-south, with three massive blocks at the northern edge forming an apparent southeast corner for a north room. Another concentration of small and medium blocks is 3 m west of the massive concentration. There is a large depression approximately 3 m in diameter, part of Feature 62, near the southeast corner of Feature 60.

4.1.7.12 Feature 62

Feature 62 is a large, slightly depressed area with a possible rectilinear area of denuded vegetation. Artifact density is discussed in

Section 4.3. Artifacts remain in the south part of the feature. This feature resembles a blowout, possibly occurring after use as a corral or outside activity area. Just east of the blowout is a 4-5 m east-west by 11 m north-south berm. Window glass, pitted aqua glass, undecorated white earthenware, and tin can pieces are found in this south trash scatter. In the depression itself are recent clear green glass, purple and window glass, coal, white ironware, and bleached large mammal bone. Pebbles and gravels occur on the blowout and particularly on the bank of the berm. Two pieces of sandstone occur in the blowout. A cluster of rubble in the northwest portion grades into the Feature 60 scatter. The blowout is arc shaped with the berm to the northeast, east, and southeast. The blowout is covered with blue grama grass but is primarily denuded of vegetation. Older sagebrush plants occur on the berm and younger plants in the west. Rabbitbrush is present on the eastern berm. Moderate disturbance is related to aeolian erosion. Sagebrush roots are another potential disturbing factor. Dimensions in the center portion are 4 m east-west by 15 m north-south. The southern edge of the depression is 6-7 m from the Santa Fe Railroad fence. From the berm to the east and southeast of the blowout the ground level slopes gently to the southwest. Associated are Feature 60 and Feature 61. Function is possibly an outdoor activity area.

4.1.8 Area H

Area H contains the second large depression on the site, as well as a possible dugout, several depressions, and scatters of building stone (see Figure 4.11). This area may have been outside of town limits.

4.1.8.1 Feature 63

Feature 63 is a shallow depression approximately 4 m east-west. River pebbles and gravels cover the feature surface. Building stones are small and medium roughly shaped sandstone blocks with no evidence of mortar. A recent brown beer bottle is at the western edge. Zinc sheeting with a straight edge and a broken piece of cast iron with handle are present. The depression is at the west central portion of the building stone scatter. Just 6 m west of the Feature 63 depression are the faint remnants of a two track road similar to that along the Santa Fe Railroad fence. This area provides an excellent view of Fort Lyon. The two track has caused disturbance to the alignments on the western part of this feature. Additional disturbance may relate to sagebrush roots. Sagebrush is dispersed and occurs with bush muhly and rabbitbrush. Function was probably a series of spaced stone alignments. Associated are Feature 64 to the southeast and Feature 65 and Feature 67 to the east.

4.1.8.2 Feature 64

Feature 64 consists of a scatter of building stone rubble distinguished by the high density of coal fragments. The feature itself is in an area of denuded, open vegetation, covered with blue grama grass and small sagebrush. Sagebrush is more dense outside the feature. Also present are rabbitbrush and some bush muhly. Burned large mammal bone, patinated amber glass, undecorated white earthenware, a zinc strip rolled over a wire, and twelve gauge (recent) shotgun shells occur. Detailed artifact totals are presented in Section 4.3. A cluster of small to large sandstone blocks occurs at the northern portion of this feature. The alignment is along the northeast corner on the east wall. Dimensions are approximately 12 m east-west along the north wall and 9 m

north-south along the west wall. The denuded area could represent disturbance, although there is no evidence of potholes or spoil dirt.

4.1.8.3 Feature 65

Feature 65 is adjacent to the east of Feature 64 and contains many large coal fragments, as well as a recent brown beer bottle and portions of another amber bottle of uncertain age. Amber, window, and purple glass and undecorated white ironware sherds occur. There is a depression approximately 2 m east-west by 1 m north-south which may represent potting activity. There is coal in the bottom of the depression. Vegetation consists of bush muhly and sagebrush and some rabbitbrush. Moderate disturbance relates to possible pothunting. North of the depression is the zinc container top and metal scraps. Seven meters southwest of the feature are several pieces of sandstone and undecorated white earthenware. Function could have been a habitation, based on the presence of window glass, although rubble is rare; the feature could have been a coal dump.

4.1.8.4 Feature 66

Feature 66 also contains quite a bit of coal. This feature has a large depression with numerous sandstone blocks concentrated along the eastern berm of the feature. The depression is 4 m north-south by 3 m east-west. The stones are small to large and include two massive blocks. Stones occur at the depression rim. There is no evidence of mortar, and stones are roughly shaped. The best definement is along the east wall, which measures 7 m north-south. The north wall measures 4 m east-west. Two meters of rubble occur along the northern part of the west wall. These occur in a concentration two to three courses wide. This feature is coherent, unlike those in Areas B and C and northern Area G. There are blocks halfway down into the depression. Low artifact density includes coal. Disturbance is not apparent, but possible in the depression, which is actually two depressions, one to the north and a smaller one to the southeast. Sagebrush occurs along the western half of the depression, with the eastern half fairly denuded and covered with sandstone rubble. There is blue grama grass occurring around the feature, rabbitbrush, and some weeds in the depression. Function is probably a dugout, based on the size of the stones and number of stones scattered around the rim. This feature is unlike dugouts defined elsewhere on the site, which contain fewer stones. Feature 42 south of the fence is similar to this one, although the former has fewer stones. Artifacts include a tin can, undecorated white ironware, purple and window glass, and amber glass in a trash area at the southwest corner of the feature. Bunch grass occurs just north of this trash scatter. A loosened mound of dirt separating the two depressions may indicate gopher activity.

4.1.8.5 Feature 67

Feature 67 is the large depression approximately 1 m deep at its deepest point. Artifacts are a thin clear glass bottle, tin can fragments, a piece of indented rubber (tire?), purple and window glass, cast iron metal straps, and bricks. Other artifacts are discussed below. There are river gravels and pebbles over the feature's surface. Small pieces of roughly shaped sandstone occur on the rim and below. Three meters from the northwest rim is a ginger beer bottle fragment. Undecorated ironware occurs at the northeast corner.

Rubble ranges in size from small to large and is roughly shaped; blocks occur at the rim and below. East of the depression is a contiguous stone alignment and more rubble. The contiguous wall is possibly the west wall of a structure 5 m east-west by 8 m north-south. There is much coal on the structure's surface, metal pieces, white glaze ironware, and a spike. Function could have been a store, based on the size of the depression, with associated buildings to the east. A jackrabbit size phalanx occurs near the contiguous alignment. Vegetation on the depression has been removed, but sagebrush roots remain. blue grama and bunch grass occur on the southeast corner. The associated structure has sagebrush and open vegetation just east of the structure.

4.1.9 Physical Integrity of the Site

Based on surface and subsurface observations, disturbance has affected a number of site features (Table 4.1) but a significant proportion of intact deposits remain. Two hand potted features, Feature 7 and Feature 37 (interior), were excavated and produced significant artifact densities and intact stratigraphy. Judging from this experience, the possible evidence of pothunter activity at features 33, 40, 44, 46-47, and 59-60 is not expected to have caused major adverse impacts to these features. Similar conditions obtain for Features 9, 45, 48, and 65, which show more definite indications of pothunter activity (back dirt spoil piles and piles of culled artifacts). A pile of glass bottles at the fence south of Feature 14 probably also represents bottle collection activity. Features disturbed by road traffic are Features 28, 54-55, and 63. Impacts are probably moderate and primarily confined to the ground surface. Disturbance by heavy machinery is confined to the area on Santa Fe Railroad land, with the possible exception of Feature 28. These areas south of the fence were disturbed by a local bottle collector using a blade, and apparently also by activity related to raising the railroad bed in the 1940s. Feature areas disturbed by this activity are Features 15 and 16 and the trash scatter south of Feature 37.

Table 4.1 Disturbed Features and Old Las Animas.

Feature Number	Disturbance
7	Moderate, but subsurface deposits intact
9	Hand tools
15	Heavy machinery
28	Road traffic
33?	Probably light
37	Moderate, but subsurface deposits intact
Trash Scatter S of F37	Heavy machinery
16	Heavy machinery
40?	Probably light
44?	Probably light
45	Hand tools
46?	Probably light
47?	Probably light
48	Hand tools
55	Road traffic
54	Road traffic

59?	Probably light
60?	Probably light
63	Road traffic
65	Hand tools

The percent of disturbed features is between 19 and 29 percent, with only 4 percent of recognizable features disturbed by heavy machinery. Approximately 1,330m^2 of the over 100,000m^2 of the site's area has been disturbed by machinery; this total is less than 1 percent of the site surface.

4.2 SUBSURFACE FEATURE DESCRIPTION

Subsurface feature description at Old Las Animas presents information on depth of structures and fill, construction details, character of fill, and probable function. The description is based on excavation of 14 test pits of various sizes in all but two of the eight areas defined on the site (Table 4.2). Material culture is described in section 4.3.

Testing intensity was greatest in Area A, the most architecturally complex area of the site. Six test pits were placed in this area: four 1 x 2 m units inside large structures (features 1-4); one 1 x 1 m unit in an extramural trash pit (Feature 7); and one 1 x 4 m unit in the road directly south of Feature 2.

Two test pits were placed in Area D. The first was a 1 x 2 m pit in the southwest corner of Feature 13, a large structure with contiguous stone foundations. This pit was oriented so as to include both structure interior and exterior deposits. The second test pit was a 1 x 1 m unit along the south dugout wall of Feature 11, a 15 m diameter depression approximately 1 m deep before excavation.

One test pit each was placed in areas B, C, E, and G. A 1 x 1 m unit was situated in Area B. This test pit was designed to examine the northeast edge of Feature 22, a shallow depression with scattered building rubble. A 1 x 1 m unit was placed in Feature 20, a contiguous stone alignment and depression in Area C. A 1 x 1 m unit was situated in Feature 53, a stone rubble concentration in Area G. Finally, a 1 x 2 m test pit was placed in Feature 37, a contiguous stone alignment in Area E. A 1 x 1 m test unit was placed inside the structure, and a separate 1 x 1 m unit was placed adjacent to the first to obtain information on structure exterior deposits.

4.2.1 Feature 1

Feature 1 in Area A is defined by contiguous stone alignment foundations (See Figure 4.3). The feature is rectangular, oriented north-south. The feature may open to the north, based on the absence of a north exterior wall. There is cobble scatter on the surface in addition to existing walls representing foundations. No evidence of a roof (wood or walls) is present on the surface or in fill. The east wall extends 7 m north of the east-west cross wall and was exposed during wall trenching.

Table 4.2 Analytical Excavation Units, Old Las Animas.

Site Area	Surface Feature	Grid Number	Size	Approx. Depth(m)	Fill Context
A	1	299N/525E	$2m^2$	0.5	Interior structure
A	2	297N/507E	$2m^2$	1.1	Interior structure
A	3	304N/499E	$2m^2$	0.45	Interior structure
A	5	310N/499E	$2m^2$	0.9	Interior structure
A	7	318N/469E	$1m^2$	1.5	Extramural trash pit
A	S of F2	287N/504E	$4m^2$	0.6	Extramural road
B	22	423N/440E	$1m^2$	0.8	Interior structure
C	20	408N/466E	$1m^2$	0.6	Interior structure
D	11	323N/403E	$1m^2$	1.7	Interior structure
D	13	328N/405.5E	$1m^2$	0.6	Exterior structure
D	13	328N/406.5E	$1m^2$	0.5	Interior structure
E	37	260N/554.5E	$1m^2$	0.5	Interior structure
E	37	260N/555.5E	$1m^2$	0.5	Exterior structure
G	53	185N/670.5E	$1m^2$	0.6	Interior structure

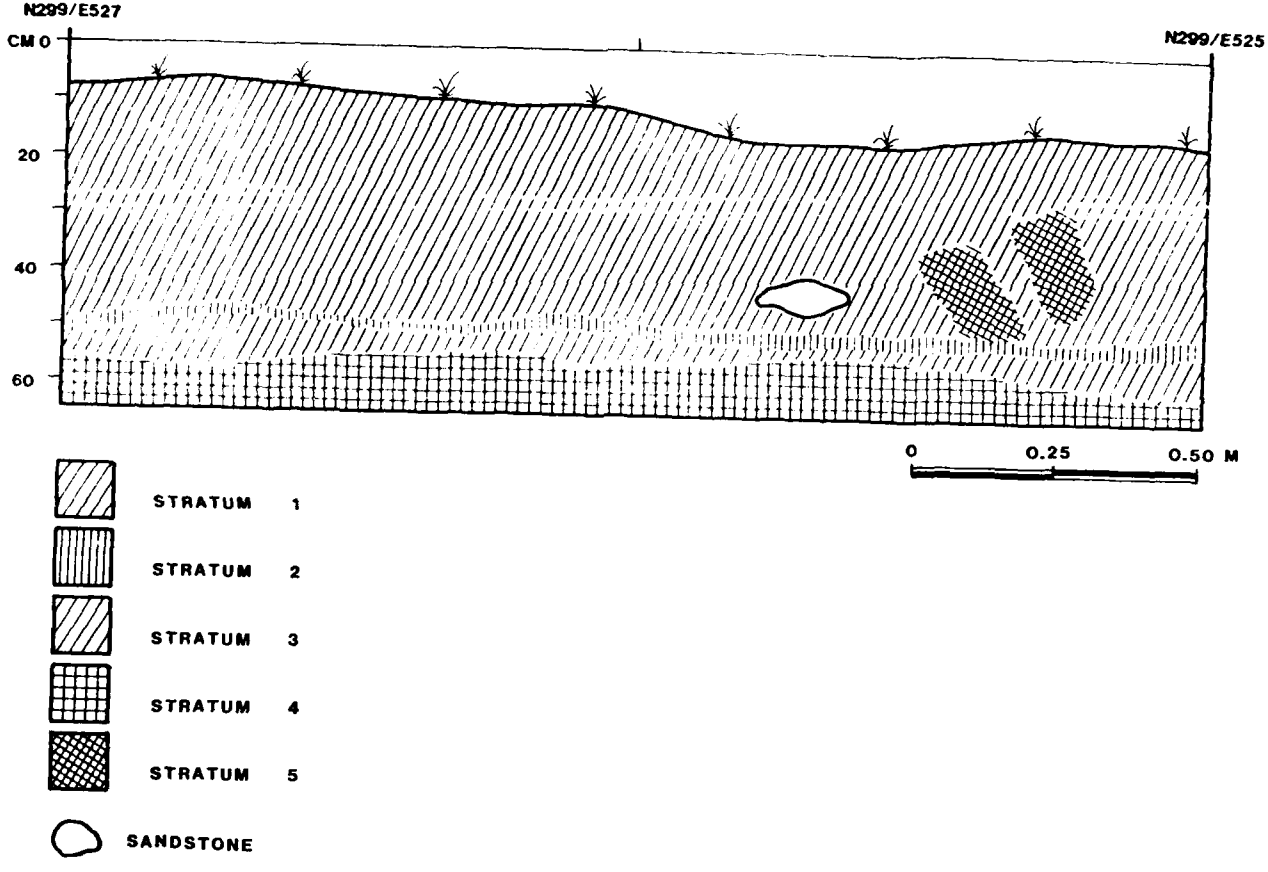
The north wall measures 11.10 m; the south wall 10.65 m; and the east and west walls 5.05 m. Wall widths are 50 cm. Building materials are sandstone slabs with cobble chinking. Rectangular stones prevail, but some elements are square and some trapezoidal. All cornerstones are abutted. Horizontal courses are primarily double, although the north portion of the east wall is a single course. There is no mortar or interlacing visible. Minimum size wall elements are 7 x 6 x 9 cm and maximum elements are 70 x 45 x 30 cm.

The 1 x 2 m unit in Feature 1 was placed at 299N/525E (southwest corner). This placement was adjacent to and including the south edge of the Feature 1 cross wall, which separates the north and south rooms. The unit was placed 2.24 m east of the northwest corner of the south room to expose the interior of a suspected north-south cross wall; however, such a wall was not present in this area.

The unit was excavated in five 10 cm levels to a depth of 50 cm below surface. All fill was sandy loam with a greater concentration of clay as depth increased, particularly at the floor of the feature. The uppermost levels were flecked with charcoal, deteriorating sandstone, small pebbles, and larger cobbles. At 50 cm below ground surface, pebble content remained constant, and there was no evidence of charcoal or cobbles. Artifact concentration decreased with increasing depth.

Five strata were identified (Figure 4.13). Stratum 1 was yellowish brown sandy loam (Munsell 10YR 5/4) with small pebbles and cobbles, charcoal flecks, and deteriorating sandstone throughout the level. Stratum 2 was dark yellowish brown clayey sandy loam (Munsell 10YR 3/4); this stratum was more compact than Stratum 1. Metal and wood fragments occurred throughout Stratum 2, which was the feature's floor or at least a compacted surface. Stratum 3 had the same characteristics as Stratum 1. Stratum 4 was a dark yellowish

Figure 4.13 Profile of the South Wall of Feature 1 Test Pit, 299N/525E, Old Las Animas Evaluation Program, ACOE, 1987.



brown clayey sandy loam (Munsell 10YR 4/4). Stratum 5 consisted of rodent holes; these were very dark grayish brown (Munsell 10YR 3/2) sandy loam.

4.2.2 Feature 2

Feature 2 in Area A is a rectangular structure with a possible addition on the north side. Two distinct rooms are present; a third may be present. The feature is oriented along grid north. The west wall is the best preserved, and appears to contain a doorway. North and east walls are assumed, based on alignments with other features in the area. Maximum dimensions of Room 1 are 5.7 m by 4.4 m and of Room 2 are 5.8 m by 5.7 m. The feature contains a subsurface feature, consisting of a pit for storage or trash disposal.

Building materials are shaped sandstone blocks. The west wall is at least three courses high, based on an unexcavated but exposed portion. The double course walls are chinked with smaller, unshaped pieces of sandstone. No mortar was observed. Corners are abutted. Estimated wall lengths are 6.5 m for the north and south walls, 11.5 m for the east wall, and 11.3 m for the west wall. The west and south walls are approximately 50 cm wide. Maximum size wall elements are 45 x 35 x 22 cm; minimum elements are 5 x 4 x 2.5 cm.

A 1 x 2 m pit designated 297N/507E was placed in Room 2 of Feature 2. The placement included part of a depression thought to be a basement or cellar pit. The feature's ground surface after sagebrush clearing included at least 10 other shallow depressions. The test pit was excavated in 11 10 cm levels to a depth of 1.1 m below ground surface. Levels 1-3 were excavated in the eastern 50-120 cm of the test pit. Levels 4-11 were excavated over the entire surface of the unit.

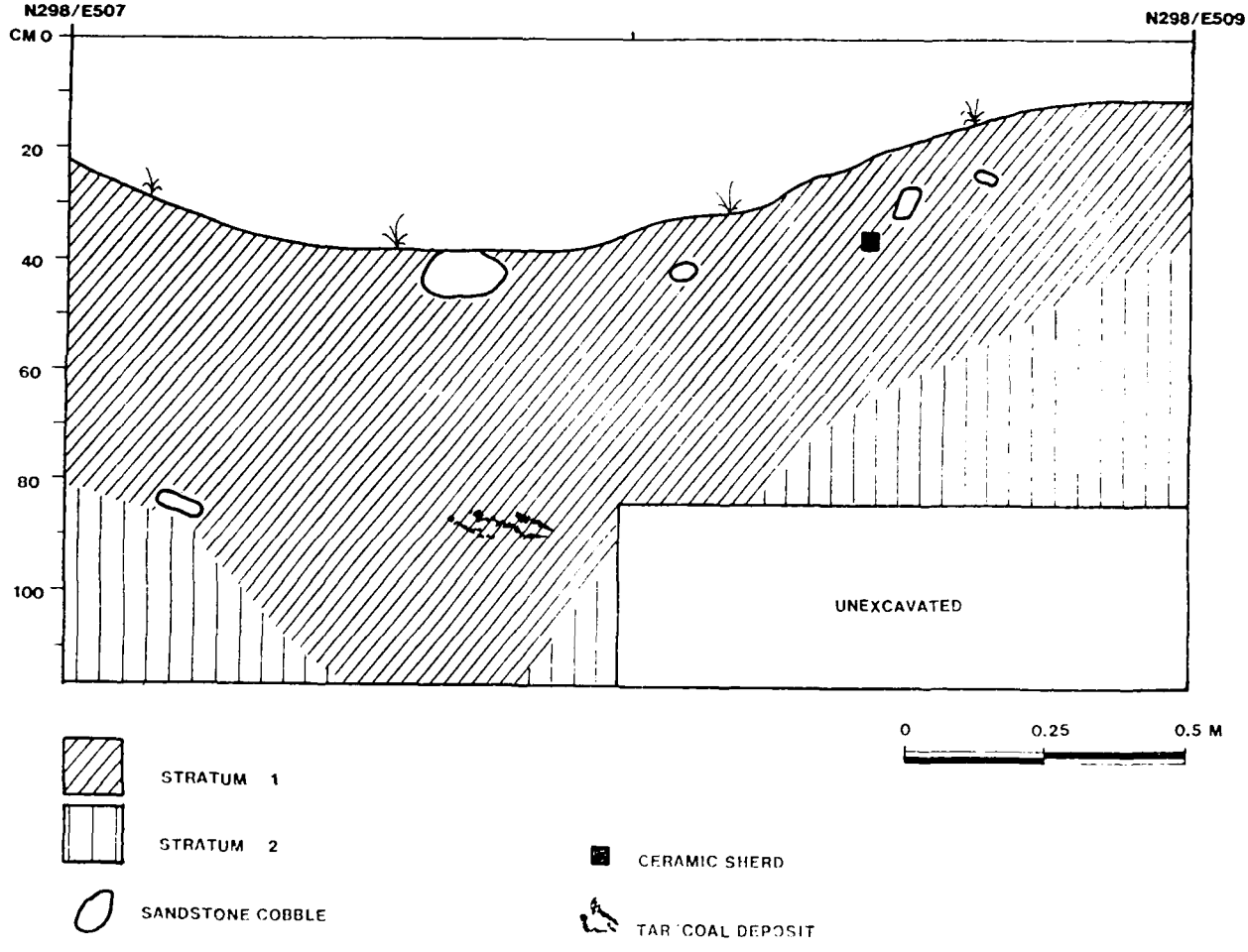
Two strata were identified (Figure 4.14). Stratum 1 was brown sandy loam (Munsell 10YR 4/3 to 10YR 6/3 brown/dark brown to pale brown) with numerous charcoal and artifact inclusions. Also included were sandstone cobbles and a deposit of tar and coal. Gravel inclusions increased at 50-60 cm below ground surface. Stratum was more compact sandy loam with more sand and fewer organic inclusions (Munsell 10YR 5/2 grayish brown).

Stratum 1 defines a bowl shaped pit, designated subsurface Feature 2A. The pit, 1.3 m deep at its deepest point, may have been a storage pit originally that was later used for trash disposal. A gray, undulating clay was encountered at the base of the pit; this soil is sterile.

4.2.3 Feature 3

Feature 3 in Area A is a rectangular structure consisting of two rooms. Room 1 is nearly square, while Room 2 is rectangular. The feature is oriented along a grid north-south axis. The structure has been dismantled to foundation blocks. Loose blocks are scattered adjacent to the structure. Room 1 is 4.0 x 3.6 m, and Room 2 is 6.3 x 4.4 m in size. The floor is gray hard-packed clay, discontinuous over the surface. One door is discernible between the two rooms; it is marked by the stain of a wooden slat. The feature's function as a habitation is based on an artifact assemblage derived from testing in Room 1. Artifacts included buttons, a toothbrush fragment,

Figure 4.14 Profile of the North Wall of Feature 2 Test Pit, 297N/507E, Showing Subsurface Feature 2A, Old Las Animas Evaluation Program, ACOE, 1987.



leather pieces, a clay pipe stem, and eggshell. The larger Room 2 could have served as a commercial establishment, based on its larger size.

Building materials are shaped sandstone blocks, some of them tabular. Wall length is not determinable. Wall width varies from 20-40 cm. Wall height is 40 cm or more. Maximum wall element size is 61 x 30 x 15 cm; minimum size is 3 x 3 x 1 cm. Walls are horizontally double coursed. There are 3-4 vertical courses, dry laid with smaller stones as chinking material. Corners are abutted.

A 1 x 2 m test unit (304N/499E) was placed in the northeast corner of Room 1, adjacent to the north wall, to define wall construction detail. The ground surface prior to excavation was covered with sagebrush; a 2 m diameter depression occurs in the center of Room 2. The unit was excavated with round shovel and smoothed with trowel and square shovel when soil changes appeared. The unit was excavated in five 10 cm levels to approximately 45 cm below ground surface. Upper levels included dry, silty sand and moist, coarse-grained sand filled with gravels and cobbles. Homemade concrete, charcoal, and coal clinkers occurred throughout the first level. Artifact content, particularly nails, increased at 10-20 cm below ground surface, but dropped off in the subsequent level. Floor consisted of a gray clay; fill above floor contained much charcoal and decomposed wood. Immediately below the floor surface was an undulating clay. Subfloor soil contained only four pieces of metal.

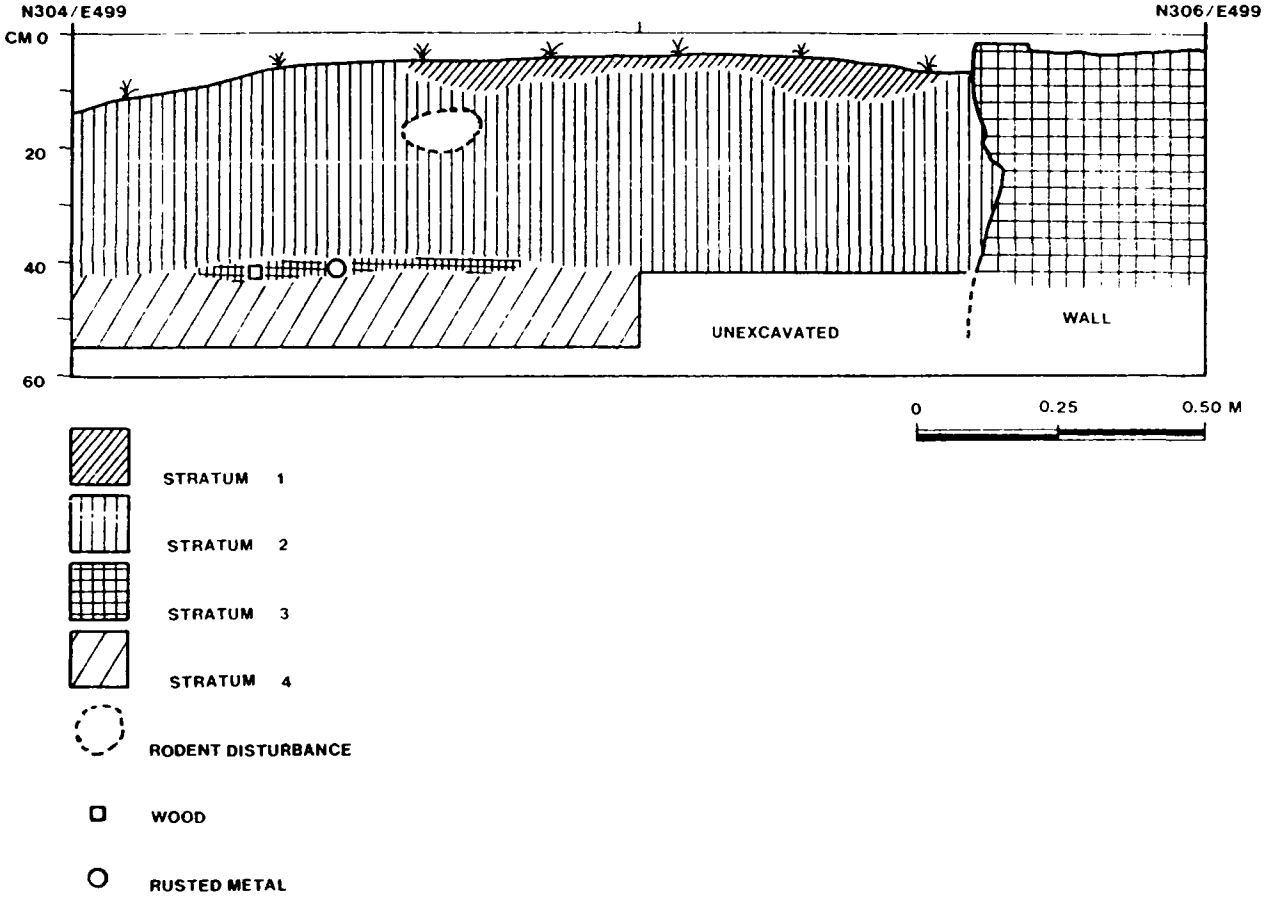
Four strata were identified (Figure 4.15). Stratum 1 consisted of poorly sorted sandy loam with many gravels, cobbles, sandstone, and charcoal flecks and pieces throughout the level. This root zone stratum was grayish brown (Munsell 10YR 5/2). Stratum 2 was sandy loam with some clay, sandstone pieces, and charcoal mottling. Gravels and cobbles were numerous. The Munsell color was grayish brown (10YR 5/2). Rodent disturbance was noted in this stratum. Stratum 3 was a floor level, consisting of very dark gray (Munsell 10YR 3/1) clay, discontinuous across the test pit, and much more compacted than Stratum 2. Rusted metal and wood occurred in association with this level. Stratum 4 was a compacted, clayey sand, containing many gravels. The Munsell color was 10YR 4/3 (brown/dark brown).

4.2.4 Feature 5

Feature 5 is a poorly defined structure approximately 5.75 x 5.75 m square located in Area A. The feature consists of building stones scattered on the surface and associated depressions. The test pit was aligned with that along the east wall of Feature 3 to the south in hopes of finding the east wall of the structure; however, no such wall was defined. The feature dimensions given above are based on alignments with Feature 3 rather than surface definition. One subsurface feature (Feature 5A) was defined in the test pit.

A 1 x 2 m test pit (310N/499E) was placed in a shallow (approximately 20 cm deep) depression along the presumed east wall of the feature. After sagebrush vegetation was cleared, the unit was excavated in 11 10 cm levels to a depth of approximately 90 cm below ground surface. Upper levels consisted of sandy loam with light tan mottling, a high concentration of pebbles and artifacts, and very few cobbles. Clay, possibly representing a mud mortar or

Figure 4.15 Profile of the West Wall of Feature 3 Test Pit, 304N/499E, Old Las Animas Evaluation Program, ACOE, 1987.



silt filtered through the rocks, occurred in patches around the large cobbles near the south wall of the unit. At 60-70 cm below ground surface, artifacts were present only in this area of cobble concentration. For levels 8-11, only the north half of the unit containing wall fall and the underlying circular stain were excavated; other portions of the unit were sterile.

Four strata were identified (Figure 4.16). Stratum 1 was the dark yellowish brown (Munsell 10YR 4/4) sandy loam defined as sterile and also occurring as inclusions in Stratum 3. Stratum 2 was the pale brown (Munsell 10YR 6/3) sandy loam which occurs at ground surface and throughout the pit defined as Feature 5A. This stratum contained many sandstone blocks. Stratum 3 was a very pale brown (10YR 7/4) sandy loam occurring in Feature 5A. Stratum 4 was a dark yellowish brown (Munsell 10YR 3/4) clayey sandy loam associated with the large sandstone blocks.

Feature 5A measured approximately 60 x 70 x 80 cm. The feature has a vertical north wall and a sloping south wall. The feature could represent a trench for a sandstone pier. Evidence for this interpretation is the profile definition and the fact that blocks are concentrated in this area, while surrounding areas show no indication of wall structure. Other possible functions are a small trash pit or wall debris slump.

4.2.5 Feature 11

Feature 11 is a large depression approximately 15 m in diameter located in architectural Area D. The structure was probably a cellar or basement. Surficial artifact scatter was limited in quantity. There were two large stones on the east edge of the depression; these may have been pier stones for corners of the structure or stones to support the floor, along with the dirt mound at approximately the same elevation on the west side of the depression. The test unit exposed part of the south wall of the depression, showing it to have been a cellar dug into sterile with massive sandstone blocks at the base of the wall.

A 1 x 1 m test pit (323N/430E) was placed along the steeply sloped south side of the depression to locate architectural information for the depression's construction. The unit was excavated in 18 10 cm levels to a depth of 1.7 m below ground surface. Because of the steep slope toward the north, excavation of the first three levels was concentrated primarily in the south half of the unit. As a result, lag gravels located at ground surface were present in the first three levels excavated. First evidence of the dugout wall was found between 60-70 cm below ground surface. At this point, the southern half of the unit consisted of compact, light loamy sterile sand, while the northern half was loamy sand with less compact lag gravels. The contact between the two was very distinct. At 1.1-1.2 m below ground surface, artifact density in the northern half of the unit dropped sharply and gravel size increased. At 1.5-1.6 m below ground surface a coarse sand was exposed in the sterile portion of the unit. The cellar floor was approximately 8 feet below the floor of the structure above.

Three strata were identified (Figure 4.17). Stratum 1 is a fine-grained sand with some gravel (Munsell 10YR 6/3 pale brown). Stratum 2 is a fine-grained loamy sand with many gravels, pebbles, and cobbles (Munsell 10YR 5/3). There is a distinct separation between strata 1 and 2. Stratum 3 is a coarse-

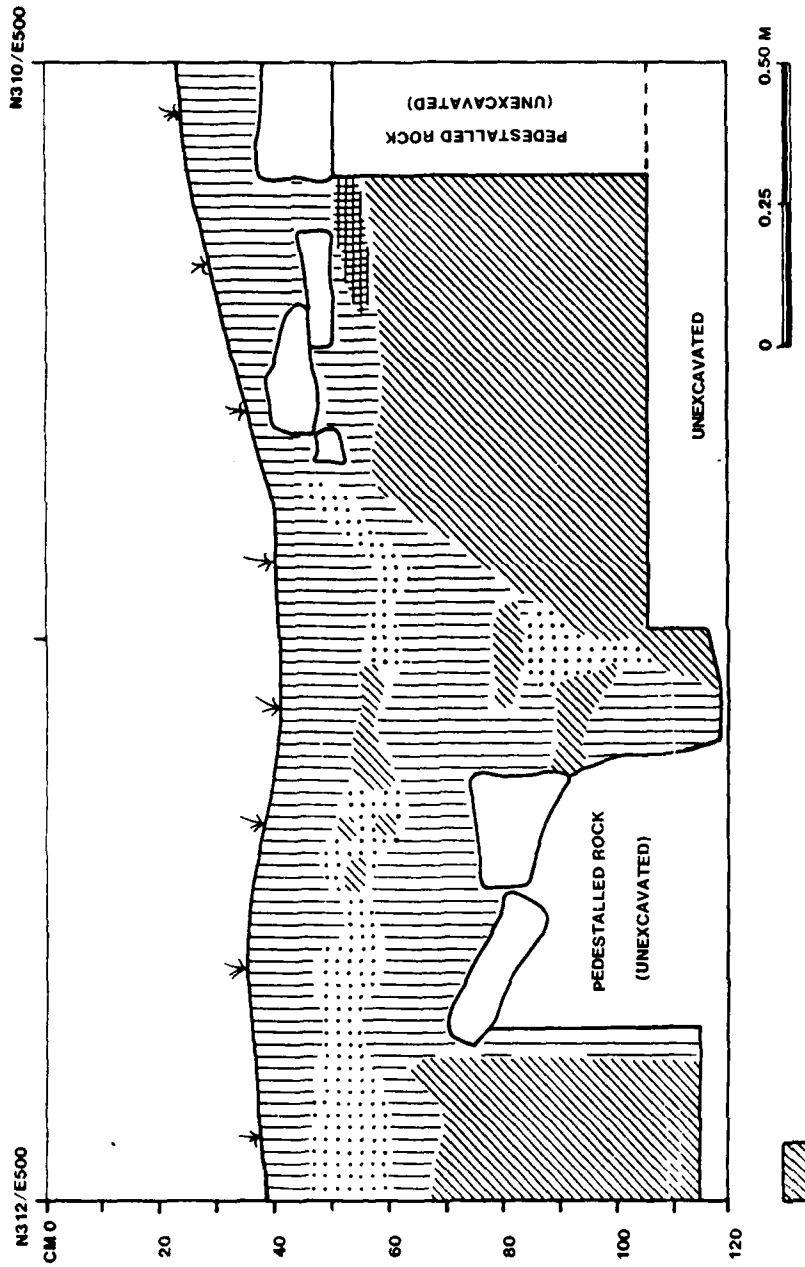
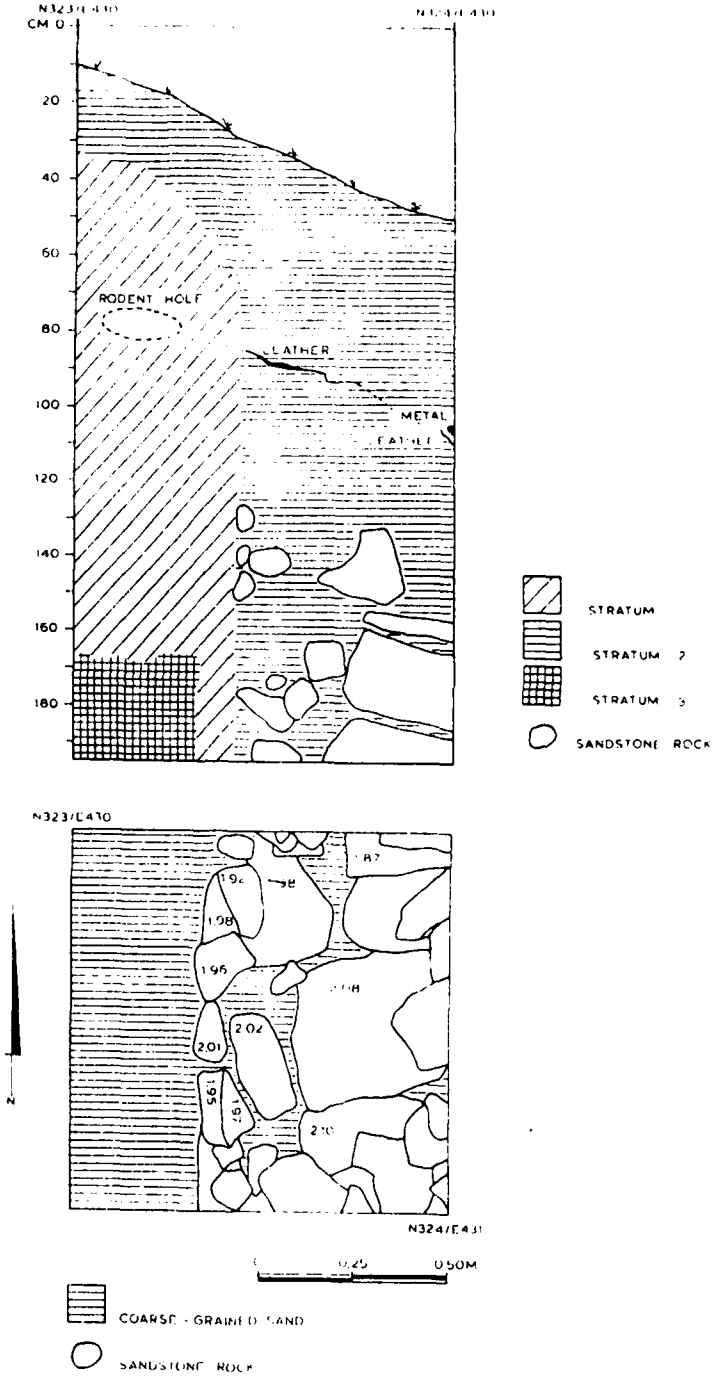


Figure 4.16 Profile of the East Wall of Feature 5 Test Pit, 310N/499E, Old Las Animas Evaluation Program, ACOE, 1987.

Figure 4.17 Profile of the West Wall of of Feature 11 Test Pit, 323N/430E, and Plan View of the Base of Level 18, Old Las Animas Evaluation Program, ACOE, 1987.



grained sand with many gravels, pebbles, and cobbles (Munsell 10YR 6/4 light yellowish brown). There is a distinct separation between strata 1 and 3; Stratum 3 also has more inclusions than Stratum 2.

Feature 11A is a 1 m^2 portion of a stone lined cellar wall. Large sandstone blocks estimated at 30 x 30 x 30 cm in size were used as the base of the wall with smaller stones placed on top (see Figure 4.17). The dugout wall apparently collapsed inward toward the center of the cellar. Rusted iron fragments, probably part of a large nail or small spike, appeared in the stone rubble, suggesting that these items were driven between the rocks of the cellar wall near its base. The feature was dug into sterile soil and later filled with windblown and water-deposited soil. No stratigraphy was discerned within the cellar. The wall may have been lined with planks, judging by the occasional pieces of rotten wood exposed along the color change line. Some rodent disturbance was noted along the west wall of the test pit.

4.2.6 Feature 13

Feature 13 is a contiguous sandstone slab foundation structure located in Area D. The feature is roughly square and aligned with the site grid. The foundation is largely buried, but corners exposed after wall trenching were intact. Building materials were sandstone foundation stones and chinking material. Only the four corners were exposed by wall trenching; 80 percent of the foundation is still buried and characteristics are unknown. The north wall extends east of the northeast corner towards Feature 12 at least 3 m in distance. Feature 12 may represent an addition to Feature 13. Another extension in the northwest corner may represent a buttress or pier.

The north wall is 5.9 m, the south wall 5.7 m, and the east and west walls 5.6 m in length. All walls were approximately 45 cm wide. The southwest corner was 20 cm high. Elements were shaped into rectangular, square, and oblong slabs with irregularly shaped chinking stones. Horizontal placement was parallel double coursed. Corner stones apparently were removed, although lower courses of the foundation are intact. Maximum size wall elements were 50 x 50 x 10 cm; minimum size was 20 x 30 x 5 cm.

A 1 x 2 m test pit was placed at the southwest corner of Feature 13 (328N/405.5E). This unit began as a 1 x 1 m unit at grid 328N/406.5E. After completion of Level 1, it was determined that the unit was inside the feature corner. In order to include extramural deposits in the excavation sample, the test pit was extended 1 m west. The first level of the west 1 m^2 was bagged separately from the first level of the eastern 1 m^2. Beginning with the second level, the entire unit was excavated. After Level 5, the east half of the unit was terminated at the level of the base of the foundation due to lack of artifacts. Screen from wall interior and exterion was screened separately. The unit was excavated in five (east half) to six (west half) 10 cm levels to depths of 50-60 cm below ground surface.

At 20-30 cm below ground surface, no artifacts were present inside the feature. Artifact density outside the feature fell at 30-40 cm below ground surface, and by Level 5, most artifacts appeared to derive from animal burrows and root activity.

Seven strata were identified (Figure 4.18). Stratum 1 is a dark brown (Munsell 10YR 4/3) sandy loam. Stratum 2 is a light brownish gray (Munsell 10YR 6/2) ashy sandy loam with charcoal, coal, and charcoal flecking. This stratum is distinguished clearly from strata above and below by color. Stratum 3 is a very dark grayish brown (Munsell 10YR 3/2) ashy sandy loam. The stratum is highly carbonized with coal and charcoal flecking. Stratum 4 is a dark yellowish brown (Munsell 10YR 4/4) sandy loam full of pebbles. Strata 1, 3, and 4 resemble each other; Stratum 3 is distinguished by its inclusion of carbon material. Stratum 5 is a sterile yellowish brown (Munsell 10YR 5/6) clayey sandy loam. Stratum 6 is a sterile yellowish brown (10YR 5/4) clayey sandy loam. Definitions of strata 4, 5, and 6 are not distinct due to the occurrence of leaching. Stratum 7 is a burrow; it is filled with light yellowish brown (Munsell 10YR 6/4) ashy sandy loam. This stratum occurs in Stratum 4 and is distinguished by a color change.

4.2.7 Feature 20

Feature 20 is a marginally defined spaced stone alignment and depression in Area C. The north wall of the central room contains a contiguous stone alignment. Trash scatter occurs to the northwest and northeast of the central room. Two stone points and numerous bricks occur on the feature's surface.

A 1 x 1 m test pit (408N/466E) was placed in the south part of the depression in the central room of the feature. The unit was excavated in six 10 cm levels to a depth of 60 cm below ground surface. The majority of artifacts were present in the first 20 cm of fill; below this level, artifact density dropped. Bricks were found in fill, but none of these were in alignment suggesting a wall. No subsurface features were found. The contact between cultural and sterile soil was extremely subtle.

Two strata were identified (Figure 4.19). Stratum 1 was a dark yellowish brown (10YR 4/4) sandy loam with small pebbles. Within this stratum in the northwest half at 10-20 cm below ground surface was silty sandy loam with few pebbles. Stratum 2 was a sterile sandy loam with few pebbles (Munsell 10YR 4/3).

4.2.8 Feature 22

Feature 22 is a depression with scattered stones in Area B. The test pit was placed in the northeast portion of the depression. Local vegetation consisted of sagebrush. The 1 x 1 m test pit (423N/440E) was excavated in eight 10 cm levels and one 20 cm level in subsurface Feature 22A. Depth below ground surface was 80 cm over most of the unit and 101 cm at the deepest point of the subsurface feature.

Four strata were identified (Figure 4.20). Stratum 1 is a dark brown (Munsell 10YR 3/3) sandy loam with light charcoal flecking throughout the layer. Some yellow (Munsell 10YR 7/8) and red (Munsell 5YR 4/8) clayey loam occurs as soil mottling in the upper 20 cm of the layer. Stratum 1 is fairly homogeneous and contains root and rodent activity throughout. This layer represents overburden. Stratum 2 is equivalent to subsurface Feature 22A, a very dark grayish brown (Munsell 10YR 3/2) sandy loam. The feature is defined by a heavy concentration of charcoal. There is no distinct break between strata 1 and 2 other than charcoal density. Stratum 2A is a black (Munsell

Figure 4.18 Profile of the South Wall of Feature 13 Test Pit, 328N/405.5E, Old Las Animas Evaluation Program, ACOE, 1987.

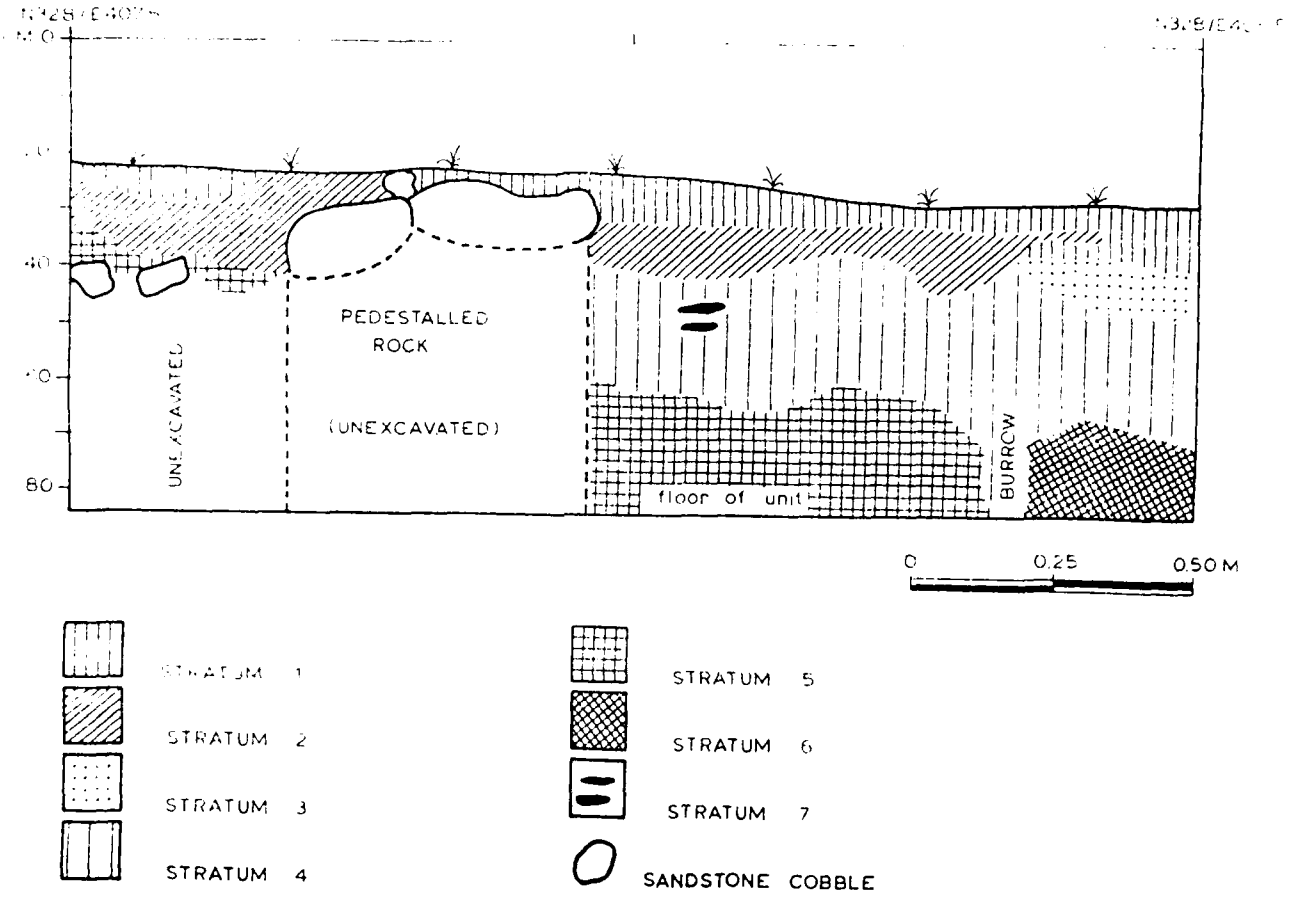


Figure 4.19 Profile of the East Wall of Feature 20 Test Pit, 408N/466E, Old Las Animas Evaluation Program, ACOE, 1987.

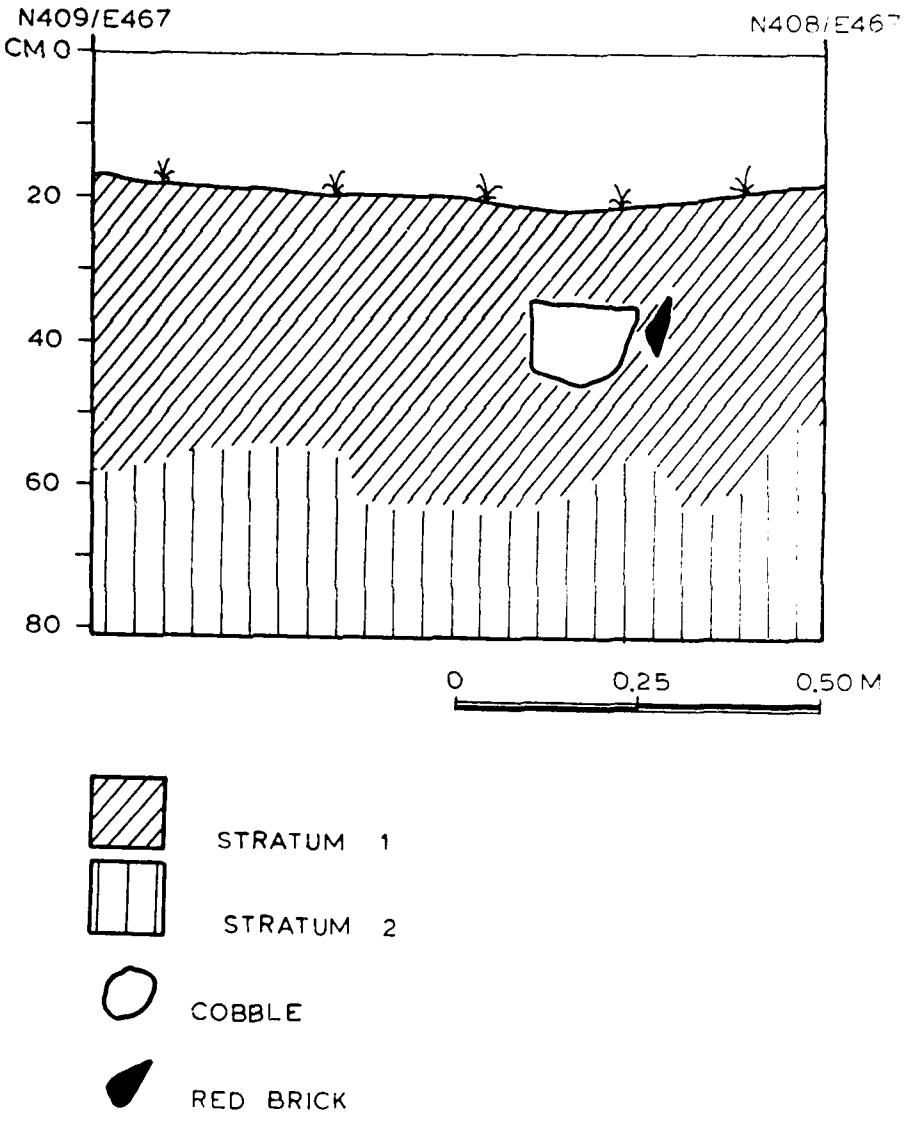
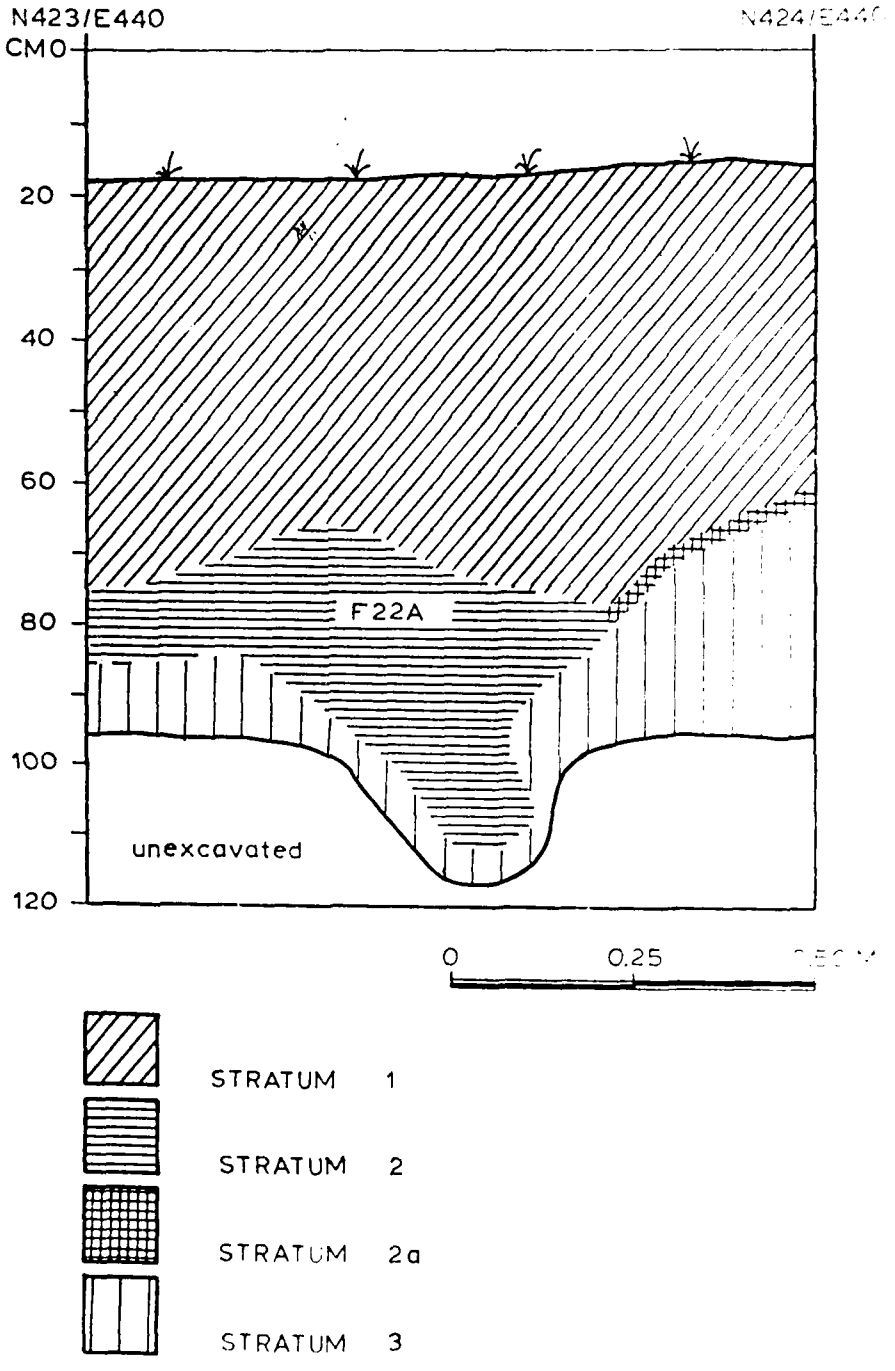


Figure 4.20 Profile of the West Wall of Feature 22 Test Pit, 423N/440E, Showing Subsurface Feature 22A, Old Las Animas Evaluation Program, ACOE, 1987.



5YR 2.5/1) charcoal layer. Stratum 3 is sterile yellow (Munsell 10YR 7/6) sandy loam.

Subsurface Feature 22A first appeared in the northwest corner of the test pit at 70 cm below ground surface. The feature consists of a heavy a concentration of charcoal flecking within a very dark, grayish brown sandy loam matrix. The stain slopes toward the southwest corner of the test unit. A possible post mold, root, or rodent burrow is evident in profile. Burned and unburned bone, charcoal, and metal fragments occur throughout the feature. The vertical dip of Feature 22A at its terminus in the west wall of the test pit strongly suggests rodent activity due to its irregularity and narrow width. No wood was present to suggest a post mold.

4.2.9 Feature 37 (Interior)

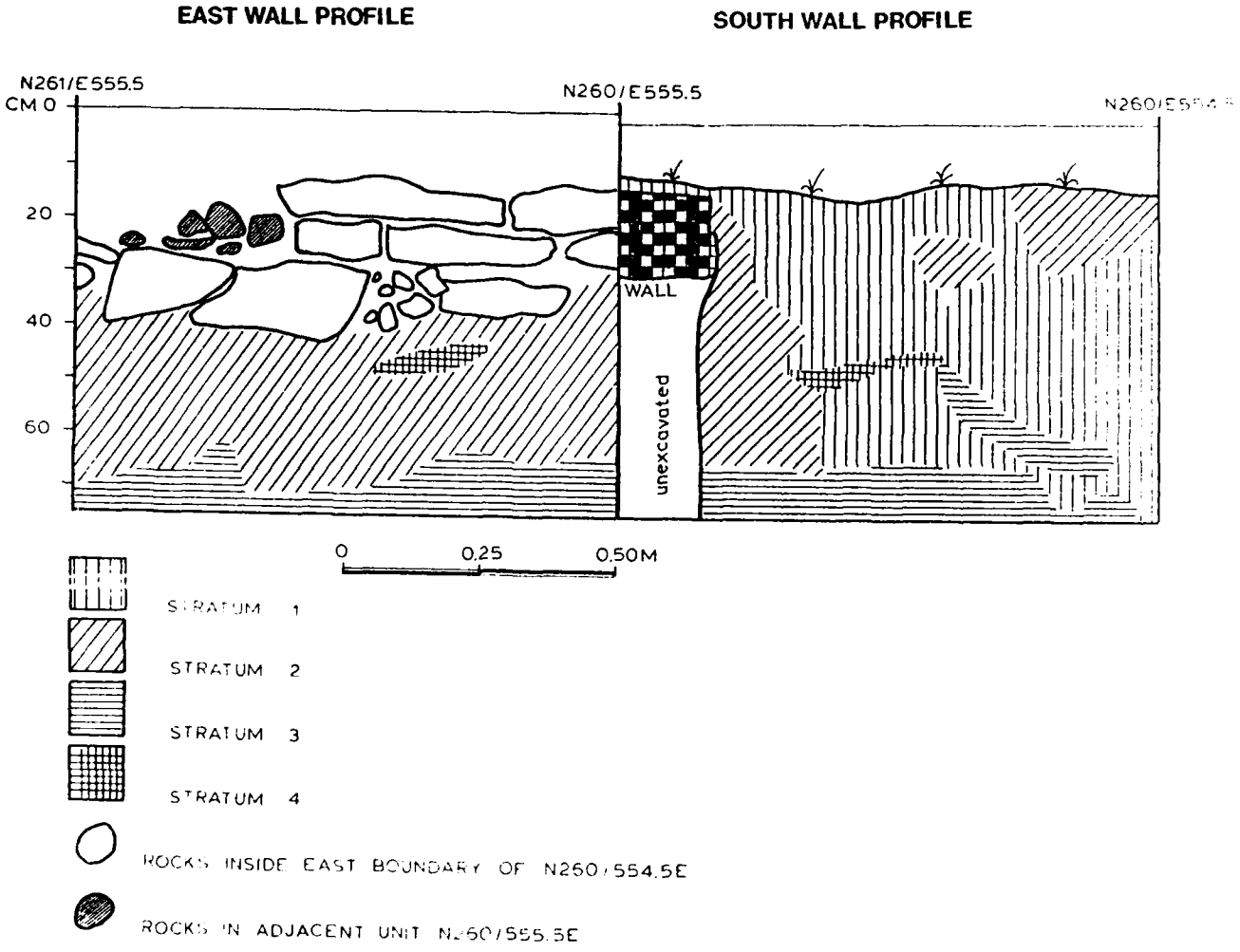
Feature 37 is a contiguous stone foundation located in Area E. This feature is the only well defined feature in this architectural area. It consists of a rectangular stone foundation which has been disturbed in places. A possible entrance is present on the south side of the feature. Building materials are shaped sandstone blocks of rectangular to triangular shape. Five pieces of red brick occur in the south portion of the feature.

Walls are double course in width and 2-3 courses in height, depending on the thickness of the blocks used. Judging from the wall exposed in the contiguous excavation units, mortar appears to be a reinforced mud. Small rock fragments are used for chinking. Based on surface information only, the corners appear to be abutted. Wall lengths are 6.5 m for the north wall, 6.3 m for the south wall, 12.6 m for the east wall, and 12.5 m for the west wall. Average wall width is 50 cm. Maximum wall heights based on surface indications are 10 cm for the north and south walls, 17 cm for the east wall, and 16 cm for the west wall. Maximum wall element size is 61 x 36 x 10 cm; minimum element size is 5 x 5 x 3 cm.

The test unit at 260N/554.5E was placed inside the foundation of Feature 37 in the area of a small depression. The 1 x 1 m unit was situated so that the pit and the nearest stone wall were both partially inside the excavated area. The unit was excavated in six 10 cm levels to a depth of 50 cm below ground surface. Soil was brown sandy loam at the top, followed by staining in the northwest portion of the unit related to the depression, followed by tan sterile sand at approximately 70 cm below datum. No subsurface features were defined.

Three strata were identified (Figure 4.21). These correspond with those recorded for the Feature 37 exterior test pit on the other side of the feature wall. Stratum 2 was brown to dark brown (Munsell 10YR 4/3) fine-grained sandy loam with gravels and pebbles. Stratum 3 was pale brown (Munsell 10YR 6/3) fine-grained sandy loam with very few gravels and pebbles. Stratum 4 consisted of fine laminated tan sand lenses (no Munsell was possible). These lenses occur less than 10 cm below the base of the foundation, in an area below a number of chinking stones. The strata may represent aeolian sand which blew and washed between the foundation stones after abandonment.

Figure 4.21 Profiles of the East and South Walls of Feature 37 Interior Test Pit, 260N/554.5E, Old Las Animas Evaluation Program, ACOE, 1987.



4.2.10 Feature 37 (Exterior)

The test pit outside the Feature 37 foundation (described above) was placed at 260N/555.5E. This unit was placed adjacent to 260N/555.5E. As artifact density in the interior test pit was very low, the exterior area was sampled for comparison. The test pit was 1 x 1 m in size.

The test pit was excavated in five 10 cm levels to a depth of 50 cm below ground surface. The southeast corner of the test pit fill was loose and sandy in the first 10 cm, probably indicating rodent activity. A few small dark stained areas were noted. A pocket of sand was found in the northeast corner at 10-20 cm below ground surface. Artifact density dropped drastically after the first 10 cm level. Lag gravel appeared at approximately 40 cm below ground surface.

Four strata were identified. Stratum 1 (present in the Feature 37 interior test pit south wall profile) was brown (Munsell 7.5YR 4/6) sandy loam. Stratum 2 was a darker brown (Munsell 7.5YR 5/4) sandy loam. Stratum 3 was a compact tan (Munsell 7.5YR 6/4) sand. Stratum 4 consisted of seven light tan bands, approximately 1-2 mm thick.

4.2.11 Feature 53

Feature 53 is an oval concentration of sandstone rubble, possibly representing the remains of a structure. The feature consists of roughly shaped sandstone blocks of small to massive size, as well as chinking stones.

A 1 x 1 m test pit (185N/670.5E) was placed at the southwest edge of the feature to test for structural remains. The unit was excavated in six 10 cm levels to a depth of 60 cm below ground surface.

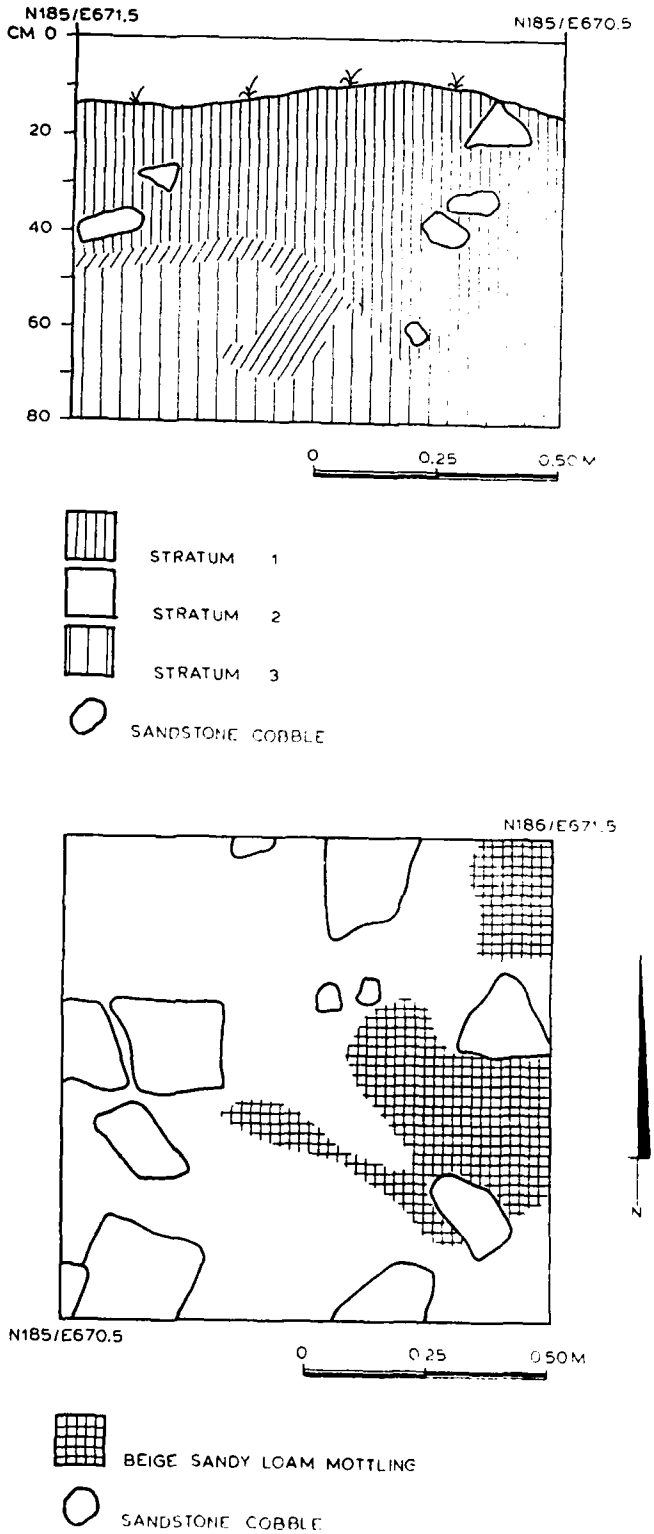
Three strata were identified (Figure 4.22). Stratum 1 is a dark yellowish brown (Munsell 10YR 4/4) sandy loam containing pebbles and cobbles. Stratum 2 is a brown (Munsell 10YR 5/3) sandy loam, finer grained than the previous stratum. Stratum 2 is associated with the base of the feature, while Stratum 1 occurs around the sandstone blocks. Stratum 2 also resembles rodent or root disturbance. The distinction between strata 1 and 2 is very subtle. Stratum 3 is sterile light yellowish brown (Munsell 10YR 6/4) sandy loam. The distinction between strata 2 and 3 is very clear.

4.2.12 Feature 7

Feature 7 is a depression pit in Area A. It is fairly rectangular in plan view and with at least one semivertical wall. The feature is 1.45 m deep. The feature has been disturbed fairly recently, as evidenced by a spoil dirt pile containing artifacts east of the hole. This disturbance exposed part of the western wall of the pit. A slight overhang near the bottom of the pit (before excavation) contained a nest of mice. It was thought originally that the feature was an outhouse; however, the fill was not consistent with this interpretation.

Excavation unit 318N/469E was placed on the southwest edge of the depression, with the unit's northeast corner over the hole. The unit was placed to sample the suspected outhouse wall and eventually its fill. The 1 x

Figure 4.22 **Profile of the East Wall of Feature 53 Test Pit, 185N/670.5E, and Plan View at the Base of Level 2, Old Las Animas Evaluation Program, ACOE, 1987.**



1 m unit was excavated in 15 10 cm levels to a depth of 1.5 m below ground surface.

Feature fill was brown fine-grained sandy loam with an abundance of trash. The pit is filled with trash from top to bottom with no change in matrix or organic consistency suggesting an outhouse function. The trash toward the bottom of the pit is more patinated, rusted, and burned than that in the upper levels. Flotation samples were taken from levels 7, 12, and 14; one seed cache was collected from the base of Level 12. Subsurface Feature 7A was defined as the contents of the hand dug pit.

Eight strata were defined (Figure 4.23). Stratum 1 is a dark yellowish brown (Munsell 10YR 4/4) sandy loam, with trash throughout and some gravels and pebbles. Caliche occurs approximately halfway down the stratum, below the tar concentration. Stratum 2 is brown/dark brown (Munsell 10YR 4/3) fine-grained sandy loam with particularly abundant tar as well as gravels and pebbles. Stratum 3 is sterile, moderately compacted brown (Munsell 10YR 5/3) fine-grained sandy loam. Stratum 4 is the same as the contiguous Stratum 1 but with more trash. Stratum 5 is brown (Munsell 10YR 5/3) fine-grained sandy loam with some clay, pebbles, and gravels. Stratum 6 is brown (Munsell 10YR 5/3) fine-grained sandy loam with some pebbles and gravels. Stratum 7 is dark yellowish brown (Munsell 10YR 4/4) fine-grained sandy loam with some pebbles and gravels. Finally, Stratum 8 is light yellowish brown to yellowish brown (Munsell 10YR 6/4-5/4) sterile sandy clay with coarse gravels and pebbles.

4.2.13 Road South of Feature 2

A 1 x 2 m unit (289N/504E) was placed in a suspected road area south of Feature 2 in Area A. Because the south edge of features 1-4 are aligned and because these features are large, contiguous stone foundation structures, it was thought likely that there was a road south of these features. There were no features located in the suspected road area; however, north of features 1-4 were fenceposts and marginally defined stone features which probably represent backyards for this architectural area. The original 1 x 2 m unit was expanded 2 m to the south to examine more of the road area.

The surface area was covered with thick sagebrush before excavation. The second unit (287N/504E) was excavated in six 10 cm levels to a depth of 60 cm below ground surface. The northern half was excavated in six 10 cm levels and one 5 cm level to a depth of 65 cm below ground surface.

Fill at the top of the unit included a dense root mat and many river cobbles and pebbles, as well as many artifacts. Three strata were identified in the profile, which included both units (Figure 4.24). Stratum 1 was a pale brown (Munsell 10YR 6/3) sandy loam with pebbles. Stratum 2 was a brown (Munsell 10YR 5/3) sandy loam. The change between strata 1 and 2 was subtle; density of artifacts was a factor in making the distinction. Stratum 3 was sterile brownish yellow (Munsell 10YR 6/6) sandy loam.

4.3 ARTIFACT ANALYSIS

Contractual requirements stipulated that only 5,000 artifacts would be processed and analyzed. Approximately 12,043 artifacts (based on field counts) were collected. This situation necessitated selecting a sample of

Figure 4.23 **Profile of the South Wall of Feature 7 Test Pit, 318N/469E, and Plan View of the Base of Level 7 Showing the Overhang in the Pothole, Old Las Animas Evaluation Program, ACOE, 1987.**

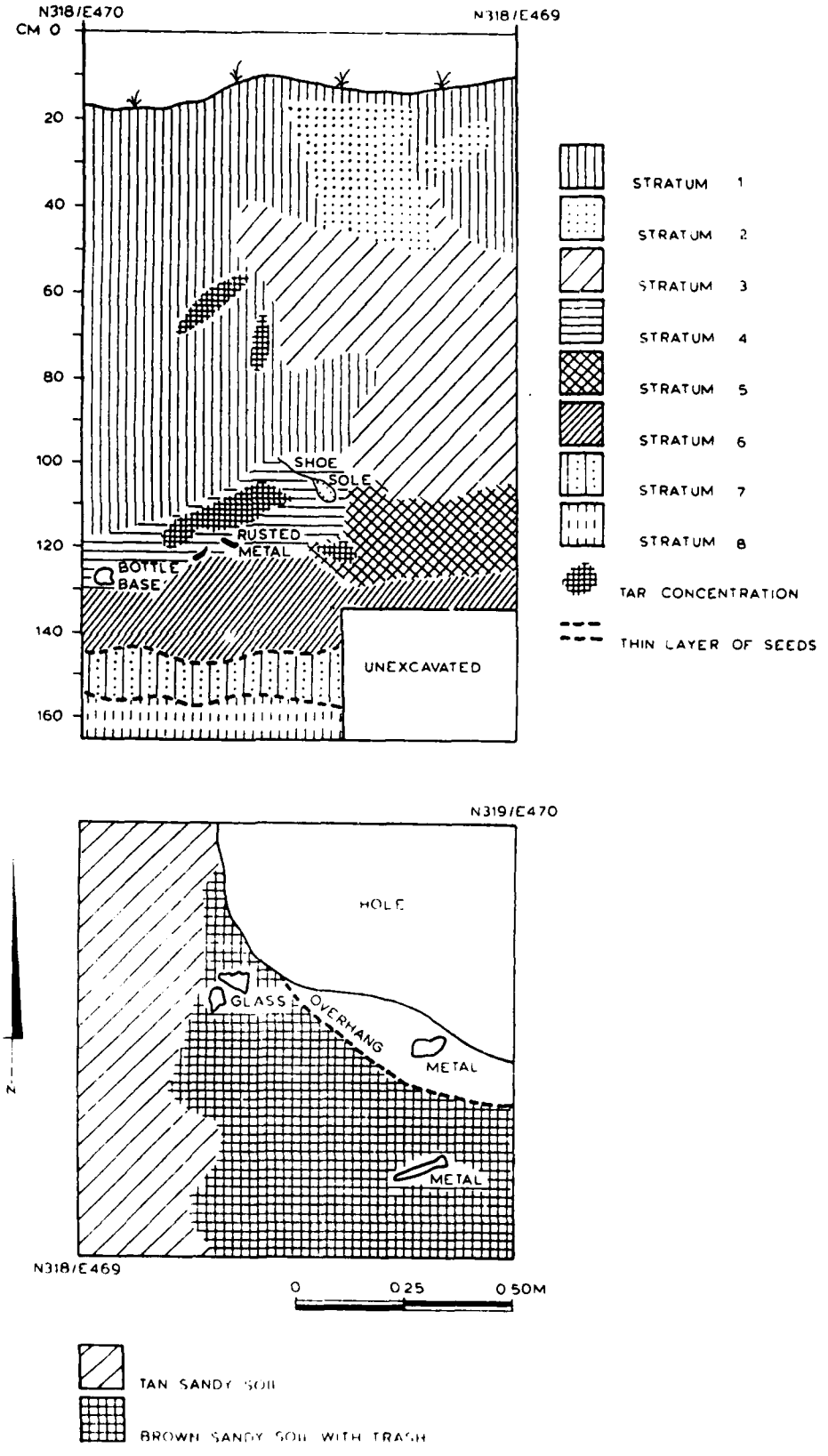
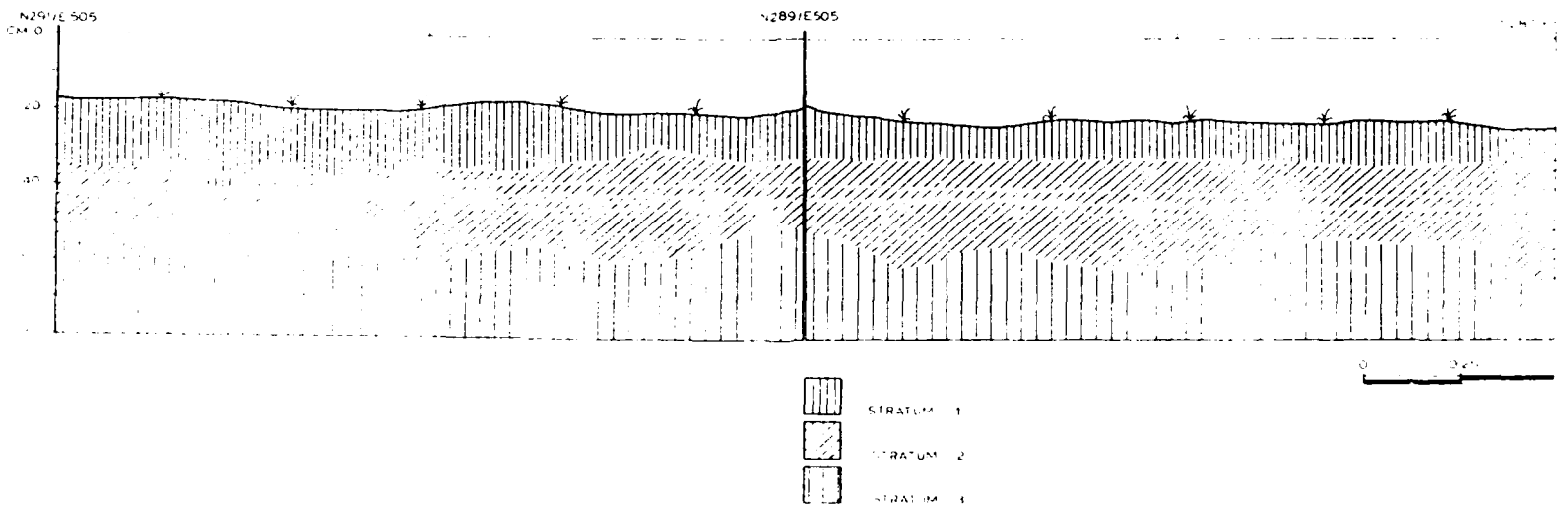


Figure 4.24 Profile of the East Wall of Road Test Pit South of Feature 2, 287-289N/505E, Old Las Animas Evaluation Program, ACOE, 1987.



artifacts to analyze. The rough sort analysis of artifacts from Old Las Animas was structured to include surface assemblages from each of the seven major site areas (A-E, G-H) and subsurface assemblages from structure interiors, structure exteriors, and extramural areas. This breakdown allows spatial and temporal comparison of assemblages from different site areas, from structural and nonstructural proveniences, and from the surface and subsurface of architectural features.

4.3.1 Functional Analyses

This section discusses functional analyses of the surface collected and excavated artifact assemblages. All artifacts in the selected sample were identified and classified into four primary functional groupings: architectural, personal, recreational, and subsistence. Architectural artifacts included window glass, fasteners, hardware, and construction materials, among other items. Personal items included such artifacts as buttons, shoes, buckles, jewelry, and combs. Recreation related artifacts included tobacco pipes, toys, etc. Subsistence related artifacts included ammunition, containers, tools, utensils, and food remains. A fifth major grouping included unidentified and functionally nonspecific artifacts such as metal fragments and leather scraps.

Within each of these primary groupings, artifacts were further classified as to major subsystem. For example, subsistence related artifacts were divided into procurement, preparation, storage and consumption subsystems, with a fifth subclass consisting of food remains. Within each subsystem, artifacts were identified to most specific types (e.g., brass military button, small caliber rimfire cartridge). These data are presented in Tables 4.3, 4.4 and 4.5. Table 4.3 summarizes raw artifact counts for major types by each of the 15 surface collected provenience units; Table 4.4 summarizes these data for the 76 excavated provenience units included in the processed sample. This sample included 1,681 surface collected items and 3,465 excavated items, for a total of 5,146 items. Table 4.5 summarizes the data for each of the 87 artifact types by site architectural area.

The most common single artifact type was bottle glass fragments (23.4%), followed by window glass (18.6%), tin can fragments (14.7%), cut nails (8.1%), and undecorated whiteware ceramics (5.3%). Several artifact types were represented by a single specimen in each category (e.g., hinge, rivet, marble, tobacco pipe).

The 15 analyzed surface collection provenience units ranged from 89 m^2 to 261 m^2 and totaled 849 m^2. Table 4.6 summarizes the density of surface collected artifacts per architectural area, by primary functional classification. Densities are given per m^2 of surface area. For the site as a whole, surface artifact density averaged 1.98/m^2. Densities within architectural area varied widely from a low of 0.07/m^2 in area D to a high of 5.83/m^2 in area E. Areas B, C and E had higher than average densities, while areas D and H had significantly lower artifact densities.

The sample of processed artifacts also included 76 excavated provenience units. These were distributed among 12 excavation test units which were located in and adjacent to nine features and one non-feature. The number of processed levels per test unit ranged from 4-18 and averaged 6.3 levels per

Table 4.3 Surface Collected Historic Artifacts, Counts of Major Functional Types by Minimum Provenience Unit, Old Las Animas Evaluation Program, ACOE, 1987.

Surface Collection	Architectural Area	A	B	B	B	C	C	D	D	E	E	G	G	G	H	H	
	Feature Number	1	22	24	17*	20	34	11	13	37	38	62	54	56	57	64	Totals
ARCHITECTURE	Window Glass	23	1	38	23	1	23	2	2	68	104	5	79	-	-	1	370
	Cut Nails	-	-	3	3	-	1	-	-	-	14	-	5	-	-	7	33
	Lantern Glass	1	2	3	-	-	4	-	-	-	26	-	-	-	-	-	36
	Other	1	2	-	1	1	-	-	-	4	-	2	-	1	2	-	14
PERSONAL/RECREATION	Buttons	1	1	-	1	-	1	1	-	-	1	-	1	-	-	-	7
	Other	-	1	1	-	-	-	-	-	-	6	-	-	-	-	-	8
SUBSISTENCE																	
Procurement	Ammunition	-	-	-	-	1	-	2	-	2	-	-	-	-	-	-	5
Preparation	Chipped Stone	-	2	7	3	-	3	-	-	-	-	-	-	-	-	1	16
Storage	Clear Bottle Glass	5	3	24	12	13	9	-	-	-	23	1	1	1	-	-	92
	Purple Bottle Glass	16	-	8	21	-	9	-	1	2	28	6	3	1	-	6	101
	Olive Bottle Glass	1	1	2	2	-	1	-	-	-	2	-	-	8	-	1	18
	Aqua Bottle Glass	12	6	16	43	4	12	2	-	-	50	5	19	4	-	5	178
	Brown Bottle Glass	3	-	4	73	-	25	1	-	2	48	-	7	3	-	13	179
	Other Bottle Glass	4	2	1	-	-	2	-	-	-	13	-	-	-	-	-	22
	Hole in Top Cans	-	-	-	4	-	-	-	-	-	1	-	1	-	2	1	9
	Can Fragments	2	5	5	45	-	13	2	-	-	20	8	16	-	3	1	120
	Other	1	1	2	4	1	3	5	-	1	1	2	-	-	5	2	28
Consumption	Drinking/Wine Glass	-	2	-	-	-	-	-	-	-	1	-	1	-	-	-	4
	Undec. Whiteware	41	2	3	4	4	85	-	-	-	62	4	11	-	-	7	223
Food Remains	Large Mammal Bone	-	-	1	-	-	11	-	-	-	12	-	10	-	-	-	34
	Small Mammal Bone	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
	Bird Bone	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Unid. Bone Fragments/Other	-	4	5	-	-	-	-	-	-	11	-	-	-	-	-	20
UNIDENTIFIED	Iron Fragments	2	1	8	-	3	58	-	-	8	61	3	3	-	-	6	153
	Other Metal	2	-	-	1	-	1	-	-	-	1	3	-	-	-	-	8
	Leather	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
TOTALS		116	36	131	240	28	261	16	3	87	485	40	157	18	12	51	1681

* 10 m southeast of Feature 17

Table 4.4 Excavated Historic Artifacts, Counts of Major Functional Types by Minimum Provenience Unit, Old Las Animas Evaluation Program, ACOE, 1987.

	Feature	Feature 11																		
	Excavation Level	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Wall
ARCHITECTURE	Window Glass	-	-	-	-	-	-	-	1	-	2	-	-	-	-	1	1	-	-	-
	Cut Nails	-	-	3	-	-	-	1	4	3	2	2	1	1	4	2	3	1	3	1
	Lantern Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	1	1	-	-	-	5	-	-	-	-	-	-
PERSONAL/RECREATION	Buttons	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-
SUBSISTENCE																				
Procurement	Ammunition/Proj. Pts.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preparation	Chipped Stone	-	1	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage	Clear Bottle Glass	-	-	-	-	-	5	-	1	-	-	-	-	-	-	-	-	-	-	-
	Purple Bottle Glass	-	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	Olive Bottle Glass	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Aqua Bottle Glass	1	-	-	2	-	-	-	2	-	2	-	-	-	-	-	-	-	-	-
	Brown Bottle Glass	-	1	-	-	3	4	2	3	3	1	-	-	-	-	-	1	-	-	-
	Other Bottle Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hole in Top Cans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Can Fragments	1	5	5	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Consumption	Drinking/Wine Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Undec. Whiteware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Remains	Large Mammal Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Small Mammal Bone	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	Bird Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fragments/Other	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	Iron Fragments	-	-	8	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-
	Other Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Leather/Other	-	-	-	-	-	-	4	97	24	33	6	2	-	-	-	-	-	-	5
TOTAL																				

Table 4.4 (continued)

	Feature	Feature 1						Feature 5				Feature 7						
	Excavation Level	0	1	2	3	4	5	8	9	10	11	1	2	8	11	12	15	10
ARCHITECTURE	Window Glass	13	5	1	1	-	-	23	5	8	1	7	17	13	13	25	-	8
	Cut Nails	2	-	3	7	4	-	5	4	7	-	4	26	6	44	33	4	6
	Lantern Glass	2	2	1	2	-	-	-	-	-	-	2	14	10	32	44	4	20
	Other	-	-	2	2	6	1	-	1	1	-	4	9	2	2	4	4	3
PERSONAL/RECREATION	Buttons	-	-	-	-	1	-	-	-	-	-	-	-	-	2	1	-	-
	Other	3	-	7	-	1	-	-	-	-	-	1	-	-	1	2	-	-
SUBSISTENCE																		
Procurement	Ammunition/Proj. Pts.	-	1	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-
Preparation	Chipped Stone	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-
Storage	Clear Bottle Glass	2	2	-	-	-	-	-	12	19	-	1	4	3	9	-	-	4
	Purple Bottle Glass	2	-	-	-	-	-	5	-	-	-	2	4	5	3	2	-	3
	Olive Bottle Glass	1	-	-	-	-	-	4	1	19	-	-	-	-	-	-	-	1
	Aqua Bottle Glass	-	2	3	1	-	-	4	3	5	-	5	12	3	14	12	1	4
	Brown Bottle Glass	3	1	2	-	-	-	3	1	2	-	12	29	32	19	11	-	11
	Other Bottle Glass	-	-	-	-	-	-	-	-	-	-	-	5	3	1	5	-	3
	Hole in Top Cans	-	-	-	-	-	-	-	-	-	-	1	1	-	-	2	-	-
	Can Fragments	-	6	21	27	75	-	-	-	-	-	45	41	7	25	21	1	5
	Other	1	-	-	2	-	-	2	-	1	-	-	-	3	2	-	-	-
Consumption	Drinking/Wine Glass	-	2	10	3	9	-	5	-	-	-	-	-	-	-	-	-	-
	Undec. Whiteware	13	-	2	-	1	-	3	-	-	-	-	-	3	2	-	-	-
	Other	1	-	-	-	-	-	-	-	-	-							
Food Remains	Large Mammal Bone	1	1	-	-	4	-	-	9	1	-	15	46	3	10	11	-	1
	Small Mammal Bone	-	-	-	-	-	-	-	-	-	-	-	-	3	1	-	2	-
	Bird Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	-	-
	Fragments/Other	-	-	-	-	-	-	-	-	3	-	-	-	3	5	5	4	5
Unidentified	Iron Fragments	-	1	-	19	14	5	9	4	32	2	2	11	2	5	7	-	1
	Other Metal	-	-	-	-	-	-	-	-	-	-	-	4	-	1	-	-	-
	Leather/Other	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1	-	-
TOTALS		44	23	55	62	115	6	63	40	99	3	101	224	103	191	192	20	75

Table 4.4 (continued)

	Feature #	Feature 20						Feature 13				Feature 53					
	Excavation Level	1	2	3	4	5	6	1	3	4	5	1	2	3	4	5	6
ARCHITECTURE	Window Glass	1	1	-	2	-	-	6	6	1	1	-	1	1	2	-	-
	Cut Nails	-	4	-	2	-	-	1	23	9	1	1	-	2	1	2	-
	Lantern Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other	2	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-
PERSONAL/RECREATION	Buttons	2	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Other	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUBSISTENCE																	
Procurement	Ammunition/Proj. Pts.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Preparation	Chipped Stone	2	2	1	-	1	-	-	1	-	-	1	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Storage	Clear Bottle Glass	4	3	2	-	-	1	-	1	-	1	4	1	2	1	-	-
	Purple Bottle Glass	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Olive Bottle Glass	-	-	-	-	-	-	-	2	1	-	1	3	-	-	-	-
	Aqua Bottle Glass	-	5	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	Brown Bottle Glass	1	-	1	-	-	-	1	6	-	-	-	-	-	-	-	-
	Other Bottle Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Hole in Top Cans	-	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	Can Fragments	5	12	1	1	-	-	4	-	-	-	23	22	17	7	5	-
	Other	-	1	-	-	-	-	1	-	-	-	1	-	-	-	-	-
Consumption	Drinking/Wine Glass	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	Undec. Whiteware	-	-	-	-	-	-	3	2	2	-	1	-	2	-	1	-
	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Remains	Large Mammal Bone	-	-	-	-	-	-	-	-	-	-	9	-	-	-	-	3
	Small Mammal Bone	-	-	-	-	-	-	-	6	-	-	-	-	-	-	-	-
	Bird Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fragments/Other	-	-	1	-	1	-	-	-	3	-	-	2	5	1	-	-
Unidentified	Iron Fragments	7	13	5	1	-	-	1	46	38	1	-	-	-	-	2	-
	Other Metal	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-
	Leather/Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTALS																	

Table 4.4 (continued)

	Feature	287N/504E			289N/504E					Feature 22						
	Excavation Level	2	3	4	2	3	4	5	6	2	3	4	5	6	7	8
ARCHITECTURE	Window Glass	38	7	10	263	15	7	3	2	5	3	3	4	6	2	3
	Cut Nails	14	-	2	107	4	1	1	-	1	4	3	1	1	-	2
	Lantern Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other	1	-	-	5	-	-	-	-	2	3	-	-	1	-	-
PERSONAL/RECREATION	Buttons	-	1	-	1	-	-	-	-	1	-	-	-	1	1	-
	Other	-	2	-	2	-	-	-	-	8	2	-	-	-	-	-
SUBSISTENCE																
Procurement	Ammunition/Proj. Pts.	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-
Preparation	Chipped Stone	-	-	-	-	-	-	-	1	1	-	4	3	1	1	-
	Other	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
Storage	Clear Bottle Glass	-	-	1	9	1	-	2	-	-	1	1	-	1	-	2
	Purple Bottle Glass	6	2	1	8	1	2	-	-	-	-	-	-	-	-	-
	Olive Bottle Glass	7	1	-	5	2	-	-	-	-	-	1	-	-	-	-
	Aqua Bottle Glass	5	1	2	19	-	-	-	-	2	-	4	-	-	-	-
	Brown Bottle Glass	6	-	-	40	2	-	-	-	-	-	-	-	-	-	-
	Other Bottle Glass	-	-	-	1	-	-	-	-	-	-	3	6	1	2	-
	Hole in Top Cans	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	Can Fragments	6	4	1	37	3	-	2	-	-	1	20	57	44	24	20
	Other	1	-	-	6	-	-	-	-	3	-	3	-	-	2	-
Consumption	Drinking/Wine Glass	-	-	-	12	1	-	-	-	4	-	4	9	6	4	1
	Undec. Whiteware	-	-	-	11	-	-	-	-	-	-	-	-	-	2	-
	Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Food Remains	Large Mammal Bone	-	-	-	8	-	-	-	-	22	9	26	8	10	14	4
	Small Mammal Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	Bird Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fragments/Other	1	-	-	11	1	-	2	-	7	-	-	3	15	15	4
Unidentified	Iron Fragments	1	-	-	23	1	-	-	-	-	1	-	-	-	-	-
	Other Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Leather/Other	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
TOTALS		86	19	17	574	31	10	10	3	56	24	72	91	87	68	37

Table 4.4 (continued)

	Feature	Feature 37A					Feature 37B				Totals, All
	Excavation Level	1	2	3	4	5	1	2	3	4	Excavation
ARCHITECTURE	Window Glass	1	2	4	-	-	35	2	1	2	585
	Cut Nails	-	1	1	2	1	5	-	1	-	384
	Lantern Glass	-	-	-	-	-	-	-	-	-	133
	Other	-	-	-	-	-	-	-	-	-	64
PERSONAL/RECREATION	Buttons	-	-	-	-	-	-	-	-	-	13
	Other	-	-	-	-	-	-	-	-	-	32
SUBSISTENCE											
Procurement	Ammunition/Proj. Pts.	-	-	-	-	-	-	-	-	-	8
Preparation	Chipped Stone	-	1	-	1	-	-	-	-	-	25
	Other	-	-	-	-	-	1	-	-	-	4
Storage	Clear Bottle Glass	-	-	-	-	-	37	5	5	1	148
	Purple Bottle Glass	-	1	-	-	-	-	-	-	-	51
	Olive Bottle Glass	-	-	-	-	-	1	-	-	-	52
	Aqua Bottle Glass	-	-	2	-	-	4	1	1	-	123
	Brown Bottle Glass	-	1	-	-	-	6	1	-	-	209
	Other Bottle Glass	-	-	-	-	-	-	-	-	-	30
	Hole in Top Cans	-	-	-	-	-	-	-	-	-	7
	Can Fragments	7	20	4	-	-	-	-	-	-	634
	Other	-	-	-	-	-	-	-	-	-	31
Consumption	Drinking/Wine Glass	-	-	-	-	-	-	-	-	-	71
	Undec. Whiteware	-	-	-	-	-	1	-	-	-	49
	Other	-	-	-	-	-	-	-	-	-	1
Food Remains	Large Mammal Bone	-	-	-	-	-	-	-	-	-	215
	Small Mammal Bone	-	-	1	-	-	-	2	-	1	18
	Bird Bone	-	-	-	-	-	-	-	-	-	5
	Fragments/Other	-	1	-	1	1	7	1	1	-	110
Unidentified	Iron Fragments	-	4	-	1	1	10	-	1	-	282
	Other Metal	-	-	-	-	-	-	-	-	-	7
	Leather/Other	-	-	-	-	-	-	-	-	-	174
TOTALS		8	31	12	5	3	107	10	10	4	2447

Table 4.5 Historic Artifacts, Counts of Functional Types by Architectural Area (Surface and Excavation), Old Las Animas Evaluation Program, ACOE, 1987.

		Architectural Area							
		A	B	C	D	E	G	H	Site Total
I. ARCHITECTURE	Window Glass	508	88	28	23	219	88	1	955
	Brick	-	-	1	-	-	-	-	1
	Cement	-	-	2	-	-	-	-	2
	Plaster	-	-	-	-	2	3	-	5
	Roofing Tin	-	2	-	-	-	-	-	2
	Tar	15	-	-	-	-	-	-	15
	Wood	10	-	-	5	-	-	-	15
	Cut Nails	284	18	7	65	25	11	7	417
	Spikes	1	-	-	1	-	-	-	2
	Screws	2	1	-	-	-	-	-	3
	Bolts/Nuts	2	-	-	1	1	-	-	4
	Wire	2	2	-	-	1	1	-	6
	Washers	-	1	-	-	-	-	-	1
	Hinges	-	1	-	-	-	-	-	1
	Lantern Glass	134	5	4	-	26	-	-	169
	Lantern Parts	3	1	-	-	-	-	-	4
	Wagon Axle	-	-	-	-	-	-	2	2
	Iron Chain	9	-	-	-	-	-	-	9
	Other	4	1	-	1	-	-	-	6
II. PERSONAL ITEMS	Rivets	1	-	-	-	-	-	-	1
	Military Buttons	1	-	1	-	-	1	-	3
	4 Hole Glass/Ceramic Buttons	1	1	2	1	1	-	-	6
	Mother Pearl Buttons	1	2	-	-	-	-	-	3
	Metal Utility Buttons	-	2	1	1	-	-	-	4
	Other Buttons	4	-	-	-	-	-	-	4
	Shoes/Boots	7	10	-	2	5	-	-	24
	Buckles	3	-	-	-	-	-	-	3
	Jewelry	1	1	1	-	-	-	-	3
	Combs	3	-	-	-	-	-	-	3
	Other	3	-	-	-	-	-	-	3
III. RECREATION	Tobacco Pipes	-	1	-	-	-	-	-	1
	Marbles	1	-	-	-	-	-	-	1
	Lead Foil to Liquor Bottle	-	-	-	-	1	-	-	1
IV. SUBSISTENCE ITEMS									
Procurement	Spherical Lead Balls	1	-	-	-	-	-	-	1
	Percussion Caps	3	-	-	-	-	-	-	3
	Lg. Caliber Rimfire Cartridges	1	-	-	-	-	-	-	1
	Sm. Caliber Rimfire Cartridges	1	-	-	-	-	-	-	1
	Plastic Case Shotgun Shells	-	-	-	-	2	-	-	2
	Projectile Points, Stone	-	-	1	1	-	-	-	2
Preparation	Iron Pots/Pans	1	-	-	-	-	-	-	1
	Buckets	-	1	-	-	-	-	-	1
	Chipped Stone	2	22	9	4	2	1	1	41

Table 4.5 (continued)

		Architectural Area							
		A	B	C	D	E	G	H	Site Total
	Fire Cracked Rock	1	-	-	-	1	-	-	2
	Iron File	1	-	-	-	-	-	-	1
Storage	Lead Glazed Earthenware Crocks	1	1	-	-	-	-	-	2
	Unglazed Earthenware Crocks	2	-	-	-	-	-	5	7
	Salt Glazed Stoneware Crocks	1	1	-	-	1	-	-	3
	Lead Glazed Stoneware Crocks	1	-	1	1	-	-	-	3
	Lead Glazed Earthenware Bottles	-	-	-	-	-	-	1	1
	Salt Glazed Stoneware Bottles	5	7	2	-	-	1	-	15
	Clear Bottle Glass	74	44	32	8	71	11	-	240
	Solar Purpled Bottle Glass	62	29	10	3	31	11	6	152
	Olive Bottle Glass	42	6	1	5	3	12	1	70
	Aqua Bottle Glass	108	71	21	10	58	28	5	301
	Brown Bottle Glass	177	77	27	26	58	10	13	388
	Light Green Bottle Glass	20	14	1	-	10	-	-	45
	White Bottle Glass	1	1	1	-	3	-	-	6
	Cobalt Bottle Glass	1	-	-	-	-	-	-	1
	Rectangular Cans	1	-	-	-	-	-	-	1
	Round Hole in Top Cans	5	4	1	-	1	2	3	16
	Wire handle Cans	1	-	-	-	-	-	-	1
	Baking Powder Cans	-	2	-	-	-	-	-	2
	Unid. Can Fragments	329	221	32	19	51	98	4	754
	Barrel Hoops	3	2	2	7	1	2	-	17
	Other	5	1	-	-	-	-	-	6
Consumption	Spoons	1	-	-	-	-	-	-	1
	Tumbler Glass	-	13	-	-	1	1	-	15
	Goblet Glass	1	-	-	-	-	-	-	1
	Wine Glass	41	17	-	1	-	-	-	59
	Undecorated Whiteware Ceramics	76	11	89	7	63	19	7	272
Food Remains	Large Mammal, Burned	22	3	-	-	4	-	-	29
	Large Mammal, Unburned	88	91	11	-	8	22	-	220
	Small Mammal, Burned	-	1	-	4	-	-	-	5
	Small Mammal, Unburned	6	-	-	3	4	1	-	14
	Bird, Unburned	6	-	-	-	-	-	-	6
	Unid./Fragments, Burned	-	5	-	1	-	-	-	6
	Unid./Fragments, Unburned	37	47	2	3	12	8	-	109
	Eggshell	3	1	-	-	10	-	-	14
	Seeds	-	-	-	-	1	-	-	1
V. FUNCTIONALLY NON-SPECIFIC MATERIALS									
	Tabular Iron	25	9	11	22	62	3	3	135
	Cylindrical Iron	46	-	-	29	7	2	-	84
	Chunky Iron	70	1	76	46	17	3	3	216
	Tabular Grey Metal	-	1	1	-	1	2	-	5
	Copper	5	-	2	-	-	1	-	8
	Leather	2	1	-	172	-	-	-	175
	Other	2	-	-	-	-	-	-	2
TOTALS		2282	842	380	473	764	342	63	5146

Table 4.6 Density of Surface Collected Artifacts, by Artifact Class, Per Architectural Area, Old Las Animas Evaluation Program, ACOE, 1987.

Area	Area Collected (m^2)	Total Artif.	Total Density ($/m^2$)	Artifacts per M^2			
				Architecture	Personal/ Recreation	Subsistence	Unknown
A	100	116	1.16	0.25	0.01	0.86	0.04
B	99	407	4.11	0.77	0.04	3.20	0.10
C	89	289	3.24	0.34	0.01	2.20	0.70
D	261	19	0.07	0.02	0.00	0.05	0.00
E	98	572	5.83	2.20	0.07	2.85	0.71
G	94	215	2.28	0.98	0.01	1.20	0.10
H	108	63	0.58	0.09	0.00	0.44	0.06
Site	849	1681	1.98	0.53	0.02	1.24	0.19

test pit. A total of 3,465 artifacts were included in these provenience units. Density of excavated artifacts ranged from $24/m^3$ in Feature 11 to $1,296/m^3$ in Feature 7. For the site as a whole, excavated artifact density averaged $456/m^3$. Densities of excavated artifacts are summarized in Table 4.7. These densities are given per m^3 of soil; since excavation was by 0.1 m levels within 1 x 1 m or larger test pits, densities for soil volume are larger than for surface area.

Table 4.7 Density of Excavated Artifacts, by Artifact Class, Per Architectural Area, Old Las Animas Evaluation Program, ACOE, 1987.

Area	Feature	Levels Exam.	Total Arti.	Total Density ($/m^3$)	Artifacts per M^3			
					Architecture	Personal/ Recreation	Subsistence	Unknown
A	7	7	906	1293	514	10	721	49
A	N287-9	8	750	935	600	8	299	31
A	1	6	305	507	90	20	332	67
A	5	4	205	513	138	0	258	118
B	22	7	435	629	63	19	537	3
C	20	6	91	148	20	7	78	47
D	13	5	172	344	98	2	72	172
D	11	18	282	157	24	1	31	101
E	37	9	192	213	64	0	130	19
G	53	6	127	212	18	0	190	3
Site	--	76	3465	456	153	6	236	61

Considering both surface and excavated units, subsistence related artifacts were the most frequent class of artifacts (55.2%), followed by architectural artifacts (31.5%), and unknown/unidentified artifacts (12.1%). Personal and recreational artifacts were very rare (1.2%, combined). Only three recreational artifacts were included in the total sample of 5,146 artifacts. A fifth grouping included unidentified and functionally non-specific artifacts. These data are summarized in Table 4.8. Some variability between architectural areas may be observed. Areas B, C, and H are notable for relatively low frequencies of architectural items and simultaneous high frequencies of subsistence related items. The ratio of architectural to subsistence items in these areas ranges from 0.17 to 0.21 and is clustered around 0.19. Conversely, this ratio in areas A, D, E, and G ranges from 0.45 to 0.92 and is clustered around 0.68. For the site as a whole, this ratio is 0.57.

Table 4.8 Functional Classes of Artifacts, Percent by Architectural Area, Old Las Animas Evaluation Program, ACOE, 1987.

Architectural Area	Total Artifacts	PERCENT				Ratio, Architecture To Subsistance
		Arch.	Pers./ Recr.	Subsis.	Unk.	
A	2282	42.7	1.1	49.6	6.6	0.86
B	842	14.3	2.0	82.3	1.4	0.17
C	380	11.1	1.3	63.9	23.7	0.17
D	473	20.3	0.8	22.0	56.9	0.92
E	764	35.9	0.9	51.8	11.4	0.69
G	342	30.1	0.3	66.4	3.2	0.45
H	63	15.9	0.0	74.6	9.5	0.21
Site Totals	5146	31.5	1.2	55.2	12.1	0.57

Within the subsistence primary grouping (n = 2,842), storage related artifacts were most frequent (71.5%), followed by food remains (14.2%), consumption related artifacts (12.2%), preparation related artifacts (1.6%), and procurement related artifacts (0.5%). These data are summarized in Table 4.9, by architectural area. Some variability between architectural areas may be noted. Within all areas, storage related artifacts are most frequent. These include large numbers of fragmented bottle glass and rusted can fragments. All areas have comparably low frequencies of procurement and preparation related artifacts. However, Area B has an unusually high concentration of food remains (21.4%), while Area H has none (0.0%). No excavation occurred in Area H, however. Alternatively, Area C has a relatively high concentration of consumption related artifacts (36.6%), mostly undecorated whiteware ceramics.

Table 4.9 Subclasses of Subsistence Related Artifacts,Percent by Architectural Area, Old Las Animas Evaluation Program, ACOE, 1987.

Architectural Area	Subsistence Items	PERCENT					Ratio, Storage to Consumption
		Procurement	Preparation	Storage	Consumption	Food Remains	
A	1132	0.7	0.4	74.0	10.5	14.3	7.05
B	693	0.0	3.2	69.6	5.9	21.4	11.76
C	243	0.4	3.7	53.9	36.6	5.3	1.47
D	104	1.9	3.8	76.0	7.7	10.6	9.88
E	396	0.5	0.8	72.7	16.2	9.8	4.50
G	227	0.0	0.4	77.1	8.8	13.7	8.75
H	47	0.0	2.1	83.0	14.9	0.0	5.57
Site	2842	0.5	1.6	71.5	12.2	14.2	5.84

Both fire-cracked rock and flaked lithics were present in the assemblage. These included two specimens of fire-cracked rock and 43 lithics, including two bifacially flaked projectile points. Flaked lithics were present in every architectural area. However, lithics were most heavily concentrated in Areas B and C, comprising 2.4% and 2.6% of the total artifact assemblages in these areas, respectively.

Animal bone and bone fragments comprised 7.6% of the total assemblage and were most heavily concentrated in architectural Area B. Of a total of 389 specimens, only 27 were identifiable as to morphological part and taxonomic family; most specimens were highly fragmentary. Of the identifiable specimens, all were from cervids or bovids, with the exception of a single rodent bone. Several of the bones were exceptionally robust and were provisionally identified as *Bison bison*. The remaining fragments (n = 362) were classified as to large mammal (65.0%), small mammal (3.9%), or bird (1.5%), depending on size and general robustness. There remained a sizeable number of completely unidentifiable fragments (29.6%). Ten of the large mammal bones were saw cut.

4.3.2 Temporal Analyses

This section presents results of temporal analyses of the surface collected and excavated artifact asemblages. Several classes of temporally sensitive artifacts are discussed, including metal cans, ceramics, ammunition, nails, glass bottles, artifacts with printed dates, and window glass. Analysis of these artifacts suggests that the site was most likely occupied no earlier than 1860 and that no new construction was done after 1887.

While 774 cans and can fragments were examined in the selected sample, most of these were fragmentary and highly oxidized; only 17 can lids were identifiable. These included one rectangular shaped can, presumably for

sardines or fish, one can with a wire handle (lard bucket?), two baking powder tins, and 16 round hole-in-the-top cans. This type of can was manufactured between 1810 and roughly 1902 when it began to be replaced by the modern style can (Lees 1977:111-112).

The ceramic assemblage included small numbers of lead glazed earthenware and both salt and lead glazed stoneware. The preponderance of ceramics (90%) were undecorated whiteware sherds, including both porcelain and whiteware ironstone. Of 272 whiteware sherds in the processed sample, only three maker marks were present. One of these was inscribed "...G. ME..." under a blank scroll design. This mark is probably that of J. & G. Meakin & Co. of Hanley, England, a popular manufacturer of fine china during the late nineteenth and early twentieth centuries (Spivey et al. 1977:72-73). The lack of an inscription on the scroll indicates that the vessel was probably manufactured prior to 1891, when U.S. import duties required modifications of maker's marks to include the country of origin (Spivey et al. 1977:70). The second mark is a lion and unicorn design, rampant over a shield. No inscription is present. This general form of mark was very common during the late nineteenth and early twentieth centuries and was used with minor variations by a number of British and American manufacturers. Several American companies copied the design from more well known and prestigious British companies (Spivey et al. 1977:75). Due to the lack of an inscription and the poor quality of the printed design, it is probable that this vessel was of American manufacture, again probably before 1891. The third maker's mark has an inscription on three lines: (1) "...NE CHIN.."; (2) "...CIS. C. EA..."; (3) "...SAS CIT...". This vessel was probably manufactured at Kansas City, although the manufacturer was not identified.

Metal ammunition artifacts include four brass cartridge casings, three percussion caps, one lead ball, and two shotgun shells. The cartridges included two rimfire and two centerfire. The centerfire cartridges are of the internally primed Benet cup type, which was introduced in 1870 (Moore 1963:72). Rimfire cartridges became widespread after 1858 (Moore 1963:68). None of the cartridges was inscribed with the manufacturer's name or logo. Percussion caps came into general use about 1840 (Moore 1963:25), and began to be replaced by self primed cartridges after the Civil War (Carrillo 1985:427-428). Manufacture of lead balls was largely superceded by conical lead projectiles in 1855, and later by self contained cartridges. Both of the two shotgun shells are modern. These have plastic casings and are inscribed "Remington 20 GA Peters".

The earliest manufacturing dates represented by the ammunition artifacts ranges from before 1840 to after 1870. Both the early lead ball and percussion cap ammunition, as well as the later self contained cartridges are present. However, firearms and ammunition are a highly curated technology and significant lag time may occur before an older technology is completely replaced. Consequently, the percussion caps do not necessarily indicate that the site was occupied before the Civil War. It is very possible that older weapons were being used along with more modern designs.

The processed artifacts also included a large sample of nails. A total of 417 nails was examined. These ranged from 20d nails to small brads,

although most nails were in the 8d to 16d range. An additional 84 iron fragments were highly rusted and of indeterminate function, but these were most likely nail fragments. Of the sample of definite nails, all were square cut; no wire nails were present. Wire nails were introduced in the late nineteenth century and are diagnostic of the period after 1887 (Lees 1977:103). The complete lack of wire nails indicates that all construction was prior to 1887.

Bottle glass is often the most temporally sensitive class of artifacts on historic sites. Manufacturing technology changed rapidly during the nineteenth and twentieth centuries, resulting in a variety of formal and functional attributes that are useful chronometric indicators. These include glass color and quality, lip form, base form and scars, seams, and general size and shape. Further, identifying manufacturers and retailers marks were often embossed into the bottle surface. While the examined artifact assemblage included 1,203 bottle glass artifacts, no whole bottles were recovered. This is likely due to previous collection of whole bottles by amateurs. Most glass specimens were very small. No embossed panels were included in the sample and the small size of the fragments eliminated the use of seams as a dating aid. The most useful bottle glass attributes were color, lip form, and base scars.

Eight different colors of glass were observed. While glass color is not absolutely diagnostic of either function or time period, it may be used as a general guide. Dark olive green glass is most common before 1860, and both clear and solar purpled glass increase in frequency after 1880 (Adams and Larson 1985:478). Brown/amber and aqua/light blue glass are most common between 1860 and 1915 (Adams and Larson 1985:478,480). Table 4.10 summarizes bottle glass color by architectural area. For the site as a whole, only 5.8% of bottle glass is olive, 32.6% is clear or purple, and 57.3% is either brown/amber or aqua/light blue. These data indicate that an overwhelming preponderance of the glass bottles were manufactured after 1860, with the possibility that some bottles were manufactured during the early twentieth century.

If differences in glass color between architectural areas are examined, areas A, D, and G have a slightly higher frequency of olive glass, which may indicate somewhat earlier occupation dates, and/or a greater curation of older bottles. Similarly, Areas C and E have higher frequencies of clear and purple glass, suggesting that these areas may have been occupied later or longer than the other areas.

Among the 1,203 glass specimens in the examined sample, only ten bottle bases were noted. These were examined for evidence of pontil scars and/or maker's marks. Only one base had a legible maker's mark, inscribed "McKee & Co". This company bottled beer in Pittsburgh, Pennsylvania from 1860 to 1890 (Spivey et al. 1977:46). A further six specimens of embossing were observed, but these were not collected. These specimens are illustrated in Appendix A. Two specimens were side panels, inscribed (1) "FAMIL... MEDICIN..." in a rectangular panel; (2) "JUHRIG & CO ST LOUIS M...". These specimens were both aqua glass, but the maker's marks were not identified. Four bottle bases were

inscribed (1) "L G CO" above a "7"; (2) "L G CO"; (3) "D S G CO" below a "G"; and (4) "D S G CO" below a "IX". These are all brown glass and are probably beer bottles. The first two bases could be any of five glass manufacturers, and could range from 1840 to 1900 (Spivey et al. 1977:45). The second two bases are from the DeSteiger Glass Company of La Salle, Illinois, and were manufactured between 1867 and 1896 (Spivey et al. 1977:44).

Table 4.10 Color of Bottle Glass, Percent by Architectural Area, Old Las Animas Evaluation Program, ACOE, 1987.

Area	A	B	C	D	E	G	H	Total Site
Sample Size	485	242	93	52	234	72	25	1203
Clear	15.3	18.2	34.9	15.4	30.3	15.3	0.0	20.0
Solar Purpled	12.8	12.0	10.7	5.8	13.2	13.9	18.0	12.6
Olive	8.7	2.5	1.1	9.6	1.3	12.5	3.1	5.8
Aqua	22.3	29.3	22.6	19.2	24.8	44.4	15.6	25.0
Brown/Amber	36.4	31.8	29.0	50.0	24.8	13.9	40.6	32.3
Light Green	4.1	5.8	1.1	0.0	4.3	0.0	0.0	3.7
White	0.2	0.4	1.1	0.0	1.3	0.0	0.0	0.5
Cobalt	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Totals	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

None of the ten bottle bases which were collected had any evidence of pontil scars. These scars are a function of manufacturing technique, and are generally accepted as evidence of manufacture prior to 1860 (Ferraro and Ferraro 1966:18-19). The sample also included 11 bottle lips, all of which were finished with a lipping tool. No sheared lip rims and no crown cap rims were present, indicating a date range between 1840 and 1912 (Adams and Larson 1985:479).

Two of the examined artifacts were found to have inscribed patent dates. Both of these were brass or copper wick holders to kerosene lanterns. The first of these is inscribed "..P 19 1865.00 4.128". The second is inscribed "Patented Oct 13.63 & Jan 21,1865 Reissued June 30, 1868". These patent dates indicate that the kerosene lamps were manufactured after 1865 and 1868, respectively.

Thickness of window glass has also been used as a temporal indicator. Lees (1977:116) has suggested that during the nineteenth century the thickness of window glass generally increased over time, and that glass thinner than 1.4 mm may be manufactured prior to 1845. Lacking more precise correlation between glass thickness and manufacture date, we cannot assign window glass-based absolute dates either to the site or to the architectural areas. However, glass thickness may be used to provide indications of relative temporal variability between areas.

The processed sample of artifacts included 955 fragments of window glass. To test for possible temporal variations between architectural areas, a sample of 250 window glass fragments was selected, stratified by architectural area. At least 50 specimens were selected from each area, except for Areas C and D in which less than 50 specimens were available (Area H had an insufficient sample of window glass and was not included). Thickness of glass was measured with a micrometer to the nearest 0.2 mm. Results of this analysis are presented in Table 4.11. Glass thickness ranged from 1.0 mm to 3.2 mm. Only two architectural areas (B, C) included glass 1.4 mm or thinner. To the extent to which thin glass may be assumed to be of early manufacture, this suggests that either (1) occupation of these areas began before 1845, or (2) some of the glass in these areas had been curated from earlier buildings and was reused in later construction episodes. Based on the evidence from the other artifact classes, especially the glass bottles, the second alternative seems more likely.

Table 4.11 Thickness of Window Glass, Percent by Architectural Area, Old Las Animas Evaluation Program, ACOE, 1987.

Architectural Area	Sample Size	Minimum Thickness (mm)	Maximum Thickness (mm)	Thickness Range (mm)	Mean Thickness (mm)
A	53	1.6	3.0	1.4	1.93
B	50	1.0	2.8	1.8	1.89
C	28	1.2	3.2	2.0	2.08
D	19	1.8	2.8	1.0	2.35
E	50	1.6	3.2	1.6	2.54
G	50	1.6	3.2	1.6	2.10
Total	250	1.0	3.2	2.2	2.09

For the site as a whole, the distribution of window glass thickness is unimodal at 1.8 mm, with a mean of 2.09 mm. The data in Table 4.11 suggests that the mean thicknesses of each architectural area are clustered in two groupings. Areas A, B, C, and G all have thinner mean glass thicknesses and are clustered around 1.99 mm; areas D and E have mean thicknesses somewhat greater than that for the site as a whole and are clustered around 2.49 mm. To the extent to which thin glass is of earlier manufacture, and depending on the degree of curation and reuse, a possible conclusion is that construction activities in areas D and E seem to have been somewhat later, or persisted longer, than construction in areas A, B, C, or G.

The relative temporal classifications derived from the bottle glass color and window glass thickness agree for Areas A, G (earlier) and Area E (later). However, there is conflicting evidence for Areas C and D. The bottle glass color identifies Area D as earlier than Area C, but this ranking is reversed for the window glass analysis. However, since both these areas were represented in the window glass analysis by smaller sample sizes than is

desired (Area C, n = 29; Area D, n = 19), the rankings derived from the analysis of bottle glass color are considered more reliable.

Table 4.12 summarizes the temporal analyses of the artifact classes discussed above. The maximum date range is between 1810 and 1915, but when beginning and ending dates for the various manufacturing technologies are considered, the constrained dating range suggests that the site was probably occupied between 1860 and 1887. There is the possibility that some window glass was manufactured prior to 1845, but this conclusion is not definite. These is no clear evidence that the site was occupied after 1887, but this possibility cannot be ruled out. Intrasite analysis suggests that architectural areas D and E may have been occupied slightly later and/or slightly longer than the other architectural areas.

Table 4.12 Summary of Dated Artifacts, Old Las Animas Evaluation Program, ACOE, 1987.

Artifact Class	Date Range
Metal Cans	1810-1902
Ceramics	Pre 1891
Ammunition	Post 1840
Nails	Pre 1887
Bottle Color	1860-1915
Bottle Bases	1860-1890
Bottle Lips	1840-1912
Patent Dates	1863, 1865, 1868
Maximum Range	1810-1915
Constrained Range	1860-1887

5.0 SITE EVALUATION AND CONCLUSIONS

5.1 INTRODUCTION

The following discussion represents: (1) a brief historical overview of the general events which led to the inception of Las Animas City including events which directly impacted its growth and eventual decline; and (2) an attempt to integrate relevant aspects of the historical data with the archaeological remains for purposes of detailing specific criteria to demonstrate the National Register significance for the site representing the past remains of Las Animas City. Information for completing Sections 7-9 of the National Register nomination form is included as Appendix B.

5.2 BENT'S FORT AND THE SANTA FE TRAIL

Although the region which represents southeastern Colorado was transversed by Spanish expeditions as early as the late 1500s, the establishment of Bent's Fort on the Arkansas River by Bent, St Vrain and Company in the early to mid-1830s, represented the initial permanent occupation of the region by Euro-Americans. The official trade between the United States and Mexico began in 1821 when Mexico gained its independence from Spain. This date also marked the official opening of the Santa Fe Trail by William Becknell between St. Louis and Santa Fe. It was not until Bent's Fort had been established that the Mountain Branch of the Trail began to be extensively used. This route, although deemed safer, was considerably treacherous, especially along Raton Pass. Although established as an Indian trading post, Bent's Fort played an important role in the expansion of the West in its later years. During the Mexican War between 1846-1848 it was used by Colonel Stephen Watts Kearney and his Army of the West as a depot to invade Santa Fe. The Mexican War resulted in the United States annexing a large part of the Southwest, which included the area south of the Arkansas River. Subsequently in 1849, the discovery of gold in California caused mass migrations across the region and the Indian trade began to decline (Athearn 1985; Carrillo 1981; Book Committee 1987; Friedman 1982:235-247; Janet Le Compte, 1987 personal communication; Stinson 1973).

5.3 BENT'S NEW FORT

In 1852, William Bent abandoned his adobe fort and moved down river to a new location, approximately twenty miles east of the site of Las Animas City. There he established a stone trading post, referred to as Bent's New Fort. He used the post to continue trading, and ran a freight business. He also served as Indian Agent for the Upper Arkansas Indian Agency from 1853 until 1859 when he leased it to the United States Army. He moved to a ranch near the mouth of the Purgatoire and built a stockade where he resided until his death in 1869 (Athearn 1985:31; Book Committee 1987:19-20; Carrillo 1981:4-5; Friedman 1982:247).

5.4 FORT WISE (FORT LYON)

At the time that William Bent leased his new post to the U.S. Army, the Pike's Peak gold rush of 1858-59 was on, and many potential miners were

traveling along the Santa Fe Trail route following the Arkansas River. This began to create initial problems with the Indians. As a result, on June 30, 1860, the War Department called for a military fort to be constructed at Big Timbers. In September, 1860, Major John Sedgewick arrived at Bent's New Fort with companies of the First U.S. Cavalry and the Tenth Infantry. A site for the new fort was selected in a tract of bottom land on the north side of the Arkansas approximately one-half mile west of Bent's New Fort, where corrals and adobe barracks were constructed. The fort was initially called Fort Wise, named for Henry A. Wise, governor of Virginia. After the outbreak of the War Between the States, it was decided that the name should be changed, and on June 5, 1862, the name was changed to Fort Lyon, in honor of Brigadier General Nathaniel Lyon, the first Union general to be killed in the war (Friedman 1982:247; Book Committee 1987:19-21).

One of the main results of the 1858-1859 gold rush into the Colorado mountains was the expanded settlement of the Arkansas and Purgatoire Valleys to supply agricultural foodstuffs to the miners in the Denver region. Most of the initial settlers were familiar with the region, having been associated with the Indian trade. The major contributing factor aiding the permanent settlement of the lower Arkansas River Valley in Colorado was the stability provided by the presence of Fort Lyon. As a result of the population increasing, tensions between the settlers and the native population eventually led to the Sand Creek Massacre by Colonel John M. Chivington, Commander of the 34th Regiment of Colorado Volunteers, who began his operation at Fort Lyon.

The settlement of Boggsville in 1866 represents the initial nonmilitary settlement in southeastern Colorado. Famous individuals who settled there were Thomas Boggs, John Prowers, and Kit Carson. William Bent had previously settled in the area in 1859 (Carrillo 1986:11-18; Friedman 1982:249).

5.5 NEW FORT LYON

In the spring of 1866, the Arkansas River flooded and Fort Lyon was inundated. The troops were forced to evacuate the post and took refuge on the adjoining cliffs in tents. As a result, the site was abandoned and a new location was selected 25 miles to the west.

The New Fort Lyon was established under the command of Captain William H. Penrose, Third United States Infantry, in June of 1867. Although the first Fort Lyon was finally abandoned due to flooding, its location was not favorable for two other reasons; it was thought to be unhealthy and wood supplies were becoming scarce. The new site was on the north side of the river on a bluff with its highest point 36 feet above the river (Tilton 1870; Brandes 1973:39). The following details the structure built at the Fort.

> There were four barracks constructed: two of stone and two of adobe brick. These were sufficient for 320 men. Five houses were provided for quarters for the officers. The Quartermaster had three storehouses, a commissary and grainhouses with storage capacity for one year. There were also a hospital, guardhouse, three sets of cavalry

> stables, a corral, laundress' quarters and a number of other "service shops" for the blacksmith, carpenter, wheelwright and saddler. Two ice-houses near the bluff were used for ice storage during the warm months. The post bakery was built of sandstone and measured 24 feet by 46 feet and was ten feet high. . . The permanent post hospital was completed and occupied in October 1871. . . (Brandes 1973:39).

Fort Lyon was not near the center of activity during the Indian Wars of 1868, although patrols from the fort did encounter skirmishes particularly with marauding Indians, and by 1869 most of the Indians had been removed from the area (Brandes 1973:39-45; Friedman 1982:251).

5.6 LAS ANIMAS CITY

The second major settlement which occurred about two miles northeast of Boggsville, and which was a natural outgrowth of the establishment of Fort Lyon was Las Animas City, located across the river approximately one mile from the Fort and about one mile east of the mouth of the Purgatoire River. William Craig, who founded the town, had been a quartermaster at Fort Union in New Mexico and had become Ceran St. Vrain's agent. Craig was one of the benefactors of the Las Animas Land Grant. The new location of Fort Lyon fell within the boundaries of the Grant and the property was leased from Craig in June of 1867.

In conjunction with the establishment of the new Fort Lyon, Craig decided to establish a town on the opposite side of the river from the fort. The dates for the establishment of the town merely indicate that he formed the Las Animas Town Company and laid out the site of Las Animas City on the south side of the Arkansas River about one mile east of the Purgatoire River on January 6, 1869 (Friedman 1982:301). Actually, the plat contains a date of "January 1, 1867" (Figure 3.1). The 1868 Jackson map (Figure 3.3) already shows not only the town of Las Animas laid out with a bridge across the Arkansas, but also shows the proposed route of the Arkansas Valley Railroad crossing the Arkansas, and leading into the proposed town of West Las Animas. The map implies that firm plans were being made five years into the future.

By January 28, 1869, the *Colorado Chieftain* of Pueblo announced the birth of Las Animas City. The following are relevant quotes from the article.

> . . . Buildings are fast dotting the site. Large lumber yard is being established. Col. Wm. Craig, Col. Francisco, and Benjamin D. Spencer have formed a corporation under our Territorial Laws, known as the "Fort Lyon Bridge Co." This company will construct a good bridge across the Arkansas River at the town site the south end of bridge on a line with the principal avenue. . . (Friedman 1982:301).

Luke Cahill who served as a soldier at Fort Lyon and later lived in the town recalled.

> . . . In the month of January 1869 a man by the name of Jim Blue erected a little board shack and opened a saloon. . . . Soon there arrived a man by the name of George Gardner who erected a large two story adobe building, opened a saloon and dance hall and was largely patronized by the soldiers from the fort. This caused many other business enterprises to spring up and it soon became what they called a lively town. Many women of the red light order arrived (Friedman 1982:303).

The pile bridge across the Arkansas River was completed in the summer of 1870. It was a toll bridge, and a charge of one dollar was levied for teams and wagons and twenty-five cents for pedestrians (Friedman 1982:303).

Information found on an Abstract of Title (No. 1155) dated September 30, 1912, represents a reconstructed copy after the original records were burned in a fire which destroyed the Bent County Courthouse in 1889. It appears that although there were a few land transactions pertaining to Las Animas City between 1869-1872 and restricted to seven blocks, the majority of the land transactions throughout the site occurred in 1873, and appeared to have occurred mainly between Bridge Avenue on the east and 4th Street to the west, and between Alamo Street on the north to Rosa Street on the south. The major concentration between Alamo Street and Vina Street, which encompassed Craig and Carson Avenues and included about eleven blocks, seemed to comprise the main area of the town. Further data regarding this aspect will be dealt with in the archaeological sections (Abstract of Title 1912).

The reason that most of the land transactions reflect the 1873 date is due to questions regarding the legal ownership of the Las Animas Land Grant.

> ". . . On February 25, 1869, the United States Congress had set down a new ruling on the grant, ordering a new survey and stating that derivative claims would be settled and their boundaries adjusted to the new survey. The public land not belonging to the heirs of the grantees, or to squatters who had established the right to their claims, would then be open for preemption or homesteading . . . Thus William Craig's ownership of the Las Animas townsite was questionable. To settle this problem a citizen's committee met with Craig in June 1873, and he agreed to withdraw his claim to the townsite and allow Probate Judge Asahel Russell to file for a federal patent . . . In return the citizens of Las Animas pledged to recognize the titles of all parties holding deeds from the original town company (Friedman 1982:305).

It was after this period of uncertainty had passed, on the one hand, that several newspaper accounts remark on the vitality and rapid development of the Town. *The Las Animas Leader* was founded in May of 1873. On May 23, 1873, an article appeared in that newspaper.

> Crossing the river from Fort Lyon about 1/4 mile distant you enter the new town of Las Animas, county seat of Bent. It now has a population of about 250, two hotels, about 20 places of business, and others opened daily. Several houses are built of adobe and several of stone, both of which are cheap and easily obtained - Mexicans may be seen making "dobies." Las Animas is a fast town. It has two dance houses, one American, and the other Mexican. . . (Friedman 1982:304-305).

A second article published in *The Las Animas Leader* on June 6, 1873, further describes the town.

> . . . Las Animas is getting to be quite a large, wooden town! . . . On a nearer approach to your village, we came to the conclusion from the number of new adobe buildings and the number of adobes being manufactured that the 'Doby' stage was succeeding the frame and following this, the last stage of a Colorado town would be reached - it would turn to brick (Book Committee 1987:54-55).

One author found.

> . . .business firms on the back street already! See that flaming sign on the street to the left of Main. . . But, look down Main Street itself, blazing with all sorts of signs in all kinds of shapes, dry goods and grocery outfits, furniture establishment, baking, cigars and tobacco, feed stables, drug stores, doctors and dentists signs, billiard halls, saloons, Long Sho[ng], washer and ironer, barber shop, hotels, Peoples and Merchants, lumber yards, blacksmith shops, gunsmith, restaurants, millinery and dressmaking outfits. . . thirteen variety stores right here on Main Street. . . Book Committee 1987:55).

Las Animas City also served other important functions, both commercial and political.

> "Old Las Animas also served as a shipping point for freight companies, stage lines, and teamsters engaged in transporting goods from the railroads near the Kansas border to New Mexico. Around 1870 the Kansas Pacific Railroad extended its line to Kit Carson, a town it built just inside the Colorado state line. The Atchison, Topeka and Santa Fe Railroad wasted little time matching this feat by building its line westward to Granada, a town the railroad established just 12 miles west of the Colorado border, in July 1873. The Barlow and Sanderson Southern Overland Mail and Express Company operated a stage line between Kit Carson and Santa Fe, with Las Animas operating

> as an important stage stop and office for the company. . . (Friedman 1982:304).

The political importance of the town was manifested in 1870 when Bent County was first organized by the Colorado legislature. The county extended from the Kansas line west approximately 110 miles (Carrillo 1981:5). Las Animas City was designated the temporary county seat. The results of a local election that same year moved the seat to Boggsville. Two years later, Las Animas City again became the county seat and retained that position until 1875 when it was moved to West Las Animas (Friedman 1982:305-306; Petersen 1987:47-54).

The following account of an incident attests to the town's wild reputation. The initial account is an excerpt containing no date, but appears to have taken place in the early years of the Town, when Indians were still in the area. The account was made by Frances Roe, who was a wife of Lieutenant Faye Roe, an officer at Fort Lyon.

> Shopping with a friend in a store in Las Animas, a small Mexican town near the Fort, . . . [she] was alarmed when ten or twelve Indians dashed up on ponies, crowded into the little store "in their impervious way," and pushed the two white women aside "with such an impatient force that we both fell over the counter." They demanded from the intimidated shopkeeper powder, balls, and percussion caps, and one of those who had remained outside rode his piebald pony into the doorway of the store, preventing the frightened woman from escaping. . . "The odor of those skins [leggings], and of the Indians themselves, in that stuffy little shop, I expect to smell the rest of my life!" (Smith 1984:47).

5.7 LAS ANIMAS CITY AND THE SANTA FE RAILROAD

The railroad initially arrived in Colorado in 1870 when the Kansas Pacific reached Denver in 1870. The development that immediately ensued worked a momentous transformation in the young city. This helped to create a similar potential for the southeastern part of the Territory (Carrillo 1986:23-24). In the early years of Las Animas City, it was believed that with the railroads moving into Colorado Territory the city would likely have two railroads, which would make it the most important place in southern Colorado. This was not to be, as the uncertainty over the legality of the title of Las Animas City and the competition between the Kansas Pacific and Atchison, Topeka and Santa Fe companies led to the conditions which created a new town called West Las Animas, located only five miles away.

> . . . In 1872 General Robert E Carr, president of the Kansas Pacific Railroad, with the backing of David Moffat and the Denver & Rio Grande Railroad, attempted to raise subscriptions towards the construction of a branch line from Kit Carson to Pueblo. However, they did not count on the active opposition

of the Atchison, Topeka and Santa Fe Railroad which was also building a line through the Arkansas Valley to Pueblo (Friedman 1982:305).

The bond issue for $100,000 was defeated by a margin of two to one for the following reasons:

> . . . the A.T. & S.F. announced earlier plans to push west from Granada, which would put it on direct route toward Las Animas City. Other than those directly concerned with the future welfare of Las Animas City, the opinion was that the railroad or railroads were coming through Bent County; so why pay to aid them, since they are coming anyway (Petersen 1987:49).

> While negotiations were still underway with the Kansas Pacific over subscriptions, the railroad completed its branch from Kit Carson to the Arkansas River. In order to profit from the venture David M. Moffat, Jr. and Robert E. Carr planned to establish a new townsite, rather than risking the title difficulties involved in building their railroad to Old Las Animas. Taking advantage of certain loopholes in the federal requirements for acquiring title to land within the Vigil and St. Vrain [Las Animas] Grant, Moffat and Carr obtained control of the land for their new townsite on an unconfirmed portion of the grant under rather suspicious circumstances. When settlers at Old Las Animas learned that Moffat and Carr were going to by-pass their town in favor of the new townsite, a vigorous protest was raised. . . The citizens of Old Las Animas challenged the acquisition of the townsite of West Las Animas by Moffat and Carr, claiming that the deeds they received for the land bore the names of fictitious people who never resided there or made improvements on the property. . . (Friedman 1982:305-306).

> This land fraud case was to be battled in circuit court and finally end up in the U.S. Supreme Court before it would be settled in October, 1884. The title to this area of land was in limbo, yet the politicians and railroad tycoons directly involved in this fraud were to reap some profits, for the railroad must continue on its trek west (Petersen 1987:52).

Even during the time that the accusations of land swindle were being fought in the courts, railroad track continued to be laid, and by October 18, 1873, the town site of West Las Animas had been planted and the Kansas Pacific Railway had reached West Las Animas. As a result, many of the businesses located at Las Animas City and Kit Carson moved to West Las Animas because of the new railroad terminus. A depot was established at Las Animas City at this time. In February 1874 the *Las Animas Leader* was moved to West Las Animas (Friedman 1982:306; Petersen 1987:54).

The April 15, 1874 edition of the *Rocky Mountain News* printed the following excerpt:

> Las Animas has been a place of considerable importance for several years. Located near Fort Lyon, it has enjoyed the advantages of trade with the officers and soldiers at the post, and the trade of a large section of the country, but the location of a new town (West Las Animas) at the present terminus of the Arkansas Valley road, about five miles distant, has had the effect to almost depopulate the old town (Friedman 1982:306).

By 1875, the town had lost approximately 100 people, from its high of 250 in 1873. It also was no longer the county seat, which had been moved to West Las Animas. Businesses which were still in the old town consisted of blacksmiths, brewery, general merchandise, hotel, real estate, doctor, and a wagon and repair shop. After this time, the town continued to exist as a viable community for about 12 years until about 1887, when it declined to village status.

It was during this latter period that an incident occurred which contributed to the town's somewhat tainted reputation.

> It was while [Colonel C.H.] Smith was in command that Colorado, admitted to the Union in August 1, 1876, had its first legal hanging, and the man who went to the gallows was James Miller who was a member of the Ninth Cavalry, part of which was stationed at Fort Lyon. Miller had been tried and found guilty of murder, his trial being held in a civilian court since the shooting of a cattleman took place in Old Las Animas at a time when Miller was not on duty. Miller was executed on February 2, 1877, on gallows erected just in front of Bent County's new jail (Boyd 1967:11).

The 1880 census shows that the town had only declined by 47 individuals within a period of five years, and was at a population of 103. Women and children represented over 50 percent of the population of the town. In 1880 almost 9 percent of the population was black, probably related to the presence of the 9th and 10th Cavalry and "buffalo" soldiers being stationed at Fort Lyon. Only two individuals from New Mexico with Hispanic surnames who worked as sheepherders are listed as comprising 3 percent of the population. This situation is interesting as accounts from the early period of the town refer to the presence of Hispanics making adobes; adobe houses, a Hispanic dance house, and describe the town as "Mexican." This issue is further addressed in the archaeological section. Eighty-eight percent of the total population was Anglo-American. The largest foreign born population represented were Irish making up 12 people, or 18 percent of the adult population. Other foreign born individuals were one from France and two from Germany (Friedman 1982:306-307, 327).

The diverse occupations of the adults living in the village of Las Animas in 1880 consisted of a "merchant, grocer, telegraph operator, schoolteacher, wheelwright, teamster, tanner, seamstress, washerwomen, railroad section workers, day laborers, cattle herders, stock growers, sheepherders, farm laborers, farmers. . ." (Friedman 1982:307).

After 1880 the population of the former Las Animas City continued to decline at a rapid pace:

> . . . In 1882 the *Colorado Business Directory* listed Charles Bobenreith as operating a grocery store and saloon there, while D. J. Lindsey served as postmaster and railroad agent. . . Around this time the Santa Fe Railroad closed its depot at Old Las Animas. One former resident recalled that by 1883 the only building still occupied in Old Las Animas was a saloon. . . The 1886 *Colorado Business Directory* said of Las Animas: "Old town 4 miles east of West Las Animas. No post office or railroad depot." By 1887 Old Las Animas is no longer listed in the Directory, and by that date it had probably been abandoned. In 1887, the Old Town gone, West Las Animas was incorporated, and dropped the "West" from its name, becoming the present town of Las Animas (Friedman 1982:307).

During the intervening years, the physical remains of what was originally planned as a large town began to disappear. Many of the frame structures were moved to Las Animas City. The adobe structures were probably dismantled and the blocks recycled. In the late 1930s when the area encompassing John Martin Dam was mapped, the remains of Las Animas City were no longer visible and the site was covered with tamarisk and scattered cottonwoods. In the early 1940s, the major portion of the site was destroyed when the railroad grade was raised to accommodate the effects of John Martin Reservoir (Friedman 1982:307).

5.8 SITE SYNOPSIS

There are a number of reasons why the site of Las Animas City is significant and should be included in the National Register of Historic Places. Based on the criteria developed by the Office of Archeology and Historic Preservation, National Park Service, the site of Las Animas City can be said to meet two of the established criteria in more than one manner. The site, which is now in the realm of historical archaeology, may yield information important to history. The second criterion on which significance is based relates to the site's association with: ". . . events that have made a significant contribution to the broad patterns of our history" (Jandl and Cole 1977:6).

The historical aspects have been outlined previously. This section concerning site significance is based on the archaeological record at the site of Las Animas City. The approach developed consisted of undertaking both archaeological collecting and testing of observable features, in addition to attempting to understand the entire site as a whole. This step is crucial to developing significance as the site representing an archaeological entity can be reconstructed using both historical and archaeological data.

Based on all of the historical and archaeological data presented above (including section 3.2), it appears that the intersection of Carson Avenue and Bridge Avenue occurred near the southwest corner of Area A, and that Area A represents the southeastern portion of Block 71 as shown on the 1867 plat. No information was found regarding the ownership of this lot, which is due to the 1889 Bent County Courthouse fire, which destroyed many documents. The block and lot information was obtained from an Abstract of Title (No. 1155) which was pieced together to facilitate the sale in 1912 of the entire town site (Abstract of Title 1912).

No information was available for Block 71, but there is also no information for Block 86, which is described in the 1873 deed. The plat map along with other historical and archaeological data helped to define the relationships between all described elements. The plat map served to orient the search for the road system of the town. The relationship between the railroad track and the river also was extremely useful in defining the specific area of the archaeological structures in relation to the bridge location.

The following represent tentative conclusions which are amenable for future testing. Based upon all of the above described information, the following statements can be made.

The portion of the town located within ACOE property and subject to archaeological mapping and testing is the area comprising the extreme northern area of the town as shown on the 1867 plat. Area A corresponds with Block 70. The jog in Bridge Avenue (Road 2; see Figure 2.2) as it moves north to the bridge after leaving Area A may mean that part of Area A was sold to build the road. There is evidence of occupation of blocks 86, 86, 71, 67, and 68, corresponding with Area B, Area C, Area D, Area E, Area F, and Area G respectively. Area H is near the eastern boundary of the town.

Generally, Area A (Block 70) was bounded by Carson Avenue (Road 7 on Figure 2.2) to the south, Bridge Avenue (Road 2) to the west, Craig Street (Road 6) to the north and East Street (Road 3). Area B (Block 86), described in the 1873 deed, would have been bounded by Craig Street (Road 6) in the south, "1" Street (Road 1) to the west, Alamo Street (Road 5) to the north, and Bridge Avenue (Road 2) on the east. Area C (Block 87 south half) was encompassed by Craig Street (Road 6) to the south, Bridge Avenue (Road 2) to the west, Alamo Street (Road 5) to the north, and East Street (Road 3). Area D consisted of the eastern portion of Block 71. This block was bounded by Carson Avenue (Road 7) in the southeast and the railroad property at the southwest portion, on the west by "1" Street (Road 1), the north by Craig Street (Road 6), and the east by Bridge Avenue (Road 2). Area E (Block 67) was located south of Block 70 and on Carson Avenue. Most of the southwest portion of the block was on railroad property. It was also bounded by Bridge Avenue (Road 2) on the west, Vina Street on the south, and East Street (Road 3). Area F (Block 68) was bounded on the south by Vina Street, on the west by East Street (Road 3), the north by Carson Avenue (Road 7), and on the east by the eastern boundary of the town. Area G represents the north portion of Block 50. Block 50 was bounded on the south by the railroad right-of-way, on

the west again by the right-of-way, on the north by Vina Street and to the south was the eastern city limits. Area H may actually be located immediately outside the eastern city limits adjacent to Block 50.

As close as the site area is to the river, it probably represents the earliest construction that occurred at the town, circa 1870-1873, prior to the beginning of West Las Animas. As previously mentioned in the historical section, the Arkansas Valley Railroad Company, by establishing a new town in West Las Animas in 1873, did contribute to the eventual demise of the town, but the town continued to exist for about 14 years. It appears that the town and Fort Lyon had developed a symbiotic relationship since their inception. From ca. 1880 on, the fort was only minimally maintained until it closed in 1889. It is proposed that this was what eventually led to the final demise of Las Animas City.

5.9 CONCLUSION

The significance of Old Las Animas is that it basically was the first pre-railroad town in southeastern Colorado. As such, it served the many needs of the surrounding population, but in particular Fort Lyon's. The historical documents and the archaeological data suggest evidence of considerable activity occurring over a relatively short time span c. 1869 through 1887, a period of 18 years. Much of the major portion of the town site was destroyed in the early 1940's when the railroad grade was raised to accommodate John Martin Reservoir. The portion of the town found within the ACOE property is virtually undisturbed and represents the area which was once the northeast corner of the town including all or part of blocks 70, 71, 86, 87, 67, 68, and 50 (Abstract of Title 1912). Within these blocks, represented by discrete units, evidence of variability was noted in terms of architectural and archaeological remains. Some of the variability occurs in terms of the architectural styles used and suggested by contiguous shaped sandstone foundations and cut stone piers. The contiguous walks suggest adobe and possible log cabin type of structures. The stone piers suggest the use of frame structures. According to newspaper accounts the town in its early years had many frame structures, but adobe structures were being built. At Las Animas, the contiguous foundations occur closest to the street, while it is the rear of the structures which contain most of the pier foundation stones and other scattered probable foundation stones. This pattern is particularly true of Area A. This suggests initial adobe/log structures with frame additions. This area had a high ratio of architectural to subsistence artifacts, a slightly higher than average frequency of olive glass, and relatively thin window glass (see section 4.3). Area A is thought to represent the northeast part of the commercial area.

Area B, on the other hand, located in Block 86, north across Craig Street, contained more evidence of habitation in terms of bottle glass, food remains, tin cans, and subsistence artifacts. The architecture consists of circular depressions and marginal stone alignments, suggesting jacal type of structures. The architectural to subsistence artifact ratio is low. Window glass was relatively thin, possibly suggesting an early occupation. In conjunction with these remains is found bottle glass which has been subjected to modification by pressure flaking, chipped stone artifacts and groundstone

fragments. Lithics were concentrated in this area and Area C. These structures have a resemblance to those found in Pinon Canyon, approximately 40 miles upriver in a tributary area of the Purgatoire River. They could represent occupations of Hispanic individuals from New Mexico who came into the region c. mid-1860s and began to acquire Euro-American material culture (Carrillo n.d.). This block is located adjacent to Bridge Avenue.

Area C represents probable residential structures located in Block 87. The ratio of architectural to subsistence artifacts was low, while consumption related artifacts were quite common, as were lithics. Clear and purple glass were common but window glass less than 1.4 mm in thickness also occurs, making occupation dates difficult to determine.

Area D is located within Block 71 and west of Block 70 and appears to represent a commercial/residential setting. The ratio of architectural to subsistence artifacts was high and olive glass frequency was higher than other site areas. Window glass thickness was greater than average, suggesting a late occupation.

Area E was located in Block 67 across Carson Avenue and is within a commercially used area. The ratio of architectural to subsistence artifacts was high, as were the frequencies of clear and solar purpled glass. Window glass thickness also suggests a somewhat later occupation.

Area F was located in Block 68, which is at the eastern city limits. This small area appears to be a residential area.

Area G was located across and southeast from Area F, on Vina Street along the eastern city limits. This appears to be a residential area. The architectural to subsistence artifact ratio was high, as was the frequency of olive glass. Window glass is relatively thin, suggesting an early occupation.

Area H appears to have been located outside of the city limits. This area has a high frequency of subsistence artifacts relative to architectural items.

As an early town site which predated the arrival of the railroad in the area in 1873 by four years, and which did not obtain rail service until 1875, the site contains a unique potential for learning about subsistence patterns of early towns in the West. Preliminary investigation has identified potential relative differences in time of occupation, frequency of food remains, and ratio of architectural to subsistence artifacts among the eight architectural areas.

In terms of its importance, the site contains considerable potential for addressing specific research questions as defined in the *Colorado Historical Archaeology Context* (Buckles and Buckles 1984:33-46). These are:

1) Can social-structural distinctions of differing ethnic communities affiliations of the period be distinguished archaeologically (Buckles and Buckles 1984:36)?

2) Can cultural remains be used to test the propositions that the nature of business and commerce in frontier areas was dependent upon cultural-ecological variables to greater degrees than to diffusions of practices from elsewhere (Buckles and Buckles 1984:45)?

In addition, the well documented occupation dates of the town offer potential to refine archaeological methods for dating historical artifact assemblages. Relative differences in occupation of the eight architectural areas are indicated by frequencies of olive glass (most common before 1860), and clear and solar purpled glass (most common after 1880). Differences in window glass thickness have been identified; correlation of window glass thickness with other diagnostic artifacts from the same provenience could determine whether this attribute is a useful temporal indicator and could aid in refinement of the appropriate thickness categories.

6.0 RECOMMENDATIONS

Work at Old Las Animas has merely skimmed the surface of the research potential of this large, well dated, and, on ACOE land, well preserved historical site. Future work at the site should entail protective measures and both historical, remote sensing, and archaeological work. Suggestions for direction of this work are detailed below.

6.1 PROTECTIVE MEASURE

Access to the site is presently easy in dry weather, even for vehicles without four wheel drive. Individuals who fish at the sandstone outcrop north of Area B use the present-day river road. Bird hunters also apparently use this road, judging by the 12 gauge shotgun shells occurring on a number of site features. Modern beer bottles and beer cans also indicate other recreational activities have occurred on the site. While pothunting damage and particularly machine disturbance are rare on the part of the site on Corps lands, the unrestricted road access provides potential for such damage in the future. Construction of a fence along the south side of this road would restrict access by opportunistic pothunters, although no fence would prevent access by a determined pothunter.

6.2 REMOTE SENSING

An important research issue is the location of the bridge. From documentary, topographic, and informant evidence, the location of the bridge north of Feature 26 in Area B is fairly certain. Confirmation could be provided by aerial photography, however. Given the marshy lands on the north side of the river and the thick stands of tamarisk and willow, remote sensing is the obvious next stage step. Consultation with experts should suggest the appropriate time of year for photography, probably during a dry week in autumn, as the growing season is ending. Weak soil marks are more clearly visible under dry conditions (Tartaglia 1977:36). Color infrared photographs would be adequate to show soil marks and vegetation changes on the north side of the river. With all of the maps and landmarks in the site area, flights would not necessarily have to involve vertical images suitable for stereoscopic viewing. High angle obliques taken by passengers in a small plane rented in Pueblo would be perfectly adequate for the given purpose.

6.3 MAPPING

Portions of the site where no features were defined during Mariah's evaluation program should be mapped in more detail. The first step would involve vegetation clearing. Once the area has been cleared, alignments could be defined in these areas unless they prove to be disturbed. Areas which deserve further focus are the following. In Area A, the scattered building stone east of Feature 8 and north of Feature 2, the linear mound north of Feature 1, the scattered rubble east of Feature 1, the circular mound north of Subdatum 300N/580E, and the scattered rubble east of this mound should be examined in more detail.

In Area B, the scattered sandstone between Feature 17 on the west and Feature 18 on the east should be examined for evidence of alignments and further feature definition. The scattered stone in Area D west of Feature 13 and including the possible corral to the north should be mapped in greater detail. The scatter south of the Santa Fe Railroad fence and north of Feature 15 is disturbed by heavy machinery activity and does not warrant further work.

In Area E, the rubble scatter south of Feature 37 and north of the Santa Fe Railroad fence should be examined more closely. Again, the stones south of the fence have been disturbed and do not require attention. Finally, in Area G the stone scatter bounded by features 56 on the north, 57 on the east, and 53 on the southwest corner should be mapped in greater detail.

6.4 ADDITIONAL SURFACE COLLECTION

The Mariah site evaluation program obtained feature-based data on surface assemblages in all architectural areas except Area F. Nearly 10 percent of the site surface was collected. Future collections from the surface should involve transects across entire architectural areas to provide information on artifact density in areas not defined as features. Area F should be collected during this phase of site activity. Size of the surface collection proveniences would depend upon local artifact densities and would be aimed at providing comparable information for all architectural areas.

6.5 FEATURE-BASED BLOCK EXCAVATIONS

Future excavations at the site should be aimed at obtaining additional information on variability in subsurface deposits from different architectural areas and feature types (e.g., contiguous stone alignments and marginally defined alignments, as well as depressions and possible dugouts). Possible dugouts such as Feature 66 in Area H or Features 24-25 in Area B are possible candidates for testing. Also important as evidence for the bridge location would be testing in Feature 26, thought to represent a quarry location near the bridge in Area B.

Excavations should not be limited to small tests, but rather should be broad scale block excavations based on surface features. These excavations should allow comparison of subsurface extent of architectural features with apparent alignments based on surface building stones. This work would also allow placement of subsurface features such as cellar/pier stone pits into the context of the entire structure. Finally, broad scale excavation in different areas of the site would facilitate locating evidence of adobe superstructures, such as adobe wash. None was encountered during initial test excavations even though documentary accounts state that adobe was used in town buildings.

6.6 HISTORICAL RESEARCH

Finally, the site provides much potential for further historical research. The initial step should involve examination of photographs of Old Las Animas during occupation. Two of these photographs have been published, but additional images are stored in the archives at the Steven Hart Library in Denver (Friedman examined some of these for the SAI report). Many of these

photographs were collected by Mrs. Octavia Beck's father, the late C. W. Hurd, an avid historian and a gentleman intimately familiar with Bent County. A presently visible landmark on any of these photographs would allow the buildings and other features to be tied directly to the archaeological remains.

The deed books at the Bent County Abstract Company should also be examined more closely. Jerry Bryant, proprietor of this firm, knows of many documents not available at the Bent County Courthouse. State repositories at Denver, such as historical libraries and archives, should also be visited.

6.7 PRIORITIES

Future work at Old Las Animas should be conducted in the following order. Fencing of the site along the road should be given top priority as a protective measure. Since remote sensing and historical work both offer a chance to establish landmarks to correlate with the town plat, these two activities should be given second priority. Mapping should logically take precedence over surface collection. Broad scale excavation, however, could proceed concurrently with other tasks in already mapped areas.

7.0 LITERATURE CITED

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APPENDIX A:

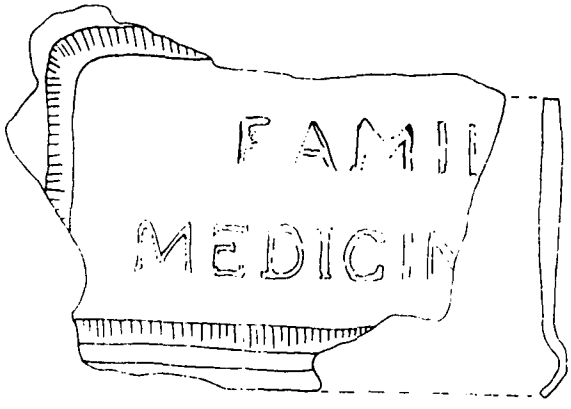
Old Las Animas (5BN176) Cluster of Bottles South of Feature 14

Appendix A Old Las Animas (5BN176) Cluster of Bottles South of Feature 14.

A. Side Panel from Aqua Colored Medicine Bottle.

B. Purple Glass Applied-Lip Neck of Bottle, Possibly for Medicine.

C & D. Base of Brown Glass Beer Bottle, Manufactured by DeSteiger Glass Company of La Salle, Illinois.



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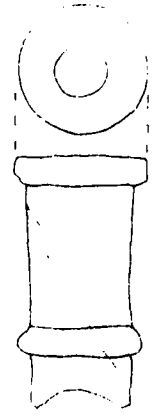

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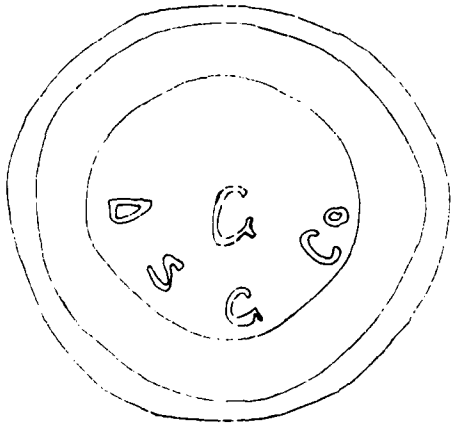

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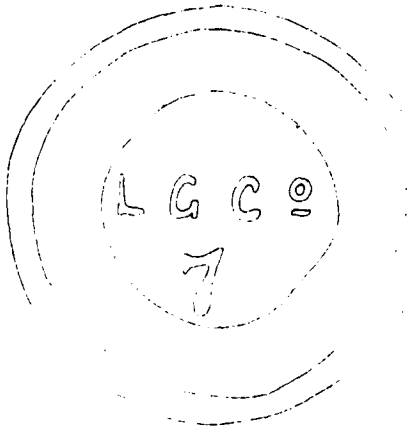


D

Appendix A Old Las Animas (5BN176) Cluster of Bottles South of Feature 14.

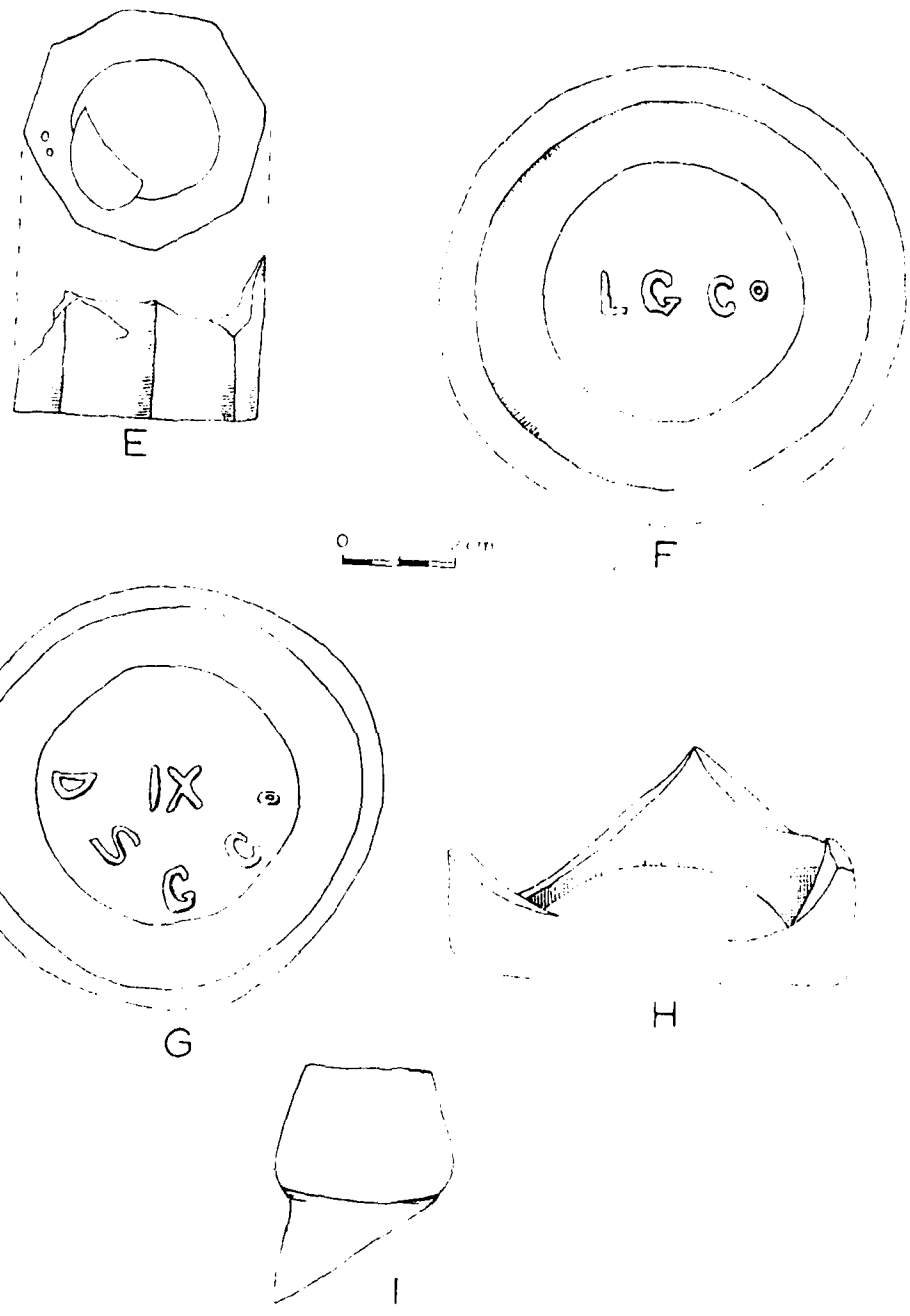
E. Base of Octagonal Clear Glass Bottle.

F. Base of Brown Glass Beer Bottle.

G. Base of Brown Glass Beer Bottle, Manufactured by DeStieger Glass Company of La Salle, Illinois.

H. Brown Glass Base of Bottle (Side View).

I. Brown Glass "Blob-Top" Neck of Mineral Water/Soda Bottle.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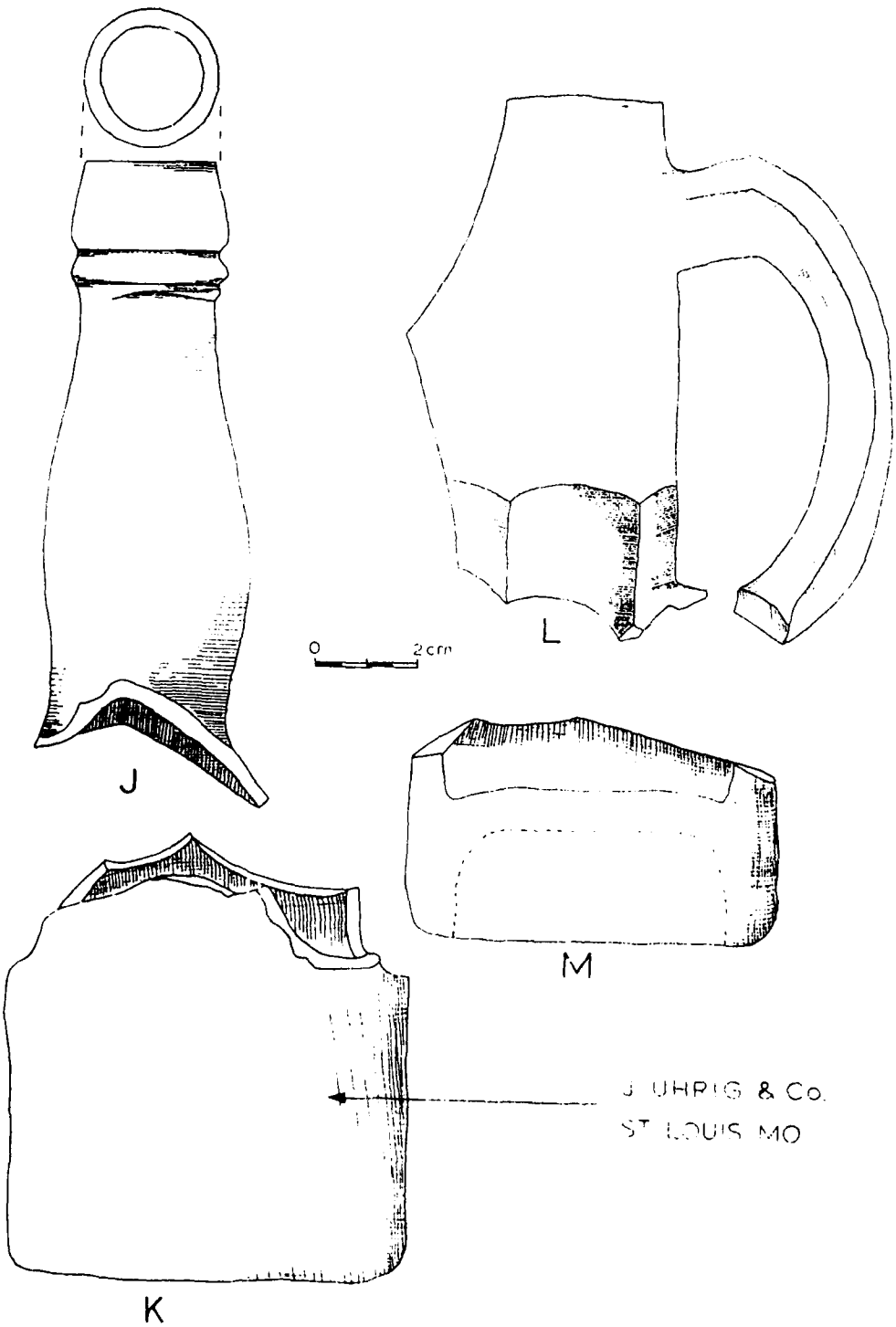
Appendix A Old Las Animas (5BN176) Cluster of Bottles South of Feature 14.

J. Aqua Colored Applied Lip Neck of "Lady's Leg" Bottle, Possibly for Bitters.

K. Bottom Half of Aqua Colored Bottle.

L,M. Purple Glass Fragments of Beer Mug.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APPENDIX B:

National Register of Historic Places Inventory

Nomination Form

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY
NOMINATION FORM

Item Number 7: Description

Context

The late nineteenth century site of Old Las Animas or Las Animas City (5BN176) is located in southeastern Colorado on Army Corps of Engineers land at John Martin Reservoir. The site is on the south bank of the Arkansas River and approximately 5 miles east of present-day (West) Las Animas. The site is nearly two river miles downstream from the Purgatoire River's confluence with the Arkansas. The site of the old town is approximately 1 mile southwest of the former site of the second Fort Lyon (occupied 1867-1889), now occupied by Fort Lyon Veterans' Hospital. The town's growth was tied closely to the history of the fort. The town was occupied from 1869-1887, based on both documentary and archaeological evidence.

Present site vegetation consists of a dense cover of sagebrush and Russian thistle. Sunflower, bush muhly, blue grama grass, and rabbitbrush also occur in significant proportions. Cottonwoods and thick stands of tamarisk and willow occur along the river north of the site. Outcrops of sandstone bedrock occur at two areas along the south river bank. Water fowl and other birds and small mammals commonly occur on the site area.

Archaeological Activities

The site was originally recorded by a surface survey of John Martin Reservoir conducted in 1980 by Science Applications, Inc. of Golden, Colorado, published in Friedman (1982). The sketch map of this large and complex site was produced in two days. Because of the dense vegetation cover, many features were not mapped.

The site has been investigated by detailed mapping and recording of 69 surface features, historical research, controlled surface collection of 960 m^2 from seven architectural areas, and limited test excavations of structural and nonstructural features. The area of the site north of the present-day Santa Fe Railroad track covers 105,400 m^2, including cultural materials south of the U. S. Army Corps of Engineers fence.

Boundary Definitions

The portion of the town located within ACOE property and subject to archaeological mapping and testing is the area comprising the extreme northern area of the town as shown on the 1867 plat. The portion of the town found within the ACOE property represents the area which was once the northeast corner of the town including all or part of blocks 70, 71, 86, 87, 67, 68, and 50 (Abstract of Title 1912). Sections of the town along the Santa Fe Railroad track and to the south have apparently been destroyed by track construction, road building, and agricultural activity. The southwestern portions of architectural areas D, E, and G are located on Santa Fe Railroad territory and were subject to surface recording but not to surface collection or testing. If railroad ownership impinges on nominating these portions of the site, then

the site boundary for NRHP nomination purposes should follow the fence separating ACOE from railroad property.

Intrusions

Adverse impacts to the site include machinery disturbance, hand dug pot holes, vehicle traffic, grazing, burrowing, and vegetative disturbance. Machinery disturbance occurs primarily south of the ACOE fence and is related to raising of the railroad bed in conjunction with the construction of John Martin Dam in the 1940s; a local bottle collector also bladed parts of the site south of the fence.

Between 19 and 29 percent of recognized surface features on both sides of the fence have been disturbed. Test excavations showed that intact stratigraphy and artifacts remained in disturbed surface features not impacted by heavy machinery. Approximately 1330 m^2 of the 105,400 m^2 site area has been disturbed by heavy machinery; this total represents only 4 percent of recognizable features and less than 1 percent of the site surface.

Present Physical Appearance of the Town

Eight architectural areas were defined on the site. Historical research allowed block numbers and street names to be placed tentatively on these areas. The portion of the town found within the ACOE property represents the area which was once the northeast corner of the town including all or part of blocks 70, 71, 86, 87, 67, 68, and 50 (Abstract of Title 1912). Within these blocks, represented by discrete units, evidence of variability was noted in terms of architectural and archaeological remains. Some of the variability occurs in terms of the architectural styles used and suggested by contiguous shaped sandstone foundations and cut stone piers. The contiguous walks suggest adobe and possible log cabin type of structures. The stone piers suggest the use of frame structures. According to newspaper accounts the town early on had many frame structures, but adobe structures were being built. At Las Animas, the contiguous foundations occur closest to the street, while it is the rear of the structures which contain most of the pier foundation stones and other scattered probable foundation stones.

This pattern is particularly true of Area A. This suggests initial adobe/log structures with frame additions. This area had a high ratio of architectural to subsistence artifacts, a slightly higher than average frequency of olive glass, and relatively thin window glass. Area A is thought to represent the northeast part of the commercial area.

Area B, on the other hand, located in Block 86, north across Craig Street, contained more evidence of habitation in terms of bottle glass, food remains, tin cans, and subsistence artifacts. The architecture consists of circular depressions and marginal stone alignments, suggesting jacal type of structures. The architectural to subsistence artifact ratio is low. Window glass was relatively thin, possibly suggesting an early occupation. In conjunction with these remains is found bottle glass which has been subjected to modification by pressure flaking, chipped stone artifacts and groundstone fragments. Lithics were concentrated in this area and Area C. These structures have a resemblance to those found in Pinon Canyon, approximately 40 miles upriver in a tributary area of the Purgatoire River. They could

represent occupations of Hispanic individuals from New Mexico who came into the region c. mid-1860s and began to acquire Euro-American material culture (Carrillo n.d.). This block is located adjacent to Bridge Avenue.

Area C represents probable residential structures located in Block 87. The ratio of architectural to subsistence artifacts was low, while consumption related artifacts were quite common, as were lithics. Clear and purple glass were common but window glass less than 1.4 mm in thickness also occurs, making occupation dates difficult to determine.

Area D is located within Block 71 and west of Block 70 and appears to represent a commercial/residential setting. The ratio of architectural to subsistence artifacts was high and olive glass frequency was higher than other site areas. Window glass thickness was greater than average, suggesting a late occupation.

Area E was located in Block 67 across Carson Avenue and is within a commercially used area. The ratio of architectural to subsistence artifacts was high, as were the frequencies of clear and solar purpled glass. Window glass thickness also suggests a somewhat later occupation.

Area F was located in Block 68, which is at the eastern city limits. This small area appears to be a residential area.

Area G was located across and southeast from Area F, on Vina Street along the eastern city limits. This appears to be a residential area. The architectural to subsistence artifact ratio was high, as was the frequency of olive glass. Window glass was relatively thin, suggesting an early occupation.

Area H appears to have been located outside of the city limits. This area has a high frequency of subsistence artifacts relative to architectural items.

Original Physical Appearance of the Town

By January 28, 1869, the *Colorado Chieftain* of Pueblo announced the birth of Las Animas City. The following consists of relevant quotes from the article.

> . . . Buildings are fast dotting the site. Large lumber yard is being established. Col. Wm. Craig, Col. Francisco, and Benjamin D. Spencer have formed a corporation under our Territorial Laws, known as the "Fort Lyon Bridge Co." This company will construct a good bridge across the Arkansas River at the town site - the south end of bridge on a line with the principal avenue. . . . (Friedman 1982:301).

Luke Cahill, who served as a soldier at Fort Lyon and later lived in the town recalled

> . . . In the month of January 1869 a man by the name of Jim Blue erected a little board shack and opened a saloon.

> . . . Soon there arrived a man by the name of George Gardner who erected a large two story adobe building, opened a saloon and dance hall and was largely patronized by the soldiers from the fort. This caused many other business enterprises to spring up and it soon became what they called a lively town. Many women of the red light order arrived (Friedman 1982:303).

The pile bridge across the Arkansas River was completed in the summer of 1870. It was a toll bridge, and a charge of one dollar was levied for teams and wagons and twenty-five cents for pedestrians (Friedman 1982:303).

Information found in an Abstract of Title (No. 1155) dated September 30, 1912, represents a reconstructed copy after the original records were burned in a fire which destroyed the Bent County Courthouse in 1889. It appears that although there were a few land transactions pertaining to Las Animas City between 1869-1872 and restricted to seven blocks, the majority of the land transactions throughout the site occurred in 1873, and appeared to have occurred mainly between Bridge Avenue on the east and 4th Street to the west, and between Alamo Street on the north to Rosa Street on the south. The major concentration between Alamo Street and Vina Street, which encompassed Craig and Carson Avenues and included about eleven blocks, seemed to comprise the main area of the town.

The reason that most of the land transactions reflect the 1873 date is due to questions regarding the legal ownership of the Las Animas Land Grant.

> . . . On February 25, 1869, the United States Congress had set down a new ruling on the grant, ordering a new survey and stating that derivative claims would be settled and their boundaries adjusted to the new survey. The public land not belonging to the heirs of the grantees, or to squatters who had established the right to their claims, would then be open for preemption or homesteading. . . . Thus William Craig's ownership of the Las Animas townsite was questionable. To settle this problem a citizen's committee met with Craig in June 1873, and he agreed to withdraw his claim to the townsite and allow Probate Judge Asahel Russell to file for a federal patent. . . . In return the citizens of Las Animas pledged to recognize the titles of all parties holding deeds from the original town company (Friedman 1982:305).

It was after this period of uncertainty had passed, on the one hand, that several newspaper accounts remark on the vitality and rapid development of the Town. *The Las Animas Leader* was founded in May of 1873. On May 23, 1873, an article appeared in that newspaper.

> Crossing the river (from Fort Lyon) about 1/4 mile distant you enter the new town of Las Animas, county seat of Bent. It now has a population of about 250, two hotels, about 20 places of business, and others opened daily. Several

> houses are built of adobe and several of stone, both of which are cheap and easily obtained - Mexicans may be seen making "dobies." Las Animas is a fast town. It has two dance houses, one American, and the other Mexican. . . (Friedman 1982:304-305).

A second article published in *The Las Animas Leader* on June 6, 1873, further describes the town.

> . . . Las Animas is getting to be quite a large, wooden town! . . . On a nearer approach to your village, we came to the conclusion from the number of new adobe buildings and the number of adobes being manufactured that the 'Doby' stage was succeeding the frame and following this, the last stage of a Colorado town would be reached - it would turn to brick (Book Committee 1987:54-55).

Las Animas City also served other important functions, both commercial and political.

> Old Las Animas also served as a shipping point for freight companies, stage lines, and teamsters engaged in transporting goods from the railroads near the Kansas border to New Mexico. Around 1870 the Kansas Pacific Railroad extended its line to Kit Carson, a town it built just inside the Colorado state line. The Atchison, Topeka and Santa Fe Railroad wasted little time matching this feat by building its line westward to Granada, a town the railroad established just 12 miles west of the Colorado border, in July 1873. The Barlow and Sanderson Southern Overland Mail and Express Company operated a stage line between Kit Carson and Santa Fe, with Las Animas operating as an important stage stop and office for the company. . . (Friedman 1982:304).

The political importance of the town was manifested in 1870 when Bent County was first organized by the Colorado legislature. The county extended from the Kansas line west approximately 110 miles (Carrillo 1981:5). Las Animas City was designated the temporary county seat. The results of a local election that same year moved the seat to Boggsville. Two years later, Las Animas City again became the county seat and retained that position until 1875 when it was moved to West Las Animas (Friedman 1982:305-306; Petersen 1987:47-54).

By 1875, the town had lost approximately 100 people, from its high of 250 in 1873. It also was no longer the county seat, which had been moved to West Las Animas. Businesses which were still in the old town consisted of blacksmiths, brewery, general merchandise, hotel, real estate, doctor, and a wagon and repair shop. After this time, the town continued to exist as a viable community for about 12 years until about 1887, when it declined to village status.

The 1880 census shows that the town had only declined by 47 individuals within a period of five years, and had a population of 103. Women and children represented over 50 percent of the population of the town. In 1880 almost 9 percent of the population was black, probably related to the presence of the 9th and 10th Cavalry and "buffalo" soldiers being stationed at Fort Lyon. Only two individuals from New Mexico with Hispanic surnames who worked as sheepherders are listed as comprising 3 percent of the population. Eighty-eight percent of the total population was Anglo-American (Friedman 1982:306-307, 327).

After 1880 the population of the former Las Animas City continued to decline at a rapid pace.

> . . . In 1882 the *Colorado Business Directory* listed Charles Bobenreith as operating a grocery store and saloon there, while D. J. Lindsey served as postmaster and railroad agent. . . Around this time the Santa Fe Railroad closed its depot at Old Las Animas. One former resident recalled that by 1883 the only building still occupied in Old Las Animas was a saloon. . . The 1886 *Colorado Business Directory* said of Las Animas: "Old town four miles east of West Las Animas. No post office or railroad depot." By 1887 Old Las Animas is no longer listed in the Directory, and by that date it had probably been abandoned. In 1887, the Old Town gone, West Las Animas was incorporated, and dropped the "West" from its name, becoming the present town of Las Animas (Friedman 1982:307).

During the intervening years, the physical remains of what was originally planned as a large town began to disappear. Many of the frame structures were moved to Las Animas City. The adobe structures were probably dismantled and the blocks recycled. In the late 1930s when the area encompassing John Martin Dam was mapped, the remains of Las Animas City were no longer visible and the site was covered with tamarisk and scattered cottonwoods. In the early 1940s, the major portion of the site was destroyed when the railroad grade was raised to accommodate the effects of John Martin Reservoir (Friedman 1982:307).

Item Number 8: Significance

Old Las Animas was an early town site which predated the arrival of the railroad in the area in 1873 by four years, and which did not obtain rail service until 1875. As such, the site retains unique potential for learning about subsistence patterns of early towns in the West. Preliminary investigation has identified potential relative differences in time of occupation, frequency of food remains, and ratio of architectural to subsistence artifacts among the eight architectural areas.

Bent's Fort and The Santa Fe Trail

Although the region which represents southeastern Colorado was traversed by Spanish expeditions as early as the late 1500s, the establishment of Bent's

Fort on the Arkansas River by Bent, St. Vrain and Company, in the early to mid-1830s represented the initial permanent occupation of the region by Euro-Americans. It was not until Bent's Fort had been established that the Mountain Branch of the Santa Fe Trail began to be extensively used. The Mexican War of 1846-1848 resulted in the United States annexing a large part of the Southwest, which included the area south of the Arkansas River. Subsequently in 1849, the discovery of gold in California caused mass migrations across the region and the Indian trade began to decline (Athearn 1985; Carrillo 1981; Book Committee 1986; Janet Le Compte, 1987 personal communication; Stinson 1973; Friedman 1982:235-247).

Fort Wise (Fort Lyon)

At the time that William Bent leased his new post to the U.S. Army in 1859, the Pike's Peak gold rush of 1858-59 was on, and many potential miners were traveling along the Santa Fe Trail route along the Arkansas River. This began to create initial problems with the Indians. As a result, on June 30, 1860, the War Department called for a military fort to be constructed. A site for the new fort was selected in a tract of bottom land on the north side of the Arkansas approximately one-half mile west of Bent's New Fort, where corrals and adobe barracks were constructed. The Fort was initially called Fort Wise, but was changed to Fort Lyon after the outbreak of the Civil War (Friedman 1982:247; Book Committee 1987:19-21).

The major contributing factor aiding the permanent settlement of the lower Arkansas River Valley in Colorado was the stability provided by the presence of Fort Lyon. The settlement of Boggsville in 1866 represents the initial nonmilitary settlement in southeastern Colorado. Famous individuals who settled there were Thomas Boggs, John Prowers, and Kit Carson. William Bent had previously settled in the area in 1859 (Carrillo 1986:11-18; Friedman 1982:249).

New Fort Lyon

In the spring of 1866, the Arkansas River flooded and Fort Lyon was inundated. The troops were forced to evacuate the post and took refuge on the adjoining cliffs in tents. As a result, the site was abandoned and a new location was selected 25 miles to the west. The new Fort Lyon was established under the command of Captain William H. Penrose, Third United States Infantry, in June of 1867. The new site was on the north side of the river on a bluff with its highest point 36 feet above the river (Tilton 1870; Brandes 1873:39).

Fort Lyon was not near the center of activity during the Indian Wars of 1868, although patrols from the Fort did encounter skirmishes particularly with marauding Indians, and by 1869 most of the Indians had been removed from the area (Brandes 1973:39-45; Friedman 1962:251).

Old Las Animas

The second major settlement in the area, which occurred about two miles northeast of Boggsville and was a natural outgrowth of the establishment of Fort Lyon, was Las Animas City. William Craig, who founded the town, had been a quartermaster at Fort Union in New Mexico and had become Ceran St. Vrain's agent. Craig was one of the benefactors of the Las Animas Land Grant. The

new location of Fort Lyon fell within the boundaries of the Grant and the property was leased from Craig in June of 1867.

In conjunction with the establishment of the new Fort Lyon, Craig decided to establish a town on the opposite side of the river from the Fort. The dates for the establishment of the town merely indicate that he formed the Las Animas Town Company and laid out the site of Las Animas City on the south side of the Arkansas River about one mile and a half east of the Purgatoire River in January 6, 1869 (Friedman 1982:301). Actually, the plat contains a date of "January 1, 1867" and a map surveyed in April, 1868, already shows not only the town of Las Animas laid out with a bridge across the Arkansas, but also shows the proposed route of the Arkansas Valley Railroad crossing the Arkansas and leading into the proposed town of West Las Animas.

Las Animas City and The Santa Fe Railroad

The railroad initially arrived in Colorado in 1870 when the Kansas Pacific reached Denver in 1870. The development that immediately ensued worked a momentous transformation in the young city. This helped to create a similar potential for the southeastern part of the Territory (Carrillo 1986:23-24). In the early years of Las Animas City, it was believed that with the railroads moving into Colorado Territory the city would likely have two railroads, which would make it the most important place in southern Colorado. This was not to be, as the uncertainty over the legality of the title of Las Animas City and the competition between the Kansas Pacific and Atchison, Topeka and Santa Fe companies led to the conditions which created a new town called West Las Animas, located only five miles away.

> . . . In 1872 General Robert E. Carr, president of the Kansas Pacific Railroad, with the backing of David Moffat and the Denver & Rio Grande Railroad, attempted to raise subscriptions towards the construction of a branch line from Kit Carson to Pueblo. However, they did not count on the active opposition of the Atchison, Topeka and Santa Fe Railroad which was also building a line through the Arkansas Valley to Pueblo (Friedman 1982:305).

The bond issue for $100,000 was defeated by a margin of two to one for the following reasons.

> . . . the A.T. & S.F. announced earlier plans to push west from Granada, which would put it on direct route toward Las Animas City. Other than those directly concerned with the future welfare of Las Animas City, the opinion was that the railroad or railroads were coming through Bent County; so why pay to aid them, since they are coming anyway (Petersen 1987:49).
>
> While negotiations were still underway with the Kansas Pacific over subscriptions, the railroad completed its branch from Kit Carson to the Arkansas River. In order to profit from the venture David M. Moffat, Jr. and Robert E. Carr planned to establish a new townsite, rather than

In addition, the well documented occupation dates of the town offer potential to refine archaeological methods for dating historical artifact assemblages. Relative differences in occupation of the eight architectural areas are indicated by frequencies of olive glass (most common before 1860) and clear and solar purpled glass (most common after 1880). Differences in window glass thickness have been identified; correlation of window glass thickness with other diagnostic artifacts from the same provenience could determine whether this attribute is a useful temporal indicator and could aid in refinement of the appropriate thickness categories.

Item Number 9: Major Bibliographical References

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> risking the title difficulties involved in building their railroad to Old Las Animas. Taking advantage of certain loopholes in the federal requirements for acquiring title to land within the Vigil and St. Vrain [Las Animas] Grant, Moffat and Carr obtained control of the land for their new townsite on an unconfirmed portion of the grant under rather suspicious circumstances. When settlers at Old Las Animas learned that Moffat and Carr were going to bypass their town in favor of the new townsite, a vigorous protest was raised. . . The citizens of Old Las Animas challenged the acquisition of the townsite of West Las Animas by Moffat and Carr, claiming that the deeds they received for the land bore the names of fictitious people who never resided there or made improvements on the property. . . (Friedman 1982:305-306).
>
> This land fraud case was to be battled in circuit court and finally end up in the U.S. Supreme Court before it would be settled in October, 1884. The title to this area of land was in limbo, yet the politicians and railroad tycoons directly involved in this fraud were to reap some profits, for the railroad must continue on its trek west (Petersen 1987:52).

Even during the time that the accusations of land swindle were being fought in the courts, railroad track continued to be laid, and by October 18, 1873, the town site of West Las Animas had been planted and the Kansas Pacific Railway had reached West Las Animas. As a result, many of the businesses located at Las Animas City and Kit Carson moved to West Las Animas because of the new railroad terminus. A depot was established at Las Animas City at this time. In February 1874 the *Las Animas Leader* was moved to West Las Animas (Friedman 1982:306; Petersen 1987:54).

Conclusion

In terms of its importance, the site contains considerable potential for addressing specific research questions as defined in the *Colorado Historical Archaeology Context* (Buckles and Buckles 1984:33-46). These are:

1) Can social-structural distinctions of differing ethnic communities affiliations of the period be distinguished archaeologically (Buckles and Buckles 1984:36)?

2) Can cultural remains be used to test the propositions that the nature of business and commerce in frontier areas was dependent upon cultural-ecological variables to greater degrees than to diffusions of practices from elsewhere (Buckles and Buckles 1984:45)?

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