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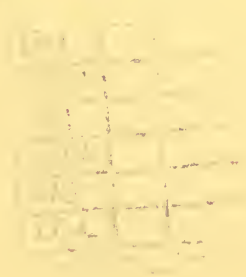
SHEPHARD SITE-PHASE III

(AR-NM-01-829) ALBUQUERQUE DISTRICT



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PHYSICAL PROTECTION WORKBOOK

shepherd site

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SANTA FE, NEW MEXICO 87501

SEPTEMBER, 1978

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PREFACE

This report has been prepared to satisfy the needs of the district. The report is the result of a combined effort. Phase I workbook was prepared by Nena Powell, with the preliminary fieldwork by Cheryl Ferguson, aided by Tim Valder and Nena Powell. The implementation of Phase II Physical Protection Team was supervised by Curtis Lester, Historical Architect. The team was composed of Earl Neller, Archaeologist, and Chuch Hannaford, Archaeologist Technician. The stabilization stone masons were Earl Johnson, Kee Johnson, Bobby Johnson and Daniel Harrison. Leo Flynn, State Archaeologist and Don Rickey, Historian shared their knowledge and expertise. Michael Solan and Harold Payne reviewed the report and drawings, making valuable suggestions. Marlene Rael and Doris Herrera shared the task of converting the scrawl into a typed report.

Abstract

The Shepherd Site (CM-38) is an example of a Navajo Refugee site located on the Chacra Mesa in northwestern New Mexico. An archaeological examination accompanied the stabilization of the site during the summer of 1977. The site is located in an area rich in cultural resources, tracing Navajo history from the period of the Refugee site 1739, to the present time.

Summary

As a result of the stabilization and accompanying archaeological examination of the Shepherd Site, certain questions were brought to mind concerning the nature of the site. Who were the inhabitants? What was their means of subsistence? What was the occupational history of the site? How does the site compare to other Refugee sites.? Excavation was not performed at the site. Artifact collections were made only from the surface of trash areas or areas disturbed during stabilization procedures. The analysis of the predominantly surface artifact collection along with the architecture at the site gave rise to questions and problems which future excavation may help clarify.

Concerning the inhabitants of the site, two different modes of evidence are present. The architecture of the stone masonry structures is almost pure Pueblo in nature. The pottery on the other hand is dominated by a strong Navajo influence shown in the presence of Navajo utility wares. The stone artifacts may also reflect the Navajo practice of picking-up tools from Anasazi Ruins. The forked-stick hogan and sweat lodge seem to be at the core of Navajo culture. Two sweat lodges are located in the site area. Tree-ring samples were taken from both sweat lodges to help determine if they are contemporary with the site. Near the west trash area is the remains of what appears to be a forked-stick hogan. It is not yet known if the hogan is associated with the site. A tree-ring sample was taken from one remaining beam. Further trenching in the west trash area may shed more light on the presence of this apparent forked-stick hogan. As the problem stands the site shows a strong Pueblo and Navajo influence, and cannot be typed as a pure example of either.

Evidence at the site suggests a lengthy occupation during which several renovations took place. Tree-ring samples collected by Vivian Cluster at 1739, showing the approximate time of construction. Trash areas surround the site. The number of trash areas and the amount of trash accumulated imply the site was occupied for 3 to 4 generations.

Signs of renovation show that the original appearance of the site has changed, suggesting more than one occupation. A large window was placed in the south wall of Room 1, replacing two loophole-style windows. The roof of the room also shows evidence of having been repaired. Room 3 contains what may be a plugged doorway in the south wall. Another possibility is that this alignment of stones suggesting a doorway is accidental. Poor corner joints present in Room 2 gave the impression of plugged areas, so this "plugged doorway" may be an accident of construction. An earlier photograph of the room shows a window in the southwest corner of the wall which may have been the original entrance, or an added entrance. Room 4 had two stone abutments built against the south and west walls to prevent their collapse.

SHEPHERD SITE
(Ar-NM-01-821)

Littering the site were rusted cans dating from the 1920's and 30's. The presence of these cans point to a time when the site may have been reoccupied, perhaps by Navajo shepherders. The roof on Room 1 is well preserved, especially considering that the roofs on Rooms 3 and 4 are totally missing. Some of these renovations may be the result of Navajos reoccupying the site during the 1920's. Gwinn Vivian also apparently grouted and patched areas of the walls using a gray cement-like adobe, during his work at the site.

The subsistence of the inhabitants is an interesting problem. Corncobs were collected from pack rat nests around the site. Stabilization work recovered corncobs from the walls and floor debris. Vivian found charred corncobs in the trash and a small piece of squash rind. The valley floor would seem to be excellent for farming especially noting the large crop of bee weed growing during the summer months. Farming was definitely an important economic pursuit.

One sheep bone was recovered, raising the question as to what degree shepherding was practiced at the site. It has not been determined whether the bone fragment belongs to a wild or domestic sheep. Corrals of any apparent age are not present at the site. A corral is located against the bench below the site but seems to be of recent construction. Test pits in this corral might reveal any older deposits of manure suggesting an older corral. A pole set in the wall of Room 2 functioned either as a shelf or loom support. As a loom support, wool may have been woven at the site indicating the possible presence of sheep. Unless more sheep bones are turned up during excavation, shepherding does not appear to have been practiced.

Vivian found 13 projectile points while trenching the trash. The large number of points found implies that hunting may have been important. The location of the site on the edge both of the main concentration of Refugee sites in the Gobernador area and the Pueblo farming areas along the Rio Grande, might have provided an opportunity to develop a hunting specialization. The Jemez Mountains are close, supplying a good game source. Though we found no bones of sizeable game on the trash surfaces, excavation revealing the presence or absence of bones would answer the problem. As mentioned, the sheep bone could be that of a wild sheep. It is interesting that the end of the bone seems to be chewed suggesting the possible presence of dogs.

Related to the economic practice of the site is the question concerning whether the site was occupied permanently or seasonally. The amount of accumulated trash suggests a lengthy occupation.

The location of a window entrance high on the wall of Room 3 implies the room functioned as a storage room. Excavation of the room, revealing the presence or absence of a fireplace, or perhaps pollen studies, could verify this possibility. With farming as a subsistence base, coupled with the presence of the storage room, the site could have been inhabited

permanently. The site is located next to good farming land and plentiful wood for the winter months.

If the trash areas reveal more sheep or animal bones, the site may be of a seasonal habitation. The type and age of the animals could reveal the season of habitation. The analysis of the artifacts show that the inhabitants are connected at least indirectly to a wide geographical area; the Gobernador Canyon Region, Jemez Mountains, Zia Pueblo, the Acoma-Laguna-Zuni District, and the Hopi villages. A storage bin is located in a cave half a mile west of the site. This storage bin could have been used to store household articles or crops during periodic absences such as social, ceremonial, trading, or hunting trips.

The Gobernador Region appears to have been the center of the Refugee population. Sites in this area have as many as 40 rooms and sometimes are located in observational chains. The stone masonry structures, called "pueblitos," all exhibit the characteristic pueblo-type architecture. The pottery from the sites show the strong dominance of Navajo utility wares. The sites are located in defensive positions such as mesa tops and isolated bounders.

The Shepherd Site is located on the southern edge of this center of Refugee manifestation. A quantity of Gobernador Polychrome sherds are present at the site which are indigenous to that area. Two ground-stone fragments and a mano are made from a coarse-grained sandstone native to the Largo Canyon area. This evidence shows that the site was in contact with this Refugee concentration.

Looking at the Refugee phenomena as a whole, several points are notable. The dates from the sites are almost all from the 18th century, in most cases at least 20-40 years after the period of the Pueblo Revolt (1680-1696). Only a few dates come from the actual time of the revolt. Such a lag is strange considering the sites are supposed to be inhabited by Pueblo Indians fleeing the retuning Spanish.

The land at this time is supposed to have been occupied by the Navajo. Espejo mentions Querechos (possibly Navajos) near Acoma in 1582, yet early Navajo sites are rare from the 16th century and only a few come from the 17th century. The concentration of dates seems to coincide with the Refugee dates from the 18th century.

The pueblito sites show both a strong Pueblo and Navajo influence. During this period of close contact the Navajo are thought to have absorbed much from Pueblo culture. The forked-stick hogan, sweat lodge, pointed bottom pottery, and the Athapascan language seem to be the core of Navajo culture after the Pueblo traits are subtracted. The problem is that early dates for these pure Navajo sites are missing.

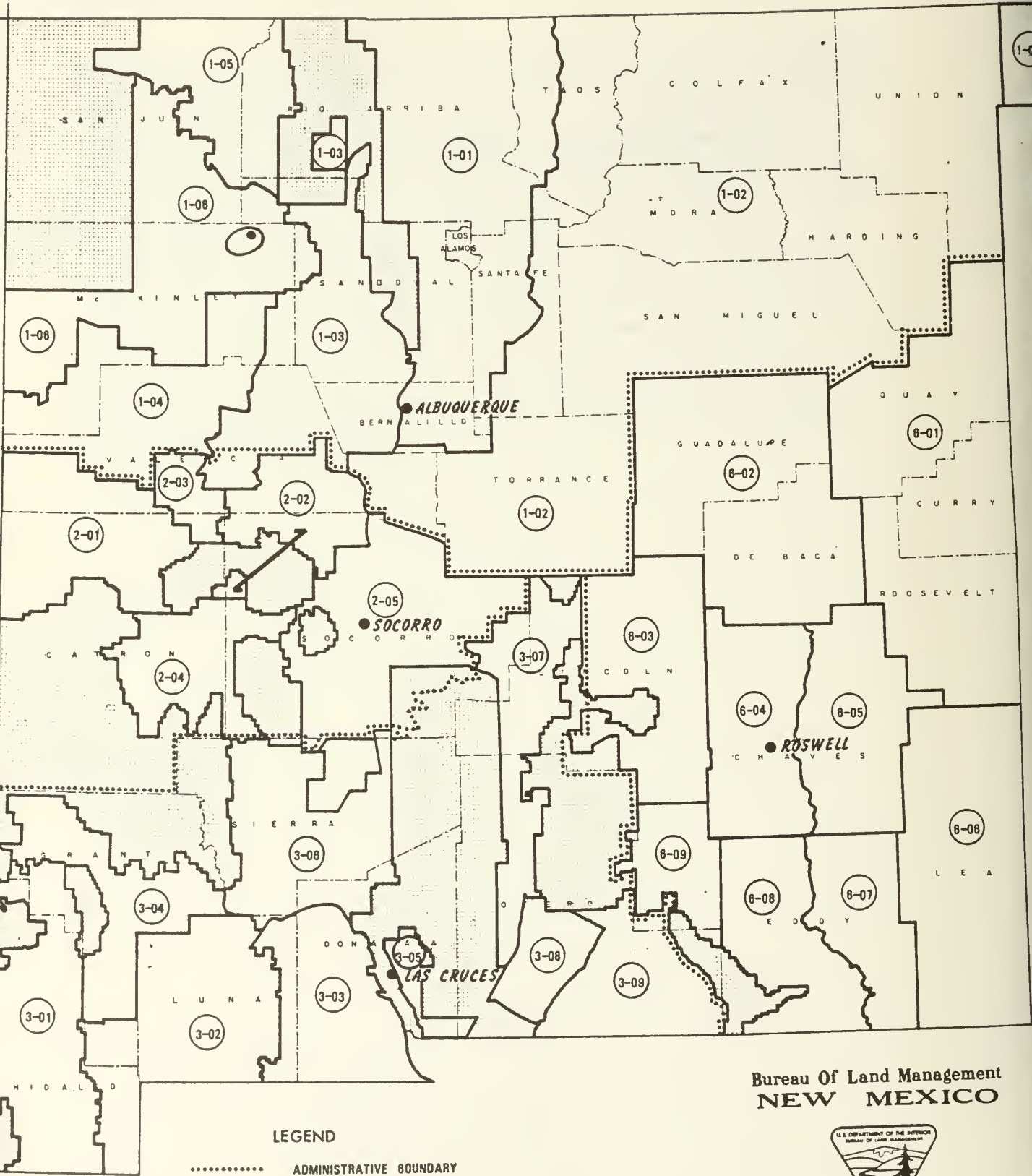
SHEPHERD SITE
(AR-NM-OL-821)

The Apache and Navajo speaking the Athapaskan language were originally related and are thought to have drifted down from Canada, the main source of Athapaskan speakers. The Apache and Navajo were originally a hunting-gathering people. Upon arrival to the New Mexico area the Apache retained their hunting-gathering nomadic life, but the Navajo apparently adopted a farming economy, becoming semi-sedentary. Why the two groups split is a problem. Why the Navajo would adopt farming in the harsher Gobernador area, their mythological homeland, rather than along the Rio Grande like the Pueblo Indians is a mystery. It is interesting that this minority of Pueblo Refugees would have such a large effect on the Navajo, considering they were a minority group entering an area dominated by a different cultural group. One would think that the reverse would be the case and that this minority of Pueblo Indians would have been absorbed into the Navajo culture. The dominant Pueblo influence in the early historical reconstruction. Much work can still be done explaining why the Navajo became so Pueblo like, and why even this mixed group did not retain a lifeway as exemplified by the Apache.

SHEPHERD SITE
(AR-NM-01-821)

SITE MAPS

- A. District Map
- B. Site Location Map
- C. Site Location Contour Map

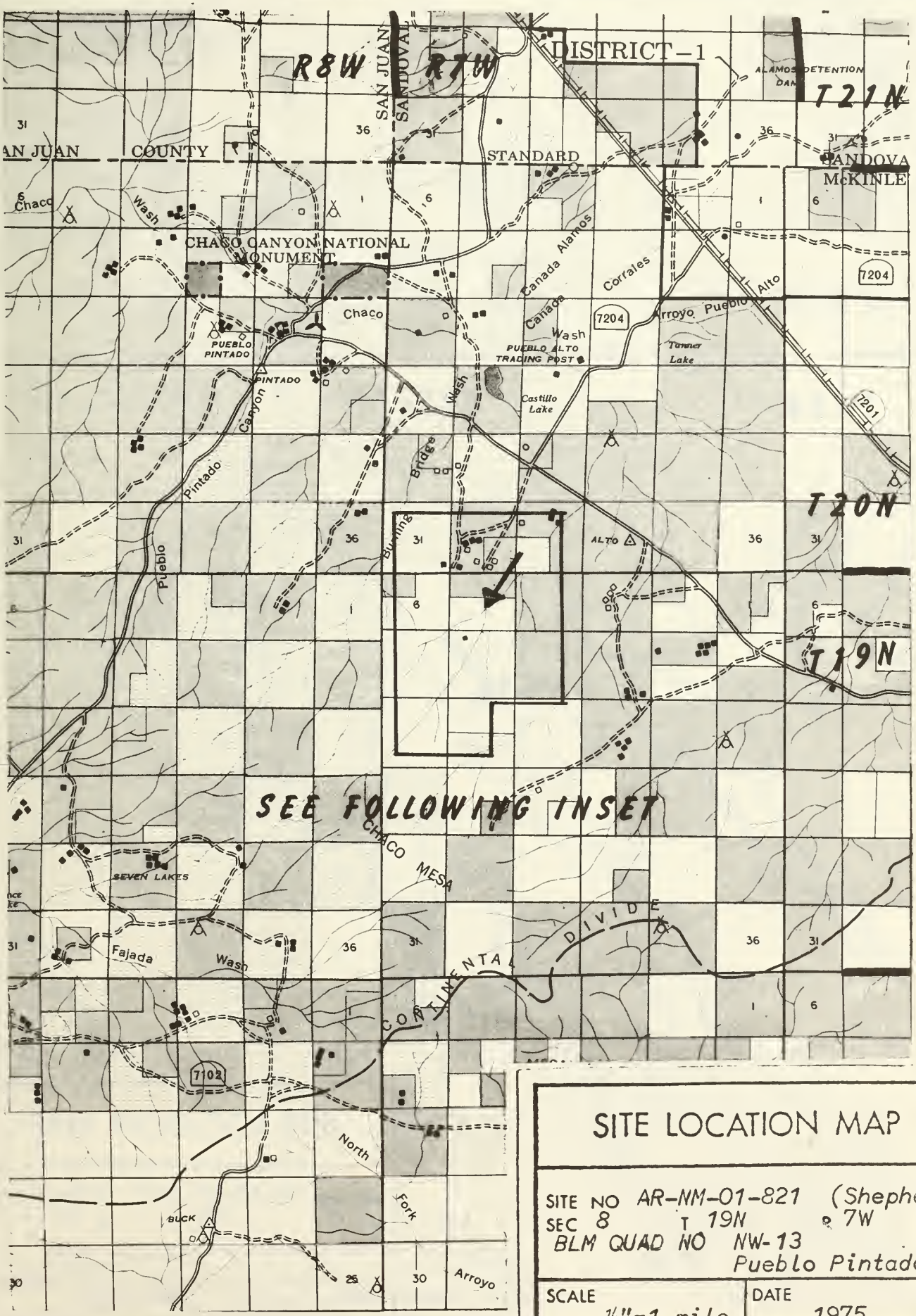


LEGEND

- ADMINISTRATIVE BOUNDARY
- DISTRICT OFFICE
- PLANNING UNIT BOUNDARY
- (3-06) PLANNING UNIT NUMBER
- (●) SITE LOCATION

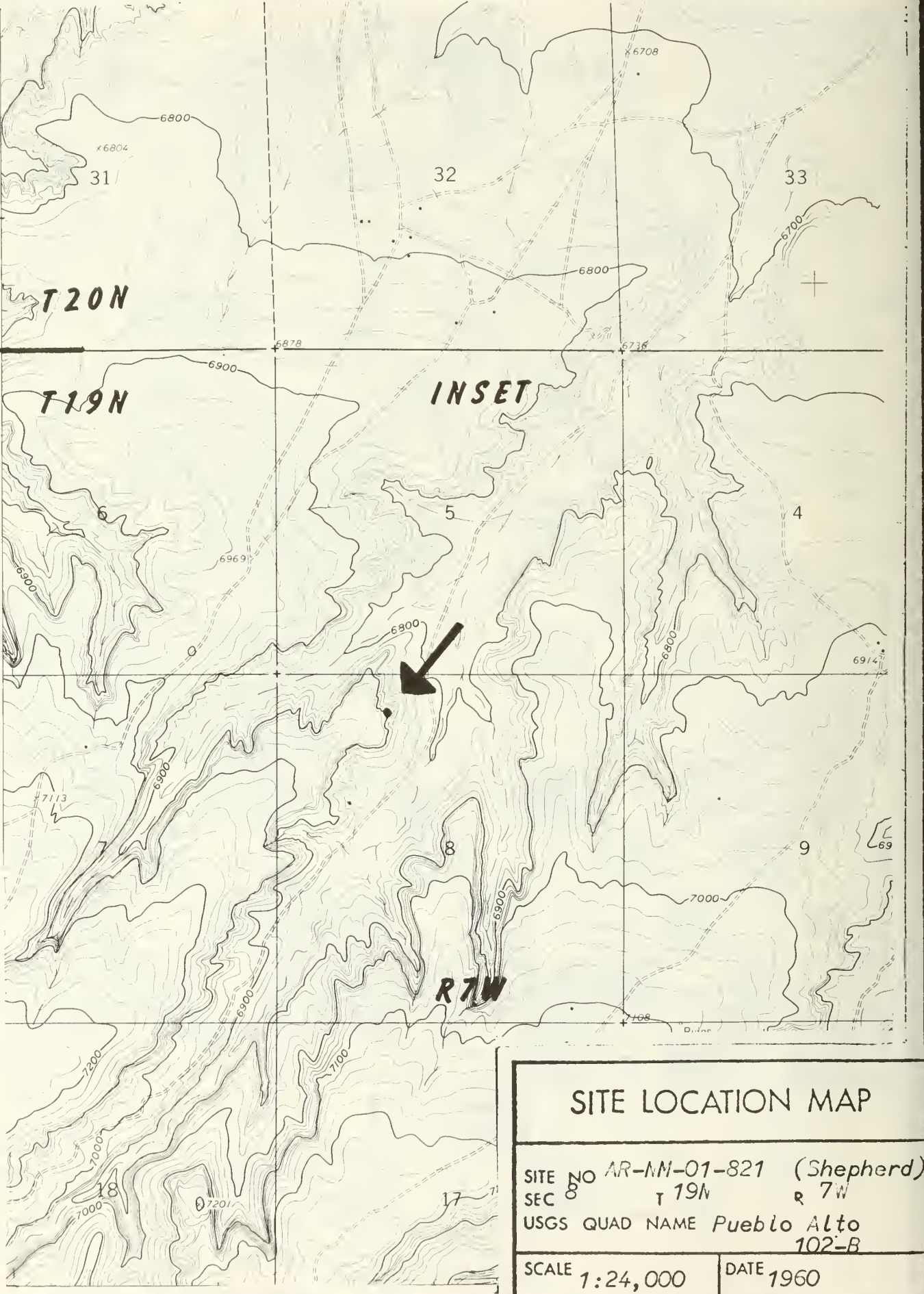
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SEE FOLLOWING INSET

SITE LOCATION MAP	
SITE NO AR-NM-01-821 (Shepherd)	
SEC 8	T 19N
BLM QUAD NO NW-13	R 7W
Pueblo Pintado	
SCALE	DATE
$\frac{1}{2}'' = 1 \text{ mile}$	1975



SITE LOCATION MAP

SITE NO AR-NM-01-821 (Shepherd)
SEC 8 T 19N R 7W
USGS QUAD NAME Pueblo Alto
102-B

SCALE 1:24,000

DATE 1960

FLOOR PLANS

1. Existing Conditions - Documentation
2. Stabilization Actions - Phase II
3. Floor Drainage Plan
4. Roof Drainage Plan

TRUE NORTH

SHEPHERD SITE

AR-NM-01-821

CM-38

U.S. Bureau of Land Management

DECEMBER 1977

STABILIZATION ACTIONS PHASE II - WORK PERFORMED

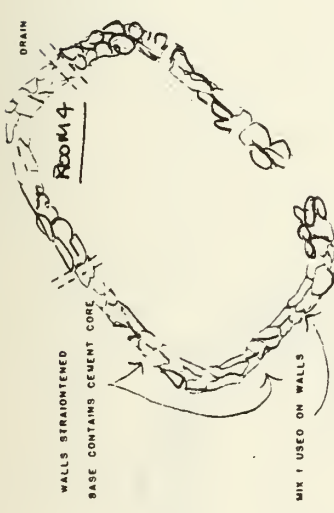
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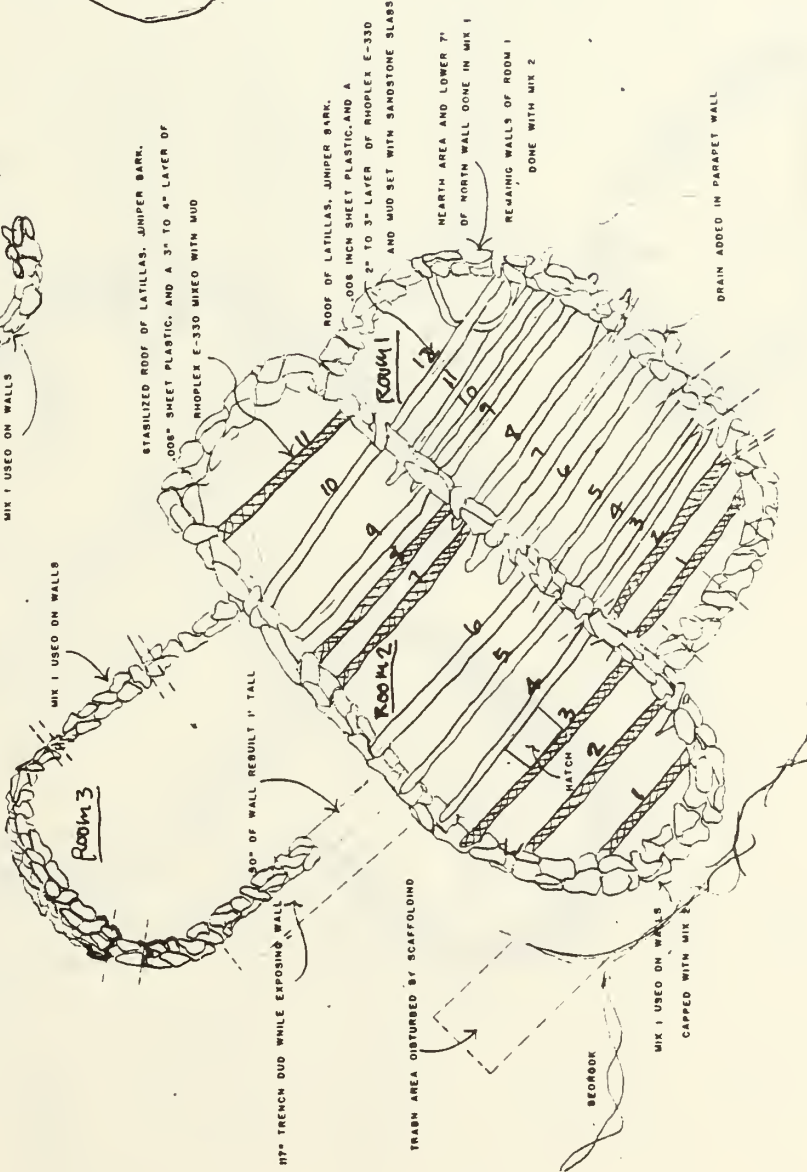
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LEGEND

REPLACED VIGAS -



SIGN 73





SHEPHERD SITE

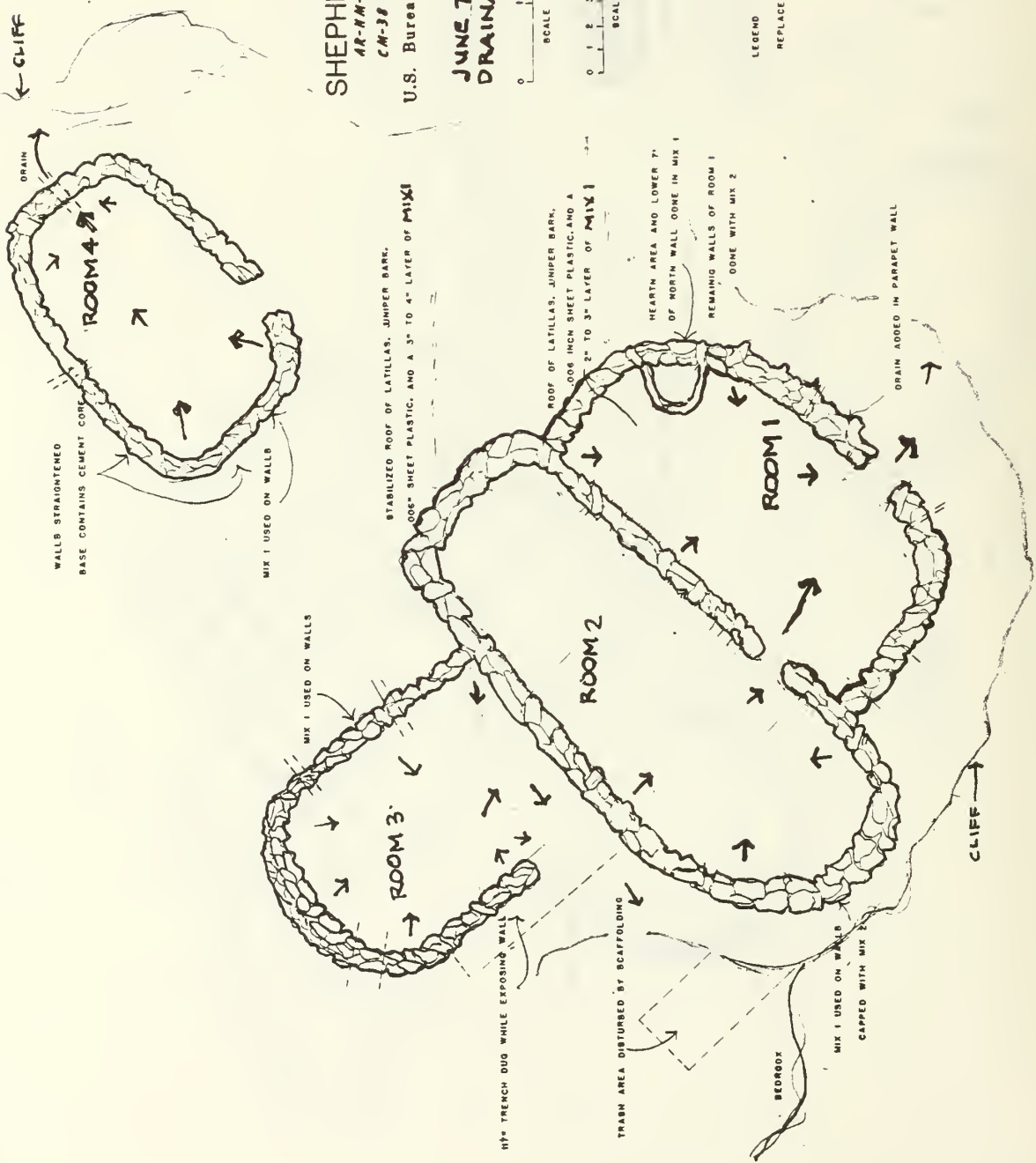
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**JUNE 78 CL
DRAINAGE PLAN - FLOOR PLAN**



LEGEND
BEDROCK
REPLACED VIGAS





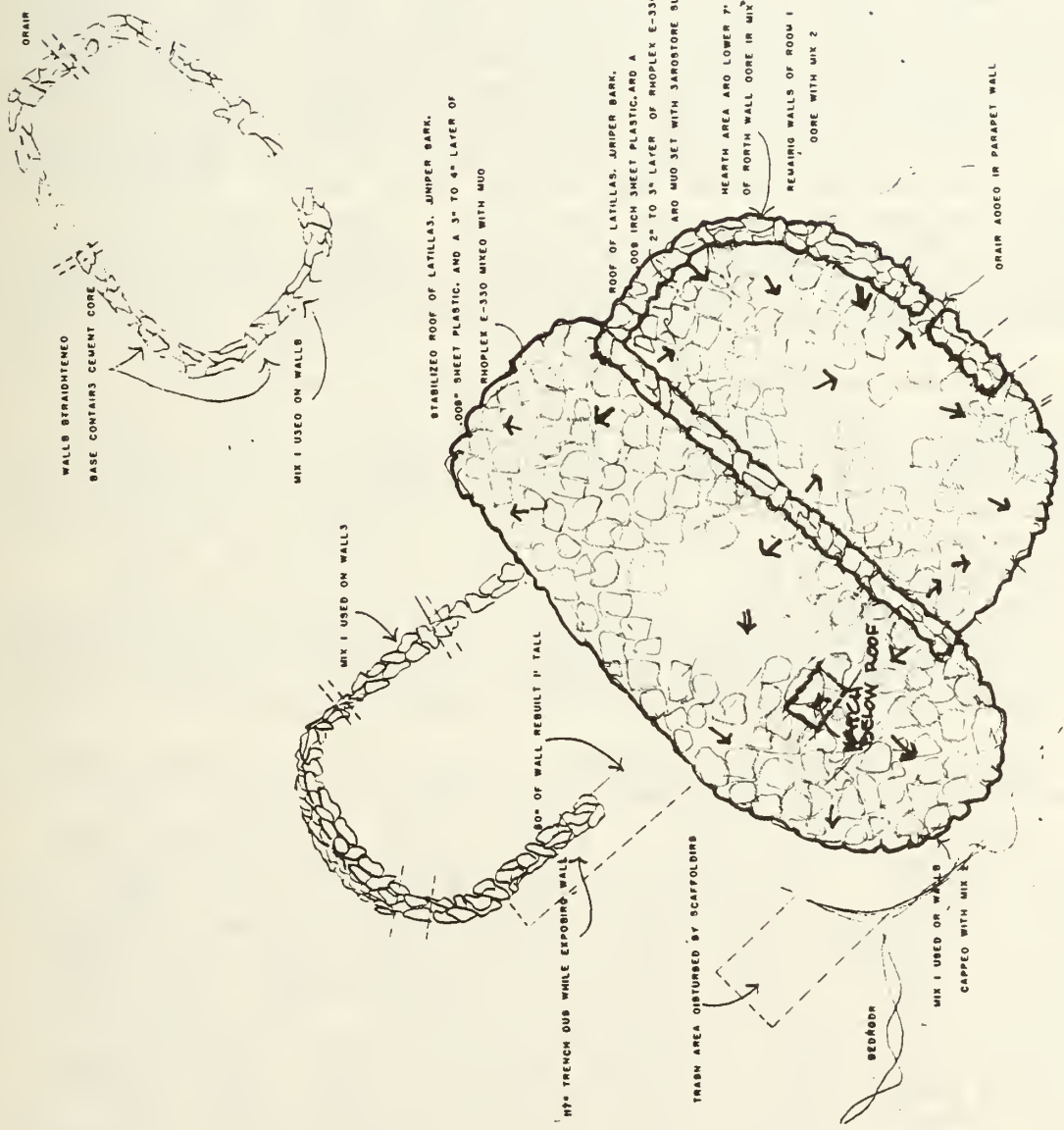
SHEPHERD SITE

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U.S. Bureau of Land Management
JUNE 1976
ROOF PLAN - DRAINAGE
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LEGEND
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REPLACED MOAS - XXXXXXX



INFORMATION

1.0 GENERAL The Shepherd Site is located on the Chacra Mesa a little more than six miles to the southeast of Pueblo Pintado. The site is constructed on a rounded sandstone outcrop near the end of a short extended spur of the first bench. Certain architectural features suggest that defense measures were important, yet, the location was poorly chosen because of its relatively easy access.

This site has been traditionally called a Navajo Refugee site, yet there are certain implications and characteristics that indicate an important Puebloan influence that stems from certain architectural features on the site. The unit consists of three oval-shaped rooms with an associated, but detached, single masonry room. The original structure was a roughly circular two room unit to which at a later date was added a third room. The two room unit is one-and-a-half stories high; the upper half story serving as a low parapet defense wall located above Room 1. This upper story was not entered by way of the lower room, a means common in the Gobernador, but from the outside by a notched log ladder. This upper half story, intended as a defense measure with loopholes, was not roofed. The additional room, Room 2, was never more than one story in height.

Architectural features suggesting Puebloan influence, and possible Pueblo occupation, are represented in the first story of Rooms 1 and 2. The Pueblo characteristics include a flat brush and viga roof, corner hooded fireplace (which is actually Spanish in origin), plastered and whitewashed walls, and the type of low doorway not common in hogans. It would not be unreasonable to assume that Pueblo peoples lived in the area during the time this was occupied. Many Pueblo groups had fled from their pueblos during Post-Revolt times and had found refuge among Navajo neighbors. Although the Pueblo and Navajo peoples were undoubtedly in close contact with each other, for purposes of this site report, it will be assumed that the Shepherd Site is a Navajo Refugee site.

When the site was surveyed and recorded in 1953 by Dr. Gwin Vivian, the walls were in a good state of preservation, although the stone was poor. Irregular sandstone blocks and slabs were set in abundant mortar and then chinked with small spalls. Somewhat less mortar was used in the masonry of Room 3. The interior walls of Room 1, 2, and 3, were plastered, and a whitewash was applied to the plaster in Rooms 1 and 2. There was no evidence of plaster on any exterior wall. The floor of Room 1, which was cleared by Vivian, exhibited a plastered adobe which curved up sharply at the junction of the floor and the wall. The detached single masonry room located to the west of the main unit, Room 4, shows no presence of plaster on the interior or exterior walls. The masonry of Room 4 is somewhat different and undoubtedly was constructed at a later date. The sandstone slabs used in the construction are considerably

thinner and more regular. The adobe mortar almost completely absent. A closer inspection of the walls of Room 4 revealed indications that the same masonry type was used to construct the defense parapet wall above Room 1. There is also evidence of remodeling in the fireplace area that was apparently rebuilt sometime later than the construction date of the main structure. Eight dendro specimens were secured from the roof of Room 2 (See map), which exhibited a tight cluster of dates from 1738-1739 (Bannister, 1964). The strong clustering indicates that the main ruin was built about 1739, and has been represented as "the most securely dated Refugee site in the Chaco Canyon region" (Vivian, Masters Thesis 1960), (Bannister, 1964).

Most of the roof of Room 1 was intact, but only part of the roof of Room 2 remained. Rooms 3 and 4 had no remains of their roofs left. The roof of Room 1 and 2 was typically Puebloan as mentioned above. Vigas of juniper, pinon and douglas fir, averaging 6 inches in diameter, were laid in the short diameter of the rooms. Cedar bark and brush were placed on cedar shakes laid transversely to vigas. Adobe was used as a final covering.

The outside doorway of the two room unit was oriented to the northeast. It was narrow, approximately four feet in height and had a stone lintel above the door. The two oval rooms were joined by a doorway, but there was no entryway to Room 3 from these two rooms. The inter-room door was low, narrow and had plastered adobe and a stone lintel.

The original doorway into Room 3 was blocked with stone and a new one was constructed in the wall a few inches from the earlier one. Both were oriented to the southeast. The height of this narrow door appeared to have been approximately three feet (See map).

Seven loopholes were placed strategically throughout the three room unit. One was located in Room 1 to the south of the door. Room 2 had a single opening to the southwest, however, when Room 3 was added, it no longer served the same purpose. Two were located on the north wall of Room 3, and three loopholes were located in strategic places facing north and east in the defense wall above Room 1 (See map). Undoubtedly, more were located in the defense wall before its partial collapse.

A hooded fireplace was present in the northwest corner of Room 1. All that remained of the hood was a curved juniper bough, that was inserted in the wall and extended out into the room. Construction is by placing a curved pole (in this case a juniper bough), with a groove in it across a room corner, leaning splints from the groove in the pole to the ceiling and then laying adobe plaster. Side walls are built up from the floor to the curved pole, and a lintel lies part way by the fireplace. The intervening area between the lintel and the curved pole is plastered with adobe. Adobe marks were left on the wall, which showed that a masonry and adobe hood built on this support extended up to the roof

where a stone smokehole continued outside and along the inside wall of the parapet. The floor of the fireplace corner was fire-reddened and baked, but no definite adobe ring marked the edge of the fireplace. As was mentioned above, the fireplace has been remodeled in similar stone construction as Room 4 and the parapet defense wall.

There are two niches and one shelf located in the east and west walls of Room 2 (See map). In conclusion, this site has been known as one of the best examples of Navajo Refugee architecture on Chacra Mesa and best exemplifies the Chacra Refugee Tradition.

1.1 LOCATION The site is located in the NW $\frac{1}{4}$ of the NE $\frac{1}{4}$ of the NW $\frac{1}{4}$ of section 8, Township 19 north and Range 7 west, in McKinley County, New Mexico.

1.2 PREVIOUS STUDY Chacra Mesa was surveyed over a period of six years in the early 1950's. The Shepherd Site was discovered and recorded in 1953 by Dr. Gwin Vivian. The report of the site is included in his Masters Thesis entitled The Navajo Archaeology of the Chacra Mesa, New Mexico, 1960. Other references to the site have been cited in the following bibliography.

Bannister Bryant

1964 Tree Ring Dating of the Archaeological Sites in the Chaco Canyon Region, New Mexico, Southwestern Monuments Association, Technical Series, Vol. 6, Parts 1 and 2.

Dittert, A. E. Jr., James G. Hester and Frank W. Eddy.

1961 An Archaeological Survey of the Navajo Reservoir District, Northwestern New Mexico, monographs of the School of American Research and the Museum of New Mexico, No. 23, Santa Fe.

Hester, James, G.

1962 Early Navajo Migrations and Acculturation in the Southwest, Museum of New Mexico, Papers in Anthropology, No. 6, Museum of New Mexico Press, Santa Fe.

Hill, W. W.

1940 "Some Navajo Culture Changes During Two Centuries," Smithsonian Miscellaneous Collections, Vol. 100, pp. 395-416.

Keur, Dorothy L.

1944 "A chapter in Navajo-Pueblo Relationships," American Antiquity, Vol. 10, No. 1, pp. 75-86, Menasha.

Vivian, R. Gwin

1960 The Navajo Archaeology of the Chacra Mesa, Masters Thesis, University of New Mexico.

Worcester, D. E.

1947 The Early History of the Navajo Indians, M. S. Doctoral Dissertation, University of California Berkeley.

STABILIZATION WORKPLAN

2.0 WORK SCHEDULE The chronological sequence of activities should be done in the following order:

Sequence of Operations

- 2.1 Reconstruction
- 2.2 Grouting of Masonry
- 2.3 Capping of Walls
- 2.4 Wood Preservation
- 2.5 Roofs
- 2.6 Interior Features
- 2.7 Drainage
- 2.8 Materials
- 2.9 Support Actions

2.1 Reconstruction- A minimum of reconstruction will take place on this site because of its relatively good state of preservation. All of the walls are still standing and none of them have caved-in or fallen. Therefore, in most cases, the walls will be grouted and capped with 'stabilized adobe' to insure stability to the structure.

2.2 Grouting of Masonry- Grouting of masonry will be accomplished with minimal destruction of the original fabric. The existing masonry will be cleaned of loose material and the surfaces dampened to aid in the bonding and curing of a 'stabilized adobe' grout. Additives and target mix proportions are covered under Section 2.8 (Materials) of this workbook.

There are approximately 150 linear feet of exposed wall. It is not reasonable to assume that the entire surface of each wall would be grouted. Therefore, the plan calls for a concentrated grouting effect on the exposed surface of each wall. The interior walls of Rooms 1 and 2 where there is plaster and whitewash applied will be treated differently. This will be discussed in Section 2.6. (Interior Features) of this workbook.

Delineation of concentrated and minimal grouting zones will be clearly made when the grouting operation is started on each room.

2.3 Capping of Walls- The walls on this site are in a good state of preservation and in some cases are standing to their full height. Because of this good state, there will be a minimum of capping required. Since Rooms 1 and 2 still have their roofs intact, no capping will be required on those walls. Minimal capping operations will take place on the exposed wall surfaces of Rooms 3 and 4 and also on the parapet defense wall above Room 1. Approximately 95 linear feet of wall will require capping. This stabilization technique will bond two more upper courses of masonry on the existing walls. Capping mortar will incorporate a concrete bond to increase adhesive qualities. Visible grout will be matched to the existing fabric. Fall rock, in and around the site, will be used for this operation.

2.4 Wood Preservation- Measures will be taken to prolong the life of all structural timbers remaining in place, as well as the major structural vigas which have fallen in Room 3. To reduce deterioration from water, fungi, and insects, wood will be treated with two applications of Pentachlorophenol, which also resists shrinking and swelling. Following this, a fire retardant will be applied. In Room 1, vigas 5 and 6 are bowing severely (See map). In order to correct this, the vigas would have to be removed and put through a steaming process. There's a chance that this operation would not straighten the vigas because of their age. (Dendro samples prove that these vigas were cut approximately in 1739). Therefore, the vigas will be kept where they are and nothing will be done to straighten them. Along with all vigas, the juniper bough that formed the hooded fireplace will be sprayed with Pentachlorophenol and a fire retardant will be applied. The vigas that have fallen in Room 3 will be treated the same way as mentioned above and will be provenienced as to location and stacked together in a pile inside the room.

2.5 Roofs- Work will be done to preserve the roof of Room 1 and the remaining portion of the roof of Room 2. In Room 2, it will be necessary to make additions to the roof in order to preserve the part remaining. This will also benefit the preservation of the wall between Rooms 1 and 2. Both existing roofs and the added portion will be sealed with polyethelyne or polyurathene film and covered with a stabilized adobe sloped to facilitate runoff of rainfall or snow melt.

2.6 Interior Features- Plaster and a whitewash remain on the interior walls of Rooms 1, 2 and 3. Where the plaster is protected by existing or repaired roofs, as in Room 1, it will not require any treatment at this time. Where plaster will be exposed to moisture, as in Rooms 2 and 3, it will be treated with a stabilizing spray, "F325." Caution: When spraying this substance, make certain that the entire surface is sprayed sufficiently in the first application, because it will dry very quickly. It will not be possible to spray a second time.

2.7 Drainage- Because of the good state of preservation of all existing walls, the overall site drainage presents very few problems. There is a natural drainage pattern that flows from the doorway of the east wall of Room 2 into Room 1 and through the doorway in the east wall and down over the bedrock cliff. The runoff in Room 3 will drain through the doorway in the south wall and then over the bedrock drop. The drainage in Room 4 will flow through the southeast corner and then will be diverted to the east in order to run over the side of the cliff and to prevent the water from Room 4 from flowing into the north wall of Room 1.

2.8 Materials - The adobe mortar was made of native soil material and includes a 4% by weight mixture of clay, so called by the stabilization team. The mixture is made of concrete bond material (92% by weight), linseed oil (6% by weight) and plasticizer (3% by weight), Viscidity of adobe particles is greatly increased by adhesive bond material and pliability is added with the plasticizer. Linseed oil, is suspected, also, of adding a degree of flexibility to the adobe. Ingredient proportions were established on the basis of a series of tests to reveal

maximum potential for erosion prevention. The stabilized mixture possesses several advantages over commercial grout. It is easily mixed and bypasses the peculiarities and uncertainties of commercial production. Additionally, it is much closer to the original site material in color, texture and behavior. Although stabilized adobe may not be as strong as commercial grout, it is more consistent with Bureau of Land Management policy in altering the ruin as little as possible and retaining original appearance.

2.9 Support Actions- Access to this site is relatively easy, yet some climbing is required. This may have prevented frequent visitor use, as the site is minimally disturbed. An interpretive and protective sign will be placed at the southeast end of the site, which will interpret the site for the public and clearly explain the protection afforded it under the Antiquities Act of 1906 and the National Historic Preservation Act of October, 1966.

ARCHITECTURAL DOCUMENTATION - Phase III

3.0 General

The sequence of stabilization was (1) Room 4, (2) Room 3, (3) Room 2 and (4) Room 1. However documentation of the rooms will be discussed in chronological order. The sequence of operations were followed according to the Phase I workplan. There were two stabilized adobe mixes used as documented on the stabilization action plan research data and written material. Since the Phase I workbook was brief, additional documentation was necessary and a description of existing conditions was added for each room, 1 through 4.

3.1 Room 1

A. Existing Conditions

Room 1, of the pueblويد unit, was the best preserved room of the site. This room had an almost complete, intact roof except for the southern portion which was missing. Ten original vigas were in place, aligned east-west, supporting a roof made of pinon and juniper slats covered with juniper bark, red-buff adobe, dirt and tabular sandstone slabs.

The walls ranged from 6 feet tall on the south to 8.75 and 9.5 feet tall on the north and east including the defensive parapet wall or second story above the room. The west wall in common with Room 2 averaged about 6 feet tall. The parapet defensive wall above the room had collapsed on the south and west sided, but averaged about 3 feet tall on the north and east. This remaining wall leaned in several places and lacked most of the original mortar. Moisture coming down the chimney hole in the north-east corner of the roof had totally eaten away the mortar from around the rocks in the hearth area of the wall, so that one could see outside through the gaps. The exterior walls had also lost much of the mortar and spalls leaving thinning of the walls in places and a "bare rock" appearance. This room had been previously excavated so the floor was clear of fill and debris except for a 2-3 inch layer of wind-blown dust and some packrat nesting. As a result of excavation, the floor of Room 1 was 18 inches below that of Room 2. A mound of dirt and rock debris outside the southern window was apparently where the fill of this room had been dumped during excavation. A hooded fireplace had been in the northeast corner of the room. A twisted juniper branch which had been in the northeast corner of the room. A twisted juniper branch which had been the support for the hood of the fireplace was set into the wall and was all that remained of fireplace. The interior walls having been protected by the roof were well preserved. Several layers of plaster were discernable on the walls, including a white-washed layer. A bird-like petroglyph had been scratched into the plaster on the west wall and a feature

consisting of three thin slabs of stacked sandstone was associated with the hearth area. A well-plastered doorway, eroded on the north side, led through the west wall into Room 2.

A gray/buff colored adobe was found in places on the interior and exterior walls covering previous layers of plaster. The plaster had been used as a grout in a recent attempt to repair the ruin.

This gray/buff plaster was found around the doorway in the east wall, hinting that the door may have originally been different. The plaster was also found around the window in the south wall. The fact that this window is so large (20 inches tall by 27 inches wide) and out of place with the "traditional" loophole style windows (about 3½ x 4 inches) throughout the rest of the site, coupled with the loss of mortar from the stones in this area, and the lintels of juniper beams, suggest the window is a product of this recent remodeling job. The roof also shows evidence of having been repaired previously. The pinon and juniper slats forming the roof are black from smoke stain on the north half, but are clean of this stain and contained branches, as well as, split wood in the repaired southern section.

B. Reconstruction

Reconstruction was on repairing and replacement of the roof section.

Two new vigas were added to fill the missing gap, so that the first 2 vigas to the south are new and the remaining 10 are original. The roof was then cleared of about 8 inches of dirt and rock down to the juniper bark covering. Stones that were once part of a chimney around the smoke hole were grouted. Split wood slats were made from dead wood in the site vicinity and layed over the vigas on the missing patch of roof. A layer of juniper bark was added next and then a sheet of .006 inch black polyethylene plastic to seal the roof. A 4 inch layer of mix 2 was placed over the plastic. Flat slabs of sandstone were set into the mud to match the original roof style. The roof was sloped to drain to the east out the drain provided in the parapet wall. The chimney hole was plugged to protect the walls below. This roof will adequately protect all interior features so that spraying with stabilizing spray, F-325, was not necessary.

In places the 3 foot walls had to be taken down to eliminate the lean, and then rebuilt. Most of the original mortar had eroded away and had to be replaced.

C. Grouting

Grouting began on the north wall and hearth area with mix 1. A section of the north wall level with the adjoining north wall of Room 2 (about 7 feet high) and stretching along the wall for 5 feet

was grouted down to the base of the wall using this mixture. The hearth area was also repaired with this mix. In repairing the hearth, the stones, from which the adobe mortar had eroded, were removed, leaving about a 3 foot circular hole in the wall. The rocks were then reset in mortar and the hole filled. The presence of this hole in the wall apparently caused settling of the room and a large crack formed in the east wall stretching from the ceiling nearly to the floor. With the hole repaired, no further cracking was evident. At this point, a change was made to mix 2. All further work on this room was done using this mix. Scaffolding was erected to aid in reaching the high east and north walls and for the roof repairs. Grouting proceeded from the base up, with spalls or small rocks added to fill in thinned areas of the wall where they had eroded out. It was decided that the remodeled south window would be left in place, as evidence of a second occupation. The stones in this area had lost most of their mortar and needed grouting both inside and out. The crack which had formed in the interior east wall was grouted as well as most of the south wall in the area of the big window. The eroded north section of the doorway in the west wall was filled in with rock and mortar. Other holes and cracks were grouted on the interior walls.

D. Capping

Capping began with the parapet wall above the room. Only the north, east and west walls of this second story required capping, (see roof plan).

E. Wood Preservation

The interior roofs of both Rooms 1 and 2 were then treated with an application of Pentachlorophenol which protects the wood from deterioration from water, fungi and insects. After several days of drying, the textured walls of Rooms 1 and 2 were sprayed with water and rubbed down with sticks to effect a look of antiquity.

3.2 Room 2

A. Existing Conditions

Room 2 was part of the original pueblويد unit and had walls standing 5 feet on the north, 6.5 feet to 7 feet on the west. 6 feet on the south and an approximate 6 feet east wall in common with Room 1. The exterior walls had the "bare rock" appearance caused by erosion of the mortar from around the stones. Though most of the roof had collapsed, there were six vigas still in place with patches of roofing material consisting of a layering of thin sticks lying across the vigas, juniper bark and adobe. There was also rock fall from the walls present on the vigas. The floor was filled

with rock fall, small sticks, and juniper bark from the roofing. Interior features included a well-preserved plastered doorway in the east wall in common with Room 1, two inches, a broken pole shelf and walls with plaster and some whitewash.

B. Reconstruction

To protect the existing vigas and interior features, it was decided to reconstruct the roof on this room. No reconstruction was necessary on the high-standing walls except for building them up to a uniform height, which was a capping procedure.

C. Grouting of Masonry

Grouting began on the exterior walls using mix 1. The bases of the walls were filled in and rebuilt: Grouting proceeded from the base upwards. Interior cracks and holes were grouted, and the slightly darker color of our grout contrasts with the original adobe. The surface of the floor was cleared of rock fall and 8 to 10 inches of fill that had accumulated against the north wall. A burned area and possible fireplace was uncovered in the northeast corner of the room while clearing this fill. The presence of the burn was noted and it was then covered with rocks for protection. The high walls and work on the roof necessitated the use of scaffolding and securing a steady base a hole was dug which cut into and disturbed a section of trash deposit beside the rock outcrop to the south of the room.

D. Capping

Beginning with the capping of these walls, mix number 2 was used. The walls being uneven in height, they had to be built up in order to be of a uniform height for roof construction. The north and south walls especially needed well over a foot of capping to even them out. The walls were then built up about 10 inches above the vigas to accommodate the roofing.

E. Roof

Six new vigas were cut from dead wood in the site vicinity. These were used to fill gaps and replace original vigas. The resulting pattern has numbers 1 and 2 vigas to the south as new vigas, the third viga is new, replacing a weakened original; 4, 5 and 6 are original vigas; 7 and 8 are new vigas; 9 and 10 are original vigas, and number 11, the last viga to the north, is a new viga. Original vigas were rotated placing the bowed or arched areas upward. As mentioned, these vigas were set into the wall and the wall built about 10 inches over them. The ends of the first row of latillas, or split wooden slats layed over the vigas, were set into the north and south walls and extended to rest on the nearest viga. The rest of the vigas were then covered with these split wooden slats which were layed orientated in a north-south direction. The vigas are aligned east-west. Over the wooden slats, about

about 1 inch layer of juniper bark was spread in imitation of original roof construction. The wooden slats were split from dead wood in the site vicinity. Juniper bark was also gathered in the site vicinity and could be pulled off in long shreds from the rest of the tree. Gathering only a moderate amount of bark from a given tree prevented damage to the tree. Upon the bark a .006 inch sheet of black polyethylene plastic was layed to seal the roof from moisture. Over the plastic a 4 to 5 inch layer of stabilized adobe was added using mixture number 2. This completed the roof reconstruction. A 2 foot square hatch was left between the ~~third~~ and fourth vigas centered in the middle of the roof to facilitate in the removal of fill from the floor of Room 2 in the event of any future excavation. The hatch was covered with rocks and filled with dirt. In the process of drying, large cracks in a "mapped" pattern formed in the stabilized adobe on the roof, due to the fast drying. Buckets of dirt were swept into these cracks and the roof sprayed with water to fuse the dirt-filled cracks with the rest of the roof. The roof was sloped for runoff to flow north over the wall. No drain was left in the wall. The roofing surface was the same height as that of the surrounding walls.

F. Interior

All interior features would be protected by the roof, making an application of the stabilizing spray, F-325, unnecessary. The broken shelf pole was removed for dating and another put in its place.

As an aftermath of the stabilization work, the floor was littered with wood fragments and juniper bark from the roof reconstruction. Some unused rocks not needed on the walls, were left in the room.

3.3 Room 3

A. Existing Conditions

Work progressed to Room 3 of the pueblويد unit. This room also lacked a roof, but still had high-standing walls ranging 5 feet 4 inches on the north, 5 feet on the west and sloping down to 2.2 feet on the south where the wall collapses totally to ground level before its junction with Room 2. The reason for this collapse is not readily apparent from any natural forces and may be the result of some purposeful destruction in the past. As was the case with the entire pueblويد unit, much of the mortar had eroded from around the building rock leaving the appearance of bare rock walls. The interior walls were greatly weathered. The floor of the room was covered with wood fragments from the roof collapse and much fallen rock.

B. Reconstruction

Because of the high standing nature of these walls, no reconstruction was necessary in this room except for a 50 inch section of the collapsed southern doorway area which was reconstructed about 1 foot in height to show its former juncture with the wall of Room 2. A trench 114 inches long extending from the west wall of Room 2 along and adjacent to the exterior south wall of Room 3 was dug while exposing this collapsed section of wall. The easternmost 50 inches of the exposed wall was then completely reconstructed. The trench intruded into and disturbed an area of trash and fill located on this southern slope.

G. Grouting

Grouting began on the exterior walls using adobe mortar consisting of the formula mix 1. An undermined section beneath the west wall which had been entirely eaten through by erosion, was filled in. The weakened wall bases in general were built up and reinforced. Cracks and holes on the interior walls alone were grouted in order to preserve that remained of the original plastering.

D. Capping

A capping layer was placed around the top of the walls. An earlier photograph of the site shows a window in the southwest wall corner where today only an eroded area gave suggestion to its presence. As capping approached this segment of the wall, the presence of this former window was made evident.

E. Wood Preservation

There was no wood preservation in this room.

F. Roof

Though the room had no roof there was wood debris covering the floor which was apparently from the roof collapse. This wood was collected; its location noted as being from this room and then piled away from the site. No roof restoration was warranted at this time as there was no roof remaining. The floor surface was cleared of rock fall and the rubble in the collapsed south wall area was used in later wall reconstruction.

G. Interior and Drainage

Interior features to be protected were limited to what remained of the adobe plaster. The plaster was already badly eroded and better examples were preserved in Rooms 1 and 2. The room was left unexcavated except for a test pit orientated north-south, being 45 inches long and 18 inches wide and dug to bed rock. The test pit was located adjacent to the plugged doorway. The fill from this pit was sifted in the room leaving the by-products

of the fine sifted dirt and sorted rock debris on the floor. The room was then sloped to drain from west to east over the sloping ground level on down the cliff rock drop to the south. The grouted walls of the room had been "textured," which is a technique of striking the wet mortar with a wisk broom leaving tiny holes in the mortar. This process allegedly aids in preventing cracking in the mortar during drying. The "textured" mortar, after drying, was then sprayed with water and rubbed down with sticks in order to return a look of antiquity to the walls.

Debris left on the floor and around the room as a result of the stabilization work, consists of fragmented rock from shaping stones, some scattered rock from the grouting and rubbing of the textured walls.

3.4 Room 4

A. Existing Conditions

Room 4 of the site was a detached single masonry structure to the north of the three room pueblويد unit. This oval-shaped room was the most deteriorated of the site. The walls stood from 4.2 feet at their highest point on the west to being collapsed and missing on the north, where drainage flows down the bedrock drop. The east wall stood 2.7 feet tall. The south and west walls leaned outward at a 10 to 15 degree angle and had been supported in the past each with a stone abutment. The doorway in the east wall had collapsed to ground level on its southern side, but the outline of collapse could be followed for reconstruction. The roof on this room was entirely missing and the floor strewn with fallen rock from the walls.

B. Reconstruction

The leaning of the west and south walls presented a problem unique to this room. To eliminate this leaning, the walls were taken down nearly to ground level and then reconstructed in a straightened manner. In the lower base of wall reconstruction, a cement core was used with soil cement on the outside to resemble the original mortar. The walls were reconstructed to their former height using soil adobe mortar mix 1. A small window, matching in size the "traditional" loophole style of the site, was replaced in a section of the west wall in approximately its original location. About 1½ feet of the collapsed southern edge of the doorway was rebuilt to help delineate the original entrance. The collapsed north wall was reconstructed about 1 foot in height to show its former placement. The reconstructions limited the need for grouting to the wall bases. The east wall, alone was capped. The roof being absent from this room; no wood or roof preservation was necessary.

C. Interior Features/Drawings

The interior features of the room had already disappeared through exposure, except for any possible floor features. The room was left unexcavated and only fallen rock was cleared from the surface. The room was sloped to drain northward out over the bedrock drop and a 4 x 4 inch drain was placed in the north wall at ground level to allow water passage. Scattered rocks were left in and around the room to hinder soil runoff.

By-products of the stabilization work were small pieces of fractured rock in and around the room resulting from the shaping of stones.

3.5 Adverse Effects - Protection Measures

As a result of the stabilization work, by-products of wood fragments and juniper bark may be found on the floor from the roof reconstruction. Several rocks were placed on the floor above the hearth area to cover and protect the burned surface. Scattered rock fragments were left on the floor.

A trail now leads from the site down the south slope to the valley floor below. This trail was partially constructed by our crew and was partially the result of our many trips up and down the talus. The trail makes access to the site easier. A protective sign was placed at the northwest corner of the site, outside the north wall of Room 3. This sign explains the protection afforded to the site under the Antiquities Act of 1906 and the National Historic Preservation Act of October, 1966.

3.6 Recommendations

Since the site is now in a protected and preserved state, the recommendatory areas follows:

1. Maintenance/Monitoring

The site should be monitored once a year for deterioration, drainage and protection. This would provide for future maintenance required by the Physical Protection Team and should be programmed.

2. Historic Documentation

This Phase III workbook did not include funds or time to include complete research and historical documentation of the site. This should be done in future years according to priority.

3. Proposed Recreation/Educational Site

The site is located in an area rich with cultural resources. A small area around the site traces Navajo history from the "refugee" period represented by the Shepherd Site at 1739 to contemporary hogans still in use. A group of hogans situated against the cliff within a mile of the site may be found to date to the Kit Carson era of the 1860's. Below the site are hogan ruins dating to the 1920's. A variety of cultural remains, including types of hogan ruins, sweatlodges, corrals and ovens, coupled with a scenic landscape, make this area a prime setting of interest for a public recreation and education area. A picnic area could be proposed encompassing, tables and grills. A system of trails could be developed taking advantage of the scenic beauty of the area and its history.

Interpretive signs could be placed explaining various culultural features in the area and interpreting for the public the nature of the Shepherd Site.

4. Excavation

Excavation could produce valuable historical documentation of the site not found by the archaeological surface investigation. The priority would be determined by the importance of the site.

ARCHAEOLOGICAL DOCUMENTATION - Phase III

The Refugee Period of Navajo history is characterized by close contact with Pueblo Indians following the Pueblo Revolt of 1680-1696. Pueblo Indians, mainly from the northern Rio Grande Pueblos, fled from the returning Spanish and moved into land occupied by the Navajos, remote from Spanish influence. Navajo land at this time extended east to the Rio Puerco, south to the Mt. Taylor region, west to the vicinity of the Hopi Villages, and north to the Upper San Juan River. During the first half of the 18th century raids by mounted Ute and Comanche Indians from the north put increasing pressure on this mixed group of Navajo and Pueblo Indians until the Upper San Juan was abandoned. Raiding increased, pushing these people from their homes in the Gobernador and Largo Canyon areas and progressively further south and west.

The Gobernador Phase is the term used to designate this period of contact between the Navajo and Pueblo Indians. An area encompassing the Upper San Juan, Gobernador, Largo, Big Bead Mesa, and Chaco localities was occupied during this phase. Abandonment of the Upper San Juan and the progressive movement to the south and west places the Gobernador Phase from 25-40 years earlier in the Upper San Juan, Gobernador, and Largo regions. A date of 1696-1775 is given for these areas, and 1739-1800, for the Chaco localities and Big Bead Mesa. The Gobernador Phase is characterized by the presence of pueblitos, towers, defensive positions, Pueblo trade pottery, and European goods.

Navajo Refugee sites reflect the influence of Pueblo Indians and the existence of raiding going on at this time. The sites have been called "pueblitos," a term Keur says was used by natives of the town of Gobernador and vicinity to designate "a little stone house" (Keur 1944). Pueblitos exhibit architectural features attributed to Pueblo Indians such as the use of stone masonry in the construction of multiple room structures. The walls of the rooms are often characteristically curved at the corners. Flat roofs, windows, plastered and white-washed walls, low doorways, and wall niches, further demonstrate this Pueblo influence. Corner-hooded fireplaces found in many of the sites exhibit a Spanish influence. Stone towers may accompany the pueblitos or occur individually. These towers are basically circular in shape and may be as high as four stories. The same features characteristic of the pueblitos are found in the towers. Locations which provide a wide view of the surrounding country, and are defensive in nature such as isolated buttes, mesa tops, and detached boulders are selected for the sites.

Though the sites are referred to as Navajo Refugee sites, the question as to whether they were occupied by Navajo or Pueblo Indians is debatable. The number of rooms at a site range from 1 to 40. The largest structures are thought to represent Pueblo Refugees. Forked-stick hogans are often associated with the masonry structures and are found within the walls of fortified sites. Whether the smaller structures of a few rooms represent isolated families of Pueblo Indians, seasonal houses occupied by Pueblo Indians who returned to the larger sites, or if the Navajo actually picked up the style and built pueblitos, leaves room for speculation. Forked-stick hogans are found associated with even the smaller sites. A high percentage of Navajo utility pottery is present on all sites.

SHEPHERD SITE
(AR-NM-01-821)

CM-38, also known as the Shepherd Site, is an example of a Navajo Refugee site located on the Chacra Mesa, about six miles southeast of Pueblo Pintado, in northwestern New Mexico. The Chacra Mesa runs generally east-west, with the south side ending in a high, sheer cliff. The northern edge breaks into finger-like projections which extend into the lower elevations to the north. Valleys run between these projections. The mesa drops in benches, or step-like levels to the valley floor. A pinon and juniper tree forest covers the mesa top, broken intermittently by clear areas filled with sage. Rocky Mountain bee weed covers the valley floor during the summer months and modern Navajo graze their sheep on the grasses that grow there. The valley floor is wide, cut slightly by an arroyo in the middle, but would appear to have good farming potential, especially judging from the dense crop of bee weed noted. A pocket of Douglas fir trees, usually containing less than five trees, can be found in north facing rincons in the site vicinity. Southwest of the site is a stand of fifty ponderosa pine trees growing on the mesa top and north facing side of the canyon. These trees range through all ages and sizes.

CM-38 is located on one of the finger-like extensions of the mesa, and is situated near the end of a projection or spur, on the first bench above the valley floor. This bench surrounds the site on three sides offering some protection by its walls, but the bench top is accessible. The site is vulnerable from the west where the spur connects with the pinon-juniper forest on the mesa top. A commanding view of the valley below and surrounding country accompanies the site location. Likewise, the structure stands out prominently in the countryside.

A three-room masonry structure is positioned on a rounded sandstone outcropping so that room one and the south wall of room two are bordered by a four to five foot escarpment. Placement of the walls on the outcropping provide a narrow walkway around the walls and escarpment edge to a side entrance set into the east wall of room one. The east facing entrance thus takes advantage of the obstacle afforded by the escarpment. Several natural and manufactured footholes facilitate access up and movement around the escarpment edge. Set to the back of the outcropping, the third room is not bounded by a ledge. North of the three-room unit is a detached single masonry room. This room has its north wall built on the bench edge but is otherwise not bordered by an escarpment.

Rooms one and two appear to constitute the original structure at the site. Together they form roughly a circular plan. A wall bisecting the circle is in common to both rooms, with a doorway allowing access to each. Positioned above room one is a second story, or defensive parapet wall. The third room was added-on to the west wall of room two. Room four is a detached masonry structure with an east facing side entrance. All four rooms employ the characteristic curved corners common to Refugee sites, resulting in rectangular rooms with curved corners or oval-shaped rooms.

Construction technique seems to be crude, but then again the walls are well-preserved and high standing after more than two hundred years. Rough blocks and slabs of sandstone are set into an adobe mortar with spalls, or small rock fragments set between the blocks to fill in the cracks. No set coursing is followed. An example of the poor construction is found in the north wall of room two.

Stacks of stone were placed at each corner in the attempt to produce curved walls. The east, west, and north walls of the room intersect with these stacks of stone at the corners, producing a poor joint. The curved corners in the remainder of the rooms are more uniformly incorporated into the wall construction.

Masonry in the detached fourth room more consistently uses tabular sandstone slabs. These slabs are set into an adobe mortar and fit more evenly together. Construction using this same style is also evident in the second story walls, suggesting that the second story was added at the time the fourth room was constructed. This in turn suggests that room four is a newer addition to the site.

The roof on room one was almost completely intact, except a portion of the southern half which was missing. Construction consisted of placing vigas (wood beams or cross poles) across the shorter width of the room, with their ends resting on the east and west walls. Ten vigas were in place made of pinon, juniper, and Douglas fir trees. The beams averaged six inches in diameter and were spaced about one foot apart. The ends are even with the wall construction on the east and extend into room two on the west. Trimming scars mark the beams, but whether these scars attest to a stone or metal ax was not decided. Transverse to the vigas, rows of split juniper and pinon slats were placed. These split wood slats, known as latillas, covered the entire roof. A layer of juniper bark covered the latillas. Juniper bark pulls off of the trees in long shreds. These shreds seem to have been woven into a mat like overlay which covered the latillas. Some brush and branches were mixed in with the bark. Tabular slabs of sandstone were set into the adobe and formed the roof surface.

The roof of room two was not as well-preserved, with only patches remaining of the former roof. Six vigas remained, orientated east-west, and spaced slightly farther apart, about 1½ feet. Their description matches those of room one. They extend slightly into room one, and are alternately spaced with those vigas. The west ends are even with the wall construction. The remainder of the roof employs a slightly different construction. Instead of split wood latillas, a layer of brush was placed across the vigas. No wood latillas were noted for this room. The long, thin branches of this brush have a reddish-purple bark (peeling off), but have not as yet been identified. Covering the brush was a layer of juniper bark, which again was apparently woven into a mat-like form. Covering the juniper bark was a one or two inch layer of gray adobe. The adobe contains small flakes of shale all orientated in the same horizontal plane, which may represent decomposing slabs of shale. Other than this no shale or sandstone slabs are present on this roof. A final layer of a reddish buff adobe covers the gray adobe, and forms the roof surface.

The roofs of rooms three and four were entirely missing. Room three has some wood remaining on the floor from the roof collapse. Room four shows no signs of remnant wood. The same basic style of roof construction was probably used on these rooms. As the vigas were placed across the shorter width of the room, the beams would have been positioned north-south on room three, and east-west on room four.

As to the use of the two different types of roof construction, I suggest that the greater strength needed for a roof supporting a second story might account for the difference. Room one has vigas set slightly closer together, wood latillas over the vigas, and a slab stone roof surface. The roof construction had to be stronger to accommodate activities on the second story. Room two does not appear to have had a second story so the roof construction could be lighter; beams slightly farther apart, brush covering the vigas instead of wood, and lack of sandstone slabs on the surface.

Room one has walls standing 6.5 feet high measured from the base to where the viga ends rest, with another three foot wall comprising the second story above this point. The south wall stands 6 feet tall, and the west wall in common with room two averages a little over 6 feet. The floor plan measures 14' (N-S) x 7' 6" (E-W); (Vivian 1960). The floor fill had been cleared by Vivian exposing a prepared adobe floor with edges which curve up sharply to meet the walls. The adobe floor was built over the sandstone bedrock which had been made even by filling in low spots with dirt. Facing east is a rectangular side entrance measuring 3' 9" tall x 1' 7" wide. The doorway is topped by two lintels; a long sandstone slab, followed by several split wood slats. Two loophole style windows are set to the left and right of the entrance. Loopholes are small windows which serve as peepholes and firing ports for arrows. The loopholes in the room are square, about 3½" wide x 4" tall, and framed in thin sandstone slabs and adobe. They are placed at the same height as the door lintels. The south wall contains a large square window 1' 8" tall and 2' 3" wide. Two juniper beam lintels span the window top. In the northeast corner is a hooded fireplace. Only a curved juniper beam remains. The beam is set into the wall and extends across the corner of the room. The curved beam acted as a support for the "hood" of the fireplace. Split wood slats rested on the beam with the other ends extending up to the chimney hole in the roof. The slats were then plastered over with adobe. No structure was present at the base of this fireplace but in some cases an enclosure was built up from the floor which met with the hood. A burned area on the floor marks the spot of the fire with charcoal and ash present, probably from a recent fire. Above the fireplace is a round chimneyhole. On the roof is the base of a wall of stones outlining the chimneyhole, which together with the corner of the parapet wall formed a chimney.

In the hearth area is an interesting feature, consisting of three thin slabs of sandstone 3" long x ¼" thick set into the wall in a horizontal stack. The purpose of the feature is not known. The interior walls had been plastered over with a red/buff adobe which had been white-washed. This layer had in turn been plastered over by another layer of red/buff adobe which had been stained black by smoke. Brush marks can be seen in the plaster. Covering both layers are patches of a light gray cement-like plaster. Scratched into the plaster of the west wall is a "bird" like petroglyph. Protruding also from the plaster is a chipped chalcedony flake. Leading into room two is a well-preserved, plastered doorway. The doorway is directly opposite the east entrance. The door is 3' tall and 16" wide in the middle, tapering to a narrow top and bottom measuring about 10". Split wood slats serve as lintels. The outside walls of the site were too weatherbeaten to determine if they had ever been plastered.

Evidence in the room suggests that remodeling has modified the original appearance. The light gray cement-like adobe covering the two layers of plaster has been used as a grout, filling cracks around the room. The presence of this grout as an indicator of a former repair job is found on the interior and exterior walls, around the large window, and around the east doorway. Finding this grout around the entrance suggests that the original doorway may have looked different. Several details imply that the large south window is a product of renovation. The size of the window is not typical of the "traditional" small loophole style windows found throughout the site. Mortar is missing from the stones around the window and the gray grouting is present. The lintel beams are large and different from the split-wood style found in the doors. An early photograph by Vivian in fact does not show this window (Vivian 1960). Originally, two loophole style windows occupied this section of the wall.

The roof also shows signs of having been repaired. The northern section of the roof is composed of split-wood latillas that have been stained black from smoke. The southern portion has branches placed across the vigas which are "clean" and free of smoke stain. These branches coupled with the lack of smoke stain suggest that the southern portion of the roof had previously been repaired.

A three-foot defensive parapet wall is positioned above room one. The wall has collapsed on the south and west sides. Two loophole windows are set in the remaining section of the wall and undoubtedly more were present when the entire wall was intact. The loopholes measured 5" wide x 6" tall with one facing north and the other east. There are no signs that the room was ever roofed and probably served as a defensive wall to crouch and hide behind.

Room two is entered by way of the door in the east wall in common with room one. The floor plan measures 19' 3" (N-S) x 8' 3" (E-W), (Vivian 1960). The floor remains unexcavated and sets 18" above that of room one. While clearing debris from the north wall during the stabilization a burn was uncovered in the northeast corner, along with several small corncobs. The roofing over the burn was missing so evidence of a chimney no longer remained, nor was evidence of a hooded fireplace noted. The bottoms of the vigas which had been protected by the remaining patches of roofing were smoke blackened. The burned area was reburied with dirt and rocks for protection. The walls of the room stood 6' tall on the south, 7' tall on the west, and 5' tall on the north. The interior walls are plastered in the red/buff adobe but are not as well-preserved as room one. Two wall niches are located nearly opposite each other in the east and west wall. They are topped by sandstone slabs and lined with adobe. The east niche measures 3" tall x 7" deep x 8" wide. The west niche measures 3" tall x 7" deep x 11" wide.

A pole extended across the south end of the room with its ends set into the east and west walls. The pole had been broken by the roof collapse and probably served either as a shelf or loom support. A loophole measuring 4½" x 4½" is set in the west wall. The loophole is set between two long slabs of sandstone and is lined with adobe. The loophole was found to line up with the winter solstice sunset.

Room three had been added on to the west wall of room two. No entrance connects the rooms. The room is orientated so that its length (longest side) runs E-W rather than N-S as in the other rooms. The floor plans measure 8' 10' (N-S) x 10' 9" (E-W), (Vivian 1960). The walls stand 5.4' on the north, 5' on the west, tapering down to a 3' south wall. The wall totally collapses before meeting with room two. A plugged doorway 36" tall and 15" wide is set in the south wall adjacent to the collapsed section. Whether another entrance had been built in the collapsed section was not discernable. No other entrance to the room was noted. Why this section of wall has collapsed is not readily evident from natural causes. A purposeful destruction in the past may be indicated, such as the Navajo practice of blocking off the entrance and breaking out a section of the walls upon the death of an individual. With the adding of this room, the loophole in the west wall of room two became unfunctional, except for looking into this room. The north wall contains two loopholes measuring 3½" tall x 7" wide. They are framed in sandstone and lined with adobe. An earlier photograph by Vivian shows a window in the southwest corner of the room which today has almost entirely eroded away (Fig. 21 Bannister 65). The photograph shows the window to have measured about 1' wide and 1½' tall, with wood beam lintels. This window also would not comply with the loophole style of the site and may be a product of past renovation in the room. This window could also have been the original entrance. Adjacent to the plugged door a test trench was dug. The trench was orientated N-S, measured 45" long x 18" wide and was dug to bedrock. The trench revealed that the room has a floor of red/buff adobe. About 10" of fill covers the floor surface. The adobe floor is ¾" thick set on a natural sandy soil surface.

Room four has the appearance of a more modern looking hogan. The west wall stands 4.2' at the highest point. The north wall has totally collapsed as well as the south side of the side entrance. Sometime in the past, the west and south walls had each been supported with a stone abutment to prevent collapse. The floor plan measures 11' 8" (N-S) x 6' 8" (E-W). One loophole is set in the west wall. No interior feature remains except for possible floor features, as the room was left unexcavated. This room also shows the collapse of a wall and entrance area and may reflect purposeful destruction.

The main trash area of the site sets to the east of the structures. Ash, bone fragments, pottery sherds, and lithic material compose a sheet of trash covering the sandstone bedrock. Trash was also dumped over the north and south edges of the bench where it erodes down the talus. Several corncobs were collected from pack rat nests among boulders on the talus below the sites. Approximately 50 yards west of the site is another trash area. Pottery sherds, ash, and lithic material are scattered along a short ridge, eroding downslope to the bench edge. The location of this trash area is unusual, being so far from the site. Judging from the amount of trash at CM-38, scattered on all sides of the structures, the impression is given that CM-38 was occupied for some time.

Rough stones no more than 1 or 2 courses high outline a circular shaped structure close to the bench edge about 100 yards southwest of CM-38.

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A wall divides the structure into two rooms. The structure measures 9' 7" (N-S) x 10' 3" (E-W). No entrance area is discernible. This structure may represent the remains of a forked-stick hogan. Three pinon trees grow through the structure suggesting some age. A wood beam was found in the branches of the trees which had apparently been lifted with the growing branches. A sample for tree-ring dating was taken from the beam. No other wood remains. The structure is located close to the west trash area described and may have some responsibility for its presence.

Just west of this structure is a sweat house. The sweat house has collapsed and appears to be of some age. The original appearance was a conical framework of 3' poles with sandstone slabs leaning against them. Another sweat house sets on the bench top north of CM-38. The structure is still standing and appears to be of a more recent construction. Samples of wood were taken for tree-ring dating from both sweat houses. Whether any of these three structures are contemporaneous with CM-38 may be clarified by the tree-ring results.

A storage bin is located on the bench top about 1 mile west of CM-38. A natural cavity in the sandstone has a wall built across the entrance. The wall is constructed of unshaped blocks and slabs of sandstone set into an adobe mortar. The wall measures 7½' long and 3' tall. A rectangular window 14" wide and 17" tall provides entrance to the cavity. The window faces east. The cave is about 6' wide, 3' tall, with the floor about 10' long tapering gradually back to a small restricted end. The bin was empty and was not sealed. A layer of fine wind blown dirt covers the bedrock floor. The bin had been burned as the ceiling is stained black and the walls show traces of reddish oxidized burns. The bin cannot be seen from the valley floor. No pottery sherds or trash were noted. The masonry is of the same type used in CM-38 suggesting the association of the bin with the site. Crops and household goods may have been stored in the bin as a protection against raiding. The bin could also suggest that CM-38 was occupied seasonally, with articles stored in the bin when the site was not occupied.

A review of Gwinn Vivian's material on CM-38, contained in his M.A. thesis of 1960 adds to the understanding of the site. Vivian states that trash was trenched at CM-38 and seldom exceeded over 18 inches in depth. A number of artifacts were recovered from the trash area including charred corncobs, a large number of projectile points (13), one olivella shell bead, and one complete drill 1+7/16" (3.70cm) long with the shaft widened at the base to form a large attachment flange. A ladder with notches fashioned with a metal ax was found leaning against the building. The ladder was used for entering the upper story. The ladder was exceptionally fine, made from a large pine log 8' 7" (2M 66cm) in height and planed with an ax along one side. Seven steps were cut into the unplanned face of the log. Steps were well-fashioned and showed care in workmanship. A small fragment of basketry was found on a short ledge under a low overhang near the structures. The fragment is a small circular (diameter 2¼" 5.80 cm) section from the base. The construction was 2 rod and bundle, with interlocking stitch. Material was sumac probably, rather than willow. A small piece of squash rind was found with the basket fragment.

Photographs taken by Vivian show that the site was at that time somewhat different in appearance. One photograph shows the presence of a window in the southwest corner of room three which today is barely visible. Portions of the now missing roof are also visible. A photograph of room one reveals that the large window was not present at that time. Two loophole windows appear in its place according to a map drawn by Vivian. The floor fill in room one was cleared revealing an adobe floor. Tree-ring dates clustered at 1739.

An examination of Navajo Refugee Sites from the Upper San Juan, Gobernador, Largo, and Big Bead Mesa, will help to compare CM-38 with typical sites from the other refugee areas.

Two pueblito style structures are described from the Navajo Reservoir District (Hestor and Shiner 1963). LA-4431 consists of a three-room pueblito built on top of an isolated talus boulder with another unit built against the boulder. Walls are of large unshaped sandstone slabs set in adobe. The floor is of bedrock with dirt used to level the floor. Two areas of surface trash concentrations are to the north and south of the boulder. Nearly 80% of the pottery is Dineta Utility with 10% Gobernador Polychrome.

LA-4314 is also set atop a large sandstone talus boulder. Two masonry rooms are made of large unshaped sandstone slabs set in adobe mortar. The floor is unplastered. Roofing was probably of horizontal roof supports laid from wall to wall with a possible bark covering. Two burned areas on the floor are apparently hearths. Dientah Utility is the dominant pottery type.

Architectural features attributed to Pueblo Refugees in the Navajo Reservoir District are stone masonry, mealing bins, loom post holes, and metate rests. No masonry structures were found with hogans. Spanish-style fireplaces, defensive walls, tower pueblitos, stone walled and cribbed-log hogans are not represented in the Reservoir. Positions on boulders show a regard for defense and a view of the surrounding area. Sites are three rooms and smaller. From the scarcity of sites and small size the Reservoir District is thought to be the most northern edge of the Refugee material.

The Gobernador and Largo areas appear to be the center of the Refugee manifestation. Dorothy Keur surveying the Gobernador area reported 13 pueblitos, and 13 tower pueblitos (Keur 1944). Dates ranged from 1656⁺²⁰ to 1771⁺⁵. Sites are located in prominent defensive positions. Twenty-two of the sites were associated with hogan groups. A pueblito in La Jara Canyon has no outside entrance and was apparently entered through the roof. Examples in Munoz and Frances Canyons have hooded fireplaces. Horse bones were found in trash areas but no sheep bones. Pottery was 78.62% Navajo Utility, 14.4% Gobernador Polychrome, and the rest various Pueblo trade wares.

Sites from the Upper Blanco and Largo Canyons exhibited features such as fortification walls and fortified sites located in chains of observation points built on buttes and highpoints (Farmer 1942). Navajo hogans were

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found in association with the pueblo-like structures. Farmer considered the hooded fireplaces and slabs on the roof to be of Spanish origin. Site 3 in Largo Canyon discussed by Farmer is a roughly circular, four-room, 2-story tower structure. The walls stand 3.66-4.27M tall and follow the outline of the butte. Sandstone slabs are set in an abundance of mud and plastered inside and out. Entrance is through a doorway in the east wall and the roof of the lower room. Roofing is of beams of pinon logs covered by a layer of smaller timbers, a layer of brush, and a final layer of sandstone slabs. The whole roof may have been covered by a layer of dirt. A parapet wall surrounded the top. The ceiling of the upper west room has an opening large enough for a man to crawl through, giving access to the roof. A hooded fireplace in the lower west room connected with a chimney leading through the corner of the room above. No windows were noted but a number of loopholes were present. Two forked-stick dwellings were associated with the site.

The Earl Morris Papers discuss Navajo fortresses in the Gobernador District (Carlson 1965). Site 1 is set on a boulder on the north side of Gobernador Canyon. The walls are of rough stones laid in adobe mud, the structure covers most of the boulder surface. Four rooms are present which must have been entered from the roof. Roofing is of beams running east-west with a transverse covering of split sticks, and a layer of mud. The beams had been cut with a metal axe.

Site 2 is located west of the mouth of Canyon San Rafael. A two-room, 1 story masonry pueblito sits on a detached rock separated from the cliff. Access to the cliff was by a bridge of poles. Rough stones are set in mud mortar with the corners of the walls rounded. A doorway is in the northeast corner. Seven loopholes dot the structure.

Site 3 is on the south rim of Canyon San Rafael and is known as LA-1869. Features include a 13-room unit, a two-room unit, and 8 hogans enclosed within a stone wall. Construction is of rough stones cemented with adobe. Interior walls are plastered smooth and white-washed. Roof construction is of beams covered with split sticks. Beams are cut with a metal axe. Loopholes, interior doorways, ceiling hatchways to the second story, shelves, niches, and firepits are found in some rooms. Two trash areas are located outside the walls. Dog, sheep, horse, deer bones and a metal axe were found in the trash. The masonry structures dated from 1726-1749 and the hogans from 1722-1748.

Site 4, LA-1871, is located in San Rafael Canyon on an isolated pinnacle of rock. Main features are an entrance labyrinth, defensive wall, masonry pueblo, 2 hogans, 2 trash areas, and 1 petroglyph. Rough stones laid in adobe construct a 12-room ground floor structure with 2 second-story rooms. Roofs are of beams covered with split sticks supported by verticle posts. Corner shelves, bins, fireplace hoods, and notched log ladders are common within the pueblo. Copper bells, a china plate, metal crosses, a bridle bit, a buckle, buttons, sheep, horse, dog, elk, and deer bones came from the trash area. A petroglyph of a corn plant is on the boulder. The site dates to 1732.

Site 5, LA-1872, is a small pueblo on a large boulder near the valley floor. Site 3 and 4 are visible from the ridge top. Rough slabs of sandstone cemented with adobe construct a structure with two ground floor rooms and two second story rooms. Footholes lead up the boulder to an entrance passage. Plaster remains in the rooms. Loopholes are set in the walls. Roof beams are covered with split wood and adobe.

Site 6 in Frances Canyon, is a 40-room masonry pueblo with a court and three-story tower. Other features are one hogan, 2 trash mounds, and isolated burials. Irregular blocks of stone, rarely well-shaped are laid in adobe mud. Rooms are irregular in outline. Roofs are of beams covered with wood splints, or poles. The floor is of leveled bedrock. Bins, firepits, fireplaces, shelves, and white-wash, are present in some of the rooms. Sheep, horse, and deer bones, as well as gun parts came from the trash. Dates ranged from 1717-1742.

Gwinn Vivian surveying the Chacra Mesa found thirteen sites of a pueblويد nature (Vivian 1960). Multi-roomed, double-roomed, and single-roomed oval structures were situated on prominent and exposed locations. Multiple rooms, flat roofs, pueblo-type doorways, windows, white-washed walls, and corner hooded-fireplaces, distinguish the pueblويد structures. Some of the structures are in association with hogans.

CM-149 sets on top of a small rocky hill in a canyon bottom. It is similar to CM-38 with two joined oval rooms to which a semi-circular room was added. Masonry was of large, unshaped sandstone blocks set in mortar. No trace of the roof remained. Connecting the two double rooms is a doorway. A side entrance faces east.

CM-18 is the best example of fortification in the Chacra locality, and the closest Refugee Site to CM-38. A detached boulder separated from a butte supports a two-room structure with a half-story parapet wall surrounding the ground floor rooms. Access to the boulder was over a wooden walkway. A side doorway faces southwest toward the butte. Masonry is of rough sandstone set in mortar. Interior walls had been plastered in a brownish adobe. Roofing was of beams covered with split wood slats. The entire ceiling is nearly intact. A pole shelf, loopholes, and possible hatch allowing access to the roof are noted features. Dates show that the structure was used after 1745.

Big Bead Mesa is composed mainly of a hogan village set on a mesa top. A masonry wall 12' high and 26' long is built across a narrow section of the mesa guarding the approach to the hogans. A doorway leads through the 4' 7" thick wall. Loopholes occur in the walls. No tower rooms are mentioned by Keur who did the investigation (Keur 1941). Navajo Utility pottery comprised 74.2% of the total sherd material. Sheep bones were plentiful. Dating indicates occupation from 1745 \pm 20, to 1812 \pm 20.

With this comparison of typical Refugee Sites from the surrounding area, several noted features are brought out in reference to CM-38. While the location of CM-38 shows a defensive choice in the nature of the spur, and the sandstone outcropping, other Refugee sites are more strategically located. CM-38 can be approached on all sides, unlike the boulder site locations. CM-18 less than five miles away can be approached only from

one direction, which is protected by a wooden bridge. The entrance of CM-38 shows no evidence of defensive construction. Often doorways are offset as CM-18, or protected by a wall or labyrinth-like entrance. Many of the sites have a hatchway in the roof allowing access to the second story. A hatchway was not found in CM-38, but then again much of the roofing was missing, which may have contained a hatch. CM-38 is not part of a chain of observation stations as sites from the Gobernador District appear to be. No other sites are visible from CM-38. A surrounding fortification wall is not present at CM-38. Many of the sites are associated with hogan groups. With the exception of the possible forked-stick hogan west of the site, CM-38 shows no association with hogans. Trash areas at CM-38 have yielded no European material. Bone fragments are evident in the trash but no analysis was attempted. An average of 70% of pottery from the Refugee Sites is Navajo utility ware indicating the Navajo influence. Pottery from CM-38 would appear to bear out this percentage.

An examination of the local cultural sequence will be given for an area around CM-38 extending west, up the canyon, to the vicinity of the storage bin. The storage bin will be used as an arbitrary boundary marking an area of valley floor and bench top covering approximately one mile. Wood samples for tree-ring dating were taken from several of the Navajo cultural features encountered. These tree-ring samples were given the numbers of CM-182-186, to designate their site locations on a topographic map of the area. This number will be used as a reference point to define location when describing various cultural features around CM-38.

Occupation of the area begins with Pueblo period sites from the 13th century. The bench top north of CM-38 is the site of a Pueblo ruin located near the end of the next projection of the bench. Surface indications of the site are the presence of a mound and an accumulation of building stone marking a surface structure. The ruin is a single masonry structure of approximately four contiguous rectangular rooms. The room outlines are vague and no standing walls remain. Scattered trash lies to the south, downslope of the structure. Pottery sherds and some lithic material make up the trash area.

A Pueblo site is located just opposite the fence running across the valley floor east of CM-38. The site is built on the gradual sloping alluvium on the north side of the valley floor. Scattered building stone and a slight mound indicate the presence of a single masonry surface structure of 4 to 5 contiguous rectangular rooms. The structure runs in an east-west orientated unit and may be crescent shaped. The room outlines are indefinite with no standing walls. A single circular depression is probably a kiva located on the south side of the structure. An area of scattered trash is on the south, composed of pottery sherds and some lithic material. Another area of trash was found eroding down a slope to the west. A faint outline was detected near the west end of the ruin. This faint outline may be the remains of a hogan, giving rise to this west trash area.

A ridge just east of CM-183 is the location of an unusual circular structure which seems to be of Pueblo origin. Scattered building rocks define a single masonry structure of a circular shape. No standing walls remain. A few pottery sherds are scattered over the ruin. No depression or walls define the site as a possible kiva.

Built against the cliff next to CM-182 is an Anasazi structure of three to four rooms. The structure is built on the talus with the cliff face forming the back wall. Scattered building rock and a slight mound at the cliff base mark the site. Trash, mainly of pottery sherds, erodes down the talus.

Other indications of Pueblo occupation along the talus are lines of upright slabs of stones, with holes in the cliff face for roof beams. A panel of Pueblo petroglyphs accompanies this evidence of rooms. The problem is of overlapping Navajo intrusion. The presence of scattered wood and beams resting against the holes indicate Navajo use of the area. Whether the Navajo modified or even made these holes in the cliff is difficult to say.

Petroglyphs of Pueblo origin can be found along the cliff face and boulders on the talus slope. The Pueblo petroglyphs are mainly of the pecked style. Two hunting panels are portrayed. Human figures with pecked heads and bodies, with incised arms, legs, bows, feathers, and "stinger" like projection on the behind, shoot arrows at deer. Another panel has bare human feet, one foot having six toes. A popular motif is a "coyote" like quadruped with an elongated tail which often times breaks into dots, as if representing footprints.

After the Pueblo occupation of the CM-38 area a gap of some 5 centuries (1300-1800 A.D.) occurs broken by the arrival of the Navajo. The Navajo Refugee Sites represented by CM-38 dated at 1739 indicates the resettlement of the area.

Along the cliff face west of the storage bin is a group of six hogans given the number CM-182. The hogans are built on the talus adjacent to the Pueblo ruin already described. The group of hogans are smaller than the more modern hogans on the valley floor, and more crudely made. Four hogans are built against the cliff face. Large stones are set in a rough circle with the cliff face forming the back wall. No mortar is evident; the stones appear to be dry laid. Entrances are not well-defined but appear to face south to southeast. Two hogans are built against large boulders on the talus. Dry laid stones form a rough circle with the boulder incorporated into the wall. The boulder positions effect the direction of the entrances, which face west in one hogan and east in the other. Wood is present in all the hogans from which samples were taken for tree-ring dating. Roofs seem to be flat, made of beams laid horizontally over the stone walls. Trash is intermixed with the Pueblo material and erodes down the talus slope. Location against the cliff, the small size, and rough construction suggest the hogans date to the 19th century. The talus site location may be an attempt at hiding, perhaps during the era of the Kit Carson round-up of the 1860's.

One isolated hogan of the same general description sets on the talus below the cliff in the area of CM-186. Large, unshaped stones are set in a rough circle with a boulder used as part of one wall. The entrance faces east. Sparse wood remains, from which a sample was taken for tree-ring dating. No trash was noted. The rough construction again points to a possible 19th century date.

A ridge running parallel with the bench, below CM-38, just west of CM-185, is the location of six stone hogans. They are small, irregularly shaped, and badly desimated. In several cases only a crescent-shaped section of the wall remains. One example may be square-shaped. Entrances on many are no longer discernible, but one may have a north entrance. Lack of stone suggests that stone has been taken from the hogans for reuse in other construction in the area. Wood no longer remains with the sites. No tree-ring samples were attainable. The structures are smaller than the more recent hogan rings surrounding them. This smaller size coupled with the disseminated character suggest that they are older, possibly from the 19th century. No trash areas were noted.

Twentieth century Navajos have occupied the valley floor below CM-38 from the 1920's on. The rincons running along the north edge of the valley are the chosen habitation sites of the modern Navajo. One jacal style hogan was found on the bench top. At least twenty hogans run along the valley floor toward the storage bin. They range from faint saucer-shaped depressions marking former hogan rings to modern winter hogans still in use with glass windows, conical tar-paper roofs, and lumber doors and door frames. Several hogan styles are represented including stone ring, jacal, and square structures. Corrals, ovens, sweat baths, and trash mounds accompany the hogans.

Three rincons stretch from below CM-38 west toward the storage bin. Hogans are found located mainly at the mouth of the rincons, with each rincon representing a living area. As there are so many hogan remains present, it is hard to say which cultural features are associated with individual hogans. The canyon may represent a winter habitational zone with the mesa providing protection from northern exposure and also supplying a source of firewood.

Two jacal-type hogans are represented, CM-183 and CM-184. Samples for tree-ring dating were taken from both sites. CM-183 sets at the mouth of the rincon below the storage bin. Forked-sticks 4' long are placed in a circle with gaps of about 5' between each forked-stick. Verticle poles were then placed between the forked-sticks forming the walls. The roof no longer remains but apparently the forked-sticks supported a cribbed-log type roof. The entrance faces east. CM-184 is of the same description being the only hogan found on the bench top. CM-184 is associated with a brush corral and possibly two sweat baths.

CM-185 is a stone hogan ring just below CM-38. The walls are of blocks of sandstone set into an adobe mortar forming a finely made circular structure. Walls stand four to five stone courses tall. The entrances face east. Cribbed-log construction was probably employed for the roof. Some wood remains on the floor of the hogans from which a sample

was taken for tree-ring dating. A majority of the roofing seems to have been removed at abandonment or reused in the construction of other hogans. The hogan is thought to date around the 1920's.

Just west of CM-185 is a feature similar to a modern potato cellar. A 4' square has been dug 3' into the ground. Forked-sticks are placed at the east and west ends supporting a cross support. Poles are laid from the edge of the excavation to the cross support producing a pup-tent shaped roof. Large beams are set across the east and west ends of the excavation. The whole structure is then covered with earth. An entrance was not noted, though part of the roof had collapsed or had been removed allowing access. The structure apparently functions as a storage unit. A wood sample was taken for tree-ring dating.

CM-186 is another large, finely shaped masonry hogan ring. The walls stand 3' tall, with plaster evident on the interior walls. Scant wood remained from the roofing, but a sample was taken for tree-ring dating. With the exception of CM-185, this is the highest standing stone hogan ring.

In the same rincon with CM-186 are two modern winter hogans still in use. One has jacal style walls with a conical roof made of lumber and tar-paper. The door is made of lumber and faces east. A glass window faces south. The other hogan is completely of cribbed-logs from the ground up. The door is framed with lumber and faces east. A large corral made of brush is set against the edge of the rincon. HOLLOWED-out logs in the corral serve as water troughs.

The remains of many stone ring hogans stretch along the valley floor, but CM-185 and CM-186 are the best preserved examples. All rings are similar to the two examples described, but the walls do not stand as high. Many are only faint saucer-shaped depressions. Several have 2 and 3 courses of stone remaining. They all have east facing entrances. Little wood from the roofing remains with the rings.

Near CM-183 is the outline of a square-shaped structure. Only one course of stones remains defining the foundation. The entrance was not visible. A square oven sits beside the structure. The structure measured about 13' long x 8' wide.

Ovens are of the round beehive type and a square shaped variety. Ovens may set beside a hogan, or be placed at some distance. The square type ovens are usually set with the back built against the ridge of the rincon. They average about 1' tall, 2' wide, and 3' long. A small square doorway is set in the front. One larger oven stands in an approximate 3' square. This larger oven is made of large heavy blocks of sandstone, while the smaller variety are constructed of sandstone slabs. These structures are thought to be ovens but the larger example uses a wooden beam in the roof, supporting large sandstone slabs. Some of the smaller structures have very small doors and are thought to perhaps be toy hogans, or models made by children. The structures may also serve as some sort of small storage unit.

The round or beehive ovens average about 3' in diameter and are made of sandstone masonry and plaster. Two examples of oil drums were noted being used as ovens. The bottom section of an oil drum, about 2' tall, has a hole punched in the bottom and a square door cut in the side.

Sweat lodges occur on the bench top and valley floor. As mentioned, two sweat lodges are set close to CM-38, with another set just below the bench to the east. Two sweat lodges are on the bench top near CM-184. One stands 4' tall constructed of a forked-stick framework with poles leaned against it. The other sits on the bench edge and has a sandstone slab leaning against the conical framework. Samples were taken for tree-ring dating from both structures. In the rincon containing CM-184 is a large communal type sweat house. The wooden structure no longer stands but a remaining depression is much larger than any of the other sweat house examples, but smaller than a hogan. An excavation is about 10' long and 6' wide. It would appear that ten individuals could have used the sweat lodge at one time. A pile of fire-cracked stones is just outside the entrance. A tree-ring sample was taken from the remaining wood. Piles of the reddened fire-cracked stones attest to sweat lodges along the valley floor that no longer are visible.

Corrals are present in all of the rincos. Brush and piled stones are layed in a crescent shape, enclosing an area against a ridge or the bench. The ridge serves as the back wall. The surfaces of the corrals are covered with a layer of sheep manure. On the valley floor east of CM-38 are two open area corrals. Fence posts and wire enclose a circular space on the valley floor.

Trash dumps are usually just east of each hogan and form low circular mounds. Ash, bone, broken glass, tin-cans, and bottles compose the trash mounds, and attest to the recent habitation. Sometimes an isolated trash mound will affirm upon investigation to a faintly visible hogan depression. Circular concentrations of wood-chips from areas of firewood chopping also usually accompany each hogan. These trash mounds and wood-chip concentrations are prevalent along this section of valley floor.

Petroglyphs of the Navajo occupation of the area can be found along the cliff face and boulders on the talus. Most of the petroglyphs are of recent work but a few may date from the 19th century. Deeply incised hour glass shapes and one Yei figure are next to a panel of Pueblo petroglyphs. The deeply incised style is thought to predate the modern style of light scratching. Recent work includes Brahma bull riders, cowboys, initials, brands, dates, pornographic sayings, and "jive."

Modern Navajo graze their sheep and goats through the valley but generally live at the mouths of the valleys to the east, closer to the highway. As the two recent hogans testify, the area may still be used as a winter habitation zone.

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SHEPHERD SITE
(AR-NM-01-821)

Research Data

1. Artifacts
2. Tree Ring Dates
3. Soil Testing

Artifacts

Pottery

During the stabilization of the Shepherd Site 122 pottery sherds were collected from the surface of trash areas surrounding the masonry structures. Analyses of the pottery sample shows that CM-38 follows the general Refugee Site example of having a dominant presence of Navajo utility wares; 57 sherds out of the sample. Two varieties of Navajo utility pottery were distinguished, Brown Culinary and Navajo Culinary (Dinetah Scored). The Brown Culinary sherds contain mica and have had their surfaces smoothed erasing the evidence of corncob scraping present on the Navajo Culinary. The presence of the mica in the Brown Culinary pottery would make it not local to the area.

The next most commonly found sherds were Gobernador Polychrome (38 sherds, though 21 of these are from the same vessel). Two sherds are very much like Gobernador Polychrome in appearance but differ in tempering. They have been typed as Frances Polychrome which is thought to be type of Gobernador Polychrome showing the early development of the type or a later stage in the transition to Navajo Painted. Trade pottery consisting of polychrome types derived from the Pueblos compose most of the remaining sample of sherds. The Pueblo of Zia and the Acoma-Laguna-Zuni district seem to be the sources of this trade pottery. Of the remaining sherds, 5 are intrusive from a nearby Anasazi ruin, and 3 were not identified.

The pottery sample shows a dominance of Navajo pottery at the site. Most of the pottery in use was not being made locally. The Navajo Culinary is a possible exception and could have been made at the site. The rest of the pottery was being obtained from the Gobernador district and the mentioned Pueblos. With such a large Refugee population in the Goberbador area it is possible that all of the various pottery types could have been obtained here.

A unique sherd from the site is on file at the Chaco Center at the University of New Mexico. The sherd was found by Gwinn Vivian. The sherd was interpreted by Helene Warren of the Chaco Center as not of a Pueblo nature; suggested by the curvilinear and curlycue lines. She suggests the sherd is Mexican in nature perhaps made in Mexico or by a Mexican Indian who returned with the Spanish.

Brown Culinary (14 Sherds)

The paste used in the Brown Culinary ware is medium to coarse in texture, and friable. The color of the paste is dark-brown and black. Quartz sand with some crushed sherd was used for tempering. A considerable amount of mica is present. The vessel surface has been smoothed, but not polished. The surface is rough, but all striations have been smoothed making them less noticeable. The mica specks glisten on the surface. Color ranges from a brownish-buff to black. The sherds show no evidence of decoration. One large sherd is of a cooking pot typical in shape of the Navajo utility ware, though the base is not present to determine if the bottom was rounded or pointed. The rim shows a gradual outcurving. No neck filleting is present.

Navajo Culinary (33 sherds, Dinetah Scored)

The paste of the Navajo Culinary is medium to coarse in texture. The sherds crumble easily. The paste color is gray to black. Crushed sherds with grains of quartz sand make up the temper. No mica is present in these sherds. The vessel surfaces have been smoothed, but remain rough and marked by striation possibly from corn cob scraping. The surface color ranges from tan to black. Paint and slip are not present. One sherd has lightly incised lines on the exterior surface, forming a geometric design. Four rim fragments show two flaring rims and two straight or direct rims. One flaring rim has small vertical lines on the exterior which may be thumbnail impressions. Neck filleting was not present. Form of the vessels cannot be determined though they are probably of jars with the typical Navajo utility form of small bases, bulging centers, and long necks.

Gobernador Polychrome (38 sherds)

The sample of Gobernador Polychrome contained 38 sherds; though 21 of these are of the same vessel. The paste is fine-grained and compact. The paste has been fired very hard and emits a high clinking sound when sherds are rattled together. The paste is dark gray, sometimes with tan to orange margins. The temper is sparse and hard to see because of the hardness of the firing. Crushed rock was probably used as temper. Small white particles were visible in the paste and occasional black inclusions. The exterior walls were smoothed, but not polished. Striations are present possibly from corn cob scraping. The striations are not as heavy as those on the Navajo Culinary. The interior was usually slipped and polished but some sherds are bare and roughly smoothed. The surface color is yellow to orange which is the natural bare appearance of the clay. The interior surfaces are slipped with a red slip which has streaks of the yellow to orange bare clay surface showing through. Areas of the natural surface were left bare, outlined with black lines forming design motifs, and surrounded by the red slip, giving a polychrome effect. The exteriors were decorated with red lines, sometimes zig-zag lines, which are outlined with black lines. Four rim sherds show a straight, direct rim. A red line is painted around one rim extending down the exterior surface about $\frac{1}{4}$ inch (6mm). A segment of a jar was reconstructed giving an idea of its shape, though it is incomplete. The vessel had a flat base with walls that gradually widen above the base with a slight bulge around the middle of the vessel. From this point the walls taper inward again. Rim pieces are straight and not flared. The height and diameter of the vessel could not be determined. Another

large sherd is the complete half of a bowl, which would have measured about 4-7/8" (12.5cm) in diameter and 3" (7.5cm) in depth. The bowl is slipped inside and out in an orange slip which has been polished. The bowl is unusual in that it has not been painted. The polished orange slip provides the only decoration.

Frances Polychrome (2 sherds)

The paste is buff to gray in color, and medium in texture. The vessel walls have a slightly crumbling fracture. Temper is of clay-like inclusions giving the paste a flaky appearance. The clay inclusions are also conspicuous on the unslipped surface. Some crushed sherd may also have been used. The surface has been smoothed, but is bumpy. Scraping marks have been removed and the bumpy surface polished. The surface color is buff to orange. Interiors have been left unslipped. A red line surrounds the rim of one sherd extending 1 1/4" (3cm) into the interior and 3/4" (1.8cm) on the exterior of the vessel. Black and red paint has been used to decorate the exterior of the sherd, but was badly faded. The other sherd had a red slipped base with slanted red lines which extend to the rim. The red slip and lines are outlined with black lines. Two separate bowls are represented by the sherds, but dimensions cannot adequately be measured. Frances Polychrome looks very much like Gobernador Polychrome in appearance, but the tempering is different. Gobernador Polychrome is much harder, smoother, and lacks the clay sliver inclusions.

Zuni Polychrome (1 sherd)

The paste is creamy-white in color and medium to soft in texture. The temper is of crushed sherd. The vessel surfaces have been smoothed. A white slip had been applied to the exterior surface which has almost completely worn off. The white paste and white slip suggest the Zuni influence. The sherd is from the base showing the vessel had a flat bottom.

Puname Polychrome (3 sherds)

The paste is medium to coarse in texture and brick red in color. The temper is of black grains of basalt. The vessel walls have been smoothed and a white slip applied. The slip has been polished. Decoration is with lines of red and black matte paint. One sherd shows a direct rim with a slightly flattened top.

Zuni-Acoma-Laguna Influence (11 sherds)

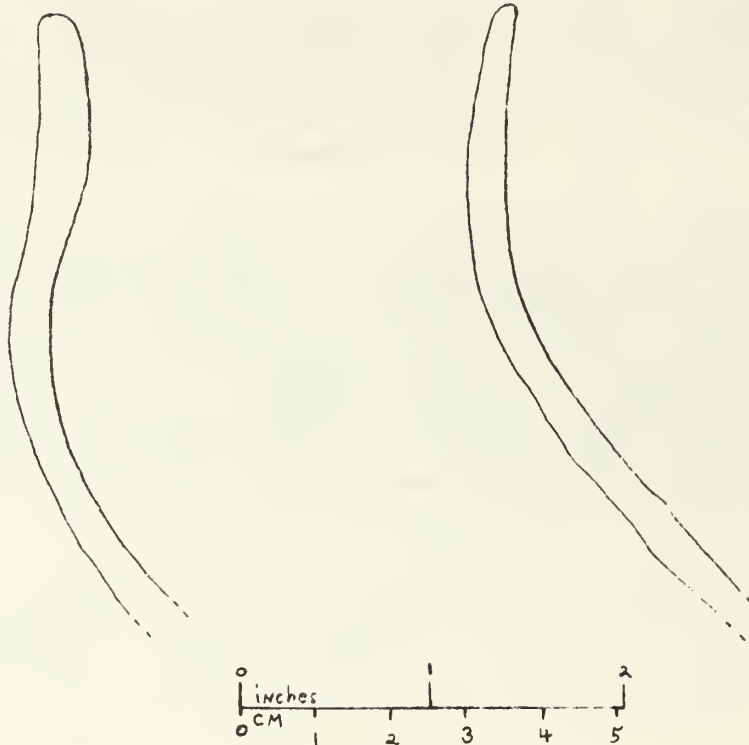
The paste is dark gray to black and medium in texture. The temper is crushed sherd. The vessel walls have been smoothed and have a red slip on the exterior. The interior has been left bare or has the same slip as the exterior, only unpolished. Eight of the sherds match this appearance suggesting they are of the same vessel. Decoration is present on the remaining 3 sherds in the form of black and red lines on a cream-colored slip. Two of these painted sherds are thinner (4mm compared with 6mm for the other sherds) and may have sand tempering. One rim fragment shows a direct rim, slightly flattened on the top.

Untyped (3 sherds)

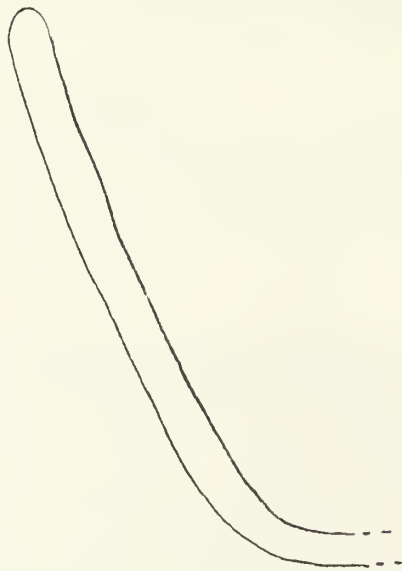
The paste is gray to orange in color and medium in texture. The temper is of crushed sherd typical of the Acoma-Laguna-Zuni area. The vessel walls have been smoothed and are buff in color. One sherd has a polished red slipped interior and a very faded exterior. Decoration is of faded lines of black matte paint. One rim fragment has a rounded direct rim.

Anasazi (5 sherds)

The paste is gray and medium to fine in texture. Temper is hard to see and may be crushed sherd with grains of quartz sand visible. Two sherds are corrugated ware of PII and PIII type. The remaining sherds are painted had have been typed as possibly McElmo B/W. Two rims are squared with black dots along the top. One sherd has two rows of black dots around the exterior of the rim and a brownish line running around the interior rim. Three sherds have lines in black carbon paint running parallel to the rim. The sherds are intrusive from a nearby Pueblo ruin.



Profile of Frances Polychrome bowls.



Profile of Gobernador orange-slipped unpainted bowl.

Lithic Material

A small sample of lithic material was collected from the trash areas surrounding the masonry structures. The main purpose for making the lithic collection was to arrive at an idea of the range of source material at use in tools at CM-38. Artifacts found were of chipped and ground stone including projectile points, knives, scrappers, flakes, a hammerstone, and a mano. The source material for the stone showed that a wide range of geographical areas was involved, and that much stone was being used not local to the site. Perhaps the most interesting find was a mano and 2 ground stone fragments also probably from manos, made from a coarse-grained sandstone common to Largo Canyon. Largo and Gobernador Canyons are thought to be the center of the Refugee manifestation, and it is interesting that these artifacts should tie CM-38 in with that area. Speculating, this could suggest that CM-38 was settled by migrants from the Largo Canyon area as the Refugee phenomena moved to the south and west under the Ute and Comanche pressures from the north. Another possibility is that the CM-38 is a seasonal habitation site whose inhabitants returned to the more densely populated Gobernador and Largo Canyon areas during parts of the year, thus obtaining the coarse-grained sandstone.

Other material not native to the site include obsidian in the form of projectile points and flakes from the Jemez Mountains. A few obsidian flakes may be from Red Hill, New Mexico. A fragment of basalt which may be from a metate probably came from either the Jemez or Mt. Taylor area. The quartzite used for a hammerstone and a scraper-knife, are both of stone not local to the site. Only flakes of silicified wood are common to the site.

Though this sample of tools is small, a wide variety of tool forms and material is present. The Navajo are thought to have picked up many of their tools from Anasazi ruins. This might explain some of the variety in tool form and source material at CM-38. The inhabitants would also seem to have had ties with several outside areas such as Largo Canyon and the Jemez Mountains for obtaining source material.

In describing the lithic material, the rock is classified using Helene Warren's lithic code system. The number in parenthesis after the rock description shows the number of pieces represented.

2104 Nacimiento sandstone (3). The sandstone is coarse-grained with quartz grains and orange inclusions in a brown matrix; Largo Canyon (Simon Canyon). Made from the sandstone are 2 ground stone fragments probably from manos. One whole mano is a two-handed slab mano. The mano is long and oval in form, 9" (23cm) long. The grinding surface is convex and only one side was utilized in grinding. The ends are rounded and show no wear from use in a trough metate.

3451 Vesicular basalt (1). A small fragment of basalt may be from a metate. A grinding face is present on one unbroken surface.

- 4005 Quartzite miscellaneous cobble (1). The cobble is grayish-green with medium sized grains and is not local to the site. The cobble has been used as a hammerstone; only a fractured rounded end remains. Edge battering is present on the rounded face.
- 4000 Quartzite, undifferentiated (1). A gray quartzite with medium size grains is a fragment of a knife that has been used as a scraper. The quartzite is not local to the site. Only the end remains of the tool which shows chipping on one surface and sides tapering down to a rounded end. Some retouching is evident on the end which also has several large flakes taken from both faces extending about 1 inch up the length of the tool.
- 5041 Gypsum, selenite (1). A crystal of gypsum was found in the wall of room 4.
- 1113 Silicified wood, light colors, variegated, waxy luster, cherty, (6). Flakes (5) made of this material show little or no secondary retouch on the edges. One point base is of a triangular point with a straight base.
- 1010 Chert, fossiliferous, undifferentiated, (2). One knife fragment is of gray chert with a triangular body and an expanding stem with a concave base. The size and thickness of the tool suggest a knife rather than a projectile point. One small flake is orange in color and shows no retouch on the edges.
- 3530 Obsidian, Polvadero Peak, Jemez, smokey gray with fine white inclusions (3). A triangular projectile point is notched at the corners. The stem is straight with a straight base. A flake has been used as a scraper and shows chipping along the lateral edges. Another flake shows signs of use along the edges.
- 3523 Obsidian, near opaque with brown color on thin edges, Jemez Mountains (1). A flake with no signs of secondary retouch noted.
- 3550 Obsidian, waxy luster, gray to silvery, often patinated, Red Hill, New Mexico, (3). One flake is patinated with signs of use on the cutting edges. Another flake has one edge possibly ground or smoothed from use. A broken knife is side notched with the stem wider than the blade. The base is straight. The size again suggests the function as a knife rather than a projectile point.

Bone

During the stabilization process 8 bone fragments were recovered. The bones are from animals including cotton tail scapula (1), rock squirrel pelvis (1), and sheep tibia (1). One hollow bone is from a bird which has not been identified. The remaining bone fragments were too small for identification. As mentioned, one bone shows butchering marks and the sheep tibia has been broken and the end shows evidence of having been chewed. None of the bones were used as tools.

The presence of the sheep bone is of interest as it brings up the question as to if the inhabitants of CM-38 possessed sheep. The bone is a fragment of a sheep tibia but whether the tibia is of a domestic or wild sheep was not determined. There is no evidence of a corral of any age near the site. A corral is located against the bench below the site but appears to be of recent construction. The presence of sheep bones would help determine if the economy of the inhabitants was based on herding sheep or growing corn.

European Material

No artifacts were found at the Shepherd Site which were of European provenience. The only possible evidence of European contact is in the cutting of the vigas. The vigas were cut and shaped with an ax, but whether these cutting scars attest to the use of a stone or metal ax has not been determined.

Recent Material

Littering room 4 of the site were 3 rusted cans which may date to the 1930's. The one identifiable can is a 2-pound can of Hills Bros. coffee with a picture on the side of a man in a robe and turban drinking from a cup. A 1-pound coffee can is badly rusted. The letters of the brand name appear to be Curbe_, the last letter being too faded to read. The remaining can is a 5-pound can with no identifiable markings. Near the west trash area a camera shutter from a folding camera was found, which is probably pre-W.W. II. The presence of these recent artifacts suggest that the site may have been reoccupied by Navajos during the earlier part of the century. The roof of room 1 shows definite signs of repair. The cans might point to the time this repair took place.

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A list of the artifacts Gwinn Vivian collected at CM-38 presented in his M.A. Thesis on The Navajo Archaeology of the Chacra Mesa.

Navajo Culinary	25 sherds
Brown Culinary	3 "
Navajo Decorated	3 "
Gobernador Polychrome	14 "
Ashiwi Polychrome	8 "
Acoma-Hopi influenced	1 "
Puname Polychrome	10 "
Hopi Ware	16 "
Polished black ware	1 "
Mano	1
Projectile points	13
Scrapers	1
Drills	1
Shell bead	1
Basketry	1
Notched log ladder	1

The main points of note when comparing the artifact collection obtained during the stabilization and Gwinn Vivian's collection, is the large sample of Hopi Ware and projectile points Vivian collected. The Hopi villages are the most western of the Pueblos and would have been far from the range of CM-38. In Vivian's collection the Hopi Ware sherds outnumber the Gobernador Polychrome sherds. The pottery collections show the great range of trade contact present at CM-38; the Gobernador area, Zia, Acoma-Laguna-Zuni district and Hopi. Vivian says the sherd of black polished ware might have been a fragment of the bowl of an elbow-type pipe.

Note is also taken of the large number of projectile points Vivian found when trenching the trash area. Vivian says the points varied considerably in shape and size and might have come from prehistoric sites. A stemmed and nonstemmed type were distinguished. Stemmed specimens were side or corner notched, and bases ranged from an expanding stem narrower than the shoulder, to an expanding stem wider than the shoulder. Most of the bases were flat, but two were notched. Two forms of nonstemmed types occurred; a leaf shape with rounded base and triangular shaped. The notched specimens ranged in length from 7/16" (1.10cm) to 1-5/8" (4.20cm). The nonstemmed points ranged in length from 5/8" (1.60cm) to 7/8" (2.30cm).

A list of Refugee sites and tree-ring dates from the major areas involved.

Navajo Reservoir District

Frances section:

LA 3400
LA 3401
LA 3412

La Jara section:

LA 4314
LA 4331
LA 4334
LA 4402

Gobernador Area

Munoz Canyon:

LA 1687 - 1744+

Dos Cerritos:

LA 2136 - 1724-1734 (6 samples, 3 at 1733-1734)

Gobernador Canyon:

LA 1868 - 1732+

San Rafael:

LA 1869 - 1749
LA 1871 - 1732+ and 1733+
LA 1872 - 1727+

Pueblo Canyon:

LA 1684 - 1735

La Jara:

LA 2138 - 1705-1714 (8 samples, 5 at 1714)

Gobernador Area (continued)

Morris' Sites Gobernador - 1700+ - 1744

Santo Nino

LA 2137 - 1726-1750

Frances Canyon

LA 2135 - 1717-1743 (6 samples, no concentration)

LA 2298 - 1690

Gobernador 25 - 1718 and 1719

Gobernador 72 - 1491 and 1521

Largo Area

NA 1740	1826
NA 1741	1739
Rincon Largo	1618 and 1725
H3, S13, C2	1754+
H1, S19, C5	1747
H5, S13, C2	1735

Chacra Mesa

CM-4	1773+ vL 1779+ vv
CM-18	1634 vv 1726 vL 1745+ v
CM-35	1432 vv 1469 vv 1598++ vv 1350 vv 1572 ++ v 1552 vv 1398 vv

(This site is a fortified Mesa Verde pueblo which, after abandonment, was reoccupied by Navajo-Refugee Pueblo peoples. Erosion of the beams is thought to account for the early dates.)

SHEPHERD SITE
(AR-NM-01-821)

CM-38 1739 G
 1739
 1739 vL
 1739 vvL
 1600+ v
 1659+ vv
 1730+ vv
 1738 vLG
 1738 vLG

CM-139 1739 c
 1725

CM-150 1704+ vv

E-C-UC-N 1725
 (forked-stick hogan)

Star Lake
 LA 1063 1739c
 (Site is a fortified Mesa Verde ruin
 reoccupied by Navajo Refugee peoples.)

Big Bead Mesa 1673-1792
 (27 samples; 5 at 1712-1729, 17 at 1760-1792)

Soil Testing

Testing for this study was done by the New Mexico State Highway Department, Materials and Testing Laboratory, Santa Fe, New Mexico on May 27, 1977.

The sample was taken from the east wall of Room 1. The soil tests results were as follows:

A. Particulate Size Characterization

1. % fine sand	6.9
2. % silt	11.9
3. % clay	<u>19.1</u>
Total	100.0 %

B. Sand Sieve Analysis

1. Sieve No. 40	99 % posing
2. Sieve No. 200	34 % posing

C. Specific Gravity - 2.66

D. Hygroscopic moisture - 98.86

After discussion of these test results with Dr. Dennis Fenn, NPS, Physical Scientist, the soil is a sandy loam, with the particle size distribution of 19.1% clay, 69% fine sand, and 11.9% silt. Silt is not desirable since it does not bind as well as clay and does not provide strength as does coarse sand. This soil is slightly high in silt and low in clay but is close enough to still be suitable for a mud mortar.

From the following data, the following mixing formulas were used:

1. Mix Number 1 - Consisted of 16 parts soil (silt and clay) 6 parts sand and 4 parts adhesive bond.
2. Mix Number 2 - Consisted of 24 parts soil (silt and clay) 6 parts sand (2 M/M - .05 M/M) and 6 parts Rhoplex E-330.

The problem of preserving exposed prehistoric adobe walls is a complex and difficult one. Dr. Dennis Fenn is now conducting research in development of a chemical soil amendment that would be effective in protecting badly eroded portions of prehistoric walls in Chaco Canyon. Ten water-based chemical products were selected for testing and out of the ten Rhoplex E-330, an acrylic resin emulsion proved very successful. This research effort was initiated

in March 1977 and the walls were allowed to weather for 9 months and in January, 1978 the treatments were completed and documented by an initial report in May 1978. It is recommended that the above mixes be monitored at least once a year for weathering. With this data, it should be possible to recommend the proper soil-clay ratios to use to produce the most compatible adobe mortar and what special procedures to use with each particular soil.

Form M73C
Rev. 12-15-72

77-03037

NEW MEXICO STATE HIGHWAY DEPARTMENT
MATERIALS AND TESTING LABORATORY

Lab. No.: _____
Project Status: _____
Submitted by: B.L.M.
Date Sampled: _____

SUBGRADE-SURFACING
TEST REPORT

Date Rec'd.: 5-27-77

Project: _____
Location: _____
Dist. No.: _____
ADL: _____

Source: _____ Tested For: Soil Classification
 As Rec'd. Crush to _____

Identif. <u>KS #2 #2540</u>	Station Sampled	Repr. Station to Station	Rpt. or Lft. Depth-ft.	Quant. Repr.	LIQUID LIMIT			PLASTIC LIMIT											
					Watch Glass Number	Temp	Watch Glass + Wet Soil	Watch Glass + Dry Soil	Weight of Water	Watch Glass Empty	Weight Dry Soil	% Water							

SIEVE ANALYSIS				
Sieve	Retained	% Retained	Total Sample	Specs.
			% Passing	% Passing
2"				
1"				
3/4"				
1/2"				
3/8"				
No. 4				
No. 10			100.0	
Pass No. 10			XXXXXX	XXXXXX
Total			XXXXXX	XXXXXX
No. 40	XXXXXX		99	
No. 80	XXXXXX			
No. 200	XXXXXX		34	
Dust Ratio				
L. A. Wear %				
Liquid Limit				
Plasticity Index				
Lineal Shrinkage - %				
Max. Dry Density—lbs. per cu. ft.				
Optimum M. C. — %				
Soils Classif.				
R - Value				
Total Depth of Cover Required — Inches			SN	
% Asphalt Recommended				
% Asphalt Extracted				

LL _____
PL _____
PI _____
Operator: PL

LAB INFORMATION ONLY:
Gradation, Hydros-scopic moisture,
Specific Gravity, Hydros-metric

INITIAL WT. _____ 272

REMARKS:
ADobe sample on SP
Shepherd site
AR-NM-01-821
from EAST wall Room #1
"SAGE"

Very Fine - Fine sand: 69%
silt: 11.9%
Clay: 19.1%

- USE: Plant Mix Seal _____
- Bitum. Surfacing _____
- Base Course _____
- Sub-base _____
- Total _____

REPORTED BY _____

6-1-77

P-100

Member	Time	Temp.	R.	G.	C.R.	100	Sand	Slit	C. Clay	Clay	Clott	Disp. ant	Remarks
#3036	2 min. 8:43	8:45	72°F	94.0	-6.1	17.9	36.06	.040	86.7	995	970	0.0335	Sp. G. = 2.68
	5 min.	8:48	72°F	92.0	-6.1	15.9	32.03	.026	878	995	970	0.0220	constant = .99
	15 min.	8:58	72°F	90.5	-6.1	14.4	29.01	.015	886	995	970	0.0128	wt. - hygro
	30 min.	9:13	72°F	90.0	-6.1	13.9	28.00	.010	899	995	970	0.0086	moist.
	1 hr.	9:43	72°F	19.5	-6.1	13.4	26.99	.0074	894	995	970	0.0064	49.1461
	4.10 min.	12:53	74°F	18.0	-5.6	12.4	24.98	.0036	900	995	955	0.0031	Wash = 9.5
	24 hr.	8:43	76°F	16.0	-5.2	10.8	21.76	.0015	912	995	950	0.0013	Wash = 9.5
	2 min. 8:55	9:57	72°F	24.0	-6.1	17.9	36.06	.040	867	995	970	0.0335	Sp. G. = 2.68
	5 min.	9:00	72°F	22.0	-6.1	15.9	32.03	.026	878	995	970	0.0220	constant = 0.0320
	15 min.	9:10	72°F	21.0	-6.1	14.9	30.01	.015	884	995	970	0.0128	2981 - 0.0128
	30 min.	9:25	72°F	20.0	-6.1	13.9	28.00	.010	889	995	970	0.0086	2800 - 0.0086
	1 hr.	9:55	72°F	19.5	-6.1	13.4	26.99	.0074	894	995	970	0.0064	2699 - 0.0064
	4.10 min.	1:05	74°F	18.0	-5.6	12.4	24.98	.0036	900	995	955	0.0031	2498 - 0.0031
	24 hr.	8:55	76°F	16.0	-5.2	10.8	21.76	.0015	912	995	950	0.0013	2176 - 0.0013
	#3037	2 min. 9:07	9:09	72°F	33.5	-6.1	27.4	27.72	.040	844	100	970	0.0316
5 min.		9:12	72°F	31.5	-6.1	25.4	25.69	.026	825	100	970	0.0208	const. = 1.00
15 min.		9:22	72°F	29.5	-6.1	23.4	23.67	.015	836	100	970	0.0122	wt. - hygro
30 min.		9:37	72°F	29.0	-6.1	22.9	23.16	.010	839	100	970	0.0081	moist. =
1 hr.		10:07	72°F	27.5	-6.1	21.4	21.65	.0074	847	100	970	0.0061	98.8607
4.10 min.		1:17	74°F	23.0	-5.6	17.4	17.60	.0036	873	100	955	0.0030	Wash = 0.1
24 hr.		9:07	76°F	16.0	-5.2	10.8	10.92	.0015	912	100	950	0.0013	Wash = 36
2 min. 9:21		9:23	72°F	33.5	-6.1	27.4	27.72	.040	844	100	970	0.0316	Sp. G.
5 min.		9:26	72°F	31.5	-6.1	25.4	25.69	.026	825	100	970	0.0208	25.69 - 0.0208
15 min.		9:36	72°F	29.5	-6.1	23.4	23.67	.015	836	100	970	0.0122	23.67 - 0.0122
30 min.		9:51	72°F	29.0	-6.1	22.9	23.16	.010	839	100	970	0.0081	23.16 - 0.0081
1 hr.		10:21	72°F	27.5	-6.1	21.4	21.65	.0074	847	100	970	0.0061	21.65 - 0.0061
4.10 min.		1:31	74°F	23.0	-5.6	17.4	17.60	.0036	873	100	955	0.0030	17.60 - 0.0030
24 hr.		9:21	76°F	16.0	-5.2	10.8	10.92	.0015	912	100	950	0.0013	10.92 - 0.0013

SHEPHERD SITE
(AR-NM-01-821)

PHOTOGRAPHS BEFORE AND AFTER PHYSICAL PROTECTION



"After" stabilization; the south facing walls of CM-38. (looking northwest)



"After" stabilization; the north facing walls of CM-38. (looking southwest)

SHEPHERD SITE
(AR-NM-C1-829)



Grouting the exterior east wall of room 1, showing the contrast between the grouted and original wall surface. Note the ends of the roof beams protruding from the wall.
(looking northwest)



"After" stabilization; the east facing walls of CM-38. (looking west)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot of the doorway
connecting rooms 1 and 2. Note how the
side of the door is eroding out.
(looking east from room 2)



"After" stabilization; the eroded area
has been patched.
(looking west from room 1)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot of the interior south wall of room 1. Note the missing section of roof and lack of mortar on the stones around the window.
(looking south)



"After" stabilization; the stones have been grouted and the roof reconstructed.
(looking south)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot of "hooded" fireplace
in northeast corner of room 1. The
juniper bough was the base of the
"hood". Water coming through chimney
has caused wall deterioration.
(looking north)

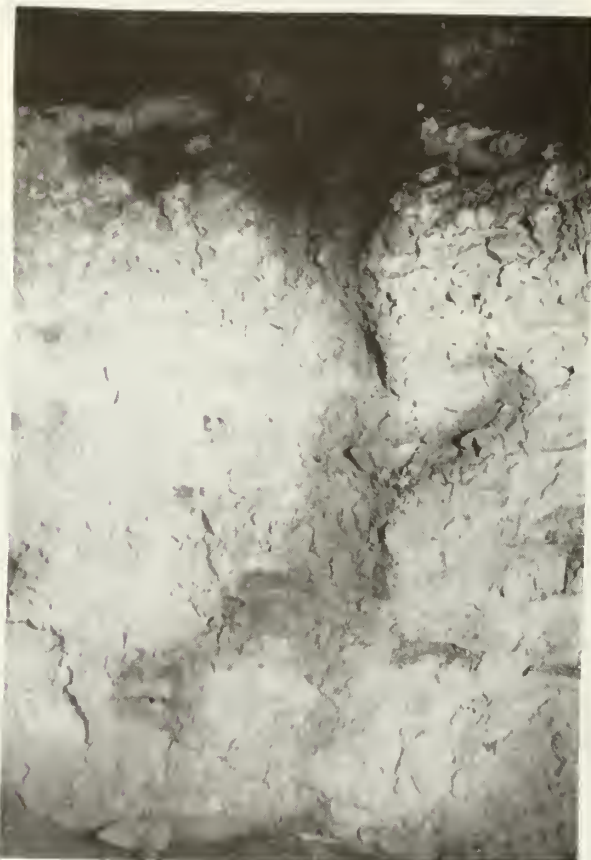


Raymond Torrivio rebuilding wall in
area of the hooded fireplace. Removal
of the stone caused the wall to settle
causing a large crack to form in the
east wall of the room. (looking north)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot of a large crack which formed in the east wall of room 1 upon the removal of the stone in the hearth area during the stabilization. (locking cast)



"After" stabilization. The crack has been grouted. With the repair of the fireplace, no further settling or cracking of the wall was noted.

SHEPHERD SITE
(AR-NM-01-829)



"After" stabilization; the hooded
fireplace. Note the dark areas of
grout on the interior walls.
(looking north)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot showing the original
slab sandstone roof surface of
room 1.



"After" stabilization; the
reconstructed section of the roof on
room 1. Note the sandstone slabs on
the roof surface. (looking southwest)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot of the poor construction
in corner joint of room 2.
(looking southeast)



"After" stabilization; the north wall
of room 2. The wall has been built up
to accommodate the reconstructed roof.
(looking south)

SHEPHERD SITE
(AR-NM-01-829)



"Before" photo showing the original
appearance of the roof on room 2.
(looking south-west)



Clearing away the original roofing and
building up the walls.
(looking south)

SHEPHERD SITE
(AR-NM-01-829)



Close-up of an original viga showing
trimming scars which may have been made
by a metal ax. (looking south)



Adding the split wood latillas
transverse to the vigas during the
reconstruction of the roof on room 2.
(looking north)

SHEPHERD SITE
(AR-NM-01-829)

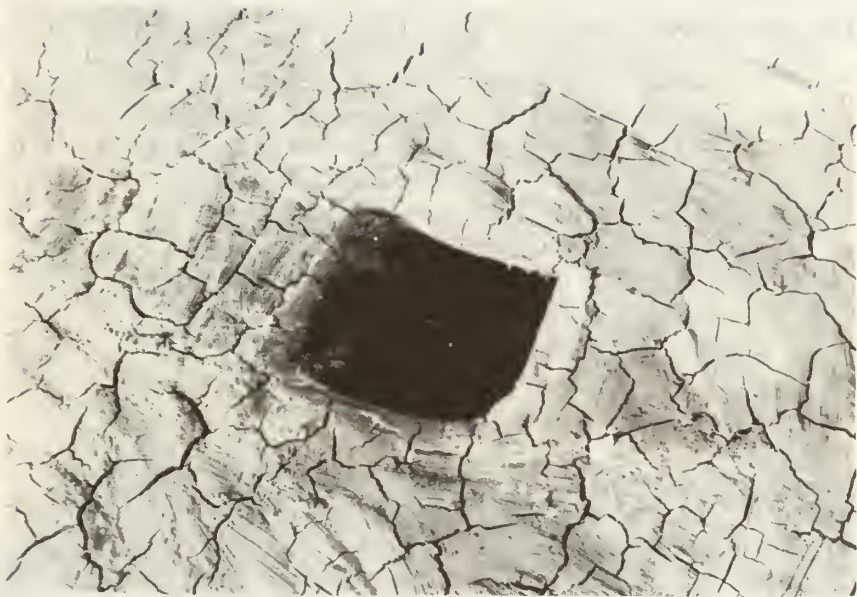


"Before" photo showing the collapsed
parapet wall on room 1 and the
deteriorated roof of room 2.
(looking north)



"After" stabilization; the
reconstructed roof of room 2, and the
rebuilt section of parapet wall.
(looking north)

SHEPHERD SITE
(AR-NM-01-829)



"After" stabilization; hatch left in the roof of room 2 to facilitate the removal of debris from the room in the event of future excavation. The roof surface is made of several inches of mud mixed with Rhoplex E-33C. The cracks were caused by the high clay content in the soil. The cracks were filled with dirt and the roof sprayed with water to seal the cracks. The hatch was covered over with rocks and dirt. (looking south west)

SHEPHERD SITE
(AR-NM-01-829)



"Before" shot of room 3. Note the plugged doorway, collapsed section of wall, test pit, and remains of roof. The straight sides and absence of wall base suggest stone alignments may not be a plugged doorway, or perhaps a side entrance abandoned for a window like entrance.

(looking north)



"After" stabilization; the south wall of room 3. Raymond Terrivio, Bobby Johnson, and Kee Johnson work on the room. Note the reconstructed section of wall adjacent the plugged doorway. To the left of the photo on the corner of the wall can be seen the eroded window which may have been the entrance to the room. (looking north)

SHEPHERD SITE
(AR-NM-01-829)

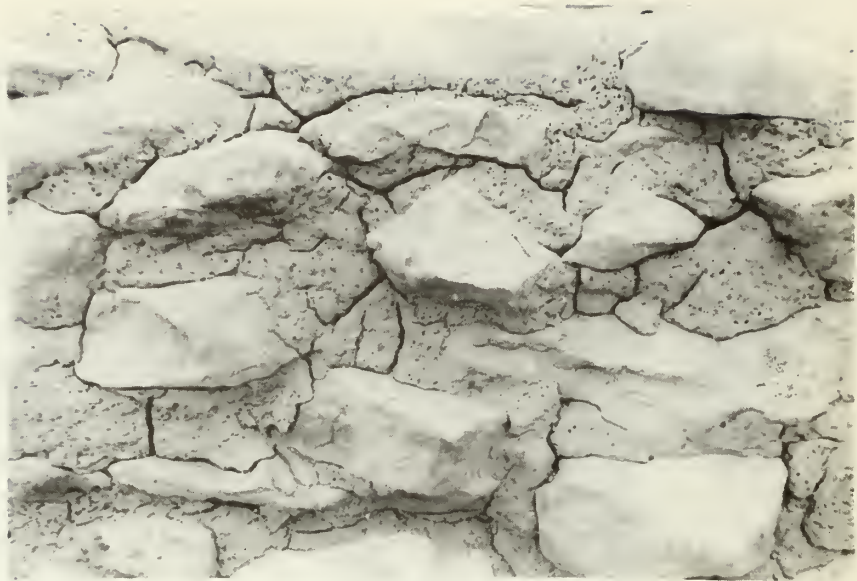


"Before" shot of west wall of room 3
showing base of wall undermined by
erosion. (looking west)



"After" stabilization. Note the
eroded window in the left of the
photograph. This window may have been
the original entrance. (looking west)

SHEPHERD SITE
(AR-NM-01-829)



"After" stabilization; close-up of grouted south wall of room 3. The cracks in the mortar show a need for more sand in the mortar mixture. The small holes in the mortar are from striking the wet mortar with a whisk broom, a technique called "texturing" which aids in preventing cracking as the mortar dries. The mortar will now be sprayed with water and rubbed down with sticks to return a look of antiquity to the walls. (looking north)



"After" stabilization; the completed north and west walls of room 3. Raymond Torrivio in photo. (looking south)

SHEPHERD SITE
(AR-NM-01-829)



"After" stabilization. Note the
drain in the foreground wall and the
loophole in the west wall.
(looking south)



"After" stabilization; the west wall
of room 4. (looking east)

SHEPHERD SITE
(AR-NM-01-829)



Stabilizing the walls of room 4. The south and west walls were taken down in order to correct their outward leaning. Note the cement core used in the base of these walls.
(looking north)



"After" stabilization; the walls have been reconstructed to their former height. (looking north)

SHEPHERD SITE
(AR-NM-01-829)



"After" stabilization; the reconstructed side entrance to room 4. The doorway was originally 18 inches wide. The first reconstruction put the stabilized width at 24 inches, necessitating the door be taken down and reconstructed again to the original 18 inch width. (looking west)



"After" stabilization; room 4.
(looking north)

SHEPHERD SITE
(AR-NM-01-829)



Stabilization completed.

SHEPHERD SITE
(AR-NM-01-821)

PHOTOGRAPHS AND DATA RELATING TO SHEPHERD SITE (CM-182, FIR TREES AND PETROGLYPHS)
CM-183, CM-184, CM-185, CM-186, CM-18

SHEPHERD SITE
(AR-NM-01-829)



Douglas fir trees in rincón southeast of CM-38. Note the person near the foot of the tree. (looking south)



Pocket of Douglas fir trees growing in a north facing rincón southeast of CM-38. (looking southeast)

SHEPHERD SITE
(AR-NM-01-829)



Anasazi petroglyphs of two human figures
pecked on the cliff face southwest of
CM-38.



Recent Navajo petroglyph of a bull and
rider scratched on cliff face northwest
of CM-38.

SHEPHERD SITE
(AR-NM-01-829)



CM-182. Hogan built against a boulder on the talus. The roof is of horizontal beams layed across the walls. A sample for tree-ring dating was taken from the remnant wood. The structure is one of a group of six hogans. The crude construction and location on the talus suggest they date to the 19th century.
(looking west)



CM-182. Hogan built against the cliff face. The hogan is one of six located at this talus site. (looking north)

SHEPHERD SITE
(AR-NM-01-829)



CM-183. Large communal sweat lodge which may have accommodated ten people. A wood sample was taken for tree-ring dating. (looking west)



Storage room on sandstone bench half mile south of CM-3⁶ (near CM-184).
(looking south)

SHEPHERD SITE
(AR-NM-01-829)



CM-184. Jacal style hogan on the
bench top from which a sample of wood
was taken for tree-ring dating. The
hogan is associated with a brush
corral and possibly 2 sweat lodges.
(looking west)



CM-183. Jacal style hogan on the
valley floor from which a sample of
wood was taken for tree-ring dating.
(looking east)

SHEPHERD SITE
(AR-NM-01-829)



CM-184. Sweat lodge standing over 4 feet tall. Note the forked-stick construction. The sweat lodge is located on the bench top. A wood sample was taken for tree-ring dating. (looking west)



CM-184. Example of a sweat lodge located on the bench top. A sample of the wood was taken for tree-ring dating. (looking west)

SHEPHERD SITE
(AR-NM-01-829)



CM-185. Example of a square oven or small storage room. Smaller structures of this nature may be toy hogans built by children. (looking west)



CM-185. Collapsed round or bee-hive oven. Note the ash pile behind the oven. (looking west)

SHEPHERD SITE
(AR-NM-01-829)



CM-185. Stone hogan ring with abundant remnant wood remaining from the roof, from which a sample was taken for tree-ring dating. The hogan may date to the 1920's. (looking east)



CM-185. Root celler like structure which may have been used for storage. Wood sample was taken for tree-ring dating. (Looking northeast)

SHEPHERD SITE
(AR-NM-01-829)



CM-186. Recent winter hogan built in the cribbed-log style. Note the lumbered wood used in the door frame.
(looking west)



CM-186. Recent winter hogan still in use. The hogan has jacal style walls, conical tar paper roof, glass window, and door made from lumbered wood.
(looking west)

SHEPHERD SITE
(AR-NM-01-829)



CM-186. Stone hogan ring built on the talus below the cliff. Sample was taken from remnant wood for tree-ring dating. The crude construction and site location suggest a date from the 19th century. (looking south-east)



CM-186. Stone hogan ring with 3 foot standing walls. A tree-ring sample was taken from the little wood that remained from the roof.

(looking northwest)

SHEPHERD SITE
(AR-NM-01-829)

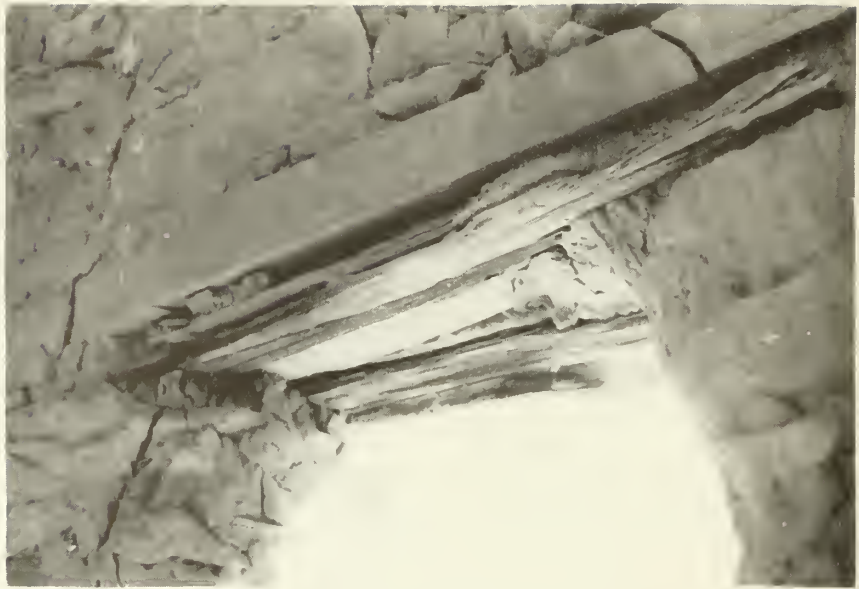


View of CM-18 the nearest Refugee Site to CM-38, located a few miles to the north-east. CM-18 is the best example of a defensively located and constructed site on the Chacra Mesa.
(looking south)

SHEPHERD SITE
(AR-NM-01-821)

PHOTOGRAPHS BEFORE PHYSICAL PROTECTION

SHEPHERD SITE
(AR-NM-01-829)

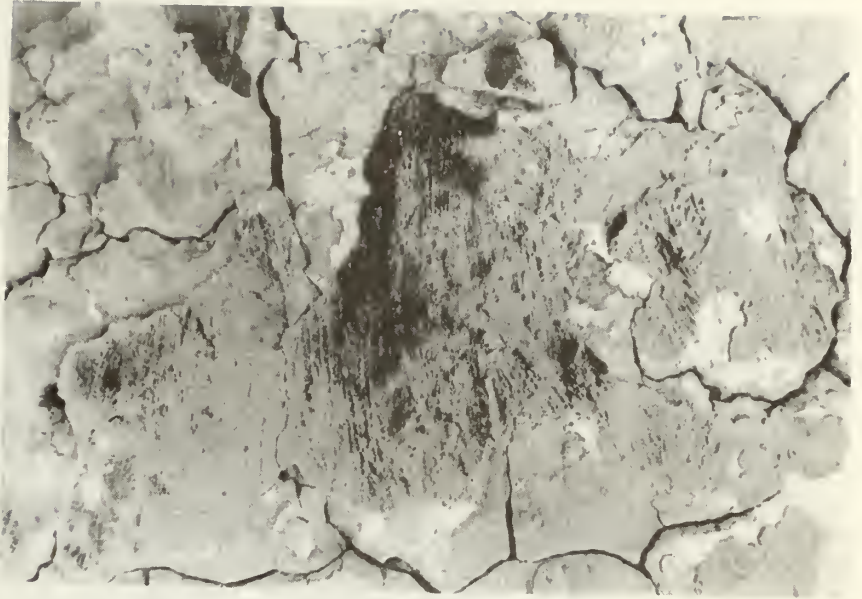


Side entrance into room 1, showing the sandstone slab and juniper slats used as lintels. (looking northeast)



"Before" shot of the large window in the south wall of room 1. The window is the product of a recent repair job as indicated by size (too large), kind of lintels (juniper vigas) and color of clay (gray).
(looking south)

SHEPHERD SITE
(AR-NM-01-829)



Plastered wall in room 1. The wall was covered with red/buff adobe and "whitewashed". Another layer of red/buff adobe was added which is blackened with smoke. Note the brush marks in the adobe. (looking east)



"Birdlike" petroglyph scratched into the plaster on the west wall of room 1.
(looking west)

SHEPHERD SITE
(AR-NM-01-829)



Feature in the hearth area of room 1,
located above the juniper bough, and
probably associated with the fire-
place. (looking northeast)

SHEPHERD SITE
(AR-NM-01-829)

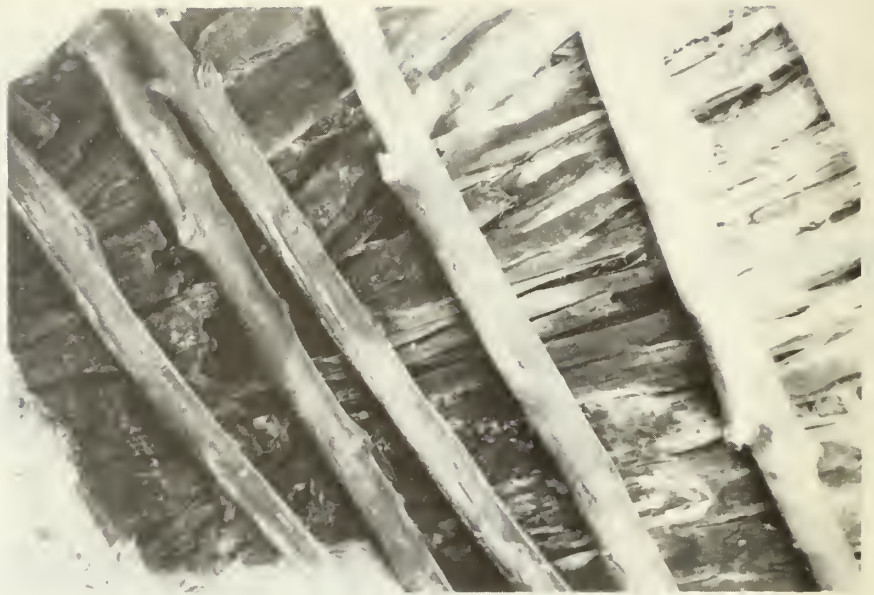


"Before" shot of the missing section
of roof on room 1. (looking east)



The 2 vigas used to fill the section of
missing roof during the stabilization.
(looking east)

SHEPHERD SITE
(AR-NM-01-829)



The northern half of the roof on room 1. The smoke blackened wood suggests that this portion of the roof is original. (looking northeast)



A section of roof on room 1 which shows a former repair job. The repaired section lacks smoke stain and contains branches mixed with the split wood latillas. Vigas are of juniper, Douglas fir, and pinyon.

SHEPHERD SITE
(AR-NM-01-829)



Small niche in east wall of room 2,
located above and south of the doorway.
(looking east)



Small niche in west wall of room 2,
opposite the above mentioned niche.
(looking west)

SHEPHERD SITE
(AR-NM-01-829)



Loop-hole style window in the south-east corner of room 1. Note the adobe and sandstone slabs lining the window.

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Loop-hole style window in west wall of room 2. Window lines up with winter solstice sunset. (looking west)

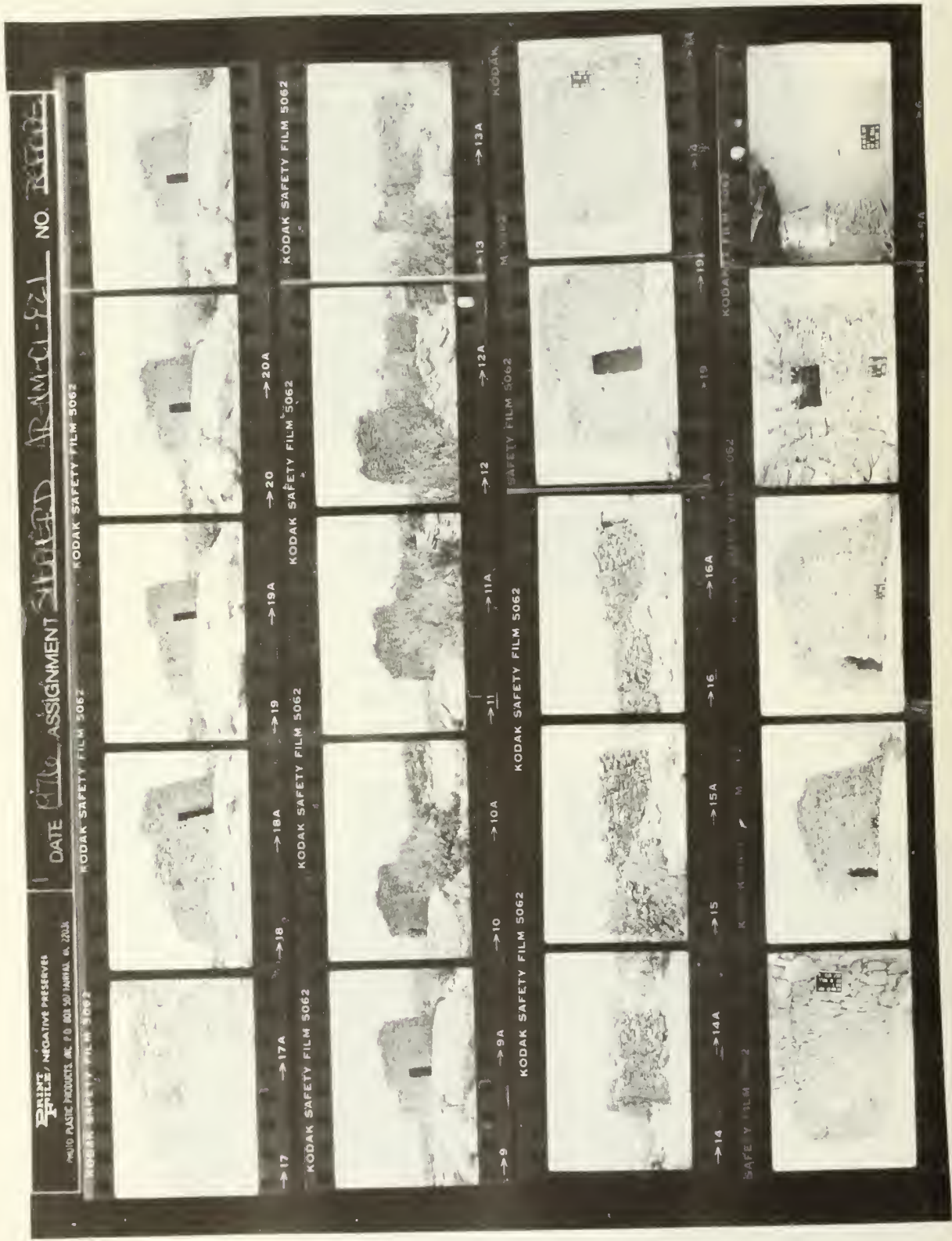
SHEPHERD SITE
(AR-NM-01-829)



Profile of the roof construction on room 2. Wall rubble from second story of room 1 covers the surface. Next is a layer of red/buff adobe followed by an orange and gray clay. The horizontal flakes in the clay may be decomposing slabs of shale. Juniper bark is visible at the bottom of the photo covering the layer of brush shown in the photo below.



Remains of the original roof of room 2. Note the brush layed transverse to the vigas, and the smoke stains on the vigas.



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