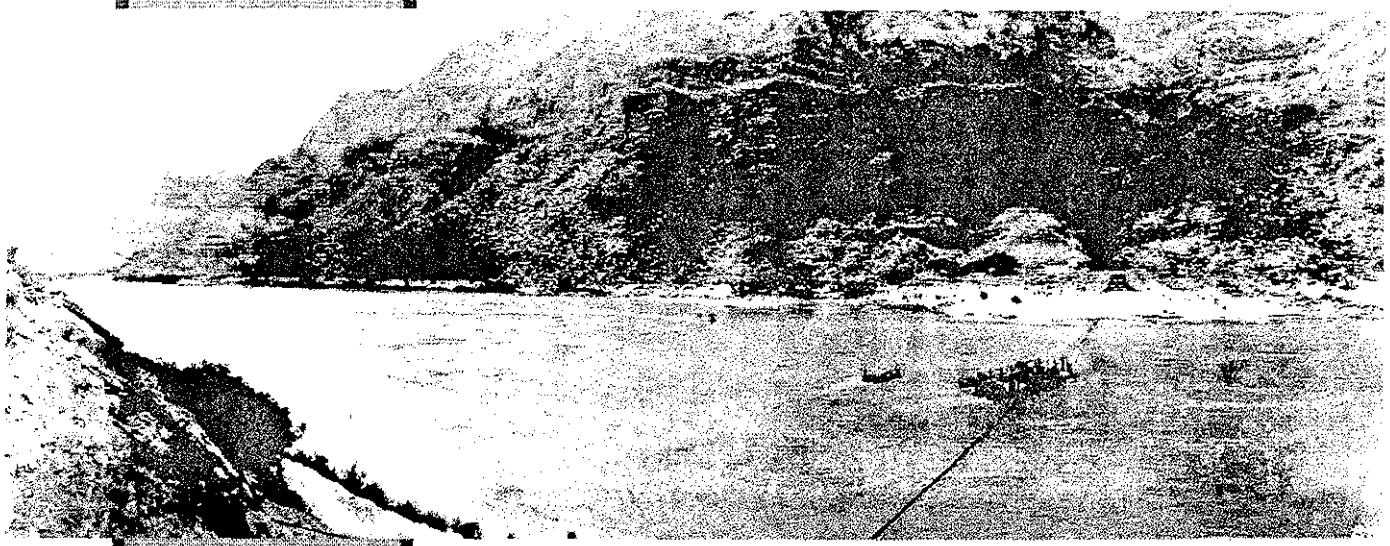
408/D-211

Historic Structures Report:

Lee's Ferry and Lonely Dell Ranch

Glen Canyon National Recreation Area, Arizona



United States Department of the Interior
National Park Service
Intermountain Region

PLEASE RETURN TO:

TECHNICAL INFORMATION CENTER
DENVER SERVICE CENTER
NATIONAL PARK SERVICE

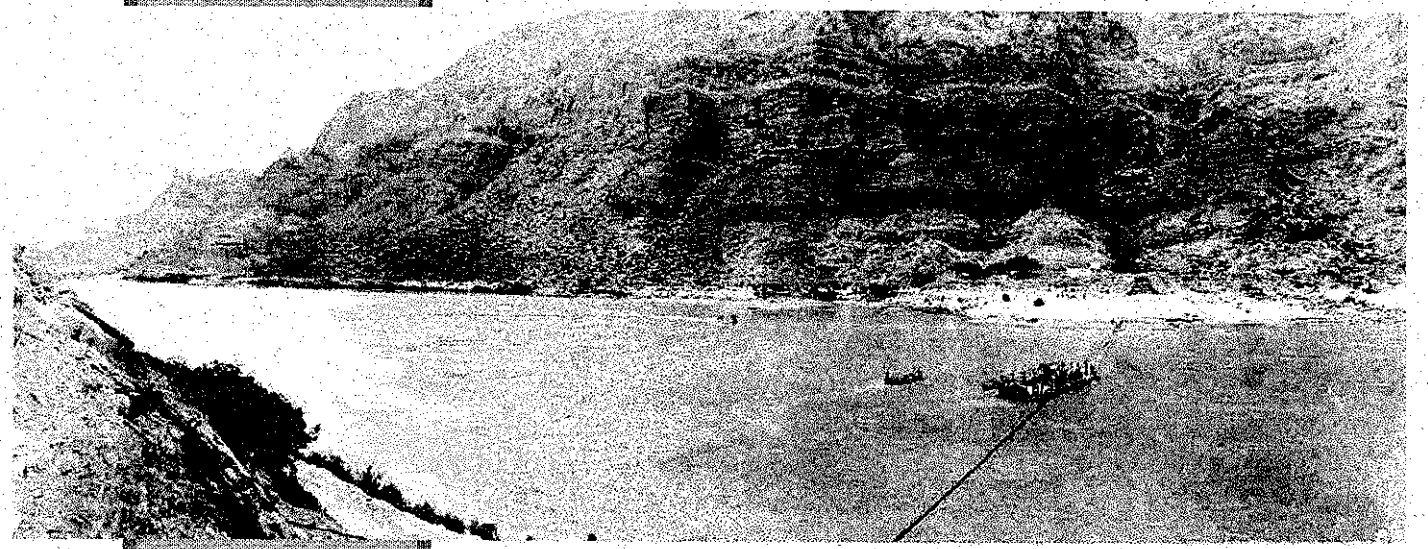
SCANNED
10/4/01

408/D-211

Historic Structures Report:

Lee's Ferry and Lonely Dell Ranch

Glen Canyon National Recreation Area, Arizona



United States Department of the Interior
National Park Service
Intermountain Region

PLEASE RETURN TO:

TECHNICAL INFORMATION CENTER
DENVER SERVICE CENTER
NATIONAL PARK SERVICE

L608/P211

A Historic Structures Report
for

LEE'S FERRY
and
LONELY DELL RANCH

Glen Canyon National Recreation Area

Prepared for:

United States Department of the Interior
National Park Service
Intermountain Region
Glen Canyon National Recreation Area

Prepared by:

ALLIANCE ARCHITECTS, LLC
2601 N. 3rd St.
Suite 308
Phoenix, AZ 85004

(602) 274-9777

Robert G. Graham, AIA, Historical Architect
Douglas E. Kupel, Ph.D., Historian

AA Project No. 1084
September 2000

PLEASE RETURN TO:

TECHNICAL INFORMATION CENTER
DENVER SERVICE CENTER
NATIONAL PARK SERVICE

Table of Contents

Executive Data 3
Administrative Data 6
Part 1: Developmental History
Historical Background and Context 22
Site Time Line 64
Chronology of Development and Use and Physical Description 71
Lonely Dell Ranch Site 72
Samantha Johnson Cabin 92
Polygamist Era Cabin 109
Warren Johnson House Foundation 122
Lonely Dell Dugout (Root Cellar) 128
Weaver Ranch House 138
Picture Window Cabin 160
Ranch Cemetery 170
Lonely Dell Ranch Irrigation System 182
Lee's Ferry Site 193
Lee's Ferry Fort 211
American Placer Corporation Office 231
Chicken House 247
Lee's Ferry Fort Root Cellar 255
Spencer Building (Bunkhouse) 262
USGS Residence 277
Upper Ferry Site 288
Part 2: Treatment and Use
Ultimate Treatment, Requirements and Alternatives for Treatment
General Information: Regulatory Considerations 302
Lonely Dell Ranch Site
Samantha Johnson Cabin 304
Polygamist Era Cabin 307
Warren Johnson House Foundation 309
Lonely Dell Dugout (Root Cellar) 310
Weaver Ranch House 312
Picture Window Cabin 315
Ranch Cemetery 316
Lonely Dell Ranch Irrigation System 318
Lee's Ferry Site
Lee's Ferry Fort 319
American Placer Corporation Office 321
Chicken House 322
Lee's Ferry Fort Root Cellar 323
Spencer Building (Bunkhouse) 324
USGS Residence 326
Upper Ferry Site 327
Cost Estimates 328
Appendix A: Bibliography 336
Appendix B: Annotated Photograph Bibliography 349
Appendix C: Photographic Logs 391
Appendix D: Preservation Techniques 401

EXECUTIVE DATA

Scope of Research Performed

Research performed for this project was divided into field analysis and documentation, performed by the Historical Architect and his architectural team members, and archival research, performed by the Project Historian.

All work was coordinated with Sayre Hutchison, IMSF-CNR (Denver) Architect with the NPS support office in Denver, and Chris Goetze, Chief Archeologist with the Glen Canyon National Recreation Area.

Project participants are summarized below in Table 1: PROJECT PARTICIPANTS.

Field research took place during two visits to the project site in July, 1999. During the first visit, the existing conditions of the building were documented. Documentation work included field measurement, perspective-corrected large-format photography, and general 35mm photography. During the second visit, each structure was analyzed in detail to determine areas and sources of deterioration as well as to document the construction chronologies.

Because the general histories of the Lee's Ferry and Lonely Dell Ranch sites are relatively well-documented, archival research focused on locating useful historical photographs and in resolving inconsistencies between different written accounts and between written accounts, historical photographs, and physical conditions. Repositories consulted included over forty local and regional sources. Refer to the Bibliography for a complete listing of repositories.

Project deliverables include this report and original photographic documentation of all park structures. Originals of all deliverables will be archived in the Glen Canyon National Recreation Area office in Page, Arizona.

Major Research Findings

The previously accepted history of the site, and more particularly the previously accepted history and provenance of many individual buildings at Lee's Ferry and the Lonely Dell Ranch, was found to be in error in many particulars. The revision of the historical interpretation of the site as presented in this report follows a recently published history of Lee's Ferry written by P. T. Reilly and edited by Robert H. Webb. The previously accepted history of the site was based largely on the work of C. Gregory Crampton and W. L. Rusho. Reilly's version of events appears to be based on a greater depth of research and a critical analysis of oral histories that may have been given undue emphasis in the past. When this new view of the historical record is combined with a detailed architectural evaluation of each of the remaining historic buildings at Lee's Ferry and Lonely Dell Ranch, it becomes evident that the current interpretation of the site provides a misleading or incorrect view of its history, and that some past management decisions were based on incorrect assumptions.

Specific major areas of revision are as follows.

- **Samantha Johnson Cabin (formerly known as Emma's Cabin)**: This building is almost certainly not related to John D. or Emma Lee as previously believed. The building was constructed in 1887 by Warren Johnson for his wife Samantha and her children. It was modified in 1897-8 to a schoolhouse by James Emett, who built the upper part of the walls and the roof using salvaged lumber from J. Neilsen's boat, the *Nellie*, and added the floor inside the building. Leo Weaver rehabilitated the building as a guest lodge c. 1936, adding the ceiling and whitewashing the building. The porch on the east side postdates 1956.
- **Polygamist Era Cabin (formerly known as the Blacksmith Shop)**: This building

was thought to have been built by Warren Johnson in 1887, but there is no evidence in support of this view. It most likely was constructed in 1925 by Warren Johnson's son, Jerry, as a dwelling for one of the polygamist families that occupied the site at that time. Photographs c. 1935 show a log building with a flat dirt roof and an open ramada on the north side. The modern gabled roof was added by Leo Weaver or by Gus Griffin after 1936, and most likely in the 1950s.

- **Weaver Ranch House:** The building had been associated with the Bar Z Ranch, supposedly dating as early as 1916. In fact, the building was built by Leo Weaver and a Hopi craftsman, Poli Hungavi from 1935 to 1937 as part of "Paradise Canyon Lodge," Weaver's dude ranch operation.
- **Picture Window Shack (previously known also as Jackson's Cabin):** This building was previously attributed to James Jackson, c. 1884. Photographs taken from mesa-tops or aerially show that there was no building at this location at least prior to about 1940. While a physical inspection reveals that the structure is quite old, it appears to have been moved from another location and then altered. While no documentation has been found to establish the origins of this building, there are many structures known to have been on the Lonely Dell Ranch site at one time or another that are no longer extant, and it could be any of these. Possibilities include the John Emett (later Carling Spencer) cabin; one of the cabins built after 1925 by Jerry Johnson as part of a polygamist commune; and a barn, granary, or other agricultural building.
- **Warren Johnson House Foundation:** While the generally accepted history of this site has been mostly correct, the outlines of the foundation visible today do not appear to match the historic footprint of the house. Much of the original foundation was used by Leo Weaver in building the Weaver Ranch House.
- **Lonely Dell Ranch Irrigation System:** While the establishment of an irrigation system dates to Lee's first construction, the many alterations over the years have probably obliterated all features from that period. The system was reconstructed by Gus Griffin in 1940 and probably best represents that period.
- **Lee's Ferry Fort:** The significance and impact of alterations made to the Fort by Charles Spencer in 1910 and also by prior users have been underestimated in the past. Even before Spencer made his additions, the windows had been modified for use as a residence. Due to restoration of the window openings to loop-holes by NPS in 1976, the building now represents a mixed interpretation of history: part Fort and part Spencer Mess Hall.
- **American Placer Co. Office (formerly known as the Post Office):** Contrary to previous belief, this building does not date to the Lee period. It was built by Charles Spencer in c. 1911 as the American Placer Co. Corporate Office. It served as a post office for about one year after Spencer's abandonment of the site.
- **Chicken Coop:** The origin of this structure has never been well defined. It is now believed to have been built by Charles Spencer c. 1911 or by Cockcroft of the US Geological Survey c. 1923.
- **Lee's Ferry Fort Root Cellar:** The origin of this structure has never been well defined. It is now believed to have been built by Charles Spencer c. 1911 or by Cockcroft of the US Geological Survey c. 1923.
- **Spencer Bunkhouse**: Previous histories correctly identify this as one of three bunkhouses built by Charles Spencer in 1911. However, the USGS substantially remodeled the building in 1950 as a laboratory and it no longer visually represents the Spencer period.

- **Upper Ferry Site**: While most previous histories were in error regarding the function and origin of many of the structures at the Upper Ferry Site, a recent archeological stabilization project correctly interpreted and stabilized the site. Remaining structures all were constructed c. 1910 or in the several years following that date. Structure #1 was known as the "Louse House" and was a temporary guest lodging. Structure #2 was the Frank Johnson Cabin (1912-13). Structure #3, the Small Corral, probably served as Frank Johnson's chicken house. Structure #4, the Large Corral, was probably used for that purpose. Structure #5, a Dugout Structure, may have been Charles Spencer's powder magazine. Wooden structures, including portions of Structure #1 and Structure #2 were burned down in the 1950s.

The other structures (the Cemetery, the Lonely Dell Ranch Root Cellar, and the USGS Residence) are all correctly interpreted and past management decisions were based on accurate information.

Major Issues Identified in the Task Directive

The purpose of this project is to prepare a Historic Structures Report (HSR) for 15 sites, structures, and buildings located within the Lee's Ferry/Lonely Dell Ranch National Register Historic District.

Recommendation for Treatment or Use

The treatment and use of the buildings at Lonely Dell Ranch will be to preserve them in their present evolution. The buildings will be used as interpretive features illustrating the evolution of the site and of the individual buildings since John D. Lee's first use of the site in 1872.

The treatment and use of the buildings at the Lee's Ferry site will be to restore and preserve each building as interpretive features illustrating the history and evolution of the site as well as the individual buildings.

The above-recommended treatment and use for the Lonely Dell Ranch is a departure from previous plans as reflected in the park's Final Development Concept Plan (DCP). The DCP calls for rehabilitation of the Lonely Dell Ranch buildings for interpretive use and as part of a working ranch, and stabilization of the Lee's Ferry structures for interpretive use. Treatment of archeological resources is not defined in the DCP. Previous plans for treatment and use of the Lonely Dell Ranch site were to restore each building individually to its original appearance. With the revised history in hand, it is readily apparent that to restore these buildings to their original appearance would create a false sense of historical development.

Table 1: PROJECT PARTICIPANTS

ALLIANCE ARCHITECTS, LLC

Robert G. Graham, AIA – Project Manager, Historical Architect
Douglas E. Kupel, Ph.D. – Historian
Marwan Mujahed – Technician
Roberta Graham - Technician

NATIONAL PARK SERVICE
INTERMOUNTAIN REGION

A. Sayre Hutchison, NCARB, AIA – IMSF-CNR (Denver), Architect
Sonya Armstrong – IMDE Contracting Officer
John Ritenour – Chief, Division of Resource Management, Glen Canyon National Recreation Area
Chris Goetze – Chief Archeologist, Glen Canyon National Recreation Area

ADMINISTRATIVE DATA

This section of the Historic Structure Report (HSR) identifies the historic features covered, their names, identifying numbers, and locations; the proposed treatment of the historic structures with associated source document; related studies; National Register information; and recommendations for archiving materials generated by this project.

Historic Structure Identification

The National Park Service has identified the buildings, sites, and structures within Lee's Ferry and Lonely Dell Ranch Historic District. Most of these resources are identified by park structure number and by the List of Classified Structures (LCS) number. Some individual cultural resources have escaped identification by either type or number, such as the component parts of the Upper Ferry site and the Ranch Cemetery. The particular buildings, sites, and structures evaluated as part of this HSR are listed in the following three tables. The tables also include a description of the National Register status of each building, site, and/or structure. Within the body of this report, we have referred to the resources by the park structure number shown in the first column (where available), and/or the Name of Structure given in the last column. Locations of each structure are shown in the map figures following the tables.

The research done during the preparation of this HSR has indicated that a number of historic structure names in the past have been applied in error. In the last column of each table, the first name listed represents what is believed to be the true historic use or association. Other names that have been used follow in parentheses. Structure names presently used in National Register Listings, if not being used for the preferred structure name, are further designated with the prefix "NR". In renaming buildings, we have followed National Register guidelines for building names wherever possible. The new names and the rationale behind them are as follows:

- Samantha Johnson Cabin (formerly Emma's Cabin): Name of first known occupant.
- Polygamist Era Cabin (formerly Blacksmith Shop): Identity of first occupant is not known. The old name apparently reflects a late use. The new name reflects the construction period and first use.
- Weaver Ranch House (formerly Bar Z Cattle Co. Bunkhouse/Weaver House): Reference to Bar Z Cattle Co. was inaccurate and has simply been deleted.
- Picture Window Shack (formerly Jackson's Cabin): Because the building cannot be definitively linked to any specific person or era, we have replaced the old name with the secondary descriptive name that appears in previous nominations.
- American Placer Corporation Office (formerly Post Office): Because the Post Office use was relatively late and of short duration, this building has been named for its initial use.
- Spencer Bunkhouse: We have dropped the prefix "Old" previously appearing on this name.
- USGS Residence (formerly 1955 USGS Building): We have dropped the inaccurate "1955" date and clarified the initial use.
- Lee's Ferry Fort Root Cellar and Lonely Dell Ranch Root Cellar (formerly both "Root Cellar": We have added site information to the names in order to eliminate confusion between these two buildings.

Table 2: Lee's Ferry (Lower Site), Structure Identification

Park Structure #	IDLCS #	National Register Status	Dates of Status	Name of Structure/ Other Names
HS-220	000488	Contributing Building	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Lee's Ferry Fort
HS-221	000489	Contributing Building	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	American Placer Corporation Office (NR - Post Office)
HS-222	003987	Contributing Building	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Spencer Bunkhouse
HS-223	050284	Noncontributing Building	Not Listed	USGS Residence (NR - 1955 USGS Building)
HS-224	003985	Contributing Building	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Chicken Coop
HS-225	003986	Contributing Structure	(No prior listing) Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Lee's Ferry Fort Root Cellar (NR – Root Cellar)

Table 3: Lee's Ferry, Upper Ferry Site, Structure Identification

Park Structure #	IDLCS #	National Register Status	Dates of Status	Name of Structure/ Other Names
N/A – Upper Ferry Site LFNCABIN	001458	Contributing Structure	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	North Cabin at Upper (Main) Ferry Site (Two Chimney Building – Johnson Cabin, 1912) (Eininger & Horn archeological structure #2)
N/A – Upper Ferry Site LFSCABIN	001459	Contributing Structure	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	South Cabin at Upper (Main) Ferry Site ("Louse House") (Eininger & Horn archeological structure #1)
N/A – Upper Ferry Site ecorral	No LCS #	Contributing Structure	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Large corral (Eininger & Horn archeological structure #4)
N/A – Upper Ferry Site wcorral	001457	Contributing Structure	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Dugout (Spencer Powder Magazine) (Eininger & Horn archeological structure #5)
N/A – Upper Ferry Site (un-named)	No LCS #	Contributing Structure	Lee's Ferry HD – 5/15/1976 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Small Corral (Eininger & Horn archeological structure #3)

Table 4: Lonely Dell Ranch Site, Structure Identification

Park Structure #	IDLCS #	National Register Status	Dates of Status	Name of Structure/ Other Names
HS-232	003988	Contributing Building	Lonely Dell Ranch HD – 5/19/1978 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Samantha Johnson Cabin (NR - Emma's Cabin)
HS-233	003989	Contributing Building	Lonely Dell Ranch HD – 5/19/1978 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Polygamist Era Cabin (NR - Blacksmith Shop)
HS-234	003990	Contributing Structure	Lonely Dell Ranch HD – 5/19/1978 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Lonely Dell Ranch Root Cellar (NR – Root Cellar)
HS-235	003991	Contributing Building	Lonely Dell Ranch HD – 5/19/1978 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Weaver Ranch House (NR - Bar Z Cattle Co. Bunkhouse / Weaver House)
HS-236	003993	Contributing Building	Lonely Dell Ranch HD – 5/19/1978 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Picture Window Shack (NR - Jackson's Cabin) (Picture Window Barn)
HS-237	No LCS #	Contributing Structure	(No prior listing) Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Warren Johnson House Foundation
C:2:42F9	001462	Contributing Structure	(No prior listing) Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Lonely Dell Ranch Irrigation System
None	No LCS #	Contributing Site	Lonely Dell Ranch HD – 5/19/1978 & Lee's Ferry / Lonely Dell Ranch HD – 11/4/1997	Ranch Cemetery

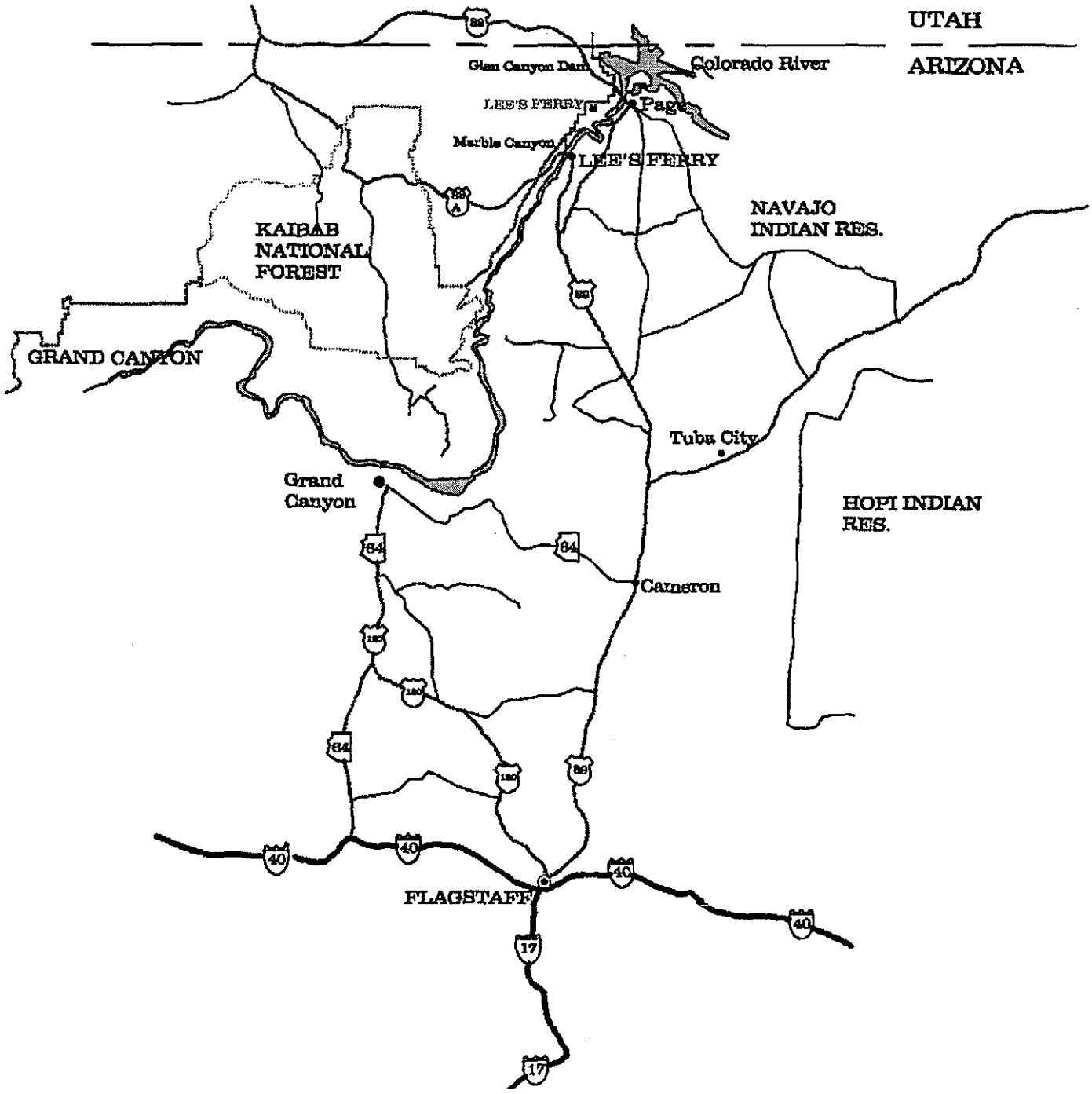


Figure 1: Lee's Ferry Location Map

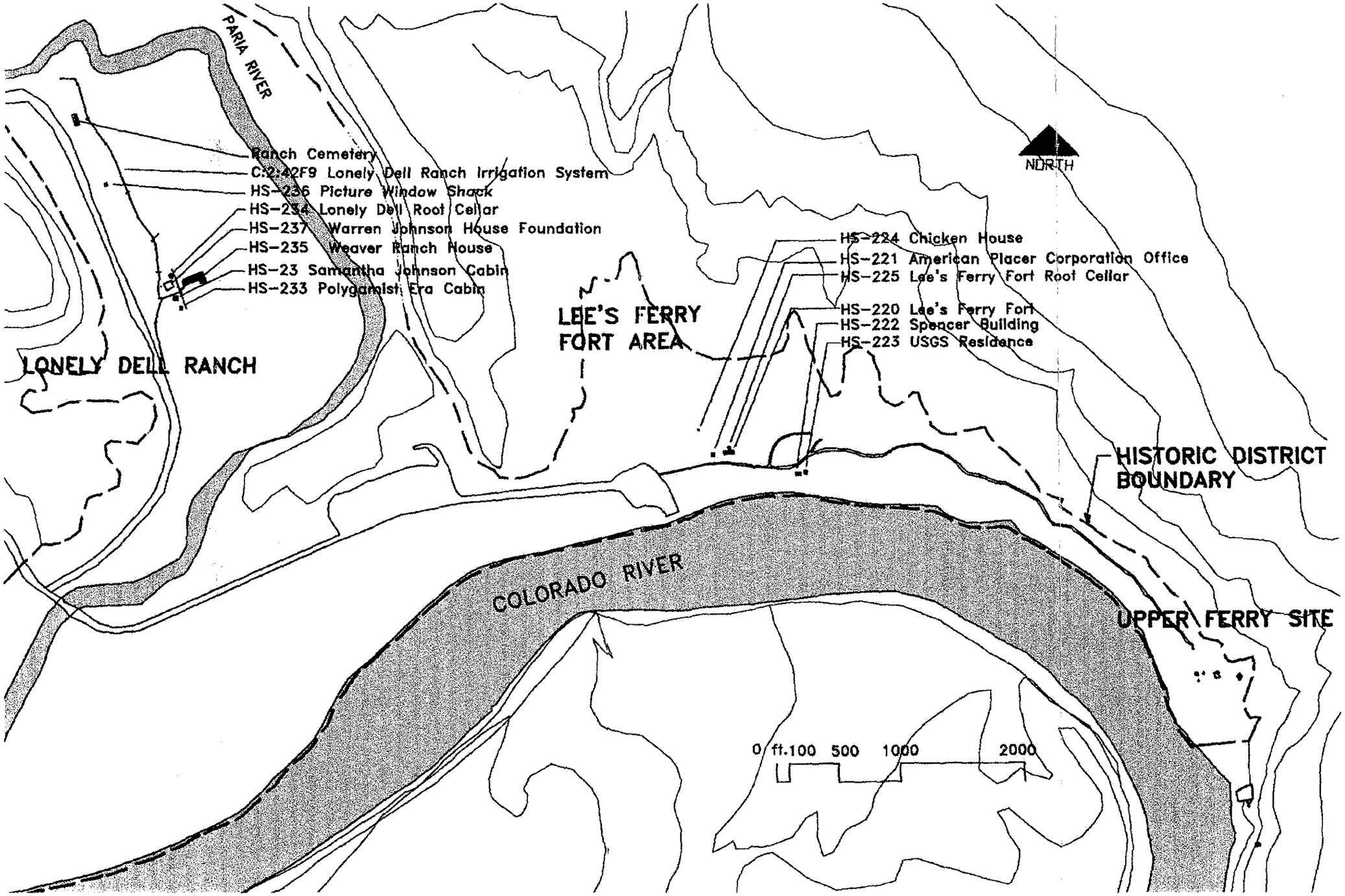


Figure 2: Lee's Ferry Site Map

Proposed Treatment for Structures

The Glen Canyon National Recreation Area, which includes Lee's Ferry and the Lonely Dell Ranch, was established in 1972. As noted in the Final Development Concept Plan (DCP), the congressional act establishing the Recreation Area identified the intent for a combination of recreational use and "preservation of the area." The DCP does not specify what the act directs to be preserved.

The National Park Service, Rocky Mountain Region, completed a Final Development Concept Plan for "Lees Ferry" (sic) in April 1986. This document outlines the ultimate development plan for Lee's Ferry and the Lonely Dell Ranch, as well as the immediately adjacent lands. Use and interpretation of the historic resources at Lee's Ferry are integral elements of the plan.

In general, the DCP calls for "rehabilitation" of the Lonely Dell Ranch buildings for interpretive use and as part of a working ranch, and "stabilization" of the Lee's Ferry structures for interpretive use. The major historic structures of each site are given specific mention for these recommended treatments. However, not all structures are similarly singled out. Minor structures such as the cemetery, the irrigation system, and the upper ferry site structures appear to have been treated simply as archeological resources, for which a blanket treatment is given to manage these resources for their scientific and interpretive value.

The Final Development Concept Plan's use of the terms "rehabilitation" and "stabilization" as outlined above do not appear to be used as defined in NPS-28. For the Lonely Dell Ranch site, the Concept Plan outlines a program of use that requires removal of non-historic materials, repair of historic materials, and replacement of missing features. NPS-28 defines "rehabilitation" to include major additions or alterations to structures in order to accommodate compatible contemporary uses, an approach which is not anticipated for Lonely Dell Ranch. The intent of the DCP appears to mean "Restoration" and/or "Preservation".

Likewise, "Stabilization" is an inaccurate description for the treatment of the Lee's Ferry structures. Work that would be classified as "Stabilization" in NPS-28 is synonymous with "preservation maintenance". "Stabilization" as a term is not used in connection with Treatment. Work intended to maintain the existing integrity and character of a historic structure or site is "Preservation."

Treatment of archeological resources is not defined in current management documents. The Concept Plan does not anticipate continued use, other than interpretation, for the Cemetery, Johnson House Foundation, and Upper Ferry Site structures. The treatment for these features is thus assumed to be "Preservation". The Irrigation System at Lonely Dell Ranch may be returned to use as a part of the interpretation as a working ranch. The treatment for this feature will be Rehabilitation, since a large portion of the system has been removed.

The Picture Window Shack (Jackson' Cabin) at Lonely Dell is not mentioned in the Concept Plan. Further, it falls somewhere between a part of the working ranch and a ruin. Current plans are for this feature to be preserved.

To summarize our interpretation of the intent of current planning documents regarding Ultimate Treatment, we offer the following listing.

LEE'S FERRY (Lower Site)		DCP/(HSR)
HS-220	Lee's Ferry Fort	Stabilization (Preservation)
HS-221	American Placer Co. Office	Stabilization (Preservation)
HS-222	Spencer Bunkhouse	Stabilization (Preservation)
HS-223	USGS Residence	Stabilization (Preservation)
HS-224	Chicken Coop	Stabilization (Preservation)
HS-225	Lee's Ferry Fort Root Cellar	Stabilization (Preservation)

LEE'S FERRY (Upper Site)		DCP/(HSR)
LFNCABIN	North Cabin	Stabilization (Preservation)
LFSCABIN	South Cabin (Louse House)	Stabilization (Preservation)
Ecorral	Large Corral	Stabilization (Preservation)
Wcorral	Dugout	Stabilization (Preservation)
	Small Corral	Stabilization (Preservation)

LONELY DELL RANCH		DCP/(HSR)
HS-232	Samantha Johnson Cabin	Rehabilitation (Restoration/Preservation)
HS-233	Polygamist Era Cabin	Rehabilitation (Restoration/Preservation)
HS-234	Lonely Dell Root Cellar	Rehabilitation (Restoration/Preservation)
HS-235	Weaver Ranch House	Rehabilitation (Restoration /Preservation)
HS-236	Picture Window Shack	Rehabilitation (Restoration/Preservation)
HS-237	Warren Johnson House Foundation	Rehabilitation (Restoration /Preservation)
C:2:42F9	Lonely Dell Ranch Irrigation System	Rehabilitation
	Ranch Cemetery	Preservation

Related Studies

There have been a number of previous studies regarding different aspects of Lee's Ferry and Lonely Dell Ranch. Of particular interest and relevance to this report are those that document past work done by NPS to stabilize, repair, or restore elements of buildings or structures, and those that offer enlightening view of the historical evolution of the site and of individual buildings.

A Report on the History of Lee's Ferry, Arizona. Crampton & Rusho, 1965.

Ruins Stabilization Report: The Old Post Office, Lee's Ferry, Glen Canyon National Recreation Area. National Park Service Southwest Archeological Center, 1967.

Environmental Assessment: Glen Canyon National Recreation Area, Proposed Boat Ramp, Parking Lot, and Raft Boarding Jetty at Lee's Ferry. Denver Service Center, National Park Service, January 1976.

Lees Ferry Archeological Survey. National Park Service, 1984.

Environmental Assessment: Development Concept Plan, Lees Ferry, Glen Canyon National Recreation Area. National Parks Service, Rocky Mountain Region, December 1985.

Final Development Concept Plan, Lees Ferry, Glen Canyon National Recreation Area. National Parks Service, Rocky Mountain Region, April 1986.

Ruins Stabilization Report, Technical Series No. 25: Historical Documentation and Structural Stabilization of the Main Ferry Site, Lee's Ferry National Historic District, Glen Canyon National Recreation Area, Northeastern Arizona. Nickens and Associates, Montrose, CO, 1987.

Submerged Cultural Resources Site Report: Charles H. Spencer Mining Operation and Paddle Wheel Steamboat, Glen Canyon National Recreation Area. Submerged Cultural Resources Unit, National Park Service, Toni Carrell, Editor, 1987.

Lonely Dell Ranch Cultural Landscape Inventory. Peggy Froeschauer-Nelson, 1996.

Lee's Ferry Cultural Landscape Inventory. Peggy Froeschauer-Nelson, 1996.

National Register of Historic Places Registration Form, Lee's Ferry and Lonely Dell Ranch. Historical Research Associates, Inc., 1997.

Cultural Resource Data

Resources within the Lee's Ferry and Lonely Dell Ranch area have been evaluated for and listed on the National Register of Historic Places in three separate actions by the Keeper of the National Register. These three actions include the listing of Lees Ferry on May 15, 1976; the listing of the Lonely Dell Ranch Historic District on May 19, 1978; and the listing of the Lee's Ferry / Lonely Dell Ranch Historic District on November 4, 1997. The period of significance and criteria of significance vary with each nomination and are described in detail below.

The following table describes individual buildings, sites, and structures within Lee's Ferry and Lonely Dell Ranch documented for this Historic Structures Report that were listed by each National Register action. The USGS Residence, evaluated as part of this Historic Structures Report, is not listed on the National Register of Historic Places. It is a non-contributing building and it is part of the district. The

National Park Service manages it as a "Resource". Note that the National Register documentation refers to the resources originally nominated as the "Lee's Ferry Historic District" as simply "Lees Ferry," without the possessive apostrophe and the words historic district.

In the following table, the property name is given as it is listed in the National Register. Many of the names used in this report differ from National Register listings. Refer to the "Historic Structure Identification" section of this report for more information.

Table 4: National Register Listings

Historic District (Date Listed)	HSR Property Listed	Structure / IDLCS Number
Lees Ferry (May 15, 1976)	Lee's Ferry Fort (#1) and Spencer Addition (#5)	HS-220 / 00488
	Lee's Ferry Post Office (#4)	HS-221 / 00489
	Spencer Building (bunkhouse) (#6)	HS-222 / 03987
	Chicken House (Chicken Coop) (#2)	HS-224 / 03985
	Root Cellar (#3)	HS-225 / 03986
	Main Ferry Site (#8), includes: • North Cabin (Two Chimney Building – Johnson Cabin, 1912 / Eininger & Horn archeological structure #2); South Cabin at ("Louse House" / Eininger & Horn archeological structure #1); • Large Corral (Eininger & Horn archeological structure #4); • Dugout (Spencer Powder Magazine / Eininger & Horn archeological structure #5); • Small Corral (Eininger & Horn archeological structure #3)	LFNCABIN / No LCS # LFSCABIN / No LCS # ecorral / No LCS # none / No LCS # wcorral / No LCS #
Lonely Dell Ranch Historic District (May 19, 1978)	Lee's Cabin (#7)	HS-232 / 03988
	Blacksmith Shop (#8)	HS-233 / 03989
	Dugout Cellar (#9)	HS-234 / 03990
	Weaver Ranch House (#10)	HS-235 / 03991
	Barn (#11)	HS-236 / 03993
	Ranch Cemetery	None / No LCS #
Lee's Ferry / Lonely Dell Ranch (November 11, 1997)	Lee's Ferry Fort	HS-220 / 00488
	Post Office	HS-221 / 00489
	Spencer Bunkhouse	HS-222 / 03987
	Chicken Coop	HS-224 / 03985
	Root Cellar	HS-225 / 03986
	Upper (Main) Ferry Site, includes: • North Cabin (Two Chimney Building – Johnson Cabin, 1912 / Eininger & Horn archeological structure #2); South Cabin at ("Louse House" / Eininger & Horn archeological structure #1); • Large Corral (Eininger & Horn archeological structure #4); • Dugout (Spencer Powder Magazine / Eininger & Horn archeological structure #5); • Small Corral (Eininger & Horn archeological structure #3)	LFNCABIN / No LCS # LFSCABIN / No LCS # ecorral / No LCS # none / No LCS # wcorral / No LCS #
	Emma's Cabin	HS-232 / 03988
	Blacksmith Shop	HS-233 / 03989
	Root Cellar (Dugout Cellar)	HS-234 / 03990
	Grand Canyon Bar Z Cattle Co. Bunkhouse / Weaver House	HS-235 / 03991
	Jackson's Cabin (aka Picture Window Shack or Barn)	HS-236 / 03993
	Warren Johnson House Foundation	HS-237 / None
	Lonely Dell Ranch Irrigation System	C:2:42F9 / 01462
	Ranch Cemetery	None? / No LCS #
NOT NR Listed	1955 USGS Building	HS-223 / 50284

1997 National Register

The 1997 National Register of Historic Places nomination form prepared by Historical Research Associates for the National Park Service noted that the Lee's Ferry / Lonely Dell Ranch Historic District was considered eligible for listing under National Register criteria A, B, and C for several areas of significance. These significance areas are described below. The significance areas for the 1997 nomination are also summarized in a chart that follows.

Criterion A - The district was listed for its association with Mormon settlement. The Mormon settlement association is related to the significance areas of transportation, agriculture, commerce, and ethnic heritage. In addition, the historic district was listed under criterion A for its association with the exploration and development of the Colorado Plateau. The Colorado Plateau association includes the significance areas of exploration/settlement and industry.

Criterion B - The historic district was listed for its association with Mormon "Zealot, Pioneer, Scapegoat" John Doyle Lee. Although the nomination does not mention a specific National Register significance area for John D. Lee, it appears that it is Lee who is being recognized for his efforts to explore and settle the region called "Deseret." This area was defined by the Church of Jesus Christ of Latter Day Saints (LDS) as including all of Utah, and parts of Idaho, Arizona, Nevada, and California. The nomination notes Lee's significant role in the Mountain Meadows Massacre of 1857 and states that Lee's Ferry is the most significant site associated with Lee's consequences for that action.

Criterion C - The historic district was listed in 1997 as an example of pioneer construction. The buildings, sites, and structures are considered representative examples that illustrate the significance area of architecture. This type of architecture shows the construction challenges faced by residents of this isolated area and the results of their efforts using the native stone and timber available in this remote area.

Table 5: Significance Areas for 1997 National Register Nomination

National Register Criterion	Association	Significance Areas
A	Mormon settlement	Transportation Agriculture Commerce Ethnic Heritage
A	Exploration and development of the Colorado Plateau	Exploration / Settlement Industry
B	John D. Lee, Mormon "Zealot, Pioneer, Scapegoat"	Exploration / Settlement
C	Pioneer construction	Architecture

The 1997 historic district has two periods of significance. The Lee's Ferry portion of the District is considered significant for the period from 1872 to 1928.

This period of time begins with the first commercial ferry trip across the Colorado River on January 19, 1872 in the Nellie Powell, Major John Wesley Powell's boat left at the site. It ends with the tragic loss of three lives on June 7, 1928, when the ferry capsized during its last run. Completion of Navajo Bridge in 1929 provided a safer means to cross the Colorado.

The Lonely Dell Ranch portion of the historic district is considered significant from 1871 to 1936. This time period begins with the arrival of John D. and Emma Lee on Christmas Day of 1871. It ends in 1936 when LDS church representatives transferred title of the ranch property to Leo and Hazel Weaver. This 1936 property transfer ends LDS church association with the property.

The 1997 National Register nomination actually combined two previous National Register listings at Lee's Ferry. These included the May 15, 1976 listing of Lees Ferry and the May 19, 1978 listing of the Lonely Dell Ranch Historic District. Although the Arizona Historic Sites Review Committee (HSRC) reviewed these two nominations at the same time, they were forwarded separately to the Keeper of the National Register by the Federal agency. During this process the name of the first nomination was changed from "Lee's Ferry Historic District" to "Lees Ferry."[1]

Because Federal regulations restrict changes and revisions to documentation of properties listed before December 13, 1980, National Register staff was precluded from de-listing the previous two National Register nominations and replacing those with the 1997 documentation. For this reason, all three National Register listings (1997, 1978, and 1976) are current and valid.[2]

Because the requirements and needs of the National Register program have changed over time, the earlier level of documentation does not always match today's administrative needs. The earlier nominations provided minimal historical context and physical description of the resources. In addition, the earlier nominations did not include a cultural landscape inventory. Descriptions of the two earlier National Register nominations follow.

1976 National Register

The nomination prepared by Temple A. Reynolds, then Superintendent of the Glen Canyon National Recreation Area, on October 14, 1974 for the "Lee's Ferry Historic District" noted that the property was significant in the areas of commerce, industry, religion/philosophy, transportation, and "other" (exploration). The Reynolds nomination listed the specific dates of significance for the property as starting in 1776 and continuing until 1930. The earlier date corresponds to the exploration of Franciscan Fathers Dominguez and Escalante who camped near the location of Lee's Ferry in 1776. The nomination fails to list a reason for using 1930 as the ending date for the period of significance. Although the nomination does not mention a specific National Register criterion, it appears that the identified resources were considered eligible under Criterion A, since architecture was not marked as a significance area. The properties contained in this nomination were forwarded to the Keeper of the National Register as "Lees Ferry" and were listed on the National Register on May 15, 1976.[3]

1978 National Register

Although Superintendent Reynolds completed a draft nomination of the "Lonely Dell Ranch Historic District" on October 14, 1974, the same date the Lees Ferry Historic District nomination was completed, consideration of this second area was delayed. The Lonely Dell nomination was revised by NPS Rocky Mountain Regional Historian James A. Muhn on April 27, 1977. Significance areas marked for the Lonely Dell Ranch Historic District nomination included agriculture, religion, and "other" (Southwest pioneer settlement). Muhn listed the period of significance

for the Lonely Dell Ranch Historic District as dating from 1871 to 1939. The earlier date corresponds to the arrival of John D. Lee and two of his wives at the Colorado River. Although not specifically mentioned, the 1939 date apparently was chosen because it corresponds to the end of the Leo and Hazel Weaver's ownership of the ranch. The nomination does not mention specific National Register criteria, however, the significance area marked indicates that the property was nominated under Criterion A. The properties contained in this nomination were forwarded to the Keeper of the National Register as the "Lonely Dell Ranch Historic District" and were listed on the National Register on May 19, 1978.[4]

State Inventory

Lee's Ferry has also been recognized by inclusion on the Arizona State Inventory of Historic Properties. This state program parallels the National Register program and is often used to identify and inventory properties in anticipation of eventual National Register evaluation. "S. Kennedy" of the Arizona State Parks Board inventoried the property at Lee's Ferry on July 23, 1974. A brief inventory form prepared by Kennedy mentions events from 1864 to 1929 and notes that "there are several structures from the old Mormon community still standing."[5]

HABS/HAER Documentation

Buildings and structures at Lee's Ferry attracted the attention of administrators for the Historic American Buildings Survey and Historic American Engineering Record (HABS/HAER) program. In October of 1965 architect Walter A. Gathman and draftsman Donald A. Krueger, working for the Park Service's Division of History Studies, surveyed one of the historic buildings at Lee's Ferry. This was the Fort [HS-220]. Gathman and Krueger prepared drawings of the building for the Historic American Buildings Survey.

NPS personnel returned to Lee's Ferry in 1969 to complete the job of HABS/HAER historic building documentation begun in 1965. During the intervening years, many of the Spencer Buildings had been demolished by the 1967 action, leaving representatives of the Division of Historic Architecture, part of the Office of Archeology and Historic Preservation, to document the remaining buildings. These included the American Placer Corporation Office [HS-221], the Chicken Coop [HS-224], the Lee's Ferry Fort Root Cellar [HS-225], and the Spencer Bunkhouse [HS-222]. Delineators who worked on the project in January of 1969 included Lee Daily, Pat McMurray, Ben Nanlomy, and Louis Castillo.[6]

Archival Recommendations

Project deliverables resulting from this Historic Structure Report have been prepared in such a way as to be archivally stable. Materials produced include the report document itself in both hard copy and stored on compact disk, together with photographic documentation. In addition to the 35mm-format photographs and prints, large-format (4" x 5" negative) perspective-corrected photographs of most building elevations were taken as an aid to preparing existing condition elevation drawings. These materials should be regarded as an important resource for future management of the Lee's Ferry and Lonely Dell Ranch structures, as they accurately and completely document the conditions of these structures at a moment in time in July, 1999 and provide a benchmark for future comparisons.

The primary location for curation of project materials will be the Glen Canyon National Recreation Area archives in Page, Arizona.

NOTES - Cultural Resource Data

[1] For a discussion of the original listing process, see the letter of April 20, 1976 from Arizona SHPO historian Marjorie Wilson to Charles Herrington of the National Register, and the reply of Keeper of the National Register William J. Murtagh to Arizona SHPO Dorothy Hall on May 19, 1976, both at Arizona State Historic Preservation Office (SHPO), Phoenix.

[2] For regulations governing changes and revisions to existing nominations, see sections 60.14 to 60.15 of 36 CFR 80. Additional information regarding the preparation of the new National Register nomination is found in a July 29, 1997 letter from NPS Intermountain Field Area Office Team Coordinator Bob Moon to Arizona State Historic Preservation Officer James W. Garrison, SHPO.

[3] Temple A. Reynolds, "Lee's Ferry Historic District National Register Nomination," 1974, Arizona SHPO.

[4] Temple A. Reynolds, "Lonely Dell Ranch Historic District National Register Nomination," 1974; James A. Muhn, "Lonely Dell Ranch Historic District National Register Nomination," 1977, both at Arizona SHPO.

[5] S. Kennedy, "Arizona State Inventory of Historic Places, Lee's Ferry Site," 1973, *on file at* Arizona SHPO.

[6] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County" HABS/HAER Survey Ariz. 58, Library of Congress, Washington, D.C. (October, 1965; Revised January, 1969).

PART 1: DEVELOPMENTAL HISTORY

Historical Background and Context

This section of the Historic Structure Report describes the general historical background and context of the Lee's Ferry and Lonely Dell Ranch area. Construction of individual buildings, structures, and sites are described within the larger context of the site as a whole. The goal is to place changes and modifications that took place to the site and to individual components within broad patterns of historical development.

The historical development of the Lee's Ferry area is divided into five distinct eras. During the first era, the location of Lee's Ferry and the Lonely Dell Ranch share a similar geologic history, pattern of Native American use, and European discovery. Following this introductory period, the two areas also share ownership by individuals closely associated with the Church of Jesus Christ of Latter Day Saints (the Mormons) and by the Church itself. A break in combined ownership occurs in 1909 when the Grand Canyon Cattle Company acquires the Lonely Dell Ranch and in 1910 when Coconino County acquires the ferry. Although the two sites remain closely related in function and location, after 1910 the history of the two areas diverges during the final years of ferry operation. The pattern of separate ownership continues into the recent era, when the Federal government and private owners explored new uses for the property. During the modern era, the history of Lee's Ferry has come full circle as ownership was once again unified, this time by the Federal government. Based primarily on ownership, the following is a list of chronological periods within these five broad eras:

1). INTRODUCTORY ERA

Geology
American Indian Use
European Discovery

2). MORMON CROSSING ERA

John D. and Emma B. Lee, 1871-1879
Warren M. Johnson, 1879-1896
James E. Emett, 1896-1909

3). FINAL FERRY ERA

Lonely Dell Ranch
Grand Canyon Cattle Company, 1909-1925
Jeremiah Johnson, 1925-1934

Lee's Ferry
Coconino County, 1910-1933
Charles H. Spencer, 1909-1912
USGS I, 1921-1933

4). RECENT ERA

Lonely Dell Ranch
Leo Weaver, 1934-1939
Essy Bowers, 1939-1940
C.A. Griffin, 1940-1964

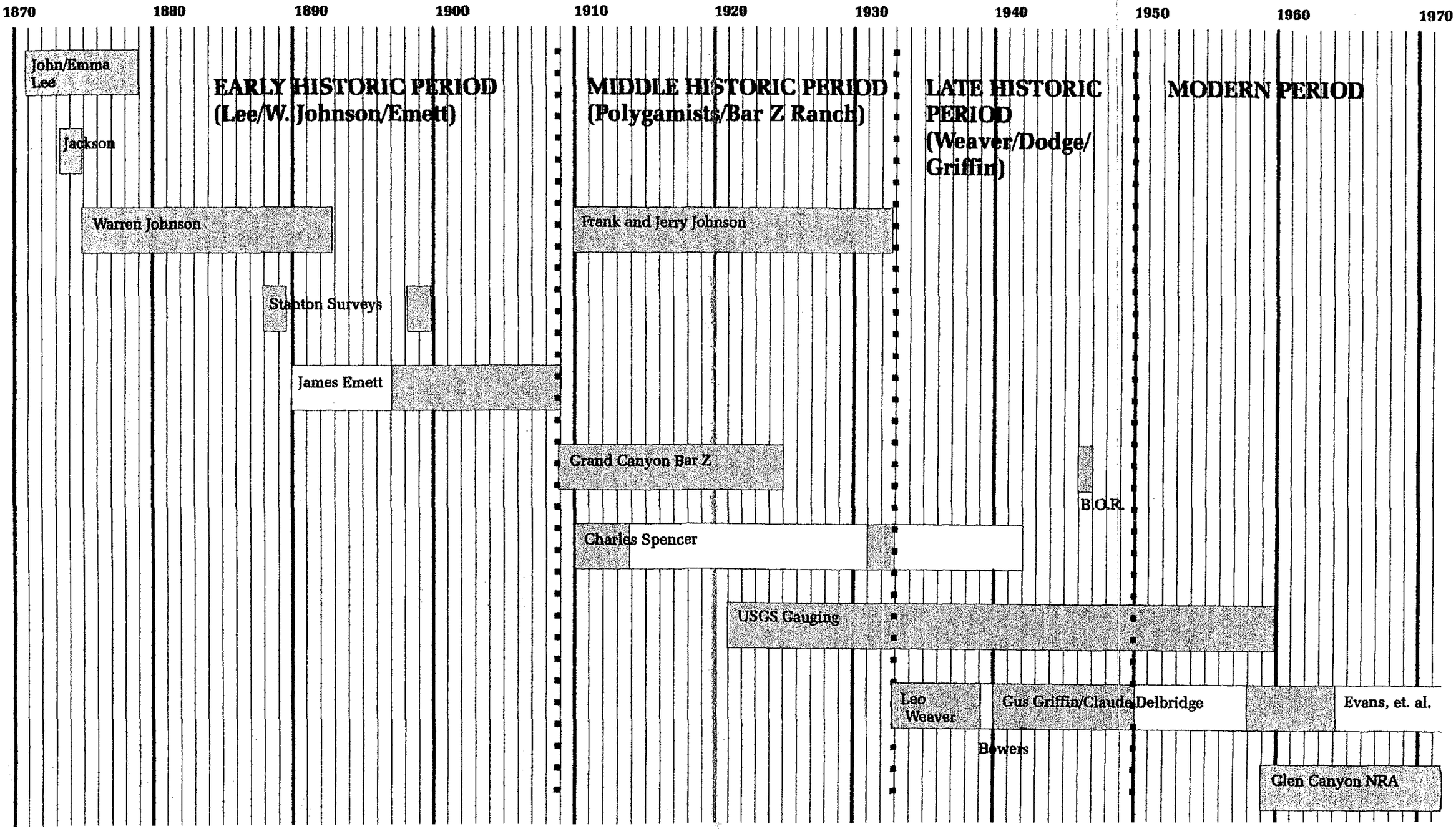
Lee's Ferry
USGS II, 1933-1945
USGS III, 1945-1962

5). MODERN ERA

Lonely Dell Ranch
Consortium, 1964-1974
NPS, 1974 – present

Lee's Ferry
NPS, 1962 – 1974
NPS, 1974 – present

LEE'S FERRY and LONELY DELL RANCH
Occupation Time Line



INTRODUCTORY ERA

Geology

The spectacular landscape dominating the canyon country of Northern Arizona is the product of eons of geologic activity: shifting of continents, global rising and falling of sea levels and creation of highlands now worn and redeposited. At times, deserts dominated the landscape; sometimes, freshwater or saltwater seas invaded, leaving rivers to erode the most recently deposited layers. Prevailing winds abetted the process. Periods of erosion account for missing rock strata, layers appearing elsewhere in sequence. Two geologic process are most responsible for the canyon of the Colorado Plateau: 1) an uplift of the ground itself, and 2) erosion of the rock by many years of constant water flow.

The last uplift of the Colorado Plateau began about 60 million years ago. Uplift made the land rise. The meandering streams of the Colorado River ran faster and faster. As the land rose, the constant erosion of the water cut the canyons that today dominate the Colorado River. This erosion sliced through many geologic layers, which are now visible. Navajo sandstone, the dominant formation, is made of sand dunes hardened by pressure from deposits above them. The deposits eventually wore away and exposed today's sandstone. Other layers contain sea deposited sediments; still others hold fossils of land or marine organisms that lived millions of years ago. Petrified wood and fossils of dinosaur bones, seashells, and small sea creatures are found in several rock strata in this area.

The deep canyons left by uplift of the Colorado Plateau and the downward force of erosion made access across the vast chasm of the Colorado River very difficult. Only at a few locations from its confluence with the Green River in Central Utah to the lower valley near Topock, California, does the Colorado open its banks to easy access. For hundreds of miles the canyon of the Colorado is an insurmountable barrier, isolating the lands of the Arizona strip north of the river and placing them with easier access to Utah than to the state capitol at Phoenix.

One of the few places along the canyon of the Colorado River that can be reached with relative ease is at its confluence with the Paria River. Here, between the depths of Glen Canyon on the upstream side and Marble Canyon on the downstream side, is a break in the canyon walls for a stretch of two miles that allows a difficult and dangerous crossing of the river. Now Anglicized, the word Paria derives from the Indian name Pahreah, meaning a stream of water having willows growing along its banks.[7]

American Indian Use

The first major human migration into North America from Asia may have occurred from 15,000 to 12,000 years ago. In relatively small groups, travelers crossed the Bering land bridge and dispersed quickly throughout North and South America where they lived in isolation for thousands of years. The earliest tribes in the Lee's Ferry area were hunters and gatherers. Called by archeologists the Desert Archaic people, their continuing subsistence needs left little opportunity for development of so called higher cultural traits or for population growth.

About 2,000 years ago a major cultural change transformed these nomads into relatively stationary farmers. Called Basketmakers, this culture developed woven storage containers for the agricultural goods that they began to produce. Their weaving materials also included cotton, which was introduced to them by groups living to the south. As they incorporated other ideas from the southern cultures, including above-ground houses, the Basketmakers evolved into the culture called Ancestral Puebloan (Anasazi).

Notable builders, the Ancestral Puebloan developed complex stone houses later called pueblos by Spanish explorers. Their granaries nestle in sandstone alcoves and their drawings adorn canyon walls. Pottery shards lie scattered about. Climate changes drove out the agricultural Ancestral Puebloan, probable ancestors of today's Hopi Indians, by about 1300.[8]

European Discovery

Early Spanish explorers traveled the northern frontier of New Spain (today's Mexico) looking for an overland route to California. Some of these explorers left us detailed accounts of their expeditions. In 1776, two Spanish priests began an expedition that provided the first written record of Lee's Ferry. Father Francisco Atanasio Dominguez and Father Silvestre Velez de Escalante set out from Santa Fe in July to pioneer an overland route from New Mexico to Monterey on the California coast. After 3 months, the party reached the vicinity of today's Cedar City in Utah, where they encountered an early snow. The inclement weather influenced a decision to turn back to Santa Fe before the full onset of winter. Following the advice of Paiute Indians, Dominguez and Escalante searched for a shallow ford of the Colorado.

Inadvertently turning too far south, the two priests reached what is today known as Lee's Ferry. On October 26, the party reached the Colorado River at the mouth of the Paria River. Here, the river proved too deep to ford on horseback, and too swift to swim across. The men christened their camp Sal si Puedes (get out while you can) and they did just that by moving upstream along the Paria River canyon until the reached the Colorado Plateau. The explorers climbed out of the river bottom and made camp near today's Wahweap Marina on Lake Powell. They spent four more days searching for a way across the river. Finally, on November 7, they chopped steps in the sandstone wall at Padre Creek and safely led their pack stock to the banks of the Colorado. Here the crossing was wide but shallow. The site known as the "Crossing of the Fathers" today lies beneath the waters of Padre Bay in Lake Powell.[9]

MORMON CROSSING ERA

The early development of Lee's Ferry and the Lonely Dell Ranch is closely associated with the Church of Jesus Christ of Latter Day Saints (the Mormons). The river crossing is named for Mormon pioneer John Doyle Lee. The crossing was a key location on the major transportation route for Mormon immigrants to Arizona and, after 1877, for travelers returning to Utah along the "Honeymoon Trail" to the LDS Temple at Saint George to solemnize their unions.

The establishment of the Church of Jesus Christ of Latter Day Saints, commonly called the Mormon Church, dates to an event in American history known as the "Second Great Awakening," a period of religious revival and evangelicalism in the late 1820s and early 1830s. This revival was national in scope, but had two centers: in the south and in western New York state. In 1830, Joseph Smith, Jr., received a revelation and a new type of Christian church began in Fayette, New York. Shortly after, a small group of his followers moved to Kirtland, Ohio. Members later moved to Jackson County, Missouri, and eventually settled in Nauvoo, Illinois.

Because of some unusual tenets of the religion, its practitioners were subject to opposition and distrust from more traditional, established religions. One of these early tenets of the LDS Church was polygamy, the practice of men taking more than one wife. In 1844, an angry mob killed Joseph Smith and his brother Hyrum. Following Smith's death, the church split into disorganized factions. One group led by Brigham Young took members, many of whom believed in the practice of polygamy, on a long trek to the Great Salt Lake in what would become the Territory and later the State of Utah. These members arrived at the present-day location of Salt Lake City on July 24, 1847. In the 1850s a second group of members following Joseph Smith III, who had rejected the practice of polygamy, formed the Reorganized Church of Jesus Christ of Latter Day Saints in Amboy, Illinois. The RLDS selected Independence, Missouri, as its headquarters in 1920.

John D. and Emma Lee, 1871-1879

John D. Lee was born in Kaskasia, Illinois on September 12 1812, and converted to Mormonism at the age of twenty-six. Lee joined Joseph Smith in western Missouri in 1838, then moved with other church members to Nauvoo, Illinois, after violence forced them west. Lee was a leader in the community and constructed a substantial house in Nauvoo. After further violence against them, including the murder of Joseph Smith, Lee and the rest of the Mormon faithful began on a westward trek. During the move Lee was a leader and able assistant to Brigham Young on the trip to Utah. After establishing a home in Salt Lake City, Lee headed his church's call to settle in the southern portion of Utah. Lee and his wives settled and raised houses at Parowan, Harmony, and Panguitch in southern Utah.[10]

While living near Harmony, Lee participated in a massacre of immigrants en route to the Pacific Coast. In the summer of 1857 a wagon train under the command of Captain Charles Fancher set up camp at Mountain Meadows, a popular resting spot on the trip west. At the time leaders of the LDS Church were in a bitter struggle with the Federal government over control of the Utah Territory and were anticipating armed intervention at any moment. The immigrants, many of them from Missouri, taunted the Mormon settlers with tales of how Smith's followers had been driven from the state. On September 11, 1857, local Mormon leaders and Ute Indians joined forces in an attack on the wagon train. Viewed ostensibly as a military campaign against a hostile force, the attack was a massacre from which only seventeen children escaped death. While in many ways a payback for tremendous mistreatment over the years, the Mountain Meadows Massacre of 1857 forever marked its antagonists with the taint of bloodshed and violence.[11]

The massacre opened southern Utah to additional Mormon settlement. Called Utah's "Dixie," because of its comparatively warm climate and southern location, this portion of the territory included the communities of Saint George, Harmony, Panguitch, and Cedar City. This process of colonization was an integral part of church expansion. In addition to southern Utah, church leaders began to look southward into Arizona. Of particular interest for Mormon prostelyzers were the sedentary and urban Hopi Indians.

In 1858, 1859, and 1860, Mormon leaders sent expeditions to the Hopi. Led by pioneer Jacob Hamblin, the missionary parties crossed at what would later become Lee's Ferry. These early efforts toward converting the Hopi to the Mormon religion proved disappointing. In time, Mormon leaders directed their attention to the neighboring Navajo. In contrast to the Hopi, who received the Mormon missionaries with indifference, the Navajo were openly hostile to those they considered intruders to their land. By 1860 the Navajo were in a state of open conflict with the US government, a situation which ended only with the Navajo's defeat at the hands of Kit Carson. While many Navajo lost their lives during the conflict, many more died during the infamous "long walk" to the Bosque Redondo reservation in New Mexico.

The relationship between the Mormons and the Navajo and the Hopi to the south after 1865 took on the form of an uneasy truce. Mormon missionaries remained anxious to convert additional souls, but they also coveted the few well-watered locations in Arizona for settlements. Resident American Indians looked to protect their lands.

As one of the few locations where the Colorado could be crossed, the Paria River confluence served an important military purpose to the Mormons. Control of the crossing prevented incursions by Native Americans north of the river while providing a base of operations for Mormon colonizing to the south. In October of 1869 Hamblin posted guards at the river crossing to control access at this strategic point. Hamblin christened the post "Fort Meeks" in honor of camp leader William Meeks. By 1870 Hamblin had cleared a patch of land along the Paria and planted wheat. As historian A. Gary Anderson has noted, "this crossing on the Colorado River was not unknown when John D. Lee arrived, nor was the idea of a ferry new."[12]

Although US President James Buchanan had issued a full pardon for participants in the massacre in 1858, for John D. Lee and other Mormon leaders associated with the event even the passage of time could not wash the stain clean. In 1870 LDS church officials excommunicated Lee and others for their participation in the event. While church officials were outwardly preparing to fix the entire blame for the affair on Lee, inwardly they still considered Lee as one of their own. Despite the excommunication, for Lee, a faithful member of the flock since 1838, relinquishment of his loyalty to the church would come slowly if at all.

For Lee and the Mormon leadership, the confluence of Paria Creek with the Colorado River served two important needs. For Lee, it provided a remote and isolated area free from the watchful eyes of Federal authorities. For the church, it was an important link in the Mormon colonization of Arizona.

Lee and two of his families set out for the remote location, arriving shortly before Christmas in 1871. Mormon historian Juanita Brooks credits Emma Lee with naming the locale "Lonely Dell" based on the pioneer wife's initial observations. Wives Emma and Rachel took up residence, one in a dugout and one in a rock structure. In May of 1872, Rachel moved to a location today known as "Jacob's Pools," leaving Emma Batchelder Lee as the woman in charge of Lee's Ferry. Emma was indeed the driving force behind the ferry and the Lonely Dell Ranch, as Lee himself was often absent.[13]

During December of 1871 Lee constructed crude shelters for his two wives and their children. Based on descriptions from Lee's diaries, Mormon historian Juanita Brooks described these early structures:

> By January 12 they had finished building two small rooms. One was a dugout with its back and two sides set into the hillside. It had a flagstone floor, and a willow and sod roof. Later, this would be a cellar, and a place where the children could sleep during the scorching midday hours. The larger room was of rock laid up with mud and lime mortar, and had a dirt floor and roof, but two small windows and a solid door.[14]

These first early structures were mere shelters from the elements. As time went on, Lee constructed a more presentable cabin of driftwood for Emma. He had the assistance of Tommy Smith who arrived in 1872 with lumber for a new ferryboat and considerable carpentry skills. Professor Harvey C. DeMotte, a member of John Wesley Powell's 1871-72 expedition down the Colorado, left us with a description of the building as it appeared in 1872:

> The house of logs and innocent of floor, whose foundations were not laid with square and compass, stood with gable pointing toward the south of east; along one side a shade, composed of leafy boughs, served well the purpose of verandah, from the outer edge of which suspended blankets hid the sun's rays from the evening meal.[15]

John Wesley Powell's trips down the Colorado have received well-justified attention by historians through the years. While Powell and his men achieved a significant accomplishment by being the first to travel downstream on the Colorado River through the Grand Canyon, the records of Powell's exploits also give us some insight into conditions at Lee's Ferry. Powell took two trips through the Colorado, one in 1869 and a second in 1871 and 1872. The second trip was actually undertaken in two parts, with a break at Lee's Ferry.[16]

Powell first visited Lee's Ferry on August 4, 1869. His crew spent the night there, noting the remains of Indian and Mormon campfires. Powell returned on September 30, 1870, during a reconnaissance trip in preparation for his second voyage. Accompanied by Jacob Hamblin, Powell and his men constructed a flat boat called the *Cañon Maid* to use as a ferryboat to cross the river. Recognizing that Lee's Ferry was an important access point on the river, Powell used it as a location to split his second trip down the Colorado. In 1871 the party left Green River, Wyoming in May and arrived at Lee's Ferry in October. The men cached one boat on each side of the river and disembarked. The Powell party returned to Lee's Ferry in the summer of 1872 to resume their trip.[17]

The main difference between the two trips was that John Doyle Lee had arrived at the mouth of the Paria to establish his residence. Frederick S. Dellenbaugh, a member of Powell's party, noted that in addition to constructing a cabin, "Lee had worked hard since his arrival early in the year and now had his farm in fairly good order with crops growing, well irrigated by the water he took out of the Paria. He called the place Lonely Dell, and it was not a misnomer."[18]

With a good knowledge of Lee's predicament, members of the Powell expedition were not above having some fun with Lee. Dellenbaugh describes one incident:

> Our camp was across the Paria down by the Colorado, and when Brother Lee came back the following Sunday he called to give us a lengthy dissertation on the faith of the Latter-Day Saints (Mormons), while Andy, always up to mischief, in his quiet way, delighted to get behind him and cock a rifle. At the sound of the ominous click Lee would wheel like a flash to see what was up. We had no intention of capturing him, of course, but it amused Andy to act in a way that kept Lee on the *qui vive*.[19]

In addition to constructing lodging, Lee quickly turned his attention to the establishment of a garden patch. One of his first tasks was to complete a dam on the Paria River to impound water for irrigation. Thus began a continual battle to maintain the dam in the face of frequent floods and to keep the crops watered during times of drought.[20]

In 1872, church authorities desired to open Arizona to colonization and assigned Lee to operate a ferry. A boat was completed by January of 1873. In April of 1873, church officials sent Joseph W. Young, James Jackson, and twenty-five others to improve roads to and from the ferry site. Jackson assisted Mrs. Lee during the frequent absences of John D. Lee from the site.

In 1874, conflict between Mormons and the Navajo led church officials to fund construction of a "Fort" on the banks of the Colorado River. In January of 1874, three Navajo men were killed by settlers in Grass Valley, Utah. Although the protagonists were not Mormons, the incident escalated tensions between Mormon settlers and the Navajo. In May of 1874 Jacob Hamblin suggested that the Mormons construct a Fort at Lee's Ferry to protect the river crossing.[21]

About fifteen Mormon men arrived in June of 1874 to begin construction of the Fort (Lee's Ferry Fort, HS-220). Led by Andrew Gibbon and Thales Haskell, the group constructed a building with thick walls and narrow windows to serve as a fortification and trading post. Differences between the Mormons and Navajo were soon resolved and the Fort served more as a trading post than anything else. Jacob Hamblin served as a trader himself during the winter of 1874-75. However, the Fort saw only sporadic use over the next few years. As the only building on the river at Lee's Ferry, it did see use as a location for nightly accommodations of passers by.[22]

The Fort was a common feature of Mormon settlements in the American West. In his study of Mormon colonization, Leland Hargrave Creer noted that of the nearly 100 settlements founded by the Mormons after Salt Lake City, practically all contained a fort for protection. The Fort at Lee's Ferry followed this Mormon tradition.[23]

The first person buried at the Ranch Cemetery (HS-none; no IDLCS number) was James Jackson. James Jackson had a close relationship with Jacob Hamblin who had directed the young man to assist Uncle Tommy Smith with the construction of a ferry boat. Jackson first arrived at Lee's Ferry on December 23, 1872. Jackson remained after the ferry boat was completed in early 1873, working at numerous odd jobs around the ranch for John D. Lee. Unfortunately, while Jackson was willing he had little experience as a pioneer farmer. After Lee had been called away to Moenave on a ruse, Jackson was left alone to manage the ranch with Emma Lee. The dam washed out, leaving plants to wither without water.[24]

Hamblin gave Jackson rights to ten acres of land north of the Lonely Dell ranch proper. Here, Jackson lived alone in a small cabin. Jackson contributed what he could to the small community, acting as farmer, ferryman, and school teacher to Lee's children. In February of 1874 Jackson traveled to a nearby Mormon settlement in Utah to propose marriage. He had selected an inauspicious time for such a trip. The weather was bitterly cold. Finding nothing but rejection from his intended bride, Jackson began a return trip to the ferry during a fierce winter storm. He lost the road in the deep snow and collapsed, too tired and disheartened to continue. Jackson spent two days in the snow by the side of the trail before a party led by John L. Blythe discovered him. By this time Jackson's feet had been heavily damaged by frostbite. Blythe offered to return Jackson to his father's home in St. George, but the young man preferred to be taken to Lee's Ferry where he hoped Emma Lee would be able to nurse him back to health.[25]

The Blythe party carried Jackson to his cabin on March 10, 1874. Jackson's spirits rose in his familiar surroundings, but his condition had worsened. He prepared himself for death by singing hymns and reciting scripture. After a final rendition of "Hard Times Come No More," Jackson drifted off to sleep. He passed away four hours later. Oliver Anderson of the Blythe party dug a grave and constructed a coffin using Jackson's door and table from his cabin. This, the first grave in the Lonely Dell Ranch Cemetery, was just ten feet off the trail to Pahreah settlement, close by Jackson's cabin.[26]

In 1874 Federal officials arrested John D. Lee during a visit to one of his homes in Panguitch. With the death of James Jackson in March of 1874, church officials needed a trusted individual in control of the ferry. Warren Johnson received his "call" from the church in October of 1875. He assisted Emma Lee in running the ferry and settled at Lonely Dell. John D. Lee was found guilty of murder for his role in the massacre and was executed by a firing squad at Mountain Meadows in 1877.[27]

Emma Batchelor Lee released her interests in the ferry to John Taylor of the LDS Church on May 16, 1879. The consideration listed in the deed was $3,000.00. For this the Church received a tract of land that included:

> All the Ferry Privileges, Rights of Landing on both sides of the River, Boats, Chains, Ropes, Lumber, Dugways on both sides of the River, Crossings, Fences, Houses, Cellars, Water rights and privileges, with all and singular the hereditaments and appurtenances whatsoever.[28]

Accounts differ on the compensation that Emma Lee received for her interest in the ferry. This apparently stems from what she was promised and what actually reached her. Nonetheless, Emma was relieved to be away from the "Lonely Dell." She married Franklin H. French in 1880 and soon settled in Winslow. There she spent the rest of her life as an exceptional healer, earning the nickname "Doctor Grandma Emma French." She died in Winslow on November 16, 1897.[29]

Warren M. Johnson, 1879-1896

The official designation of Warren M. Johnson as ferryman at the Colorado River crossing took place in 1879. However, the arrest of Lee made church officials come to the realization that a new individual had to be found to take charge of the ferry. Warren Johnson arrived in January of 1876 and took up residence in the Fort. He brought his family to join him in March of 1876. Johnson went on to spend twenty years as the ferryman in this remote location on the Colorado River.[30]

If John D. Lee is remembered as the founder of the ferry, Warren Johnson should receive credit for developing Lee's Ferry from a tiny foothold in the wilderness into Arizona's unofficial port of entry from Utah. Johnson's tenure at the ferry coincided with the great migration of Mormon settlement into Arizona. As the proprietor of the key river crossing on the migration route, Warren Johnson played a significant role in this crucial enterprise. Church officials even attempted to change the name of the ferry at the start of Johnson's tenure. Church Secretary L. John Nuttall noted in a letter to Johnson "that it was decided that you be appointed to take charge of the Colorado River (formerly known as Lee's Ferry) including the property bought of Emma B. Lees [sic.] on the Pahriah." For a short time the location was referred to as "Pahriah Ferry" but this nomenclature did not stand the test of time.[31]

The 1880 census gives a good picture of Lee's Ferry just one year after Johnson arrived. Enumerator Paul Riecker noted that Warren M. Johnson was the ferryman and dutifully listed his two wives, Permelia and Samantha, as "keeping house." Riecker recorded the Johnson children, sons Jeremiah and Frank Tilden, and daughters Marie, Elizabeth, Melinda, Polly, Nancy, and Lydia. This made for a total of eleven White inhabitants at Lee's Ferry. These inhabitants were outnumbered by sixteen American Indian residents at Lee's Ferry, including "Navajo Charley," his wife and two children; and several other Navajo, Paiute, and "Moqui" (Hopi) men whose occupations were listed as sheepherder or farm laborer. Only one American Indian, "Paiute Dan," was listed as a ferry worker.[32]

To provide some assistance in running the ferry, Johnson recruited his brother-in-law David Brinckerhoff to relocate to the area. This new addition created the need for additional housing. In the spring of 1881 Johnson and Brinckerhoff erected two new cabins near Emma's old house. At the time, Emma's Cabin was occupied by Permelia Johnson (Warren's first wife) and her children. Of the two new cabins, Johnson's second wife Samantha occupied the largest (Samantha Johnson Cabin, NPS HS-232) and the Brinckerhoff family occupied the smaller of the two. This included David Brinckerhoff, his wife Lydia Ann, and their children.[33]

The second improvement of the Johnson era consisted of the construction of a new access road to the ferry. The change also included a new location for the ferry. Called the lower crossing, the new location was used primarily in low water. The new dugway eliminated the lower portion of Lee's Backbone, making the final leg of the approach to the river a bit easier.[34]

David Brinckerhoff brought tremendous skill as a farmer to the operation at Lee's Ferry. In 1882 he suggested expanding the farming operation by leveling about eight acres on the other side of the Paria and running water to it through a flume. Brinckerhoff and Johnson managed to get the land cleared, but not in time for the planting season. The next year, 1883, they abandoned plans for the flume to construct a new dam and ditch system. This new plot brought about seven additional acres into cultivation.[35]

Johnson and Brinckerhoff continued to improve conditions at the ferry and ranch. In 1884-85 they began construction of a new access point to the high-water ferry location. Known as the Johnson cut-off, this new road bypassed the treacherous part of Lee's Backbone. The men also constructed a new ditch to the new field. The pace of improvements slowed after Brinckerhoff received an appointment as the new Bishop at Tuba City.[36]

One of the most significant improvements of the Johnson era came in 1886 when Warren Johnson began construction of a house that would be large enough to shelter both of his families. Construction began during the summer of 1886. The first order of business consisted of removing Emma Lee's old cabin, then occupied by Permelia Johnson and her children. Permelia moved into the cabin recently vacated by the Brinckerhoff and the old cabin came down. Most of the construction duties fell to Will McAllister, an apiarist who had come to the ferry to help Johnson harvest honey from his beehives. The Warren Johnson House (remaining foundation is HS-237) was essentially complete by the summer of 1887. Closely associated with the Warren Johnson House was its cellar (Lonely Dell Ranch Root Cellar, HS-225). Because of its size and design attributes, little historical documentation for the cellar could be located. Its location and materials support the premise that it was constructed at the same time as the main house.[37]

Other improvements during the Johnson era at Lee's Ferry and Lonely Dell Ranch included several small cabins for travelers, a milk shed, a sorghum mill, blacksmith shop, and barn. In addition to travelers, the shacks were often used by polygamous Mormons as the location for trysts beyond the prying eyes of secular authorities. There are no standing remains of any of these structures today and their exact locations have not been determined.[38]

The decade of the 1880s was an era of change for Arizona, as two transcontinental railroads were completed across the state and the extended period of warfare with American Indian groups came to an end. During the latter part of this decade, people in Arizona and elsewhere began to look at the Colorado River a bit differently. For years considered a terrible barrier and obstacle to overcome, adventurers and entrepreneurs began to consider the Colorado as a destination in itself; a location for possible exploitation.

Robert Brewster Stanton epitomized the big dreams of the early adventurers. In 1889 he passed through the Grand Canyon as head of a surveying party hoping to locate a possible route for a railroad through the great chasm. Stanton would later return to pursue mineral wealth in the Canyon, but this first trip is notable for leaving us with the earliest known photo of the Lee's Ferry Fort. Taken to commemorate the expedition's Christmas dinner of 1889, the photo today is valuable to show early window details on the old Fort building.[39]

Three years later another expedition left a photographic record of the Warren Johnson House. In 1892, William F. "Buffalo Bill" Cody traveled to the Grand Canyon as a guide to English investors convinced that the location would be a good one for construction of a hunting lodge for the entertainment of English and American sportsmen. Noted Nebraska photographer W.H. Broach accompanied the expedition and photographed the Warren Johnson House as it appeared in 1892.[40]

The photos taken by William H. Broach during the 1892 Cody expedition provide good visual evidence of the agricultural skill Warren Johnson developed during his tenure at Lonely Dell. His farm stood as an oasis of green in an otherwise dry and desolate area. In a water rights application dated on November 27, 1893, Johnson himself described his agricultural improvements:

> I have constructed and intend to maintain a dam on the said Pahreah [sic.] Creek about two miles from its mouth for the purpose of diverting the waters of said Creek to my farm for the purpose of irrigation, the water being conducted to my said farm by a ditch about one and one half miles in length.[41]

By 1895 Warren Johnson also began to consider other possible economic ventures for the Colorado, besides the location of a ferry. He explored mining ventures and other money-making propositions. Unfortunately, an accident in 1895 left him with a broken back. He sold his interest in the Lonely Dell Ranch and Lee's Ferry to Wilford Woodruff, trustee for the LDS Church. In turn, the Church leased the property James S. Emett on the same day, November 28, 1896. Warren Johnson left for Wyoming to start anew, but was unable to adjust to the fierce winter climate in his weakened condition. He died on March 10, 1902.[42]

In 1929, LDS Church President Heber J. Grant addressed the Arizona Legislature as it was discussing possible names for the bridge that crossed Marble Canyon below Lee's Ferry. While some had advanced the idea that the structure should be called the "Lee's Ferry Bridge" for historical continuity, Grant suggested that the bridge should honor Warren Marshall Johnson. Grant noted that Johnson had been the proprietor of the Ferry for forty per cent of its operation and Lee for only six percent. Now known as Navajo Bridge, the structure recognizes the achievements of the Native American tribe. While spared this honor, historian P.T. Reilly placed Johnson's contributions in perspective:

> It might be said that Jacob Hamblin explored this gateway for Mormon colonization, John D. Lee settled it, and Warren Johnson made the place bloom. The names of Hamblin and Lee have touched history beyond their life spans, while Johnson was an integral component in the pioneer transportation system which has ended. And yet Johnson's green pastures, his ready hospitality, and his great faith provided material succor and spiritual courage to the pioneer colonists who ventured into the inhospitable Arizona desert across the Colorado River.[43]

James S. Emett, 1896-1909

By the time James S. Emett took over operation of the ferry and located his family to the Lonely Dell Ranch, the winds of change had begun to blow steadily across the little hamlet on the Colorado. The great Mormon migration to Arizona was essentially complete by 1900 and after that time those using the ferry were from the surrounding area. Emett relocated the ferry upstream for the benefit of local traffic and installed a cable to improve safety and efficiency. Warren M. Johnson transferred his interest in the ferry and ranch to Church trustee Wilford Woodruff on November 28, 1896. The same day Woodruff in turn leased the property to James S. Emett.[44]

Jim Emett arrived at the ferry in March of 1897. He brought his second wife first, Electa Jane, then returned for his first wife Emma Jane. The Emett family was accompanied by Jerry Johnson, Warren Johnson's son, and John Kitchen. Jerry Johnson assisted Emett in operating the ferry while Kitchen, despondent and alcoholic, accomplished little.[45]

One of Emett's first priorities was the education of his children. In the fall of 1897 he remodeled Samantha Johnson's old cabin (NPS HS-232) into a schoolhouse. To do so, he incorporated heavy timbers from the abandoned boat *Nellie* to extend and strengthen the walls. He added a floor and a window in the south wall. The *Nellie* had been constructed by prospector John R. Nielson in 1889 and abandoned at the ferry. Its use in the school building was later confused with the *Nellie Powell*, Major John Wesley Powell's boat cached at the Ferry in 1872.[46]

Nielson thought that the fine silts and gravels of Marble Canyon contained gold that could be recovered through the use of a dredge. This idea captured the fancy of Robert Brewster Stanton, who returned to Lee's Ferry on a prospecting trip in 1897. Stanton prospected along the Colorado during the winter of 1897-1898. He eventually stored his two boats behind the old Fort and quit for the season in January. Stanton had laid claim to several mining locations along the river and returned in the fall of 1898. Government regulations required owners of mining claims to "improve" them through annual expenditures or risk the abandonment of the claim. In 1898 Stanton used the old Fort as his base of operations and constructed a road on the left bank of the Colorado and charged it off as "assessment work." According to historian P.T. Reilly, one of the items listed as part of the work was transforming the windows of the Fort from loopholes into standard windows. While the work served Stanton's main purpose of supporting his claims, he lost ownership of his improvement in 1900 when President McKinley enlarged the Navajo Reservation up to and including the land south to the Little Colorado and west to the Colorado mainstem.[47]

Beyond educating his children, a second priority for Emett was improving transportation across the Colorado. He traveled to Salt Lake to discuss with church officials his proposal of erecting a new cable ferry across the Colorado. The new ferry, located well upstream from the Fort, would replace the current two ferry site system, which required the operator to alternate between high water and low water locations. The two sites were replaced with one ferry crossing. The addition of a cable, a common feature of most ferries on Western rivers, would improve the safety and efficiency of the operation. As an added bonus, Emett planned to construct a new dugway to the cable ferry to eliminate the difficult approach over Lee's Backbone. Church officials gave their approval to the plan in February of 1898.[48]

Another motive for Emett to construct the new ferry was to convert the operation into a toll road. He approached the Coconino County Board of Supervisors on May 23, 1898, with a proposal to establish the Lee's Ferry Toll Road. Understandably, county officials were reluctant to give him permission to charge travelers a fee for using the road that approached the ferry. Construction of the new dugway on the left bank began in January of 1899 under the supervision of Al Mecham. While this was going on, another set of workers erected a wooden crib on the right bank to keep the cable above the elevation of the river. Emett placed the new road and cable ferry in operation on March 5, 1899.[49]

Census enumerator Asa W. Judd recorded a glimpse of the Emett family at Lee's Ferry during his visit on June 6, 1900. An LDS church member, Judd was circumspect in his description of familial relationships at the ranch. Judd identified only one wife for James S. Emett, Emma J. He enumerated Emett's second wife, Electa Jane, as his daughter by using her maiden name of Chamberlain. Electa's two daughters were enumerated as Emett's granddaughters. Eight other surviving unmarried Emett children were counted at Lee's Ferry. Son John and wife Sarah Emett were enumerated separately. Including the one unrelated family member, boarder Peter Granger, the total population of Lee's Ferry in June of 1900 consisted of sixteen individuals.[50]

One individual that was absent from the census was John Kitchen. He was a non-Mormon cattleman who had a fondness for alcohol. Although he amassed large land holdings in southern Utah, his drinking eventually alienated his wife and family. Wife Martha divorced Kitchen in 1897. Now without a home, John Kitchen joined the Emett family at the ferry. Jim Emett helped Kitchen by constructing a tent house for him.[51]

Now removed entirely from the civilizing influence of his family, Kitchen's drinking continued unabated. He remained in his tent house with whisky jug handy while the Emett girls fetched him his meals. In March of 1898 James S. Emett drafted a last will and testament for the old rancher. In June of 1898, Kitchen managed to pull himself together for one last piece of business. He traveled with Jim Emett to Kanab where he executed a lease on his last remaining ranch land to his wife to ensure that she would have a home for the rest of her life. When Kitchen returned to the ferry he retreated to his tent house. His ears became infected with blowflys. When Jim Emett discovered the seriousness of Kitchen's condition it was too late. Emett administered a dose of laudanum that brought a gentle death on July 13, 1898. Emett buried him immediately in the Ranch Cemetery.[52]

Like the other residents before him, Jim Emett battled the Paria to construct an irrigation system for his crops (Lonely Dell Ranch Irrigation System, IDLCS #001462). Floods continually took out dams and irrigation ditches. To combat the problem, Emett planned to move the irrigation ditch above the flood plain with a series of flumes. In 1905 he recruited Irving C. Pierce for the job. Pierce and his son completed most of the job that winter, blasting off material for the flume and digging some of the ditch. However, a disagreement between Pierce and Emett ensued and the ferry proprietor had to finish the job himself.[53]

Jim Emett's enterprising ways soon led him into other ventures away from the ferry. He expanded into the cattle business, coming into conflict with the Bar Z ranching corporation. The creation of the Navajo Reservation on the south side of the Colorado across from the Lonely Dell Ranch limited Emett's opportunities in that direction. He turned instead to the Grand Canyon, where he formed the Grand Canyon Transportation Company. There, Emett revisited his toll road plan by constructing the Bright Angel Trail.[54]

A telling event in 1909 changed Jim Emett's feeling for Lee's Ferry forever. Son John had taken cold during December of 1908 after trailing some horses. Expecting to be gone only a short while, he was caught in the field for several days without his bedroll. John's cold took a turn for the worse during January of 1909. It developed into pneumonia. That winter was particularly cold. John succumbed to the elements and pneumonia on January 27, 1909. The only man at the ranch was Navajo Indian Little Johnny, who refused to enter the house of the dead man. Digging a grave was impossible because of the frozen ground so the women built a coffin and placed John Emett in the cellar. Sources disagree on whether John Emett was ever disinterred from the cellar. According to Ed Wooley, the tombstone was placed at the head of an empty grave. The confusion even extended to the date inscribed on the tombstone. It reads 1910 instead of 1909.[55]

This event soured Jim Emett on life at the ferry. He brokered a sale of the Church's interest in the ferry to the Grand Canyon Cattle Company, successor in interest to the Bar Z outfit. Church trustee Joseph F. Smith released all claims to the ferry and sold the property to the cattle company on August 18, 1909. The following month, Emett sold his interest in the Lonely Dell Ranch to the Grand Canyon Cattle Company. Emett completed his transaction on September 11, 1909. These events ended church association with the property. The Mormon Crossing era had come to an end.[56]

FINAL FERRY ERA

The final era of ferry operations witnessed a separation of the site into two activity areas. The Grand Canyon Cattle Company took over ownership and control of the Lonely Dell Ranch and converted the Warren Johnson House into its headquarters. On June 30, 1910, the Cattle Company sold its interest in the ferry boat and landing to Coconino County and the government entity took over ownership and control of the cable ferry site. For the first time since Mormon missionaries had first occupied the site, the ferry and the ranch came under separate jurisdictions.[57]

Despite the separation of the site into two spheres of activity and ownership, the personnel remained much the same. The cowboys of the Grand Canyon Cattle Company had little interest in running the ferry or the ranch. Rather, its ownership of the ranch served to pre-empt other interests and consolidate the corporation's hold on the area. The company employed Jeremiah (Jerry) Johnson, son of Warren Johnson, to run the ranch operation. In a similar manner, Coconino County employed Jerry's brother Frank to run the ferry operation.

Lee's Ferry, Charles H. Spencer, 1909-1912

The next few years were ones of rapid change at the site. The Grand Canyon Cattle Company would own the ranch until 1925, and Coconino County owned the ferry location after 1910. But the greatest change originated from former teamster, bullwhacker, and expert yarn-spinner Charles H. Spencer. Spencer had convinced himself, and soon proved very adept at convincing others, that small amounts of very fine gold could be found in the depths of the geologic strata uncovered by centuries of the Colorado's relentless erosion. The only problem, for Spencer and others, was how to recover it. The Spencer mining operation endured for only a short time, until February of 1912, but it left a lasting mark on Lee's Ferry.[58]

Spencer arrived at Lee's Ferry in May of 1909. He listened carefully as Jerry Johnson related the exploits of Stanton's attempts at gold mining. Spencer developed more enthusiasm for his project and sent a member of his party to Flagstaff to record several mining claims. He lured additional financial backers in Chicago to join the operation, incorporated as the Black Sand Gold Recovery Company. By June, Spencer and his crew had established a camp on the left bank of the Colorado, near the location of the original ferry and across the river from the Fort.

After several unsuccessful attempts to recover gold from the sands along the left bank of the river in August and early September of 1910, Spencer decided to move his operations to the more developed and spacious right bank. On September 10 and 11, 1910, Spencer and his crew moved to the right bank, making over the old Fort as a mess hall and erecting two tents nearby to serve as the cook's commissary.[59]

After establishing his foothold on the right bank, Charlie Spencer re-grouped to obtain more capital from his Chicago backers. He returned at the first of the year in 1911 and embarked on a massive building program that would change the appearance of Lee's Ferry dramatically. He formed a new company, called the American Placer Corporation, to serve as a holding company for the operation.

Buildings erected by Spencer in 1911 included: an office building to the west of the Fort (American Placer Corporation Office, HS-221); an addition on the west end of the old Fort (HS-220); a new mess hall and cook's house; three bunkhouses (west, center, and east – east Spencer Bunkhouse is HS-222); a blacksmith shop; and a laboratory (assay office). Other Spencer contributions included smaller features such as root cellars, chicken coops, outhouses, and what we have interpreted to be a powder storage magazine. The presumed powder magazine, a large dugout excavated out of the right bank, was located up the Colorado River past all other improvements [IDLCS #01457]. The most unusual Spencer addition was the construction of a steamboat, christened the *Charles H. Spencer* that lowered its anchor in the Colorado.[60]

Beyond the addition to the Fort, river historian Otis "Dock" Marston attributes the window modification to Spencer. As originally constructed, the Fort had narrow, vertical slits for windows (loopholes). This form followed the defensive nature of the structure. During the Spencer construction program in 1911 these windows were widened and enlarged. Spencer also converted one and possible two other window openings to doors at this time.[61]

Despite the ability of Charles Spencer to convince others that there was gold in the deposits at Lee's Ferry, he was unable to actually locate any mineral wealth. His talents lay in the area of promotion, not production. The final blow came when the steamboat could not buck the forceful current of the Colorado. It had been constructed to transport coal for the boilers of the gold operation. Without a fuel source, not withstanding the lack of gold, the operation was doomed to failure.[62]

After the *Charles H. Spencer* failed, the workers began to drift away. When the investors cut off the money supply, even Spencer himself abandoned his project. Although Spencer would continue to return to Lee's Ferry many times over the next forty years, he never matched his construction efforts of 1910-1911.

As if to underscore the power of nature over man, a large flood in 1912 changed the physical geography of Lee's Ferry. Water in the Colorado River reached flood stage in March and continued to flow higher than normal throughout the spring and summer. The river reached its peak flows in June, after which it gradually declined. This increased flow deposited a bank of sediment at the mouth of the Paria River, thick and high enough that it blocked the mouth of the tributary stream. This caused the flow of the Paria to shift to the west, taking the path of least resistance behind the sand bank and moving the mouth of the Paria River nearly a mile downstream to a point where it could once again join the Colorado.[63]

Lonely Dell Ranch, Grand Canyon Cattle Company, 1909-1925

Lee's Ferry, Coconino County, 1910-1933

Although the Grand Canyon Cattle Company and Coconino County now owned the Lonely Dell Ranch and Lee's Ferry site, respectively, officials of these entities showed little interest in the day-to-day operation of the investments. The Grand Canyon Cattle Company recruited Jerry Johnson to manage the ranch and Coconino County recruited his brother Frank to operate the ferry. Jerry moved into his father's old house at the ranch [Warren Johnson House foundation, HS-237] while Frank constructed a log cabin at the cable ferry. Frank began construction of the cabin in 1913 [Frank Johnson Cabin, IDLCS #01458].[64]

Frank Johnson constructed the cabin to make it more convenient for him to work on the ferry. His brother, Price William Johnson, described its construction in an interview with P.T. Reilly on May 16, 1974:

> Well, he wanted a place so he wouldn't have to go back and forth. He had plenty of material there, driftwood, and that's what he built the cabin out of. At first he just did it for a pastime. He started it, but after he got it finished it was quite an elaborate affair; built of logs, and he had a fireplace in it. And he did a very good job building that cabin.[65]

The 1920 census, enumerated in February, listed only seven residents at Lee's Ferry. These included James M. Cook, his daughter Winnie Harris, and granddaughters Leta and Rowena. Other residents included Charles Lewis, Joseph Johnson, and Thomas Smith. Enumerator Asa W. Judd listed Cook's occupation as a trapper; Lewis as a laborer and ranch hand; Johnson as a farmer, and Smith as a trapper.[66]

One notable improvement at the Lonely Dell Ranch was the construction of a large barn for the use of the Grand Canyon Cattle Company. This structure, later demolished, was located west of the road that passed the ranch at the base of the hill. Jeremiah Johnson constructed the building under direction of the company. The barn was constructed sometime between 1909 and 1917, most likely in 1911. A second improvement was the relocation of "an old log house onto the land at some point during that period, but that it had been built at some other point in the country and was abandoned." This building may be the cabin later known as the Jackson Cabin and today known as the "Picture Window Shack" (HS-236) after its form.[67]

Because of its location near the Cemetery on the property once occupied by James Jackson, the Picture Window Shack (HS-236) has been referred to as the Jackson Cabin. While there is no doubt that the building is old, early photographs do not support this location as the original location for the building. The building was most likely moved to its present site.[68]

As the cattle company had little interest in operating Lonely Dell as a farm, the orchards and vineyards planted during the Johnson era and nurtured through the Emett era received less care and attention. Without proper irrigation and cultivation, the orchards and trees died off. The cattle company kept up cultivation of alfalfa at Lonely Dell, needed to supply forage for livestock crossing at the ferry.[69]

An event of some importance during this period that presaged the dawn of a new era was the establishment of power site withdrawals by the Federal government. The Federal government had been taking a close look at the Colorado River with a view toward preventing floods that had resulted in the creation of the Salton Sea in 1907 and as a means to develop water for irrigation and electrical production. The United States Geological Survey (USGS) dispatched engineer E.C. LaRue to investigate the river in 1914. His work was published in 1916 as "The Colorado River and Its Utilization," US Geological Survey Water Supply Paper No. 395.[70]

In preparation for dam construction on the Colorado, the Federal government withdrew portions of Section 13, Township 40 North, Range 7 East, on two separate occasions before 1920. By Presidential executive order, the Federal government withdrew "Power Site Reserve" No. 446 on September 5, 1914 and "Power Site Reserve" No. 605 on April 28, 1917. These declarations had little immediate impact on life at Lee's Ferry, although the withdrawals encompassed the ferry site.[71]

The ownership of the upper ferry site by Coconino County resulted in the gradual improvement of the area surrounding the right bank landing. Much of the improvements came as a result of heavy use of the ferry by the Grand Canyon Cattle Company in the years prior to 1923. In addition to the Frank Johnson Cabin constructed in 1913 [IDLCS #01458], several corrals were constructed to hold cattle and horses in preparation for the crossing. Other features at the cable ferry site included a second cabin, called the "Louse House" by historian Bud Rusho because of its reputation as a very rustic accommodation, that served as temporary lodging for travelers crossing the ferry. Other structures at the upper ferry site included out houses and a shade ramada.[72]

Lee's Ferry, USGS Era I (1921-1933)

The next scheme of big dreamers that concerned Lee's Ferry centered on a resource that appeared to be plentiful: water. Plans had been circulated for a dam on the Colorado to provide flood control, generate hydroelectric power, and impound water for use in California and Arizona since the great flood that created the Salton Sea in 1907. Engineers, politicians, and developers in California and Arizona vied to be the first to lay claim to the vast water resources of the Colorado.[73]

As it turned out, the Californians were better prepared and financed. They struck first, in 1921. The Southern California Edison Company entered into a cooperative agreement with the United States Geological Survey to conduct a survey of the Colorado River with a view toward determining potential dam sites. Like other travelers before and after, the Edison men selected Lee's Ferry as the base of their operations because of its easy access to the river and land transportation.[74]

In addition to surveying the river for possible dam sites, the Edison and USGS party erected a stream gaging station at Lee's Ferry. Placed in operation in 1921, the stream gauge represented the first firm Federal foothold at the ferry, an ironic addition to a location selected by John D. Lee to hide from US government authority. The Federal presence at Lee's Ferry had begun.[75]

The Edison Company leased land from the Navajo Nation on the left bank of the Colorado for their headquarters. In 1922, the Edison men erected a boathouse there that served as the base of their operations. This work coincided with meetings of the Colorado River Commission conducted by Secretary of Commerce Herbert Hoover. These discussions led to agreement on a compact that divided the waters of the Colorado between the upper and lower basin states. However, Arizona refused to ratify this Santa Fe Compact of 1922. The Compact had the effect of splitting the Colorado River drainage into two basins, the upper and lower. The location of the division between the basins was specified in Article V of the Compact as a hypothetical point one mile below the mouth of the Paria River.[76]

With the arrival of stream gaugers at the ferry, the old Spencer buildings began to see new use. Edison gauger Irving Cockcroft and his wife Margery moved into the old Fort on August 20 (HS-220). It is presumed that Cockroft constructed the root cellar behind the Fort [Lee's Ferry Fort Root Cellar, HS-225] and the Chicken Coop [HS-224] at this time as he tried to apply a veneer of domestication to the old mining camp.[77]

The Cockcrofts established a post office in the American Placer Corporation Office building (HS-221). The place opened for business on August 12, 1922, and Irving Cockcroft erected a sign stating that the building was the "Lee's Ferry Post Office." Since that time, the building (HS-221) has frequently been referred to as the "Post Office."[78]

Another change was the conversion of the east Spencer Bunkhouse (HS-222) into a school. This was done in 1921 under the impetus of Jerry Johnson, but it benefited the children of the river gaugers working for Southern California Edison as well as children of the Mormon residents of Lonely Dell Ranch. The building served a school for about four years. It was replaced when the Johnson clan resumed using the Samantha Johnson Cabin (HS-232) at Lonely Dell as a school house in 1925.[79]

The United States Geological Survey assumed complete control for the stream gaging operation at Lee's Ferry on November 1, 1923. Edison gauger Irving Cockroft turned over the equipment to USGS employee Jim Klohr. The new man brought his family and the small group soon settled into the old Fort, using the Spencer addition as a bedroom.[80]

Another result of the USGS activity on the Colorado was the designation of the spring at Lee's Ferry, located in the bluff behind the cable ferry, as a public water reserve. The experience of the Edison crew and the USGS men showed the importance of this water supply. By order of the Secretary of the Interior, numerous springs in Arizona, Colorado, Montana, Idaho, Nevada, Oregon, Utah, Wyoming, and New Mexico were designated as "public water reserves" in order to protect the water supply in isolated and arid locations for the public use. Public Water Reserve No. 107, issued on April 17, 1926, included:

> All land within a quarter of a mile of a spring on the north bank of Colorado River near the old site of Lees Ferry east of the mouth of Paria River, and located approximately in what probably will be, when surveyed, Sec. 13.[81]

Charlie Spencer resumed operations at Lee's Ferry early in 1931, sending several laborers to begin sluicing operations on the Chinle Formation. Spencer's men treated the buildings and grounds as if they were their own, resulting in conflict with USGS hydrologist Charlie McDonald. The two groups, USGS gaugers and Spencer miners, eventually agreed on exclusive use of separate buildings. While this solved the problem for the moment, it soured the USGS on any further dealings with Spencer. Officials in Washington, D.C. began to contemplate how they might prevent any further trespass by Spencer on the stream gaging operation. After Spencer's backers ran out of money in April of 1931, the brief mining boom came to an end.[82]

Jeremiah Johnson at Lonely Dell, 1925-1934

In 1923 the Grand Canyon Cattle Company went bankrupt and the process of liquidating its holdings began. This gave Jerry Johnson the opportunity to take control of his father's ranch. He persuaded the LDS church to advance him the down payment to purchase the ranch, and on May 25, 1925, the Grand Canyon Cattle Company sold their interest in the Lonely Dell Ranch to Jeremiah (Jerry) Johnson. This acquisition begins what has been termed the polygamous era at Lee's Ferry.[83]

Jerry Johnson still adhered to the polygamous beliefs of an earlier era. He used his ownership of the ranch as an opportunity to re-create his vision of a polygamous retreat. He recruited several like-minded individuals, including Cleve LeBaron and Carling Spencer (*no relation to Charlie Spencer*) and began to construct several small cabins reminiscent of the "trysting cabins" erected by his father in the nineteenth century. To facilitate his construction efforts, Jerry Johnson began to dismantle the east wing of his father's old house to provide lumber for the polygamous cabins.[84]

Jerry Johnson started another construction project in 1925. He converted the old Samantha Johnson Cabin (HS-232) into a school. The building had been used once before as a school, during the Emett years from 1897 to 1909. With the arrival of new polygamous families, each with several children, Johnson made the decision to move the school from the east Spencer Bunkhouse (HS-222) and into the old building on the ranch.[85]

Although an exact correlation has not been established, it appears that the building known in the past as the "Blacksmith Shop" (HS-233) was constructed at this time. Based on building descriptions provided by Jerry Johnson when he filed for his homestead application, only one building at Lonely Dell Ranch dated to the 19th century (Samantha Johnson Cabin, HS-232). Johnson noted in his application that he constructed a "hewed log house" at the ranch in 1925. This house is presumed to be the "blacksmith shop" and has now been designated the Polygamous Era Cabin (HS-233). Following the polygamous era, this building was used as a blacksmith shop.[86]

Ferrel G. Spencer, son of Lydia Ann Johnson Spencer (a daughter of Warren Johnson) and Isaac Carling Spencer, described conditions at the start of the polygamous era ca. 1925:

> There was a small log cabin [Samantha Johnson Cabin, HS-232; IDLCS #03988] just south of a two story frame house [Warren Johnson House, HS-237] with a large yard in between. The log cabin was used for school house & was rather crowded for the fifteen or twenty school children. We lived for awhile in the upstairs of the large house until father built a three room cabin for us to live in. There were large cottonwood trees surrounding the two houses, and a barn across the road to the west.[87]

Despite outward appearances, Jerry Johnson did not have the wherewithal to complete the purchase of the ranch. On August 19, 1926, he and his wife Pearly quit-claimed their interest in the ranch back to the LDS Church. Jerry could not make his payments to the Grand Canyon Cattle Company either. The corporation had gone into bankruptcy and receivership in 1923. On July 11, 1927, the corporation deeded its remaining interest in the Lonely Dell Ranch to Heber J. Grant, trustee for the LDS Church.[88]

In December of 1926, Jerry Johnson suffered a severe setback. A fire started in the kitchen of his father's old house while he was out doing chores. The women and children were unable to extinguish the blaze, resulting in a total loss of the house. No one was injured.[89]

From January to March in 1927, representatives of the Department of Interior's General Land Office surveyed Township 40 North, Range 7 East, including Section 13 containing the Lonely Dell Ranch. The surveyors noted four buildings at the Ranch at this time: Johnson's House, a log cabin, a barn, and a school house. The school house is the Samantha Johnson Cabin, HS-232. The other buildings mentioned have not been correlated to any existing buildings.[90]

While Jerry Johnson and others were looking back to create a polygamous retreat, others were looking forward to changes that would make Lee's Ferry obsolete. Politicians in Utah and Arizona were making plans to construct a bridge over the Colorado River about five miles downstream from Lee's Ferry. Later called the Navajo Bridge, it was completed in 1928.[91]

The construction of the bridge provided jobs for those living at the ferry. It also provided raw materials for the construction program of the polygamists. Elmer Johnson got the job of disposing of scrap lumber from the bridge construction job. He managed to bribe the construction foreman to throw some good lumber out with the scrap, thus getting a nice supply of raw material. The polygamous clan used the lumber to construct a new school house, a ten-room apartment, and four cabins. Some of the material for these buildings also came from the original Warren Johnson house.[92]

The final run of the ferry came on June 7, 1928. This was a fateful day for Dolph Johnson. He agreed to ferry Royce Deans and Lewis (Nez) Tsinnie across the river so the men could deliver a load of Navajo rugs to a dealer in Kanab. The ferry boat got caught up in the flow of the river as Dolph maneuvered around a silt bar. As the full force of the current struck the boat the cable came loose, taking the three men down the river. All were drowned. Following this accident, Coconino County officials declined to repair the cable ferry because the Navajo Bridge was nearing completion. The long run of the ferry had come to an end.[93]

The end of the ferry left two diverse communities existing at Lee's Ferry. At the Lonely Dell Ranch the polygamous clan of Jerry Johnson held forth, more than pleased to be further isolated from the world by the closing of the ferry. At the ferry site itself, the USGS maintained the old Spencer buildings as headquarters for its stream gaging operation.

Jerry Johnson seized on the opportunity to file a homestead claim on the Lonely Dell Ranch. He entered a claim with the US General Land Office on August 19, 1929. The government took some time to grant a land patent, but on May 23, 1933, granted the patent to Johnson.[94]

The documentation required to prove residency of the ranch for homestead purposes provided a clear picture of the improvements on the Lonely Dell Ranch ca. 1930. In his "Final Proof" filed for his homestead entry, Jerry Johnson listed the following improvements:

1880	first log cabin [Samantha Johnson Cabin, HS-232]
1925	frame building
1925	hewed log house, 2 rooms [Polygamous Era Cabin, HS-233]
1928	frame house, 2 room
1928	school house
	also: barn, corrals (2), yards, out buildings, two miles of fencing[95]

RECENT ERA

Leo Weaver at Lonely Dell, 1934-1940

In 1934, Leo Weaver arrived at Lonely Dell and saw the isolated location as a prime spot for his dude ranch operation. Weaver had first operated a "guest ranch" in the Wickenburg area, then later in Northern Arizona. He entered into a partnership agreement with S.W. Hyde to finance the purchase. On November 10, 1934, Weaver and Hyde acquired the Lonely Dell Ranch property. Hyde served primarily as a silent partner and conveyed his interest to Weaver in 1935. For the name of his operation, Weaver selected "Paradise Canyon Ranch." Weaver drove the polygamists away, believing that their activities would be a detriment to his proposed dude ranch. Most of the polygamists relocated to Short Creek, Arizona (later known as Colorado City), where they continued to practice their communal lifestyle.[96]

Along with son Billie, Leo and wife Hazel Weaver moved into the county school house in mid-November of 1934. Shortly afterward, Leo Weaver began a construction program at his Paradise Canyon Ranch. To expedite the process, the Weavers then moved into the old Samantha Johnson Cabin (HS-232) so that the old county school house could be used for guest quarters. Other Weaver changes included moving the location of the road and bridge across the Paria so that travelers no longer passed through the heart of the ranch.[97]

In 1936, construction of the Weaver Ranch House (HS-235) was complete. This consisted of a single-story, long, rectangular building constructed of river cobbles. With the help of Hopi craftsman Poli Hungavi, Weaver salvaged some of the foundation stones from the Warren Johnson House to use in his building. He apparently patterned the building after the main building at the Wigwam Resort in Litchfield Park in the Salt River Valley.[98]

In 1937, the old county school house was torn down so that the lumber could be used in Weaver's building program. Weaver used the lumber to construct an addition to the east end of the Weaver Ranch House (HS-235). This changed the shape of the building into a "T."[99]

Leo Weaver gradually dismantled many of the remaining polygamous cabins during his ownership of the property. He had two goals in mind: the first was to prevent any possible reoccupation of the cabins by their former tenants, and the second was to salvage material for his own building program. Weaver feared that if the rustic former inhabitants returned it would have a negative impact on the atmosphere of the dude ranch. Then again, Weaver's cash flow was limited. He had little extra cash for building materials.[100]

Partner Hyde soon realized the gravity of the situation. The ranch was simply too isolated and too primitive to attract many customers. He sold out to Weaver in September of 1935. In March of 1936 Weaver replaced Hyde with funds from Esther Bowers, one of the few steady customers the ranch had.[101]

Lee's Ferry, USGS Era II (1933-1945)

The United States Geological Survey consolidated its control over the old ferry site in 1933. On January 18, 1933, President Herbert Hoover issued an executive order setting aside lands near the existing gaging stations on the Colorado and Paria Rivers as an administrative site. President Hoover declared that Section 13 and lots 1, 2, 3, and 4 in Township 40 North, Range 7 East and an unsurveyed portion of what, when surveyed, would be Section 18 in Township 40 North, Range 8 East, "for occupation and use by representatives of the Geological Survey."[102]

The USGS soon undertook an improvement campaign on the property. It erected a fence to the east of the Fort, west of the westernmost Spencer Bunkhouse (demolished 1943) to demarcate its administrative zone. The Survey also considered demolishing several of the Spencer buildings at this time. These included what it designated as the old school house (Spencer Bunkhouse, HS-222), the chicken house (center bunkhouse, a.k.a. feed and storage room; demolished 1967), and the saddle barn (west bunkhouse, demolished 1943), and the Spencer addition to the Fort. Survey officials tried to recruit Leo Weaver for the project, but after an initial burst of enthusiasm he lost interest.[103]

The center of USGS residential activity shifted from the Fort to Spencer's old mess hall (demolished 1967). The USGS converted the mess hall into a residence for its stream gaugers. This building soon became known as the "stream gauger's residence."[104]

The depression decade led Frank Dodge to become more of a permanent resident at the ferry site. A fairly frequent visitor to the ferry since 1919, Dodge secured part-time work with the USGS as an assistant hydrologist. A second person was needed to make readings during periods of high water. Dodge developed Spencer's old laboratory (assay office) building (converted into water lab 1947; demolished 1967) into a makeshift residence. Over the years, this building became known as "Dodge's Cabin."[105]

As the battle over the location of a dam in the Colorado had been decided in favor of Black Canyon, the future location of Hoover Dam, the Edison Company let their lease lapse on the left bank boathouse parcel. Carling Spencer made an offer of $3.00 for the building. He put the corrugated metal roofing material and studs to good use for improvements to buildings in the small polygamous community.[106]

A reunion of Mormon pioneers held at Lee's Ferry in 1935 gave additional impetus for the USGS to clean up its buildings and grounds. The event took place over three days in October. This event marked a turning point of sorts for the site. A sense of the passage of time and the growth of historical perspective gave rise to a sense of history about the old place.[107]

However, recollections were not always accurate. In 1936 historian Frank Kelly visited the area with Robert B. Hildebrand who reminisced about his boyhood there and posed for photographs in front of several buildings. Other visitors, struck by the apparent age of the Samantha Johnson Cabin (HS-232), began to associate the old building with John D. Lee. Kelly gave these memories a stamp of approval when he described Lee's Ferry in a 1943 article:

> Although some of the old buildings have been destroyed, Lee's original one-room log cabin fortunately has been preserved. Behind it stands his old blacksmith shop, where horses were shod and emigrant wagons repaired, with giant leather bellows still in working order.[108]

As the years passed, and as additional visitors arrived at Lee's Ferry, the story of the Lee cabin and blacksmith shop took on all the elements of truth from constant retelling. With the departure of Jerry Johnson from the property in 1934, no one remained on site that had direct knowledge of the earlier period. Lee's Ferry had now entered the realm of history, but that history was not entirely accurate. As tales were told and retold, some of the stories were embellished.[109]

As part of the USGS operations in the thirties, Government Land Office surveyors returned to the Lee's Ferry area in 1937 to survey Township 40 North, Range 8 East. The GLO surveyors noted eight stone buildings and one mine shaft at the old Ferry site. The surveyors described the area in their notes as follows:

> In section 18 there is a strip of land on the north side of the river about one-fourth mile wide and one-half mile long, whereon there are a group of stone cabins, a part of the settlement known as Lee's Ferry. This strip of land is covered by proclamation to the jurisdiction of the U.S. Geological Survey, and a representative of this government bureau occupies one of the cabins. The remainder of the cabins were not occupied at the time of the survey ... There is an old mine shaft in section 18 near the group of stone buildings near the base of the canyon wall, but no operations are being carried on at the present time and there is no evidence of valuable mineral deposits.[110]

The land survey coincided with an improvement to the grounds by the USGS. The Survey built a water tank and pipeline to convey water from a well to the stream gauger's residence (demolished 1967). The engineers added a septic tank, to compliment a six-foot by nine-foot bathroom they attached to the building. The arrival of indoor plumbing at Lee's Ferry was not the most dramatic event which ever took place at the site, but it was a significant improvement.[111]

In 1942 the USGS undertook another clean-up of the property. Many of the remaining metal objects from the Spencer era were collected as part of a war-effort scrap drive. The only items that remained after the operation were those that were too large to move, such as the boilers Spencer had freighted to the site in 1910. In 1943, the west Spencer Bunkhouse, closest to the ravine and in the worst shape, was razed for stone used to refurbish other buildings.[112]

Essy Bowers at Lonely Dell, 1939-1940

Leo Weaver could not make a paying venture out of his dream for the Paradise Canyon Ranch. In October of 1939 investor Esther "Essy" Bowers took over the property and moved into the Weaver Ranch House (HS-237). As one of her first changes, Essy Bowers ordered the removal of the old fruit trees surrounding the buildings because she likened the hooting of the owls that roosted in the trees to the cries of the ghost of John D. Lee.[113]

Bowers remained at the property a short time. She could not tolerate the isolation of the ranch for long. With the removal of the old trees, the area began to take on a desolate and abandoned appearance. Ranching and farming activities were few.[114]

Gus Griffin at Lonely Dell, 1940-1964

Esther Bowers proved to have an even shorter tenure at the property than the Weavers. On October 25, 1940, Esther Bowers reached an agreement with C.A. "Gus" Griffen and his wife Ramona to purchase the property. Griffen, an employee of the Bureau of Indian Affairs, planned to settle his son on the property as a caretaker. Griffen hoped to use the property as a farm until he could retire. The Griffins originally occupied the property under a lease / purchase arrangement with Bowers. Although a deed was executed on October 25, 1940, it was not recorded until June 25, 1957, when the Weavers paid their final debt to Bowers.[115]

One of the most important changes Gus and son Warren accomplished was placing an in-stream pump in the Paria River. The pump delivered surface water directly out of the river, obviating the need for a dam. The pump was powered by gasoline. This change resulted in several improvements to the Lonely Dell Ranch Irrigation System (IDLCS #001462). The Griffins placed flagstone in the irrigation ditches to improve the water flow and to reduce loss from seepage.

Because of increased population in the area associated with the construction of Glen Canyon Dam, Gus Griffin contracted with Claude Dellbridge of Winslow to keep an eye on the place. Dellbridge moved into an old cabin at the south end of the ranch, near the location of today's entrance gate. When this cabin burned, Dellbridge moved into the Samantha Johnson Cabin. Dellbridge ran horses on the property but did not farm.[116]

Gus Griffin retired in 1958. He and his wife Ramona moved into the Weaver Ranch House (HS-235). Dellbridge continued to live in the Samantha Johnson Cabin (HS-232). Once relocated to the ranch, the Griffins had more time to improve the property. Gus worked on fences, irrigation ditches (IDLCS #001462), and the root cellar (HS-234). Another person who relocated to the property during the late fifties was Willard Dale, who lived in an old building called the "Outlaw Shack" by local residents.[117]

Despite the improvements made at Lee's Ferry, conditions at the Lonely Dell Ranch as recently as 1960 were very rustic. The Griffins had no electricity, no modern appliances, and no telephone. The nearest utilities were at the Marble Canyon Lodge seven miles away. In a 1960 interview with journalist Frank Jenson, Ramona Griffin stated: "if and when we get electricity the first thing we'll install is a desert cooler."[118]

Lee's Ferry, USGS Era III (1946-1962)

The post-war period saw a renewed level of activity at the USGS compound. In 1946 a survey crew from the Bureau of Reclamation arrived to investigate possible dam sites and rights-of-way associated with the proposed Central Arizona Project. In 1947 the USGS turned Frank Dodge's old residence – Spencer's assay office – into a new water laboratory. That same year the Survey reconstructed the Spencer Building (HS-222) into a new hydrographer's residence, measuring 18 by 30 feet. The Survey followed this by constructing a new building for guest housing (USGS Residence, HS-223) in May of 1950. Many of the stones for the new and reconstructed buildings were salvaged from old Spencer buildings, contributing further to the deterioration of the mining legacy at the ferry. Following the completion of the new USGS Residence, the Spencer Building (HS-222) was converted to use as a sediment lab.[119]

The biggest change to Lee's Ferry, and indeed for the entire Colorado River, was the start of construction of Glen Canyon Dam in 1956. The long-deferred dream of USGS Hydrographer E.C. LaRue was about to become reality under the auspices of the Bureau of Reclamation. Construction of the dam, completed in 1963, would result in the creation of Lake Powell, a water recreation wonderland. Glen Canyon Dam also tamed the Colorado through the Grand Canyon, allowing for the development of a white water rafting industry headquartered at Lee's Ferry. The cold water released from the bottom of the dam turned out to be perfect for trout, resulting in the development of a stretch of world-class trout fishing river at Lee's Ferry.[120]

In 1959 USGS personnel apparently burned at least one of the two cabins at the cable ferry site, and possibly both. The confirmed burned cabin was the Frank Johnson Cabin [IDLCS #01458]. The "Louse House" [IDLCS #01459] had already lost its wooden upper walls and roof by 1959. According to Crampton and Rusho in their 1965 report, "The cabins were burned by the U.S. Geological Survey for the alleged reason that the agency had neither the men nor the funds to police the buildings against an increasing number of careless tourists." C. Gregory Crampton photographed both structures on September 20, 1959, and reported that the Frank Johnson "Cabin had been burned and was still smoldering when visited."[121]

The Glen Canyon Dam construction project resulted in a number of scientific studies of the history and archeology of the Glen Canyon region. In June of 1960 C. Gregory Crampton of the University of Utah published his study of historical sites in Glen Canyon from the mouth of the San Juan River to Lee's Ferry. These studies represented some of the first professional historical work at Lee's Ferry. Unfortunately, due to the pressure of completing the studies in a short amount of time, errors crept into the text of these early reports that have confused the history of Lee's Ferry to this day.[122]

MODERN ERA

The Consortium at Lonely Dell, 1964-1974

In 1964 a group of investors decided to purchase the Lonely Dell Ranch property. Known casually as "the consortium," the group shared a similar vision with Leo Weaver of turning the place into a destination resort for vacationers. Heading the group was Phoenix architect Denver "Dee" Evans and his wife Jean. Evans, son of noted architect Robert F. Evans who had developed the Jokake Inn and the Paradise Inn in the Phoenix area, hoped to duplicate his father's success with the construction of a resort at Lee's Ferry. Included in the investment group was E. Reesman Fryer, descendant of Mormon immigrants who had crossed at the Ferry in the 19th century. Fryer and his wife Ione had a different vision for the Lonely Dell Ranch, one of preservation of its rich heritage.[123]

Five other individuals or married couples formed the consortium: Allen Luhrs and Alma Luhrs, John and Alta Luhrs (both couples doing business as Luhrs & Luhrs, a partnership), Robert L. and Charlotte Brown, Joseph Louis Refsnes, and Jack and Edythe Whiteman. All were wealthy Phoenix residents. John and Alta Luhrs later sold their share to the partnership, which then created six undivided interests.

According to historian H. Lee Scamehorn, the group acquired the property "to produce unadulterated seed. The site was sufficiently isolated that plants grown there would not be contaminated by vegetation from other agricultural lands." While this explanation seems plausible, it is more likely – given the interest of Evans and Fryer in history – that the property was acquired primarily for its historic attractions. In 1987 Fryer described his labor of love: "I replanted orchards and rebuilt ditches... I think I worked every bit as hard as John D. Lee and Warren Johnson ever did."[124]

The consortium made a large change in the landscape of the property. On June 9, 1965, the new owners began construction of two large holding ponds into which Paria River water could be diverted and impounded. These irrigation facilities served a large orchard of fruit trees that the owners planted south of ranch buildings.[125]

While the Griffins had modernized the property by installing an in-stream pump in the Paria, other changes made by the elderly couple were few. The Griffins simply did not have the means or the energy to keep up with the property. While this had the beneficial effect of preserving the past, it caused the new owners some concern. According to historian Scamehorn:

> Lee's Ranch showed obvious signs in 1964 of advanced deterioration caused by prolonged neglect... The condition of the property demanded a heavy expenditure for what the partners called "salvage" operations... The ranch buildings also needed extensive repairs. The stone house [Weaver Ranch House] was described by the partners as "primitive." It had to be rebuilt, expanded, and modernized to make it habitable. The so-called Lee cabin and other buildings required refurbishing. Hand-split shingles were put on the cabins, and in other ways they were restored to the appearance they might have had in the 1880s.[126]

The ambitious "salvage" program of the partners was cooled a bit in 1967 when the Park Service expressed an interest in acquiring the property. The two sides, Park Service and partners, began extended discussion about acquiring the property. The main sticking point in the discussions was price. Events reached a climax in 1971 when the Park Service filed suit to condemn the property. This lawsuit was dismissed on a technicality in 1973, opening the way for renewed negotiations.[127]

National Park Service at the Ferry site, 1962-1974

In 1962 the National Park Service took over administrative control of the Lee's Ferry property from the USGS. Stream gaging work continued. The NPS presence began with periodic ranger patrols to the site approximately once per week. Permanent duty began on May 19, 1963, with the appointment of Ed Mazzer as the Sub-District ranger. Improvements which accompanied permanent status were the installation of two trailers, one of which served as the Ranger's residence and the second as the Ranger's Office. That same year the Park Service constructed a new bridge across the Paria River, ensuring better access to the Lee's Ferry site.

The acquisition of the old ferry site by the Park Service led to increased development for recreational use. It also led to additional historical investigations and the first steps toward preservation of the historical buildings at the site. On October 6, 1964, NPS Ranger Phil Martin and historian P.T. Reilly conducted a survey of the stone buildings at Lee's Ferry.[128]

The Park Service then issued a contract to historians C. Gregory Crampton and W.L. Rusho to examine the historic buildings at Lee's Ferry. The two men undertook a field visit to the site on December 10 and 11, 1964. The two scholars completed the report in January of 1965, noting:

> It should be stressed that this paper has been put together quickly to meet an early deadline and it is therefore not complete in factual detail nor is it a work of thorough-going scholarship which would have required a longer time to produce. Indeed, the history of Lee's Ferry is amply significant to justify a complete and scholarly study.[129]

In October of 1965 the Park Service sponsored additional research at Lee's Ferry. Architect Walter A. Gathman and draftsman Donald A. Krueger, working for the Park Service's Division of History Studies, surveyed one of the historic buildings at Lee's Ferry. This was the Fort [HS-220]. On the basis of the Crampton and Rusho report, Park Service officials felt that the Fort was the most significant building in the old Ferry area. Gathman and Krueger prepared drawings of the building for the Historic American Buildings Survey.[130]

In March of 1966 the Park Service took action on the studies. After NPS regional historian Bill Brown examined the Fort in person, the Park Service undertook a stabilization treatment. Under the direction of HABS architect Charles Pope, workers sprayed the interior wooden features of the Fort with an epoxy preservative.[131]

Differences between the Park Service and the USGS over the future of the property led to an unfortunate incident in 1967. On February 7 and 8, 1967, the USGS demolished all of the remaining Spencer buildings at the Ferry site. Both the Park Service and the USGS failed to provide an adequate explanation for the destruction. As best as can be surmised, the Park Service and the USGS felt that the Spencer buildings lacked historical significance. However, William E. Brown, NPS Regional Historian for the Southwest Region based in Santa Fe, admitted that:

> Review of the record on the Spencer Buildings indicates that it would be less than candid to avoid a conclusion that a mistake may have been made. If so – let it be noted – it was one of omission, not of commission.[132]

In the fall of 1967 the Park Service returned to address the remaining historic buildings at Lee's Ferry in a more positive manner. The condition of the north wall of the American Placer Corporation Office (HS-221] had deteriorated to such a point that immediate stabilization work was needed. Roland Richert of the NPS Ruins Stabilization Unit examined the building on August 30, 1967. Richert returned to Lee's Ferry and between September 18 and 22 worked with skilled mason Willie Yazzie.[133]

In what Richert called a "small job," he and Yazzie lifted up the roof of the building to relieve the pressure on the north wall. The men then reconstructed the wall with a steel support member hidden from view inside. The project entailed resetting thirty-five cubic feet of wall, using three and one-half sacks of cement, a half-sack of hydrated lime, fifteen pounds of mortar color, and six-tenths cubic yards of sand. Mason Yazzie deliberately "held back" the mortar from the facing to duplicate the appearance of dry-wall masonry.[134]

NPS personnel returned to Lee's Ferry in 1969 to complete the job of HABS/HAER historic building documentation begun in 1965. During the intervening years, many of the Spencer Buildings had been demolished by the 1967 action, leaving representatives of the Division of Historic Architecture, part of the Office of Archeology and Historic Preservation, to document the remaining buildings. These included the American Placer Corporation Office [HS-221], the Chicken Coop [HS-224], the Lee's Ferry Fort Root Cellar [HS-225], and the Spencer Bunkhouse [HS-222]. Delineators who worked on the project in January of 1969 included Lee Daily, Pat McMurray, Ben Nanlomy, and Louis Castillo.[135]

While history continued to be a big draw for tourists at Lee's Ferry, the introduction of trout into the now-frigid waters of the Colorado River that emerged from the depths of Glen Canyon Dam began to lure increasing numbers our tourists starting in the sixties. Many fished from the banks at the river's edge, while others ventured forth in boats. Still others eschewed fishing entirely. Lee's Ferry developed into the prime point of embarkation for raft trips through the Grand Canyon. By 1969, more than 3,000 people were making the river run through the Grand Canyon each year. The change even captured the attention of a writer for the New York Times, who described the bustling scene in 1969 as follows:

A lively, year-round outdoor recreation center has sprung up at this scenic and history-saturated spot in the shadow of the Vermillion Cliffs. The development, situated along the Colorado River at the northern end of the newly created Marble Canyon National Monument, consists of a motel, a store, a service station and a marina alongside the river and a 28-unit public campground on a bluff nearby. The campground is operated by the National Park Service, and is complete with roofed shelters, tables, firepits, trailer turnouts and toilet facilities.[136]

National Park Service at Lee's Ferry and Lonely Dell Ranch, 1974-Present

The National Park Service consolidated its ownership of Lee's Ferry and the Lonely Dell Ranch in 1974 when it acquired the interest of the consortium in the ranch property. This acquisition resulted in full Federal control of the area. It is also significant as the first time since 1909 that both properties had been in the same ownership.[137]

The Park Service had begun to take action on consolidating ownership in 1971, when it sued the owners of the Lonely Dell Ranch. In his "Complaint in Condemnation," Assistant US Attorney Richard S. Allemann stated that the land was needed "in connection with the administration, protection and development of Glen Canyon National Recreation Area." The case moved slowly through US District Court for the District of Arizona, as both sides negotiated behind the scenes to agree on a mutually acceptable price for the property. The consortium and the Park Service reached agreement in the fall of 1973, and on October 15, 1973, US District Court Judge Walter E. Craig dismissed the suit. The consortium signed the deed conveying the property to the government on June 11, 1974.[138]

In 1976, in conjunction with the Nation's bicentennial and in preparation for rehabilitation work at the property, the Park Service undertook several examinations of the property. This included an environmental assessment of improvements to the roads, boat ramps, parking lots, and proposed raft boarding jetty. The Park Service issued the assessment in January of 1976. In March, the Park Service forwarded a completed National Register nomination of the Lee's Ferry portion of the property to officials in Washington, D.C. The National Register accepted the nomination on May 15, 1976.[139]

Later in the year, the Park Service contracted with University of Colorado historian H. Lee Scamehorn to prepare a historic structure report for the combined property. Scamehorn completed his report in August of 1976. The Scamehorn report is valuable for its detailed analysis of events leading to the purchase of the property from the consortium. However, the report's description of buildings at the Lonely Dell Ranch portion of the property contained several errors. These errors were repeated in later works. Scamehorn noted that questions have been raised about the authenticity of the claims that buildings on the ranch were constructed by Lee, but he did not offer a definitive conclusion.[140]

The historic structure report paved the way for Park Service improvements to the property in 1976-77. The NPS ruins stabilization unit stabilized the Fort (HS-220) and treated the roof with epoxy. The entire roof of the building was removed to treat the wooden roof poles.[141]

In 1981 the Park Service began to consider possible modifications to the Weaver Ranch House (HS-235) for use as staff living quarters. Plans called for converting the 1937 portion of the building into an apartment. This change took place in 1985. This portion of the building was used for employee housing for a few seasons until the foundation was found to be unsafe.[142]

In 1982 the Park Service received funds to replace the roof on the Weaver House at the Lonely Dell Ranch. This project led to a general repair project for the building in 1983 to replace rotten boards, repair torn window screens, re-putty window glazing, and apply paint. Finally, in 1984, the interior walls and ceiling materials were removed from the 1937 frame addition to the building. This resulted in the discovery of a pencil note on the siding of the east wall which read "... and J.W. Carling, all good Latter Day Saints." A contemporary observation by Cultural Resource Management Specialist Art Cloutier indicated he felt that the board was most likely salvaged from an earlier building, such as the barn or the Carling Spencer Cabin.[143]

A second major NPS project begun in 1982 consisted of stabilization work on the Polygamist Era Cabin (formerly Blacksmith Shop, HS-233) and Samantha Johnson's Cabin [HS-232]. Beyond the expressed purpose of repairing damage at the two cabins, the project was also designed to meet the educational needs of NPS personnel in the Rocky Mountain Region. The Park Service contracted with noted log cabin preservation expert Harrison Goodall to supervise the training project.[144]

Work on the Samantha Johnson Cabin [HS-232] included replacing the sill log and log #3 on the right side. The door and door jamb were repaired and the door sill was replaced. All electrical wiring, conduit, and gas piping was removed. Sill logs on the back side were replaced. The front sill log was repaired with a 2" X 10"redwood plank under the door. The building was raised approximately 3"on the left side. Stone foundation piers were constructed at each corner of the building, at all center spans, and under both sides of the door jambs for each door. The original floors and 3 to 6 inches of earth were removed. It was replaced with 4" X 4" sleepers at two foot intervals laid on 4"X 4" sills. All timber was supported above the earth on mortared stone pads. The floor was then covered with ¾ inch plywood, topped by custom milled pine ship lap. Other repairs included the removal of Portland cement interior daubing and its replacement with a lime-sand mixture. Approximately ninety per cent of the exterior was re-daubed with a grass-dirt mixture. A swale was cut around the building to improve drainage.[145]

At the Polygamist Era Cabin (formerly Blacksmith Shop, HS-233) repairs included the replacement of all four sill logs. The building was re-leveled and mortared stone foundation piers were placed at each corner, at center spans, and under the door jamb. All interior and exterior daubing and chinking was replaced. The center rafter on the back side and the windows and door were repaired. A swale was also cut around this building to improve drainage.[146]

Although not a major focus of the training project, Goodall and his students took the opportunity to address some repair needs at the Lee's Lonely Dell Ranch Root Cellar [HS-234]. The roof of the cellar was repaired and re-graded. Loose stones were reset and organic matter was removed from the steps and the surrounding area.[147]

The work at the Samantha Johnson Cabin [HS-232] required the excavation of trenches about 38 cm. wide and 42 cm. deep under its back and side walls. During the excavation several artifacts were recovered and stratigraphy noted. The work at the Polygamist Era Cabin (HS-233) did not require any excavation. Park Service Cultural Resource Specialist Art Cloutier summarized the final product in a letter to Goodall:

> The cabins look great. I was well satisfied both with the educational opportunity and with your work on the cabins. The grounds were left in fine shape to compensate the sensitive workmanship you did on these "rustic" structures.[148]

In May of 1984 the USGS Residence (HS-223) suffered roof damage from high winds. A storm had aggravated an existing condition on the west side of the roof with further damage on the east side. Cultural Resource Management Specialist Art Cloutier noted: "Approximately 500 square feet of roofing is peeled and hanging down the side of the building. It is important to remember that water penetration is one of the biggest dangers to historic structures. It is very important to repair this kind of damage soon." NPS personnel placed new roofing material on the structure in June and cleated the lower edges.[149]

In October of 1985 the Park Service sponsored an intensive stabilization project at the upper ferry site. The project was part of a large, multi-year stabilization effort at the Glen Canyon National Recreation area performed under contract by Nickens and Associates of Montrose, Colorado. The stabilization work took place throughout the National Recreation Area and was directed mainly at prehistoric archeological resources. In addition to work at the upper ferry site, Nickens also performed stabilization work on the dugway.[150]

At the cable ferry site, Nickens and Associates identified fifteen structures and eleven features. Six of the structures were stabilized; five of these had been identified in the scope of work and one was identified in the field. One interesting observation contained in the Nickens report was the identification of previous stabilization work that had been conducted at the site. Nickens personnel felt that this work had taken place in the late 1960s but could not locate any documentation of the prior work. Research during this current project uncovered no verification of prior stabilization work at the site.[151]

The Nickens project identified several structures at the cable ferry site by structure number. These included structure #1, the "Louse House" [IDLCS #01459]; structure #2, the Frank Johnson Cabin [IDLCS #01458]; structure #3, the "Small Corral" [no IDLCS #]; structure #4, the "Large Corral" [no IDLCS #], and structure #5, the "Spencer Powder Magazine" [IDLCS #01457].[152]

In 1986, the Nickens group evaluated the dugway between the boat ramp and the upper ferry site. The archeologists identified five locations of dry-laid masonry that were associated with the original dugway at this location. A report prepared by Nickens and Associates recommended that these rock features be stabilized. This recommendation was not implemented.[153]

In 1986 the Submerged Cultural Resources Unit of the National Park Service began investigations of the Spencer historic features at Lee's Ferry. Employees and volunteers contributed a total of twenty-seven person days of diving while documenting the hulk of the *Charles H. Spencer* and 25 person days of work in research and writing. The project had four objectives: 1) to document the remains of the *Charles H. Spencer*, 2) to evaluate the vessel and its management needs, 3) to evaluate the historical significance of the vessel, and 4) to document the location of Spencer's mining operations.[154]

The project resulted in a report published in 1987 that documented both the vessel and the mining remains. While the report is an excellent and detailed account of the Spencer operation, the authors noted that "much of the physical evidence of an important chapter in regional history was removed with the structures" during the 1967 destruction of the Spencer buildings by the USGS. The report is also noteworthy for its fine maps and photographs showing the Spencer era buildings.[155]

NPS personnel returned to the Weaver Ranch House (HS-235) in 1989 to address a potentially serious problem. A routine investigation revealed termite infestation around the fireplace and in some floor areas. Funding was obtained for the next fiscal year to treat the condition. In September of 1989, the Park Service contracted with Conn Pest Control in Cottonwood, Arizona, to treat the building with Vikane gas. The job was completed by the end of October.[156]

In 1993, the Park Service began preparations for a series of projects that would eventually culminate in this Historic Structure Report. Cathy Cika spent considerable time organizing the Glen Canyon National Recreation Area Archives in 1993-1994. This resulted in a collection of information and photographs on the remaining buildings and sites. The information collected by Cika formed the basis for two Cultural Landscape Inventories, one for the Lonely Dell Ranch and one for Lee's Ferry. The two inventories were completed by Peggy Froeschauer-Nelson in March of 1996.[157]

Subsequent changes at Lonely Dell included the addition of a new stone for Calvin Marshall Johnson at the Ranch Cemetery. A new granite stone was added ca. 1994 by persons unknown, presumably members of the Johnson family. The earlier headstone was not removed; however a new, modern headstone was added.[158]

In the winter of 1996-97 a wood viga in the Fort failed. This was most likely due to a combination of severe weather and deterioration. The damaged member was temporarily shored to prevent further roof failure.

The historical evaluation program of the 1990s ended with the completion of a revised National Register of Historic Places nomination in July of 1997. The nomination was prepared under the direction of Ann Hubber of Historical Research Associates (HRA) in Missoula, Montana. Staff of the NPS Colorado Plateau Support Office, including architect Sayre Hutchison, historian Kathy McKoy, and park archaeologist Tim Birchett, set up and managed the HRA contract. This contract also updated the park's List of Classified Structures (LCS) database.

The 1997 nomination was an attempt to re-organize and correct the two previous National Register nominations, completed in 1976 for Lee's Ferry and in 1978 for the Lonely Dell Ranch. While the 1997 product represented the best historical knowledge of the time, the author did not have the benefit of P.T. Reilly's research on Lee's Ferry which has now substantially revised our interpretation of the property.[159]

Today, visitors to Lee's Ferry are struck with the isolation and desolation of the area. While a thin veneer of civilization has been applied in the form of improved roads and tourist facilities, even those who arrive in modern motor homes and automobiles recognize the sacrifice made by the pioneers who arrived in wagons to cross the mighty Colorado. The buildings that remain at Lee's Ferry and the Lonely Dell Ranch offer mute testimony to that earlier era, an era in which pioneers and settlers clung closely to life at this crucial transportation outpost. Above all, visitors are reminded that it is the Colorado River that made Lee's Ferry such a needed link in the development of Arizona. The river today still retains some degree of its menacing quality, captured in the words of historian Sharlot Hall during her 1911 visit:

This wild river takes its toll every few months; the very waves as they pass look fierce and tameless and hungry... It was this same wild current that Father Escalante feared to cross in 1776; he turned back after coming down and riding into the river twice. I don't blame him. Death sits mighty close to the bank here.[160]

ENDNOTES - Historical Background and Context

[7] For a good summary of the area's geologic history, see David A. Phoenix, "Geology of the Lee's Ferry Area, Coconino County, Arizona." U.S. Geological Survey Bulletin No. 1137. Washington: U.S. Government Printing Office, 1963. The modern usage of "Paria" will be followed in this document, except when a direct historical quote is used which will employ the original spelling.
[8] For a fairly recent summary of Grand Canyon and Glen Canyon prehistory, see Helen Fairly, et.al., The Grand Canyon River Corridor Survey Project: Archeological Survey along the Colorado River Between Glen Canyon Dam and Separation Rapid (Denver: National Park Service, 1994).
[9] For a good synopsis of the Spanish era, see W.L. Rusho, "Living History at Lee's Ferry, Journal of the West 7 (January, 1968): 64-69.
[10] The most detailed biographical information about Lee is contained in Manetta (Prince) Henrie, Descendants of John Doyle Lee, 1812-1877 (Provo, Utah: privately printed, 1960).
[11] A recent summary of scholarship on the Mountain Meadows Massacre is Samuel W. Taylor, "Ghost From the Grave," Restoration 7 (3) (July, 1988): 3-9.
[12] A. Gary Anderson, "Events at Lee's Ferry, or Lonely Dell, 1864-1928," in H. Dean Garrett and Clark V. Johnson, eds., Regional Studies in Latter-Day Saint Church History (Provo: Brigham Young University, 1989), p. 19.
[13] Juanita Brooks, Emma Lee (Logan: Utah State University Press, 1978), p. 78. Historian P.T. Reilly credits Jacob Hamblin with the name Lonely Dell; see his Lee's Ferry: From Mormon Crossing to National Park (Logan: Utah State University Press, 1999), p. 23. In an interview with the author on July 29, 1999, historian W.L. "Bud" Rusho supported Reilly's contention, believing that the dialog cited in Brook's work was most likely impressionistic rather than literal.
[14] Juanita Brooks, John Doyle Lee: Zealot, Pioneer Builder, Scapegoat (Logan: Utah State University Press, 1992), p. 308.
[15] The description is from Elmo Scott Watson, ed., The Professor Goes West (Bloomington: Illinois Wesleyan University Press, 1954), pp. 99-100. Despite DeMotte's contention that Emma's Cabin was constructed without benefit of "square and compass," Lee descendant Edna Lee Brimhall donated a carpenter's square the family believed "was used by John D. Lee when he built his house at Lee's Ferry" to the Arizona Historical Society. See Arizona Historical Society (AHS) Manuscript MS 97, collection of Mrs. Edna Lee Brimhall, Tucson.
[16] For a description of early travel on the Colorado, see Otis "Dock" Marston, "Early Travel on the Green and Colorado Rivers," The Smoke Signal (Tucson Corral of the Westerners) 20 (Fall, 1969): 231-236. For a brief summary of the first Powell expedition see Elwood Bear, "John Wesley Powell – He Tamed the Colorado" Civil Service Journal (January – March, 1969): 3-7.
[17] W.L. Rusho, Desert River Crossing (Salt Lake: Tower Productions, 1998), pp. 20-26.
[18] Frederick S. Dellenbaugh, A Canyon Voyage: The Narrative of the Second Powell Expedition (Tucson: University of Arizona Press, 1996; originally printed New York: Putnam, 1908), p. 211.
[19] Ibid., pp. 211-212.
[20] Reilly, Lee's Ferry, p. 25. The Park Service has designated the Lonely Dell Ranch Irrigation System as IDLCS #001462.
[21] Rusho, Desert River Crossing, pp. 43-46.
[22] Ibid., pp. 46-47.
[23] Leland Hargrave Creer, "Mormon Towns in the Region in the Colorado," University of Utah Anthropological Paper No. 32 (Salt Lake City, 1958): 1.

[24] Reilly, Lee's Ferry, pp. 32, 35, 42, 44.
[25] Ibid., p. 45.
[26] Ibid., pp. 45-46.
[27] Noted photographer James Fennemore captured the Lee execution on film. See William A. Jones, "James Fennemore's Photographs of John Doyle Lee," History of Photography 8 (1) January, 1984): 65-66. Fennemore's photographs served as the basis for woodcuts of the execution published in "Supplement to Frank Leslie's Illustrated Newspaper," New York, April 14, 1877, manuscript #2128, Utah State Historical Society, Salt Lake City.
[28] The original deed was recorded in Yavapai County Book 12 of Deeds, Pages 565-566, Yavapai County Recorder, Prescott, Arizona. After creation of Coconino County in 1891, the deed was transcribed in Coconino County Book 1 of Deeds, Pages 23-24, Coconino County Recorder, Flagstaff.
[29] Maurice Kildare, "Doctor Grandma French," Frontier Times (June-July, 1967): 14-17; 63; 66-67.
[30] A summary biography of Warren Johnson is P.T. Reilly, "Warren M. Johnson, Forgotten Saint," Utah Historical Quarterly 38 (1) (1971): 19.
[31] Letter from L. John Nuttal to Warren M. Johnson, March 1, 1880; letter from L. John Nuttal to Warren M. Johnson, May 25, 1880; copied from John Taylor Letter Book, on file in John Taylor Collection, Manuscript #50, Box 2a, Marriott Library, University of Utah, Salt Lake City.
[32] 1880 Census of Yavapai County, Arizona, on file at the Arizona Department of Library, Archives, and Public Records, Phoenix.
[33] Reilly, Lee's Ferry, p. 90.
[34] Ibid., pp. 92-93.
[35] Ibid., pp. 95-96.
[36] Ibid., pp. 102-103.
[37] Ibid., pp. 105 and 108.
[38] Ibid., pp. 97 and 107.
[39] For the expedition, see Robert Brewster Stanton, Down the Colorado, ed. D.L. Smith (Norman: University of Oklahoma Press, 1965) and R.B. Stanton, The Colorado River Survey, ed. D.L. Smith and C.G. Crampton (Salt Lake City: Howe Brothers, 1987). A short summary is found in James Hekkers, "A Visionary's Dream: The Colorado River Railroad Survey," American History Illustrated 16 (4) (July, 1981): 31-37. The "Christmas photo" is Photo #10510, Utah State Historical Society, Salt Lake City.
[40] For descriptions of the trip see John M. Burke, Buffalo Bill from Prairie to Palace: An Authentic History of the Wild West (Chicago: Rand, McNally, 1893) and A.M. Woodbury, "A History of Southern Utah and its National Parks," Utah Historical Quarterly 12 (3,4) (1944): 192. The album of photos is W.H. Broach, "Col. W.F. Cody's (Buffalo Bill) Wild West Trip to the Grand Canyon," PH 2402 (1892), Church of Jesus Christ of Latter Day Saints Historical Department, Salt Lake City.
[41] Book 1 of Mill Sites and Water Rights, Page 38, November 27, 1893, Coconino County Recorder, Flagstaff.
[42] Reilly, Lee's Ferry, pp. 139-41.
[43] The quotation is from P.T. Reilly, "Warren Marshall Johnson, Forgotten Saint," Utah Historical Quarterly 38 (1) (1971): 4. See also Elmer Johnson, "Warren Marshall Johnson: Father, Saint, Pioneer," undated manuscript, Glen Canyon National Recreation Area Archives, GLCA #17516, Folder 14.
[44] For the transactions see Coconino County Book 4 of Deeds, pp. 228-230 and Coconino County Book 1 of Leases, pp. 69-70, both at Coconino County Recorder, Flagstaff.
[45] Reilly, Lee's Ferry, p. 153.
[46] Ibid., p. 115 and 160-161. The present floor appears newer than 1897 and may be

a later replacement.
[47] Ibid., pp. 157-160; 178-180. The 1898 expedition resulted in two significant photographs of Lee's Ferry; one of the Fort surrounded by a shade ramada and a second of what is presumed to be the Johnson House cellar. River historian Otis R. "Dock" Marston attributes the window change to Charles Spencer; see a letter from Harry Aleson to Otis R. "Dock" Marston, August 31, 1950, on file at Utah State Historical Society, Salt Lake, Aleson Collection, Manuscript B-187, Box 12, Folder 15.
[48] Reilly, Lee's Ferry, p. 161.
[49] Ibid., pp. 172-174. Emett's "Certificate of Location and Plat of Lee's Ferry Toll Road" was recorded in Book 1 of Coconino County Records, page 118, Coconino County Recorder, Flagstaff.
[50] 1900 Census records for Coconino County, Arizona Department of Library and Archives, Phoenix.
[51] Reilly, Lee's Ferry, pp. 150-51; 153.
[52] Ibid., pp. 163 and 165. For additional information on Kitchen, see Nephi Johnson, ed., "Biography of John G. Kitchen," Ms. on file, GLCA Archives, Page.
[53] Reilly, Lee's Ferry, pp. 194-195.
[54] For a description of Emett's activities at the Grand Canyon, see Michael F. Anderson, Living at the Edge: Explorers, Exploiters, and Settlers of the Grand Canyon Region (Grand Canyon: Grand Canyon Association, 1998), pp. 135-36. The Bar Z outfit was later acquired by the Grand Canyon Cattle Company.
[55] Reilly, Lee's Ferry, pp. 211-212.
[56] For the property transactions, see Coconino County Book 37 of Deeds, page 285 and pages 286-287, Coconino County Recorder, Flagstaff.
[57] Coconino County Book 3 of Bills of Sales, page 555.
[58] For a first-person account of Spencer's operations, see A.H. Jones, "Review of Mining Operations on the San Juan and Colorado Rivers Promoted and Conducted by Charles H. Spencer, et. al., 1908, 1909, 1910, 1911," manuscript on file, Glen Canyon NRA Archives, 1960.
[59] Reilly, Lee's Ferry, p. 228.
[60] Ibid., p. 242.
[61] This conclusion based on physical observation of the building and on a letter from Harry Aleson to Otis R. "Dock" Marston, August 31, 1950, on file at Utah State Historical Society, Salt Lake, Aleson Collection, Manuscript B-187, Box 12, Folder 15. Historian P.T. Reilly attributes this change to Stanton; see Lee's Ferry p. 178.
[62] Reilly, Lee's Ferry, p. 248. For a summary of the steamboat fiasco, see W.L. Rusho, "Charlie Spencer and his Wonderful Steamboat," Arizona Highways 37 (8) (August, 1962): 34-39.
[63] Reilly, Lee's Ferry, pp. 252-253. W.L. Rusho, Desert River Crossing, dates this event to 1917 on p. 134. Based on stream flow measurements, Reilly has the correct date.
[64] Reilly, Lee's Ferry, p. 257. The 1910 Coconino County census, enumerated in April by Asa W. Judd, listed only Jeremiah Johnson as residing at Lee's Ferry; Arizona Department of Library and Archives, Phoenix.
[65] P.T. Reilly, "The Johnson Brothers Remember Lee's Ferry," Interview Transcript, May 16, 1974, Northern Arizona University Special Collections Manuscript No. 275, Flagstaff, pp. 30-31.
[66] 1920 Census of Coconino County, Arizona Department of Library and Archives, Phoenix.
[67] W.R. Sholes, "Adverse Report Phoenix H.E. 066377, Jeremiah Johnson Conflict with Power Site Withdrawal," April 24, 1930, National Archives, Washington, D.C., Record Group 49, Land Entry Serial Patent No. Phoenix 066377, p. 7. For a photo of the barn, see Bill Belknap, "Kids on Horses and Burros at Old Lee Ranch – Lee's

Ferry," ca. 1948, photo No. NAU.PH.96.4.59.1, Special Collections, Northern Arizona University, Flagstaff. For those approaching the ferry from the Arizona Strip, the road passed the ranch then made a sharp right turn east toward the Paria crossing and on to the upper ferry. This road was relocated during the Weaver era so that it no longer passed the ranch.

[68] The Jackson association with the building is most forcefully presented by Ann Hubber, "Lee's Ferry and Lonely Dell Ranch National Register Nomination," on file at Arizona State Historic Preservation Office, 1997, p. 7-7. Although Hubber states that the Cabin's location may "suggest" an association with Jackson, her assignation of the name "Jackson's Cabin" to the building gave the claim considerable credence.

[69] Observation based on analysis of Lonely Dell ranch historic photos.

[70] Eugene C. LaRue, "The Colorado River and Its Utilization," US Geological Survey Water Supply Paper No. 395 (Washington: US Government Printing Office, 1916).

[71] Information on the power site reserves is found in the records of the Arizona State Office of the Bureau of Land Management, Phoenix.

[72] Rusho, Desert River Crossing, pp. 100-101.

[73] For a description of the controversy surrounding the allocation of water from the Colorado River, see John Upton Terrell, War for the Colorado River (Glendale: A.H. Clark, 1965).

[74] Reilly, Lee's Ferry, p. 281.

[75] Ibid., p. 282.

[76] Ibid., p. 289. See also Joyce and Josef Muench, "Taking the Measure of the Colorado River," Arizona Highways 23 (6) (June, 1947): 4-7.

[77] Reilly, Lee's Ferry, p. 283. The estimated construction dates for the Chicken Coop (HS-224) and the Lee's Ferry Fort Root Cellar (HS-225) are influenced by Charlie Spencer's comments during an interview with W.L. Rusho that the Chicken Coop was not present during his tenure and must have been constructed after his departure. However, Spencer extended this same comment to the American Placer Corporation Office (HS-221, a.k.a. Post Office) and its construction date has been confirmed to the Spencer era. See Toni Carrel, ed., Submerged Cultural Resources Site Report: Charles H. Spencer Mining Operation and Paddle Wheel Steamboat (Santa Fe: National Park Service Submerged Cultural Resources Unit, 1987), p. 32.

[78] Reilly, Lee's Ferry, p. 297.

[79] Ibid., p. 314.

[80] Ibid., p. 303.

[81] Information on the public water reserves is found in the records of the Arizona State Office of the Bureau of Land Management, Phoenix. Public Water Reserve No. 107 was later confirmed by Secretarial Order No. 160 (April 8, 1932); Secretarial Order No. 166 (July 16, 1932); and Secretarial Order 265 (December 23, 1940). It turned out that the spring was located in what, when surveyed, was Section 18 of Township 40 North, Range 8 East.

[82] Reilly, Lee's Ferry, pp. 352-56.

[83] Coconino County Book 53 of Deeds, p. 562, Coconino County Recorder, Flagstaff.

[84] Reilly, Lee's Ferry, p. 316.

[85] Ibid., p. 315.

[86] Jeremiah Johnson, "Final Proof of Homestead Entry," November 8, 1931, National Archives, Washington, D.C., Record Group 49, Land Entry Serial Patent No. Phoenix 066377.

[87] Ferrel G. Spencer, "Lee's Ferry Experience," n.d., GLCA Record Group 17516, Folder 15, Accession 213. The barn mentioned is the one constructed by the Grand Canyon Cattle Co. ca. 1911.

[88] Coconino County Book 55 of Deeds, p. 531; Book 56 of Deeds, p. 17, Coconino County Recorder, Flagstaff.

[89] Reilly, Lee's Ferry, p. 321.

[90] Survey Notes for Township 40 North, Range 7 East, Book 3816, page 29, Arizona State Office, Bureau of Land Management, Phoenix; Township plat of Township 40 North, Range 7 East, officially filed July 23, 1929, Arizona State Office, Bureau of Land Management, Phoenix.
[91] For the construction of Navajo Bridge, see, Ralph A. Hoffman, "Bridging the Grand Canyon of Arizona: The Highest Highway Bridge in the World," Arizona Highways 3 (8) (November, 1928): 5-8; George Henry Dern, "Dedication of Grand Canyon Bridge, Arizona, June 14-15, 1929." Ms. on file, Arizona State University, Arizona Room, Tempe.
[92] Reilly, Lee's Ferry, pp. 327-28.
[93] Ibid., p. 329.
[94] Information on Jeremiah Johnson's patent is found in the National Archives, Washington, D.C., Record Group 49, Land Entry Serial Patent No. Phoenix 066377. A copy of the final patent, No. 1064367, can be found in files of the Arizona State Office of the Bureau of Land Management, Phoenix. Johnson recorded the patent at Book 54 of Deeds, pp. 339-340, Coconino County Recorder, Flagstaff.
[95] Jeremiah Johnson, "Final Proof of Homestead Entry," November 8, 1931, National Archives, Washington, D.C., Record Group 49, Land Entry Serial Patent No. Phoenix 066377.
[96] Weaver and Hyde acquired the property from the LDS Church by an instrument recorded at Book 62 of Deeds, p. 320, Coconino County Recorder, Flagstaff.
[97] Reilly, Lee's Ferry, p. 377.
[98] Ibid., p. 378 and 390.
[99] Ibid., p. 399.
[100] Ibid., p. 381.
[101] Ibid., pp. 382 and 392.
[102] Executive Order No. 6002, January 18, 1933, on file at the Arizona State Office, Bureau of Land Management, Phoenix.
[103] Reilly, Lee's Ferry, p. 381.
[104] Ibid., p. 352.
[105] Ibid., p. 353. For additional information, see Frank B. Dodge, "The Saga of Frank B. Dodge," manuscript #18714, on file at Utah State Historical Society, Salt Lake City, 1944.
[106] Reilly, Lee's Ferry, p. 356.
[107] Glynn Bennion, "There Are Stories Told of the Old Days at Lee's Ferry," The Deseret News (Salt Lake City newspaper), November 9, 1935.
[108] Charles Kelly, "Lee's Ferry on the Colorado," Desert Magazine 7 (1) (November, 1943): 5-8.
[109] The custom of holding reunions at Lee's Ferry, first started in 1935, still continues. See Kate Ruland-Thorne, "Lee's Ferry Reunion," Arizona Highways 65 (14) (September, 1989): 14-15; 30-31. This article is also a good example of how historical myths are perpetuated by constant retelling. For Reilly's analysis of the Kelly contribution to history, see Lee's Ferry, p. 394.
[110] Survey Notes for Township 40 North, Range 8 East, Book 4162, page 32, Arizona State Office, Bureau of Land Management, Phoenix; Township plat of Township 40 North, Range 8 East, officially filed September 5, 1941, Arizona State Office, Bureau of Land Management, Phoenix.
[111] Reilly, Lee's Ferry, pp. 401-02.
[112] Ibid., pp. 418-19.
[113] Book 59 of Deeds, p. 262, Coconino County Recorder, Flagstaff.
[114] Description based on analysis of Lonely Dell Ranch historic photographs.
[115] The agreement is recorded at Book 4 of Agreements, pp. 464-468; the deed is recorded at Book 107 of Deeds, p. 114, both at Coconino County Recorder, Flagstaff.
[116] Reilly, Lee's Ferry, p. 434. The cabin shows in old photos of the ranch.

[117] Ibid., p. 441. The exact location of the shack occupied by Dale has not been determined.
[118] Frank Jensen, "Rough-Hewn Hacienda," Salt Lake Tribune Home Magazine (October 16, 1960) and Frank Jensen "A Visit to Historic Out of the Way Lee's Ferry on the Colorado," Desert Magazine 23 (6) (June 1960): 8-11.
[119] Reilly, Lee's Ferry, pp. 425-426, 428, 433. There is apparently some confusion with regard to "Dodge's Cabin" (demolished 1967) and the Spencer Building (HS-222) in the Reilly book, Lee's Ferry. While Reilly on p. 428 Reilly refers to the construction of a new 18' by 30' building, this is an apparent reference to the reconstruction of the Spencer Building (HS-222) for USGS residential use and not to a new building. The 1950 date for the USGS Building (HS-223) on p. 433 is correct; this 16' by 19' building was constructed at that time. This re-evaluation is based on P.T. Reilly, "Survey of Stone Buildings, Lee's Ferry," manuscript on file, Northern Arizona University, P.T. Reilly manuscript collection MS 275, Box 8, October 6, 1964; undated and untitled map, on file, Northern Arizona University, P.T. Reilly manuscript Collection MS 275, Box 8. A photograph taken by "Johnson" in April of 1950 clearly shows the relationship between the "guest cabin" (USGS Residence, HS-223) and the "silt lab" (Spencer Building, HS-222). See US Geological Survey, "Recent Compilation Photo Album," sheet 53, Arizona District Office, Flagstaff.
[120] The best summary of Glen Canyon Dam history is by Russell Martin, A Story that Stands Like a Dam: Glen Canyon and the Struggle for the Soul of the West. (New York: Henry Holt, 1989).
[121] C. Gregory Crampton and W.L. Rusho, A Report on the History of Lee's Ferry, Arizona (Salt Lake City: Prepared for the National Park Service, 1965), p. 13; Crampton photographs PO197 48b:1:4 and 48b:1:5, September 20, 1959, University of Utah Special Collections. In his book, P.T. Reilly dates the fire to 1964 and the reports the arsonist at Larry Lopp; see Reilly, Lee's Ferry, p. 447.
[122] C. Gregory Crampton, "Historical Sites in Glen Canyon, Mouth of San Juan River to Lee's Ferry," University of Utah Anthropological Papers No. 46 (June, 1960).
[123] Docket 226 of Deeds, p. 24, Coconino County Recorder, Flagstaff.
[124] H. Lee Scamehorn, Historic Structure Report Lee's Ranch, Historical Data (Boulder: University of Colorado, 1976), p. 17. Scamehorn based his conclusion on information obtained by appraiser H.B. Embach during a telephone conversation with Dee Evans. See H.B. Embach, "Appraisal Report: Property of Denver E. Evans, et. al." Phoenix: Prepared for National Park Service, 1966, p. 3, Glen Canyon National Recreation Area Archives, Record Group 17516, Folder 12. The Fryer quote is from Ruland-Thorne, "Lee's Ferry Reunion," p. 31.
[125] Reilly, Lee's Ferry, p. 450. The provenience of the orchard has caused some confusion. The National Register nomination prepared in 1997 incorrectly attributes the modern orchard to the National Park Service (section 8, p. 46). This error may have been based on the Lonely Dell Ranch Cultural Landscape Inventory prepared by Peggy Froeschauer-Nelson in 1996 which stated "A modern orchard covering a little over two acres has been planted and is currently maintained by the NPS." Froeschauer-Nelson further states specifically "the orchard is a modern addition planted by the Park Service." Both quotes from page 2.
[126] Scamehorn, Historic Structure Report, p. 18. It appears that any modifications made by the consortium to the Weaver Ranch House were few, despite what they may have told the appraiser.
[127] Ibid., pp. 19-24.
[128] P.T. Reilly, "Survey of Stone Buildings, Lee's Ferry," October 6, 1964, Manuscript Collection No. 275, Box 8, Special Collections, Northern Arizona University, Flagstaff.
[129] Crampton and Rusho, Report, p. iii.
[130] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County"

HABS/HAER Survey Ariz. 58, Library of Congress, Washington, D.C. (October, 1965; Revised January, 1969).
[131] Reilly, Lee's Ferry, p. 451.
[132] NPS Regional Historian William E. Brown to Dr. C. Gregory Crampton, letter on file William E. Brown Collection, Manuscript No. 1350, Utah State Historical Society, February 15, 1967.
[133] Roland Richert, Ruins Stabilization Report, The Old Post Office, Lee's Ferry, Glen Canyon National Recreation Area (Globe: NPS Southwest Archeological Center, 1967), p. 1.
[134] Ibid., pp. 14-15.
[135] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).
[136] John V. Young, "A New Boom at Lee's Ferry: Recreation Seekers Replace Ore Prospectors," New York Times (February 23, 1969): XX 13.
[137] Docket 511 of Deeds, pp. 400-403, Coconino County Recorder, Flagstaff.
[138] Information on the court case is found in United States of America vs. 160.00 Acres of Land, more or less, in Coconino County, Arizona; Denver E. Evans and Jean F. Evans, his Wife, et al," US District Court for the District of Arizona Case No. CIV71-227 PCT-WEC, National Archives, Laguna Niguel, California.
[139] Glen Canyon National Recreation Area, "Environmental Assessment of Proposed Road, Ramps, Parking Lot, and Raft Boarding Jetty at Lee's Ferry," Glen Canyon NRA, January 1976; Temple A. Reynolds, "Lee's Ferry Historic District National Register Nomination," 1974, on file at Arizona SHPO.
[140] Scamehorn, Historic Structure Report, pp. 24-29. Perhaps the most egregious error in the Scamehorn report was attributing a 1916 date to the Weaver Ranch House. Scamehorn based his conclusion on records at the Coconino County Assessor in Flagstaff, but the original records have since been destroyed and his research could not be duplicated.
[141] Reilly, Lee's Ferry, p. 458.
[142] Memo From Art Cloutier to Superintendent/Assistant Superintendent, June 4, 1981, GLCA Archives, Page.
[143] Roof Plan for Weaver House, Lonely Dell Ranch, April 13, 1982; Memo From Art Cloutier to Irvin Mortenson, John Ritenour, and John Criger, December 10, 1982; Memo From Art Cloutier to John Criger, March 21 1983; Memo From Art Cloutier to Chief of RM and VP, June 20, 1983; Memo from Art Cloutier to RM Supervisor and Chief of Maintenance, March 27, 1984; Notes Prepared by Art Cloutier During Weaver House Project, June 7, 1984, all at GLCA Archives, Page.
[144] Memo from Rodd L. Wheaton re: Training Course, September 1, 1982, GLCA Archives, Page.
[145] Conservation Services, "Documentation of Stabilization," January, 1983, GLCA Archives, Page.
[146] Ibid.
[147] Ibid.
[148] The archeological monitoring was conducted by Ronald E. Everhart, the Park's Concessions Management Specialist. See his memo to the Associate Regional Director, Planning and Resource Preservation, Rocky Mountain Region, January 21, 1983. Cloutier's critique is found in his letter to Dr. Harrison Goodall, February 9, 1983. Both at GLCA Archives, Page.
[149] Memo From Cultural Resource Management Specialist Art Cloutier to RM Supervisor, May 24, 1984, GLCA Archives, Page.
[150] For the cable ferry site see Susan Eininger and Jonathon C. Horn, "Historical Documentation and Structural Stabilization of the Main Ferry Site, Lee's Ferry National Historic District," Ruins Stabilization Technical Report No. 25.

(Montrose, Colorado: Nickens and Associates, 1987). Work at the dugway is described by Jonathon C. Horn and Susan Einninger, "Stabilization Assessment of Lee's Ferry Dugway, Glen Canyon National Recreation Area," Ruins Stabilization Technical Report No. 20 (Montrose, Colorado: Nickens and Associates, 1986). A complete summary of the entire project throughout the park is contained in James Firor and Susan Einninger, "Stabilization Monitoring: A Review of the Years 1-3 Stabilization Work at Glen Canyon National Recreation Area, 1984-87," Ruins Stabilization Report No. 44 (Montrose, Colorado: Nickens and Associates, 1987).

[151] Einninger & Horn, Report No. 25, p. 8.

[152] Ibid., pp. 14-26.

[153] Jonathon C. Horn and Susan Einninger, "Stabilization Assessment of the Lee's Ferry Dugway, Glen Canyon National Recreation Area, Arizona," Nickens and Associates Ruins Stabilization Report No. 20 (Montrose, Colorado: Nickens and Associates, 1986).

[154] Toni Carrel, ed., Submerged Cultural Resources Site Report: Charles H. Spencer Mining Operation and Paddle Wheel Steamboat (Santa Fe: National Park Service Submerged Cultural Resources Unit, 1987), pp. 2-4.

[155] Ibid., p. xix.

[156] Memo From Eric J. Walkinshaw to Chief of Resource Management, June 8, 1989; Order for Supplies and Services PH 1440-9-0605, September 29, 1989, both at GLCA Archives, Page.

[157] Cathy Cika, "Lee's Ferry Project Supporting Information," Glen Canyon National Recreation Area Archives, Page, 1993-1994; Peggy Froeschauer-Nelson, Lonely Dell Ranch Cultural Landscape Inventory (Denver: National Park Service, 1996); and Lee's Ferry Cultural Landscape Inventory, (Denver: National Park Service, 1996).

[158] Memo from Ron Novara to John Ritenour, June 27, 1994, GLCA Archives.

[159] Ann Hubber, "Lee's Ferry and Lonely Dell Ranch National Register Nomination," manuscript on file, Arizona State Historic Preservation Office, 1997.

[160] The quotation is from Sharlot M. Hall, Sharlott Hall on the Arizona Strip: A Diary of a Journey Through Northern Arizona in 1911, edited by C. Gregory Crampton (Flagstaff: Northland Press, 1975), p. 53. The original diary is at the Sharlot Hall Museum in Prescott.

Site Time Line

Date	Event
1776	October 26 - Dominguez & Escalante camp on north bank of Colorado River, just upstream from mouth of the Paria
1847	LDS members arrive at Salt Lake
1849	Territory of Utah created
1857	Mountain Meadows Massacre
1859	Jacob Hamblin camps at mouth of Paria River
1860	Hamblin party member George Smith killed by Navajo
1864	Navajo surrender to Kit Carson, "Long Walk"
1869	August - Major John Wesley Powell camps at Paria Crossing prior to his first run through Grand Canyon October - Hamblin posts guards at Paria River - Fort Meeks
1870	January - Hamblin constructs irrigation ditch; begins agriculture October - John D. Lee excommunicated from LDS church
1871	October - Powell Expedition reaches mouth of Paria river November - Powell caches boats *Emma Dean* & *Nellie Powell* on left & right banks of river, respectively; expedition departs December - John D. & Emma Lee arrive, begin agriculture Lee files water claim at "Pools," begins house construction
1872	January - construction begins on stone corral, willow chicken coop, and two rock rooms, Paria dam January 19 - First ferry run in the Nellie Powell March 2 - first irrigation April - second Paria dam June - flood destroys Paria dam July - Powell's 2nd Expedition at Lee's Ferry December - Lee asked by LDS church officials to run crossing
1873	January 11 - Ferry *Colorado* completed January - James Jackson assigned to labor at the Ferry April - Young, Jackson & others improve roads and landing (upper) - Lee's Backbone and Lee's Hill
1874	January - Murder of two Navajo escalates tension - Grass Valley affair Jackson builds cabin March - James Jackson dies June & July - Fort / Trading post constructed at Paria Crossing June 23 - Poland Act November 7 - Lee arrested for murder
1875	March - Warren & Permilia Johnson arrive; take over Jackson's cabin & assist Emma Lee

	Trading Post closed October 11 - Warren Johnson called to life's mission as ferryman; November - Johnsons leave for Glendale to put affairs in order
1876	January - United Order immigration to Arizona begins February - Warren Johnson returns to ferry, takes up residence in Fort March - Johnson's family arrives, moves into fort May 24 - Drowning of LDS Bishop Roundy
1877	January 1 - Part of St. George Temple dedicated March 23 - Lee executed by firing squad at Mountain Meadows
1878	Lee's Backbone route replaced; ferry site moved during low water months
1879	April 23 - post office established at Lee's Ferry May 16 - Johnson assumes full control of ferry property November 30 - Warren Johnson given sole jurisdiction over ferry operations
1880	Fall - heavy Mormon immigration to Arizona December - Survey of Sevier Valley Railway, branch of Denver & Rio Grande Railway
1881	April - Railroad survey discovers possible bridge location across Marble Canyon, five miles south of Lee's Ferry Spring - David Brinkerhoff and family arrive; Johnson's brother-in-law Spring - Johnson Cabin & Brinckerhoff Cabin erected July - work on lower dugway begun November - lower dugway completed December - lower ferry site operational
1882	March - Edmunds Act passed November - Brinckerhoff begins agricultural improvements: New field cleared, and irrigation ditch extended to create the Upper Ranch
1883	Warren Johnson and David Brinckerhoff clear and level land for new plot at Upper Ranch
1884	June 18 - Peak flood on the Colorado
1885	Warren Johnson constructs second dam site at Upper Ranch
1886	Summer - Warren Johnson begins construction of new house; original Emma Lee cabin demolished; family moves into Brinckerhoff Cabin during construction
1887	February 19 - Edmunds-Tucker Act passed June - Johnson House essentially completed August 25 - LDS Church President John Taylor dies
1888	Spring - Dugway detour (Johnson Cut-off) completed
1889	July 2 - Stanton railroad survey base camp at Lee's Ferry Fort John Neilson donates blacksmith bellows, one cabin converted to shop
1890	October 6 - General LDS Church Conference approves President Wilford Woodruff manifesto against plural marriage December 25 - Stanton's second survey base camped at Lee's Ferry Drapers occupy Samantha Johnson Cabin

	James Emett creates schoolroom on upper floor of house after arrival of Draper children James Emett constructs third dam at site
1891	April - Warren Johnson separates family by acquiring house in Kanab for Samantha Summer - Diptheria outbreak kills four Johnson children at Lee's Ferry
1892	November - Willaim F. (Buffalo Bill) Cody tours northern Arizona and crosses river at Lee's Ferry
1895	Fall - Warren & Permelia Johnson released from their mission when they could find a replacement December - Johnson reaches agreement with James Emett to take over as ferryman December 12 - Warren Johnson injured in wagon accident; breaks back Utah becomes a State
1896	Property deeded to James S. Emett 143; Frank Johnson operates ferry
1897	March – James Emett and family arrive at Ferry; take up residence in Warren Johnson house Fall – Samantha Johnson cabin refurbished into schoolhouse with timber from boat *Nellie*
1898	January – Stanton returns, caches (stores temporarily) boats behind Fort January 8 – James S. Emett appointed postmaster February 1 – Emett presents plan for new access road and ferry site to LDS authorities May 23 – Emett files toll road plan with Coconino County June – Sadie Staker begins teaching school July 13 – John Kitchen dies James Emett allows upper field to lie fallow Nathaniel Galloway takes up residence in Fort
1899	January – crew arrives to begin construction of Emett dugway February – steel cable installed at upper ferry site March – new ferry in operation Fall – Stanton completes assessment work at old Fort
1900	January 5 – Navajo Indian Reservation enlarged to reach left bank of Colorado May – John Emett & Sarah Wooley marry, move into Fort James Emett refurbishes upper dam
1901	July – John Kitchen monument erected
1903	Two Navajo brothers resume cultivation of upper field
1905	Irving C. Pierce constructs tunnel & flume irrigation system for James Emett
1907	June – Grand Canyon Cattle Company purchases Northern Arizona ranch lands (Bar Z brand)
1909	August 18 - LDS church sells ferry site to Grand Canyon (Bar Z) Cattle Co. Sept. - Emett sells Lonely Dell to Grand Canyon Bar Z Johnson House becomes known as Grand Canyon Cattle Co (Bar Z) ranch house
1910	May - Charles H. Spencer arrives at Lee's Ferry left bank June – Grand Canyon Cattle Co. (Bar Z) sells Ferry to Coconino County

	Cattle Co. hires Frank Johnson as ranch manager; Jerry Johnson operates Ferry September – Spencer shifts operation to right bank; converts Fort into mess hall
1911	January/February – Spencer building program underway: Fort converted to mess hall through large addition cook's house second mess hall laboratory blacksmith shop bunkhouses storage shed Spencer Trail *Charles H. Spencer* boat January - Bar Z Ranch House designated as post office April 11 – American Placer Corporation replaces Black Sand Recovery Company November - Kolb Brothers run river, take photos of boat
1912	March – Bridge over Little Colorado River completed June/July – Paria River changes course at confluence
1913	Fall – Frank Johnson begins construction of log cabin at Upper Ferry site
1914	January 31 - Post Office discontinued Fall – trading counter added to Johnson House September 14 – power site withdrawal No. 446 (associated with Colorado River hydropower development)
1915	Abandoned *Charles H. Spencer* grounded
1916	Grand Canyon Bar Z Cattle Co. constructs stone bunkhouse
1917	April 28 – power site withdrawal No. 665 (associated with Colorado River hydropower development)
1921	Flood; *Charles H. Spencer* sinks May – Edison crew arrives; stream gauging begins August 3 – gaging station established on Colorado August 20 - Irving & Margery Cockcroft move into old Fort
1922	April 22 – Southern California Edison signs lease with Navajo for boathouse on left bank August - Frank Johnson resigns; leaves Ferry November 14 - Colorado River Compact signed Post Office established in American Placer Corporation Office by Margery Cockroft
1923	March 15 - Post Office discontinued November 1 – USGS assumes full control of Lee's Ferry gaging station from Edison crew November - Jim Klohr takes over from Cockrofts in old Fort
1924	I.G. "Rudy" Kasel joins Klohr as assistant; resides in Fort
1925	Owen Clark & Wife move into Johnson Cabin May 25 – LDS Church purchases Bar Z holdings at Lee's Ferry Jerry Johnson makes plans to create polygamous commune Frank Johnson agrees to commune subdivision plan

	Fall – Jerry begins tearing down Warren Johnson house for polygamous cabins
1926	December 13 - main ranch house burns (Warren Johnson house)
1927	Winter – Sweeter runs off with Dick Smith February – state highway crew sets up camp for Navajo bridge work July 27 – quit claim deed received from Grand Canyon Cattle Co. for ranch Visiting USGS engineer Baumgartner and wife living in Fort Adoplha & Marva Johnson living in Frank Johnson cabin at upper ferry site
1928	Navajo Bridge steelworkers housed in American Placer Corporation Office Visiting engineer Baumgartner resides in Fort New school building 10-room apartment, and four cabins constructed from Navajo Bridge scrap June 7 – Ferry accident kills three; last ferry run
1929	June 14 - Navajo Bridge completed; dedication ceremony August 19 – Jerry Johnson applies for homestead entry September 6 – water rights filing (Coconino County ?)
1931	February – Spencer & Treadwell mining corporations incorporated Spring - Spencer & Treadwell use American Placer Corporation Office July/November Spencer & Treadwell outfit uses old Fort as lab
1932	March 31 – Southern California Edison allows lease to expire April 8 – Public Water Reserve No. 107 April – Spencer & Treadwell operations become inactive; Al, Pete & Ada Nelson live in Fort Jerry Johnson receives formal land patent from US government May 16 - Johnson sells land back to church officials 3
1933	January 18 – USGS government reserve created at Lee's Ferry September 9 – Johnsons deed ranch to Meeks September 12 – Meeks deeds ranch to Church Bobby & Betty Jo Games occupy Frank Johnson cabin
1934	November – Leo, Hazel, and Billie Weaver move into new county schoolhouse December – Poli Hungavi begins construction of cobble stone ranch house
1935	February – Emett Schoolhouse (Samantha Johnson Cabin) refurbished March - stones from Johnson House foundation used in construction of Weaver Ranch house 3 March – county school house torn down March – Weaver re-aligns road through ranch to Paria Crossing & Upper Ferry site June – USGS designates Spencer buildings for removal July 26 – road from Flagstaff to Navajo Bridge declared state highway October – celebration of pioneers at Ferry December – Weaver constructs new dam
1936	January – Paradise Canyon Lodge completed February 1 - land sold to Leo & Hazel Weaver March – new dam overtopped; flood
1937	April - frame addition added to stone lodge

	November – USGS begins improvement program December – Highway 89 officially designated
1938	January – USGS improvement program continues
1939	August 5 – Weaver signs over ranch to Essy Bowers October – Essy & Sam Bowers take up residence; trees uprooted
1940	October 25 – Chester Augustus "Gus" Griffin and wife Ramona acquire Lonely Dell Ranch; Son Warren Griffin farms on ranch
1941	December 7 – "a day that will live in infamy"
1942	July – Spencer mining equipment removed in war time scrap drive
1943	Spring – Gus & Warren Griffin install river pump for irrigation; rehab irrigation system
1946	December – Bureau of Reclamation establishes camp near Fort for CAP investigations
1947	January/February/March – BOR base camp developed 426 November – improvements to USGS buildings; new sediment laboratory constructed
1950	May – USGS guest house constructed July – Claude Dellbridge assumes post of ranch caretaker for Gus Griffin
1951	Sid Wilson cabin burned
1956	October 15 – Glen Canyon Dam construction begins
1957	Construction of Page townsite begins
1958	March 6 – Gus Griffin retires from US Indian Service; takes up residence at ranch ; Claude Dellbridge continues to live in Samantha Johnson Cabin April 18 - Glen Canyon National Recreation Area established by agreement between Bureau of Reclamation and National Park Service
1959	February 20 – Glen Canyon Bridge dedicated Crampton says Upper Ferry cabins burned this year
1961	October – John D. Lee monument dedicated at Navajo Bridge
1963	NPS installs bridge over Paria River; other NPS facilities constructed over the next two years include: housing complex and ranger station maintenance yard new road to Lee's Ferry fort parking lot and boat ramps "L" shaped berm concession trailers (motel & store)
1964	August 15 - Gus Griffin sells Lonely Dell Ranch; Denver Evans, et al, next owner of record Spring - Lopp burns Frank Johnson cabin at Upper Ferry Lee's Ferry, Inc. gets concession license
1965	H.B. Embach conducts appraisal of ranch property

	January - Rusho & Crampton report complete April – Lee's Ferry, Inc. (store concessionaire) gets liquor license June 9 – consortium constructs two holding ponds west of Lonely Dell Ranch; consortium plants orchard south of Lonely Dell Ranch October – HABS documentation of Fort
1966	February 18 – Embach appraisal complete March – roof interior of old Fort treated with epoxy June 3 – Dirty Devil and Moab bridges dedicated September 22 – Glen Canyon Dam dedicated
1967	February 1 – Dept. of Interior abandons plans for Marble and Bridge Canyon dams February 7 – Dept. of Interior razed Spencer laboratory, blacksmith shop, two bunkhouses December 1 – Fort Lee Co. replaces Lee's Ferry Inc. as concessionaire
1974	June 14 - National Park Service purchases Lonely Dell Ranch property for $300,000 July - Weaver Ranch House property stripped of valuables by Jack Whiteman
1979	Fort Lee Co. concession moves to Page
1982	NPS restoration program
1985	NPS reconstructs boat-launch area, constructs public comfort station, removes concessionaire trailers, reconstructs road to maintenance yard
1999	Historic Structure Report commissioned

Chronology of Development and Use and Physical Descriptions by Structure

This section of the Historic Structure Report describes the chronology of development and use of the Lee's Ferry and Lonely Dell Ranch area. This portion of the report will focus on the history of each individual structure, site, and building.

Lonely Dell Ranch Site

- HS-232, Samantha Johnson Cabin
- HS-233, Polygamist Era Cabin
- HS-237, Warren Johnson House Foundation
- HS-234, Lonely Dell Ranch Root Cellar
- HS-235, Weaver Ranch House
- HS-236, Picture Window Shack
- Ranch Cemetery
- C:2:42F9, Lonely Dell Ranch Irrigation System

Lee's Ferry Site

- HS-220, Lee's Ferry Fort
- HS-221, American Placer Corporation Office
- HS-224, Chicken Coop
- HS-225, Lee's Ferry Fort Root Cellar
- HS-222, Spencer Bunkhouse
- HS-223, USGS Residence
- Upper Ferry Site
    - LFNCABIN, North Cabin at Upper (Main) Ferry Site (Structure #2)
    - LFSCABIN, South Cabin at Upper (Main) Ferry Site (Structure #1)
    - Ecorral, Large Corral (Structure #4)
    - Wcorral, Dugout (Structure #5)
    - Small Corral (Structure #3)

Lonely Dell Ranch

Site

The larger Lonely Dell Ranch site is visually defined by the canyon walls of the Paria River on the east and west, and the extent of leveled fields on the north and south. The historic structures that comprise the ranch are clustered in two areas. The main cluster, near the center of the historic ranch, includes two log cabins, the Samantha Johnson Cabin and the Polygamist Era Cabin, a stone Root Cellar, the Warren Johnson House foundation, and the Weaver Ranch House. Physically separate from the main cluster and located some two hundred yards to the north are the log building known as the Picture Window Shack and the Ranch Cemetery. An irrigation system consisting of a stone-lined ditch and control features runs the length of the site parallel to the river. The field immediately south of the main cluster is planted as an orchard. The other fields today lie abandoned.

Early Historic Period: 1871-1909 (ref. Fig. 3)

The earliest structures at the Lonely Dell site appeared in 1871 with the arrival of John D. Lee and his wife Emma. His first habitation was reported to be a hillside dugout, and soon after that, a rock building. The sites of both of these structures have been lost. While agricultural development was Lee's highest priority, in 1872 he began construction of a log cabin. (The cabin was probably located on the site of the current Warren Johnson House Foundation.) In the next year, various outbuildings and structures were constructed, including a stone corral, willow chicken coop, two rock rooms, and a dam on the Paria. Except for the dam, it is not known where Lee built these structures. The dam turned out to be a temporary structure, and was reconstructed later in the year on a different site higher up the Paria.

James Jackson, who had come to Lee's Ferry to take Lee's place, constructed a cabin in 1874. This cabin is said to have been located to the north of the Lee cabin. With Jackson's death in that same year, the Cemetery was established in its current location.

Warren Johnson arrived at the site in 1876 to take up residence in place of Jackson. In 1881 Johnson constructed several log cabins, including one for his second wife, Samantha, and her children and at least one other for the David Brinckerhoff family. Brinckerhoff had come to Lonely Dell to assist Johnson. In 1882 and 1883 Brinckerhoff and Johnson began making agricultural improvements, including clearing new fields and extending the irrigation ditch. In 1885 Johnson constructed a dam at a new site on the Paria.

Emma Lee, who had continued to live in the original Lee cabin after Lee had been replaced as ferryman, moved away in 1886. Johnson demolished the original Lee cabin and constructed a new, two-story wood-framed house in its place. The new house was completed in 1887.

In 1889, one of the log cabins, now surplus, was converted to a blacksmith shop using bellows donated by John Neilson.

James Emett replaced Warren Johnson as ferryman in 1897, moving into the Johnson house as his residence. Later that year Emett rebuilt the old Samantha Johnson house as a school, using salvaged lumber from the *Nellie* to extend the walls higher and add a gabled roof.

Gradual development of the irrigation system continued. Emett refurbished the dam in 1900, and in 1905 Irving C. Pierce built a tunnel-and-flume system to conduct water from two miles up the Paria to the ranch.

Middle Historic Period: 1909-1933 (ref. Fig. 4)

The Grand Canyon Cattle Company (Bar Z Brand) purchased the ranch in 1909. The old Warren Johnson house was then used as the ranch house for the cattle company. In 1911, the house was also designated as the Lee's Ferry post office. This use continued until 1914. Agricultural use of the ranch continued under Frank and Jerry Johnson, Warren Johnson's sons.

In 1925, the LDS church repurchased the Lonely Dell Ranch from the Bar Z company. Frank and Jerry Johnson seized upon the opportunity to create a polygamous Mormon commune at Lonely Dell. By fall of that year, Jerry Johnson began dismantling of the old Warren Johnson House, using the salvaged lumber to build cabins for the polygamist families he wanted to attract. Apparently he didn't get too far along, because most of the house was destroyed by fire in 1926.

A new school building, a 10-room apartment, and four cabins were constructed in 1928 using salvaged materials supplemented by scrap from the construction of Navajo Bridge.

Jerry Johnson applied for a homestead entry on the Lonely Dell land in 1929, in an effort to clear up the title. Johnson listed two main buildings as improvements on the land: a cabin built in 1881 (presumed to be the Samatha Johnson cabin) and a second cabin built in 1925 (probably one of the cabins built for polygamist families). Johnson received a patent on his land in 1932.

Late Historic Period (1933-1950) (ref. Fig. 5)

Leo Weaver acquired the Lonely Dell in 1934 in hopes of fulfilling his vision of "Paradise Canyon Ranch". He moved his family into the new county schoolhouse constructed by Johnson's Mormon group. After fixing up the old schoolhouse (Samantha Johnson Cabin), he moved into it.

The polygamists who had lived on the site for so long had several conflicts with Weaver. Because of the friction, they abandoned the site. Many relocated to Colorado City (then called Short Creek).

Weaver set about constructing his grand ranch house. With the assistance of a Hopi mason, he began construction of the stone Weaver Ranch House using materials salvaged from the Warren Johnson House foundation as well as abandoned buildings near the old Fort. The Carling Spencer Cabin (one of the polygamist cabins) was used as guest quarters. The first phase of construction of the ranch house was completed in 1936. Weaver also re-oriented the main access road into the ranch, probably soon after he acquired it. The entry to the ranch today is largely the result of his efforts.

Weaver expanded the ranch house in 1937 with the construction of a wood-frame addition, partly built from lumber salvaged from the county schoolhouse, which he demolished.

During Weaver's time on the site, the Ranch continued to be used for agriculture. A well was drilled. Weaver also tried to reestablish the dam on the Paria River, repeating many of the mistakes of his predecessors.

Weaver sold the ranch to Essy Bowers, one of his dude-ranch clients. Bowers' main legacy on the ranch is that she ordered the orchard of 60-year-old fruit trees to be uprooted in 1939.

Gus Griffin acquired the ranch in 1940. Gus' son, Warren Griffin assisted in the farming operations at the ranch. The Griffins updated the entire irrigation system,

lining the ditches and installing a pumping system to eliminate the need for dams on the Paria River. Griffin retained ownership of the ranch into the 1960s, making a few additions and alterations to various buildings but apparently doing no major construction.

Modern Period

Claude Dellbridge took over as caretaker for Griffin from 1950 until 1958, although he continued to live and work at the ranch after Gus Griffin's retirement and return to the ranch. Delbridge lived in the Samantha Johnson Cabin, possibly being responsible for the addition of the porch.

Griffin sold the ranch to a consortium led by Denver Evans in 1964. Evans' group made few contributions to the development of the site. Two holding tanks were constructed for irrigation water. These ponds provided water to irrigate a large orchard planted by the consortium in 1965. The National Park Service acquired the site from the consortium in 1974. In a final act of what some called vandalism, interior furnishings and many artifacts were removed from the Weaver Ranch House after the sale.

The Park Service initiated a stabilization and restoration program in 1982 that resulted in the replacement and consolidation of deteriorated logs and timbers in the Samantha Johnson Cabin, which had come to be known as Emma's Cabin, and the Polygamist Era Cabin, which had come to be known as the Blacksmith Shop. In 1997, Park activities to construct a trail up the Paria canyon resulted in removal of the wooden flume that had been in place since 1905.

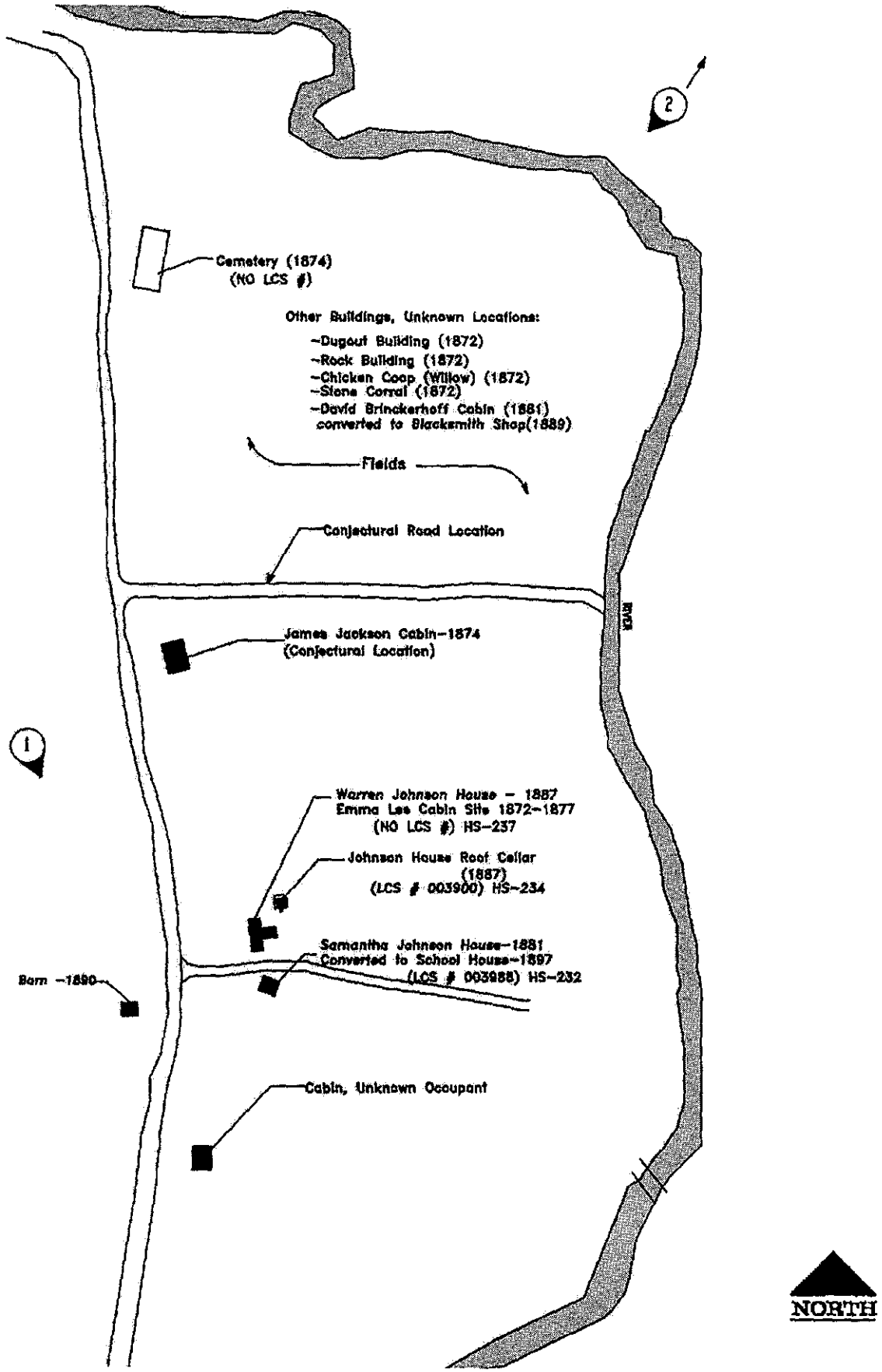


Figure 3: Lonely Dell Ranch, Early Historic Period (1871-1909)

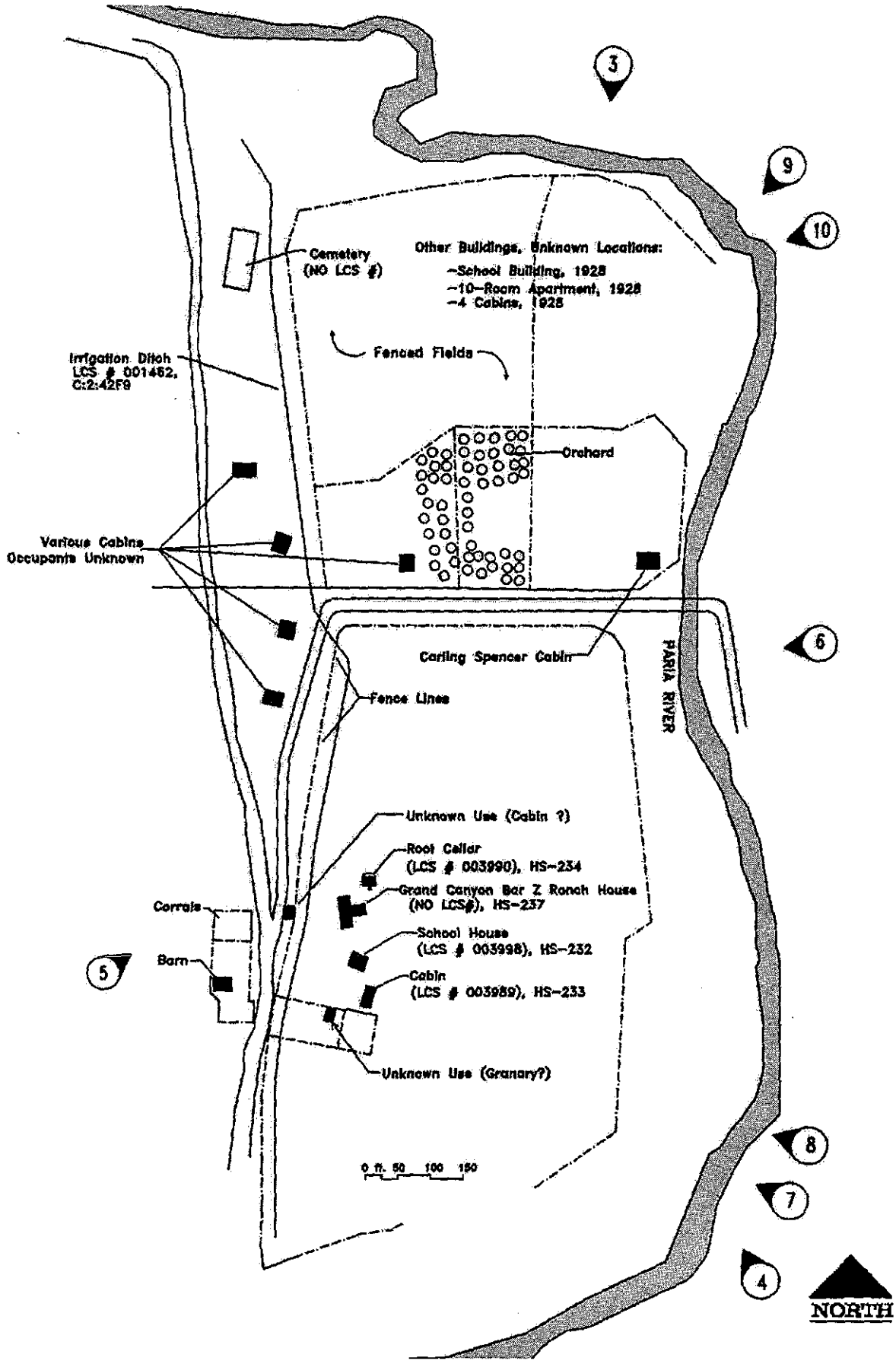


Figure 4: Lonely Dell Ranch, Middle Historic Period (1909-1933)

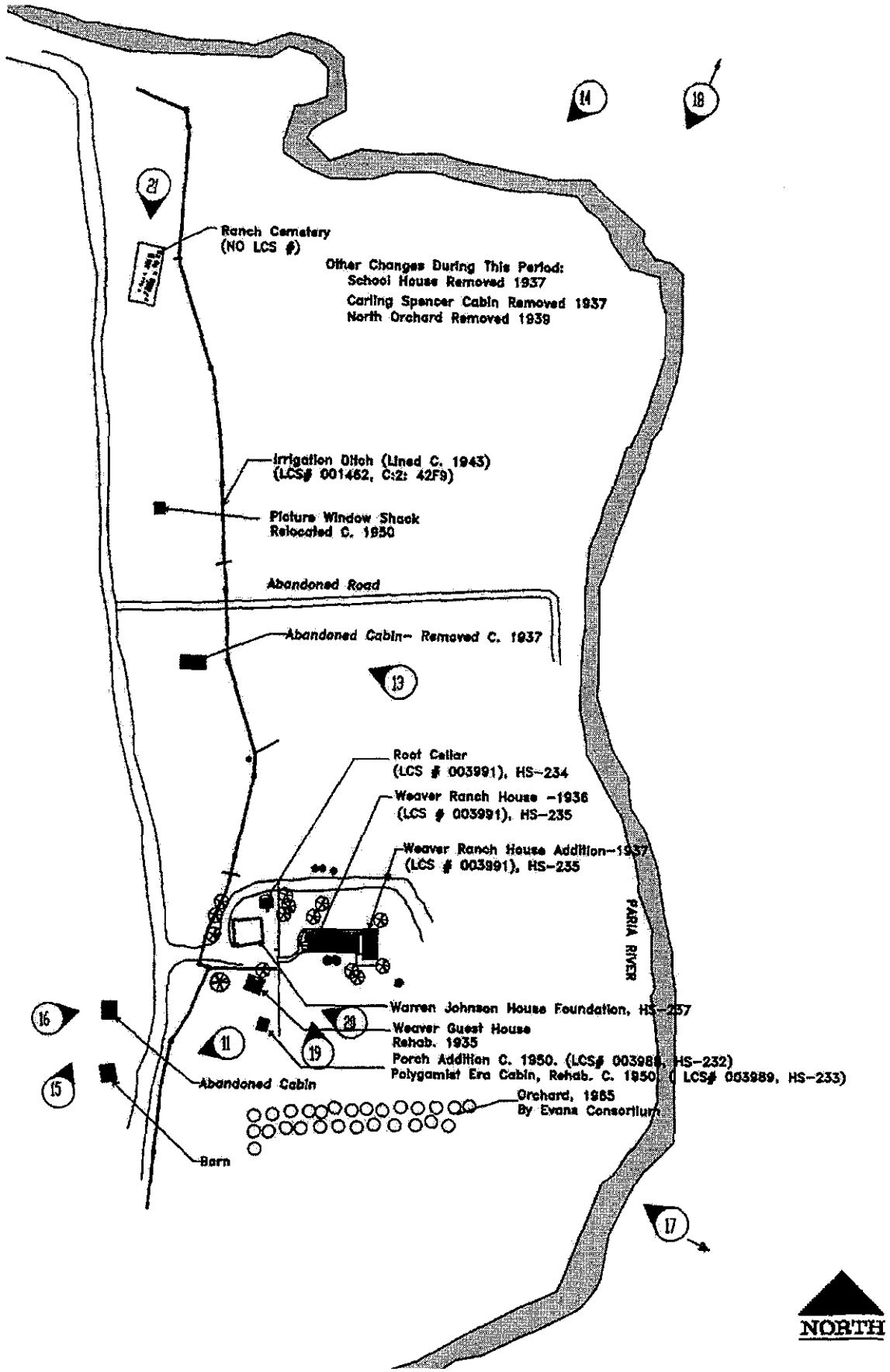


Figure 5: Lonely Dell Ranch, Late Historic Period (1933-1950)

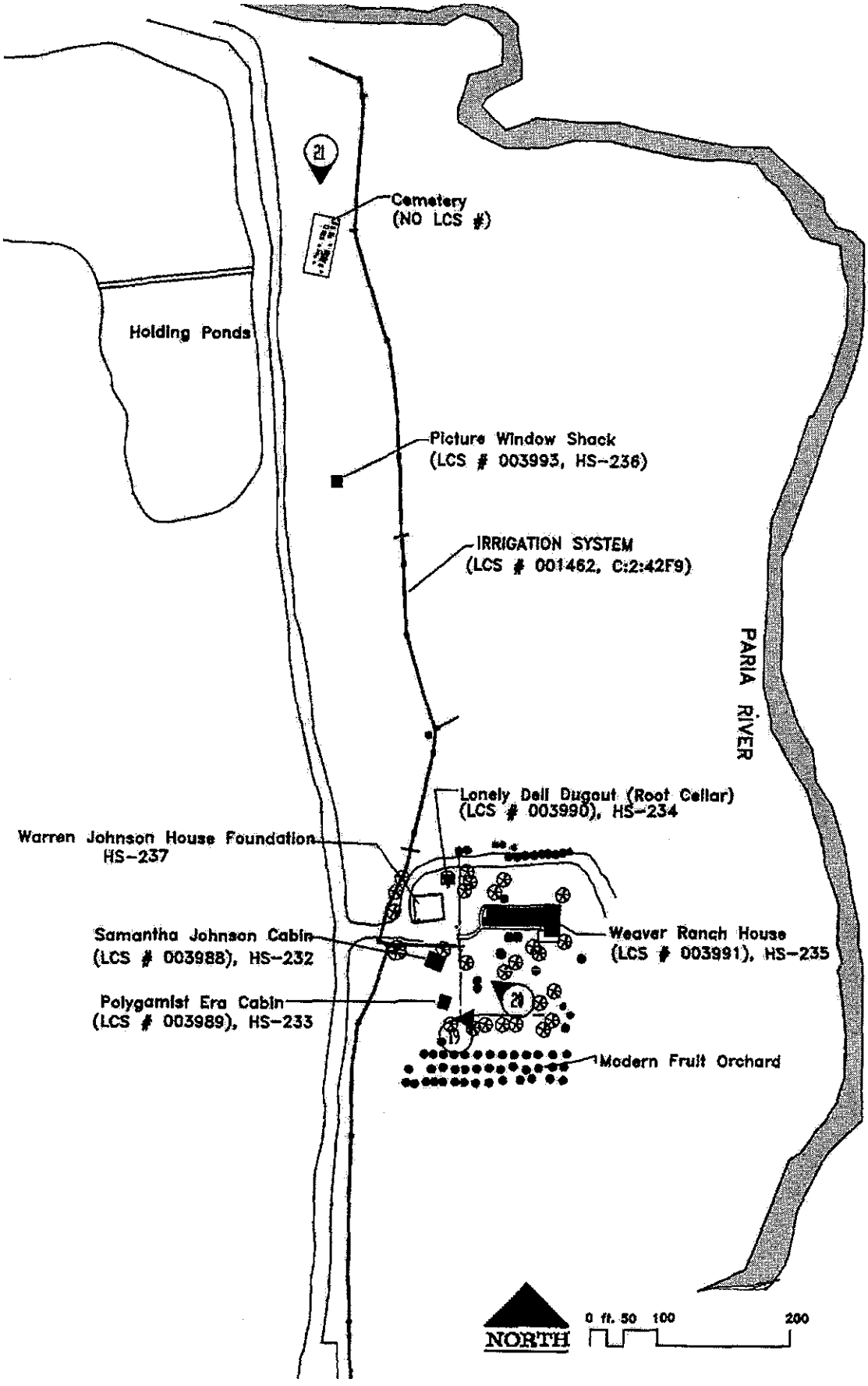
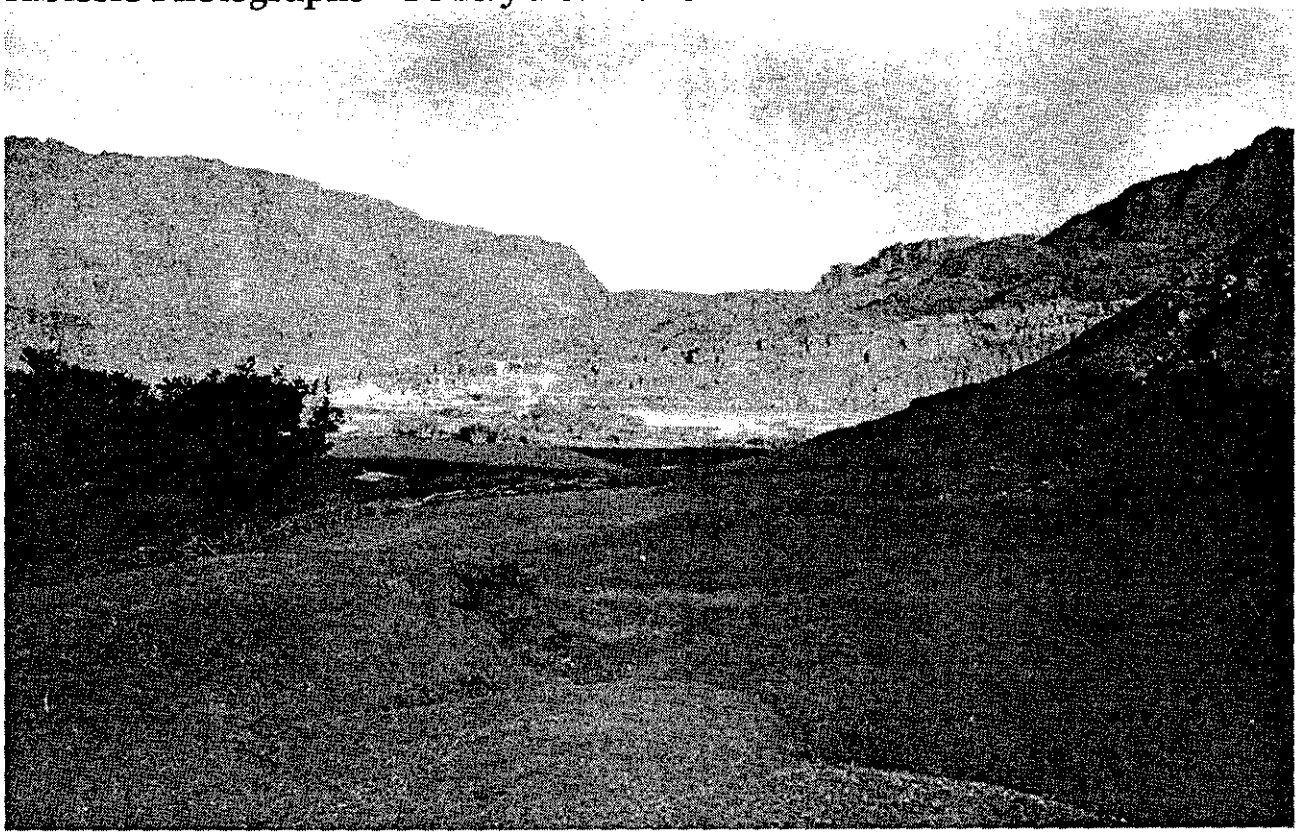
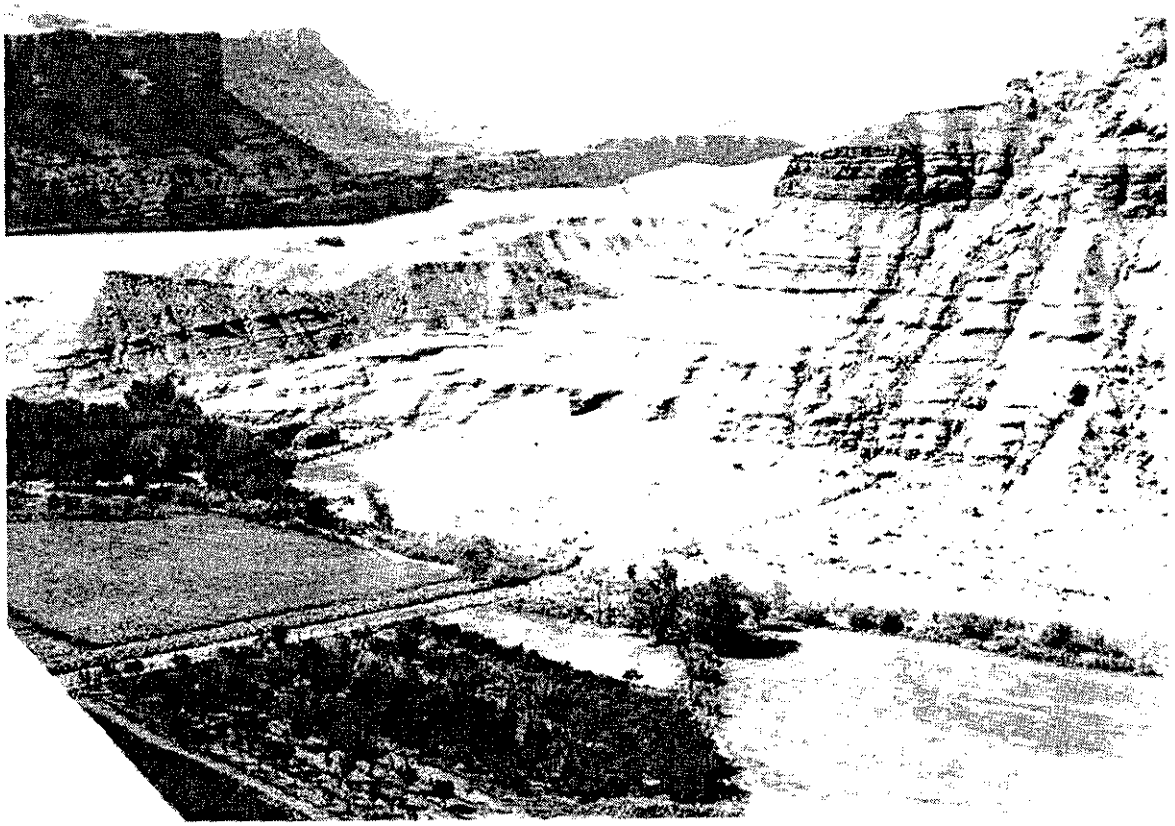


Figure 6: Lonely Dell Ranch, Existing Conditions

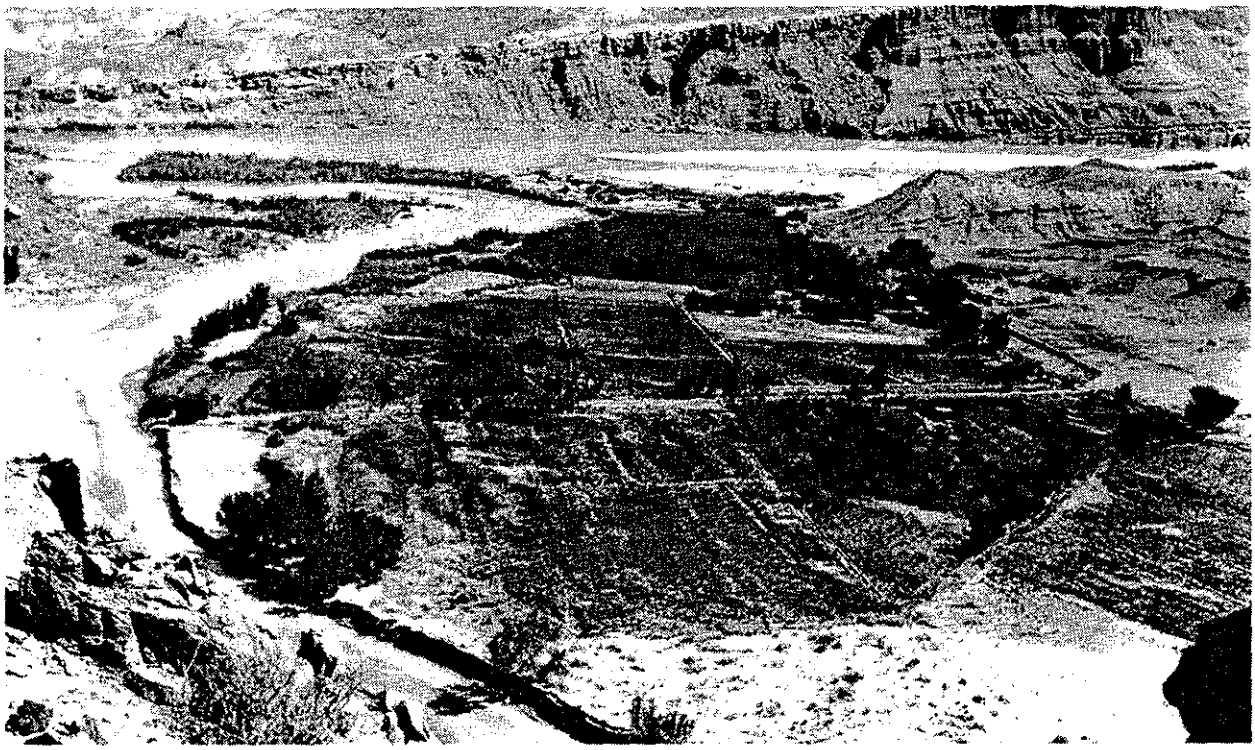
Historic Photographs – Lonely Dell Ranch



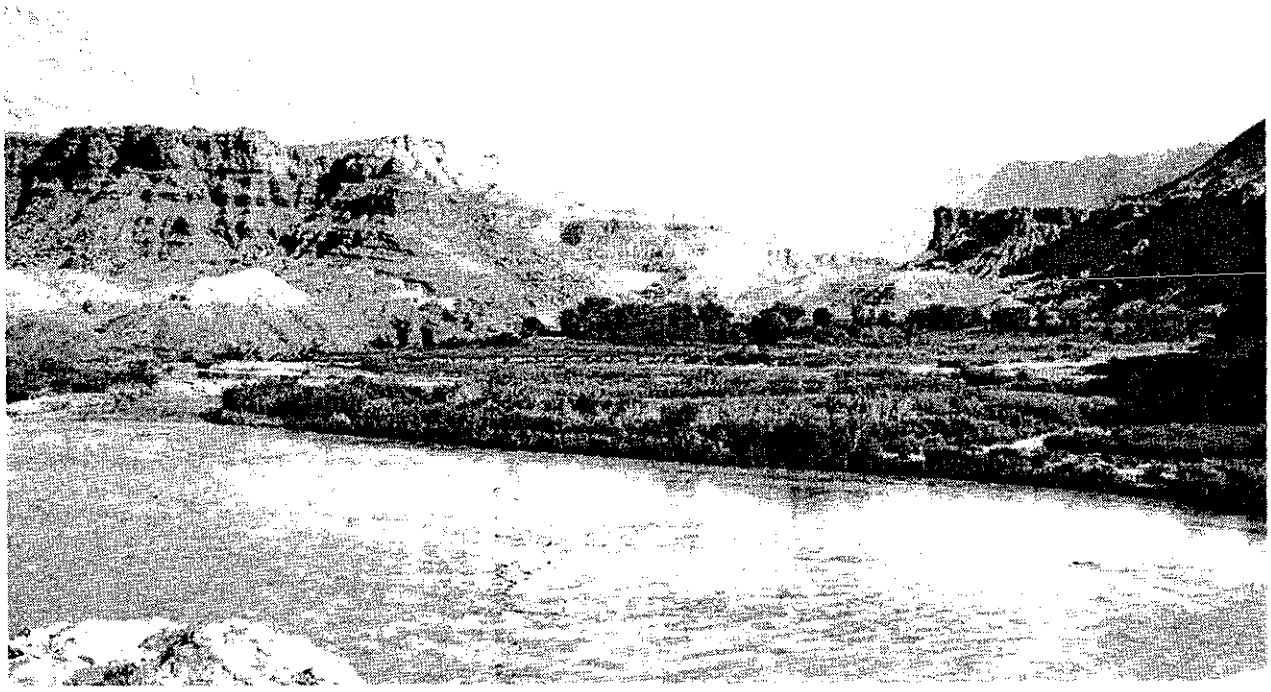
Photograph 1: Lonely Dell Ranch, 1892 *Cline Library – NAU, P.T. Reilly Collection*



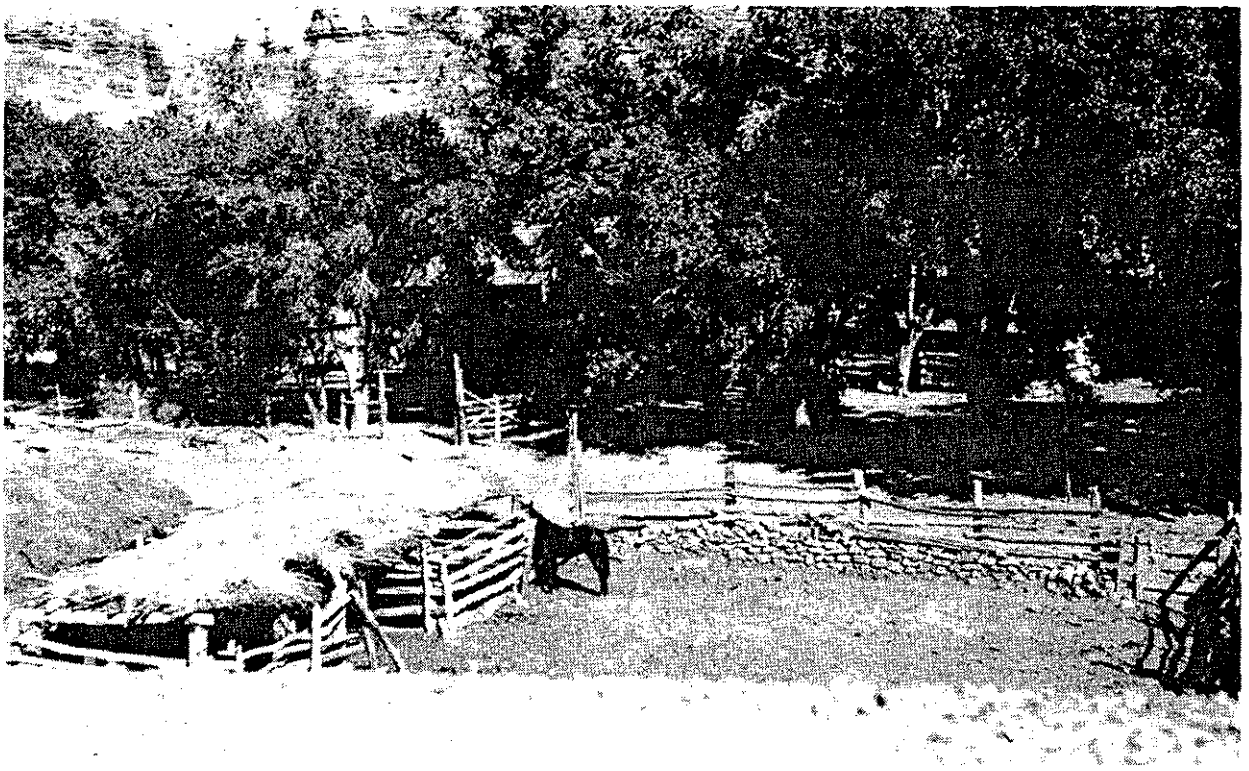
Photograph 2: Lonely Dell Ranch, 1898 *LDS Historical Dept.*



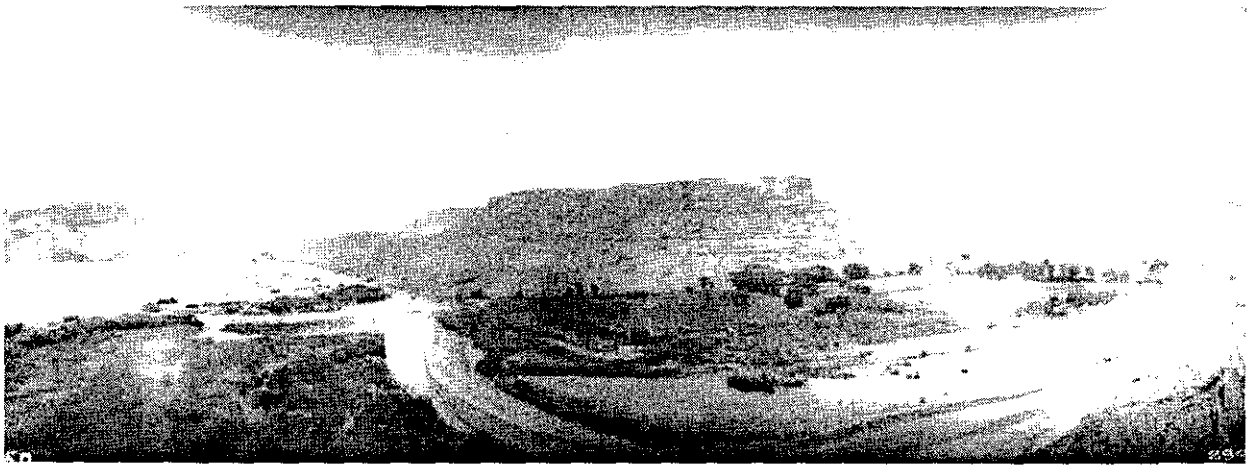
Photograph 3: Lonely Dell Ranch, June 10, 1910 *Cline Library – NAU, P.T. Reilly Collection*



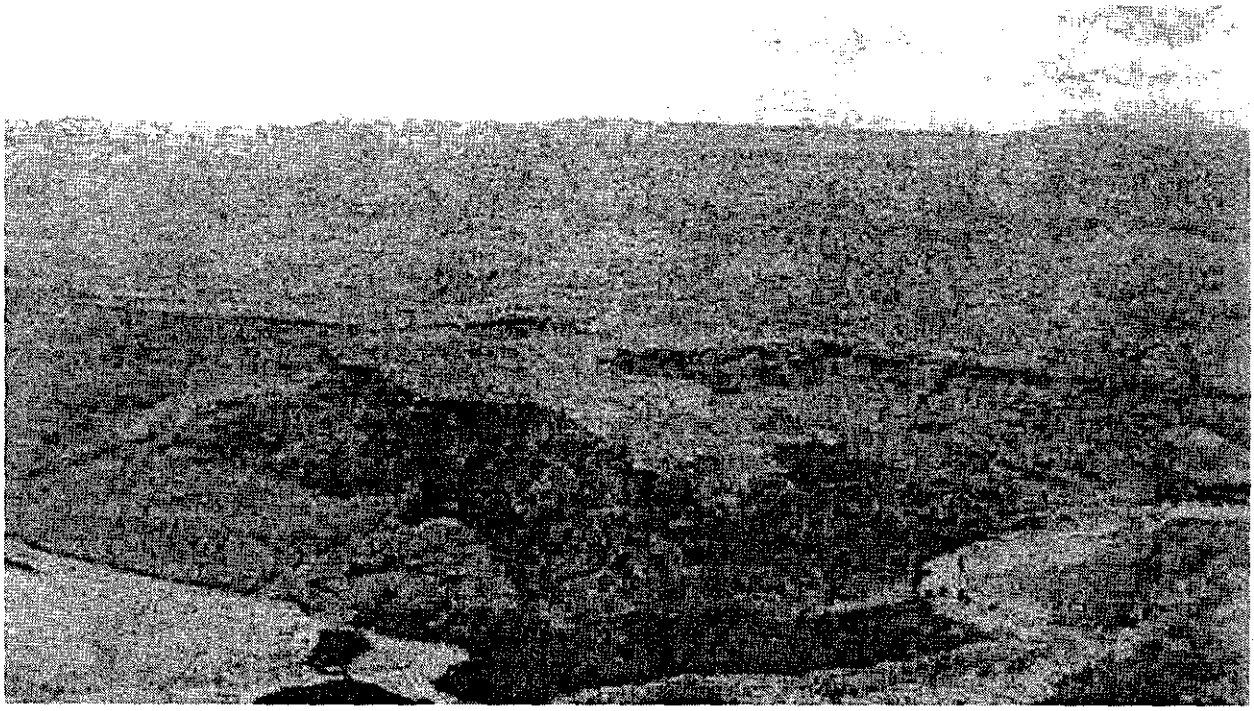
Photograph 4: Lonely Dell Ranch, viewed from Colorado River looking north, 1915 *USGS*



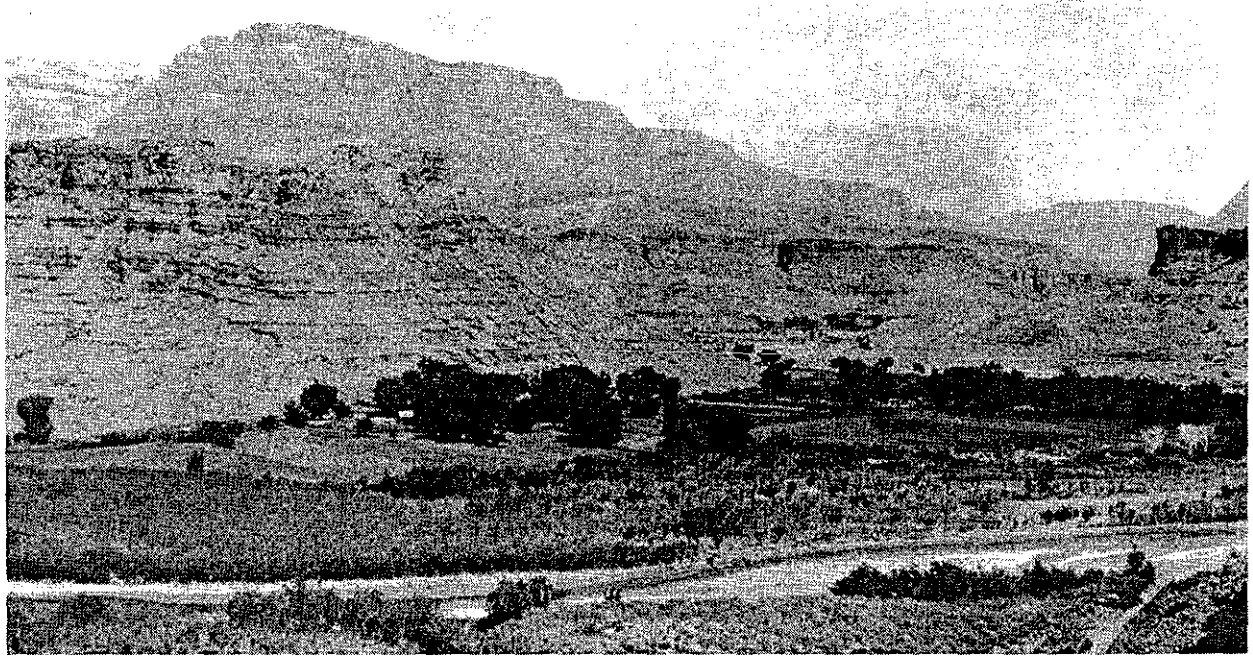
Photograph 5: Lonely Dell Ranch, 1915 *Cline Library – NAU, P.T. Reilly Collection*



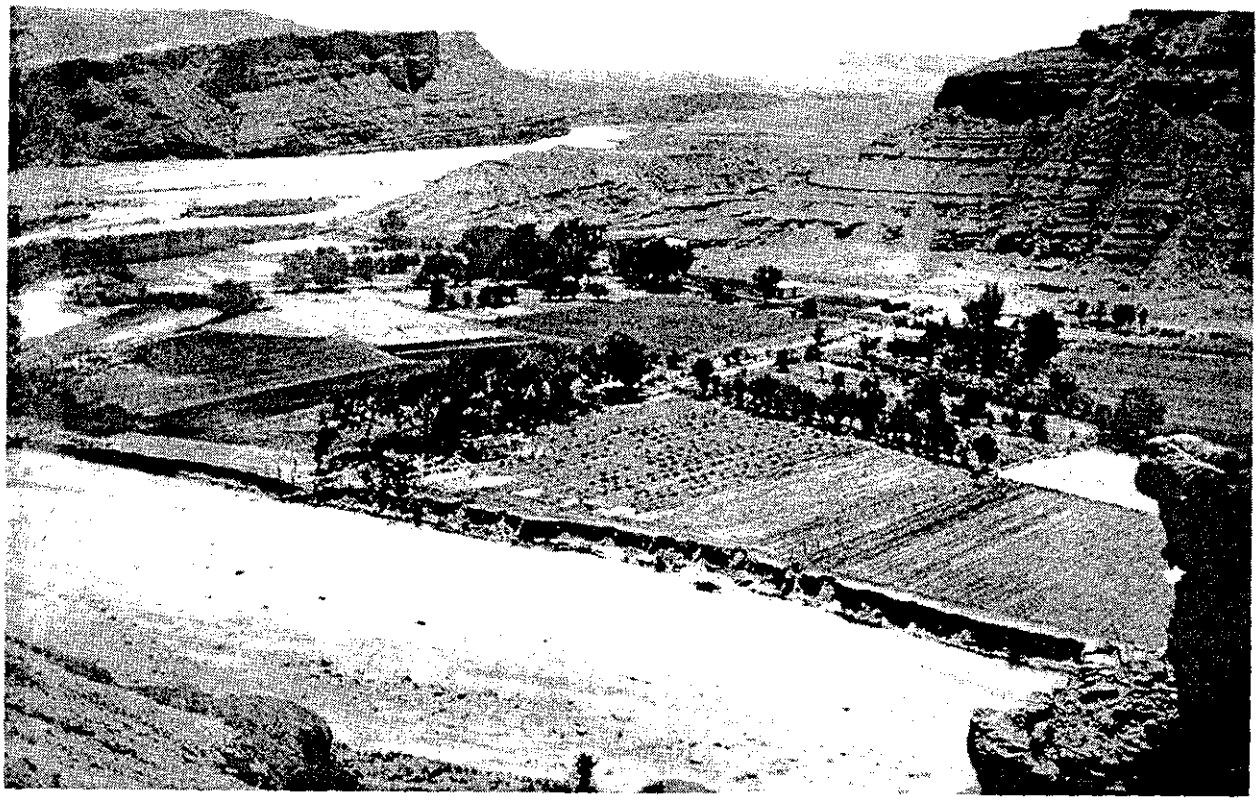
Photograph 6: Lonely Dell Ranch, 1921 *USGS*



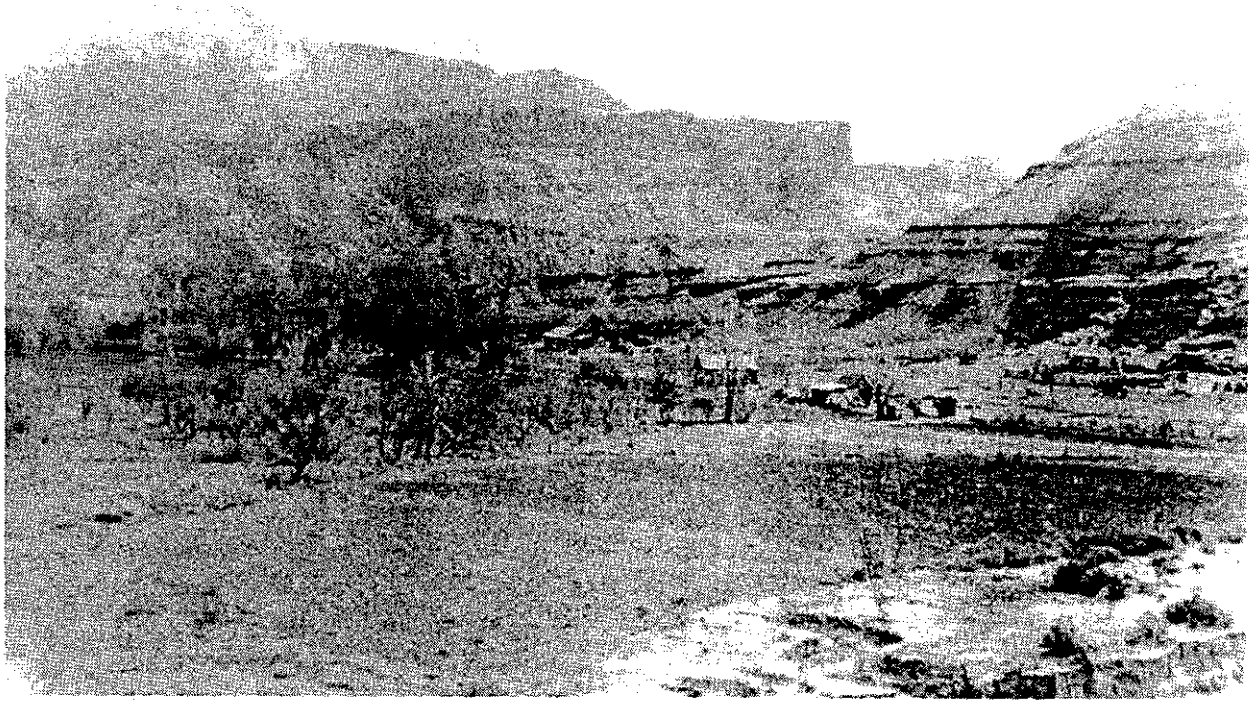
Photograph 7: Lonely Dell Ranch, 1922 *Arizona State University*



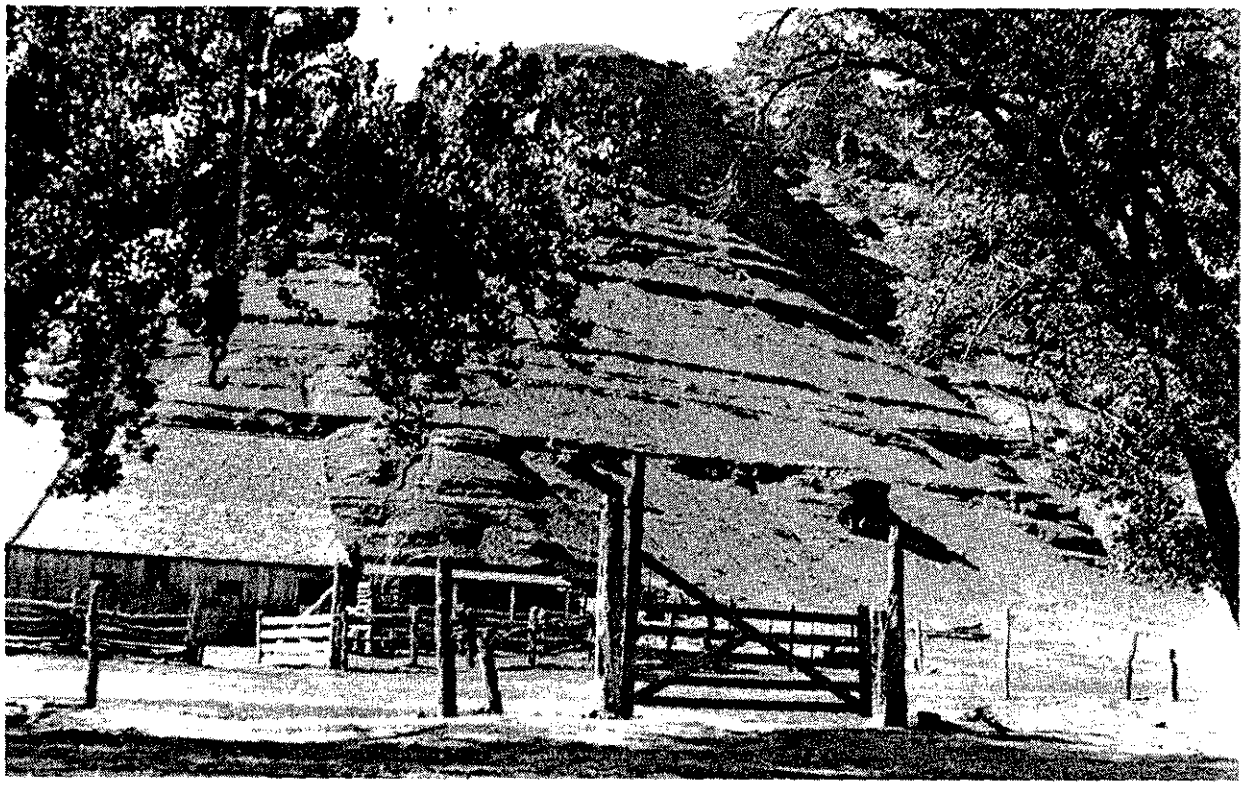
Photograph 8: Lonely Dell Ranch, June 28, 1923 *Cline Library – NAU, P.T. Reilly Collection*



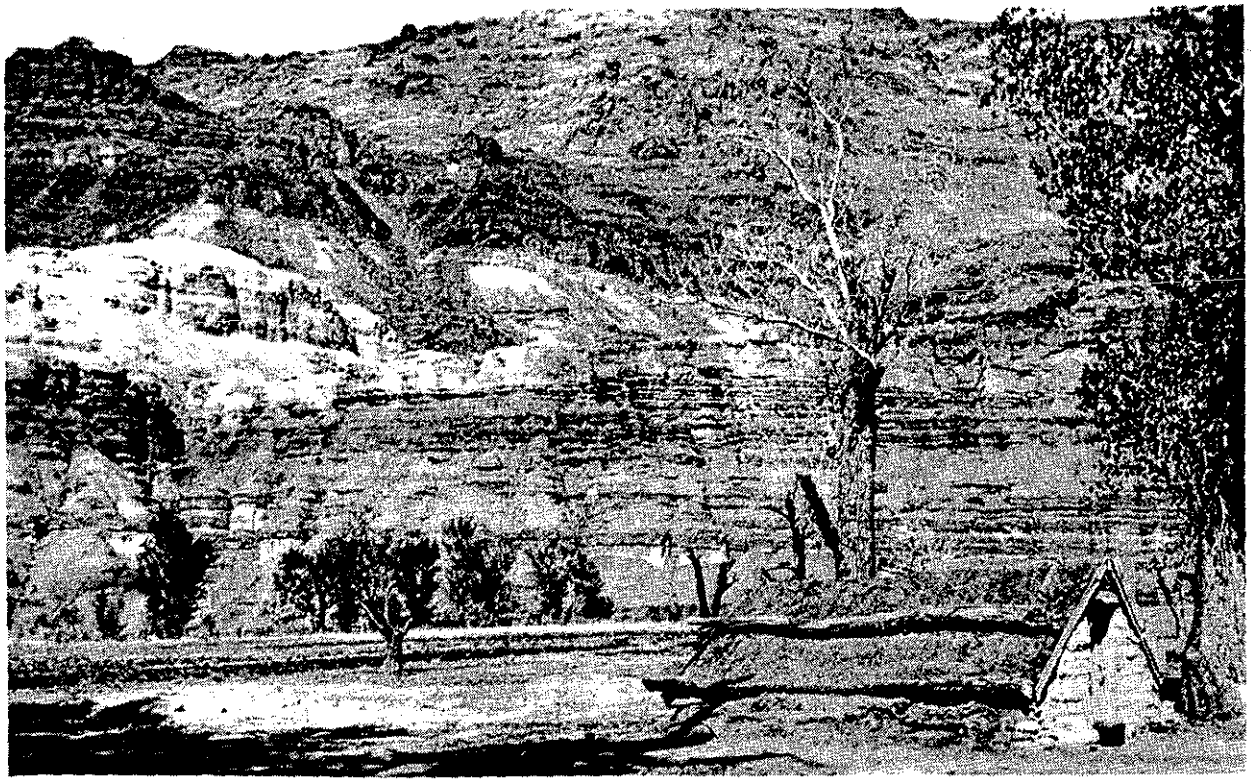
Photograph 9 *Cline Library – NAU, P.T. Reilly Collection*



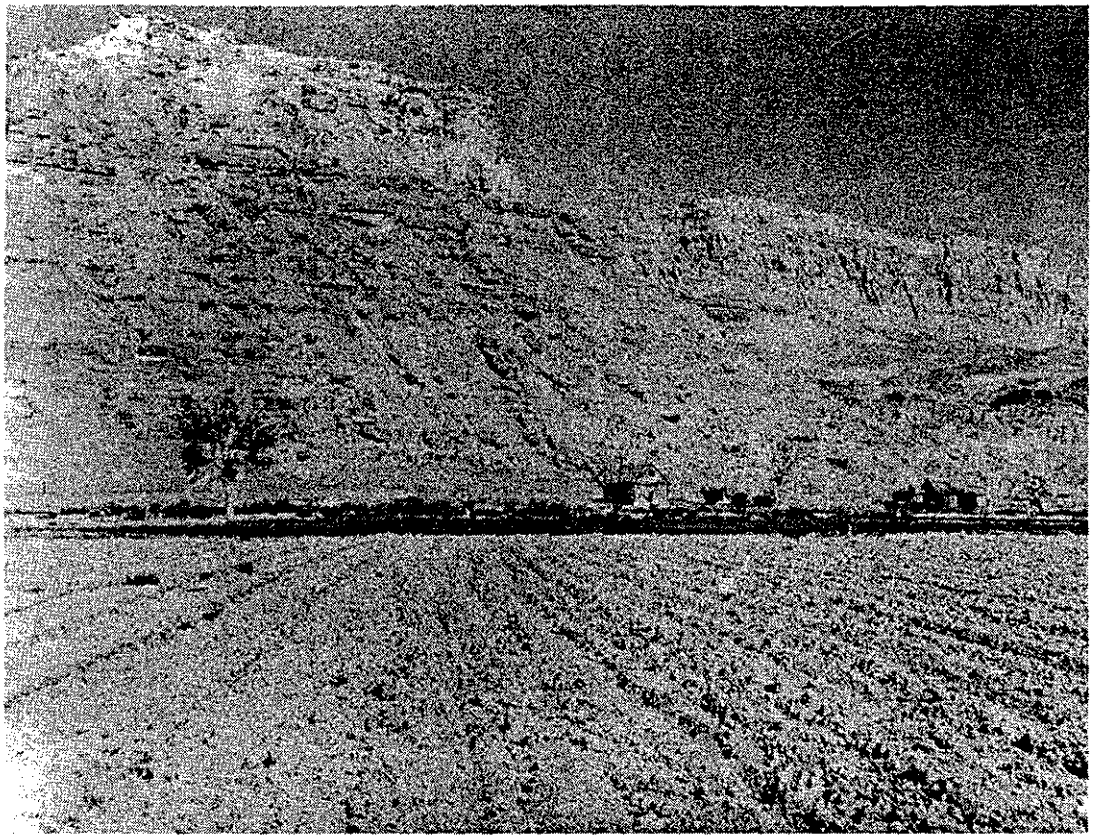
Photograph 10: Lonely Dell Ranch c. 1931 *Cline Library – NAU, P.T. Reilly Collection*



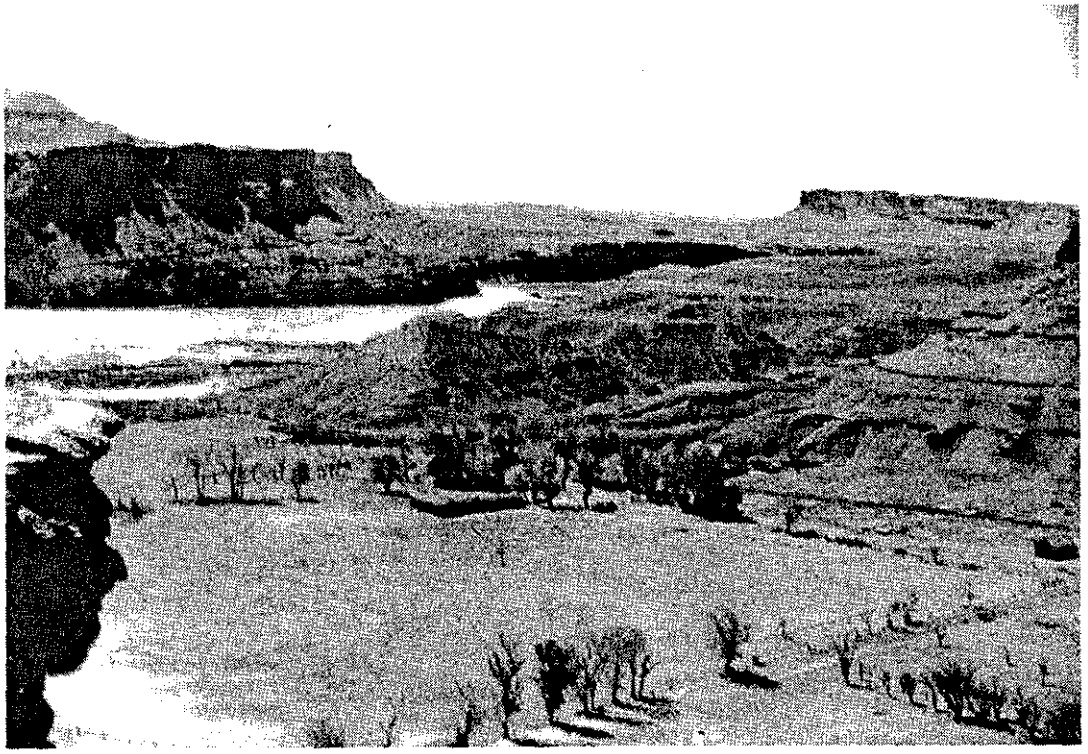
Photograph 11: Lonely Dell Ranch, Barn c. 1936 *Cline Library – NAU, P.T. Reilly Collection*



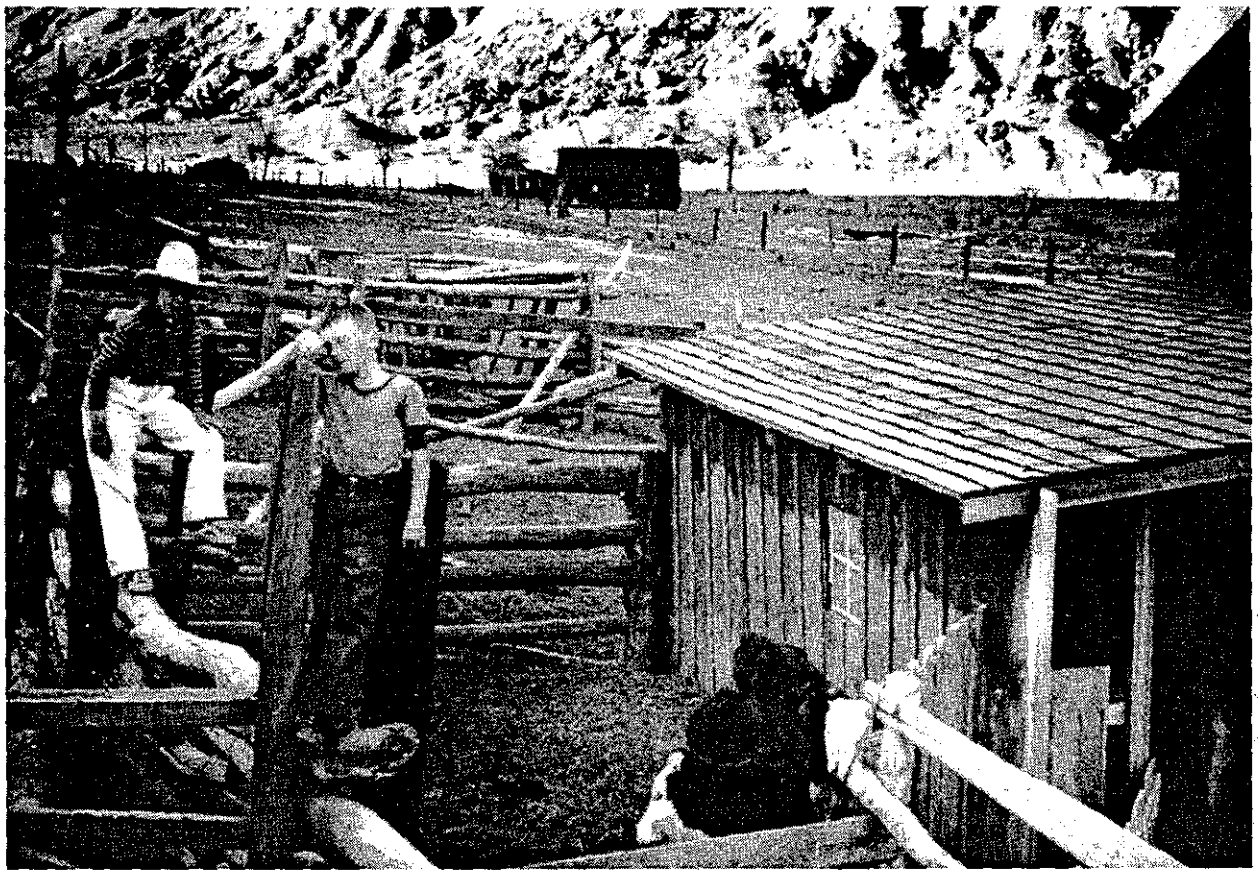
Photograph 12: Lonely Dell Ranch, Carling Spencer Cabin c. 1936
Cline Library – NAU, P.T. Reilly Collection



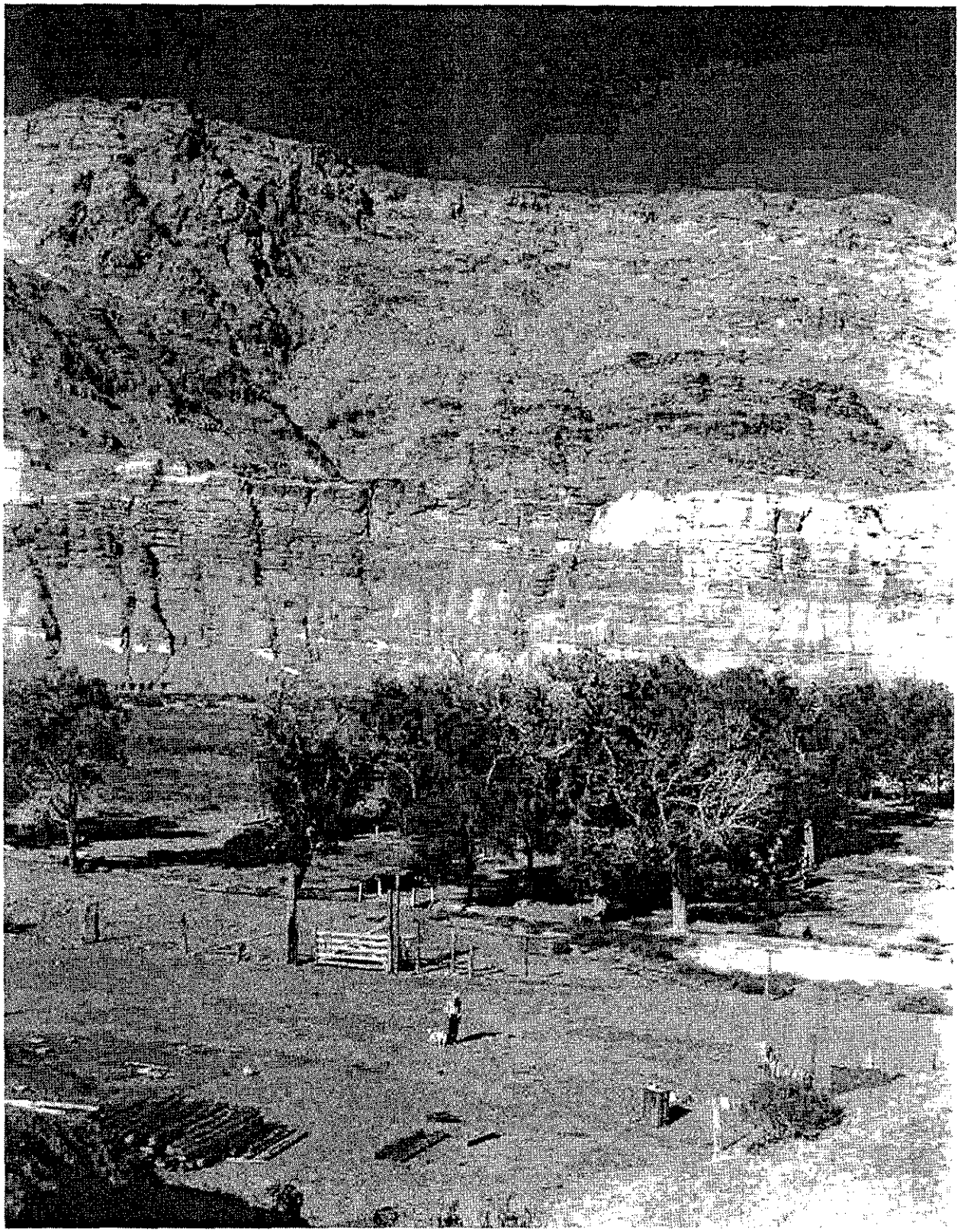
Photograph 13: Lonely Dell Ranch, Jerry Johnson Cabin c. 1936
Cline Library – NAU, P.T. Reilly Collection



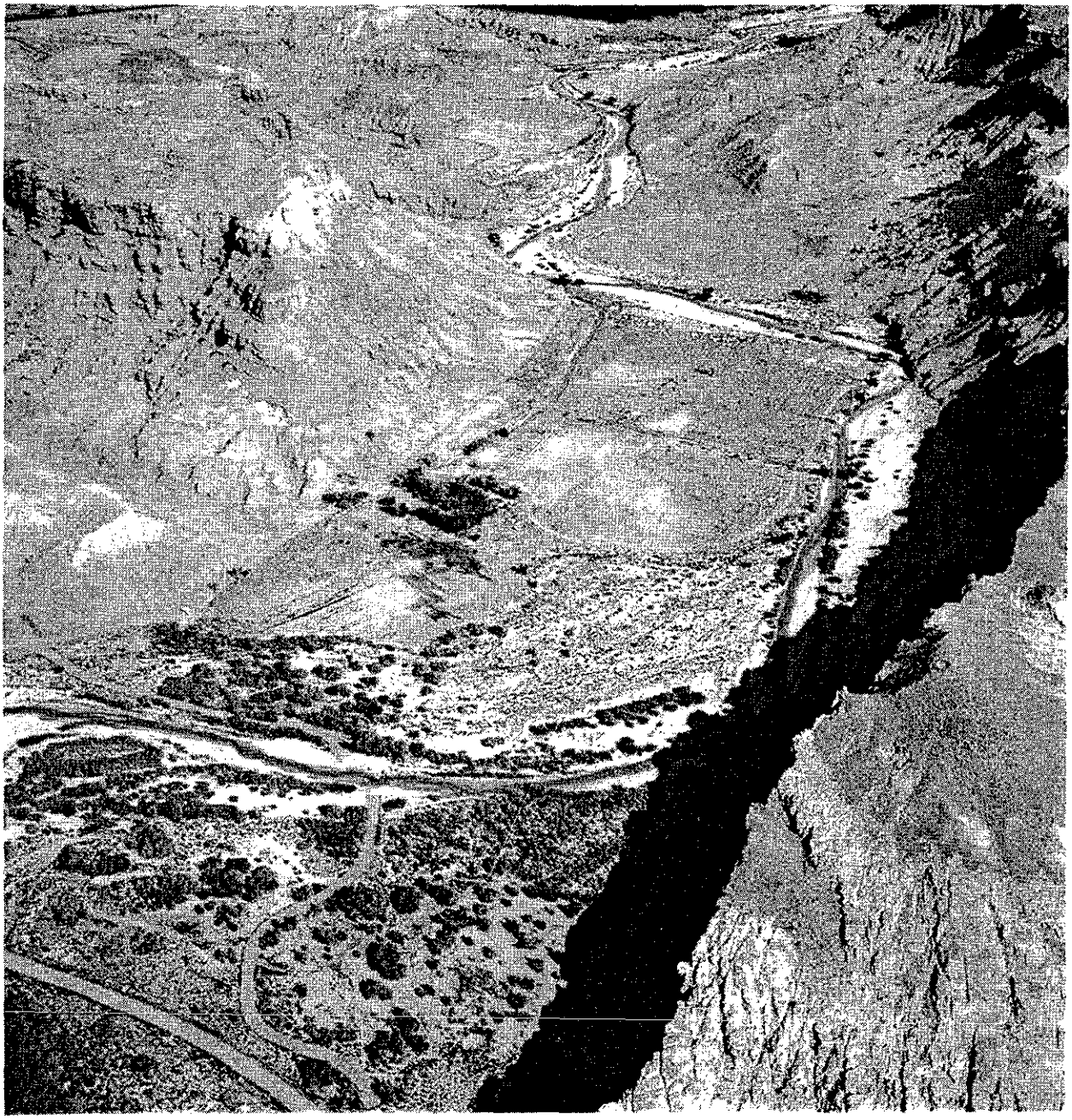
Photograph 14: Lonely Dell Ranch, April 1939 *Cline Library – NAU, Wagener Collection*



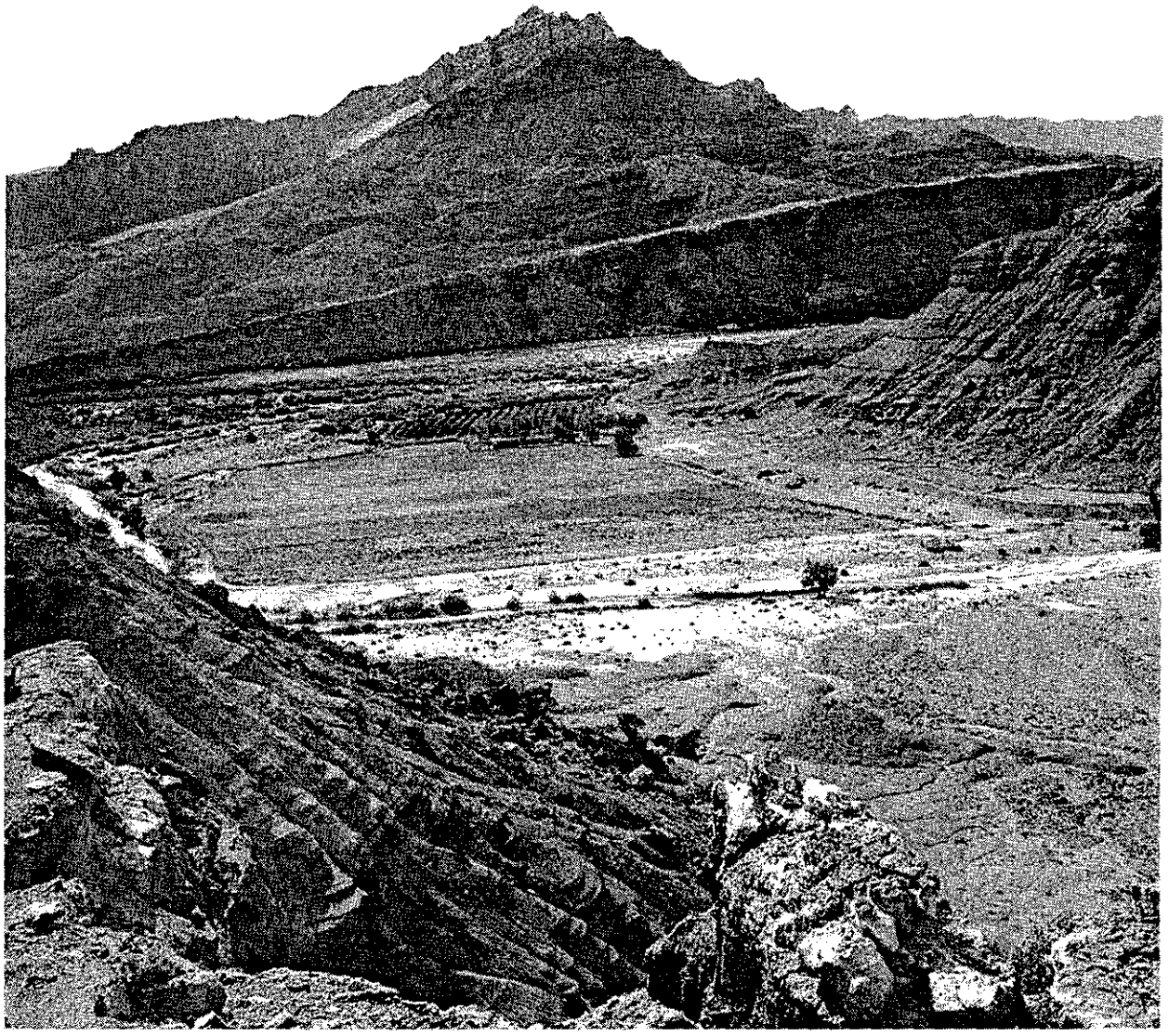
Photograph 15: Lonely Dell Ranch, April, 1939 *Cline Library – NAU, Wagener Collection*



Photograph 16: Lonely Dell Ranch, 1959 *New Mexico State Archives*



Photograph 17: Lonely Dell Ranch, June 6, 1965 *Cline Library – NAU, P.T. Reilly Collection*



Photograph 18: Lonely Dell Ranch, October 9, 1969 *Cline Library – NAU*

Modern Photographs – Lonely Dell Ranch



Photograph 19: Modern view of Blacksmith Shop and Weaver Ranch House



Photograph 20: Modern view of Blacksmith Shop and Emma's Cabin



Photograph 21: Northern end of site, from Cemetery looking south, 1999

HS-232, Samantha Johnson Cabin

Chronology of Development and Use

The Samantha Johnson Cabin has a long and complicated chronology of development, primarily representing four periods: the Johnson original construction period; the Emett schoolhouse renovation; the Weaver guest house renovation; and later alterations probably by Gus Griffin. The National Park Service has executed various small-scale maintenance, stabilization, and restoration projects after acquisition.

This building has often been erroneously attributed to John D. and Emma Lee. The original Emma's Cabin was demolished to make way for the Warren Johnson House in 1886.

Original Construction: Warren Johnson

The building was constructed in 1881 shortly after Warren Johnson took over operation of the Ferry. He used it as a home for his wife Samantha and her children.[1]

The original building probably consisted of a single log pen about six feet in height with a log, brush, and dirt roof. The entry door faced north, and windows probably occurred on the east and west sides. The lowest six feet or so of existing log walls is thought to be of this original construction period, with the exception of sill logs replaced in a modern stabilization. The existing north door opening is in the location of the original. The east and west windows, if from this period, exist in modified form.

Because no photographic or documentary evidence has been found from this period of development, the original configuration as described above is conjectural based mostly on the details of the existing building. The lowest six feet of wall material appears to be hewn from logs, possibly driftwood from the Colorado. Above this level is dimensional lumber, clearly of a later addition. From the pattern of logs in the wall, it can be seen that today's east door originated as a window and was later enlarged. Cuts on the logs indicate that the west window has also been enlarged. The form and material of the roof is conjecture based on materials that were available at the time at Lee's Ferry and the precedent set by historic photographs of other contemporary buildings at the site.

Emett Schoolhouse Alterations

In 1897, shortly after James S. Emett became ferryman, he converted this building into a schoolhouse for his children and other children at the ranch. He used wood salvaged from the placer mining barge *Nellie* that was owned by John R. Neilson and abandoned on the Colorado River.[2]

Emett's alterations included extending the walls upward to their current height and construction of the gabled roof. The gunwales and other timber from the *Nellie* are of 4" thick lumber and were placed atop the earlier hewn logs. There are a few pieces of dimensional lumber present further down in the structure (most notably on the east side), but it is not known whether these were repairs installed by Emett or whether Johnson may have also used some salvaged ferryboat lumber in his original construction. The roof structure is also of salvaged lumber assembled

[1] P.T. Reilly, Lee's Ferry: From Mormon Crossing to National Park (Logan: Utah State University Press, 1999), p. 91.
[2] Ibid., p. 115 and 160-161.

using cut nails. The rafters are of various sizes and two of the collar ties have painted designs and have metal grommet holes in them. These features reinforce the conclusion that Emett was responsible for the roof construction using pieces of the *Nellie* and 19th-century materials. Based upon available technologies of the time, the roofing material was probably of wood shingles or rolled composition; but as no photographs exist of this period, the exact material is not known.

Other alterations attributed to Emett include the addition of the south window and the addition of the floor joists and original flooring (later replaced).

The salvaged wood used in the Emett alterations has often been incorrectly attributed to John W. Powell's boat the *Nellie Powell*. However, the timbers used in the *Nellie Powell* were much smaller than those of the *Nellie*. The error is probably attributable to confusion between the similar names.

In later years of this period, the Cabin was used for visiting travelers. During the mid-twenties, it was converted back to use as a schoolhouse during the time Jerry Johnson established a polygamous commune at the ranch. Some time between the Emett conversion in 1897 and 1928, a room addition was made to the east side of the cabin [Photograph 9]. This addition had clapboard siding and measured about ten feet by ten feet in plan. The east window was probably converted to a door at this time to gain access to the room addition.[3]

School activities were transferred to a new school building in 1928.[4]

Weaver Alterations

In 1935, after Leo Weaver assumed ownership of the property, the building was refurbished and cleaned as a guest cabin for his visitors. [5]

Work done by Weaver at this time included installation of ceiling joists and a paperboard ceiling, rehabilitation of doors and windows, and whitewashing of the walls. It appears that Weaver also removed the north wall of the room addition to form an entry porch for the east door [Photograph 10]. The full nature of the door and window alterations at this time is not known. The north door and screen door were replaced. The ceiling installation involved mortising the ceiling joists into the log wall at either end. Interestingly, the perimeter 2 x 4 ceiling ledger is nailed to the outer wall with cut nails, and fragments of old newspaper were found behind it. The newspaper's type style and subject matter imply publication prior to 1935, but no definitively dated scraps were found. The newspaper and the cut nails would tend to indicate that the loft is 19th century construction. Perhaps this portion of the ceiling framing predates Weaver. Roof materials shown in historic photographs show a smooth, light colored material, which is assumed to be rolled composition roofing.

Griffin/Evans Period

During the fifties, the building was occupied by Claude Dellbridge, a caretaker for Gus Griffin.[6] In 1964 the site was purchased by the consortium led by Denver Evans.[7]

Alterations during the early part of this period (1940-56) included complete removal of the eastern room/porch addition [Photographs 11 and 12]. It is also likely

[3] Ibid., p. 315.
[4] Ibid., pp. 327-328.
[5] Ibid., p. 379.
[6] Ibid., p. 434.
[7] Docket 226 of Deeds, p. 24, Coconino County Recorder, Flagstaff.

that the paperboard ceiling was removed at this time and a wooden loft floor was installed atop the ceiling joists.

Later in this period (1956-64), a new porch was constructed, substantially as seen today except that the posts were originally knee-braced. The trim around the south window was added, and the building (which had lost the Weaver-era whitewashing) was left natural wood except for white trim [Photograph 13].

Some "restoration" work was evidently performed by the Evans consortium between 1967 and 1974. This work encompassed removal of the porch knee braces, addition of wood shingle roofing, and general repairs. The interior ladder to the loft may have also been added at this time.[8]

National Park Service Restoration Work

The building was acquired by the National Park Service in 1974 as a part of Lonely Dell Ranch.[9] Since that time, NPS has used the building as an interpretive feature of the Lonely Dell Ranch Historic District. The building is interpreted as "Emma's Cabin", and both the interpretive plaque at the gateway to the site and the walking tour guide emphasize a connection to Emma Lee. A building identification sign is placed near the east side of the building.

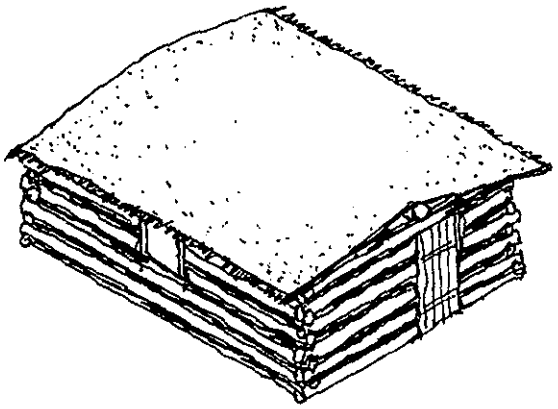
The National Park Service used this building for a training exercise in the restoration of historic log cabins in 1982.[10] Extensive work was done at this time to restore many aspects of the cabin:

- Sill log and log #3 on the right side replaced.
- Door and door jamb repaired, door sill replaced.
- Electrical and gas features removed.
- Rear sill log replaced.
- Front sill log repaired using 2 x 10 redwood plank under the door.
- Building raised approximately 3" on the left side.
- Stone foundation piers constructed at each corner, at center of spans, and at both sides of door jambs.
- Original floors and 3" to 6" of dirt removed from under floor.
- New floor structure of 4 x 4 sleepers on 4 x 4 sills installed, supported on mortared stone pads. New flooring of custom-milled shiplap pine laid over ¾" thick plywood.
- Portland cement interior daubing replaced with lime-sand mixture.
- Exterior daubing (90% replaced with grass/dirt mix.
- Drainage swale installed to improve drainage.

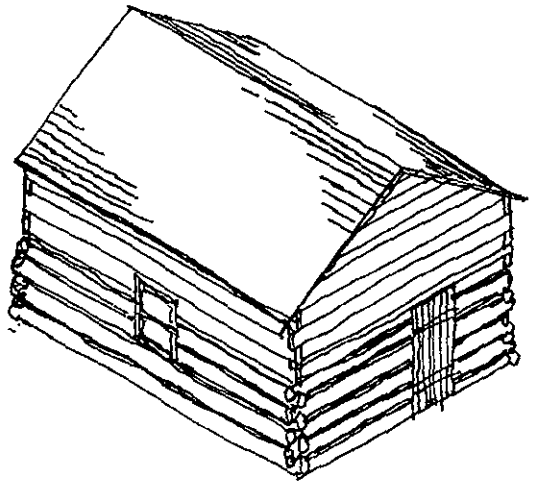
---

[8] H. Lee Scamehorn, Historic Structure Report Lee's Ranch Historical Data (Boulder: University of Colorado, 1976), p. 17.
[9] Docket 511 of Deeds, pp. 400-403, Coconino County Recorder, Flagstaff.
[10] Memo from Rodd L. Wheaton re: Training Course, September 1, 1982. GLCA Archives, Page.

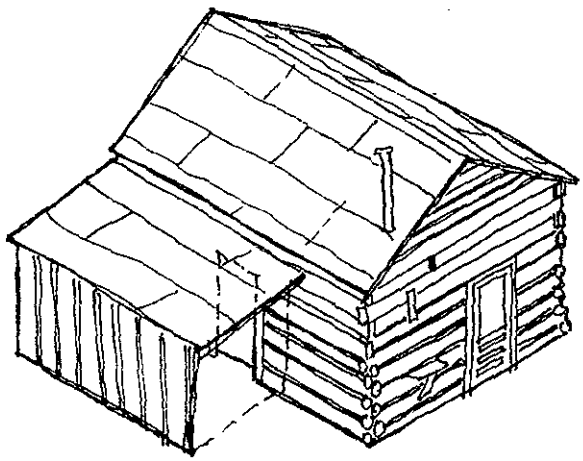
Evolutionary Drawings – Samantha Johnson Cabin



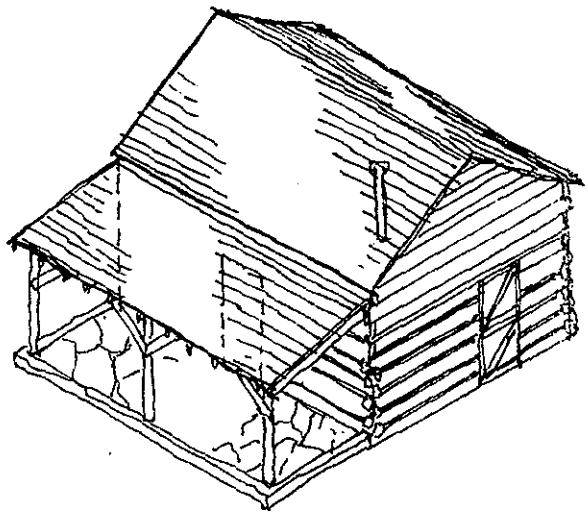
JOHNSON ORIGINAL CONSTRUCTION (Conjectural)
Short log walls, timber and dirt roof, simple doors and windows



EMETT SCHOOLHOUSE ALTERATIONS
Upper walls added, roof added, doors/windows extended, floor installed



WEAVER RANCH ALTERATIONS
(Room addition to side prior to Weaver c. 1930)
Doors and windows rehabilitated, interior rehabilitated (ceiling installed), whitewashed



LATE ALTERATIONS (Griffin and Others)
East porch addition, interior ceiling converted to loft, exterior wood trim alterations

Figure 7: Evolution of Samantha Johnson Cabin

Historical Photographs – Samantha Johnson Cabin



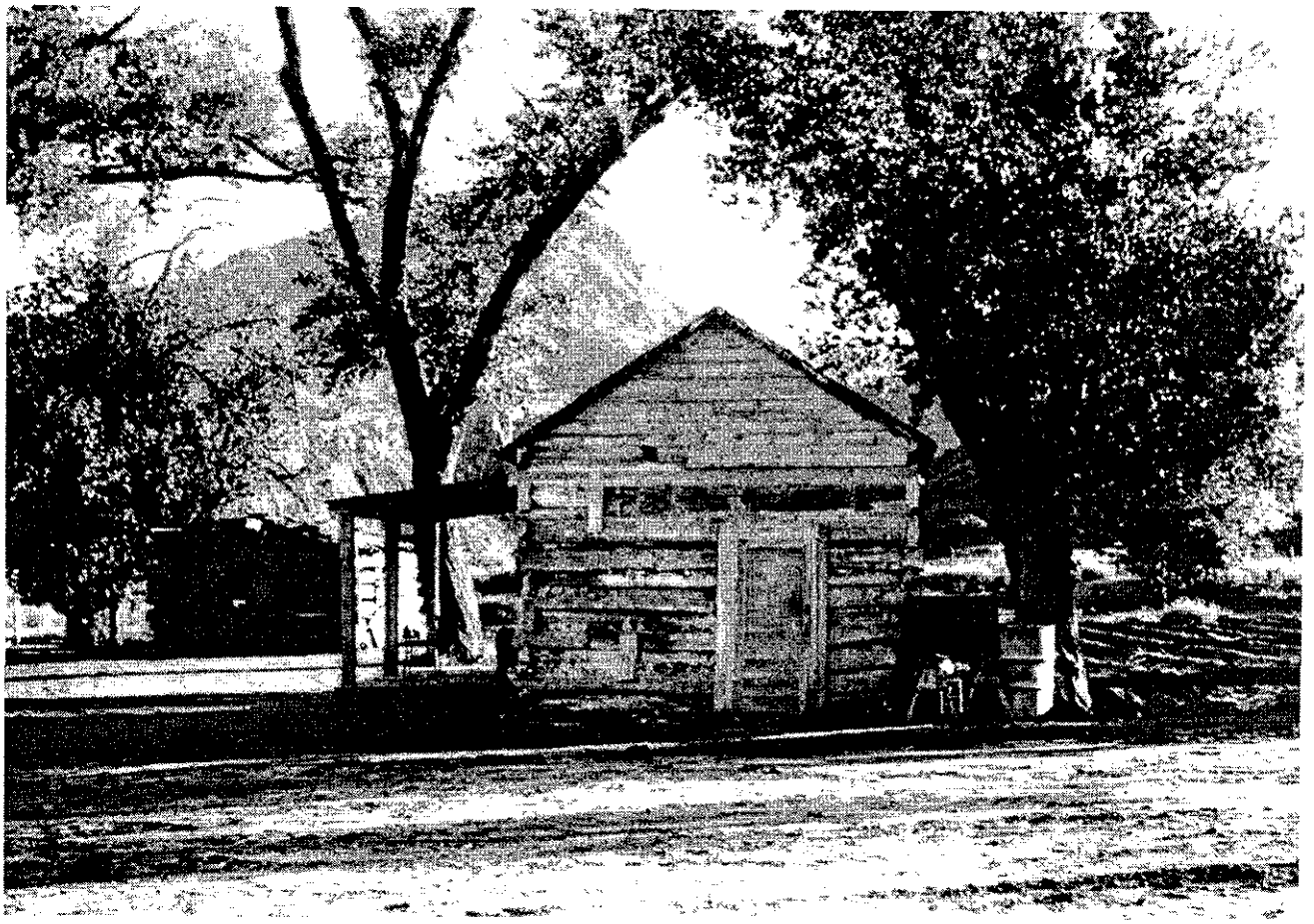
Photograph 22: Samantha Johnson Cabin, School Class 1926
Cline Library – NAU, P.T. Reilly Collection



Photograph 23: Samantha Johnson Cabin, 1929 *Arizona Historical Society/Tucson*



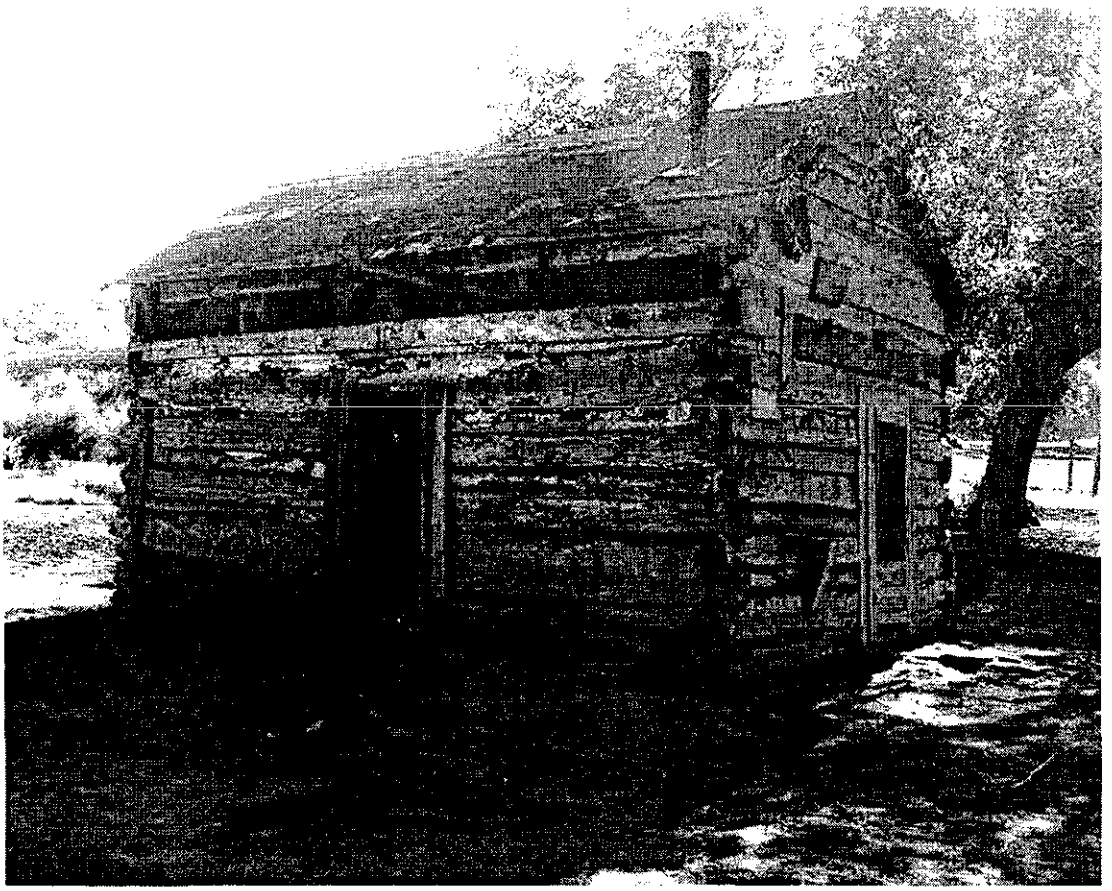
Photograph 24: Samantha Johnson Cabin, 1936 *Utah State Historical Society*



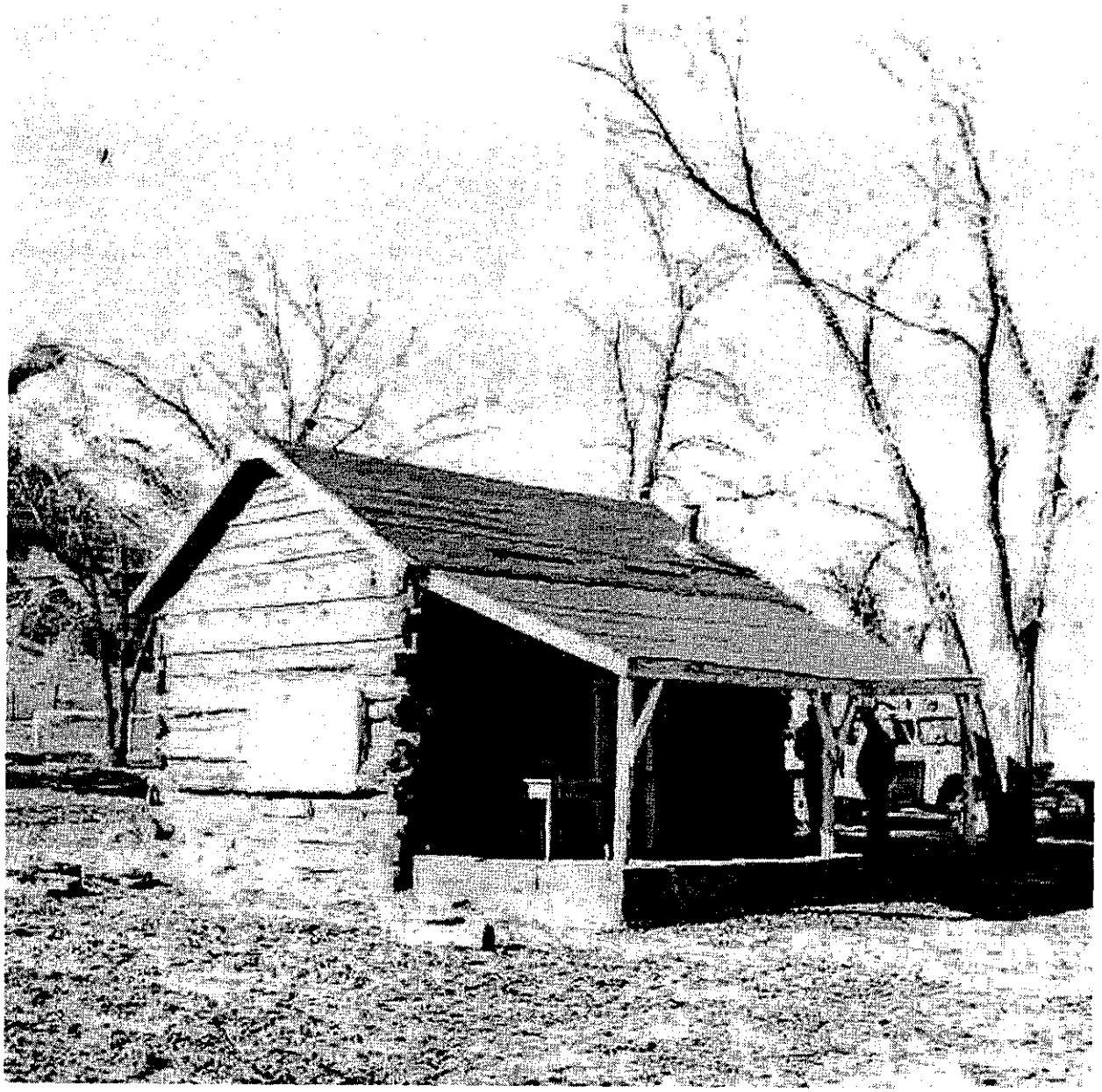
Photograph 25 : Samantha Johnson Cabin c. 1940 *Cline Library – NAU, P.T. Reilly Collection*



Photograph 27: Samantha Johnson Cabin c. 1950 *NPS/GCNRA*



Photograph 26: Samantha Johnson Cabin, 1959 *New Mexico State Archives*



Photograph 28: Samantha Johnson Cabin c. 1964 *U. of Utah, Crampton Collection*

Physical Description – Samantha Johnson Cabin

Overview

The Samantha Johnson Cabin is a one-story rectangular log structure, roughly 14 feet by 20 feet in size, with a gabled roof and a full-width shed-roofed veranda porch on one side. The interior is unfinished with exposed, whitewashed timber walls. The floor structure is wood framed and carries a board floor. A loft area of wood boards is supported on exposed joists. The entire structure incorporates a great deal of salvaged lumber.

The building has a simple and unadorned system of construction. Log and timber structural walls, which rest on grade, support a gabled roof structure. A shed-roofed porch is built against the wall on the east side, parallel to the ridge of the roof. On the interior, a wood floor was installed, and a second floor loft was framed in. The specifics of the construction and an analysis of the condition of each feature follow.

Exterior Walls

The exterior walls are built of a variety of heavy wooden members, crossing at the corners log cabin style. Corner construction is a typical V-notched type. Gaps between members are chinked with wood and daubed with grass and mud on the outside, lime and sand on the inside. Many of the lower members are hewn logs, probably driftwood from the Colorado. Above the six-foot mark, most members are actually 4" thick hand-hewn dimensional lumber ranging from 10" to 16" in depth. Two of these members are particularly notable, one at the east side and one at the west. These members are identifiable as salvaged gunwales, 16" deep with flat tops and bottoms, except for a section several feet long on each end where the bottom face of the timber slopes up. A few pieces of the salvaged dimensional lumber are used lower on the east and west sides. Higher on the east and west sides, a member has been mortised for the installation of ceiling joists. The joists project through the member at the west side. Several of the sill logs and one upper log are modern replacements. Much of the daubing and chinking has also been maintained or reworked within the last 20 years. The structural log walls are about nine feet tall. Above this level, the gable ends are infilled with horizontal board siding of 1" thickness lumber. As a whole, the condition of walls is good. Over the years, many of the major members have sustained some minor rot and insect damage from termites or other boring insects. Weathering has left many members porous and susceptible to further water damage. The rounded logs are particularly at risk, because their shape has the ability to channel water into the wall where it may be held. No active insects were noted. Some areas of chinking and daubing have eroded and even fallen out since the last repair. This is particularly evident on the north elevation, where some chinking has fallen out exposing the backside of the lime-based interior daubing.

Doors and Windows

Door and window openings occur on all sides of the building. The north elevation features a door, in an original location, measuring 2'-8" x 5'-6". The height of the door appears to have been altered by extending it 2" up into a wall member. The door is a Dutch type door of 2" nominal thickness lumber, with "Z"-shaped cross reinforcing on each leaf. The hinges and hardware are modern. A portion of the interior casing is rough-sawn and may be original. Today the door is nailed shut from the outside.

On the east side, under the porch roof, is the door used today as the main entry. The opening measures 2'-2" x 5'-3". The door is built of 1 x 12 boards with three cross members, and has a finished casing on both sides. Lumber appears to be

modern. The interior face of the door is decoratively painted in a false "stencil" pattern. One of the salvaged boat timbers was notched to make room for the door head and one of the large lower timbers was cut in half to extend the opening to the floor level, probably indicating an earlier window opening. A final modern alteration is a chain with padlock that passes through the door to secure the building.

On the south elevation, a horizontal sliding wood window is centered in the wall. The window has a projected frame and box casing, which is scribed to the rough surface of the log wall. The nature of the window and its details of construction imply that it too was cut into a previously blank wall. The sill, casing, and frame of this window are in poor condition and are coming apart due to exposure to water. The sash is in fair condition, showing only some surface weathering on the lower part. One light of glass is cracked. The glazing putty has been recently replaced. The entire unit needs repainting.

The west wall has a vertically proportioned wood double hung window, with a one-over-one pattern. The head of this window cuts upward into one timber, once again implying that the opening has been enlarged. A simple casing trims the window, which is back-packed with mud rather than being scribed to the wall like the south window is. The window is in fair condition. Glass is intact, but the glazing putty has hardened and is falling out. The white painted finish is generally deteriorated. The sill is becoming water damaged.

Roof Structure

The roof structure is built using salvaged materials. Roof joists are rough sawn, and vary from 2 x 4 to 2 x 8 full-sized framing. Collar ties are 1 x 12. At least two collar ties have decorative patterns painted on them, are trimmed in metal, and have metal grommets. The joists meet at a 2 x 6 ridge beam. Board decking varies in width up to about 16 inches. Cut nails are in evidence throughout the roof structure. One joist has cracked and been repaired with bailing wire.

The constructor of the porch roof made an attempt to tie the components together without any visible metal hardware or nails. All visible connections are pegged or tied with rawhide. The porch roof bears on a 2x4 ledger that has been pegged to the side of the log wall. 2 x 4 rafters at 24 inches on center (actual size 1-5/8" x 3-5/8") span from this ledger down to a 6" diameter, rustic log beam. The beam is supported on three unsurfaced wood poles. 1 x 12 sheathing spans between joists. Staggered solid blocking is provided at mid-span of the joists. A hole is drilled through the lower end of each joist, where it crosses the lower beam, and rawhide straps apparently passed through these holes as a tie-down. (There are still some remnants of rawhide, but none is intact.) Although relatively lightweight, most of this porch roof structure is in good condition. One of the log beams had cracked and was repaired by the NPS in the 1990s using epoxy filler and consolidant. This repair appears to have been done in a workmanlike manner and is holding up well.

The roof is covered in wood shingles, including both the main building and the porch. A pair of overlapping wood boards protects the ridge. The shingle material is in fair condition and may be no more than about 15 years old from appearances. Rainwater/snow combined with uneven drying has curled many of the shingles severely. The upper roof appears to have been applied over an earlier white rolled roofing cap sheet. The porch roof has only shingles nailed directly to the sheathing.

The eaves are formed simply by the overhanging extension of the roof sheathing boards, 10" at the gables and 4" at the sides.

Porch Floor

The porch floor is built up to the interior floor level and capped with sandstone flags, matching the terrace at the Weaver Ranch House. The perimeter of the porch has a slightly raised stone wall, which acts both as a retaining wall and curb. The porch surface is in poor condition, with several stones broken and loose. Some settlement has occurred due to water accumulation and saturation of the base. There is additionally some flagstone paving adjacent to the north entrance.

Interior Features

The interior of the cabin has a rustic appearance. The walls are chinked with lime plaster, and whitewashed up to a level of about six feet. Water has filtered through the wall joints in some areas, staining the interior surface with mud. The modern replacement logs at the base of the wall are particularly noticeable as being out of plane compared to the rest of the wall. The flooring is 1 x 4 planks, face nailed to a joist or sleeper substructure. There are virtually no wear marks in the floor, and the nails used are round headed. The only problems evident with the flooring are the accumulation of dust, dirt, and rodent droppings, and water staining at the northwest corner. The space beneath the floor is not accessible.

Ceiling joists span from the east wall to the west wall. These 2 x 4 joists are spaced a little more than 24 inches on centers, and at one time supported a paperboard ceiling. All finished ceiling materials have been removed, exposing the joists, although there are nail holes, as well as remnants of nails and small fragments of the ceiling material present. Rough sawn 1 x 8 and 1 x 12 decking has been placed on top of the joists for about the southern two-thirds of the floor area, forming a loft.

A ladder built of rough poles and sticks provides access from the first floor up into the loft. Several rungs have been broken.

Existing Conditions Drawings – Samantha Johnson Cabin

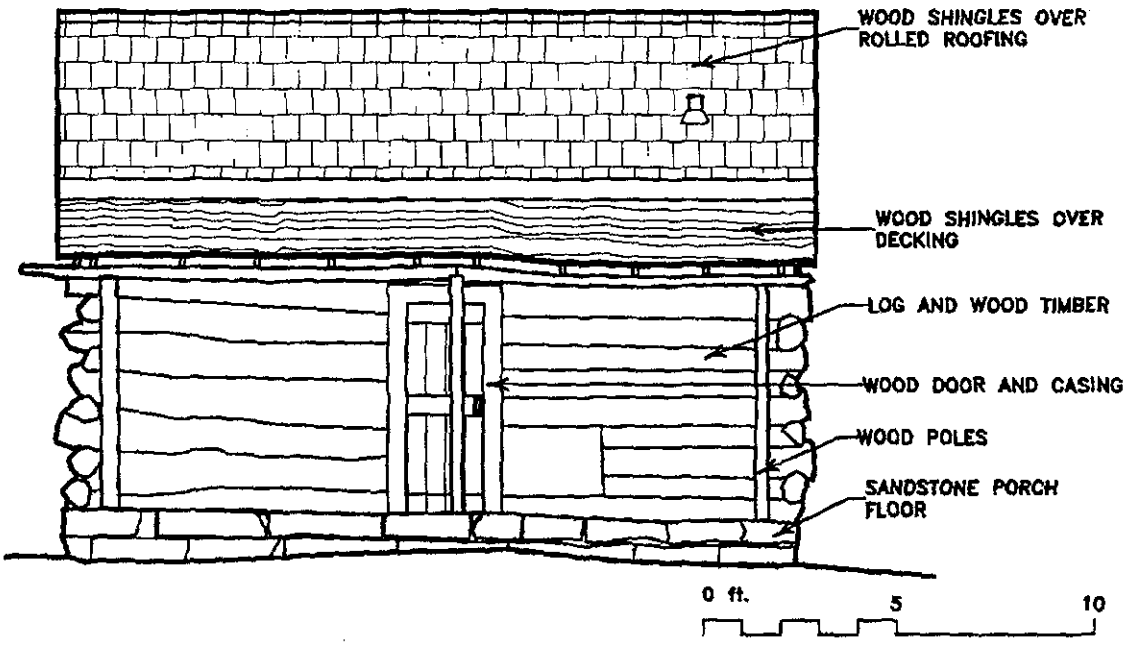


Figure 8: Samantha Johnson Cabin East Elevation

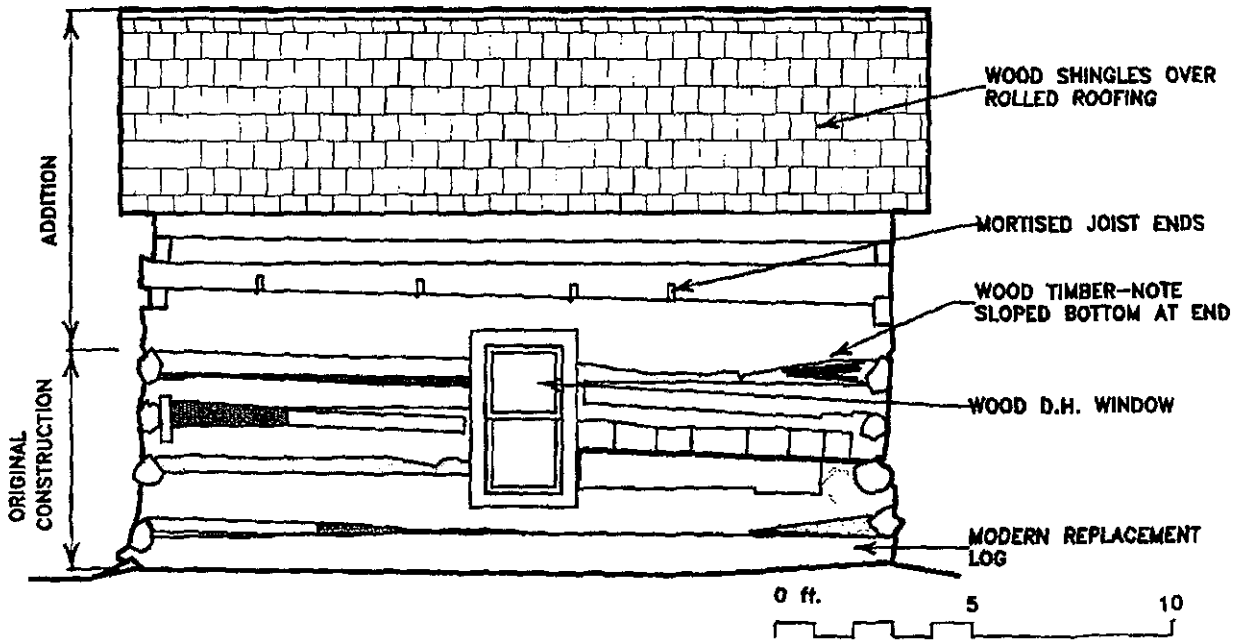


Figure 9: Samantha Johnson Cabin West Elevation

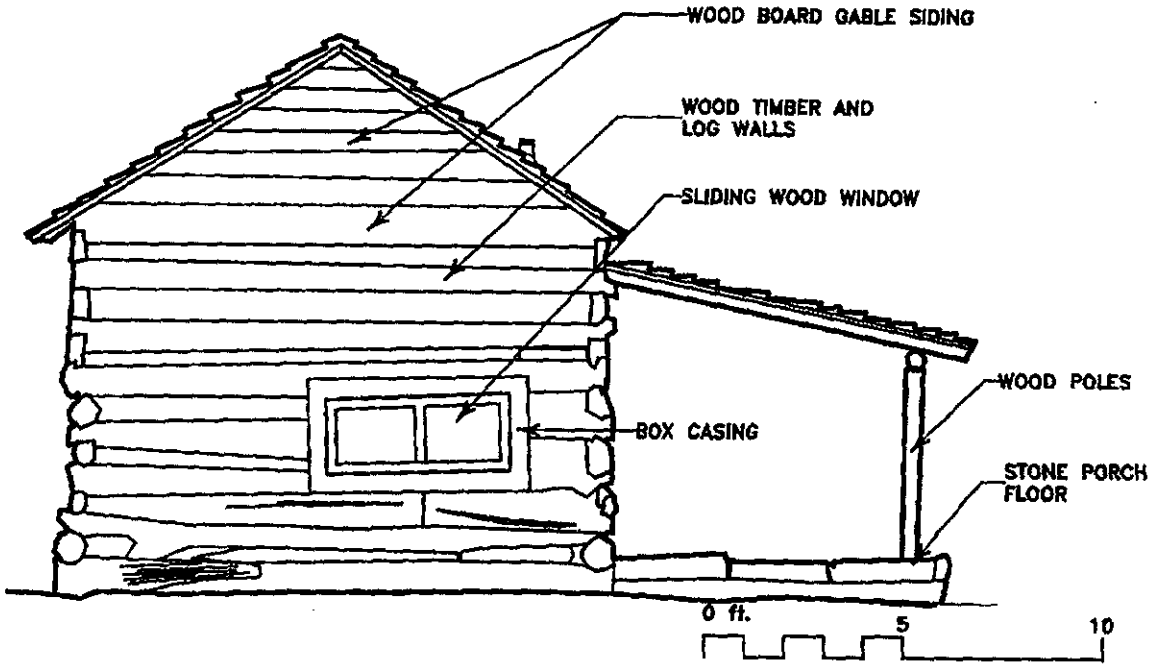


Figure 10: Samantha Johnson Cabin South Elevation

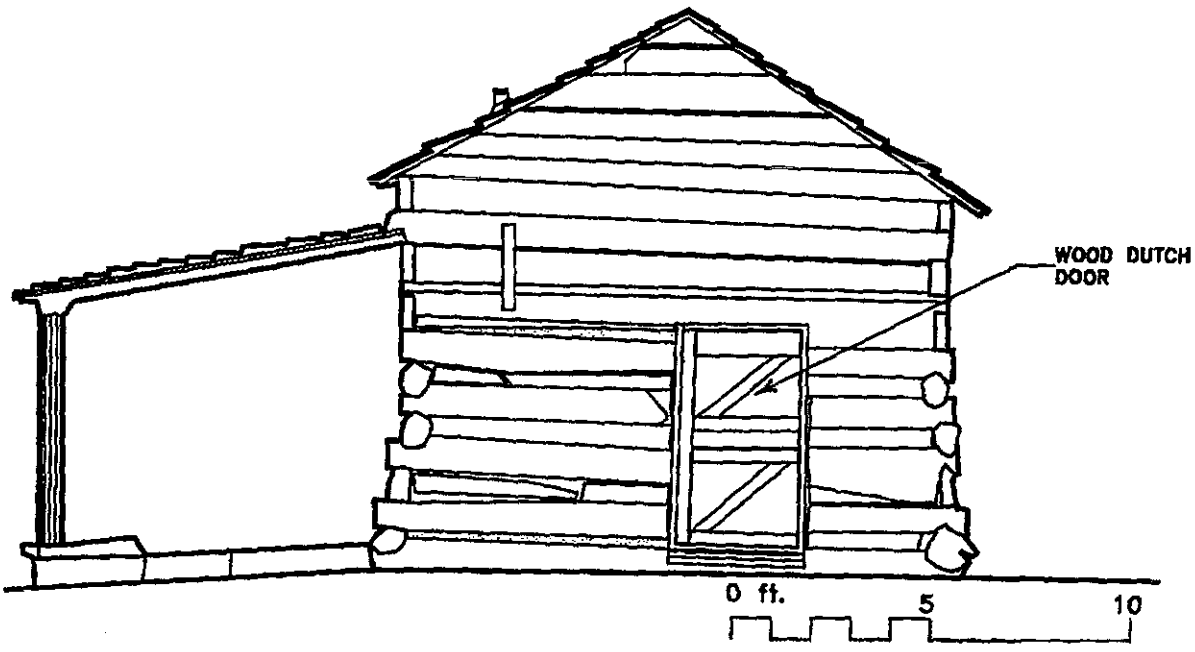


Figure 11: Samantha Johnson Cabin North Elevation

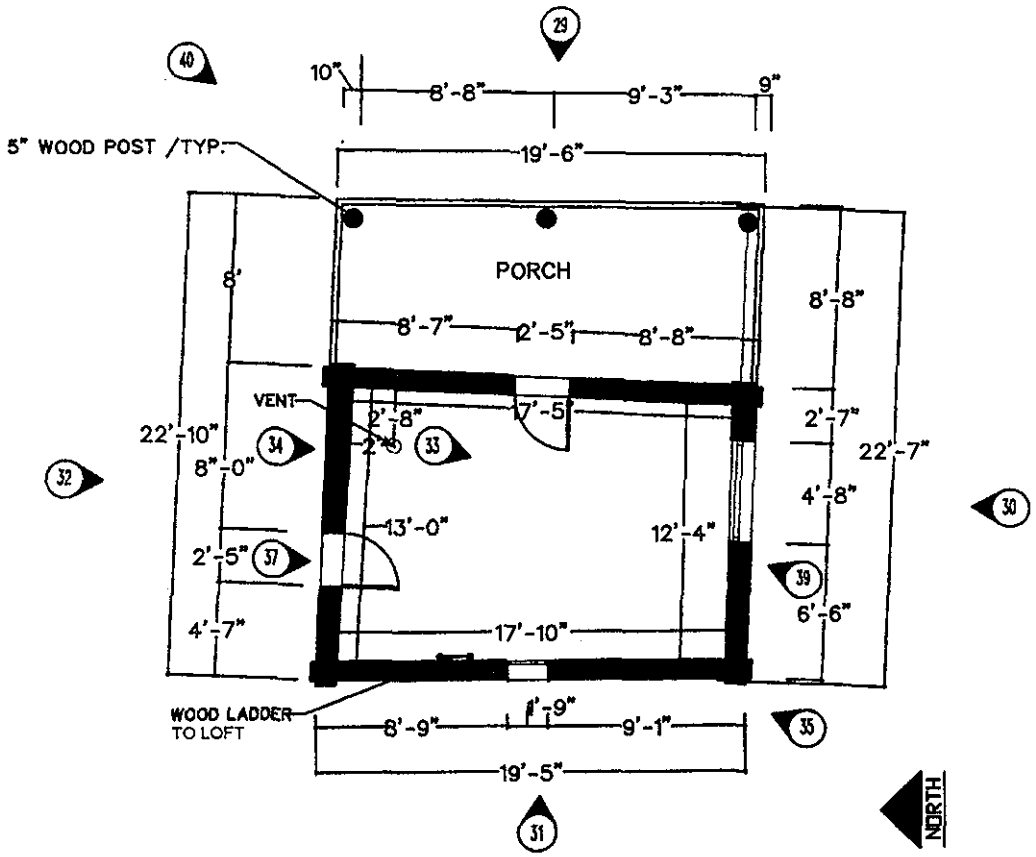


Figure 12: Samantha Johnson Cabin Floor Plan

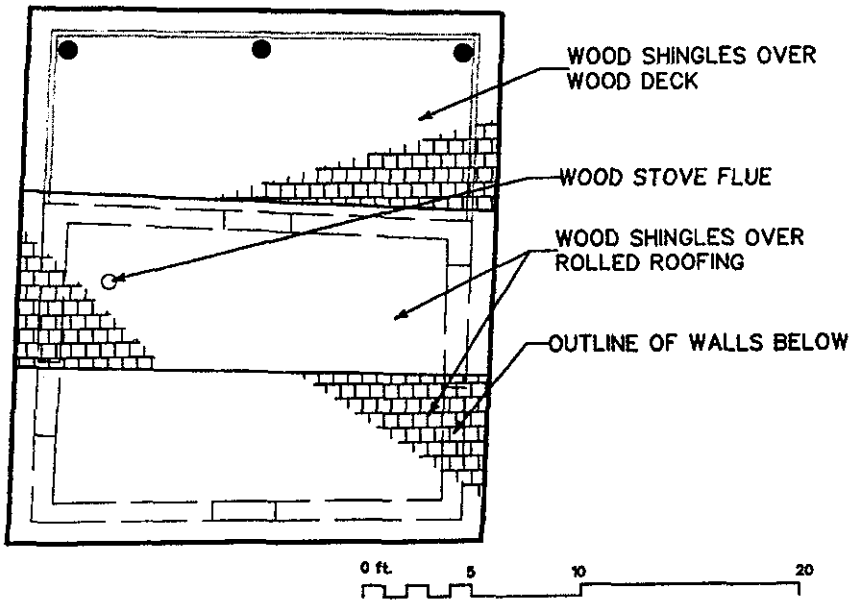
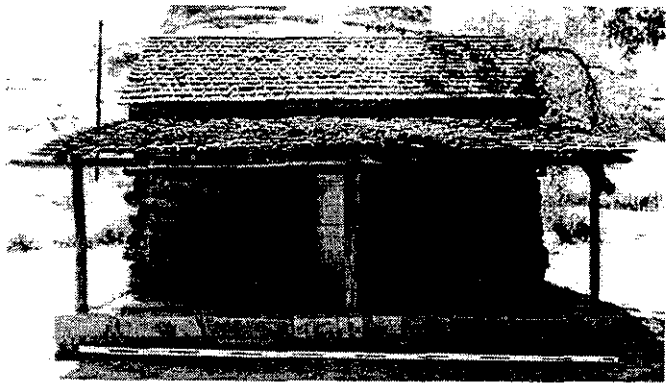
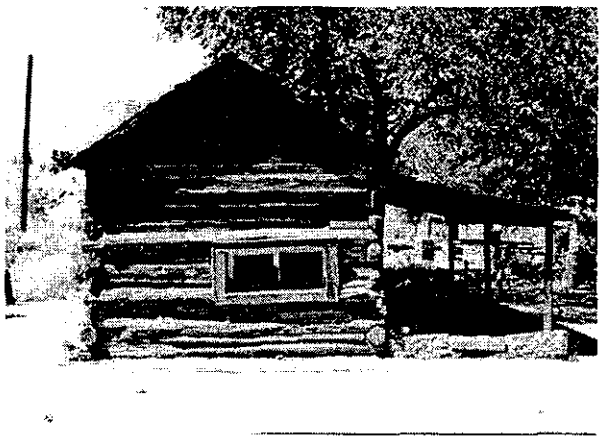


Figure 13: Samantha Johnson Cabin Roof Plan

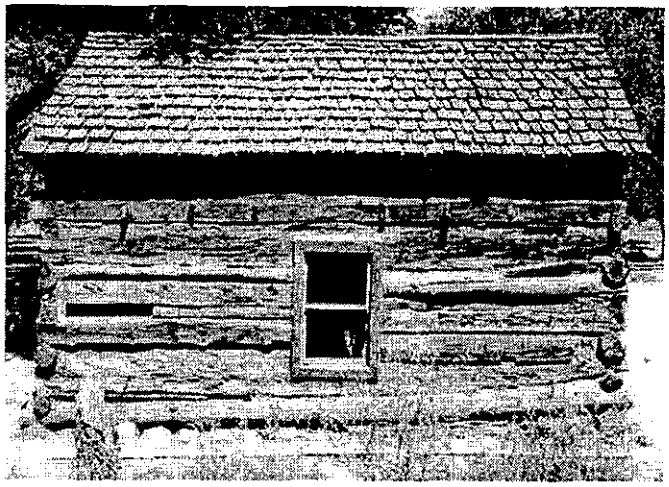
Existing Condition Photographs – Samantha Johnson Cabin



Photograph 29: East Elevation



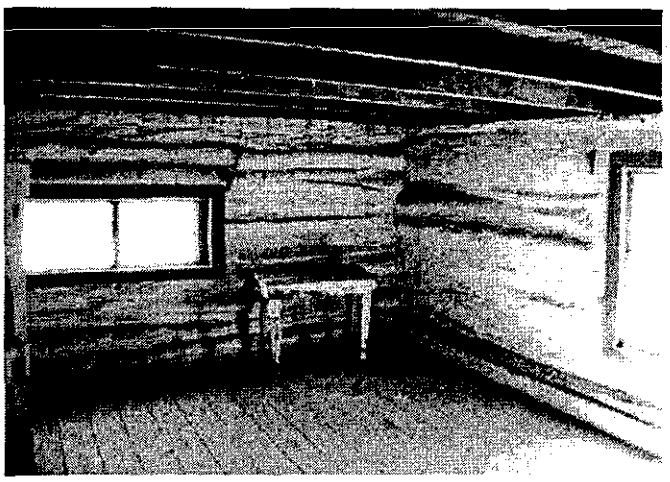
Photograph 30: South Elevation



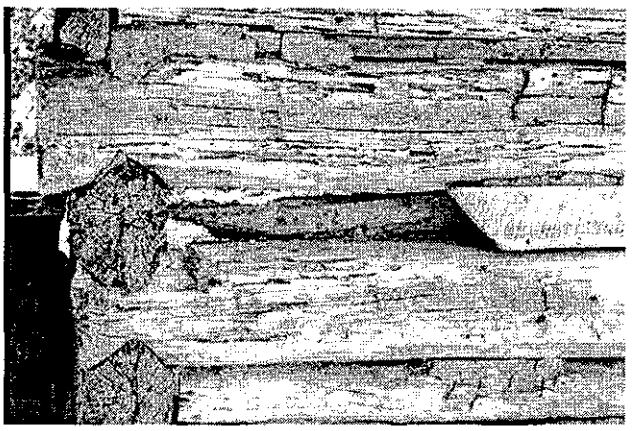
Photograph 31: West Elevation



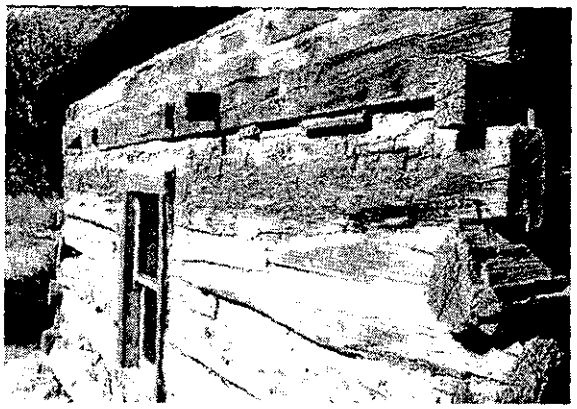
Photograph 32: North Elevation



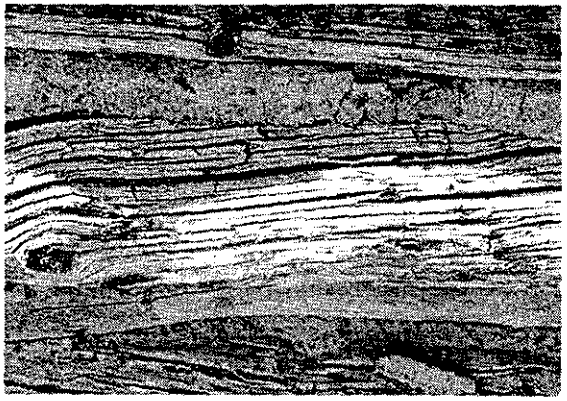
Photograph 33: Interior



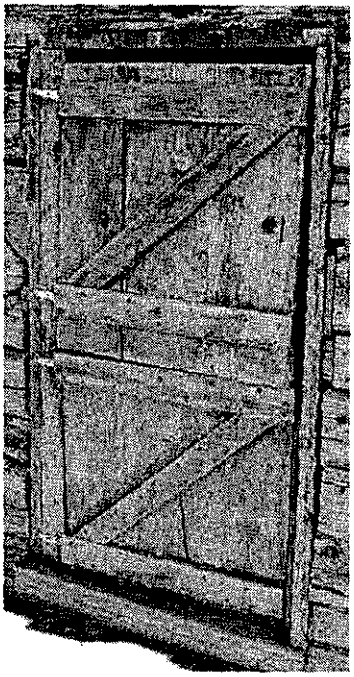
Photograph 34: Detail of chinking



Photograph 35: Salvaged logs at west side



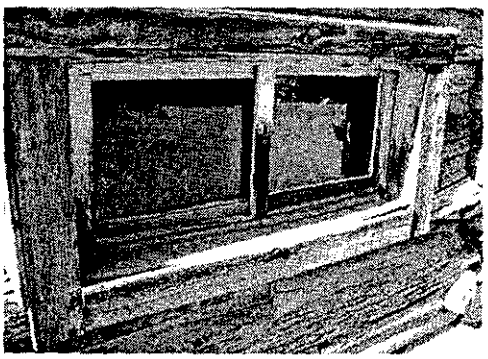
Photograph 36: Detail of log weathering



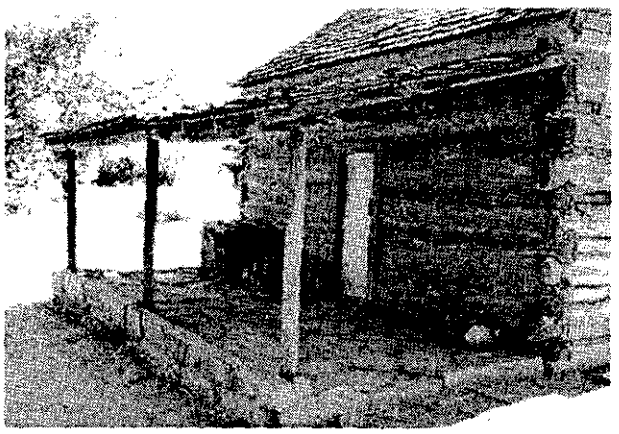
Photograph 37: North entry door



Photograph 38: Detail of log corner joinery



Photograph 39: South window



Photograph 40: Late porch addition

Outline Chronology: Samantha Johnson Cabin

DATE	EVENT
1881	Johnson built cabin for wife Samantha and children[11]
1890	Drapers occupy building[12]
1897	Emett transforms to schoolhouse using salvaged parts from the "Nellie", John R. Neilson's old boat. Adds floor, south window, wall modifications, and roof.[13]
1925-1928	Used as schoolhouse for the polygamist community[14]
1928	New schoolhouse built; this building closed[15]
1934	Leo Weaver rehabs: reworks windows, whitewashes interior, banishes rats, installs beaverboard ceiling, builds closet[16]
1950	Jerry Johnson dies; Claude Dellbridge moved in as caretaker[17]
1958	Claude Dellbridge still living in house?[18]
Ca. 1965	Consortium rehabs building[19]
1974	NPS acquires Lonely Dell site
1982	NPS Stabilization program: 4 sill logs replaced, others as required, logs daubed and chinked[20]
c. 1997	NPS repairs porch log.

[11] Reilly, Lee's Ferry, p. 91
[12] Ibid., p. 125
[13] Ibid., p. 160
[14] Ibid., p. 315
[15] Ibid., p. 328
[16] Ibid., p. 379
[17] Ibid., p. 434
[18] Ibid., p. 441
[19] Scamehorn, p. 17.
[20] Reilly, p. 458; NPS maintenance records

HS-233, Polygamist Era Cabin

Chronology of Development and Use

The Polygamist Era Cabin is a timber structure measuring roughly 13 feet by 16 feet. It is one story in height with a gabled roof. Walls are built of both logs and dimensional lumber, much of which appears to be salvaged.

The building was most likely constructed in 1925 by Jerry Johnson, son of former ferryman Warren Johnson. It was probably a dwelling built as a part of the polygamist commune he tried to establish at the Lonely Dell Ranch.[21]

While little documentary evidence exists regarding the original appearance, photographs taken just prior to Leo Weaver's purchase of the ranch in 1935 show a single log pen with a log, brush, and dirt roof, and an open log ramada to the north side (Photograph 41, Photograph 42). Presumably, the ramada was an addition to the one-room cabin. In these photographs, the structure appears to be abandoned, with no chinking or daubing in the spaces between logs.

By the time the National Park Service acquired the Lonely Dell site in 1974, the building had taken on its present appearance. From the pre-Weaver era, the ramada and the dirt roof had been removed and new gabled roof had been placed atop the original log walls. The new roof structure was built of conventional 2 x 4 dimensional lumber with a shingle roof and vertical board gables. The window openings had new hinged wooden covers, and the door was replaced. The appearance of the west opening's edges and surrounding timbers indicates that the opening may have been enlarged. The north window opening also appears to have been widened.

After acquisition, NPS has used the building as an interpretive element of the Lonely Dell Ranch Historic District. Interpretation has focused on use as a blacksmith shop, a use that has not been confirmed for this building. An interpretive sign near the east side of the building identifies it as the Blacksmith Shop.

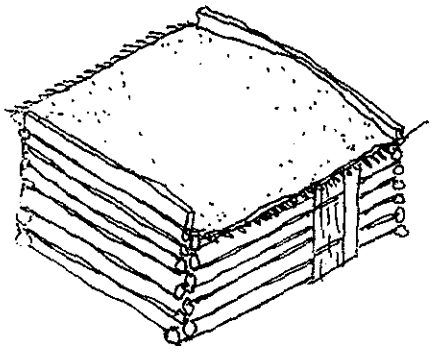
In 1982 the National Park Service replaced four sill logs on this cabin as part of a log cabin restoration training program. The building was re-leveled, and mortared stone foundation piers were placed at each corner, at center spans, and under door jambs. All interior and exterior daubing and chinking was replaced. The center rafter on the back side and the windows and door were repaired. A swale was cut around the building to improve drainage. [22]

---

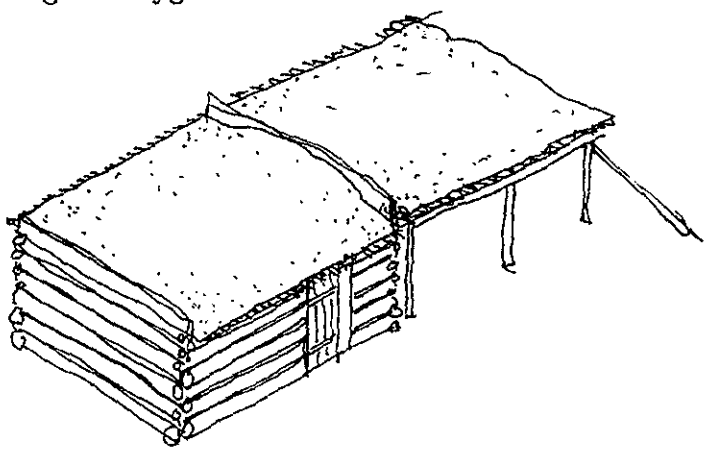
[21] Jeremiah Johnson, "Final Proof of Homestead Entry," November 8, 1931, National Archives, Washington, D.C., Record Group 49, Land Entry Serial Patent No. Phoenix 066377.

[22] Memo from Rodd L. Wheaton re: Training Course, September 1, 1982, GLCA Archives, Page.

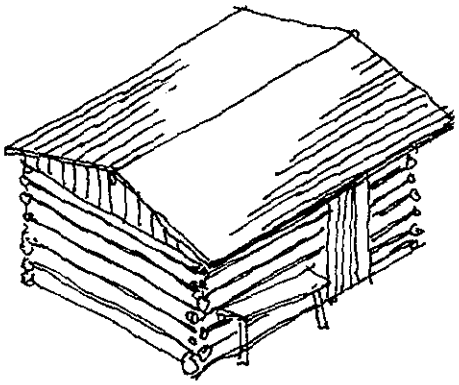
Evolutionary Drawings – Polygamist Era Cabin



ORIGINAL CONSTRUCTION
c. 1925 (Conjectural): Log walls, dirt roof



PRE-WEAVER PERIOD c. 1935: Open ramada added to north side



GRIFFIN or EVANS ALTERATIONS
c. 1950s: Roof replaced with gabled structure, door and window covers replaced, log openings chinked and daubed

Figure 14: Evolution of Polygamist Era Cabin

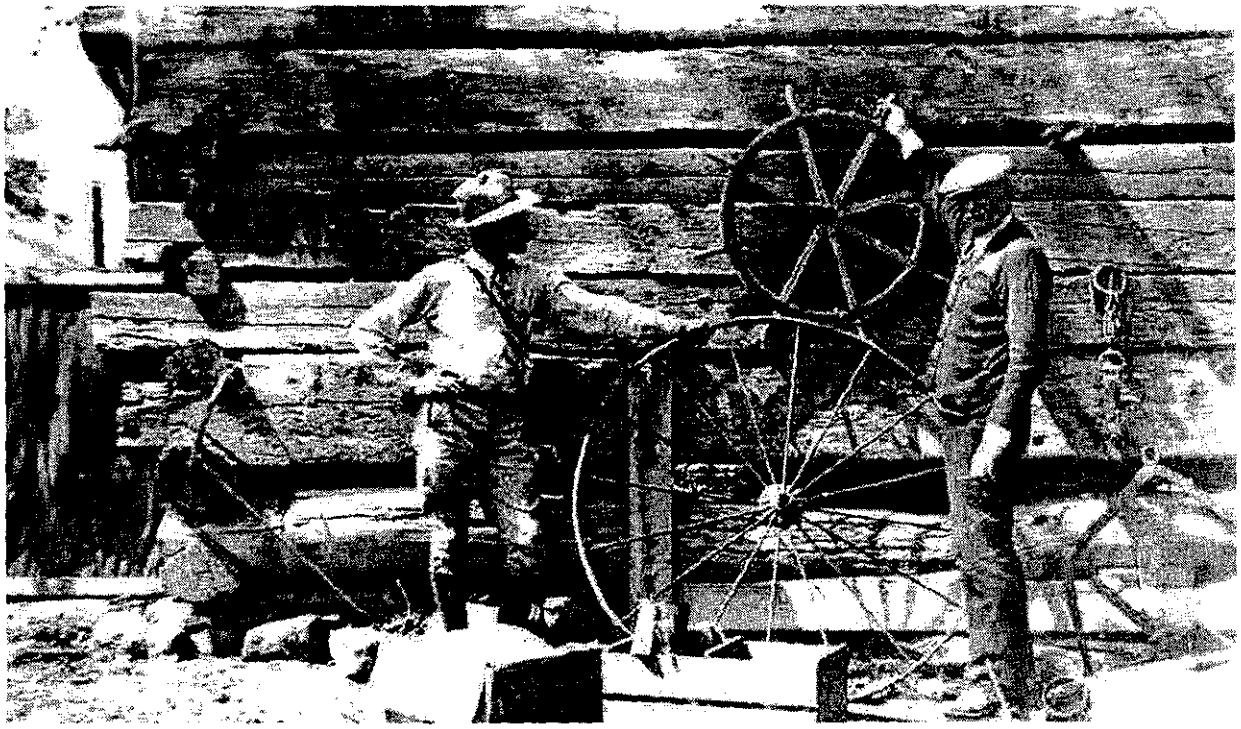
Historical Photographs – Polygamist Era Cabin



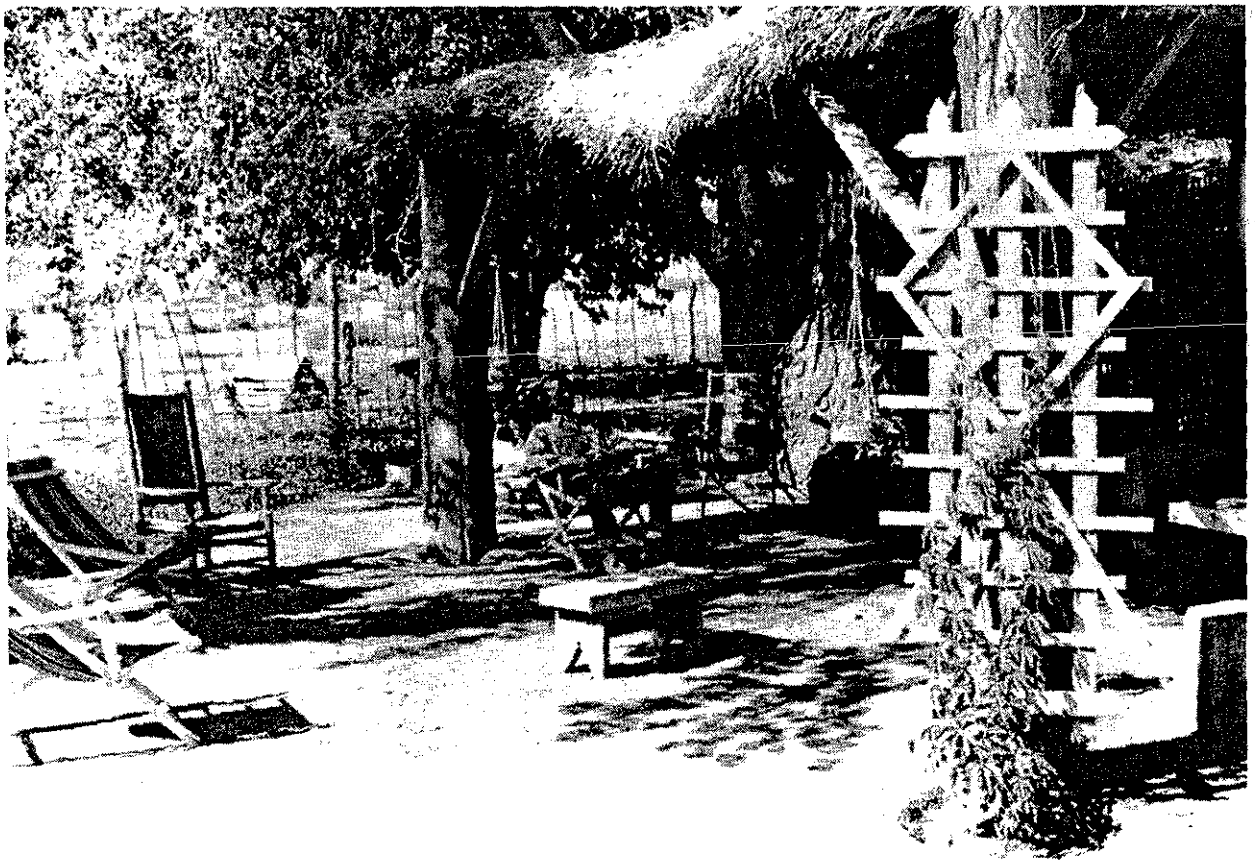
Photograph 41: Polygamist Era Cabin, c. 1932 *Utah State Historical Society*



Photograph 42: Polygamist Era Cabin c. 1932 *Utah State Historical Society*



Photograph 43: Polygamist Era Cabin 1936 *Utah State Historical Society*



Photograph 44: Leo Weaver under Ramada of Polygamist Era Cabin, 1936
Cline Library- NAU, P. T. Reilly Collection



Photograph 45: Polygamist Era Cabin Ramada c. 1936 *Cline Library – NAU, P. T. Reilly Collection*

Physical Description – Polygamist Era Cabin

Overview

The Polygamist Era Cabin is a simple log-type structure, consisting of a single rectangular "pen" supporting a side-gable roof. A door opening appears off-center on the east side, and shuttered openings occur on the west and north.

Walls

The walls are built of a variety of different types of lumber, including natural logs, logs with faces flattened, and cut dimensional lumber. Of the dimensioned lumber, thickness varies from 4" to 6" and heights are as much as 16". Logs predominate in lower wall sections, and dimensional lumber in upper sections. The dimensional lumber mostly appears to be salvaged and reused. Some pieces have railroad spikes in them, 36" apart, indicating that they may be salvaged railroad ties or mining car ties. Joinery of the corners also varies. The lower parts of the structure have a traditional "V"-notched corner joints. Above about the six-foot level, the joints are half-dovetail type. The spaces between members are chinked with smaller pieces of wood and daubed with mud. The chinking is eroding and requires maintenance. The interior side of the wall is similarly treated. One area at the south end appears to have suffered a small amount of fire damage.

The sill timbers have suffered considerable deterioration. The logs rest on grade, although stone piers were placed under the ends, mid-points, and at the door jambs in 1976. At the west side, there are openings under the sill log to the interior, allowing pack rats to nest inside. A pile of stone and dirt rubble has been placed at the base of the south wall in place of the bottom log, probably to patch up a similar opening. Some of the sill timbers were replaced in 1976. These logs are obvious, because all of the early timbers have a hewn flat face on the inside, while the new logs were left round.

Gables are sheathed with vertical 1 x 12 boards.

Doors and Windows

The east elevation features the door to the interior. The door is a plank door, with jambs of 2x lumber. The original width of the log opening is 48 inches; the width of the present door is 30 inches. The door is heavily weathered and the hinges are rusty. While not original to the opening, the door does appear to be quite old.

A window opening appears at the west elevation. The opening measures five feet wide by 2'-6" high. Rather than being glazed, the opening is covered with a wood plank shutter constructed of cross-braced 2" nominal thickness planks. The 2x jambs match those at the entry door.

The north wall features another unglazed window opening. It also has 2x jambs and a wood plank shutter on hinges placed in the opening.

Roof

The roof is framed in a gable shape using 2 x 4 rafters, irregularly spaced. A 4 x 6 beam forms the ridge. Roof sheathing is 1 x 12 boards. The ridge beam is exposed at each end, showing that it has become severely twisted, the north end being out-of-plumb by about 20 degrees. Most of the roof framing appears to be salvaged. It is also mostly surfaced dimensional lumber (as opposed to being rough-sawn). There are no collar ties or horizontal ceiling framing; thus, the roof is prevented from collapsing either by the strength of the joist-wall connections or by the support of the gable sheathing for the ridge beam.

The roofing material is cedar shingles, which have been applied over an earlier white mineral-surfaced rolled asphalt cap sheet.

Interior

The inside of the single-room building is unfinished. Log walls and roof structure are left exposed. The floors are dirt.

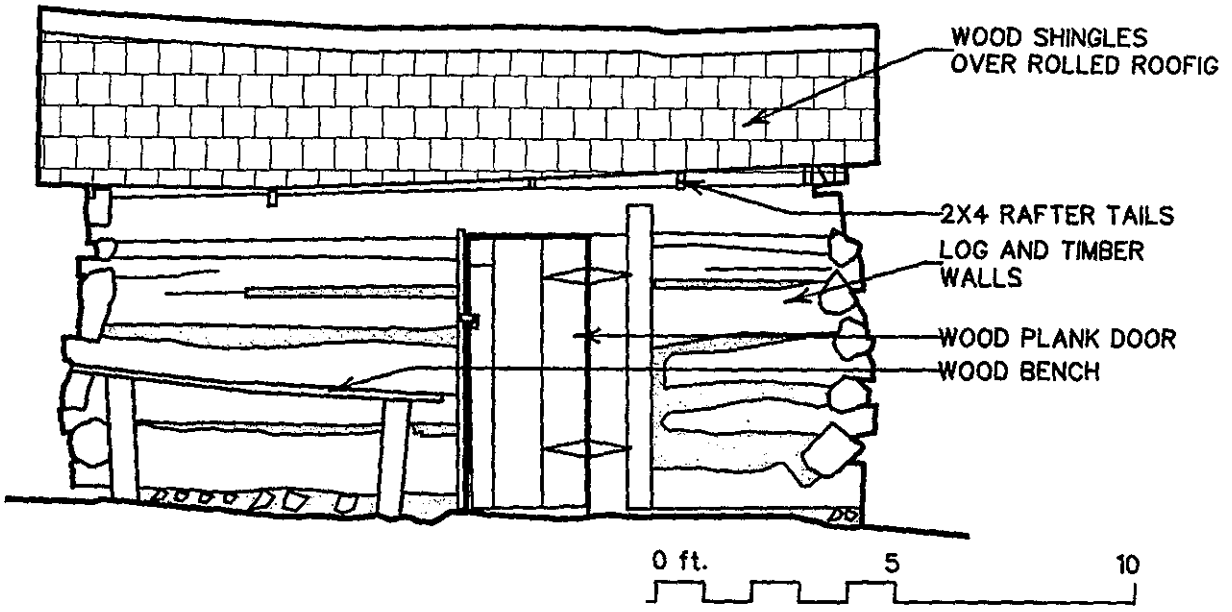


Figure 15: Polygamist Era Cabin East Elevation

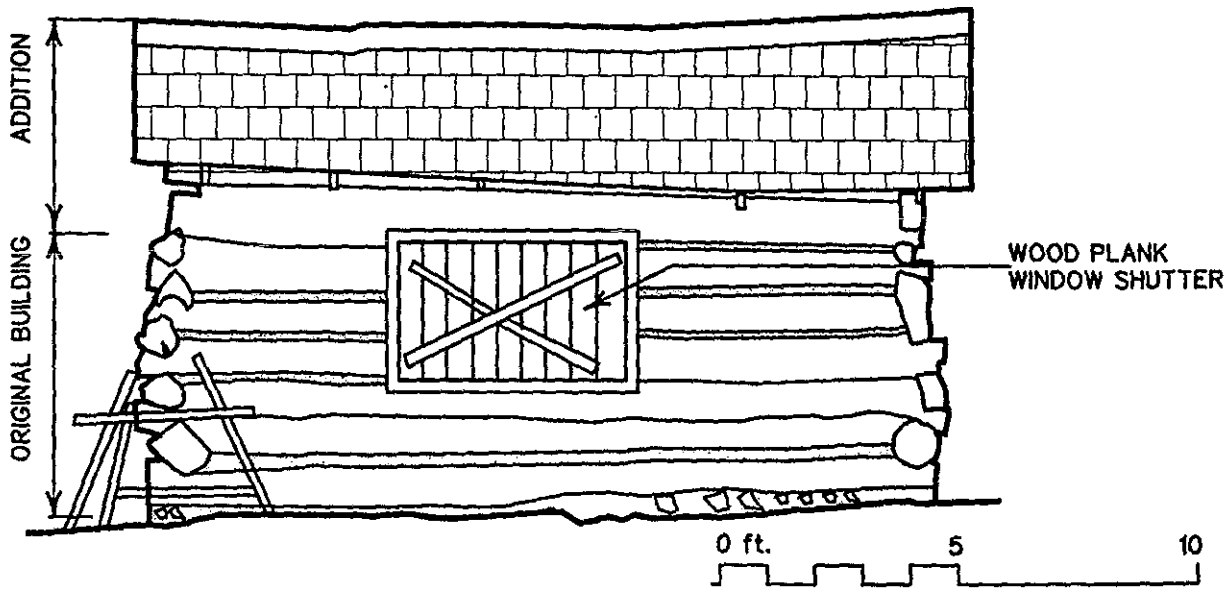


Figure 16: Polygamist Era Cabin West Elevation

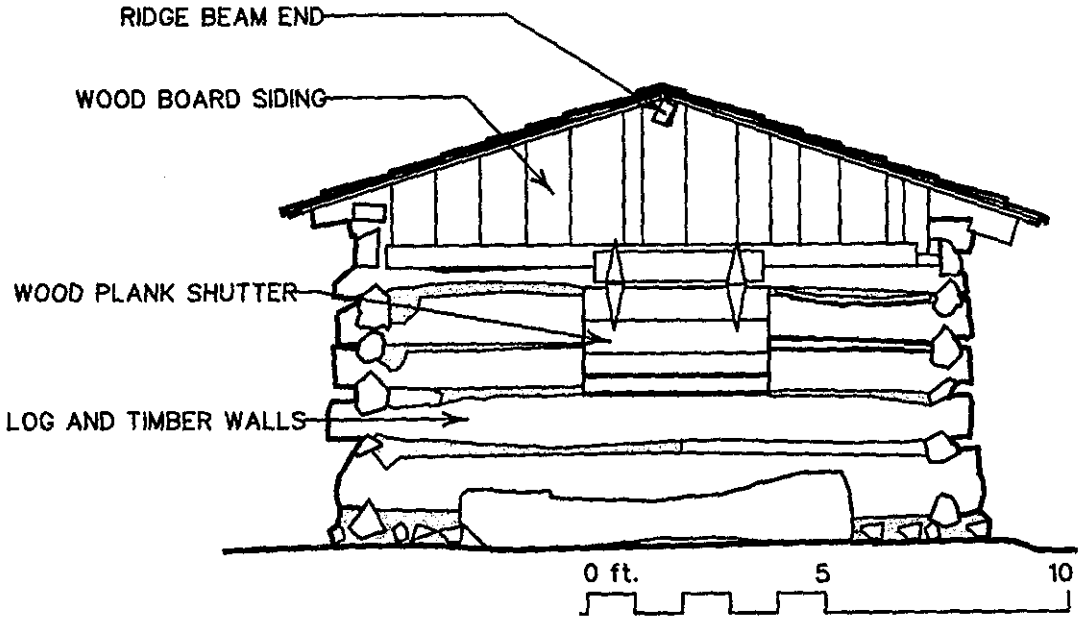


Figure 17: Polygamist Era Cabin North Elevation

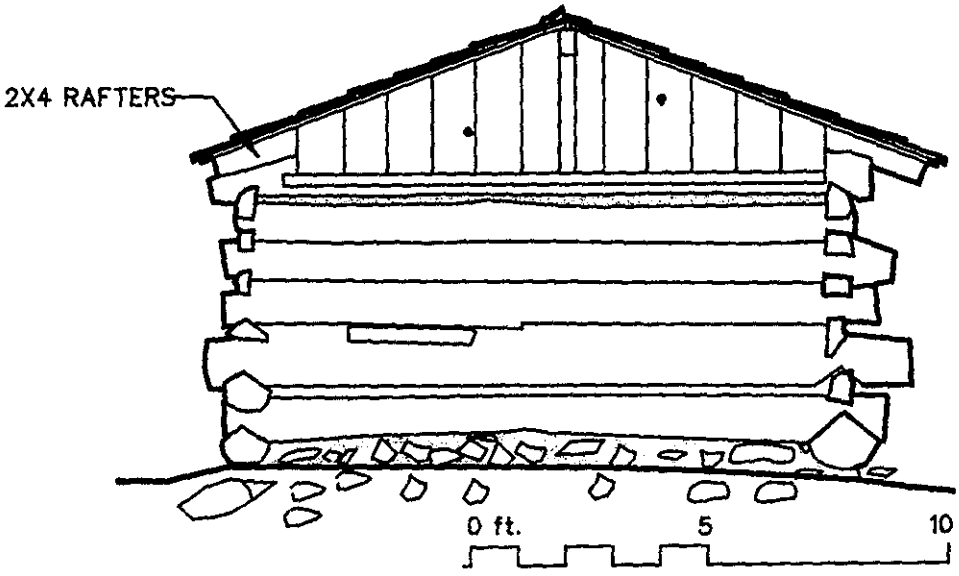


Figure 18: Polygamist Era Cabin South Elevation

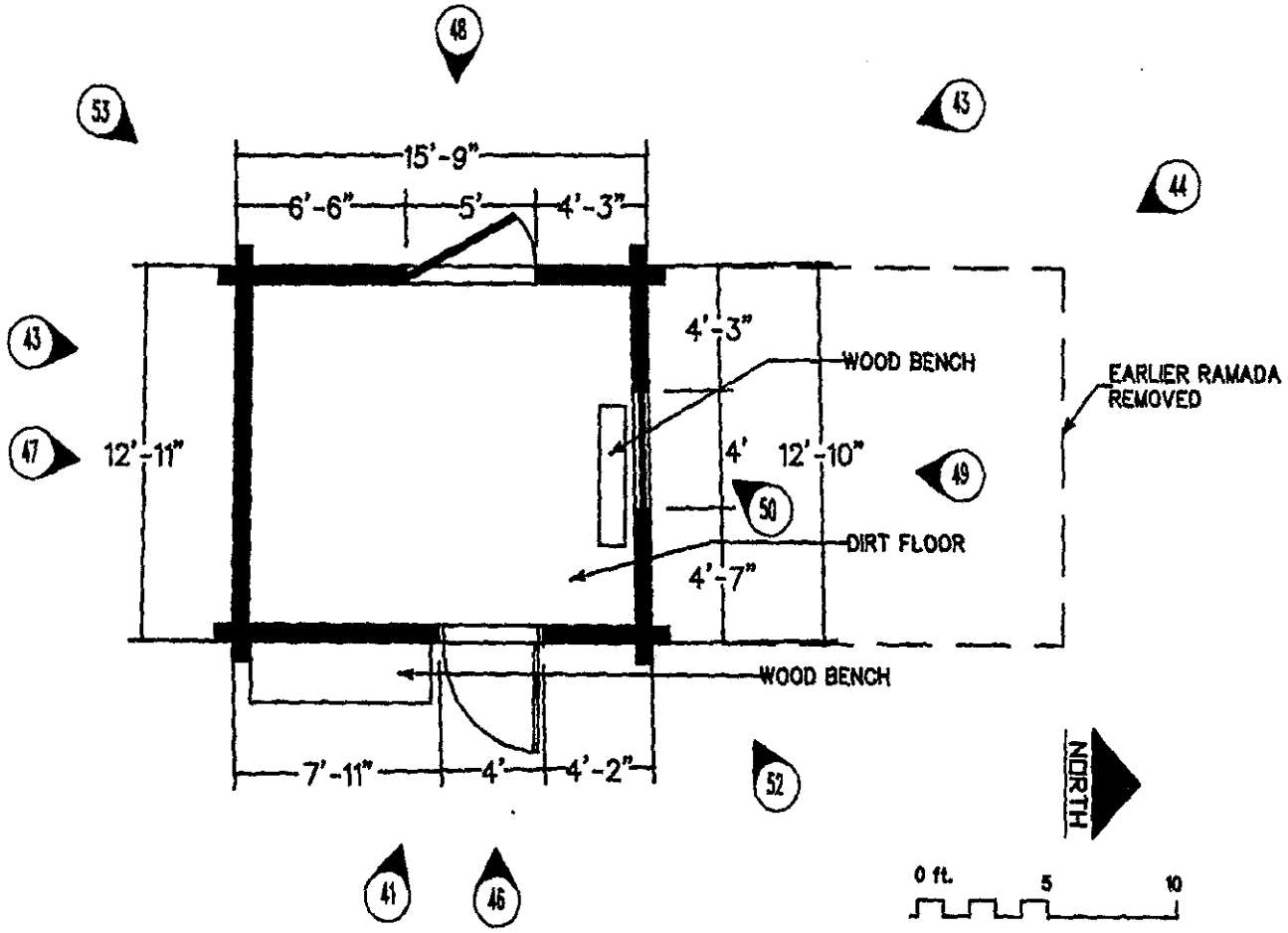


Figure 19: Polygamist Era Cabin Floor Plan

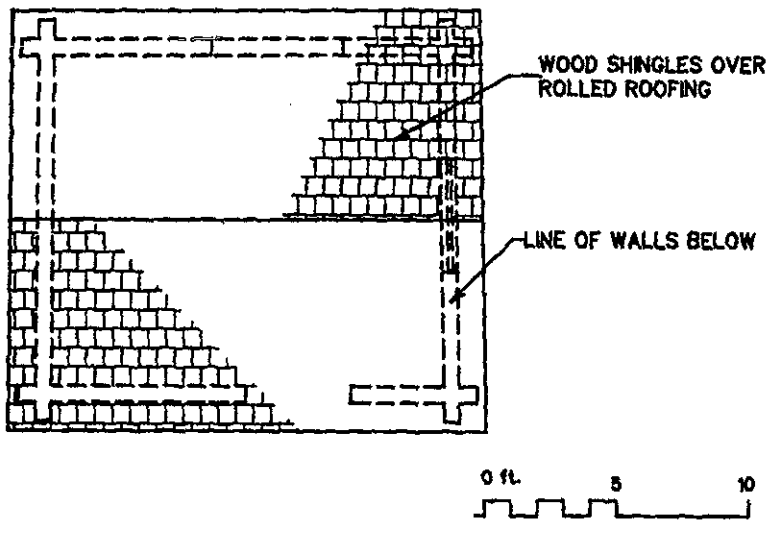
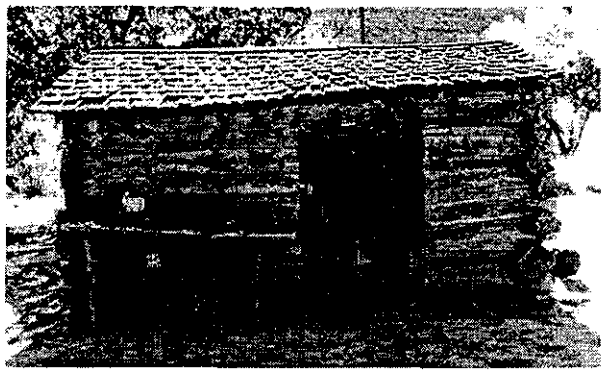


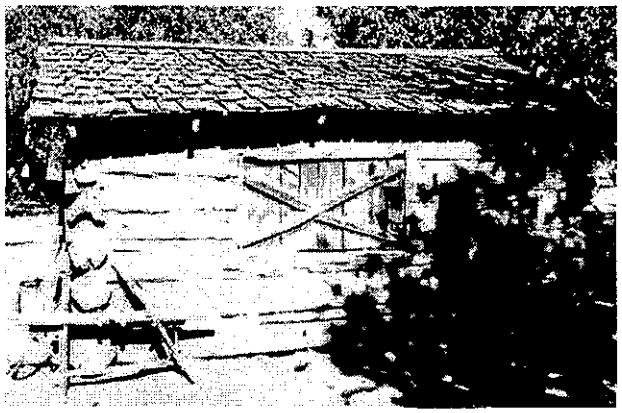
Figure 20: Polygamist Era Cabin Roof Plan



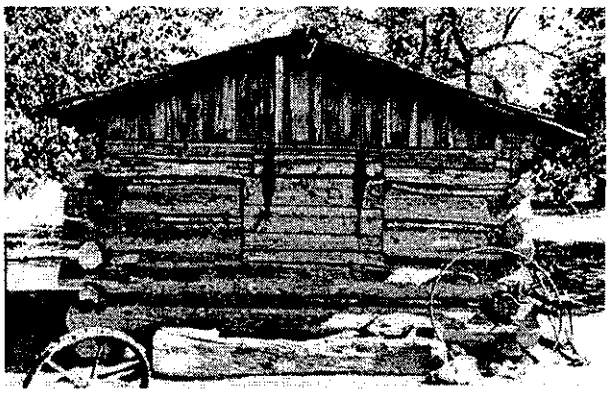
Photograph 46: East Elevation



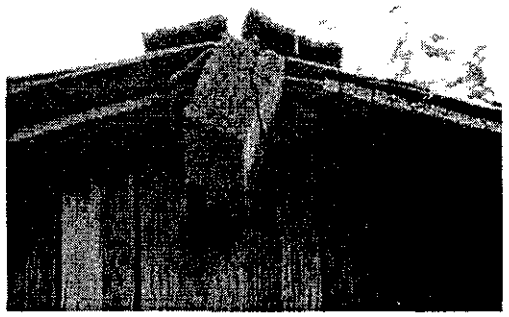
Photograph 47: South Elevation



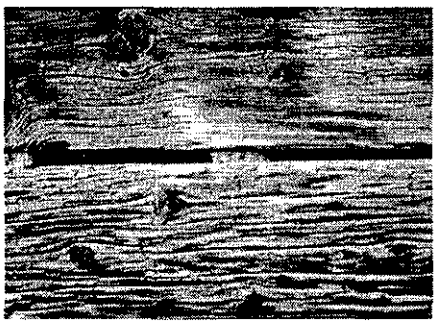
Photograph 48: West Elevation



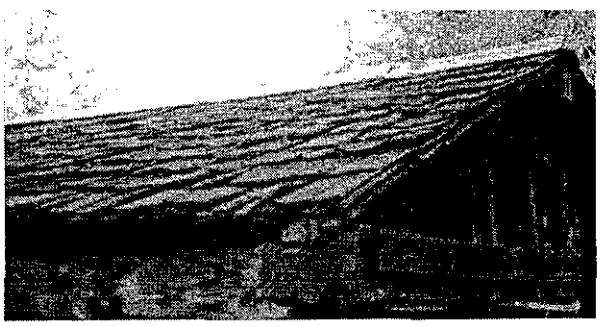
Photograph 49: North Elevation



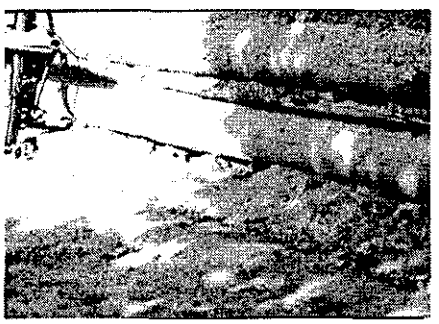
Photograph 50: Detail of twisted ridge beam



Photograph 51: Detail of log weathering and eroded chinking



Photograph 52: View of roof condition



Photograph 53: Condition of wall base

Outline Chronology – Polygamist Era Cabin

DATE	EVENT
1925	Jerry Johnson builds cabin for polygamist family[23]
c. 1930	Open ramada structure added to north side
1935	Leo Weaver purchases Lonely Dell Ranch
1940	Griffins buy Lonely Dell Ranch
c. 1955-65	Roof replaced, door and window openings altered, ramada possibly removed
1964	Evans, et. al purchase Lonely Dell Ranch
1982	NPS stabilization program, 4 sill logs replaced, others as required; logs daubed and chinked

[23] Homestead Application, Jerry Johnson.

HS-237, Warren Johnson House Foundation

Chronology of Development and Use

Warren Johnson received permission from LDS church authorities to use some of the ferry proceeds to construct this house in 1886. The construction of the large house would allow Johnson to place both of his families under one roof. The building, as it was completed in 1887, was a two-story structure with a rectangular plan (Photograph 54). This home was wood framed on tall (2-3 foot high) stone foundation walls.[24]

The large size of the home made it a perfect fit for the next ferry man, James Emett. He too utilized the house for his family. It appears likely that Emett was responsible for adding a wing to the house between 1887 and 1909, giving it an "L" shaped floor plan.

After the ranch was taken over by the Grand Canyon (Bar Z) Cattle Company, the building was often referred to as the Grand Canyon Cattle Company ranch house. It continued to be the center of the ranch until it burned in 1926.[25]

Before the original house burned, Jerry Johnson had begun to dismantle a portion of it for use in constructing cabins for other polygamist Mormon families. This salvage operation continued after the fire, although there was little left except foundation stones. None of the later cabins are apparently extant.

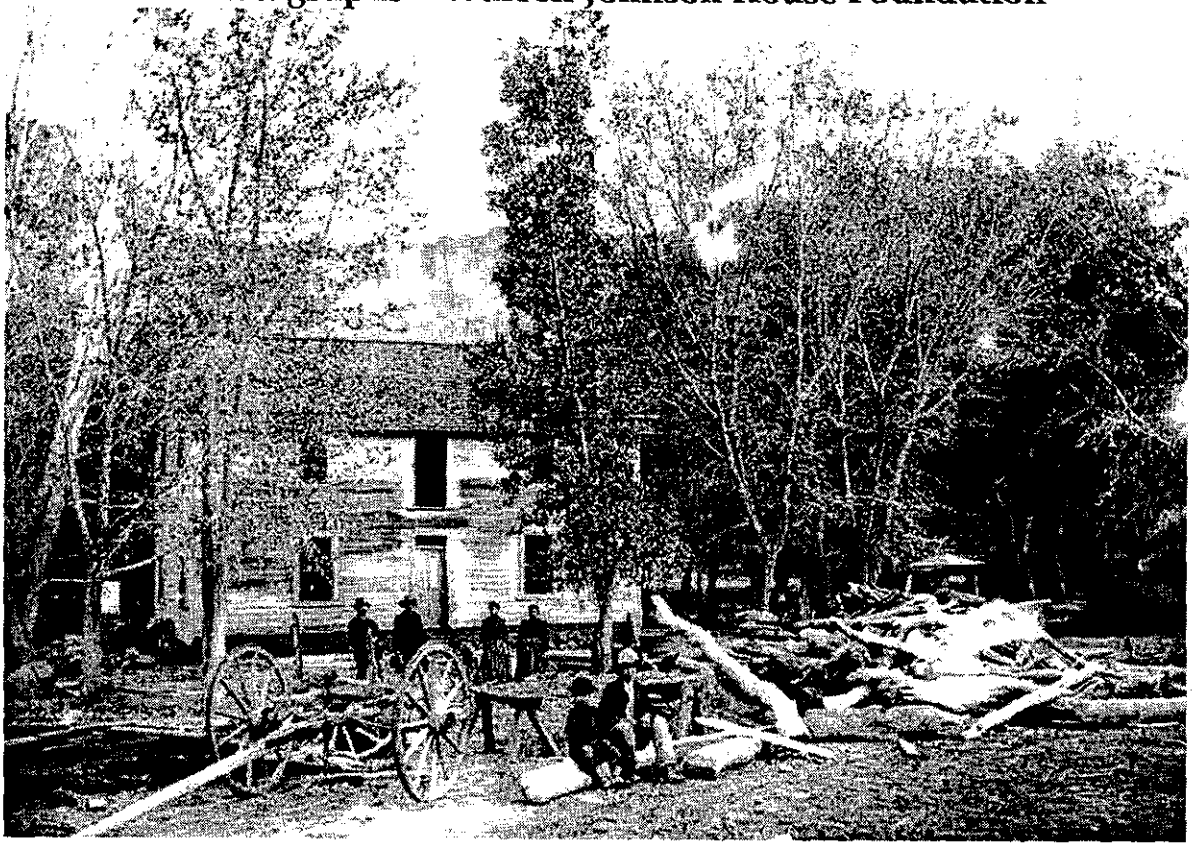
After Leo Weaver took control of the ranch in 1934, he utilized many of the remaining foundation stones for the construction of his Weaver Ranch House (HS-235).[26]

The foundation survived with few alterations until 1974 when the National Park Service acquired the site. NPS has used the site as an interpretive feature of the Lonely Dell Ranch Historic District. An interpretive sign is placed nearby identifying the site as the Warren Johnson House Foundation.

---

[24] Reilly, Lee's Ferry, pp. 105 and 108.
[25] Ibid., p. 321.
[26] Ibid., pp. 378 and 390.

Historical Photographs – Warren Johnson House Foundation



Photograph 54: Warren Johnson House as it appeared soon after construction, 1892.
LDS Historical Department



Photograph 55: Warren Johnson House, 1893 *New Mexico State Archives*



Photograph 56: Emetts in front of home 1901. *University of Arizona, A.E. Douglas Collection*



Photograph 57: Warren Johnson House, 1910. *LDS Historical Department*



Photograph 58: Gus Griffin in front of Warren Johnson House Foundation, 1964
Cline Library – NAU, P. T. Reilly Collection

Physical Description – Warren Johnson House Foundation

This historic building site is roughly rectangular, measuring about 40 feet by 45 feet. The area within the site is level (in contrast to the gently sloping surroundings) and is raised up slightly between 6 inches and 12 inches. Stones are irregularly set around the perimeter of the site, suggesting a rectangular outline of foundations, which does not correspond with the "L" shaped footprint visible in historic photographs.

The foundation perimeter is host to a variety of volunteer weeds and shrubs, which are not only visually intrusive, obscuring public view of the lines of stones, but may cause physical damage through their growth. A power pole has been installed at the southwest corner of the site, within the boundaries of the foundation stones. This feature detracts from the character of the site (Photograph 61).

Existing Conditions Drawing

Note: Stone locations are representational

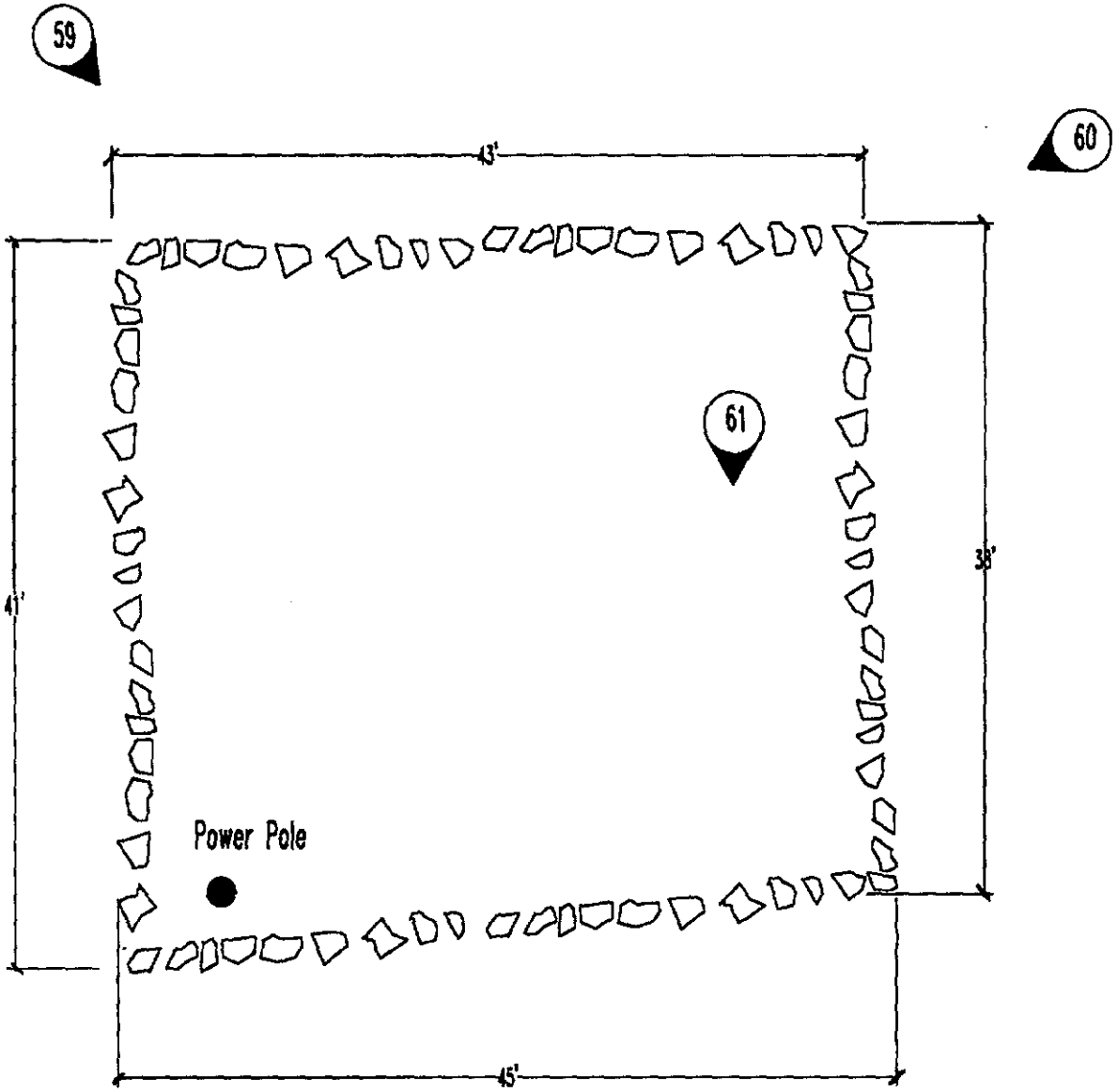


Figure 21: Johnson House Foundation Site Plan



Photograph 59: Overview of site, looking southwest



Photograph 60: Overview of site, looking northwest



Photograph 61: Power pole within foundation area

Outline Chronology – Warren Johnson House Foundation

DATE	EVENT
Summer 1886	Warren Johnson begins construction of house on former location of Lee Cabin[27]
June 1887	House basically finished: siding and roof installed; windows & doors installed, but only partially partitioned on interior. Porch & steps never get completed[28]
1890	James Emett sets up schoolroom on upper story of house after arrival of Draper children[29]
1897	Jim Emett and family takes up residence in building[30]
1897-1909	Wing addition probably added to original rectangular building
1909	Grand Canyon Cattle Company (Bar Z) purchase of property; building becomes known as the Bar Z Ranch House and/or Grand Canyon Cattle Co. Ranch House[31]
1910	Jerry Johnson moves back to house[32]
January 1911	Bar Z ranch house (built 1886 by W. Johnson) used for post office; Frank Johnson postmaster[33]
1914	Trading counter added in kitchen of house by Stephenson for trade with Navajos[34]
Fall 1925	East wing of house being torn down for commune cabins[35]
December 13, 1926	Warren Johnson House burns down[36]
1928	Johnsons use scrap lumber from bridge and old Johnson House remains to build schoolhouse, ten-room apartment, and four cabins[37]
March 1935	Stones used in construction of Weaver Ranch House[38]

[27] Reilly, Lee's Ferry, p. 105.
[28] Ibid., p. 108.
[29] Ibid., p. 125.
[30] Ibid., p. 153.
[31] Ibid., p. 214.
[32] Ibid., p. 216.
[33] Ibid., p. 232.
[34] Ibid., p. 260-61.
[35] Ibid., p. 316.
[36] Ibid., p. 321.
[37] Ibid., p. 327-228.
[38] Ibid., p. 378.

HS-234, Lonely Dell Dugout

Chronology of Development and Use

The Lonely Dell Dugout, sometimes called the Root Cellar, is a partial dugout building using stone retaining walls, earth fill, and a dirt roof over a log-and-board structure. Very little historical information is available about the building. Dugouts such as this were common features at Mormon ranching sites in the West. Root cellars were used to store fruits and vegetables for use during the long winter. From its location, this root cellar could be associated with the original Lee cabin or with the Warren Johnson House. An association with either habitation would place the structure's construction date within the 19th century.

One interesting aspect of the root cellar is the possibility that John Emett is interred here. After his death in the winter of 1909, the ground was frozen solid. All of the men were away from the ranch. After waiting in vain for father James Emett to return, the women buried John in the cellar because it was the only place where the ground was not frozen. Accounts differ as to whether he was disinterred and if a marker was placed on an empty grave in the cemetery.[39]

There are two historical photos of root cellars at the site. One appears to be taken during the Stanton assessment era, circa 1898. This photo is probably of the Lonely Dell Ranch root cellar, as no other root cellars are thought to have been on the site at that time. A second photo, dating to the twenties, is clearly of the Lonely Dell Ranch root cellar.

The Stanton Photo [Photograph 62] depicts a much ruder structure than is present today. Although the quality of the photograph is poor, it does not appear that a stone "façade" wall was present in 1898. This feature may have been added at a later unknown date.

The roof system (except for the log beams) appears to have been replaced within the last 30 years or so. This alteration may be contemporary with the alterations made to the Samantha Johnson Cabin and the Polygamist Era Cabin, which date to between 1967 and 1974.

The National Park Service acquired the site in 1974. In 1982, the Cellar was partially stabilized by the same team that was working on the Samantha Johnson Cabin and the Polygamist Era Cabin. The roof was generally repaired and the soil on top regraded. Loose stones were re-set and organic matter was removed from the steps and surrounding area. Later, in 1992, as the roof began to deteriorate and collapse, 4 x 4 shoring was placed under a broken roof beam and a new double 2 x 10 beam supported on a pair of double 2 x 6 posts was added to support sagging roof decking.

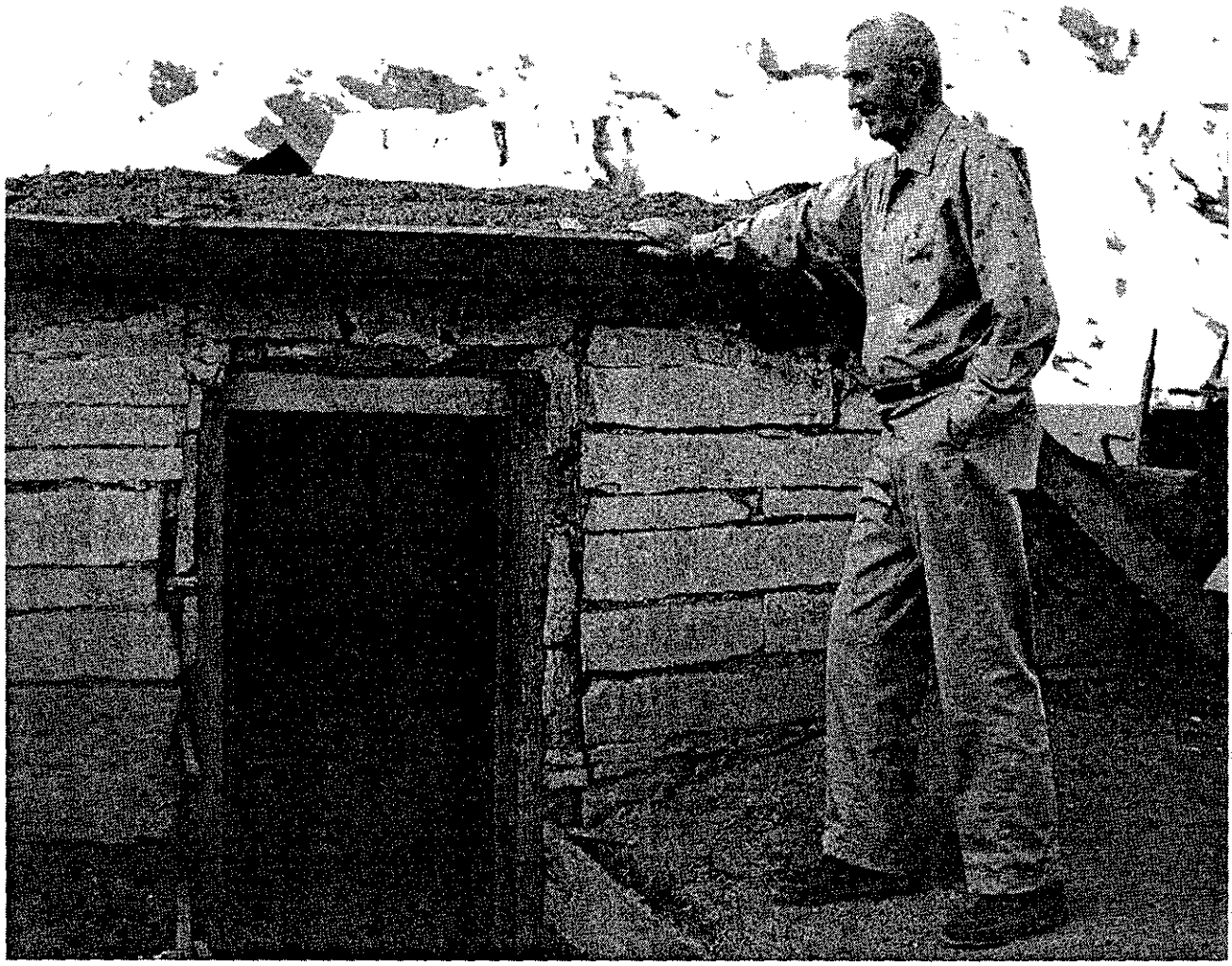
Since acquisition of the ranch, NPS has used the building as an interpretive feature of the Lonely Dell Historic District.

[39] Reilly, Lee's Ferry, pp. 211-212.

Historical Photographs – Lonely Dell Dugout



Photograph 62: Lonely Dell Dugout, c. 1898. *University of Utah, Crampton Collection*



Photograph 63: Gus Griffin at the Lonely Dell Dugout, 1964 *Cline Library – NAU, P. T. Reilly Collection*

Physical Description – Lonely Dell Dugout

Overview

The Lonely Dell Dugout is a partially subterranean rectangular stone building with a timber and earth roof. The south, entry façade has a flat stone face with a single door opening reached by a short run of stone steps. The other three sides of the building are bermed with earth, which continues the line of the earth roof. A short stone wall borders the bermed sides.

The horseshoe-shaped outline of the building measures approximately 20 feet across and 18 feet from the flat stone entry face to the back of the earth fill opposite. The roughly rectangular room measures 11 feet by 14 feet on the inside.

Walls

Walls are of local sandstone, set in horizontal ashlar coursing with relatively flat faces where exposed. The stone is set in mud mortar. The wall thickness is 16 inches where it could be measured. The mortar joints are generally eroded, both inside the building and at the exposed southern face.

A low perimeter stone wall retains the base of the dirt fill around the Dugout's east, west, and north sides. The wall appears to be of piled sandstone. It is unclear whether mud in the joints is a mortar or was simply washed into the wall joints from retained soils.

Floor

The floor of the Dugout is unfinished dirt. The surface is a little uneven, but generally stable.

Roof

The roof structure is supported on the side walls (east and west) and on two log timbers running north-south bearing on the north and south stone walls. 8-inch diameter logs acting as plates top the east and west bearing walls. 2-inch nominal thickness boards span from the side walls to each of the roof beams, and also down the center of the structure from beam to beam. The top plate logs are in very poor condition, with evidence of rot and termite damage arising from contact with the earth. One of the two major roof timbers has failed, cracking at a large knot. A 4 x 4 post at the point of failure now supports this beam. Additional modern structural reinforcing includes a double 2 x 10 beam supported on double 2 x 6 posts. This feature is supporting broken roof boards and is founded on stones. Most of the roof decking appears to be in good condition, but discrete areas and/or specific boards have failed, in some cases a result of the failed timber beam.

The roof covering includes approximately four inches of dirt over rolled asphalt roofing. False latillas were placed over the rolled roofing at the south wall, probably to replicate an earlier appearance on the outside.

Ventilators

A wooden vent penetrates through the dirt roof. This feature is built of 1 x 12 boards with a circular pattern of drilled vent holes in the sides. A gabled "roof" at the top of the vent (probably of more boards) is no longer extant. The vent is in very poor condition, with parts missing and the remainder weathering, cracking, and splitting.

Door

The door to the Dugout is built up of 1" nominal thickness board-and-batten material in a 2 x 8 frame. The head of the frame, reinforced with a vertically

oriented 2 x 4, also serves as a structural lintel for the masonry above. One jamb and the head have suffered termite damage.

Steps

A series of sandstone steps extends from the south side of the building about five feet. Descending into the Dugout, its sides are stone retaining walls. Of the four stone treads, the top one has failed, with the soil under it beginning to slip down into the excavation. The second tread is also beginning to fail. The other two treads have only some edge damage from the years of use.

Existing Conditions Drawings – Lonely Dell Dugout

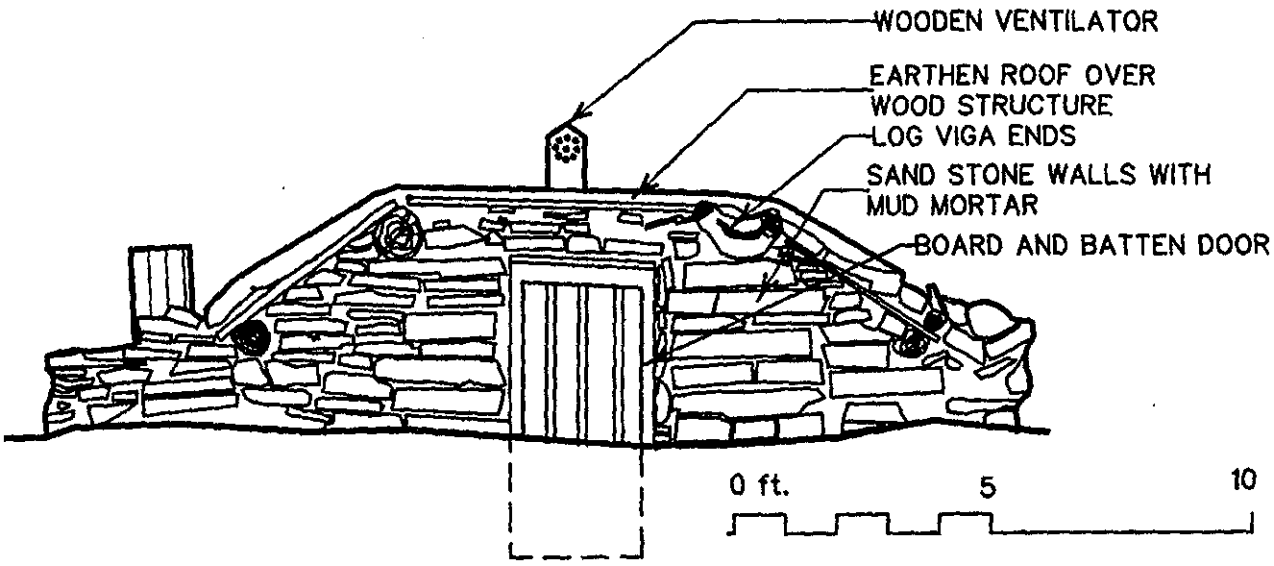


Figure 22: Lonely Dell Dugout South Elevation

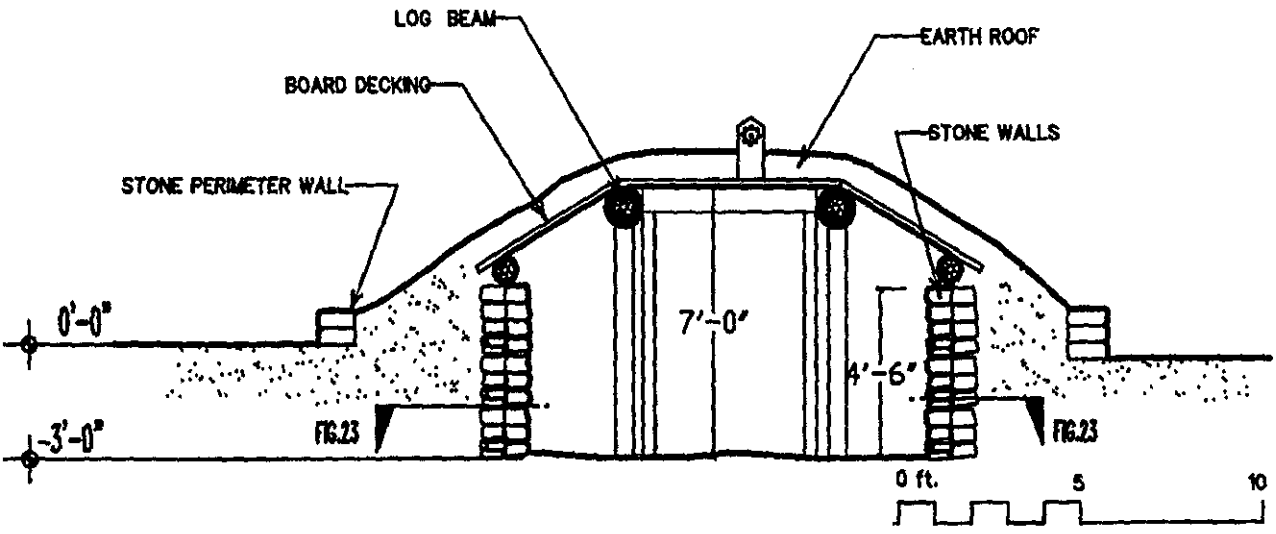


Figure 23: Lonely Dell Dugout Section A-A

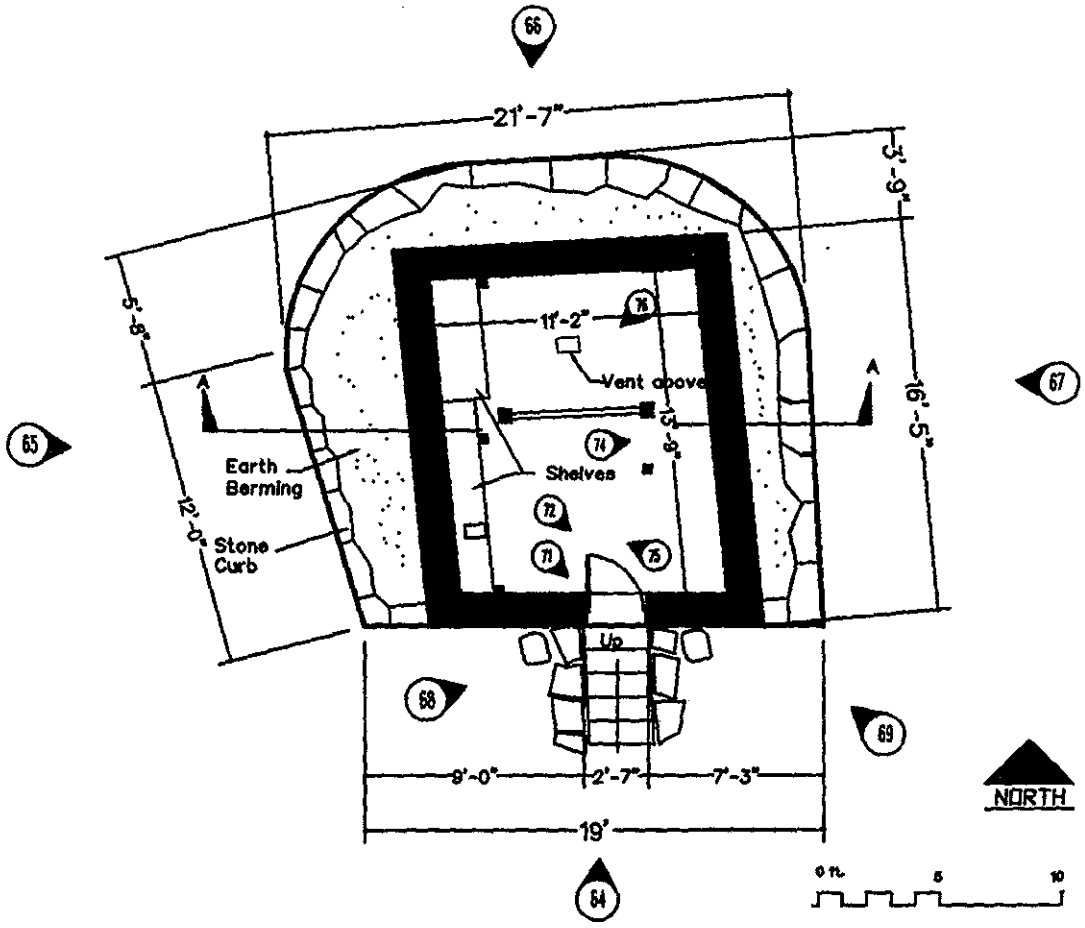


Figure 24: Lonely Dell Dugout Floor Plan

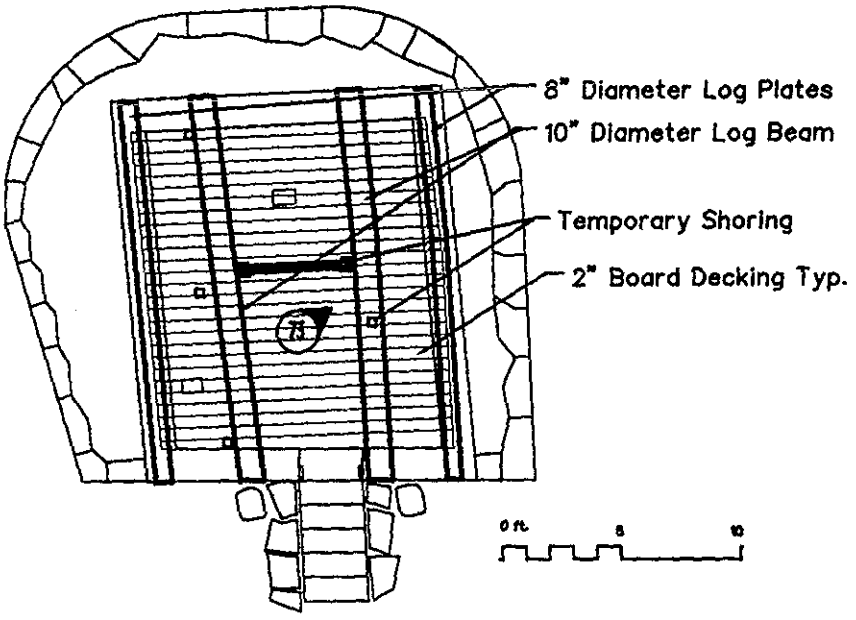
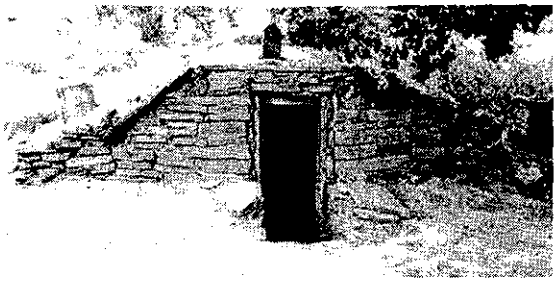


Figure 25: Lonely Dell Dugout Roof Framing



Photograph 64: Dugout South Elevation.



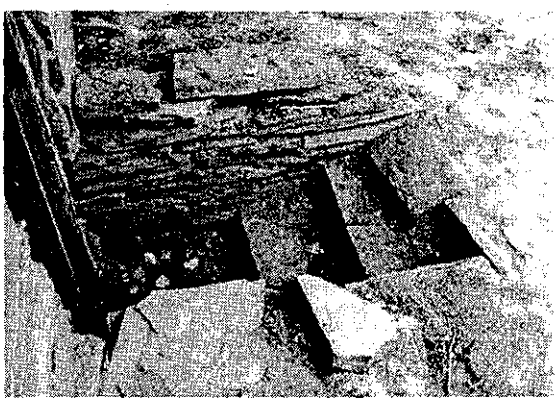
Photograph 65: Dugout West Elevation.



Photograph 66: Dugout North Elevation.



Photograph 67: Dugout East Elevation.



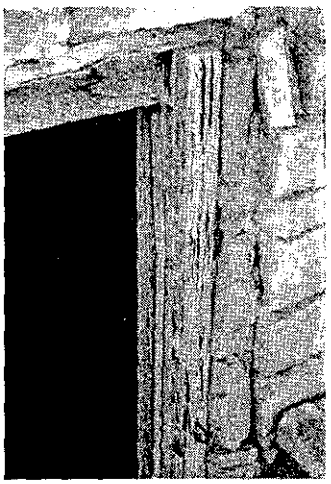
Photograph 68: Detail of entry steps.



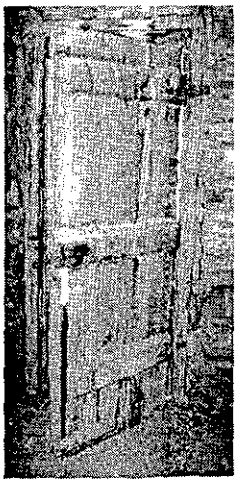
Photograph 69: Detail of roof construction.



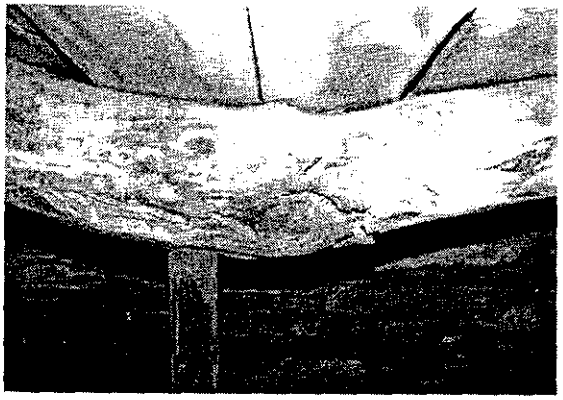
Photograph 70: Detail of rooftop vent.



Photograph 71: Detail of damaged door frame.



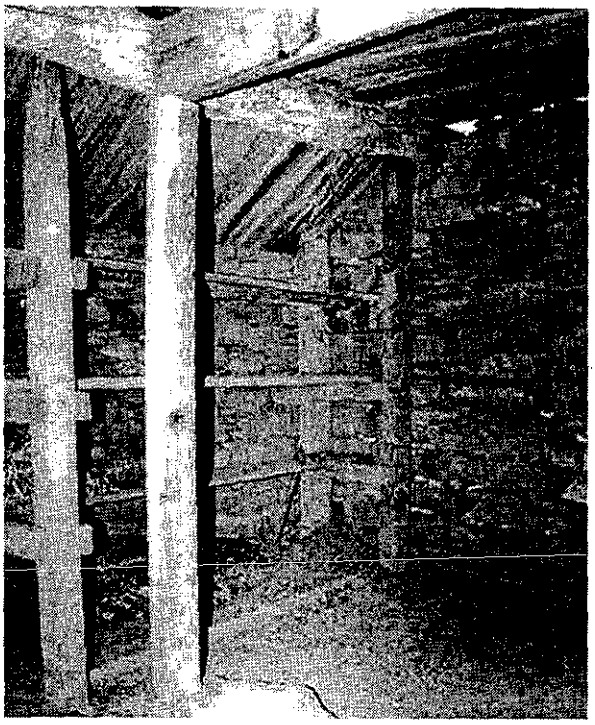
Photograph 72: Detail of door.



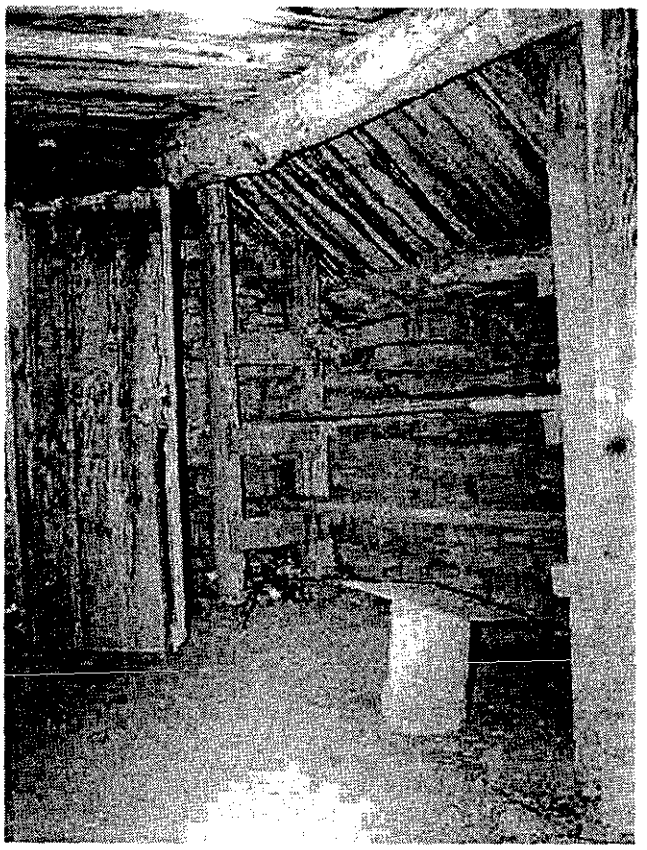
Photograph 73: Broken roof timber.



Photograph 74: Interior wall condition.



Photograph 75: Overview of interior, looking northwest.



Photograph 76: Overview of interior, looking southwest.

Outline Chronology – Lonely Dell Dugout

DATE	EVENT
1878-1898	Probable era of original construction
1909	John Emett dies; buried in cellar due to frozen ground. Accounts differ as to whether he was disinterred [40]
1970	Estimated date of roof replacement
1974	Acquired by NPS as part of Lonely Dell Ranch
1982	NPS stabilization project
1992	Roof structure stabilized by NPS

[40] Reilly, Lee's Ferry, p. 212.

HS-235, Weaver Ranch House

Chronology of Development and Use

The Weaver Ranch House is the most recent of the historic buildings at the Ranch site. The building includes an original stone segment and a later wood-framed addition.

This building was constructed by Leo Weaver and Poli Hungavi, a Hopi craftsman. Supposedly, Weaver patterned the building after the design of the Wigwam Resort in Litchfield Park, Arizona. The building was constructed during the winter of 1935-36 using stones salvaged from the Johnson House foundation, from river cobbles, and from stones salvaged from some Spencer buildings. This first phase included the Kitchen, Dining, and Living Rooms as well as a small Storage room and a Mud Room.[41]

In 1937, Leo Weaver added a wood framed bedroom addition to the east end of the building, in a "T" shape with the original wing. This provided some sleeping rooms for the building.[42]

The building served as the main ranch house through the Weaver, Bowers, and Griffin eras.

The Kitchen at the west end of the house has had several minor alterations. The lowered ceiling and center island counter may be original, but the fact that the ceiling is supported on a post in the center of the kitchen tends to indicate that it is an early alteration, possibly dating to Warren Griffin's occupancy, 1940-50. An exhaust hood was added for a range sometime after the ceiling was lowered. This alteration appears to date post-1965, because electricity was not provided to the house until that year. This coincides with the Evans consortium period of occupancy. Vinyl composition tile and alterations to cabinets (such as the addition of contact paper) also date to this era. Several major appliances were installed by NPS after 1974.

A hole in the ceiling boards is taken as evidence that a wood stove existed in the Dining area at one time. When it was installed and removed is not known. Alterations to some door and window casings in the Living Room are also impossible to date.

When the Ranch House was sold to the National Park Service in 1974, the then-owners stripped the house of many significant furnishings and features. At the time, the house had Weaver's original furniture. A full accounting of what has been lost has not yet been discovered.[43]

In 1982 the National Park Service received funds to improve the building. Over the next two years, NPS workers gutted the 1937 wing of all historic features and reconfigured it using modern materials and finishes. Windows were replaced with matching modern sash. The roof of the entire building was also covered in modern-appearing white sheet metal, the only major exterior change.[44]

---

[41] Reilly, Lee's Ferry, pp. 378 and 390.

[42] Ibid., p. 399.

[43] Ibid., p. 458.

[44] Roof Plan for Weaver House, Lonely Dell Ranch, April 13, 1982; Memo From Art Cloutier to Irvin Mortenson, John Ritenour, and John Criger, December 10, 1982; Memo From Art Cloutier to John Criger, March 21 1983; Memo From Art Cloutier to Chief of RM and VP, June 20, 1983; Memo from Art Cloutier to RM Supervisor and Chief of Maintenance, March 27, 1984; Notes Prepared by Art Cloutier During

NPS intended to use the building as worker's quarters, but this use was terminated and the interior is no longer used. The exterior is used as an interpretive feature of the Lonely Dell Ranch Historic District.

Although the Scamehorn report credits construction of this building to the Grand Canyon Cattle Company in 1916 based on Coconino County Assessor's records, that conclusion appears to be in error.[45]

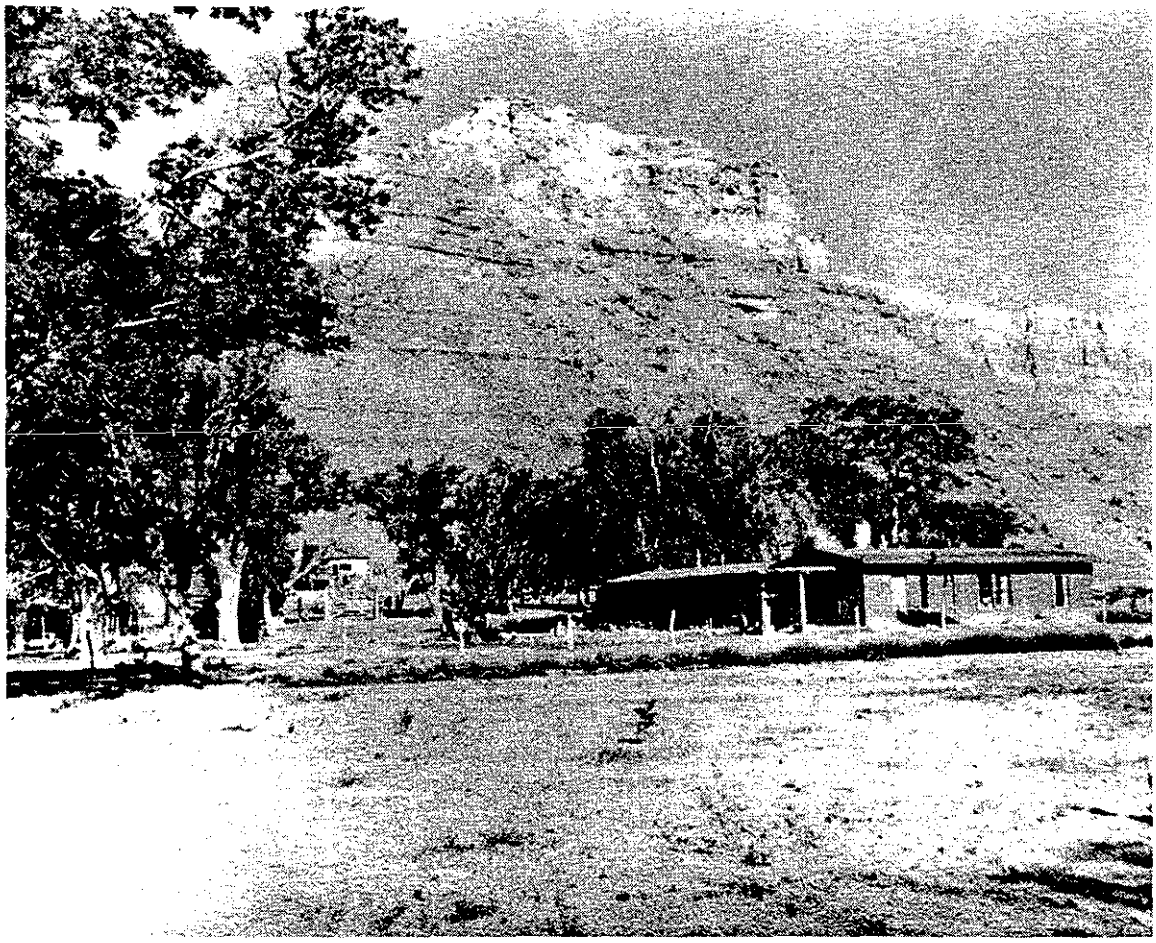
Weaver House Project, June 7, 1984, all at GLCA Archives, Page.

[45] Scamehorn, Historic Structure Report, pp. 24-29. Scamehorn attributed a 1916 date to the Weaver Ranch House based on records at the Coconino County Assessor in Flagstaff, but the original records have since been destroyed and his research could not be duplicated. Recent work by P.T. Reilly has clarified the history of this building.

Historical Photographs



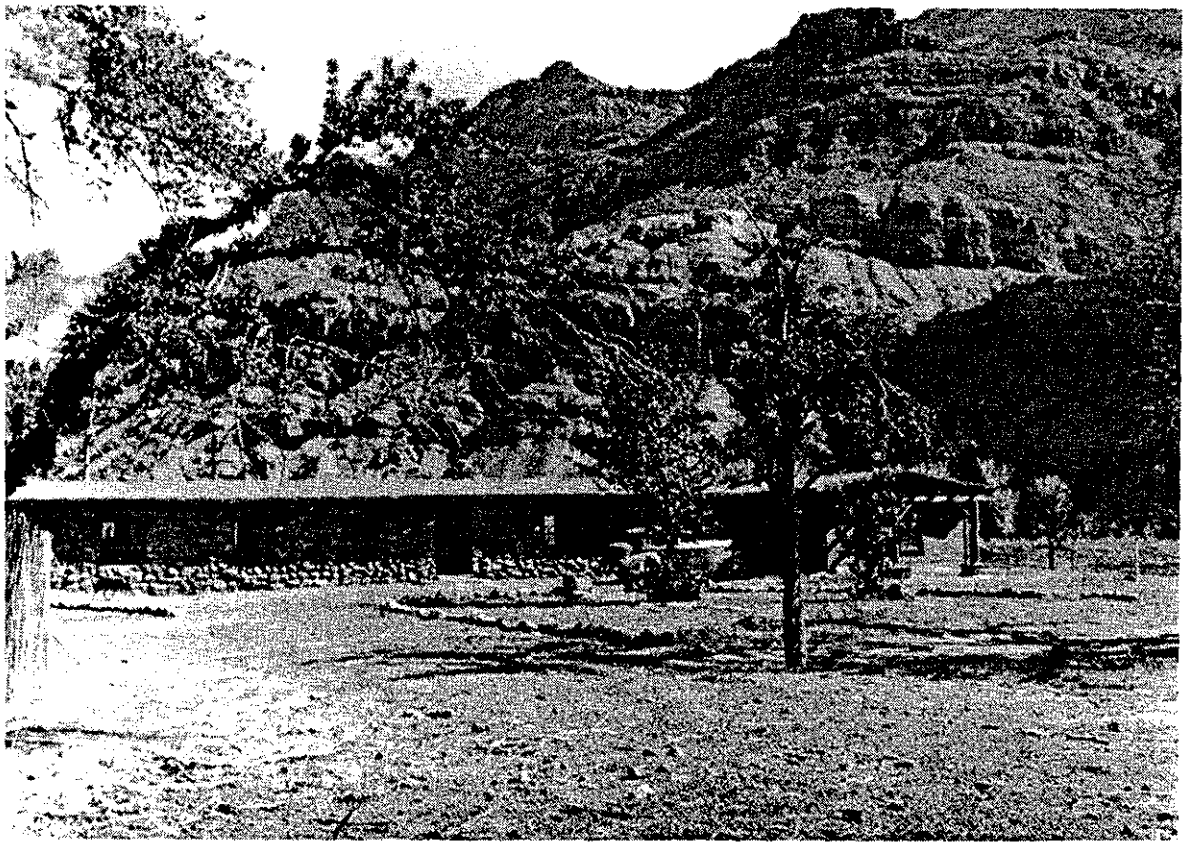
Photograph 77: Weaver Ranch House, 1936 *Utah State Historical Society*



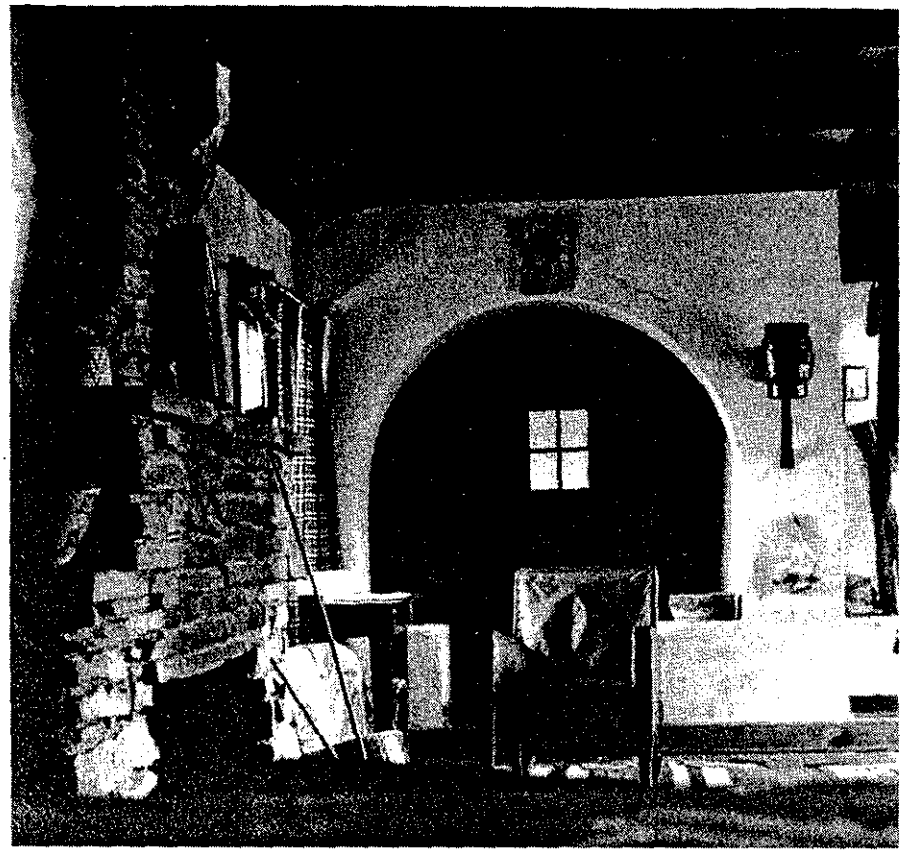
Photograph 78: Weaver Ranch House c. 1937 *Cline Library – NAU, P. T. Reilly Collection*



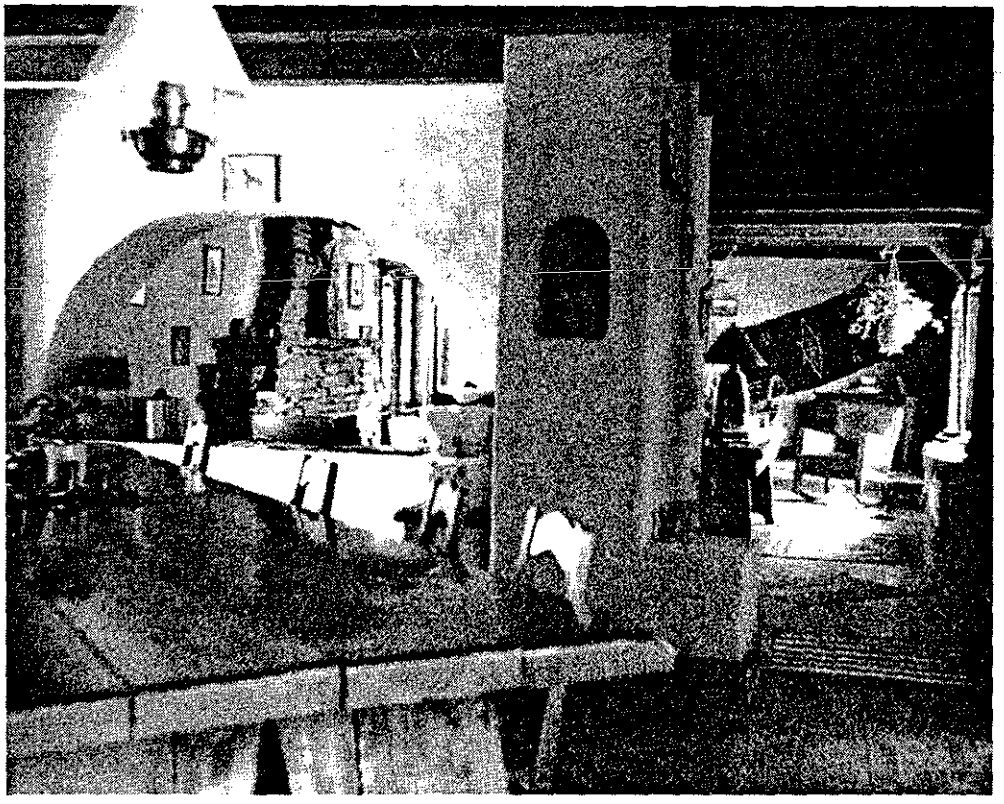
Photograph 79: Leo and Hazel Weaver at Weaver Ranch House, c. 1937
Cline Library – NAU, P. T. Reilly Collection



Photograph 80: Weaver Ranch House, c. 1937 *Cline Library – NAU, P. T. Reilly Collection*



Photograph 81: Interior, Weaver Ranch House Living Room c. 1936
Cline Library – NAU, P. T. Reilly Collection



Photograph 82: Interior, Weaver Ranch House Dininsg Room c. 1936
Cline Library- NAU, P. T. Reilly Collection

Physical Description – Weaver Ranch House

Overview

The older part of the building is rectangular, 88 feet by 20 feet exterior dimensions, with stone walls and wood-framed floor and roof structures. Doors and windows are wood. The addition was made to the east end of the original building and measures 25 feet by 40 feet. Walls, floors, and roof of the addition are all wood-framed, with the exterior walls covered in painted wood shiplap siding.

In keeping with the appearance of the Lonely Dell Ranch and the rustic exterior of the building, Leo decorated the interior in a "western" theme (Photograph 87, Photograph 88). Many interior features remaining inside convey this theme, including plank doors, wagon wheels, log posts, and the grand stone fireplace.

Exterior Walls

The exterior walls are constructed of river cobbles, mostly (but not all) sandstone, with deeply struck mortar joints. It appears from examination of exposed areas inside the house that the method of construction may have been to form the interior face with wood framing, and then set stones against the formwork in an effort to keep the interior side of the wall flat. The mortar is portland cement-based with a pea gravel aggregate, probably mixed on site. Traces of paint on the south side indicate that the walls were painted white at some time, but very little paint remains. There do not appear to be any formal lintels over most of the door and window openings, and the door and window frames themselves are thus probably supporting approximately 12 inches of stonework above the openings. Many of the openings have cracks through the wall extending from the opening up to the top plate (Photograph 96). An exception is the large bank of windows on the south side of the living room, which has a 4 x 12 wood lintel extending full width and supported on 4 x 4 posts between casement pairs. The lintel exhibits signs of splitting, and this condition should be further explored. The rough stonework texture on the outside has many voids in the joints, which may have resulted in some of the water damage seen on the interior (Photograph 91). The window sills have a mortar wash over the stones, but this material is generally incomplete or cracked, allowing water directly into the wall system. There are traces of white paint and black roofing bitumen soiling the walls near as well as on the chimney.

The wood-framed walls of the 1937 addition are sheathed in double-lobe shiplap siding. The siding is generally in good condition, but lower on the wall the paint is beginning to fail. Weathering is particularly evident at the south side (Photograph 92). A skirt of stone set in mortar at the base of the wall encloses the crawlspace. Many stones are missing, making a ready entrance for small mammal and rodent infestation.

Exterior Doors

Exterior doors are of various types and generally in good condition, as follows.

Location	Description/Significance	Condition
Main entry, south side	Built-up wood plank door with wrought iron hardware, operable window. All appears original; significant character-defining element (Photograph 106).	Window putty deteriorating.
Porch	Assumed to be wooden screen door.	Missing.
Porch/ Kitchen	Built-up wood plank door of rough-sawn lumber. Appears original; significant element.	Good condition.
Mud Room	Wood stile and rail door with two plank panels. Modern latching hardware and hinges. May be a modern replacement door; design appears to be an accurate reproduction compatible with building design.	Very good condition.
Fireplace	Small horizontally proportioned wooden pass door in wood frame. Once had some kind of protection flap (Photograph 94).	The sill has become a good location for rodent nests. It has acquired a quantity of debris and also appears to collect water or snow. The flap that once protected the opening is now missing.
North side, addition	Wood stile and rail door with two plank panels. Modern latching hardware and hinges. May be a modern replacement door; design appears to be an accurate reproduction compatible with building design.	Good condition.
South side, addition	Wood stile and rail door with one plank panel and a glass light. Modern latching hardware and hinges. May be a modern replacement door; design appears to be an accurate reproduction compatible with building design.	Good condition.

Exterior Windows

Windows are generally multi-light wood casement type with a painted finish. In the original 1936 house, all of the windows appear to be original. The bottom half of most of the windows is beginning to weather and need maintenance (Photograph 95). Glazing putty throughout has hardened and is beginning to fail (Photograph 93). Larger windows have had modern screens screwed directly to the face of the window frame, causing minor damage. Windows at the 1937 addition are in excellent condition except for some failure of the glazing putty. These windows are unpainted on the inside, matching the late improvements made to the interior of the addition. For this reason, windows of the addition are thought to be modern replacements, probably accurately reproducing earlier windows.

Roof Eaves

The eaves of the building are formed by 2 x 6 rafters at 24 inches on centers, exposed on the underside and trimmed on the end with a 2 x 8 fascia board. Bird blocking is placed between rafters at the top plate of the wall. Gaps are present in or below the bird blocking, where woodpeckers or rodents have pecked or chewed their way through the blocking and where mortar has fallen out from below the top plate of the wall (Photograph 97). These conditions provide passages into the attic and nesting spots for birds and rodents. The eave at the addition is has a similar construction, but is in good condition and has no damage.

Gable Walls/Vents

The gable end of the original building is sheathed in painted wood board-and-batten siding. This material is in good condition. An attic vent in this west gable has been removed and is now just a hole. At the 1937 addition, the clapboard wall sheathing merely extends up into the gable area. Wooden louvers ventilate the attic. These louvers are in poor condition, damaged by animals.

Terrace

A stone terrace borders the south side of the 1937 addition. The terrace is raised approximately 12 inches in relationship to the surrounding grade. A sandstone retaining wall supports the perimeter while sandstone flags pave the top. The flagstone surface is in very poor condition. A hole beneath the house floor level appears to funnel water from the porch to the crawlspace and also provides another avenue for rodent infestation (Photograph 98).

Roofing

The roof has been recovered with a modern, panelized standing seam steel roof system. The edge flashing extends down over the wood fascia, concealing most of it. Fasteners are left exposed on the top of the roof. The original roofing appears in period photographs to be light colored rolled composition roofing.

Interior Walls

Inside the original 1936 building, the exterior walls are plastered with a rough finish wash over the stone structure. Other interior walls are wood-framed partitions with a lath and plaster finish. In the living room area, there are a number of decorative niches and similar features incorporated into the partitions, also of lath and plaster on wood framing. Most of these interior wall finishes are in good condition, however in a few areas the finish on exterior walls is deteriorating due to moisture infiltration through the wall from outside. The base of the north wall for the length of the building has general, although irregular deterioration of the plaster. The most severe damage occurred inside the storage room immediately adjacent to the kitchen on the north side of the house, where the lower 1-1/2 feet of wall surface is damaged for most of the width of the room (Photograph 101). Other areas of deterioration are below windows and next to the fireplace. Above the fireplace, minor wall damage was the result of roof leaks, which have since been repaired. The paint finish in the kitchen is failing below the south window. There is also some minor damage to the wall surface behind the range caused by past range installations. Structural cracks through the stone walls above door and window openings are telegraphed through to the interior; these cracks are generally about 1/8 inch wide. There has also been some differential settlement between the exterior walls and the interior partition between the kitchen and dining areas, causing a crack at the wall junction.

The walls of the 1937 addition are wood frame inside and out. The interior of this area of the building has been completely refinished in modern drywall with an orange peel finish. While this change represents a loss of historic integrity, these areas are nevertheless in good condition.

Floors

The floor system of the house consists of wooden joists over a crawlspace. The space under the floor of the 1936 house is not accessible, there being no vents or access ways either through the exterior foundation wall or through the floor. The crawlspace of the 1937 addition is accessible directly from the small cellar, revealing wood joists in excellent condition. The hallway of the part of the addition immediately adjacent to the east side of the original house has a slab-on-grade floor.

Structurally, all floors appear and feel solid. There is some evidence of past termite infestation near the fireplace which could have damaged some joists, but there has been no evidence of severe structural damage. This damage was caused by dry-wood termites, for which the house was treated in 1989. Within the original house, the floor structure is covered in 3-1/4 inch width tongue-in-groove wood flooring, which has been stained dark brown. It is not known whether this material is structural or if there is a sub-floor under it. In the kitchen and adjacent storage room, 12" x 12" vinyl flooring, in poor condition, has concealed earlier "battleship" linoleum laid over the wood floor. While no testing was done for hazardous materials, the linoleum and vinyl tile could contain asbestos. The resilient flooring systems stop at the Dining Room. The Dining Room and a nook, at opposite ends of the Living Room, have been raised up about 4" in relationship to the Kitchen and Living Room. The condition of the finished wood flooring in the Dining and Living areas varies; some areas are in very good condition, while other areas have significant damage. Specifically, termite damage near the fireplace has virtually destroyed several pieces of flooring. High-traffic areas have significant wear, the finish having been worn through to expose the raw wood. The structural floor sheathing in the 1937 addition is entirely covered with modern materials including short pile commercial carpeting and sheet vinyl. These floors are heavily stained from rodent droppings.

Ceilings

Ceiling materials vary. In the Kitchen, the ceiling is lowered to about eight feet and is finished in painted paperboard with wood lath over the joints. A post-and-beam system appears to support this lowered ceiling at the center of the Kitchen (Photograph 100). Near the exhaust hood the ceiling is sagging. While the exact cause of the sag is not known, installation of the exhaust hood may have required cutting one of the ceiling framing members. Additional investigation, including demolition of a small part of the ceiling to gain access to this concealed space, will be required before a repair strategy can be recommended. In the Dining and Living rooms, the ceiling is of 1 x 8 wood shiplap or tongue-in-groove boards supported on full sized 6 x 6 rough sawn timbers spaced at 36 inches to 48 inches on center, spanning from the north to the south walls. Near each of these walls, the boards angle down to follow the roof slope, meeting the bottom of the timbers at the wall plate. All of these wood ceilings are stained dark brown and are generally in excellent condition. An exception is an 8" diameter hole that was cut through the ceiling at the northwest corner of the Dining area for a gas or wood stove or furnace (now removed). Overall, the wood timbers sag slightly. They may be supporting the roof through a king post or other vertical framing, but the exact nature of the roof framing is not known. In any case, the sag is minor and can probably be attributed to natural creep over time. Ceilings in the 1937 addition have all been replaced with modern drywall, lightly textured and painted.

Interior Doors

Interior doors vary in design. The door between the Kitchen and the Dining Room is site-built of shiplap wood boards on horizontal rails; hardware is ornamental, including forged iron hinges, a spring closer, a wooden pull handle, and a brass push plate (Photograph 107). The kitchen side of the door is painted while the Dining Room side is stained dark brown. The door is in fair condition, having sagged, and drags on the floor wearing on both the door and the floor. The door from the Kitchen to the side storage room is also field-built of wood planks over a stile and rail back up. It carries original strap hinges and most of a surface latch. This door has been sagging for a very long time, evidenced by the many layers of paint, which have now locked it into a drooping position. The door drags on the floor when more than 45 degrees open. The surface latch is no longer

functioning, the door being held shut by a hook. The door between the side storage room and the mudroom in the northwest corner of the house is built of wood planks on a "Z" frame. It is held shut by a flush bolt. This door is functional and in fair condition. All original doors of the 1937 addition have been replaced with modern, flush mahogany veneer hollow core wood doors.

Wood Moldings and Trim

Wood trim throughout the house is simple in design. In the kitchen, there are unornamented board interior door and window casings and six-inch high baseboards. The interior jambs of the windows are splayed. All the woodwork in the kitchen is painted. Similar woodwork is found in the Dining and Living rooms, although stained in these areas rather than painted. Other interesting features in the Dining and Living area include wagon wheel room dividers and built-in benches; wooden elements of these features are of lightly sanded and stained rough sawn lumber. The original interior door casing of the exterior door as well as the casing around all window openings in the Living Room and the east doorway to the 1937 addition have been replaced with narrower shiplap boards, which do not completely cover the damaged plaster around the opening. Similar replacement boards are used as baseboards throughout most of the Living Room. Within the Living Room are two wall bracket lamp supports, which are made from the hubs of wagon wheels and knee-braced back to the walls (Photograph 104, Photograph 105). One of the two is intact; the second is missing the hub. At the east end of the Living Room, a stained and varnished log is used as a visual support (probably not structural) for an overhead beam separating the main part of the room from a smaller nook (or stage?). These features are in good condition.

Fireplace

The fireplace in the Living Room is built of rustic ashlar sandstone (Photograph 108). The hearth is covered with sandstone flags. The fireplace opening is quite large. The flue is unlined sandstone and has no damper, although it appears to have a large free area and smoke shelf. The firebox itself has a sandstone lining, which is quite deteriorated in the rear. Some damage has been done to the exposed stonework at the chimney by a (now repaired) roof leak, but the damage is confined to the area above the mantle. With the exception of the mortar erosion from the leak, the fireplace is visually in excellent condition. The unlined nature of the fireplace design probably makes it dangerous to use due to the possibility of flue gasses and/or fire escaping from the chimney.

Plumbing Fixtures

Plumbing fixtures are found in the kitchen and bath areas. The Kitchen features a white enameled steel sink-and-drain-board assembly, which is probably an original feature. It is in good condition despite being soiled. Bath features and kitchen fixtures in the 1937 addition are modern, in good condition.

Casework and Furnishings

Wooden casework found in the Kitchen also appears to be an original or early feature (Photograph 100, Photograph 102). The cabinets are of painted wood. Contact paper has been applied to the panels, and hardboard paneling was applied over the earlier galvanized steel countertops. Original hardware, including hinges and bin pulls, remains. A work counter has been built around the center post, of wood framing with a shiplap board top later covered in hardboard. A porcelain enamel steel cabinet, matching the drain board, also is found in the Kitchen. The top of the cabinet has had contact paper applied over it. At the 1937 addition, all original interior trim has been replaced with varnished fir boards and varnished finger-jointed door frames.

Appliances

Kitchen appliances include a modern range, a modern refrigerator, and an older range hood custom-fabricated from steel sheet metal. The range hood is greasy on the inside, but otherwise appears in good condition.

Electrical System

Electrical features in the original house appear to be a late addition, probably contemporary with the interior remodeling of the addition in 1976. The service entrance is mounted to the north side of the west utility porch. Light fixtures are bare bulbs in porcelain fixtures mounted on exposed electrical boxes on the ceiling (Photograph 103). Power receptacles are on exposed boxes mounted on the baseboards, fed through conduits through the wall from outside (Photograph 99). All of these fixtures are visually intrusive.

Cellar

A small cellar exists under a portion of the 1937 addition. The cellar is accessed from the east side of the building, where a wooden cellar storm door leads to stone and wooden steps into the cellar. The cellar is relatively small, only about eight feet square and six feet high. Some sides of the cellar are native rock while stone retaining walls were built to enclose the remainder. The cellar is open to the crawlspace on all sides. The overall condition of the cellar itself is good, there being little to deteriorate except for retaining walls. A water pipe here has a constant drip, which keeps the floor wet. The cellar door, boarded up, is in very poor condition. The doors are made of painted wood T&G planks on cross-members. The failure of these doors creates a hazard for the public, may constitute an attractive nuisance, and ultimately admits rain and snow into the cellar, as well as animals and pests.

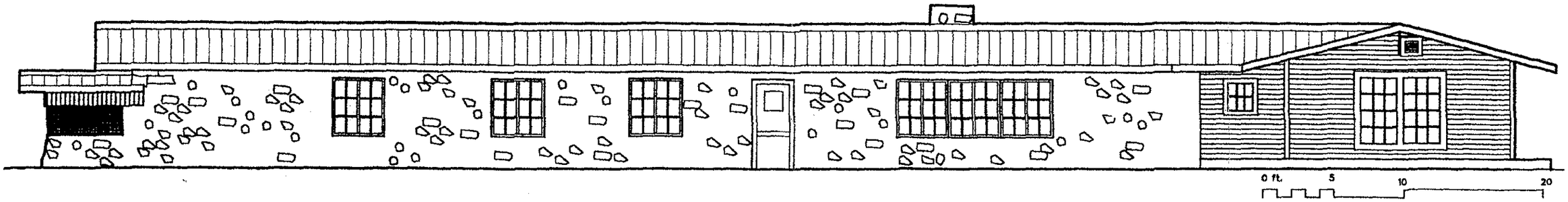


Figure 26: Weaver Ranch House South Elevation

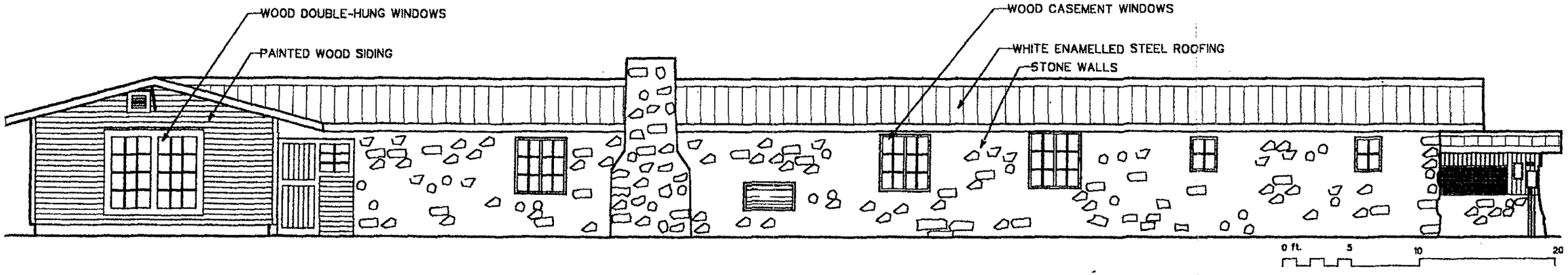


Figure 27: Weaver Ranch House North Elevation

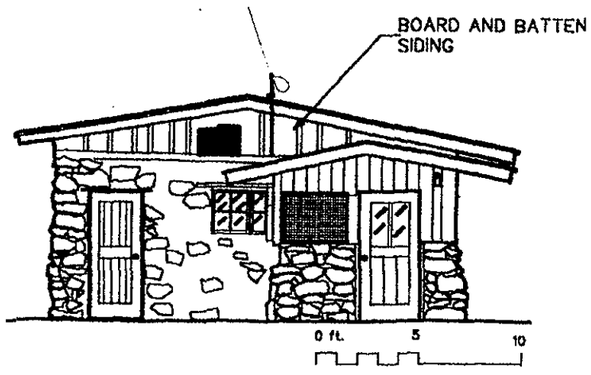


Figure 28: Weaver Ranch House West Elevation

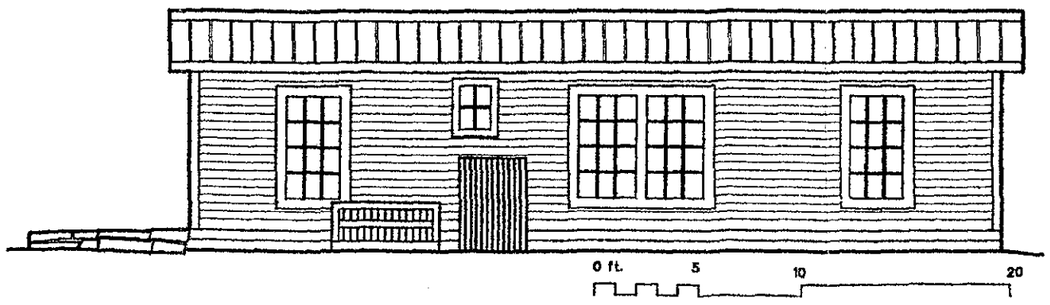


Figure 29: Weaver Ranch House East Elevation

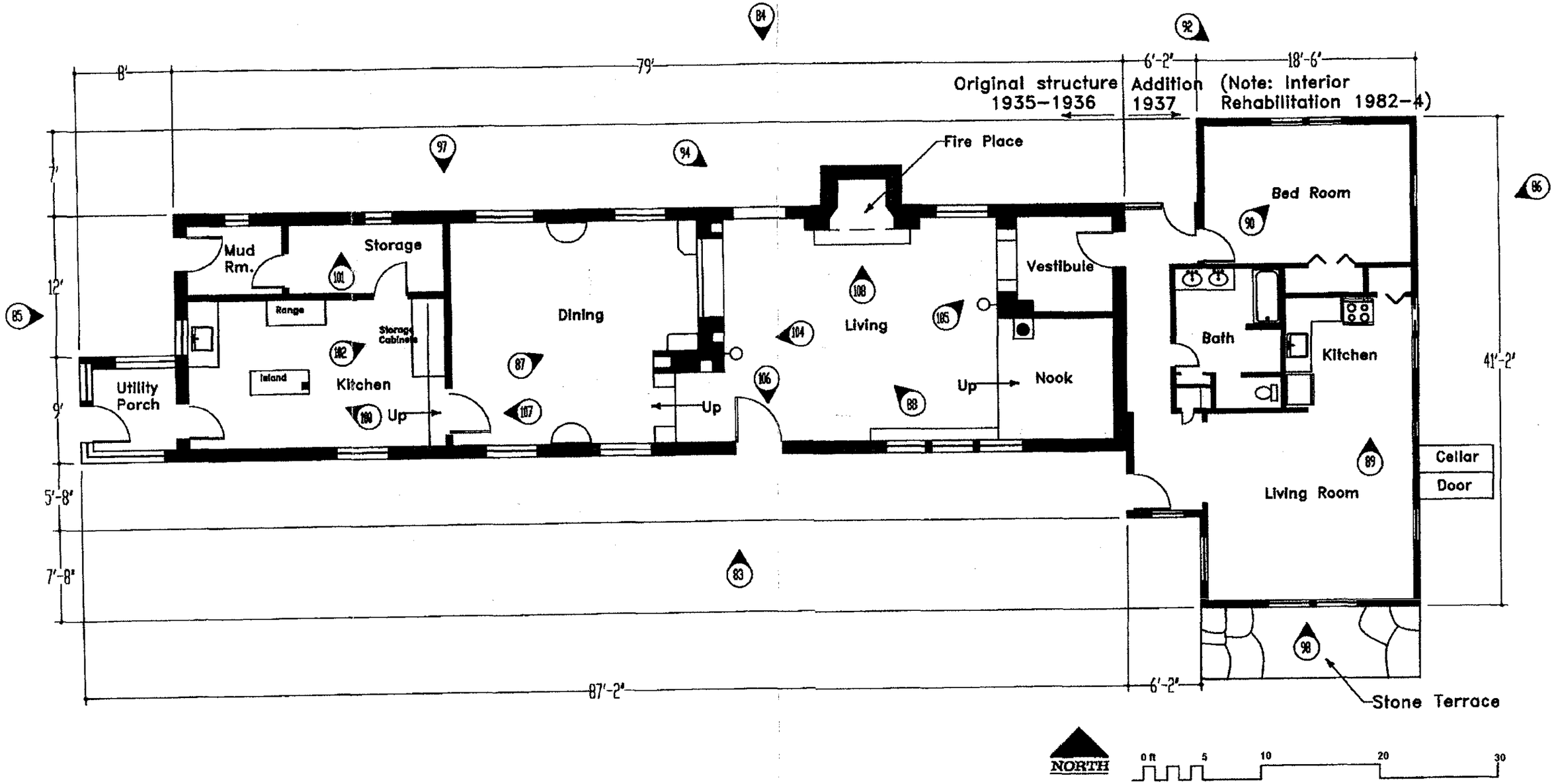


Figure 30: Weaver Ranch House Floor Plan

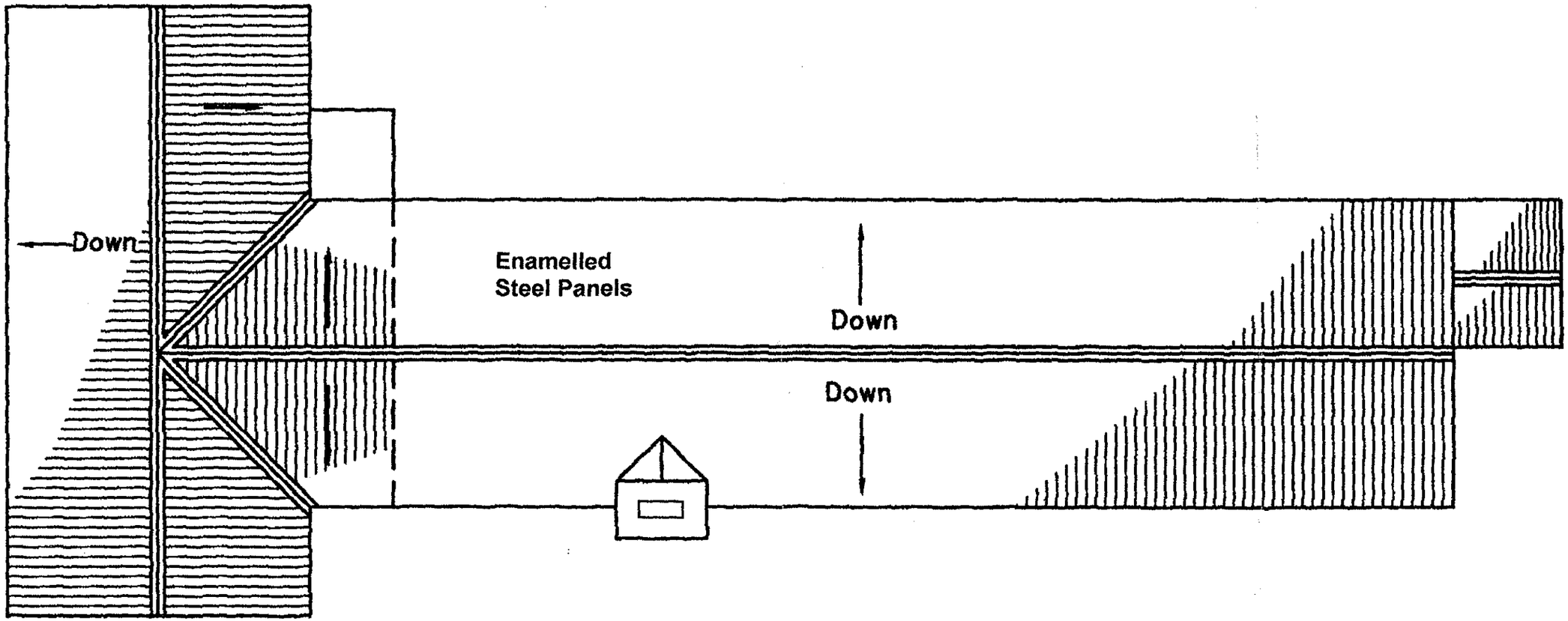


Figure 31: Weaver Ranch House Roof Plan

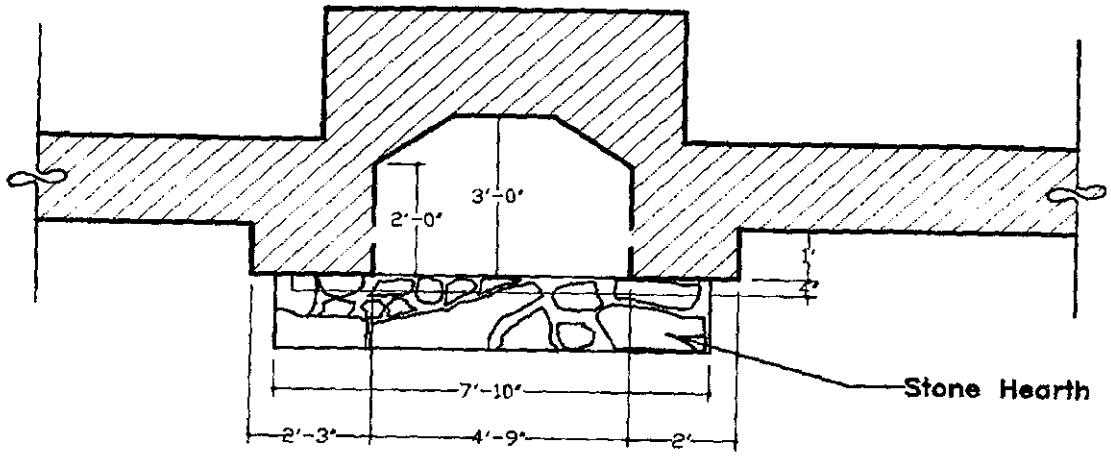


Figure 32: Weaver Ranch House Fireplace Plan

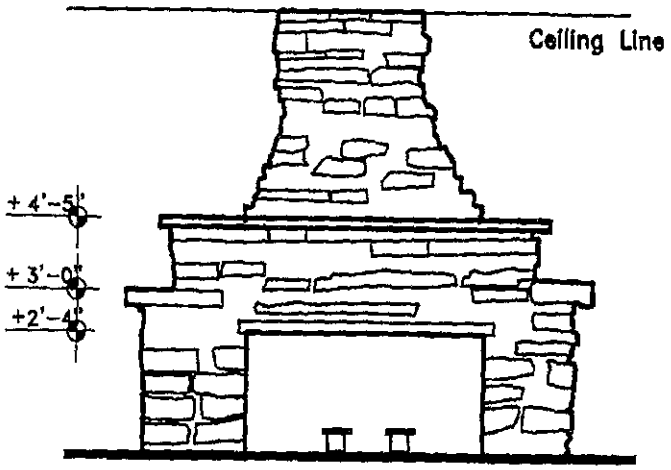


Figure 33: Weaver Ranch House Fireplace Elevation

Existing Conditions Photographs – Weaver Ranch House



Photograph 83: South Elevation



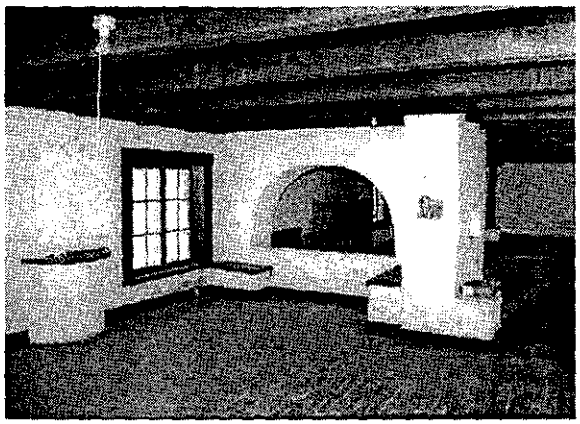
Photograph 84: North Elevation



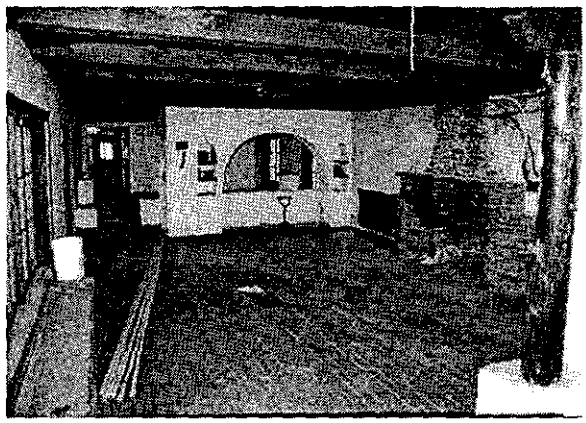
Photograph 85: West Elevation



Photograph 86: East Elevation



Photograph 87: Interior of Dining area.



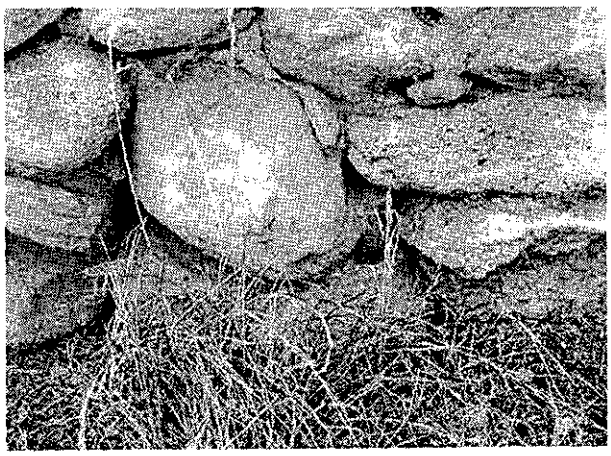
Photograph 88: Interior of Living Room.



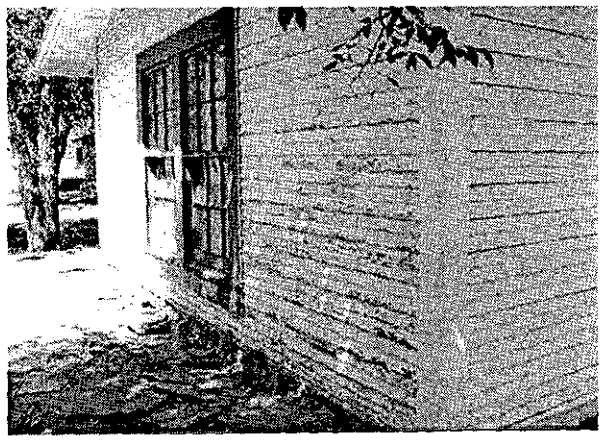
Photograph 89: Interior, modern kitchen in east wing.



Photograph 90: Interior, east wing bedroom.



Photograph 91: Detail of joints in stone masonry.



Photograph 92: Detail of wood siding condition at east wing.



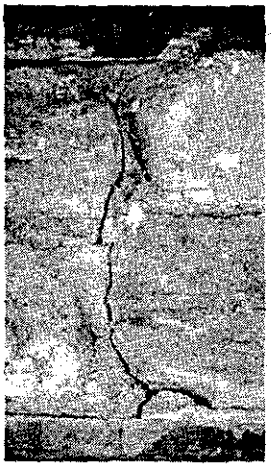
Photograph 93: Detail of glazing putty.



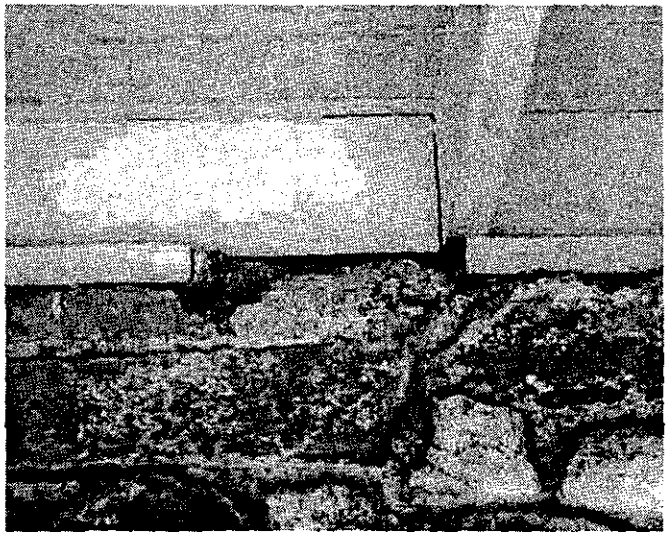
Photograph 94: Pass door for logs by fireplace.



Photograph 95: Weathering of wood windows.



Photograph 96: Typical cracking above door and window openings.



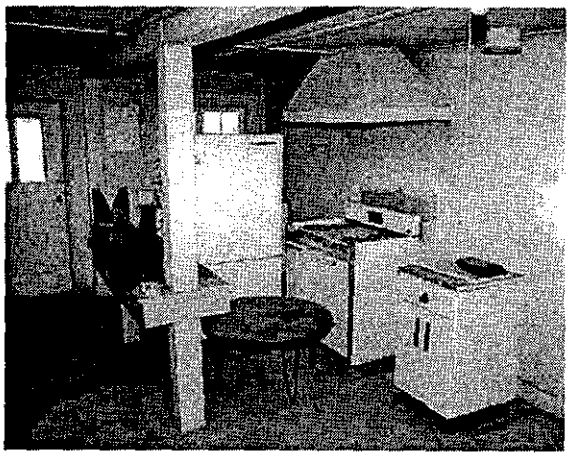
Photograph 97: Gaps in blocking at eaves.



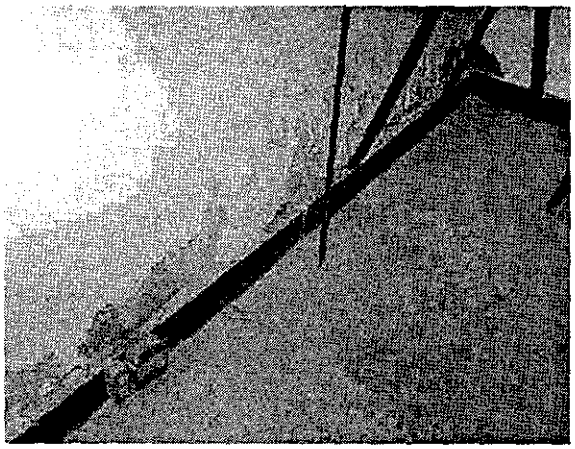
Photograph 98: Deterioration at terrace floor.



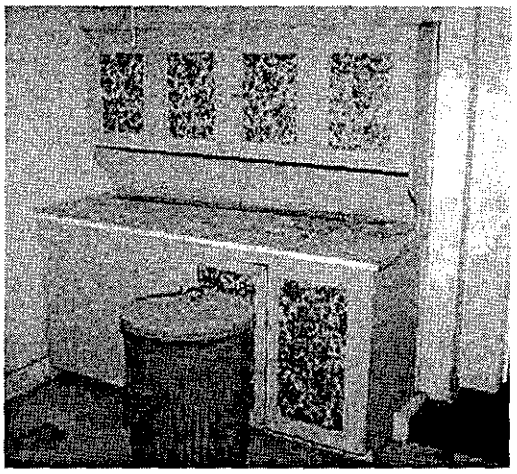
Photograph 99: Electrical power conduit passing through stone wall.



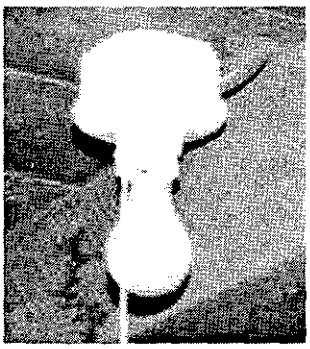
Photograph 100: Interior of old Kitchen.



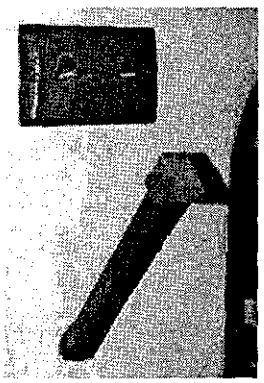
Photograph 101: Moisture damage of wall at storage room.



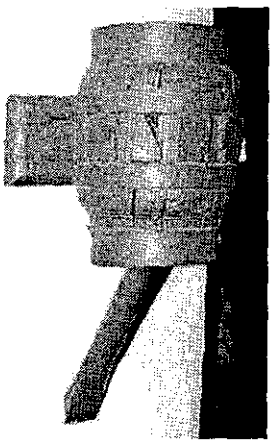
Photograph 102: Original cabinet in kitchen.



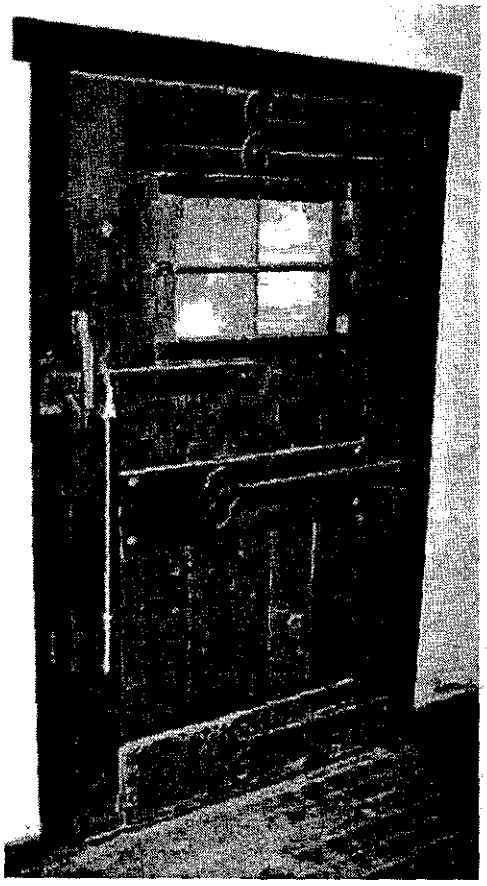
Photograph 103: Modern light fixture.



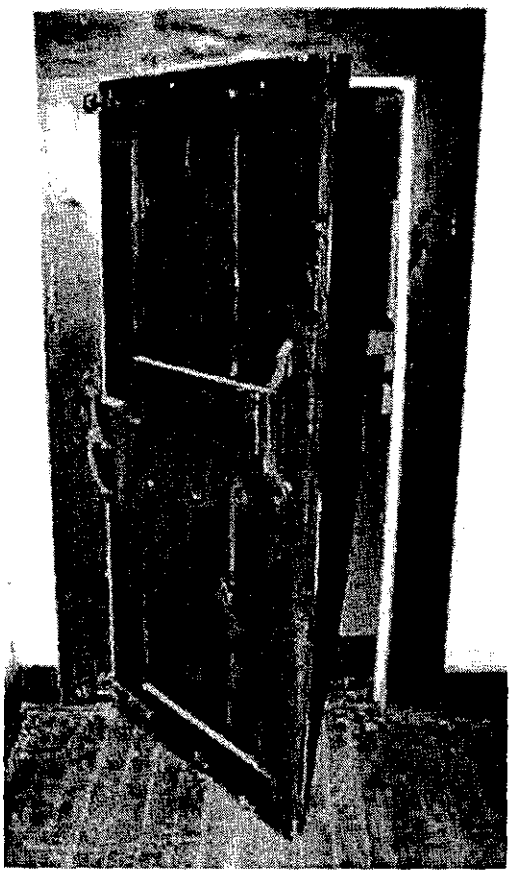
Photograph 104: Missing lamp support.



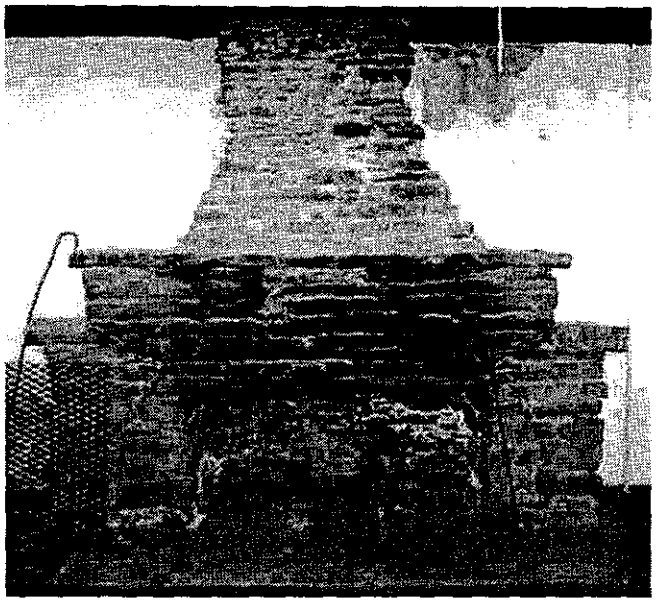
Photograph 105: Intact lamp support.



Photograph 106: Interior side of main entry door.



Photograph 107: Dining Room/Kitchen door.



Photograph 108: Elevation of fireplace.

Outline Chronology – Weaver Ranch House

DATE	EVENT
December 1934	Construction begins[46]
January 1936	Building completed[47]
April 1937	Leo Weaver & Poli Hungavi build 2-bedroom addition to end of house; old school house torn down to supply the material[48]
1939	Weaver sells; Essy and Sam Bowers (her son) move into house; move out 1940.[49]
1940	Warren Griffin occupies house; takes up farming[50]
1940-1950	Estimated date of early kitchen alterations; ceiling lowered, island counter installed
1950	Warren Griffin moves out
March 6, 1958	Gus Griffin & wife Ramona move in[51]
1958-1974	Estimated date of late kitchen alterations; hood installed, vinyl tile installed, contact paper and hardboard tops on cabinets
1964	Evans and partners purchase Lonely Dell Ranch
August, 1974	Ranch sold to NPS, house stripped of furniture and appurtenances[52]
1982-84	NPS stabilization program, interior of east wing rehabilitated, electrical system installed, new metal roof installed[53]
1989	Treated for drywood termites by NPS

[46] Reilly, Lee's Ferry, p. 378.
[47] Ibid., p. 390.
[48] Ibid., p. 399; see also p. 379.
[49] Ibid., p. 413.
[50] Ibid., p. 416.
[51] Ibid., p. 441.
[52] Ibid., p. 457-8.
[53] Ibid., p. 458; Park Maintenance Records.

HS-236, Picture Window Cabin

Chronology of Development and Use

The name of the Picture Window Cabin comes from the very large window opening that was cut into the south façade, presumably to frame a view of the main ranch cluster.

Very little is known about this building. From its location, it had previously been attributed to James Jackson, who arrived in 1873 to assist Lee in running the Ferry. (Jackson died in 1874 and was supposedly buried in a coffin made from the door of this cabin.)

While the building may in fact have been built by Jackson in 1873, it has only been in its present location between about 1945 and 1967. Because the only reason the building was attributed to Jackson was its location, it is perhaps more likely that the building originated as one of the many other log structures that were built at Lonely Dell Ranch over the years. Jerry Johnson is known to have built a number of cabins for members of the polygamist commune that no longer exist. Other agricultural buildings such as granaries and small barns are found on historical maps and in period photographs. The present structure may be from any of these sources (Photograph 109, Photograph 110).

In its original condition, the building had a side-gabled roof with one door opening and one window opening. The roof structure was probably log, brush, and dirt matching other structures at the ranch.

Jerry Johnson is reported to have used this cabin as his residence in 1946. It may have been moved to this location for his use.

Major alterations were probably made after Jerry Johnson no longer occupied the cabin, c. 1956. The door was enlarged. The window was radically enlarged to its present size. The 1967 photograph (Photograph 111) seems to indicate a double roof. The lower roof is probably an earlier dirt roof on thin wood poles and brush. The upper roof is of cut dimensional lumber with rolled roofing.

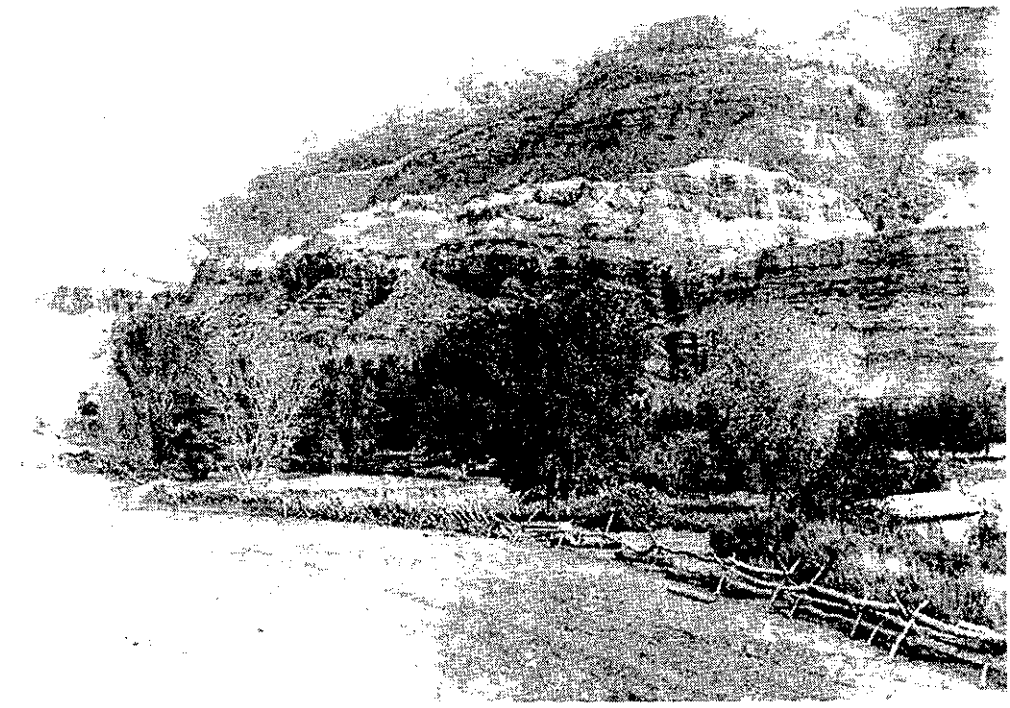
The only discernable change since 1967 is in the roof. The members of the lower roof (poles) appear to have been replaced. They carry no dirt. Dirt was, however, placed on top of the upper roof. These alterations were made before 1980 judging from the present level of deterioration.

Today the building is used by the National Park Service as an interpretive feature of the Lonely Dell Ranch Historic District.

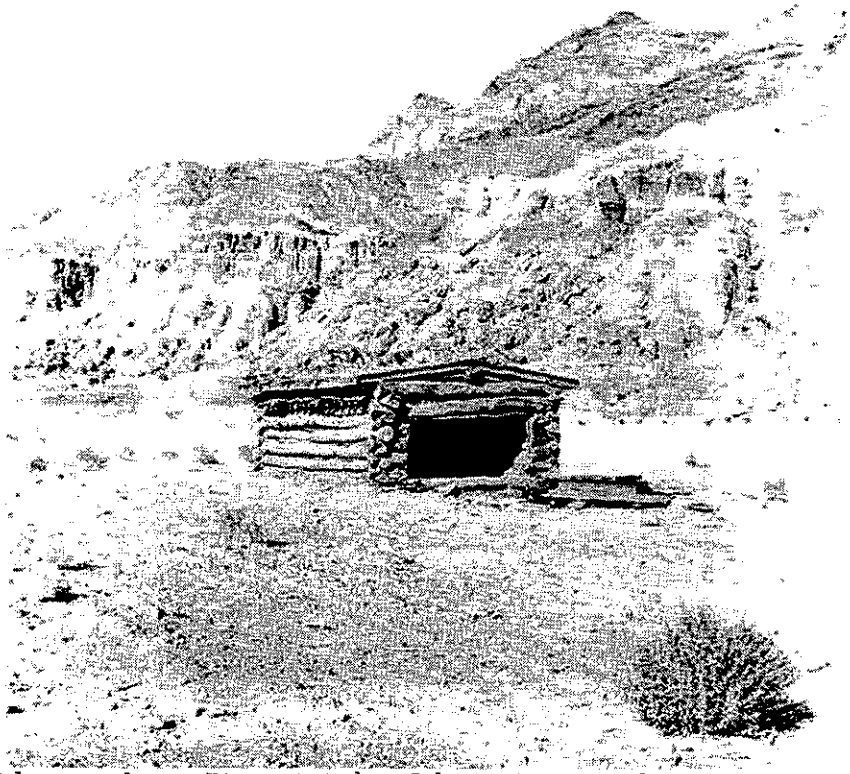
Historical Photographs – Picture Window Cabin



Photograph 109: Herbert Hoover (sic.) (left) near one of several structures which could be today's Picture Window Cabin c. 1935. *Cline Library - NAU, Kolb Collection*

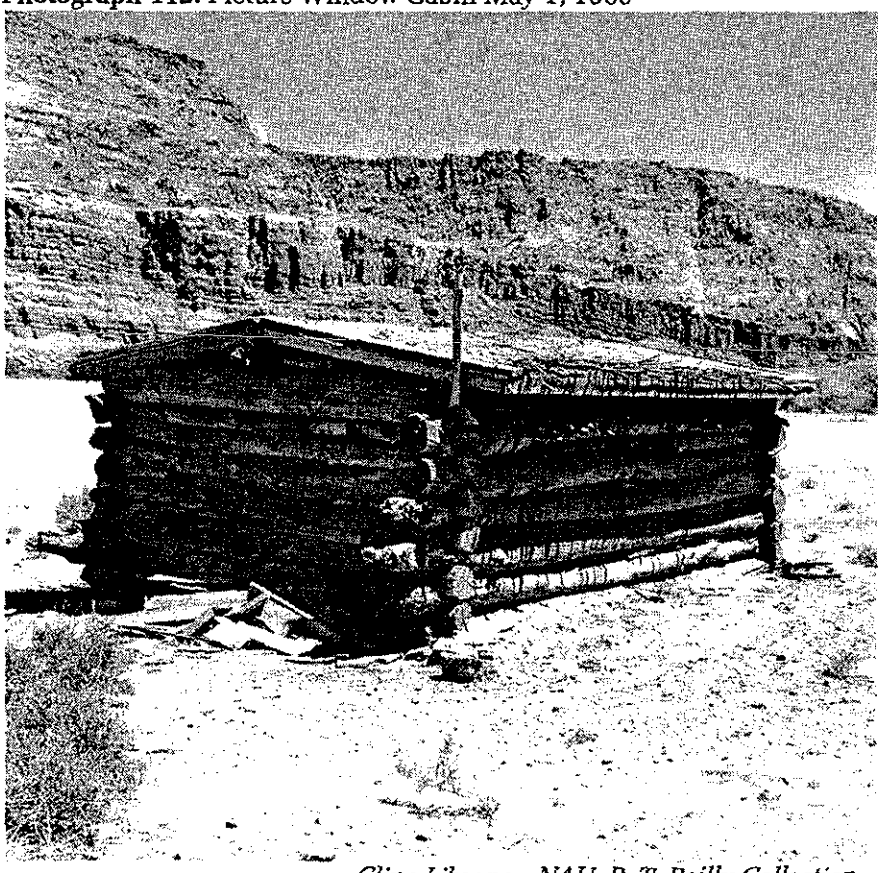


Photograph 110: Another building (at right) which may be the Picture Window Cabin, 1892. *LDS Historical Department*



Photograph 111: Picture Window Cabin as it appeared in 1964.
University of Utah, Crampton Collection

Photograph 112: Picture Window Cabin May 1, 1966



Cline Library – NAU, P. T. Reilly Collection

Physical Description – Picture Window Cabin

Overview

The Picture Window Cabin is a single-story rectangular log structure measuring 13 feet by 16 feet. The building has a dirt floor and a wood-framed, low gable roof structure. It stands isolated from most other Ranch structures, near the Cemetery.

Walls

Walls of this structure are built mostly from irregular, slightly crooked logs, probably driftwood. Several logs near the top of the walls may be more modern, to judge from their more finished character. Logs are generally 10 to 12 inches in diameter at the thick end and about six inches in diameter at the thin end. Corner joinery between logs is a V-notched type. Smaller logs and sticks are used in conjunction with mud to chink the irregular, and at times very wide, joints. The bottom log on each wall is in poor condition, deteriorating from ground contact, which resulted in moisture and insect damage. The worst of the base logs is found on the south side (Photograph 119). Upper logs are generally in good condition. The south elevation leans precipitously to the east due to a large opening, which was cut into this end. As a result this elevation has no effective shear panel and so has poor resistance to lateral forces. The leaning effect is visible, however, in the earliest photographs that show this opening (compare Photograph 111, Photograph 114).

Door

There is a 2'-6" x 5'-6" door opening in the east wall. Two-inch thick wood jambs are found at the sides of the opening. The ends of the wall logs at the jambs are hewn down to the approximate 5-1/2 inch width of the jamb members. The sill of the door opening is the flattened top of the sill log for the east wall. The top end of a lag bolt projects from the sill, possibly an indication that a finished material was bolted to the rough sill in earlier days. The door head is also formed by the flattened face of a continuous wall log. Cut marks on the head log indicate the likelihood that the door height was enlarged from the original. A door lies inside the cabin on the floor (Photograph 121). The door is fabricated of 1x boards of varying widths nailed to "Z" bracing. Circular-saw markings on the boards imply that the door dates to the 20th century.

Window

Sometime after 1946 but before the mid-1960s, a large opening was created in the south wall, probably enlarging an earlier, small window. The width of the opening is 8'-10" and the height is 3'-6". A two inch thick wood frame trims the sides and head of the opening. Cut marks on the head log indicate that the earlier window had a rough opening width of 2'-6" (Photograph 118). The head height appears to have been the same, but the sill was cut down lower by at least one log.

Roof

The entire roof structure appears to be non-original and has two layers. The lower layer consists of a central ridge pole, 12 inches in diameter, which spans from one end to the other supporting smaller two inch to three inch diameter latilla poles spanning from the center to each side wall and extending out at the eave about one foot. The ends of the latillas look freshly cut and the majority of bark is still in place on these poles, implying that they are relatively new. Still, above this primitive-looking roof structure is a secondary covering consisting of 1 x 12 boards supported on five continuous 4 x 6 members resting on the latillas cross-wise. The top surface of the boards appears to have been covered in rolled roofing covered in dirt. Little is left but scraps of the roofing and the color is not apparent. Most of the dirt and the rolled roofing is gone today, leaving the board sheathing exposed (Photograph 120). The sheathing is warped, cupped, checked, etc. from exposure to rain and snow and is generally beyond repair or reuse.

Existing Conditions Drawings – Picture Window Cabin

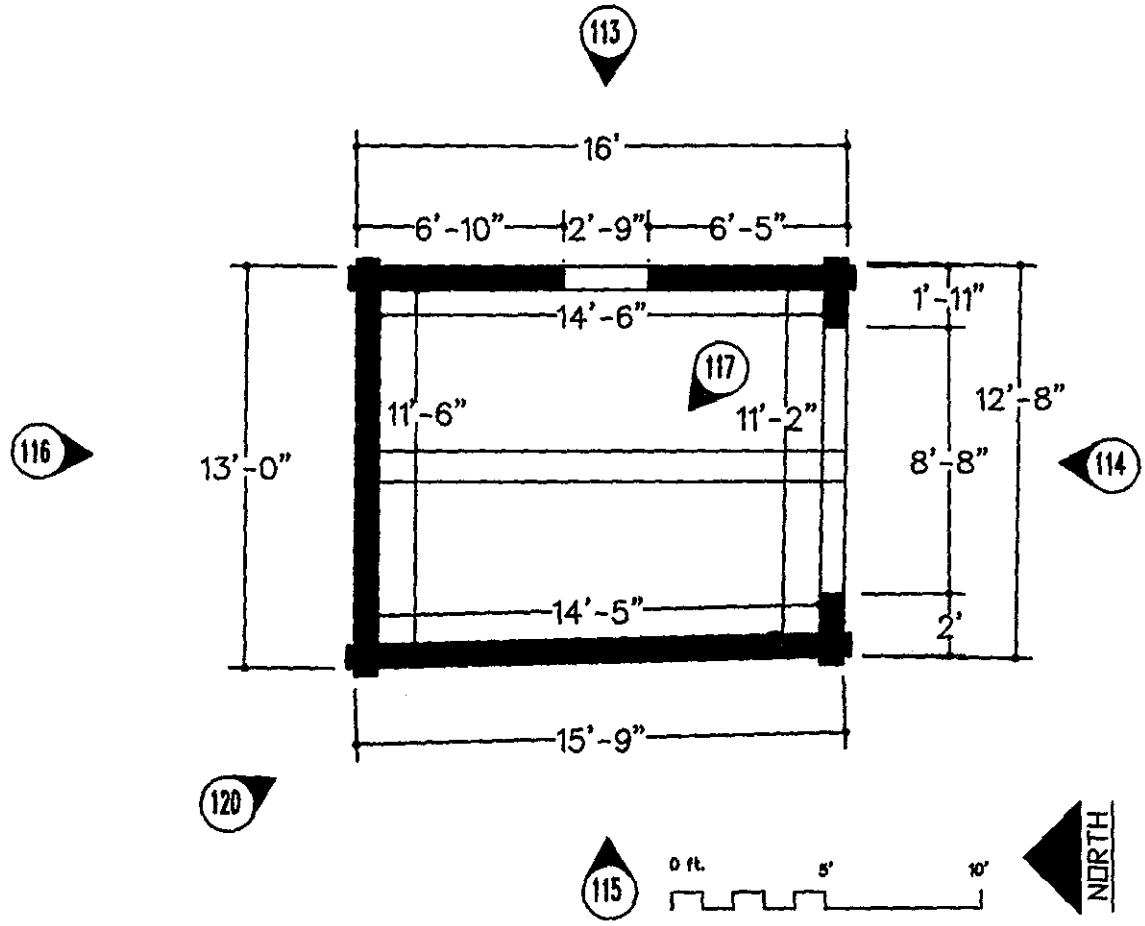


Figure 34: Picture Window Cabin Floor Plan

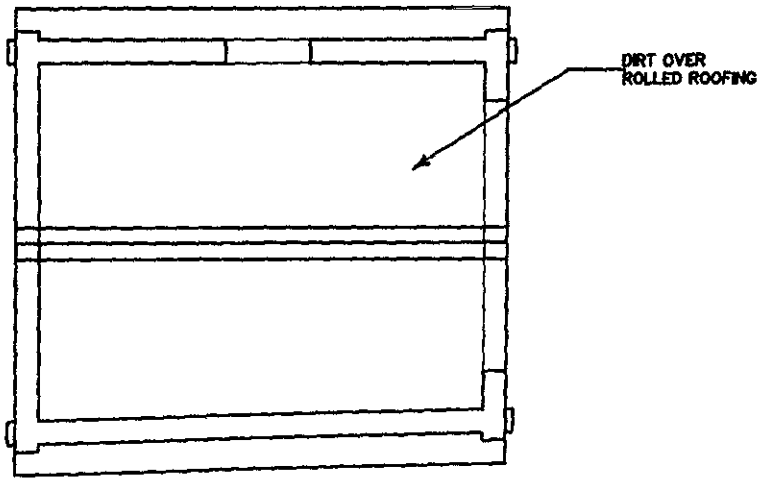


Figure 35: Picture Window Cabin Roof Plan

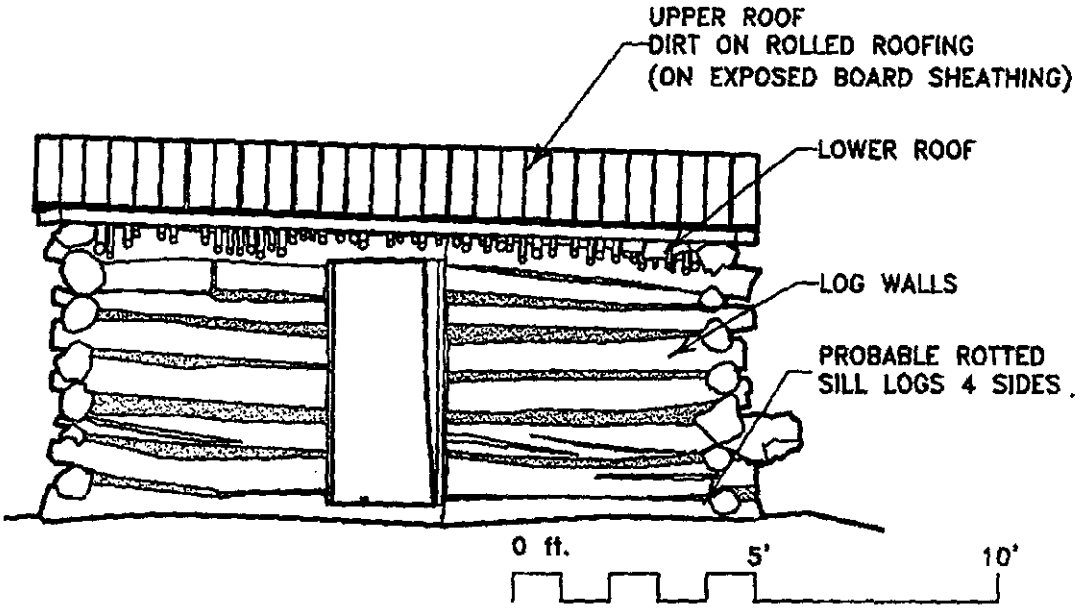


Figure 36: Picture Window Cabin East Elevation

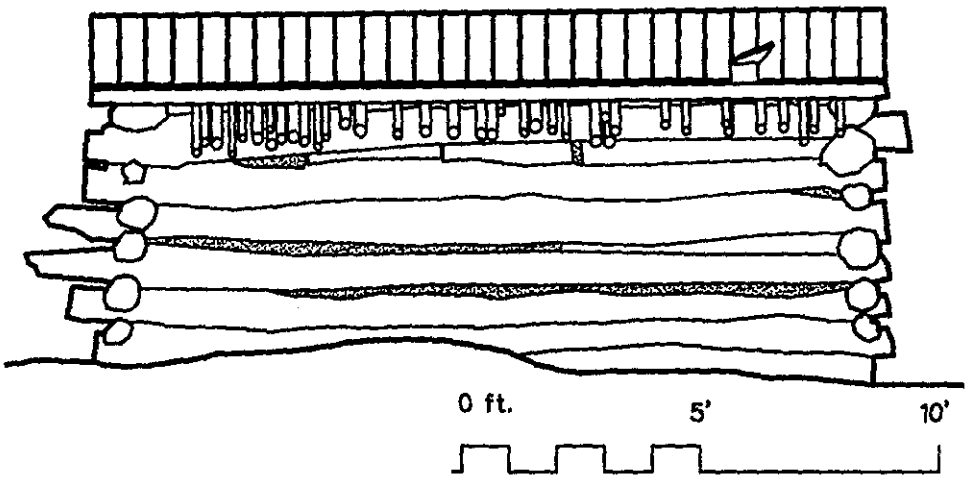


Figure 37: Picture Window Cabin West Elevation

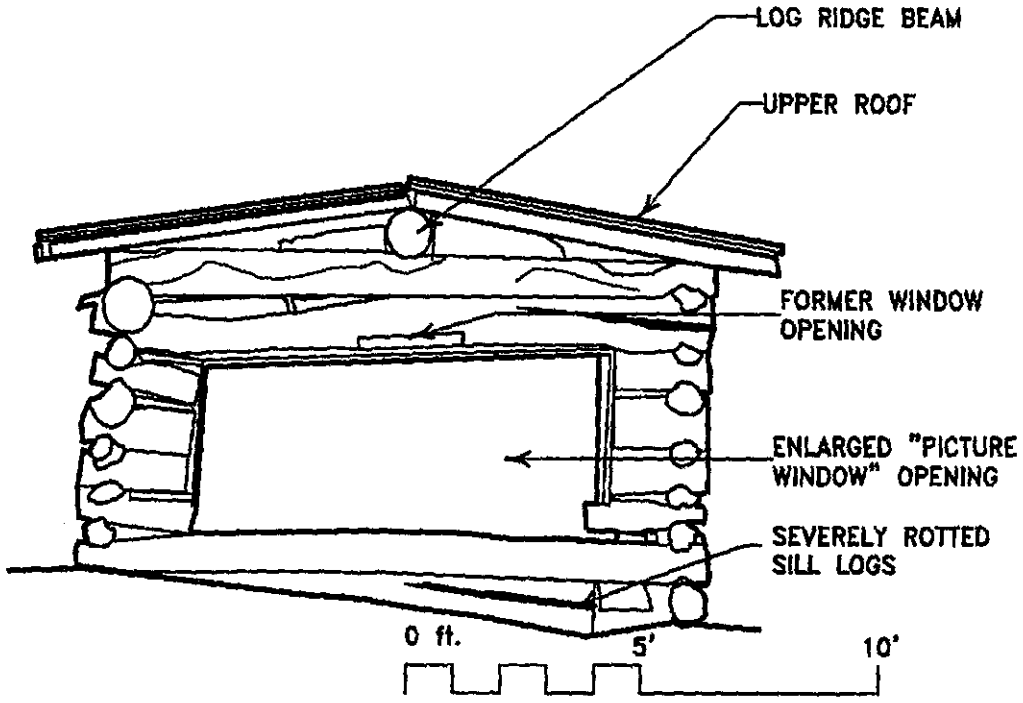


Figure 38: Picture Window Cabin South Elevation

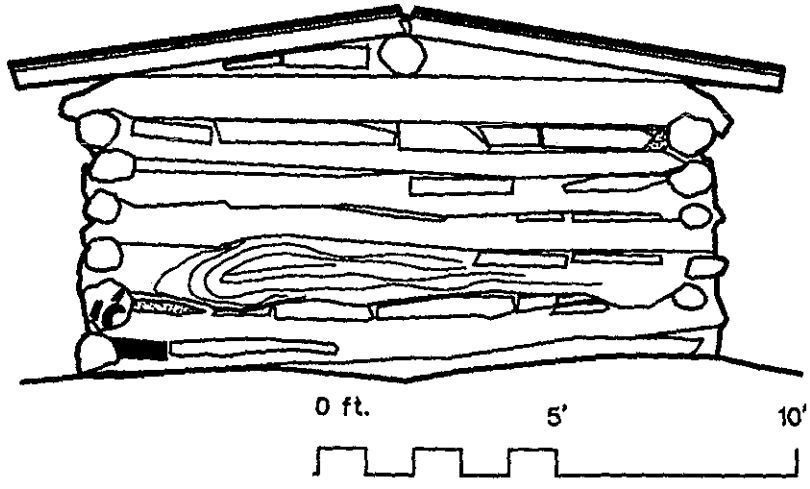
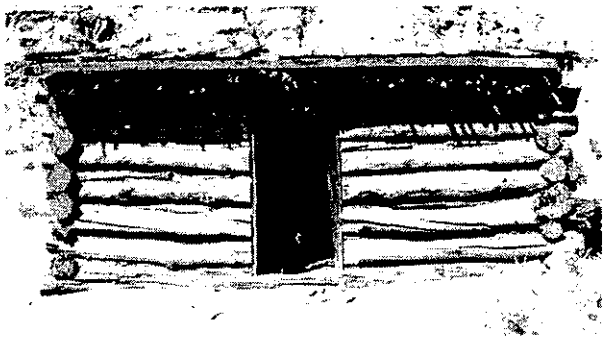
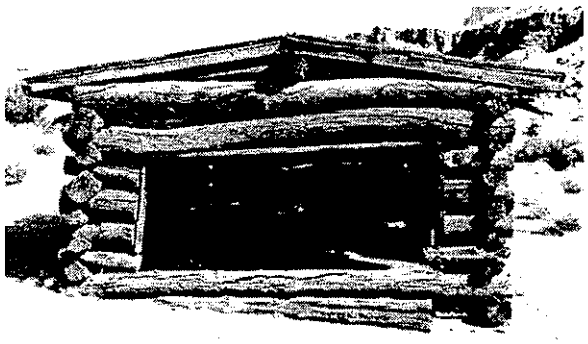


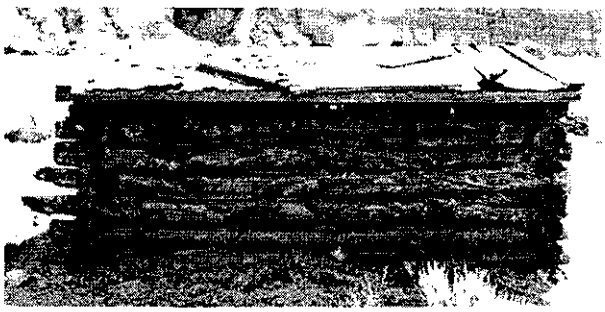
Figure 39: Picture Window Cabin North Elevation



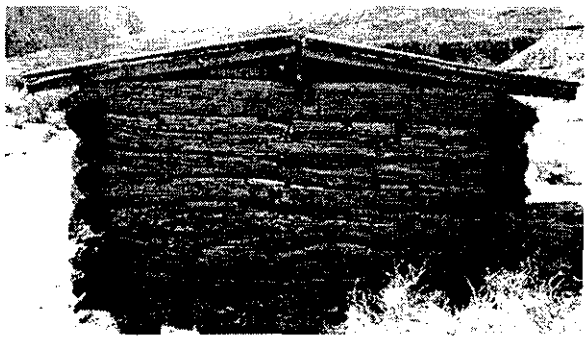
Photograph 113: East elevation.



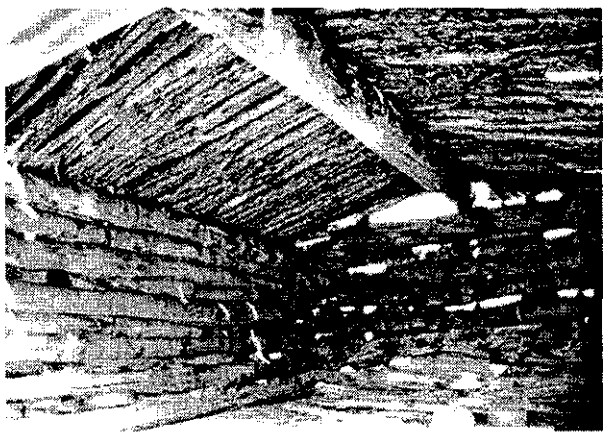
Photograph 114: South elevation.



Photograph 115: West elevation.



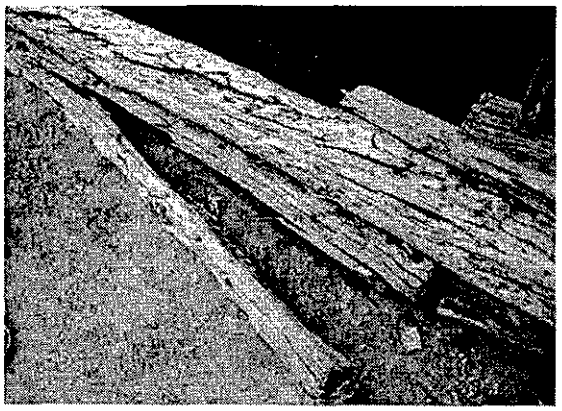
Photograph 116: North elevation.



Photograph 117: Interior of cabin.



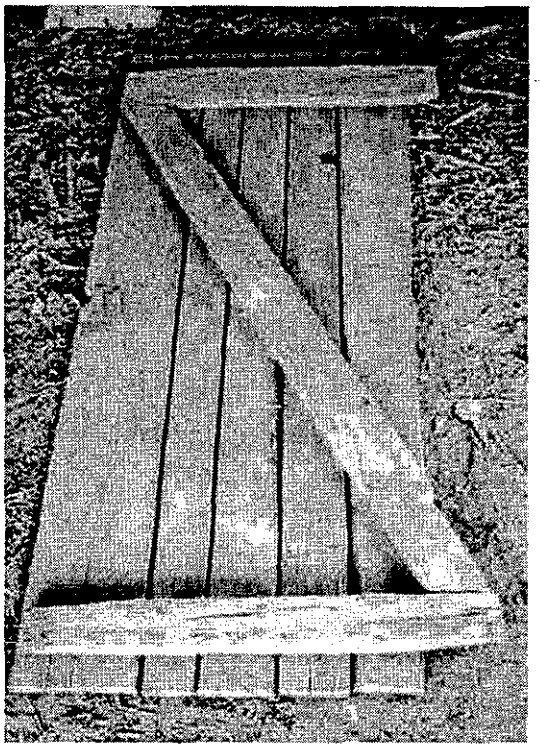
Photograph 118: Detail of cut at window head.



Photograph 119: Detail of sill damage below window.



Photograph 120: Detail of roof condition.



Photograph 121: Door stored inside.

Outline Chronology – Picture Window Cabin

DATE	EVENT
1873-c.1925?	Building constructed
c. 1945	Building moved to site
1946	Jerry Johnson hired as caretaker; lives in this building[54]
c. 1956	Door, window, roof alterations

[54] Reilly, Lee's Ferry, p. 425.

Ranch Cemetery

Chronology of Development and Use

This is one of the earliest extant sites associated with Lee's Ferry. The first internment is that of James Jackson, who died in 1874. Over the years, the cemetery has accepted the remains of residents and travelers alike.[55]

Early photographs (Photograph 123, Photograph 124) depict a cemetery bordered by a rustic pole and barbed wire fence. The fence was replaced in 1964 by NPS. Other late changes include the addition of supplemental and replacement markers by living family members.

Today the Cemetery continues to be a memorial site although there have been no burials since 1933. The NPS has used the Cemetery as an interpretive feature of the Lonely Dell Ranch Historic District.

[55] P.T. Reilly conducted extensive research on the Ranch Cemetery. His research is summarized in a chart on page 129 of Lee's Ferry, and in its "Appendix 2" (p. 517).

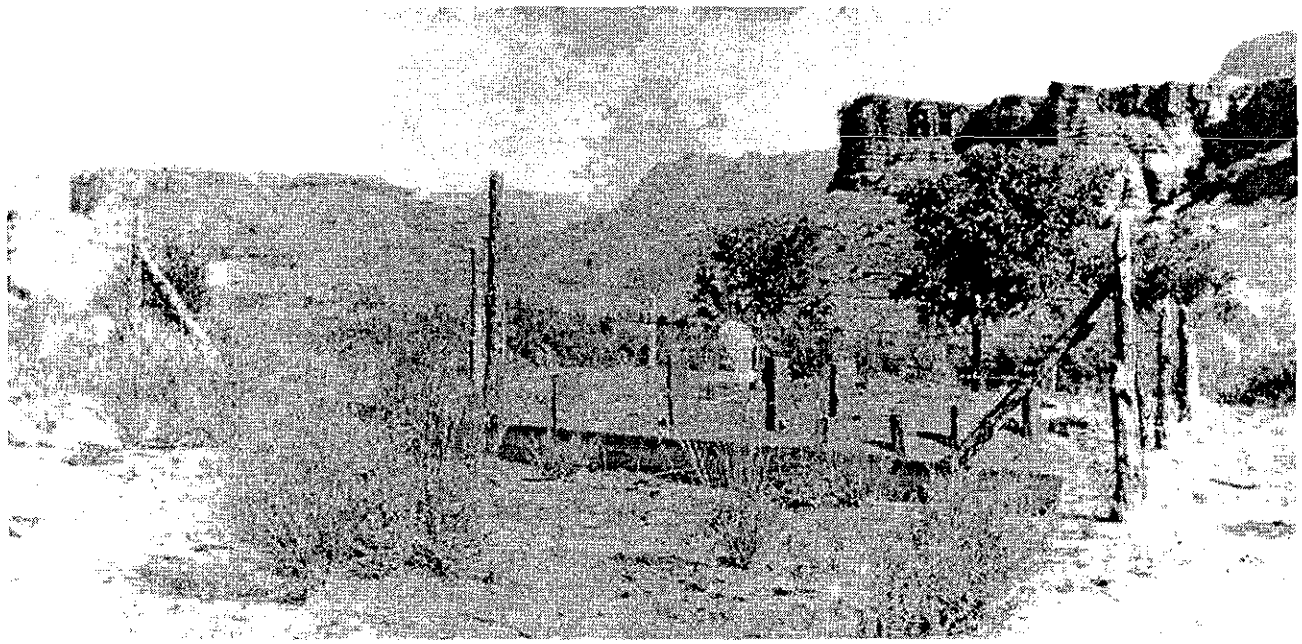
Table 5: Summary of Graves Added to Cemetery

NAME	BURIAL DATE	MARKER DATE
James Jackson	Mar. 10, 1874	Unknown
Winifred Johnson	Aug. 15, 1876	1876
Neuman Brown	Apr. 6, 1879	c. 1950s
Mary Elinor Stowe & baby	Dec. 18, 1880	Unknown
William Brinkerhoff	June 5, 1883	1883
Jonathan Smith Johnson	May 19, 1891	1891
Laura Alice Johnson	June 11, 1891	1891
Permelia Johnson	June 15, 1891	1891
Melinda Johnson	July 5, 1891	1891
Johnson: Jonathan Smith, Laura Alice, Permelia, Melinda	May-July 1891	c. 1980
Archimedes McClurg	Nov. 24, 1894	1894
John Green Kitchen	July 13, 1898	1898
Lucy Emett	June 11, 1902	1902
John Taylor Emett	Jan. 27, 1909	1910
Waddy Thompson Ligon	Oct. 28, 1925	1925
Calvin Marshall Johnson	Dec. 14, 1928	1928, c. 1970?
Lucius Henry Spencer	Mar. 10, 1931	1931
Stillborn Infant	c. 1923-33	Unknown
Stillborn Infant	c. 1923-33	1933
Stillborn Infant	c. 1923-33	Unknown
Infant, Shumway/Johnson	c. 1933	Unknown

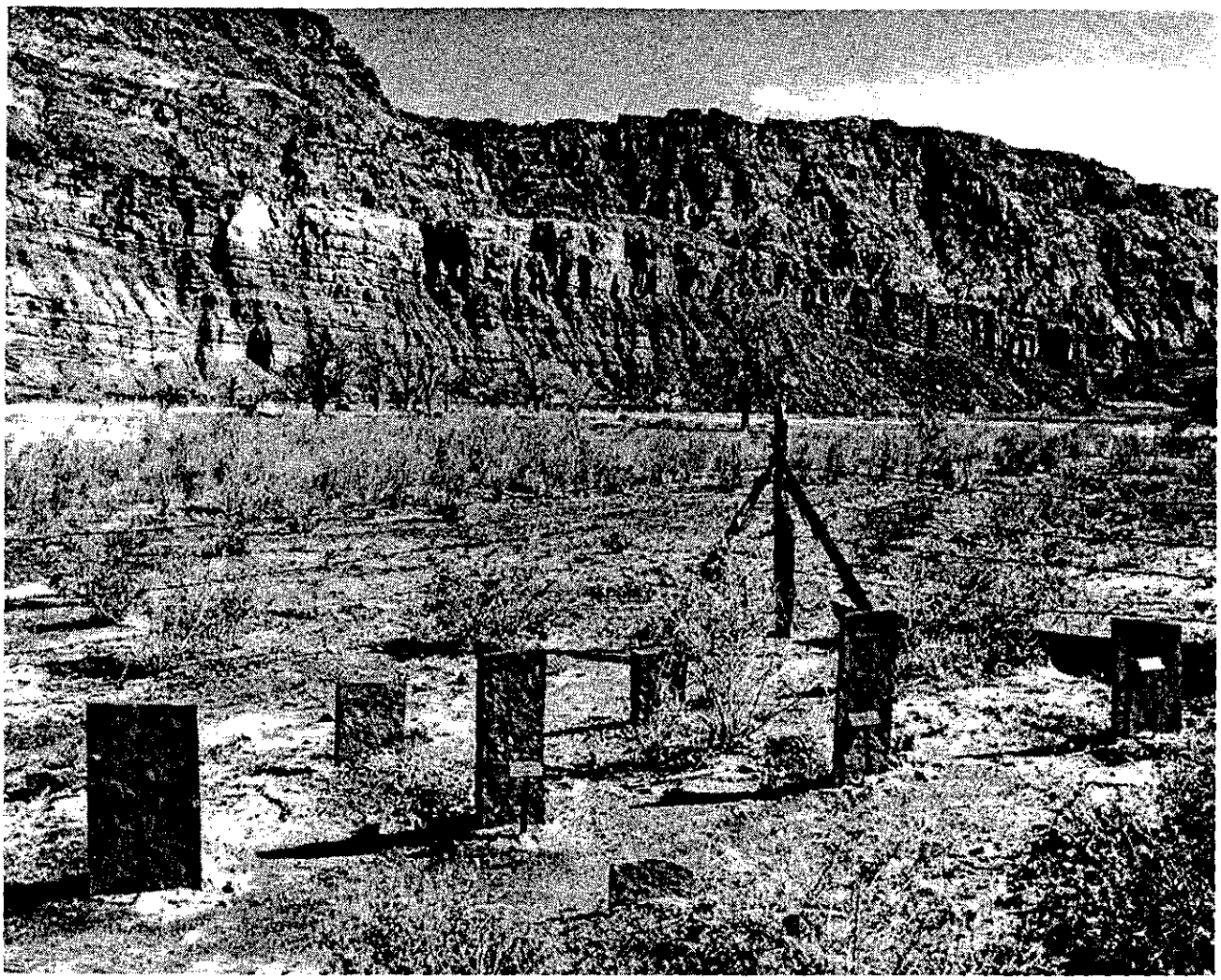
Historical Photographs – Ranch Cemetery



Photograph 122: John Green Kitchen monument in 1901.
University of Arizona, A. E. Douglass Collection



Photograph 123: Overview of the Cemetery as it appeared in 1910.
Phoenix Public Library, McClintock Collection



Photograph 124: Cemetery as it appeared in 1953. *NPS/GCNRA, Muench Collection*

Physical Description – Ranch Cemetery

Overview

The Cemetery lies within a rectangular plot of ground measuring 39 feet by 88 feet, surrounded by a modern post-and-wire fence, and contains 20 known graves. Most of the graves are marked in some way or another, with markers ranging from broken and worn sandstone tablets to modern headstones of polished granite. The graves are arranged in two irregular rows and fill most of the area within the fencing.

Site Features

The main visible historic features of the cemetery are the various grave markers. The character of the grave markers varies from finely finished and detailed granite to small fragments of native sandstone. A steel post and wire fence that is an obviously modern feature surrounds the cemetery. Grading around the outside is accomplished such that surface water drains away from the gravesites.

Five of the markers are of various colors of granite. Granite is a very hard stone that is known to weather well with little or no maintenance. Markers in this category include the modern Johnson family marker; John G. Kitchen; John Taylor Emett; Neuman Brown; and Calvin Marshall Johnson.

The Winifred Johnson marker is of marble. Marble is also commonly used for monuments because of its longevity and ability to resist weathering. This marker is in good condition but could be lost if not mounted to the site (Photograph 149).

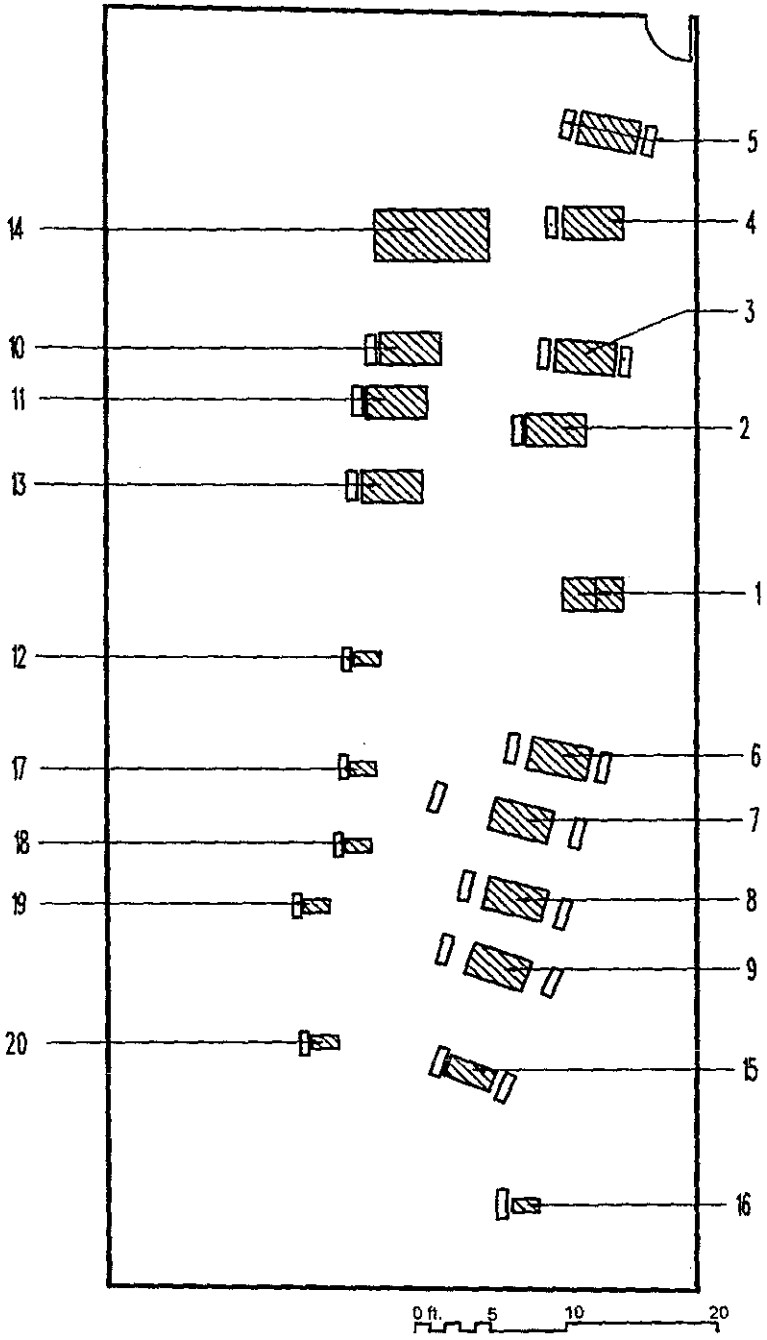
The majority of markers are of native sandstone. Sandstone is relatively soft and porous and thus is subject to weathering. It is also formed in layers, which may delaminate if moisture is allowed to penetrate the edges of the layers (Photograph 148). The Brinkerhoff stone is an example of surface weathering (Photograph 146, Photograph 147). The top part of the stone is in good condition, with a legible inscription. The lower part of the stone has been subject to direct rain and back-splash, as well as rising damp and snow. This has caused a loss of thickness of about half near the base. Many other sandstone markers either had no inscription or it has worn off. They occur in various states of decomposition, from relatively intact stones to ones suffering delamination, to those lying on the ground unanchored.

Many graves are not formally marked, evident only by lines or collections of stones on the ground surface.

Modern markers come in various forms. The Johnson graves, in addition to the sandstone tablets and the common granite marker, each have a metal tag on a small steel post set in a block of concrete in a coffee can or similar container.

Burial Markers

NAME	MARKER DESCRIPTION	COMMENTS/ CONDITION	PHOTO REF.
James Jackson	Several large rocks in ground; no formal marker		Photograph 126
Winifred Johnson	Small marble stone with the inscription "W. J.".	Not attached to ground	Photograph 127
Neuman Brown	Gray granite, appears relatively modern; has covered wagon scene and inscription "NEUMAN BROWN JULY 18, 1830 APR. 6, 1879 / EARLY PIONEER ARRIVED IN SALT LAKE VALLEY JULY 29, 1847"	Modern	Photograph 128
Mary Elinor Stowe & baby	No formal marker; several rocks piled on ground at head and foot		Photograph 129
William Brinkerhoff	Red sandstone, reading "In Memory of"	Eroded below readable inscription; 2" wide strip subject to near-term deterioration	Photograph 130
Jonathan Smith Johnson	Red sandstone head and foot stone tablets, no inscription; metal plaque on steel rod set in can with concrete	Sandstone delamination	Photograph 131
Laura Alice Johnson	Red sandstone head and foot stones, no inscription; metal plaque on steel rod	Sandstone delamination; site also holds half of modern "Johnson" stone	Photograph 132
Permelia Johnson	Metal plaque on short steel rod set in concrete; red sandstone foot stone	Sandstone delamination; site also holds half of modern "Johnson" stone	Photograph 133
Melinda Johnson	Red sandstone tablet, no inscription; metal plaque on steel rod	Bush growing up next to marker	Photograph 134
Johnson: Jonathan Smith, Laura Alice, Permelia, Melinda	Pink granite with dark gray veining.	Modern stone for 4 Johnson graves above	Photograph 132
Archimedes McClurg	Red sandstone tablet; no inscription evident		Photograph 135
John Green Kitchen	Gray granite, carved tablet with inscription "JOHN G. KITCHEN BORN IN CANADA MARCH 25, 1830 DIED JULY 13, 1898"		Photograph 136
Lucy Emett	Red sandstone, hand inscribed "LUCY EMETT 1840 JUNE 11 1902"		Photograph 137
John Taylor Emett	Small gray granite stone set in concrete; carved relief inscription "JOHN TAYLOR EMETT JUNE 12, 1880 JAN. 27, 1910" (sic)		Photograph 138
Waddy Thompson Ligon	Concrete curb surrounding a planting bed; bronze plaque mounted to curb at one end. Plaque reads "FATHER WADDY T. LIGON BORN NOV. 25, 1852 DIED OCT. 23, 1925"	Severely weathering and spalling concrete	Photograph 139
Calvin Marshall Johnson	Appears modern, pink granite inscribed "CALVIN MARSHALL JOHNSON / INFANT SON OF PRICE & ESTHER JOHNSON / BORN & DIED AT LEE'S FERRY May 12, 1928 DEC. 14, 1928"; supplements crudely inscribed earlier sandstone tablet head and footstones.	Modern stone	Photograph 140
Lucius Henry Spencer	Red sandstone tablet; crudely inscribed "LUCIUS H. SPENCER"		Photograph 141
Stillborn Infant	Small sandstone tablet, lying face-down on ground. No inscription.		Photograph 142
Stillborn Infant	Small sandstone tablet, edge buried in ground. No inscription.		Photograph 143
Stillborn Infant	No marker; small pile of stones		Photograph 144
Infant, Shumway/Johnson	No marker; medium-sized sandstone rock and other stones in pile		Photograph 145



1. James Jackson, March 10, 1874
2. Winifred Johnson, August 15, 1876
3. Neuman Brown, April 6, 1879
4. Mary Elinor Stowe & baby, December 18, 1880
5. William Brinckerhoff, June 5, 1883
6. Jonathan Smith Johnson, May 19, 1891
7. Laura Alice Johnson, June 11, 1891
8. Permelia Johnson, June 15, 1891
9. Melinda Johnson, July 5, 1891
10. Archimedes McClurg, c. November 24, 1894
11. John Green Kitchen, July 13, 1898
12. Lucy Emett, June 11, 1902
13. John Taylor Emett, January 27, 1909
14. Waddy Thompson Ligon, October 28, 1925
15. Calvin Marshall Johnson, December 14, 1928
16. Lucius Henry Spencer, March 10, 1931
17. Stillborn infant, c. 1923-33
18. Stillborn infant, c. 1923-33
19. Stillborn infant, c. 1923-33
20. Premature infant of A. Shumway/ W.E. Johnson, c. 1933

Figure 40: Cemetery Site Plan



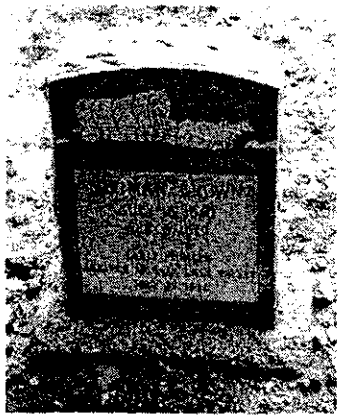
Photograph 125: Cemetery Overview



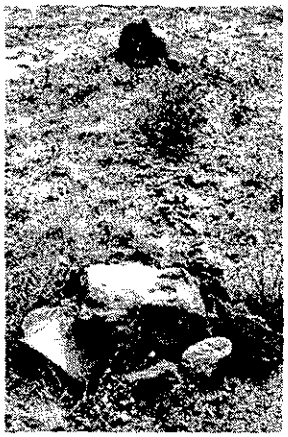
Photograph 126: James Jackson site



Photograph 127: Winifred Johnson site



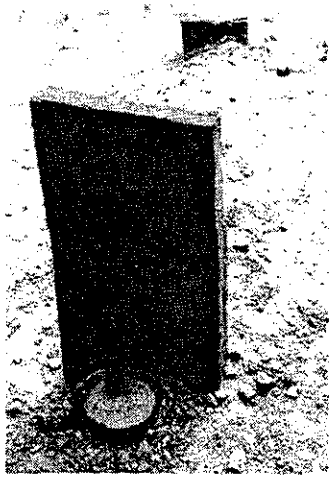
Photograph 128: Neuman Brown site



Photograph 129: Mary Elinor Stowe site



Photograph 130: William Brinkerhoff site



Photograph 131: Jonathan Smith Johnson site



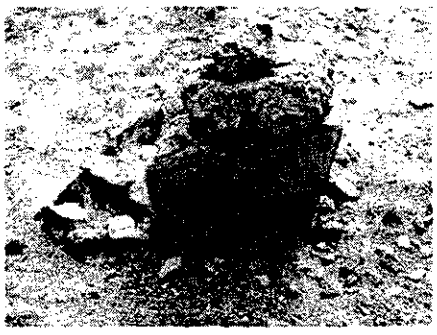
Photograph 132: Laura Alice Johnson site and common Johnson headstone



Photograph 133: Permelia Johnson site



Photograph 134: Melinda Johnson site



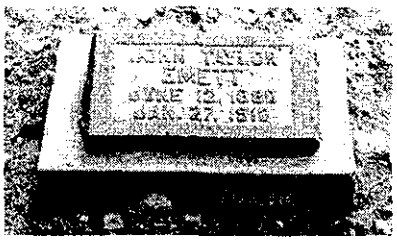
Photograph 135: Archimedes McClurg site



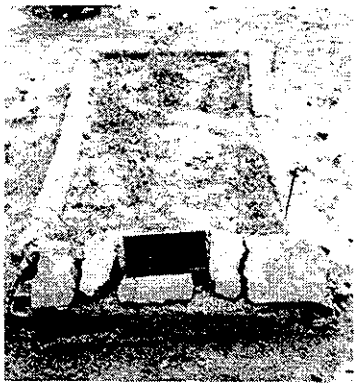
Photograph 136: John Green Kitchen site



Photograph 137: Lucy Emett site



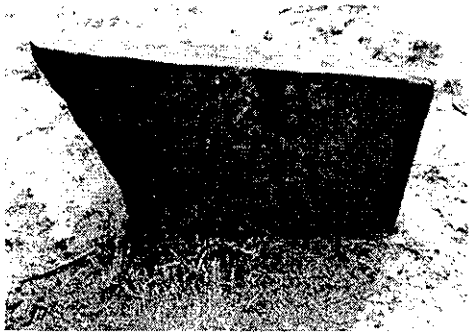
Photograph 138: John Taylor Emett site



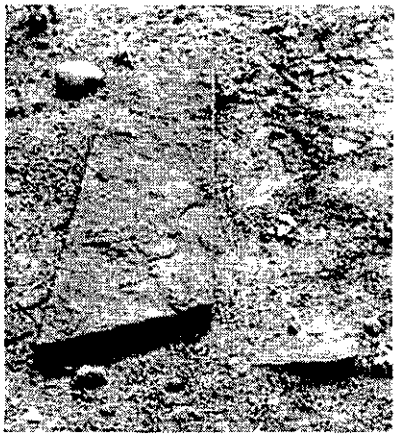
Photograph 139: Waddy T. Ligon site



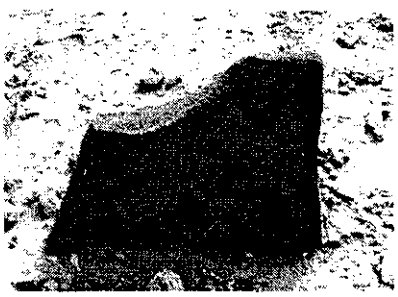
Photograph 140: Calvin Marshall Johnson site



Photograph 141: Lucius Henry Spencer site



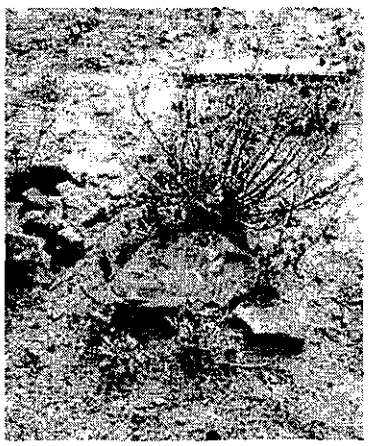
Photograph 142: Stillborn Infant site #1



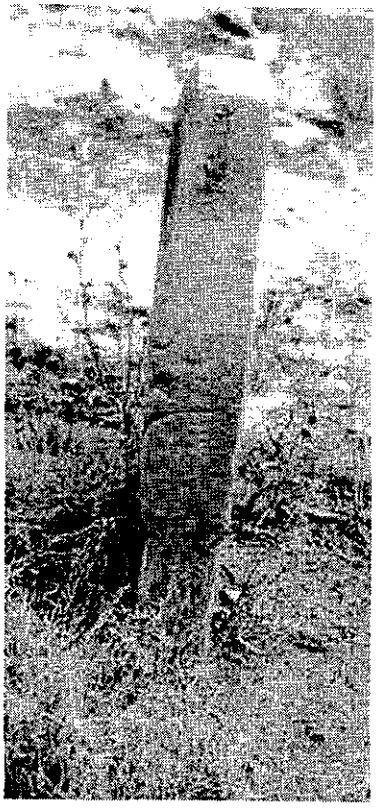
Photograph 143: Stillborn Infant site #2



Photograph 144: Stillborn Infant site #3



Photograph 145: Shumway/Johnson infant site



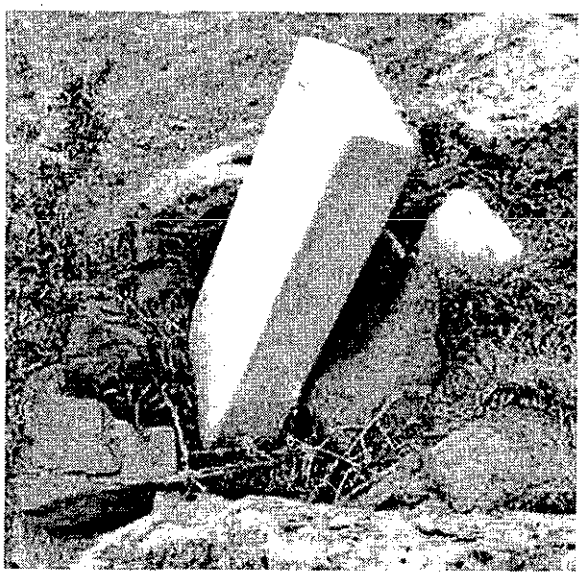
Photograph 146: Erosion of sandstone



Photograph 147: Erosion of sandstone



Photograph 148: Sandstone delamination



Photograph 149: Headstone not attached to ground

Outline Chronology – Ranch Cemetery

DATE	EVENT
March 11, 1874	James Jackson is buried[56]
December 18, 1880	Mary Ellenor Avery Stowe dies in childbirth, infant also dies; buried in single coffin[57]
June 5, 1883	William Brinckerhoff dies; buried[58]
1889	Grave marker for William Brinckerhoff erected[59]
1891	Four Johnson children die of diptheria, buried[60]
1894	Archimedes McClurg[61]
July 13, 1898	John Kitchen dies; buried[62]
1901	Kitchen monument added[63]
1909	John Taylor Emett dies; buried in cemetery?[64]
November 1925	Waddy T. Ligon buried[65]
December 14, 1928	Calvin Marshall Johnson dies; buried in cemetery[66]
March 1931	Infant Lucius Henry dies; buried in cemetery[67]
1964	Site fence replaced by NPS[68]

[56] Reilly, Lee's Ferry, p. 46.
[57] Ibid., p. 90.
[58] Ibid., p. 96.
[59] Ibid., p. 111.
[60] Ibid., p. 127-9.
[61] Ibid., p. 139.
[62] Ibid., p. 165.
[63] Ibid., p. 183.
[64] Ibid., p. 212.
[65] Ibid., p. 316.
[66] Ibid., p. 334.
[67] Ibid., p. 344.
[68] GLCA maintenance records

C:2:42F9, Lonely Dell Ranch Irrigation System

Chronology of Development and Use

The irrigation system is another early feature of the site. John D. Lee started construction of the first earthen dam on the Paria in January of 1872 and by March irrigated his first crop. By April this first dam was washed out, the first in a cycle of many improvements later removed by man or nature. Lee soon replaced the dam, this time reinforced with a large base log packed with brush, rocks, and dirt. In June, 1872, the dam was washed out yet again. The dam was subsequently washed out and rebuilt many times over the coming years.[69]

In order to bring water to an upper field, in 1883 Warren Johnson constructed a dam on a second site higher up the Paria, about ½ mile above the upper field. The lower dam continued to serve the lower field.[70]

In 1885 James Emett constructed a dam at a third site, still farther upstream. The ditch constructed to serve the fields was now 1-1/2 miles long. In response to the repeated washing out of dams, by about 1900 Emett began replacing them with dams built of logs and sandbags.[71]

In 1905, Irving C. Pierce constructed a tunnel-and-flume delivery system to replace the ditches bringing water from the upper dam to the fields.[72]

By the time Leo Weaver bought the ranch in 1935, the dams had been washed out yet again. He attempted to build a dam at the lowest Mormon site, which was almost immediately washed out. He built a second dam at the upper site two miles above the ranch. This dam washed out in 1936.[73]

Gus and Warren Griffin probably built most of what is seen today in 1943, including the stone lined ditch. In a major improvement over earlier designs, the Griffins pumped the water instead of relying on dams and gravity.[74]

In 1965, the consortium that then owned the ranch constructed two holding ponds for irrigation water up against the west wall of Paria canyon. These ponds were lined with Chinle shale. Unfortunately, the Paria river water was so laden with sediment that it soon clogged the outlet valves.[75]

In 1977 the National Park Service began pumping water from the Colorado River instead of the Paria. A new holding tank was constructed near the south end of the site along the west wall of the canyon. This system remains in use today.

Park activities to construct a trail upstream in the Paria Canyon in 1997 resulted in the removal of the remains of the wooden flume system constructed in 1905.

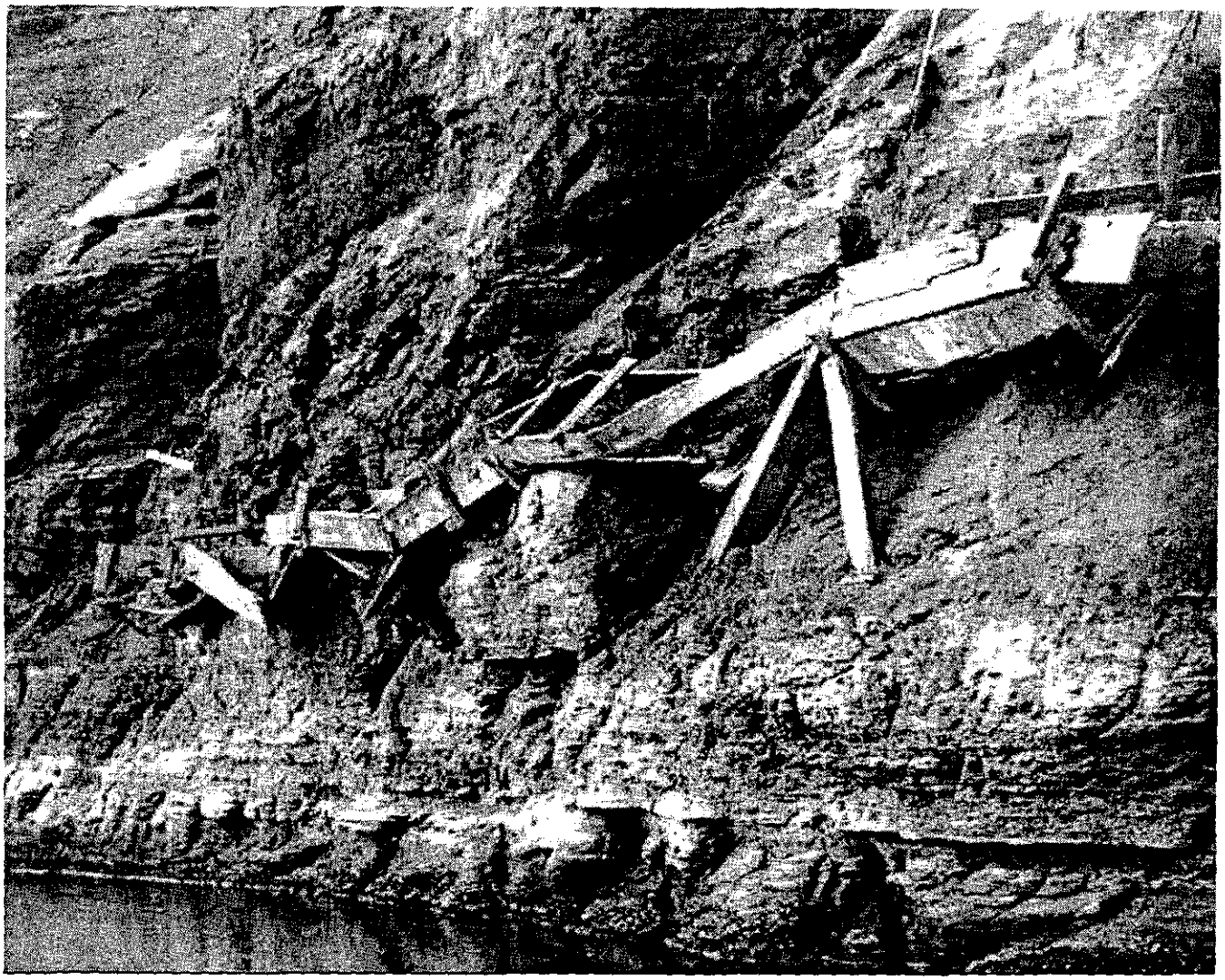
Because of floods over the years, the irrigation system has been constantly modified and changed. What remains today is most evident of the Griffin era of 1943.

---

[69] Reilly, Lee's Ferry, pp. 25-26; 28.
[70] Ibid., p. 102-103. See also Book 1 of Mill Sites and Water Rights, Page 38, November 27, 1893, Coconino County Recorder, Flagstaff.
[71] Reilly, Lee's Ferry, pp. 123-124; 190.
[72] Ibid., 194-195.
[73] Ibid., pp. 408-409.
[74] Ibid., 417.
[75] Ibid., p. 450.

The irrigation system is mostly used today by NPS as an interpretive feature of the Lonely Dell Ranch Historic District. Some parts continue in use to irrigate the orchard to the south of the main building compound as well as plants and lawns around the Weaver Ranch House. This system causes elevated moisture levels around the buildings resulting in termite infestations, wood rot and stone deterioration.

Historical Photographs – Lonely Dell Ranch Irrigation System



Photograph 150: Remainder of flume along river bank north of the fields (n.d.). *NPS/GCNRA Archive*

(See also general views of Lonely Dell Ranch, Photographs 1-18)

Physical Description - Lonely Dell Ranch Irrigation System

Overview

The Irrigation System originally began as much as two miles above the ranch in Paria Canyon, at the highest dam site. Ditches, tunnels, and wooden flumes ran between the various dam locations and the upper field of the ranch. On the ranch itself, irrigation features include a ditch, running roughly from north to south, lined with sandstone flags; together with wooden head-gates, stone catch basins, and pipe culverts. Holding ponds are found along the west face of the canyon. Two of these are adjacent to the upper field and are now abandoned. The third is adjacent to the lower field and is in use. The upper ditches, flumes, and dams having been removed or washed away, the extant irrigation system starts just to the north of the Cemetery, and continues to the southern end of the south field along the western edge of the irrigated area.

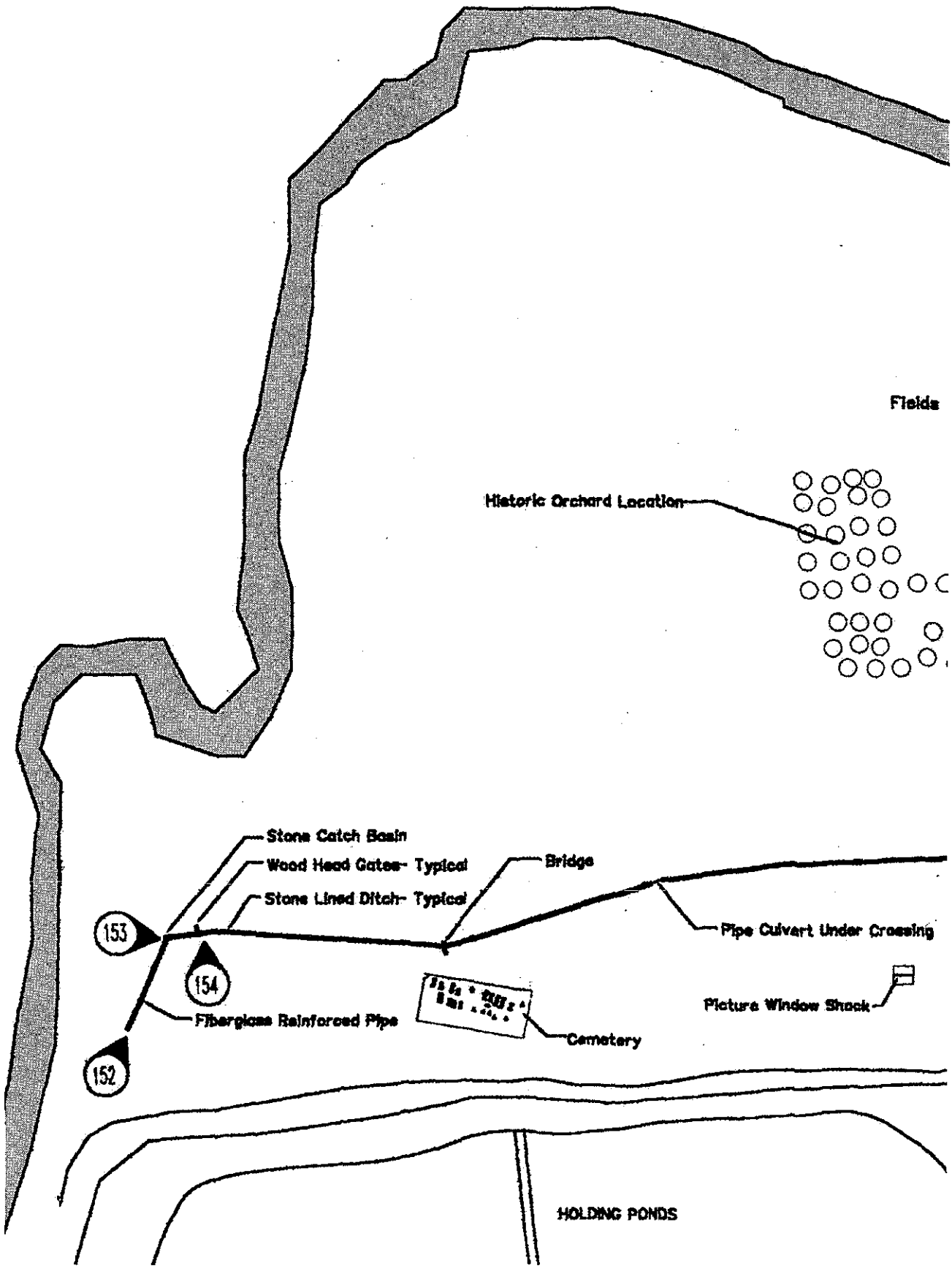
Detailed Description

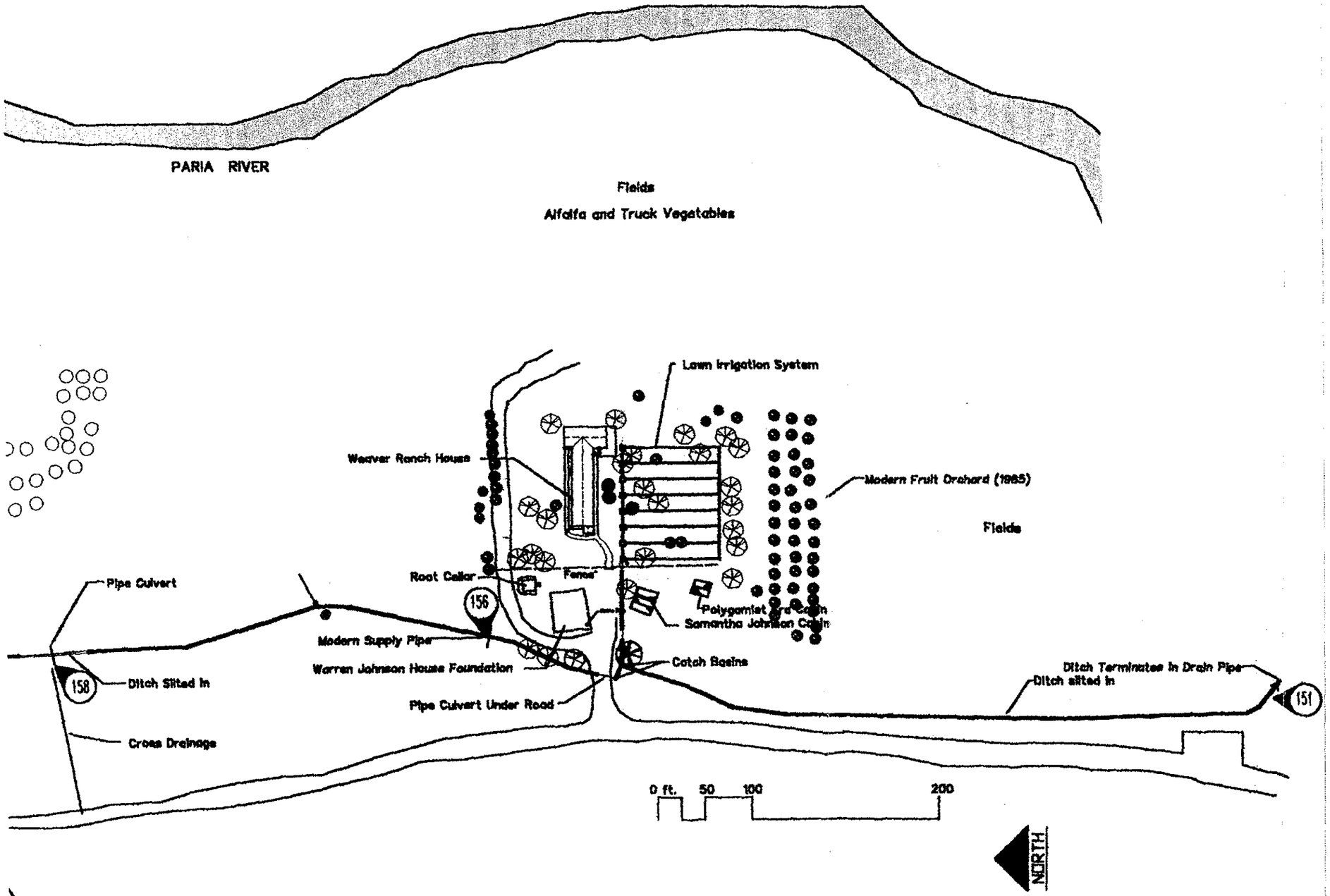
The main visual feature of the irrigation system is the ditch that conveyed water from the Paria River to the fields. The intact portion of the ditch runs from just north of the Cemetery to the southern end of the south field, a total distance of about two thousand feet. The ditch is shaped like a wide "V" in cross section, about three feet in width at the top with a flat bottom. It is lined with sandstone flags, about 1-1/2" thick, most of which are set in portland cement mortar (Photograph 155). Today most of the ditch is filled with silt from floods and/or from cross-drainages. Gates are located at intervals along the ditch, and served to channel water to each field, as it was needed. The gates in place today are constructed of wood 2 x 4s and 1x boards (Photograph 154). Catch basins are located at points where an abrupt change of direction is needed. These features are constructed of sandstone blocks set in portland cement mortar (Photograph 153).

The upper portions of the remaining ditch are about half filled with silt. Most head gates in these areas are collapsing from the weight of retained soil, are silted in, or are deteriorating from rot and/or insect damage. These gates will probably be lost in the near future if not stabilized. In general, the irrigation ditch is suffering deterioration from several causes. Some areas are damaged from ground movement. Tamarisk trees are growing along much of the ditch alignment, damaging or displacing stones with their expanding trunks and root systems. Just to the south of Jackson's Cabin, a small wash crosses the ditch from west to east. This was previously accommodated by channeling the wash into a corrugated steel pipe that crossed the ditch (Photograph 158). Due to lack of maintenance, the wash bypassed the pipe and flooded the ditch with sediment (Photograph 157). The ditch has been completely covered over at the crossing point, and the silt depth tapers off gradually in both directions.

The center segment of the ditch system is in a fair state of repair, having been kept in use in recent years. This area starts just north of the Ranch House compound, where the ditch is fed from a pipe leading from storage ponds above on the hillside. The ditch continues south, splitting near Emma's Cabin to supply the lawn area south of the Weaver Ranch House. The main trunk of the ditch passes west of Emma's Cabin, continuing to the south fields. At the south field, the ditch is once again silted in from cross drainage. Most of this silt appears to come from runoff from the access road that parallels the ditch. Some lengths of the ditch are completely covered with silt. The ditch re-

emerges near the south end of the field, and then empties into an overflow pipe to an unknown destination.


Fields
Historic Orchard Location
Stone Catch Basin
Wood Head Gates- Typical
Stone Lined Ditch- Typical
Bridge
Pipe Culvert Under Crossing
153
154
152
Fiberglass Reinforced Pipe
Cemetery
Picture Window Shack
HOLDING PONDS

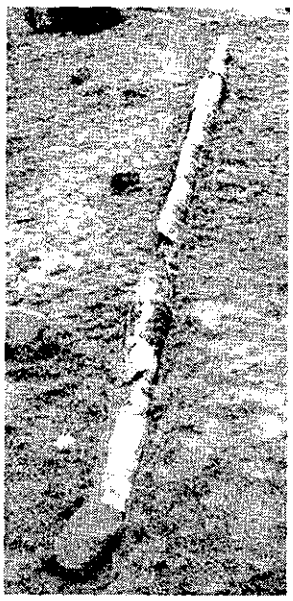


Lonely Dell Ranch Irrigation System, Existing Conditions

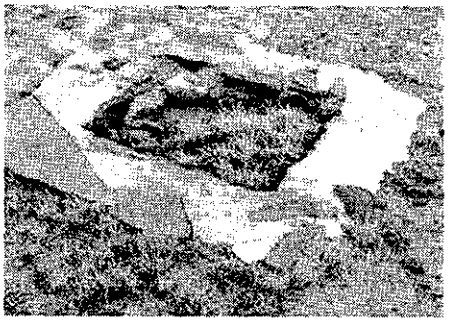
Modern Photographs – Lonely Dell Ranch Irrigation System



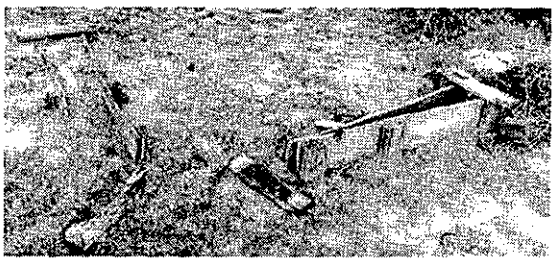
Photograph 151: Upper ditch near parking lot.



Photograph 152: Fiberglass-reinforced fill pipe at north end of extant system



Photograph 153: Stone catch basin at north end



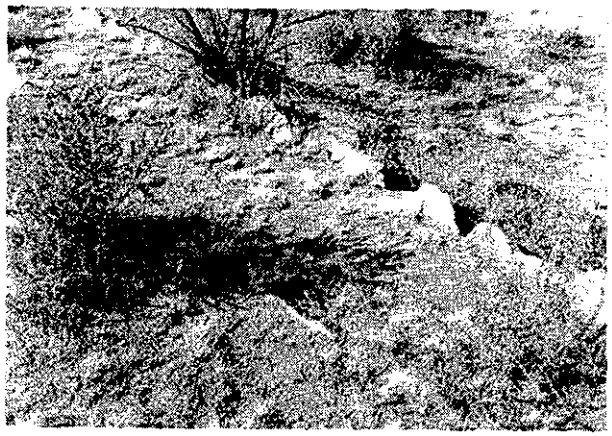
Photograph 154: Typical wooden head gates



Photograph 155: Detail of joints in stone ditch lining



Photograph 156: Modern fill pipe no longer used



Photograph 157: The ditch is silted-in in several places.



Photograph 158: Culvert formerly used to conduct cross-drainage over the ditch

Outline Chronology – Lonely Dell Ranch Irrigation System

DATE	EVENT
January 1872	Lee completes dam, begins irrigation on March 2, 1872[76]
April 1872	Lee replaces dam. Dam re-constructed of large base log packed with brush, rocks, and dirt[77]
June 1872	Flood destroys Lee's dam[78]
1883	Warren Johnson & David Brinckerhoff clear and level land for new plot. Land in cultivation at this time included seven acres of alfalfa southeast of the houses; four acres of orchard northwest of the hayfield between the houses and the creek. A large garden lay between the orchard and the road that crossed the creek just below the dam. On the upper side of the road cane and melons were raised, beyond which was the vineyard. A total of twenty-five acres in cultivation. The new plot was anticipated to add ten more acres of cultivated land.[79]
1885	Warren Johnson constructs second dam site to bring water to new upper field; length one-half mile from dam to upper field; old dam still brings water to lower field[80]
1890	James Emett constructs third dam site. By now, ditch was one and one-half mile long from damsite to fields[81]
1898	James S. Emett allows upper ranch to lie fallow after death of John Kitchen[82]
ca. 1900	James S. Emett begins to use log and sandbag construction for dams[83]
1903	Two Navajo brothers settle on unused upper ranch; begin cultivation[84]
1905	Irving C. Pierce constructs tunnel & flume irrigation system for James S. Emett[85]
1928	Jerry Johnson farming orchard, vinyard & alfalfa at lower ranch; Carling Spencer farming middle ranch; Elmer & Price Johnson farming upper ranch in watermelons[86]
1931	Price Johnson irrigating upper field; Carling Spencer farming middle field; Cleve LeBaron takes over Jerry's part of lower ranch[87]
Spring 1935	Leo Weaver & Poli Hungavi build small dam[88]
December 1935	Weaver builds second dam at best Mormon loction, two miles up the Paria just above the Emett Tunnel[89]
March 1936	Flood destroys 2nd Weaver Dam[90]

(cont. next page)

[76] Reilly, Lee's Ferry, p. 25.
[77] Ibid., p. 26.
[78] Ibid., p. 28.
[79] Ibid., p. 96.
[80] Ibid., p. 102-3.
[81] Ibid., p. 123-4.
[82] Ibid., p. 168.
[83] Ibid., p. 190.
[84] Ibid., p. 193.
[85] Ibid., p. 194-5.
[86] Ibid., p. 326.
[87] Ibid., p. 349.
[88] Ibid., p. 408.
[89] Ibid., p. 408.
[90] Ibid., p. 409.

winter 1939	Fruit trees removed by order of Essy Bowers[91]
Early 1943	Gus and Warren Griffin rehab Paria irrigation system; probably includes stone lined ditch, switch from surface water diversion to river pump[92]
1947	Jerry & Price Johnson farming middle & upper ranches[93]
June 1965	Consortium constructs two holding ponds for irrigation[94]
1977	NPS switches to pumping from the Colorado
1997	NPS removes remains of flume system and valve platform for Paria River trail.

[91] Ibid., p. 413.
[92] Reilly, Lee's Ferry, p. 417.
[93] Ibid., p. 429.
[94] Ibid., p. 450.

Lee's Ferry

Site

Overview of Area

The ferry site comprises all known extant historic structures along the north bank of the Colorado River within the project area. The site includes three primary groupings of structures. The western-most cluster, closest to the modern boat ramps and parking areas, includes the Lee's Ferry Fort, the American Placer Corporation Office, Lee's Ferry Fort Root Cellar, and the Chicken House. About 200 yards to the east of these buildings, the second cluster includes the Spencer Building and the USGS Residence. The third cluster is about one half mile upriver and is known as the Upper Ferry Site. This site includes primarily building foundations and rock corral walls of several early structures related to ferry activity.

Chronology of Development and Use

Early Historic Period, 1874-1909

European contact with the Lee's Ferry site began in 1776 when Dominguez and Escalante camped on the north bank of the Colorado above the Paria. No physical evidence has been found of the campsite, and it can be assumed that their impact on the site was minimal.

Even after American annexation of Arizona Territory in 1848, few people of European descent visited the site and none had a significant physical impact. Jacob Hamblin camped near the Dominguez-Escalante site several times between 1859 and 1868. The next year John Wesley Powell camped in the same area prior to his first run through the Grand Canyon. Permanent structures were first established by Hamblin in 1870 at Lonely Dell Ranch. Ferry operations, which at first consisted of untethered ferry boats, began in 1872.

The landscape at Lee's Ferry began to change significantly in 1873 when a group of Mormon missionaries began to improve the roads and approaches to the ferry landing. This first landing (sometimes called the "upper site", confusing this first site with the 1899 site still farther upriver) was located just to the east of where the Old Spencer Building and the USGS Building stand today. The road up the left bank, also known as "Lee's Backbone", was constructed at this time.

The first building of the Lee's Ferry site, Lee's Ferry Fort, appeared in 1874. The Fort was built both as a defensive position and as a trading post, which was closed one year later.

In 1876, Warren Johnson and his family moved into the Fort as a temporary shelter while better accommodations were built at Lonely Dell Ranch. They continued to live in the Fort until their new cabin was built in 1881.

Further development of the ferry operation was undertaken in 1878. Some of the torturous route up Lee's Backbone was bypassed, and a second, more accessible ferry site was established farther downstream near the mouth of Marble Canyon. This site was only used in times of low water. At other times the upper site continued to be used.

The period around 1880 saw a high point in Mormon immigration across Lee's Ferry and into the Arizona settlements. The Ferry was a key link in the "Honeymoon Trail" that led from the Utah stronghold into Arizona.

In 1881, the lower ferry site was much improved with the construction of a dugway up the canyon wall. In 1888 the "Johnson Cutoff" was completed, further bypassing Lee's Backbone.

The next year, the first Stanton Survey used the Fort as their base camp for their surveys of the region. They camped here again during their second survey in 1890. Stanton and his company made various improvements at Lee's Ferry, including road construction and improvement, as well as altering the loop holes of the old Fort into windows in 1899.

A new Upper Ferry Site was initiated in 1899 with the construction of the Emett Dugway and installation of a cable crossing the Colorado. Roads were extended eastward on both sides of the Colorado to reach the new ferry site, which was half a mile upriver of the previous upper site. Other structures which may date near this period, or within the twenty years following, include "Structure #1", the Louse House, a small rectangular shack of rock and logs built to accommodate passing travelers; and the Large Corral, used to hold stock awaiting transport or herding across the Colorado.

In 1900 John Emett (James Emett's son) and Sarah Wooley married, and took advantage of the recent improvements to the Fort by making it their residence.

The ferry site changed hands in 1909. The LDS Church, which had claimed the site, sold its rights to the Grand Canyon (Bar Z) Cattle Company, which also acquired the Lonely Dell site from James Emett.

Middle Historic Period (1910-1933)

A significant turning point in the development of the site was brought about by the arrival of Charles Spencer in 1910. His grand plans, set into motion in 1911, included construction of a number of new rock buildings as well as altering and adding to the old Fort. The Fort itself was converted to a mess hall by way of a large kitchen addition to one side. The American Placer Co.'s corporate office was constructed next to the Fort. Three bunkhouses were constructed (one extant). Other buildings that were constructed, but that no longer exist, include the Cook's House, a second Mess hall, a Laboratory, a Blacksmith Shop, and a Storage Shed. A trail was constructed from the building site up the canyon wall to the top of the northern mesa. A riverboat for hauling coal, the *Charles H. Spencer*, was assembled and brought to the site.

Spencer also had need to store black powder for his mining operation, and so built a powder magazine. The dugout structure above the Upper Ferry Site may in fact be this magazine.

While Spencer brought about man-made changes, the natural geography was radically changed in 1912. A massive flood of the Colorado deposited great quantities of silt along the banks, changing the course of the Paria and moving its mouth downstream.

Frank Johnson, one of Warren Johnson's sons, became ferryman. In 1913 he decided that the Upper Ferry Site was inconvenient to the cabins at Lonely Dell, and so he built a new cabin for himself at the Upper Site. Other structures at the upper site may also be related to this episode of construction, such as the Small Corral, which may actually have been a Chicken House. Johnson lived in the cabin until 1922.

In 1915, the abandoned *Charles H. Spencer* was grounded on the right bank of the Colorado just upstream from the original ferry site. After sinking in 1921, and many more years of deterioration, the boiler for the structure remains in place today.

The US Geological Survey began a long association with Lee's Ferry in 1921, when a gaging station was established on the Colorado. In that year, the new Chief Hydrographer, Irving Cockcroft and his wife, Margery, moved into the old Fort as their residence. Margery became postmaster for one year starting in 1922 when the Lee's Ferry Post Office bas briefly re-established, stationed in Spencer's old office building adjacent to the Fort. The Cockcrofts were replaced as Fort tenants in 1923 by Jim Klohr and in 1927 by a Mr. Baumgartner, a visiting engineer. Frank Johnson's cabin was re-inhabited in that year by Adolpha and Marva Johnson, and in 1933 by Bobby and Betty Jo Games.

The ferry service was discontinued in 1928, in anticipation of completion of the Navajo Bridge over Marble Canyon in 1929. With ferry traffic discontinued, the USGS had use of the site to themselves, for the most part.

Charles Spencer did not give up on mineral development of Lee's Ferry, however. The USGS employees, who saw Spencer as a troublemaker, were chagrined when he returned in 1931 with new backers and tried to set up operations in some of his old buildings. However, the new backers soon saw the operation for what it was and pulled out, leaving the site once again to the USGS. In 1933 this tenancy was formalized with establishment of a USGS Government Reserve at Lee's Ferry. In that year, the USGS rehabilitated the old Fort once again as a hydrographer's residence.

Late Historic Period (1933-1950)

Hoping to dispel the ghost of Charles Spencer, the USGS began dismantling some of Spencer's buildings in 1935. In 1937 improvements were made to the water supply system and the stream gauger's residence (demolished 1967), including construction of a storage tank, installation of pipelines, deepening and lining of the water well, construction of a septic tank, and addition of a bathroom to the residence.

Frank Dodge allowed much of the Spencer-era mining equipment to be removed in 1942 as part of a wartime scrap drive. Dodge also dismantled some of Spencer's old buildings, probably including the roof of the Spencer addition to the Fort. After the war, the USGS continued development of the site. In 1947, Spencer's old assay office, which had been used by Dodge as his residence, was converted to use as a Silt Laboratory. Other improvements made at this time included construction of a new hydrographer's residence and 500-gallon storage tank (demolished 1967). Soon after, in 1950, the USGS Residence was constructed adjacent to the Laboratory for use as a guest house. These new improvements were largely constructed from salvaged stone from Spencer's buildings.

Modern Period (1951-2000)

The cabins of the Upper Ferry site were burned in 1959 by the USGS, which considered them a hazard.

The National Park Service began development of Lee's Ferry as a recreation area in 1963 following the 1958 establishment of the Glen Canyon National Recreation Area. Between 1963 and 1965, NPS built a bridge over the Paria, a new road to the Fort, parking areas, boat ramps, and other features farther downstream, away from the ferry site. NPS also soon embarked on a program of stabilization of the cultural resources found at Lee's Ferry. In 1966, the roof of the Fort was stabilized with epoxy. HABS drawings were prepared for the Fort in 1966, and for the Chicken House, Spencer Building, American Placer Co. Office (then "Post Office"), and Lee's Ferry Fort Root Cellar in 1969.

In 1967 the Department of the Interior razed many remaining Spencer buildings as hazards. Buildings demolished included the Spencer Laboratory, Blacksmith Shop, and two Bunkhouses.

More extensive restoration of the American Placer Co. Office and of the Fort was undertaken in 1976. The roofs of both structures were completely rebuilt and other features repaired.

Some non-historic features of the site were built by NPS in 1985. Most significantly, a new public restroom building was constructed near the boat ramp.

A wood viga in the Fort failed in 1996 and was soon thereafter shored up on the interior.

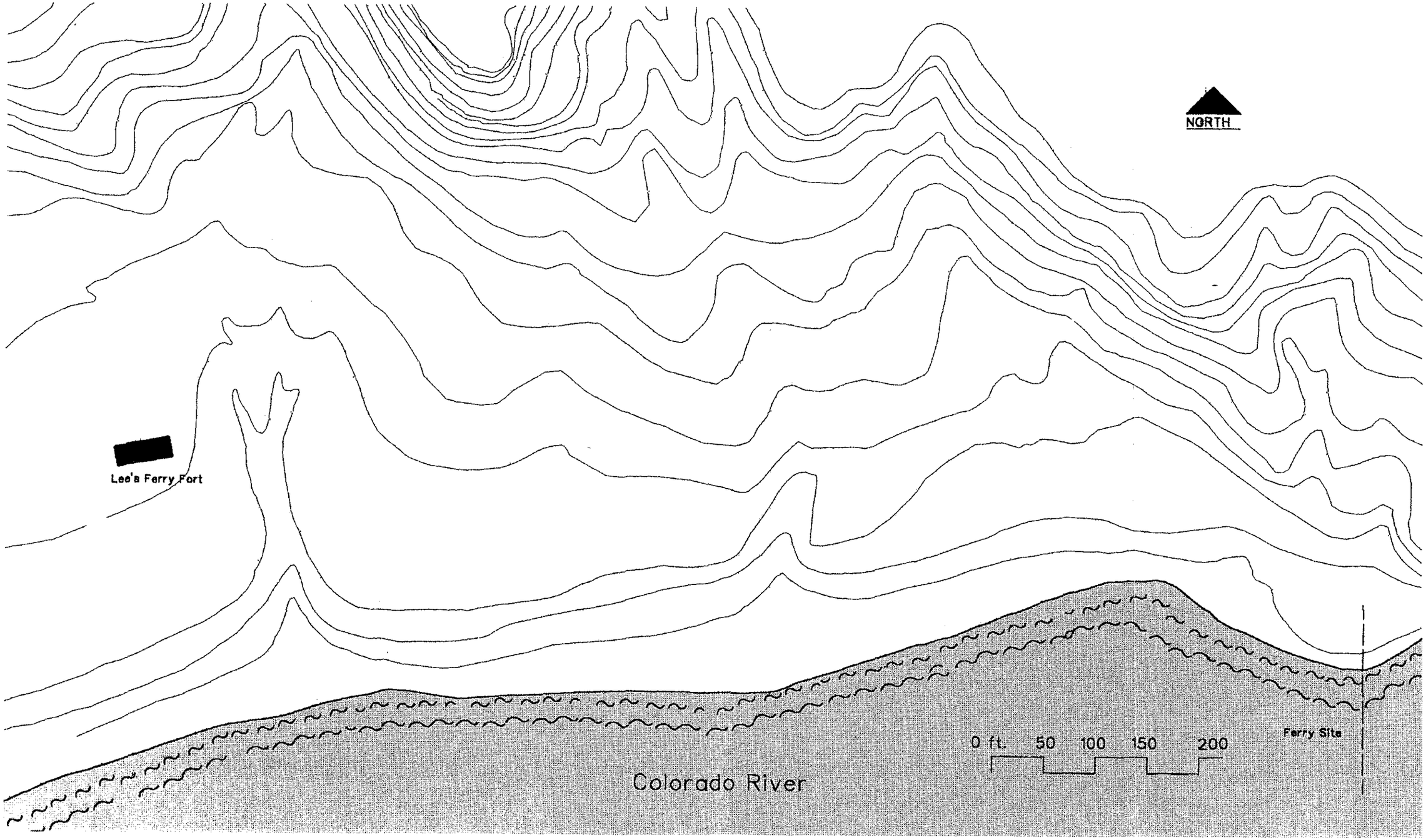


Figure 41: Lee's Ferry Site, Early Historic Period (1874-1909)

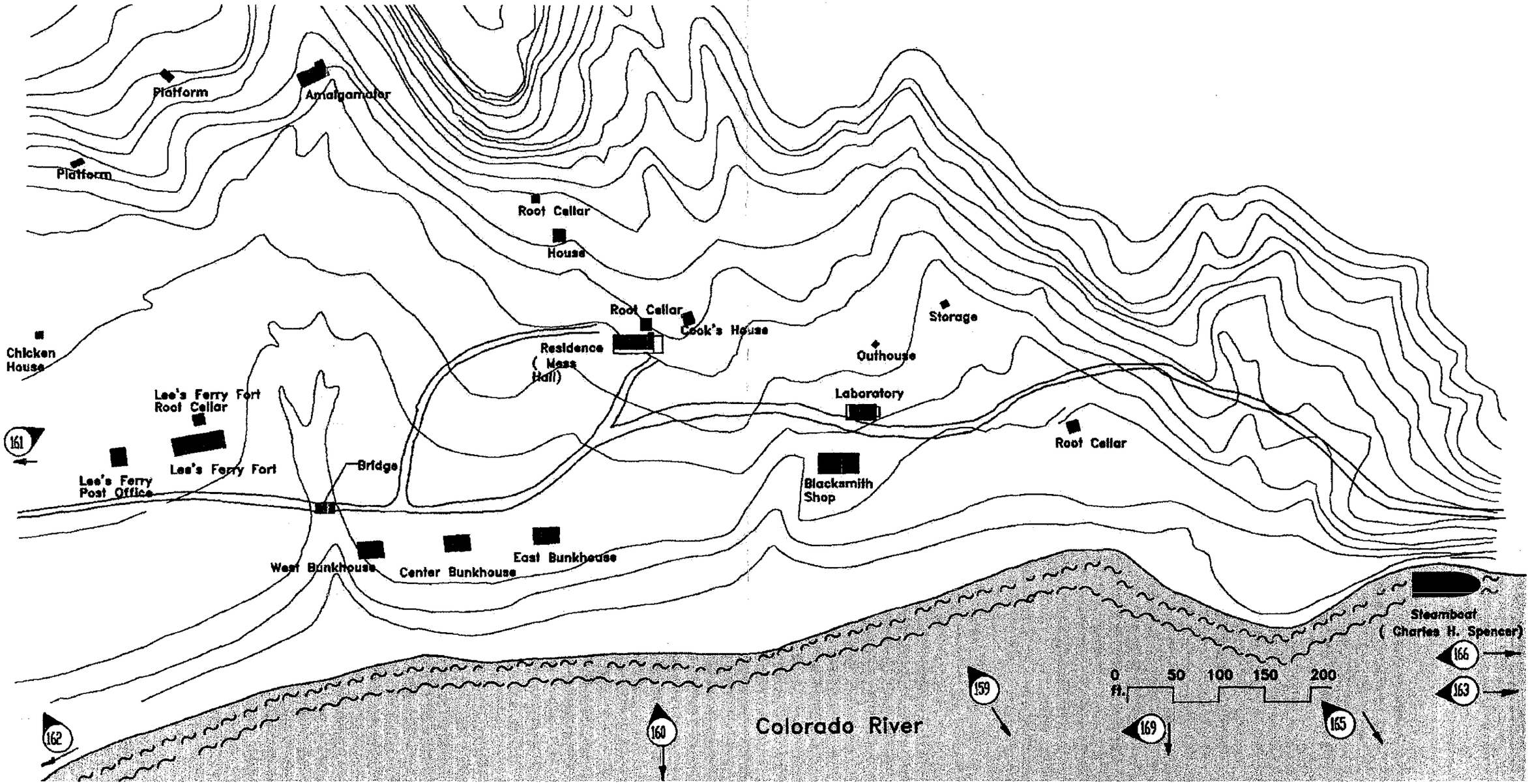


Figure 1: Lee's Ferry Site, Middle Historic Period (1910-1933)

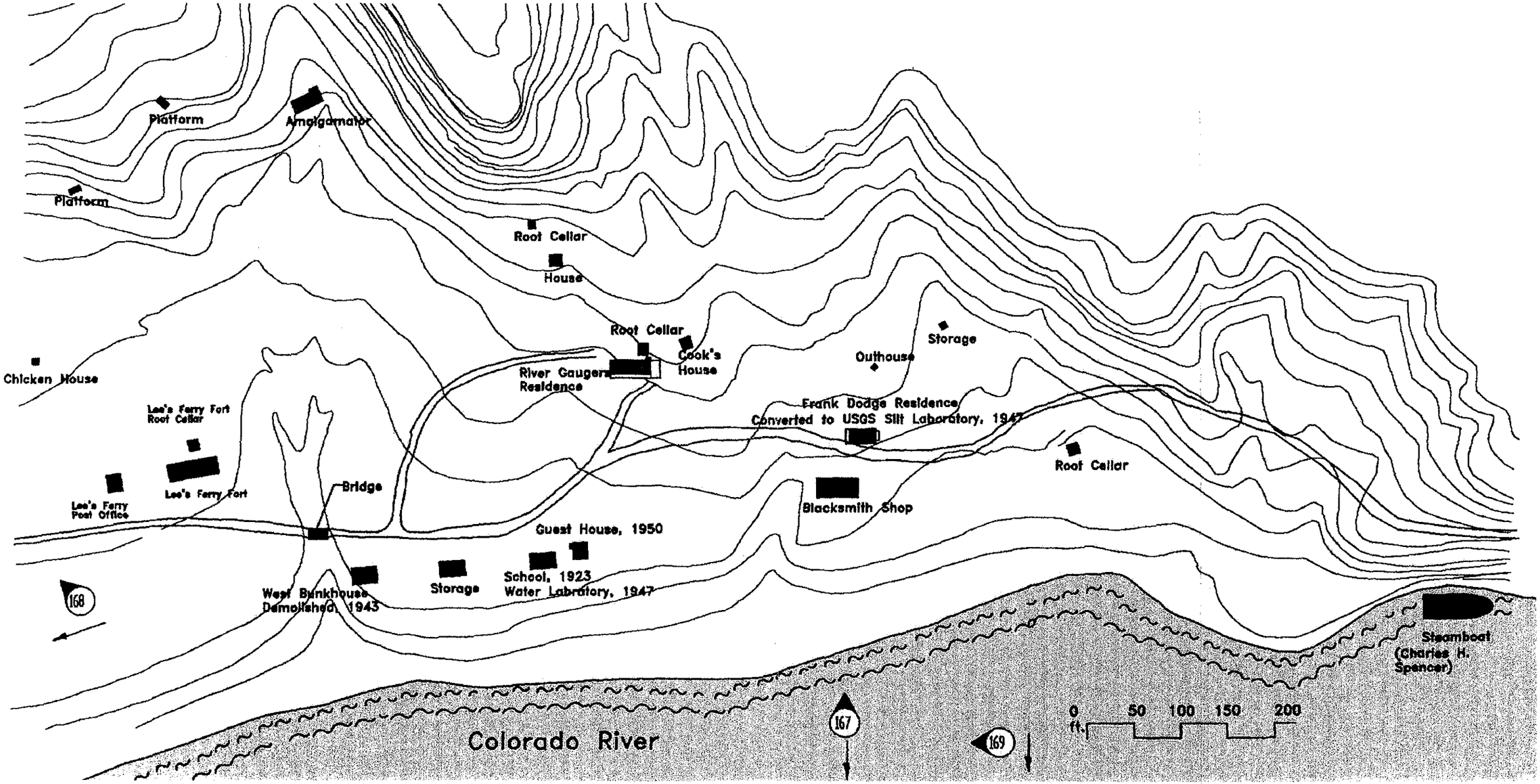


Figure 2: Lee's Ferry Site, Late Historic Period (1933-1950)

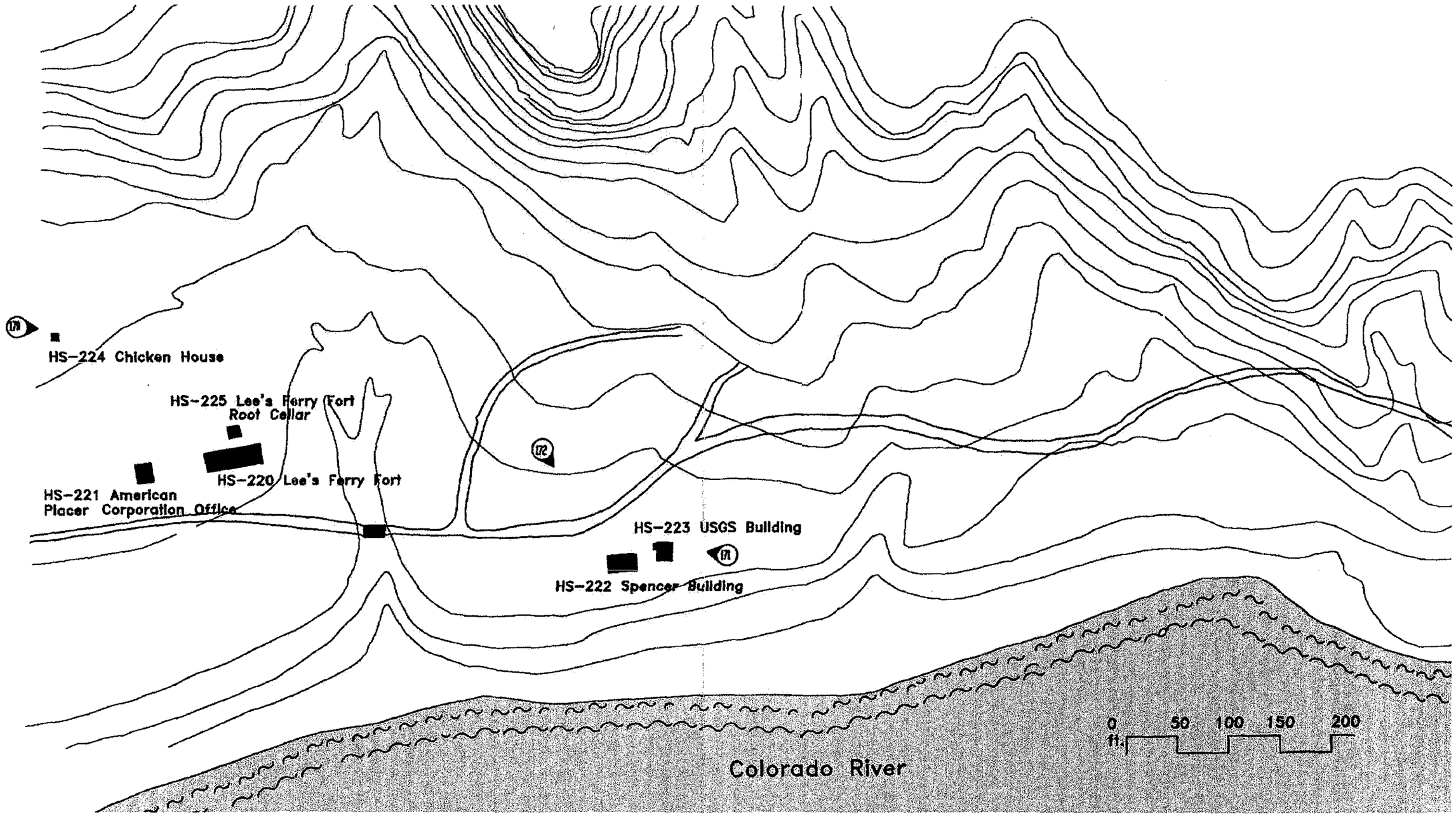
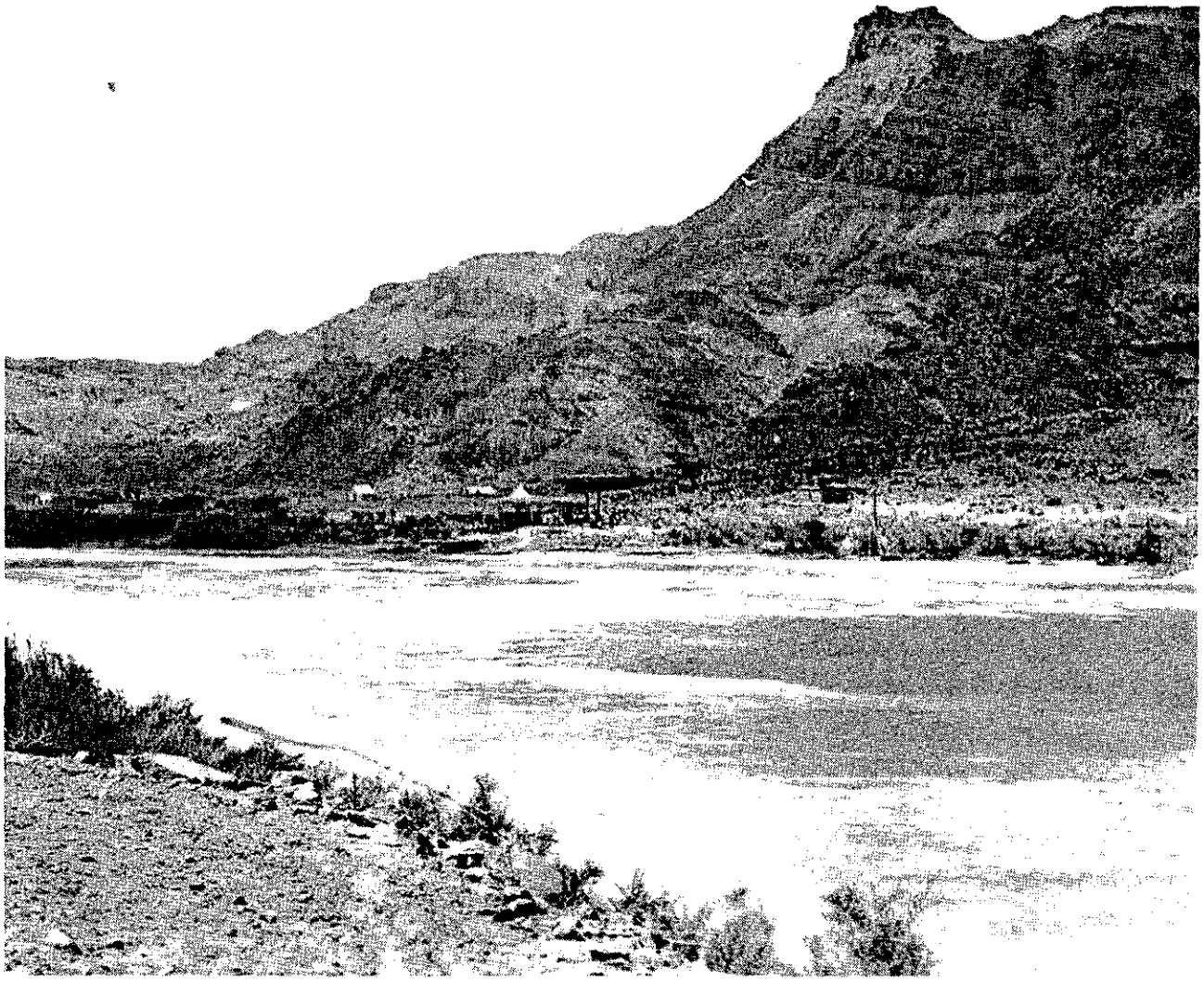


Figure 3: Site Plan, Lee's Ferry Fort Area (1999)

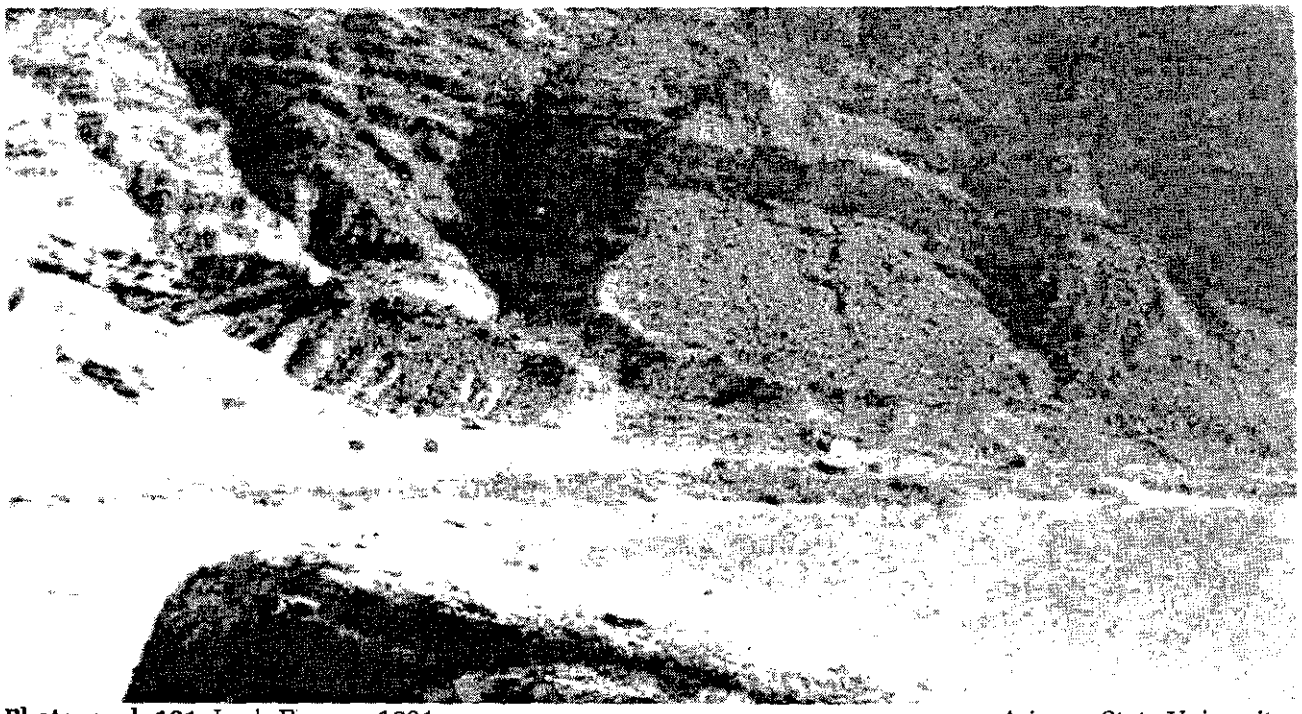
Historical Photographs – Lee's Ferry Site



Photograph 159: Fort area from the south bank c. 1910 *Arizona Department of Library and Archives*



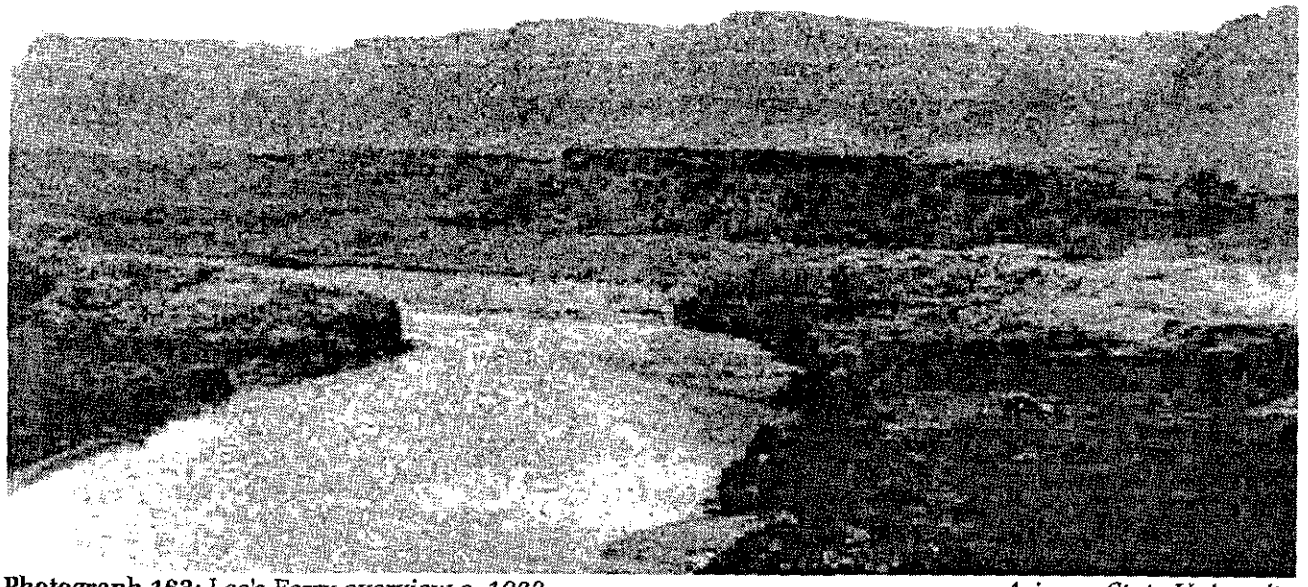
Photograph 160: Panorama of the Fort area from the north c. 1921 *USGS*



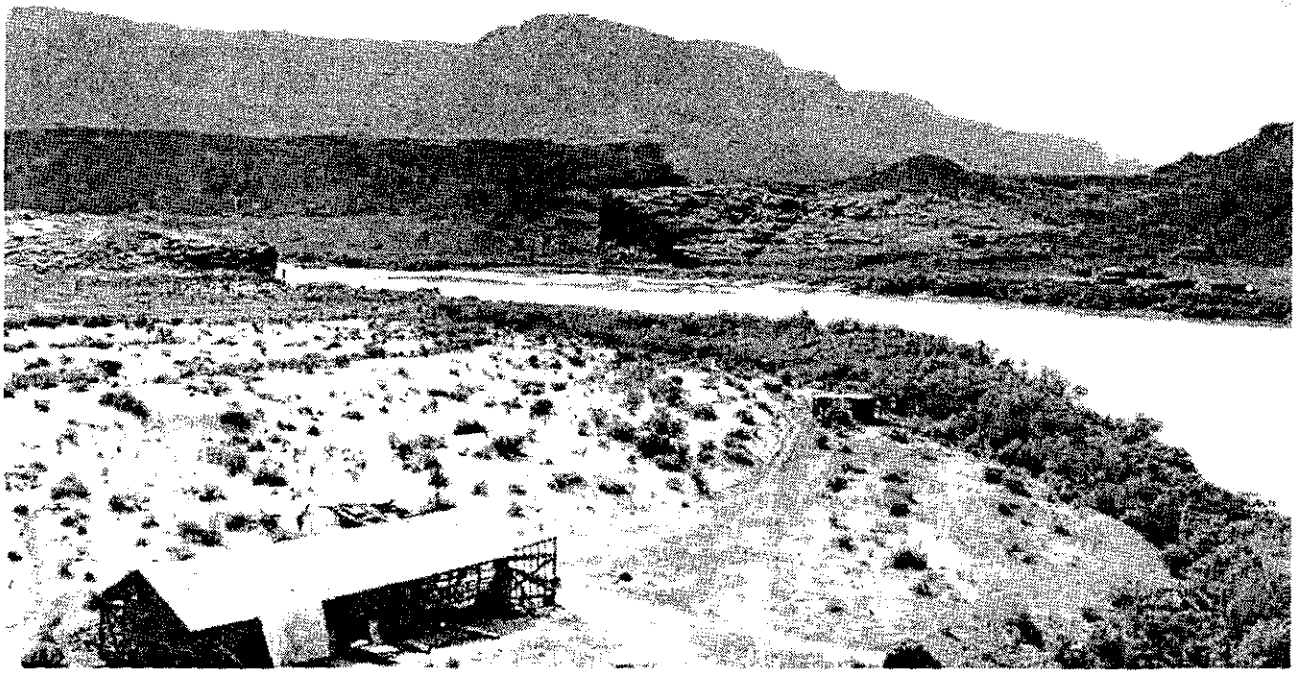
Photograph 161: Lee's Ferry c. 1921 *Arizona State University*



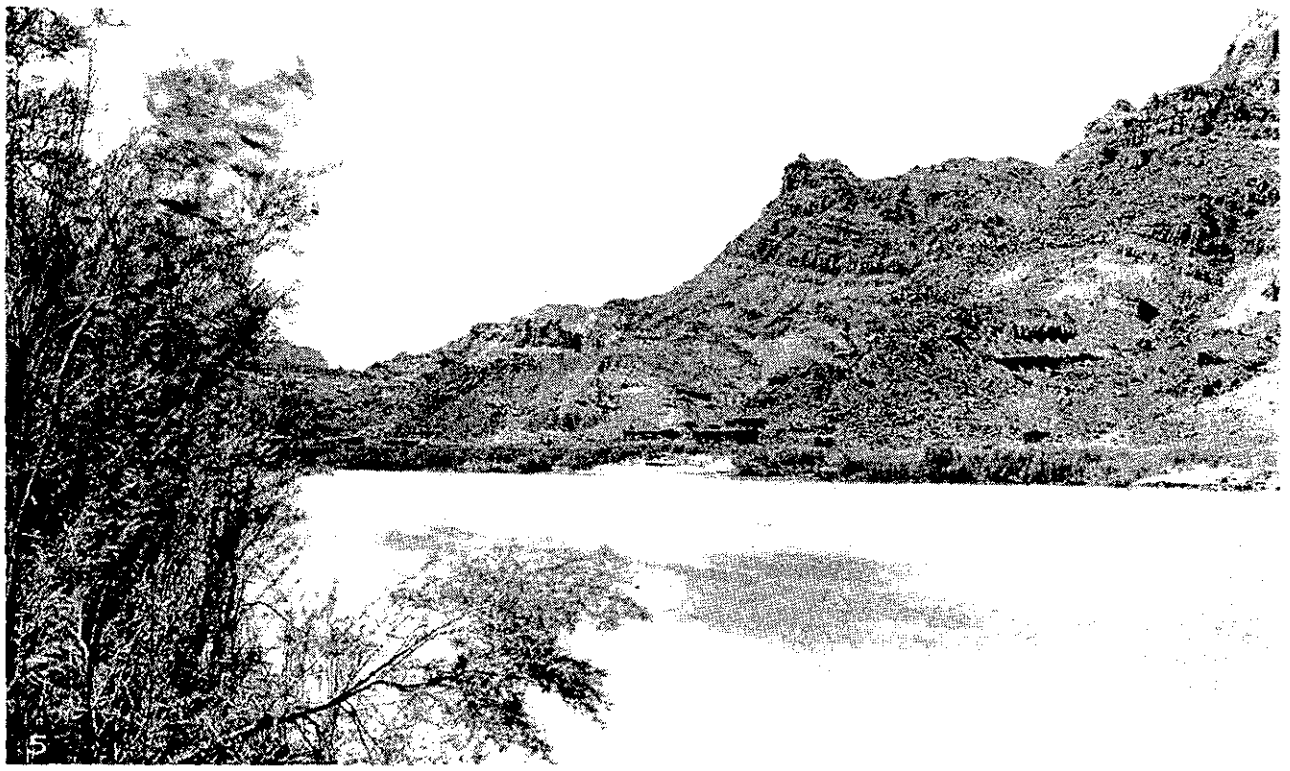
Photograph 162: View north up the Paria canyon c. 1921 *Arizona State University*



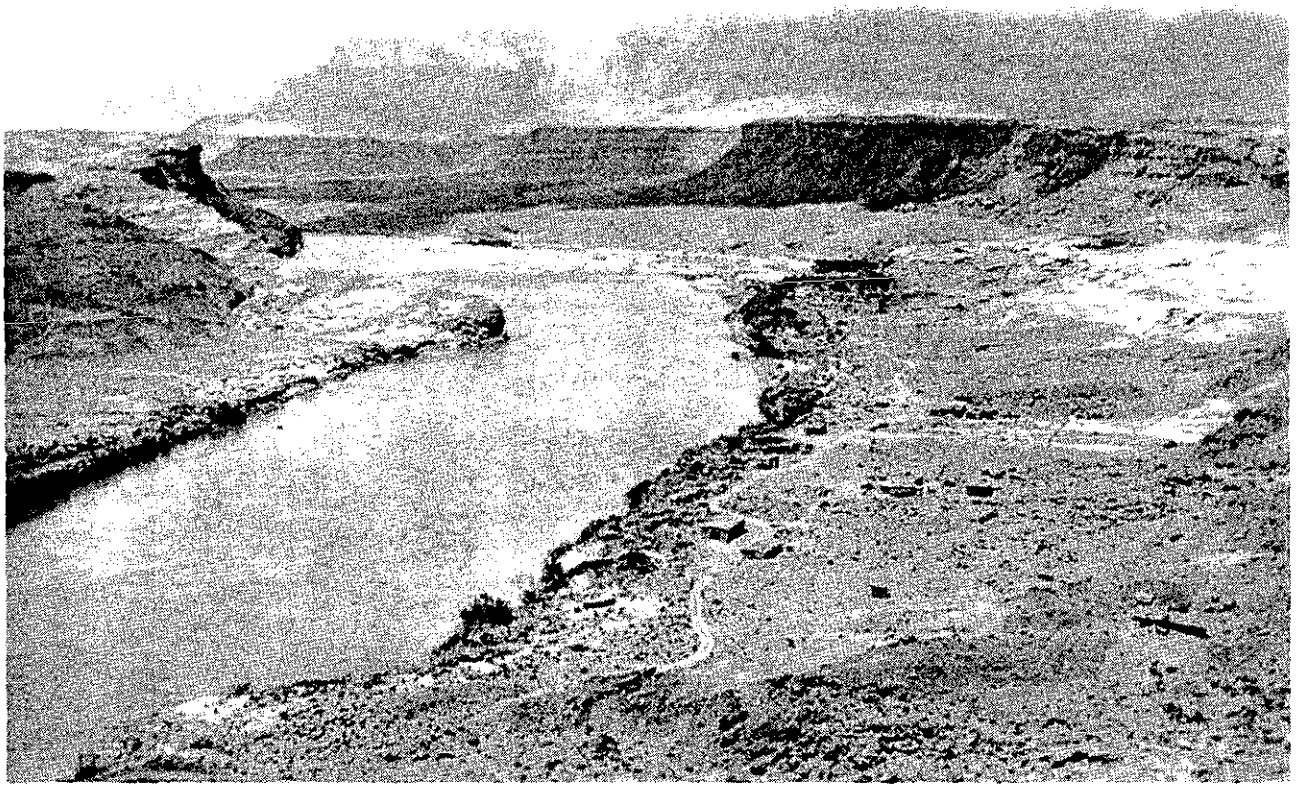
Photograph 163: Lee's Ferry overview c. 1922 *Arizona State University*



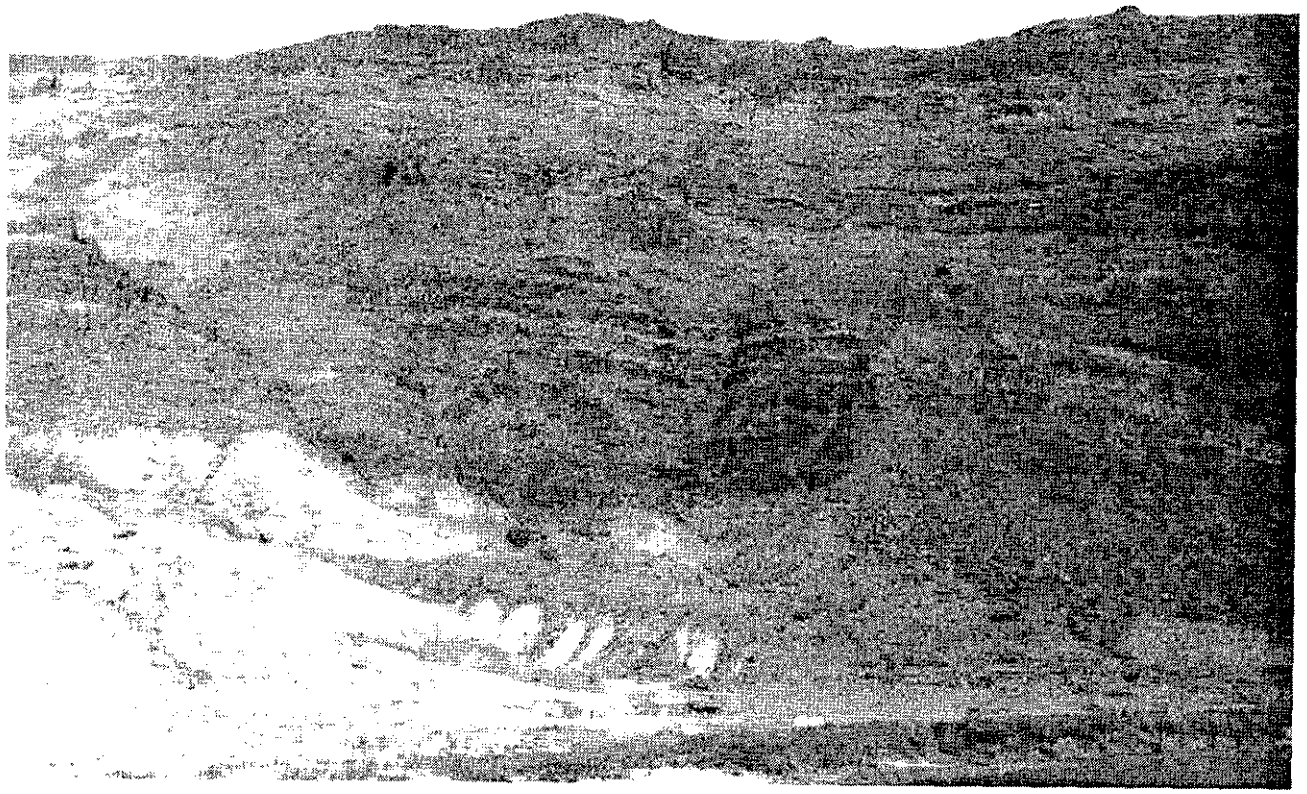
Photograph 164: South (left) bank of the Colorado at Lee's Ferry, c. 1923 *USGS*



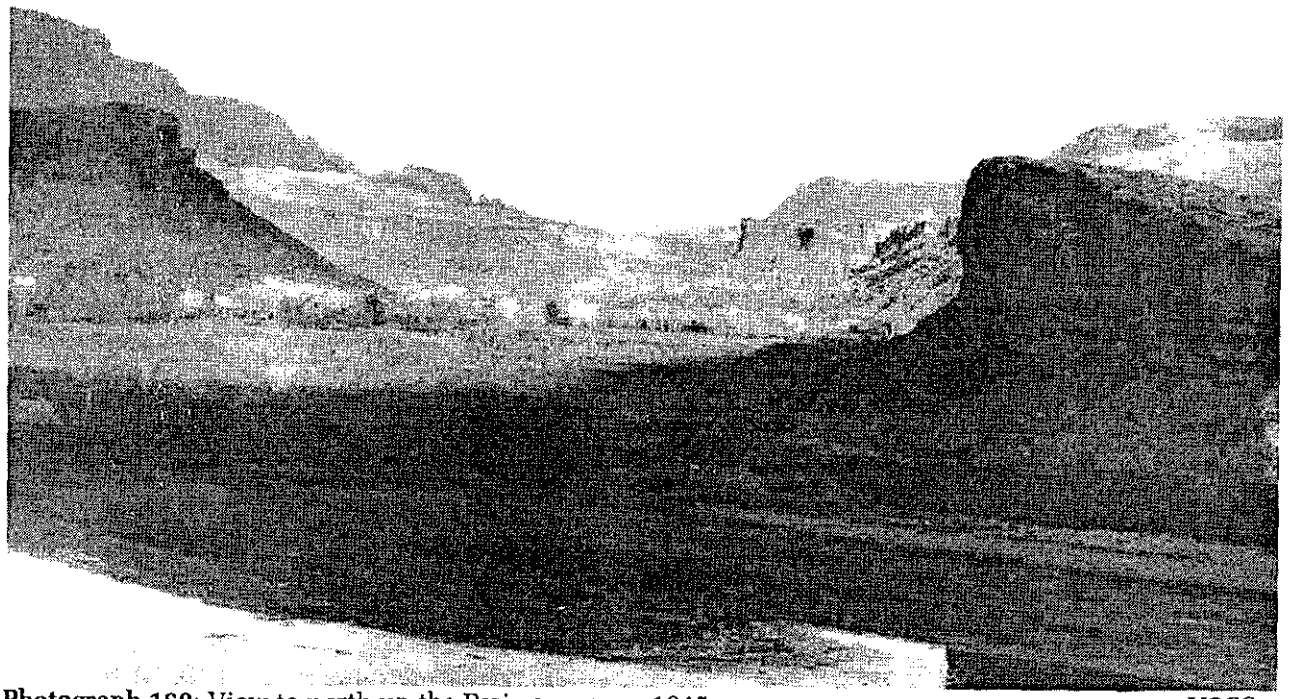
Photograph 165: Fort area from the south (left) bank c. 1923 *USGS*



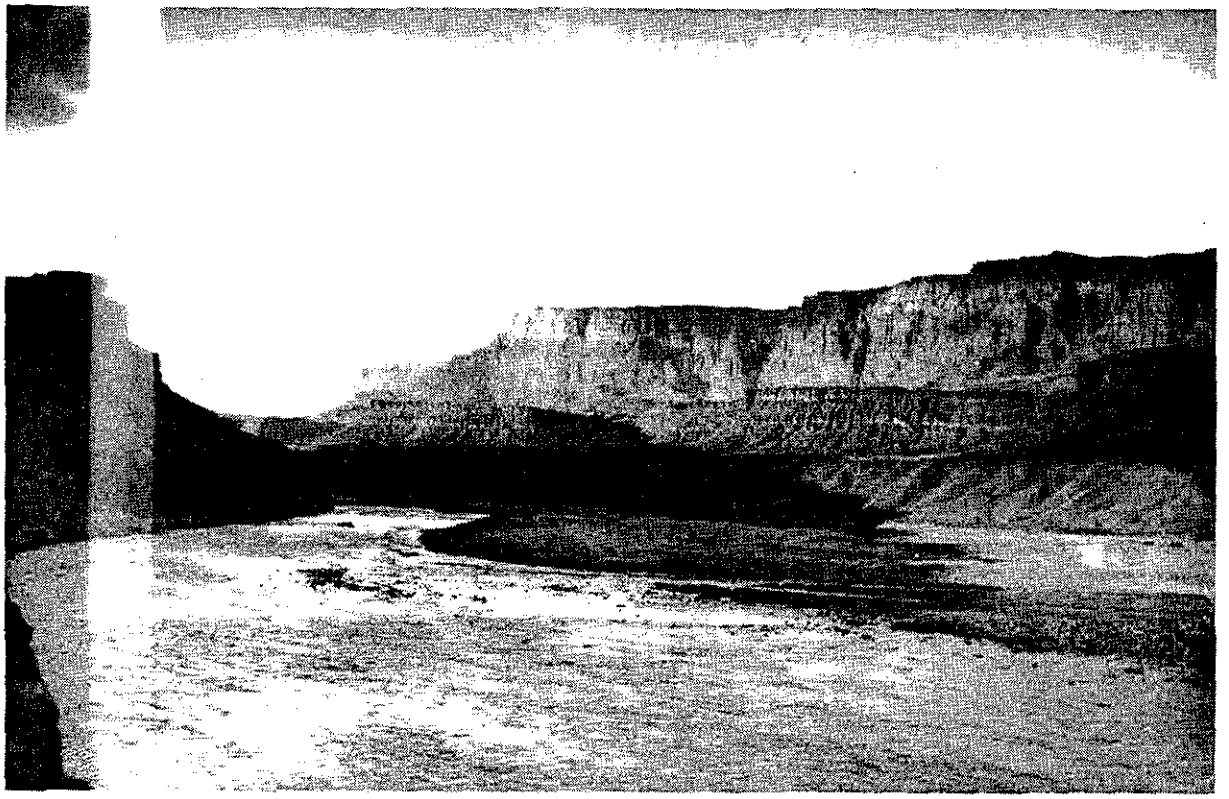
Photograph 166: Lee's Ferry Area, 1931 *Cline Library- NAU, P. T. Reilly Collection*



Photograph 167: Overview of Lee's Ferry area c. 1945 *USGS*



Photograph 168: View to north up the Paria canyon c. 1945 *USGS*



Photograph 169: Paria delta c. 1945 *USGS*

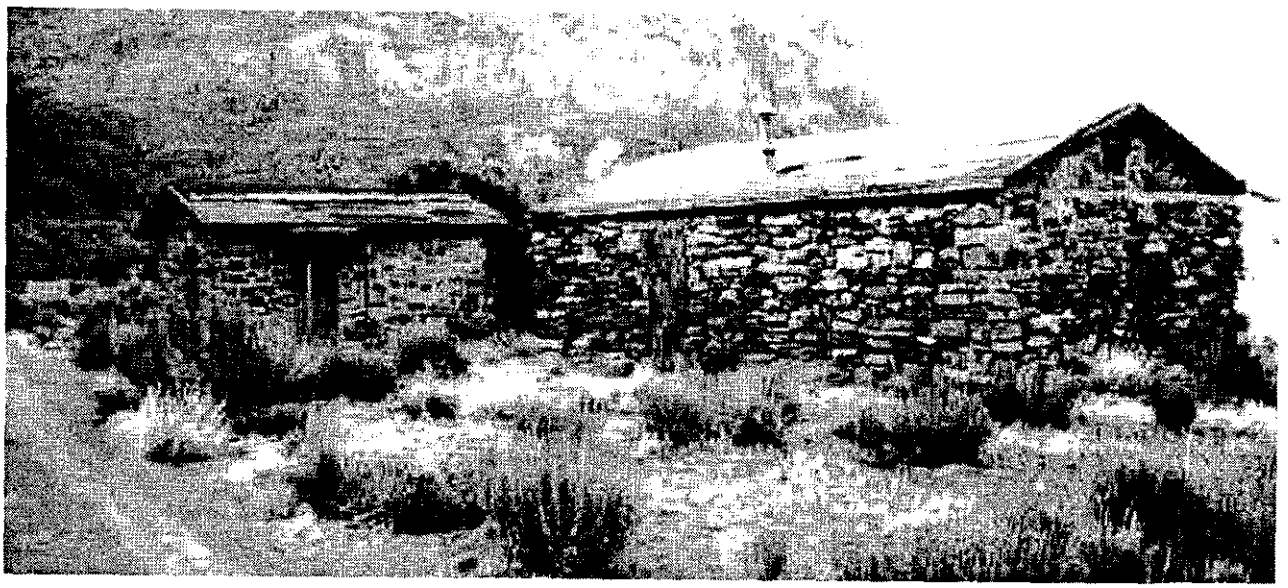
Existing Conditions Photographs – Lee's Ferry Site



Photograph 170: Modern view of Lee's Ferry area from Chicken House. APC Office at right, Lee's Ferry Fort at left. (1999)



Photograph 171: Modern view back to Fort area from USGS Residence, 1999



Photograph 172: Modern view of USGS Residence and Spencer Building , 1999

Outline Chronology – Lee's Ferry Site

DATE	EVENT
1872	January 19 - First ferry run in the Nellie Powell[95]
1873	January 11 - Ferry *Colorado* completed April - Young, Jackson & others improve roads and landing (upper) - Lee's Backbone and Lee's Hill[96]
June & July 1874	Fort / Trading post constructed at Paria Crossing[97]
1878	Lee's Backbone route replaced; ferry site moved during low water months
1881	Lower dugway and ferry site constructed
Spring 1888	Dugway detour (Johnson Cut-off) completed[98]
1899	January – crew arrives to begin construction of Emett dugway [99] February – steel cable installed at upper ferry site[100] March – new ferry in operation[101] Fall – Stanton completes assessment work at old Fort[102]
January 5, 1900	Navajo Indian Reservation enlarged to reach left bank of Colorado[103]
1909	August 18 - LDS church sells ferry site to Grand Canyon (Bar Z) Cattle Co.[104]
1910	May - Charles H. Spencer arrives at Lee's Ferry left bank[105] June – Grand Canyon Cattle Co. (Bar Z) sells Ferry to Coconino County[106] September – Spencer shifts operation to right bank; converts Fort into mess hall[107]
1911	January/February – Spencer building program underway[108]

[95] Reilly, Lee's Ferry, p. 25.
[96] Ibid., p. 35-6.
[97] Ibid., p. 49-50.
[98] Ibid., p. 110.
[99] Ibid., p. 171-172.
[100] Ibid., p. 174.
[101] Ibid., p. 174.
[102] Ibid., p. 178.
[103] Ibid., p. 180.
[104] Ibid., p. 213.
[105] Ibid., p. 218-219.
[106] Ibid., p. 222.
[107] Ibid., p. 228.
[108] Ibid., p. 242.

1912	Flood shifts mouth of Paria River[109]
Fall 1913	Frank Johnson begins construction of log cabin at Upper Ferry site[110]
1915	Abandoned *Charles H. Spencer* grounded
1921	Flood; *Charles H. Spencer* sinks Gaging station established on Colorado[111] Irving & Margery Cockcroft move into old Fort[112]
1922-3	Post Office established in American Placer Corporation Office by Margery Cockroft[113]
1928	Ferry service discontinued
1931	partial Spencer re-occupation
1933	January 18 – USGS government reserve created at Lee's Ferry[114] USGS improves interior of old Spencer mess hall for use as hydrographer's residence (specific changes unknown)[115] Bobby & Betty Jo Games occupy Frank Johnson cabin[116]
April 1932	Spencer & Treadwell operations become inactive; Al, Pete & Ada Nelson live in Fort[117]
June 1935	USGS proposes demolition of three westernmost Spencer buildings[118]
1937-8	USGS improvement program[119]
1942	Frank Dodge dismantles several Spencer buildings; allows salvage of old Spencer machinery
November 1947	Improvements to USGS buildings; new sediment laboratory constructed[120]
May 1950	USGS guest house constructed[121]
1963	NPS constructs park facilities
1966	March – roof interior of old Fort treated with epoxy[122]

[109] Reilly, Lee's Ferry, pp. 252-253. W.L. Rusho, Desert River Crossing, dates the flood event to 1917 on p. 134. Based on stream flow measurements, Reilly has the correct date.
[110] Reilly, Lee's Ferry, p. 257.
[111] Ibid., p. 282.
[112] Ibid., p. 283.
[113] Ibid., p. 297.
[114] Ibid., p. 361-362.
[115] Ibid., p. 381.
[116] Ibid., p. 366-367.
[117] Ibid., p. 356.
[118] Ibid., p. 381.
[119] Ibid., p. 401-402.
[120] Ibid., p. 428.
[121] Ibid., p. 433.
[122] Ibid., p. 451.

February 7, 1967	Dept. of Interior razed Spencer laboratory, blacksmith shop, two bunkhouses[123]
1976	NPS restoration program[124]
1985	NPS reconstructs boat-launch area, constructs public comfort station, removes concessioner trailers, reconstructs road to maintenance yard[125]
1996-97	National Register Nomination revised
1996	Fort viga fails
1999-2000	Historic Structures Report

[123] Ibid., p. 454.
[124] Ibid., p. 458.
[125] Reilly, Lee's Ferry, p. 459.

HS-220, Lee's Ferry Fort

Chronology of Development and Use

The Fort was constructed in 1874 to protect the river crossing from possible war with the Navajo. The conflict between the Mormons and the Navajo did not develop, so the Fort saw use as a peaceful trading post instead. As an imposing building at the center of the site, the Fort has been used by many visitors to the property over the years.[126]

The Trading Post use lasted only until 1875, after which the Fort was used as a residence for both permanent residents and passing travelers.[127] Residential use continued until 1910. The Fort hosted Warren Johnson (1876), members of the Brown-Stanton survey (1889), Nathaniel Galloway (1898), and John Emett and his wife.[128] In 1899 Robert Stanton converted the loop-hole windows of the Fort into full-size view windows by removing the additional stones that closed down the opening.[129] (It appears that the south windows were always larger, "window sized" units with splayed jambs, rather than being just loop-hole slits.)

When Charles Spencer began development the Lee's Ferry site in 1910-11, the Fort was converted to use as his Mess Hall. One window, on the west end of the south façade, was converted to a door opening. A new door opening (which may or may not have been an earlier window) was made in the center of the west wall to gain access to a new addition. The addition was built of matching sandstone, and took the form of extending the earlier building mass 26 feet to the west. The addition had wooden windows and doors and contained the kitchen for the Mess Hall. The building was abandoned by Spencer soon after conversion.[130]

The Fort returned to intermittent residential use. The USGS used the Fort as the Chief Hydrographer's residence after 1921 when Irving G. Cockcroft and his wife Margery moved in.[131] It is likely that the small door in the north wall was added at this time, to gain easy access to a new root cellar. Cockcroft was followed in 1923 by Jim Klohr.[132] I. G. "Rudy" Kasel jointed Klohr in residence in 1924.[133] In 1928 the Fort was used as a residence for Mr. Baumgartner, a visiting engineer.[134]

Charles Spencer reappeared at the site in 1931. A lab for his operations was set up in the Fort. This activity lasted only five months before the building returned to residential use. In 1932, the Fort served as residence for Al, Pete, and Ada Nelson.[135]

The Spencer addition on the side of the fort was partially dismantled by Frank Dodge in 1942. This work may have been limited to demolition of the roof.[136]

The Fort was documented for HABS in 1965, but for some reason these

---

[126] W.L. Rusho, Desert River Crossing (Salt Lake: Tower Productions, 1998), pp. 46-47.
[127] Reilly, Lee's Ferry, p. 58.
[128] Ibid., pp. 63, 116-119, 169.
[129] Ibid., p. 178. River historian Otis R. "Dock" Marston attributes the window change to Charles Spencer; see a letter from Harry Aleson to Otis R. "Dock" Marston, August 31, 1950, on file at Utah State Historical Society, Salt Lake, Aleson Collection, Manuscript B-187, Box 12, Folder 15.
[130] Reilly, Lee's Ferry, pp. 228, 242.
[131] Ibid., p. 283.
[132] Ibid., p. 303.
[133] Ibid., p. 305.
[134] Ibid., p. 327.
[135] Ibid., pp. 355-56.
[136] Ibid., p. 419.

drawings barely outlined the Spencer era addition.[137] Some changes are evident since that time. By this date, much of the Spencer addition had been demolished. Following this documentation effort in 1966, the interior of the roof structure was treated with epoxy in order to stabilize it.

In 1967, the Department of the Interior demolished many of the buildings constructed by Charles Spencer in 1910-11. About two-thirds of the exterior walls of the Spencer addition to the Fort were toppled.

A more extensive restoration effort was undertaken in 1976-77. In this rehabilitation, the walls were stabilized and the roof was dismantled, treated, and reinstalled. The roof work included epoxy consolidation of the major timbers and total replacement of the secondary poles with new ones. The eave line was extended out in relationship to the previous condition by about one foot. It was as a part of this rehabilitation that the windows were restored to their pre-1899 condition as open loop-holes. The west door on the south side of the building was also altered further at this time, departing slightly from the configuration shown in the 1965 HABS drawings.[138]

In 1996 a main beam in the west room of the Fort failed. Park personnel installed a temporary brace to support the failed beam in the winter of 1996-7.

Lee's Ferry Fort is used by NPS as an interpretive feature of the Lee's Ferry site.

[137] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County" HABS/HAER Survey Ariz. 58, Library of Congress, Washington, D.C. (October, 1965; Revised January, 1969).
[138] Reilly, Lee's Ferry, p. 458.

Evolutionary Drawings – Lee's Ferry Fort

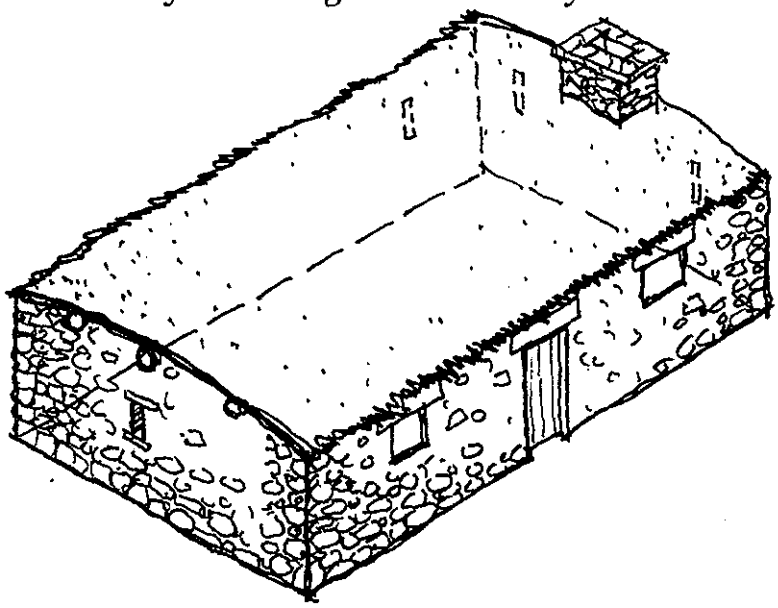


Figure 45: Lee's Ferry Fort original construction c. 1872.
Stone walls, dirt roof, loop-hole windows.

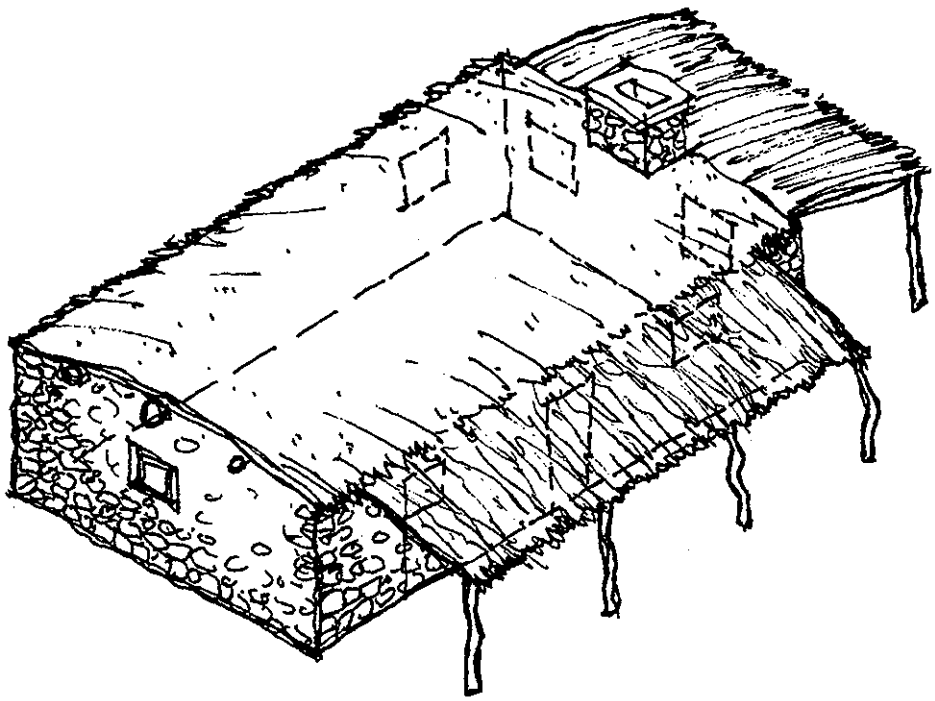


Figure 46: Lee's Ferry Fort c. 1899.
Loop-hole windows enlarged to full size, brush shade ramadas added

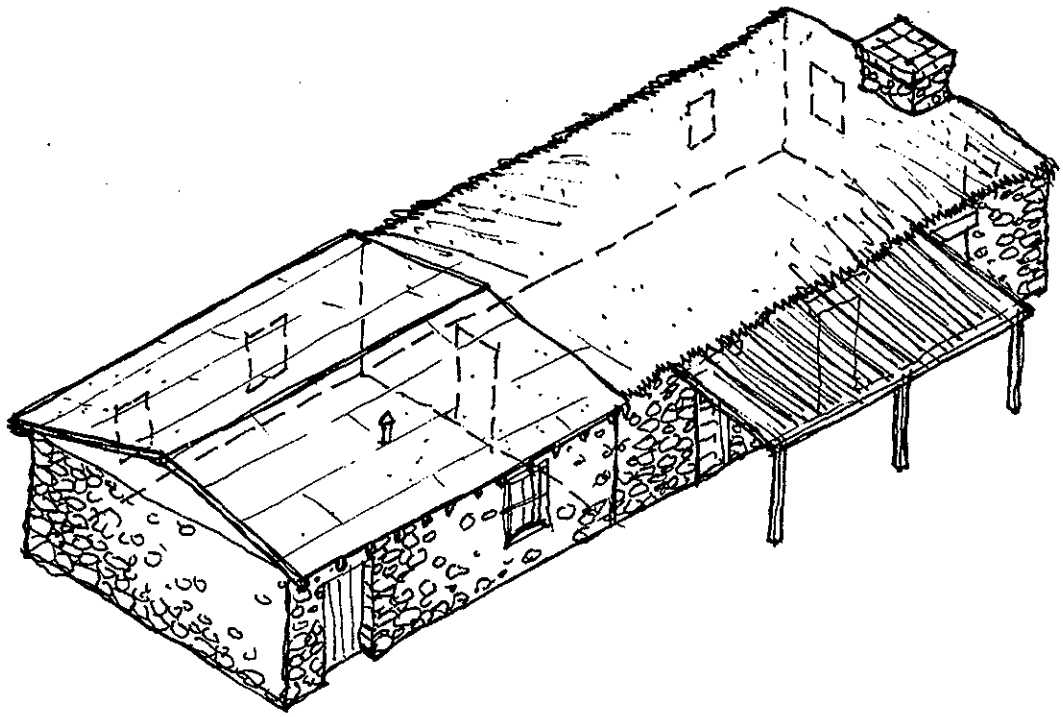


Figure 47: Lee's Ferry Fort c. 1911.

"Spencer" addition to west end, with stone walls, wood windows, low pitch roof with rolled roofing. Shade ramada replaced with more formal structure, window converted to door

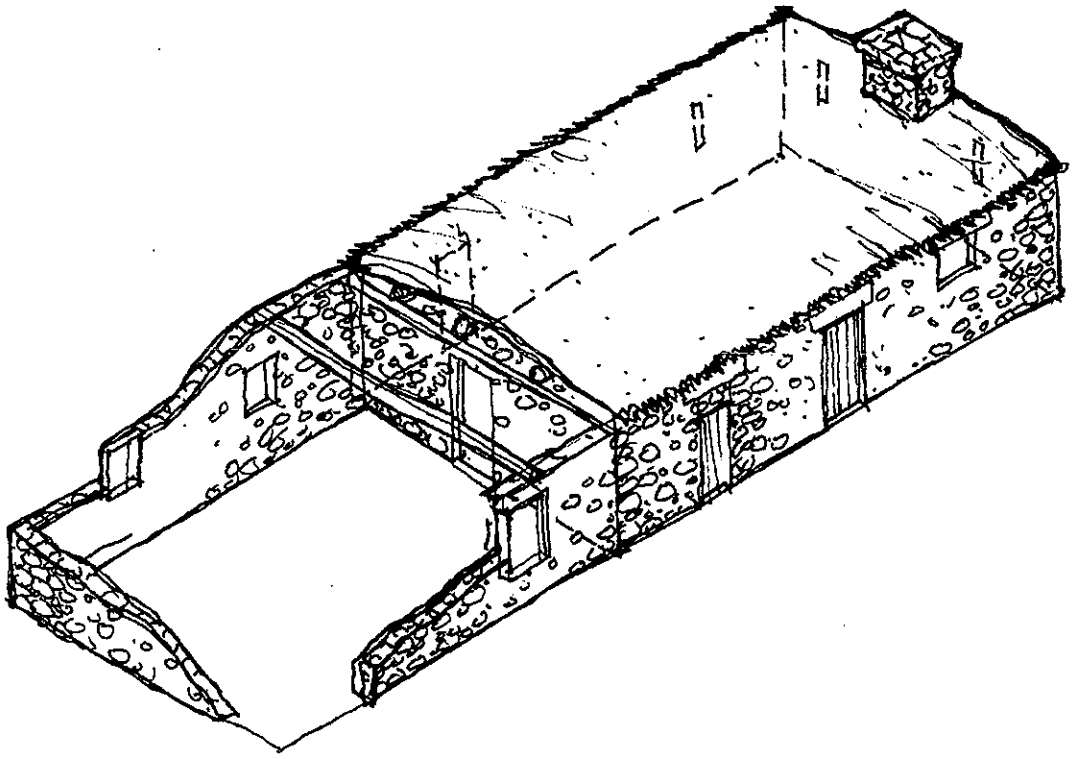


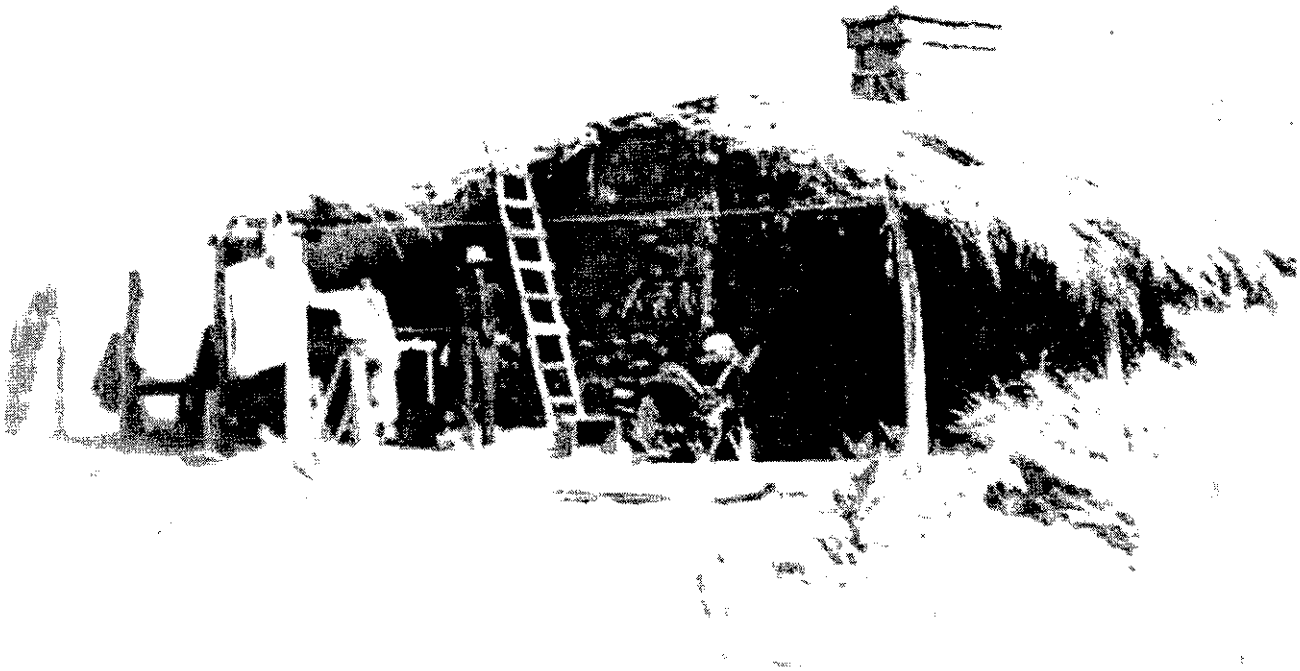
Figure 48: Lee's Ferry Fort c. 1976.

Rear door added (c. 1921), Spencer addition partially demolished (c. 1942, 1967), loop-hole windows restored (1976)

Historical Photographs – Lee's Ferry Fort



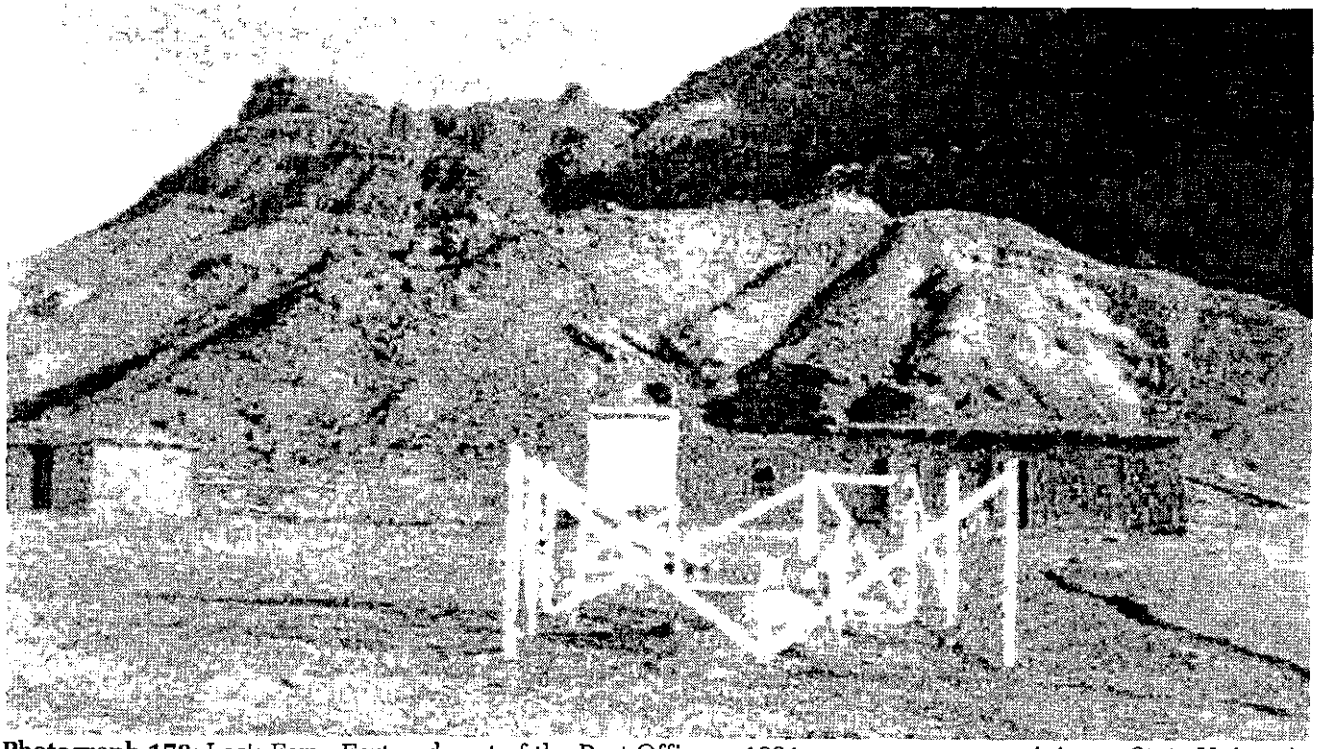
Photograph 173: Stanton team at Lee's Ferry Fort, 1889 *National Archives*



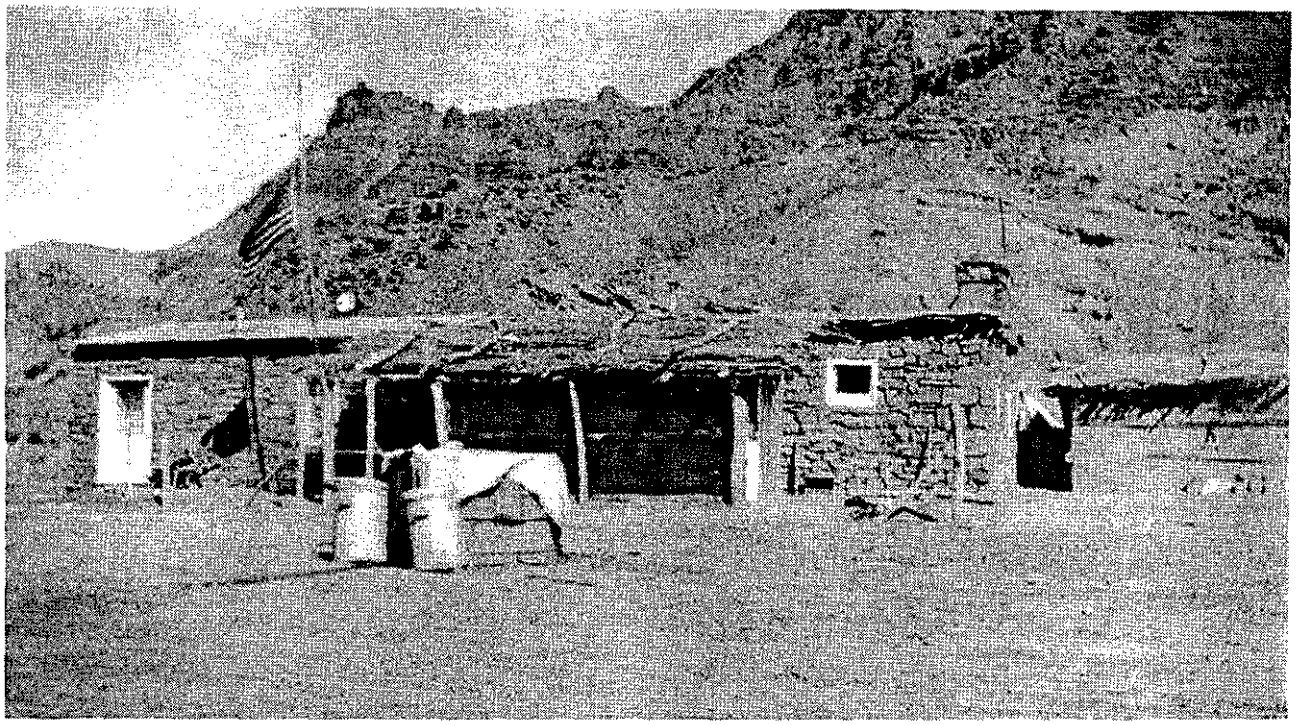
Photograph 174: The Fort during residential use c. 1898. *University of Utah, Crampton Collection*



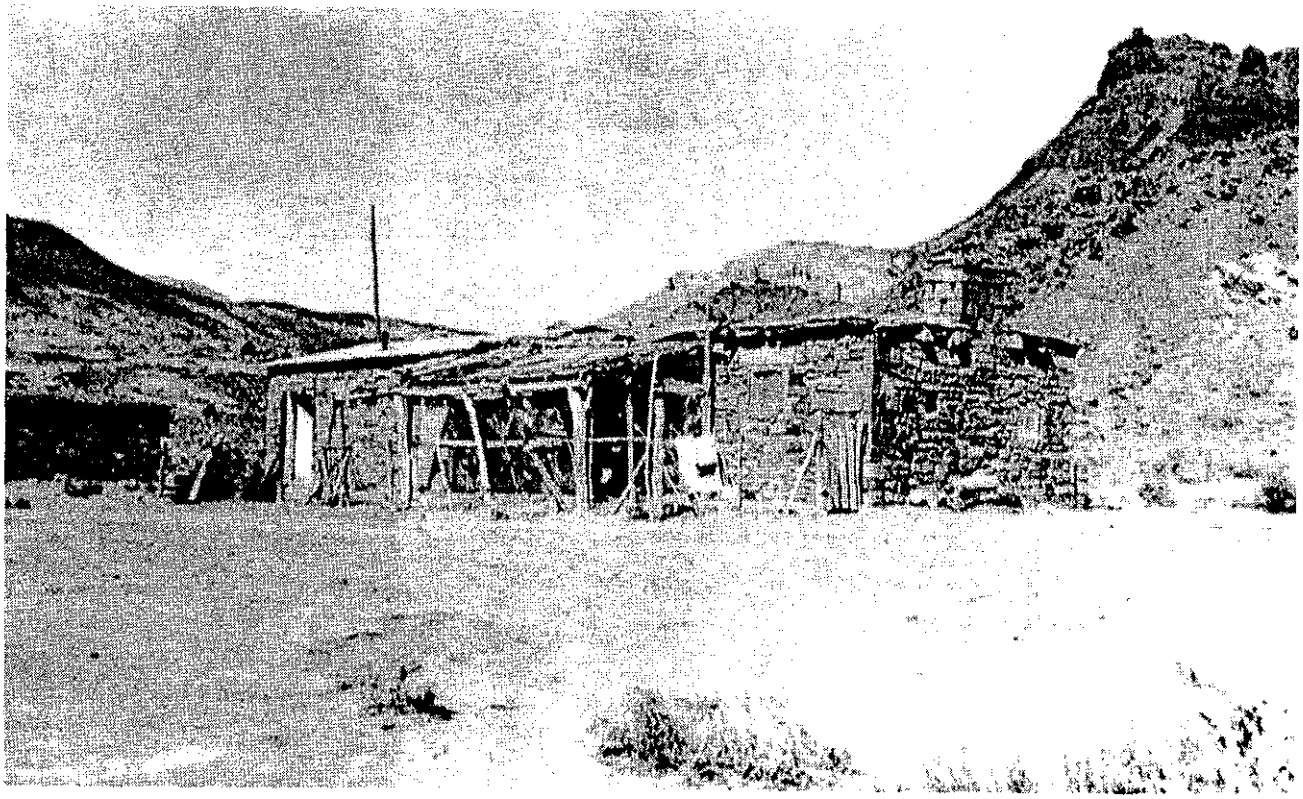
Photograph 175: Lee's Ferry Fort with willow bower, 1910 *Cline Library – NAU, P. T. Reilly Collection*



Photograph 176: Lee's Ferry Fort and part of the Post Office c. 1921. *Arizona State University*



Photograph 177: Lee's Ferry Fort, August 2, 1923 *Cline Library – NAU, P. T. Reilly Collection*



Photograph 178: Lee's Ferry Fort, summer 1935 *Cline Library – NAU, P. T. Reilly Collection*



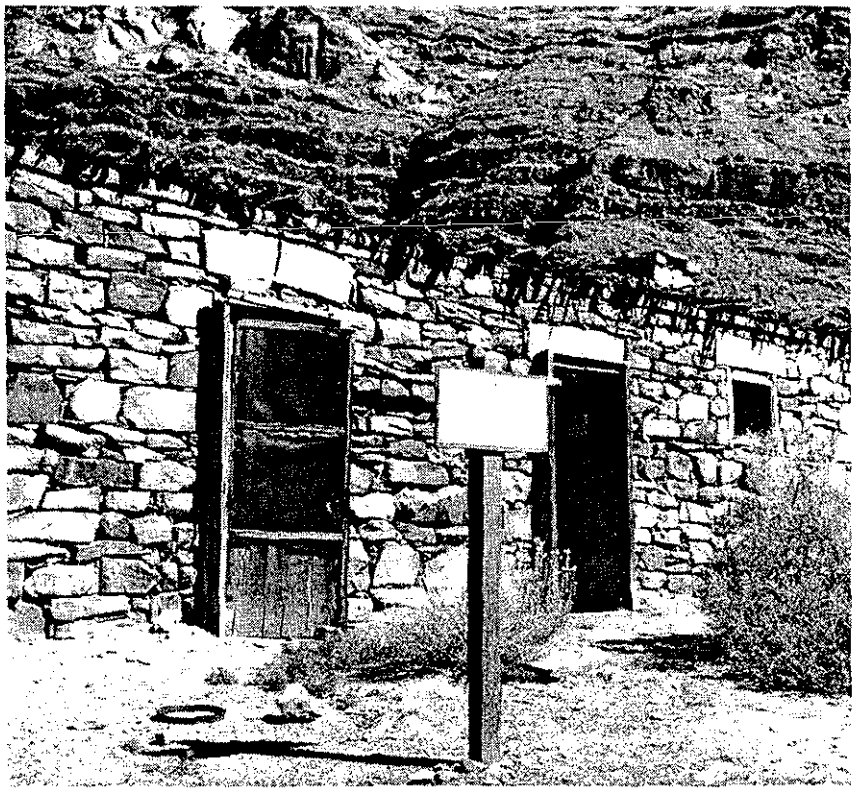
Photograph 179: Lee's Ferry Fort, 1936. *Southern Utah University, Palmer Collection*



Photograph 180: Lee's Ferry Fort with a partially demolished Spencer addition c. 1948.
niversity of Utah, Nevills Collection



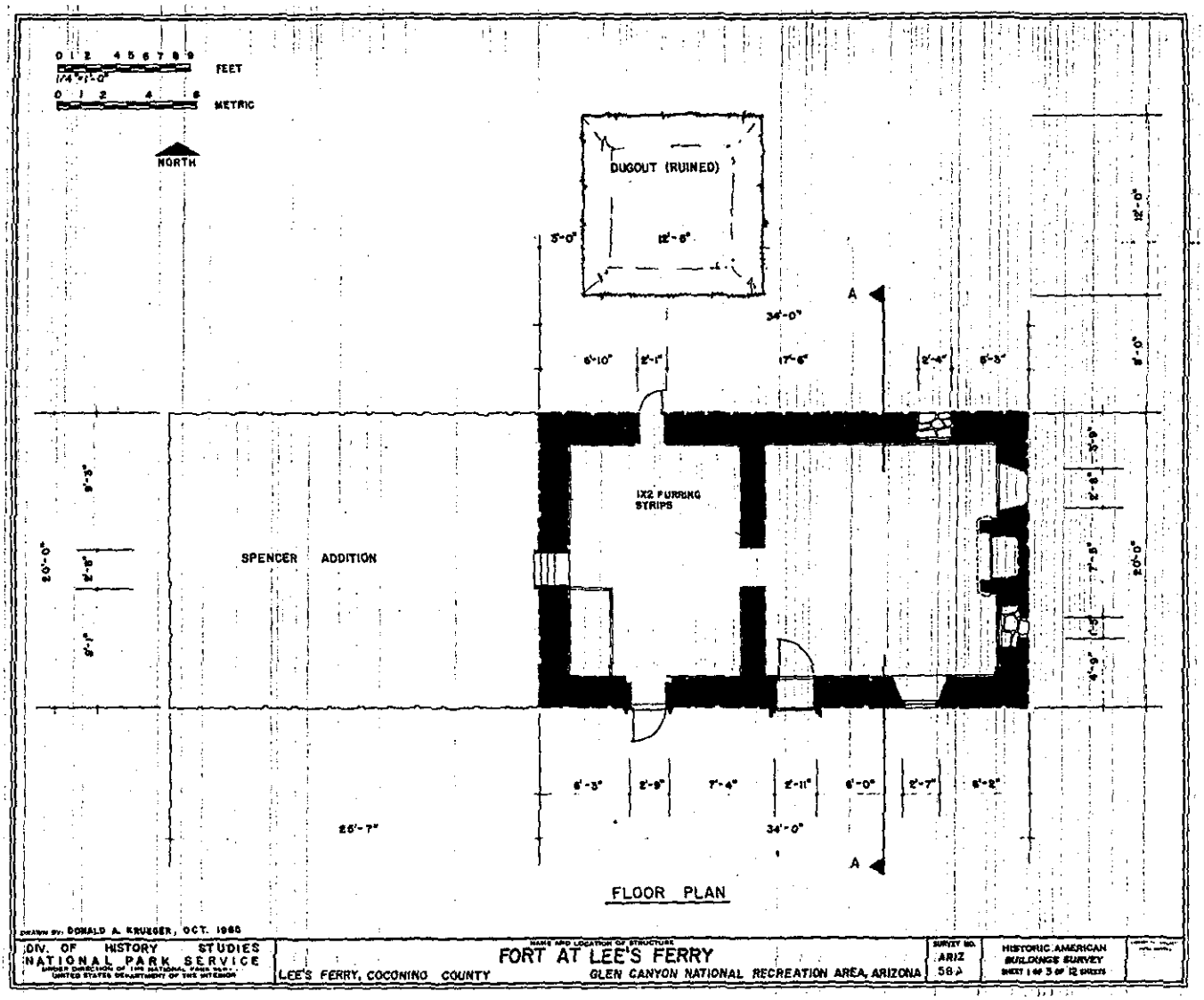
Photograph 181: Lee's Ferry Fort after abandonment c. 1959. Note Spencer addition with roof removed but otherwise intact. *University of Utah, Crampton Collection*

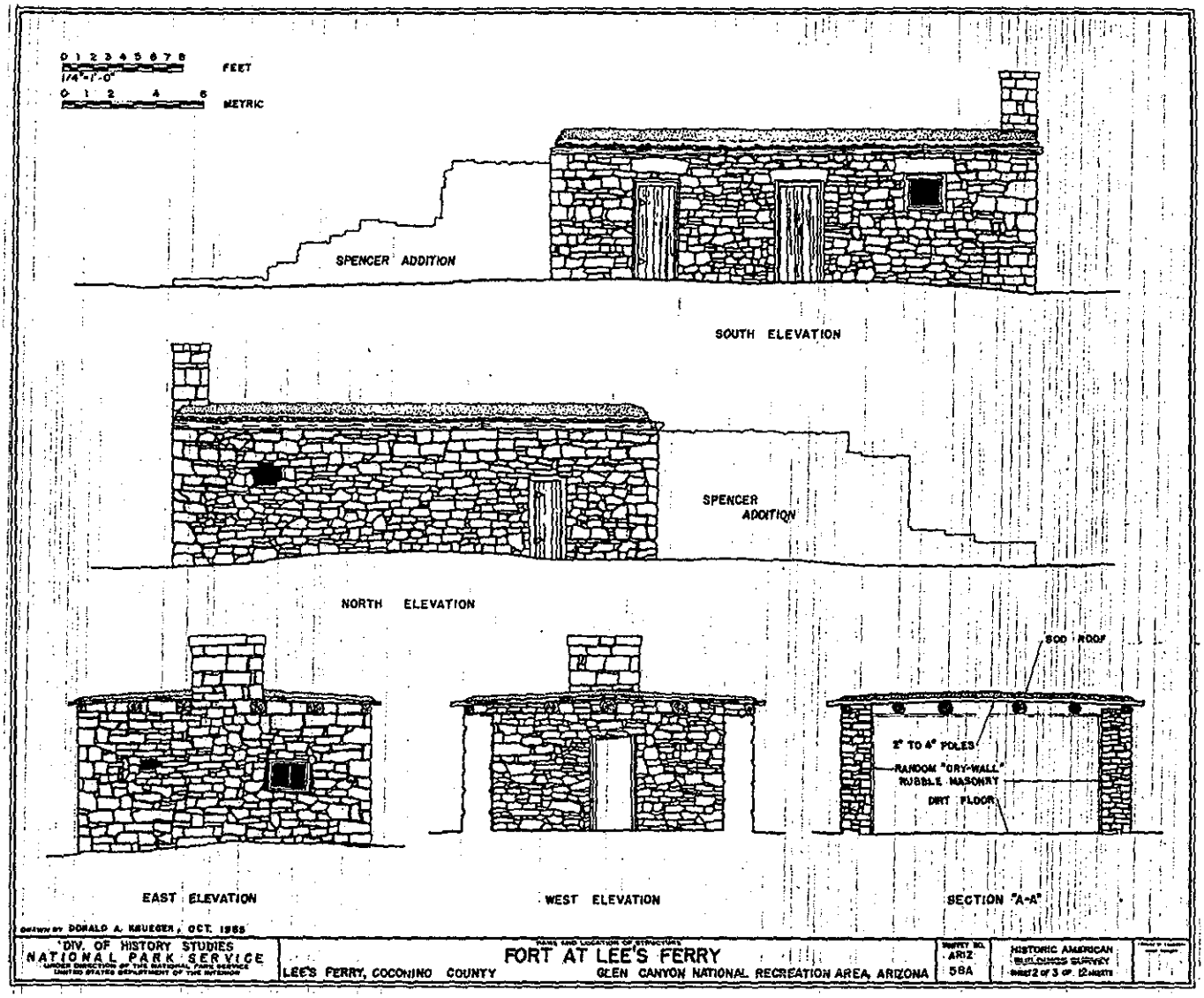


Photograph 182: Lee's Ferry Fort c. 1960s.

NPS/GCNRA Archives

HABS Drawings (1965) – Lee's Ferry Fort




0 1 2 3 4 5 6 7 8
1/4"-1'-0"
FEET
0 1 2 4 6
METRIC
SPENCER ADDITION
SOUTH ELEVATION
SPENCER ADDITION
NORTH ELEVATION
SOD ROOF
2" TO 4" POLES
RANDOM "DRY-WALL" RUBBLE MASONRY
DIRT FLOOR
EAST ELEVATION
WEST ELEVATION
SECTION "A-A"
DRAWN BY DONALD A. KRUEGER, OCT. 1965
DIV. OF HISTORY STUDIES
NATIONAL PARK SERVICE
UNDER DIRECTION OF THE NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
NAME AND LOCATION OF STRUCTURE
FORT AT LEE'S FERRY
LEE'S FERRY, COCONINO COUNTY
GLEN CANYON NATIONAL RECREATION AREA, ARIZONA
SURVEY NO. ARIZ 58A
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 2 OF 3 OF 12 SHEETS

Physical Description – Lee's Ferry Fort

Overview

Lee's Ferry Fort is a two-room, one-story stone building with a wood timber and dirt roof. An addition to the west end of the building lies in ruins. The original building measures approximately 20 feet by 34 feet in plan, and the addition to the narrow end extends the length by about 26 feet. The interior has a dirt floor and mud-plastered walls. The roof structure of timbers and poles is exposed to the interior. The addition is missing the roof and approximately two thirds of the walls.

The original building was a two-room structure of stone with a wood and earth roof. A single door provided an entry to the main room, which contained a fireplace and a passage to the second room. Windows were loop-holes for defensive purposes. An addition to the west end by Spencer appears to have been a single room, accessed by a new door opening made in the west wall in 1910.

Walls

The wall structure is of sandstone rubble laid in mud mortar, and now pointed with portland cement mortar. The interior is finished with mud plaster. Several of the window openings were restored to their size and appearance seen in earlier photographs (as loop-holes). The mortar used in these areas substantially matches the re-pointing mortar found elsewhere. In general, the walls of the original fort appear stable and in good condition, except for erosion of the interior mud plaster wall finish where the roof has been leaking (Photograph 197). This condition is particularly acute above the fireplace at the east wall (Photograph 193). The walls of the Spencer addition were never completely demolished, but what remains lies in ruins, unprotected by any roof. The stones of the addition were evidently set in mud mortar and then later (USGS era?) repointed with portland cement. A portion of the south wall in the Spencer addition is today supported only on wood window frames; this area may be prone to collapse as the wood weathers (Photograph 187). All of the remaining walls of the addition are subject to erosion and moisture saturation of the mortar joints through absorption of water into the top, which may then be retained by the (non-breathable) portland cement. This condition, uncorrected, will ultimately lead to deterioration and gradual loss of historic and structural integrity.

Doors

There are two door openings at the south side of the original fort. Large lintel stones span each opening. The west opening appears to have originally been a gun-port window similar to the remaining loopholes (Photograph 192). The present door assembly includes 1 x 16 jambs supporting a lintel of two 2 x 8s. The space above is filled with an additional 12" of stone masonry supported on the wood lintel, which is now sagging substantially. The sill is composed of three 2 x 8s, side by side. At the interior, the jambs of the top two feet of the opening are splayed, reflecting its original function as a loophole. The door within the opening is built up of four planks on a "Z" frame. The east door consists of a modern sheet of plywood within a frame of 1x wood boards. The frame is boxed out such that it projects forward about 6" from the face of the stone wall (Photograph 188). While the plywood is obviously a temporary feature, the frame was probably modified by Spencer in order to accommodate a new door and an outward swinging screen door. Today this frame is in deteriorating condition due to insect and water damage. A wood plank door is stored inside the building (Photograph 196); early hardware is in evidence, consistent with dating this door to 1910-1920, e.g. the Spencer period. At the west wall of the original fort, a door was cut into the masonry in order to gain access to the Spencer addition. A composite wood lintel composed of a 2 inch thick and a 1 inch thick piece of lumber nailed together supports this opening. This lintel is sagging, although there is little damage as of yet to the stone masonry

above. There is no door, but the opening is protected by vertical iron pipes set in a 3 x 12 frame in order to allow public viewing while providing security. There is no screening or other feature that will keep out bats, which apparently inhabit the building (see following discussion regarding roof structure). One additional door was cut into the north side of the building, directly adjacent to the Root Cellar location. The door is narrow and short, and is presently boarded up with 1" thick dimensional lumber. The frame is of 2 x 12 construction. The lintel is warped and sagging, and much of its face shows significant termite damage. There is some loosening of stones above the lintel (Photograph 189).

Windows

Four loophole windows are provided in the main room of the fort. These were enlarged to full windows in 1899, and then restored by NPS back to loop holes in 1976-7 (Photograph 195). There are no frames or enclosures of any kind at these features. Bats evidently gain access through them. The Spencer addition has a number of remains of original wood windows in place in the ruined walls. One of the windows is warping, its lintel supporting a remaining roof beam.

Roof

The roof structure of the original part of the fort consists of five large poles running lengthwise (east-west) at the west room and six logs running the same direction at the east room, avoiding the centered fireplace at the east end. Two of the beams rest atop the north and south walls; an interior bearing wall supports the other beams at the center of the building. Tapered pole latillas, tapering from about four inches to about eight inches in diameter, span between the major poles in alternating directions (Photograph 190). While the major poles are weathered gray and may be original, the thinner secondary poles appear to be new except for the center bay of the east room. The space between the smaller poles at the eaves is chinked with mud. Much of this chinking has fallen out, allowing bats to enter and live inside. The result of this bat infestation is a continuing deposition of guano, primarily on wall surfaces and on the floors. One of the major log beams has failed in the west room and is now supported at the point of failure by a 4 x 4 post (Photograph 198). The resulting low spot in the roof has caused a severe and worsening moisture problem by retaining ponding water, which eventually leaks through the roof assembly into the interior of the building (Photograph 191). This condition will also lead to progressive failure of this entire area of roof structure.

The fireplace is of unlined stone masonry. A metal mantel assembly has been constructed over the fireplace opening out of sheet metal and angle iron (Photograph 194).

The floors are dirt. This is evidently the original condition, never changed.

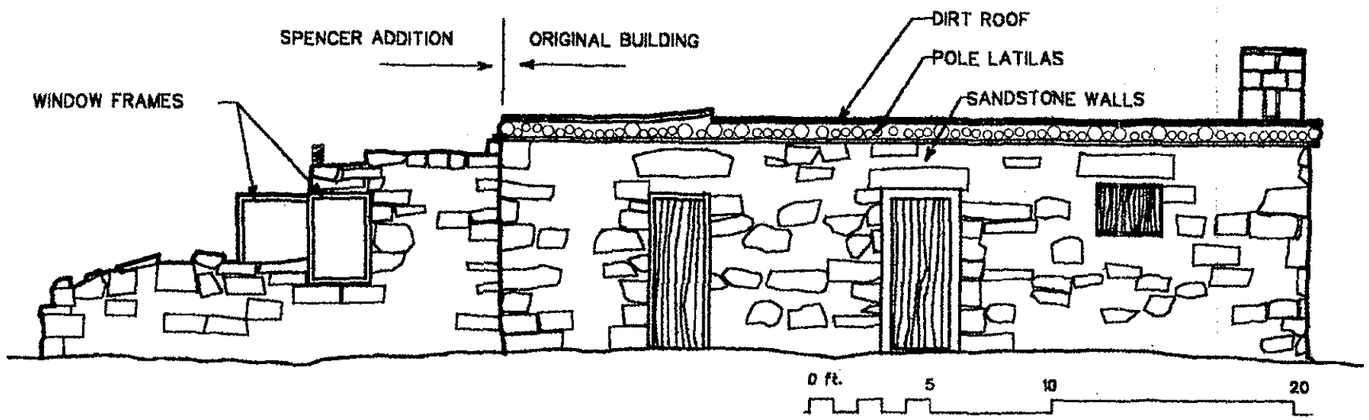


Figure 49: Lee's Ferry Fort South Elevation

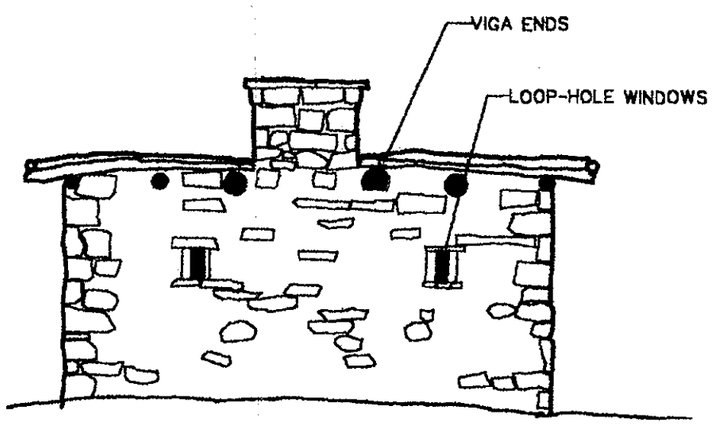


Figure 50: Lee's Ferry Fort East Elevation

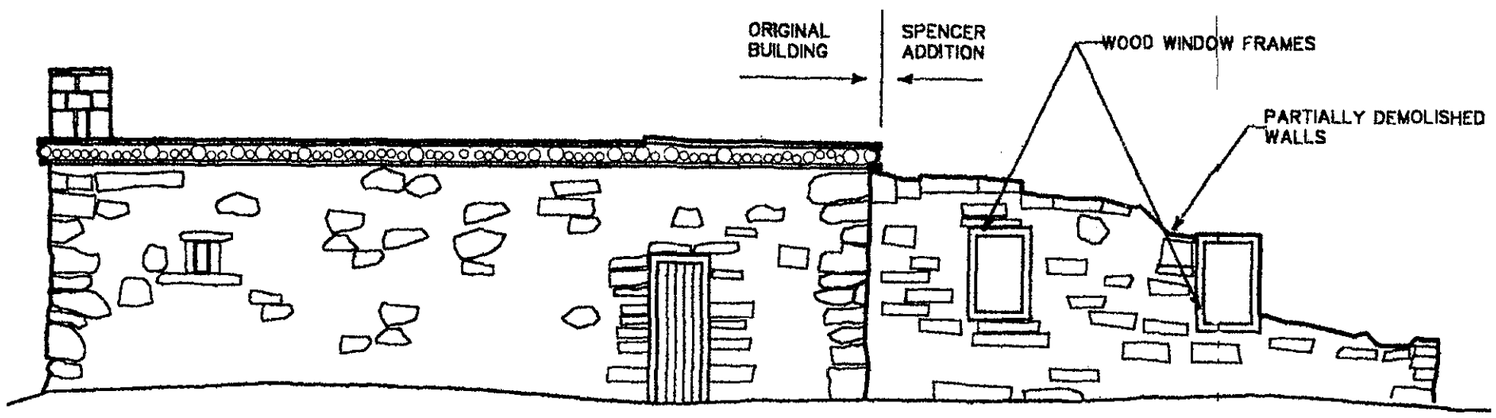


Figure 51: Lee's Ferry Fort North Elevation

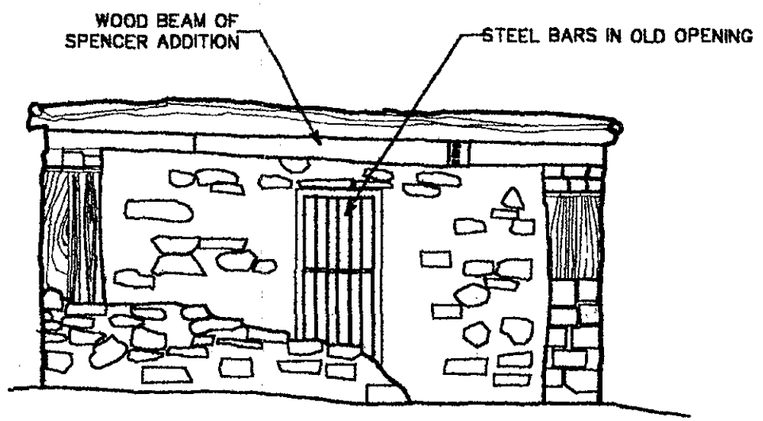


Figure 52: Lee's Ferry Fort West Elevation

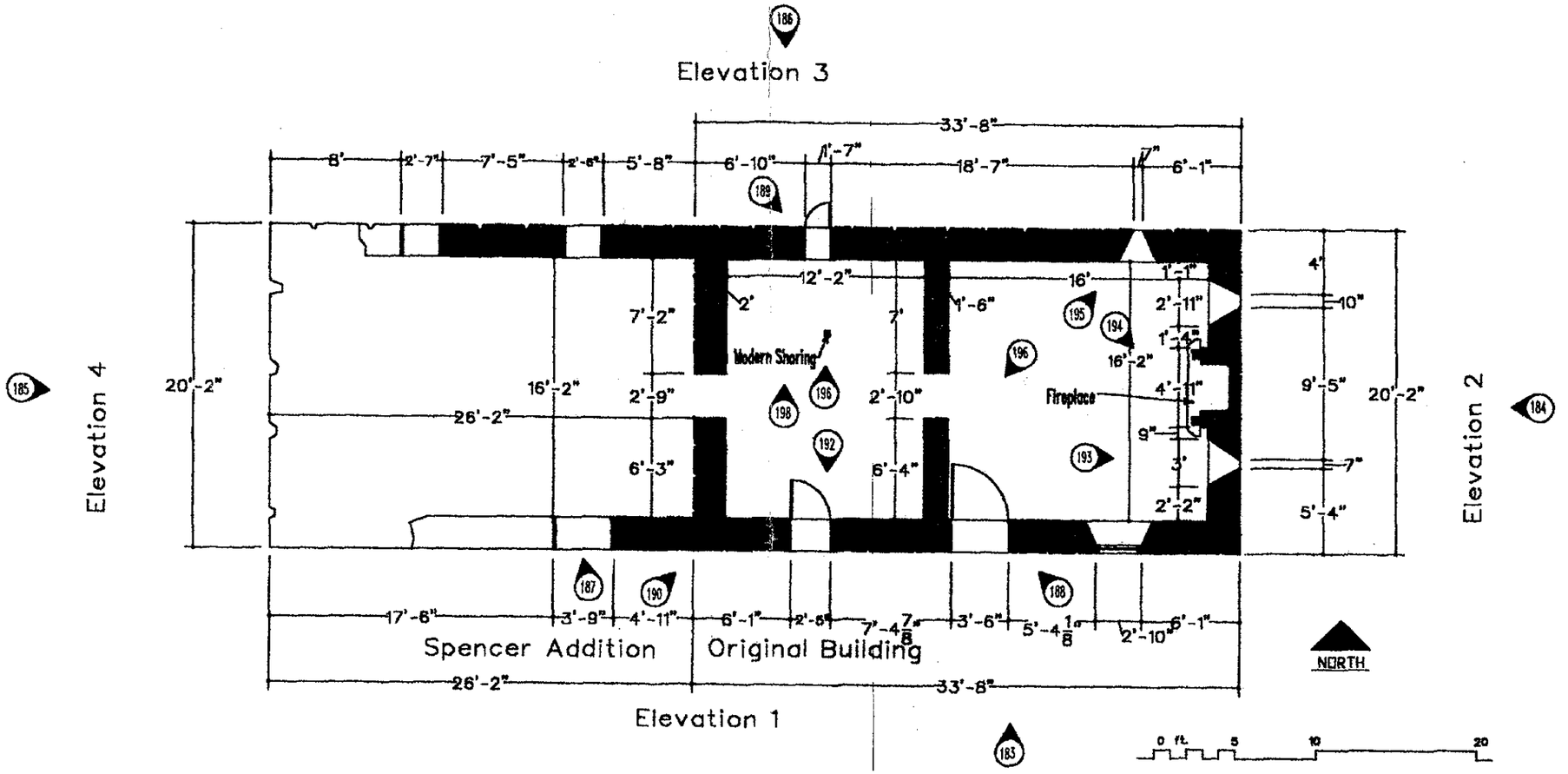


Figure 1: Lee's Ferry Fort Floor Plan

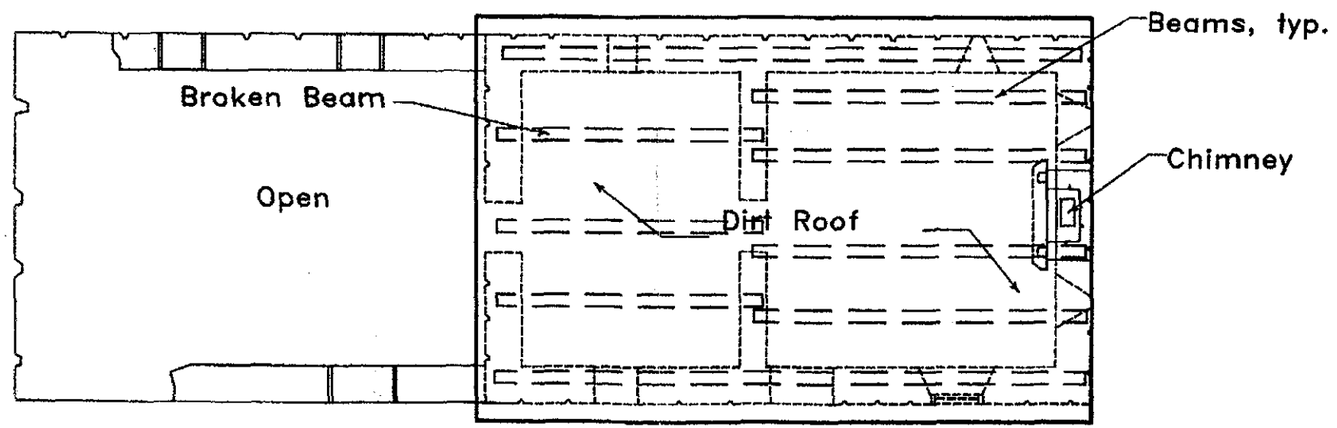
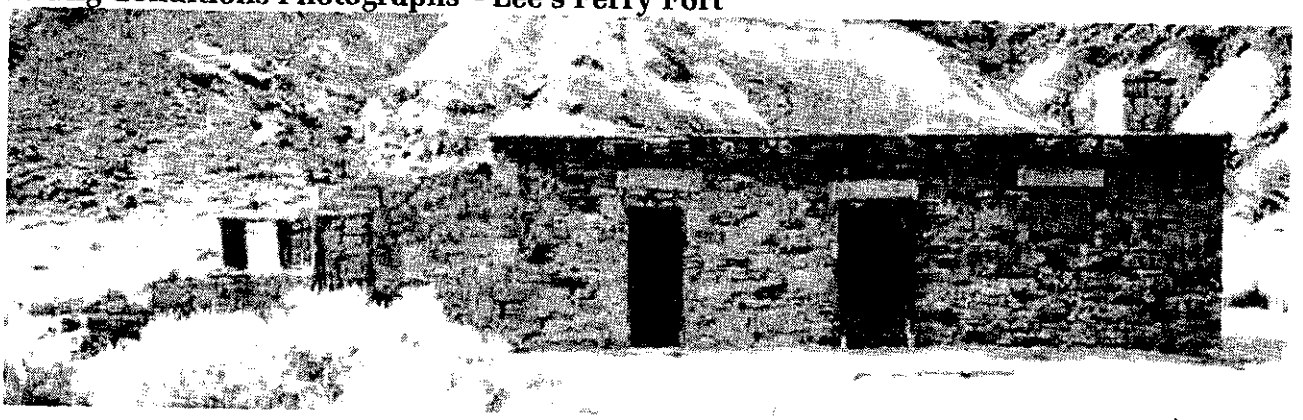
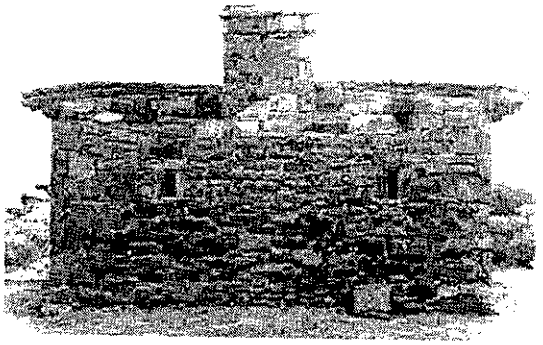


Figure 2: Lee's Ferry Fort Roof Plan

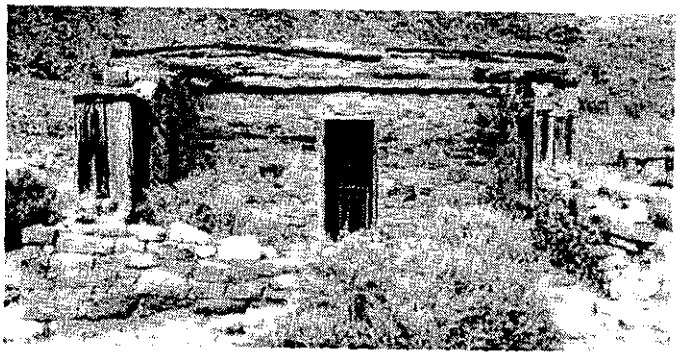
Existing Conditions Photographs – Lee's Ferry Fort



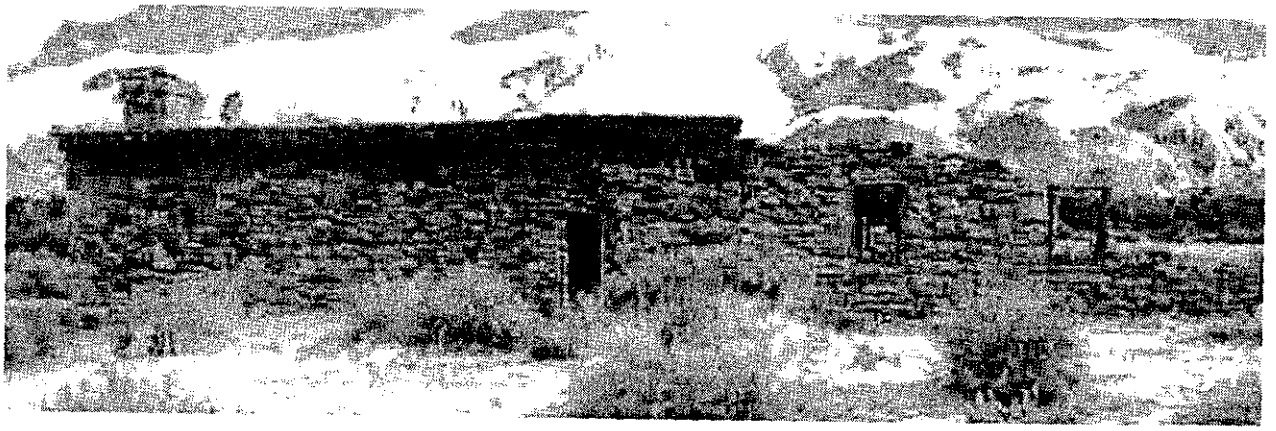
Photograph 183: Lee's Ferry Fort, South Elevation



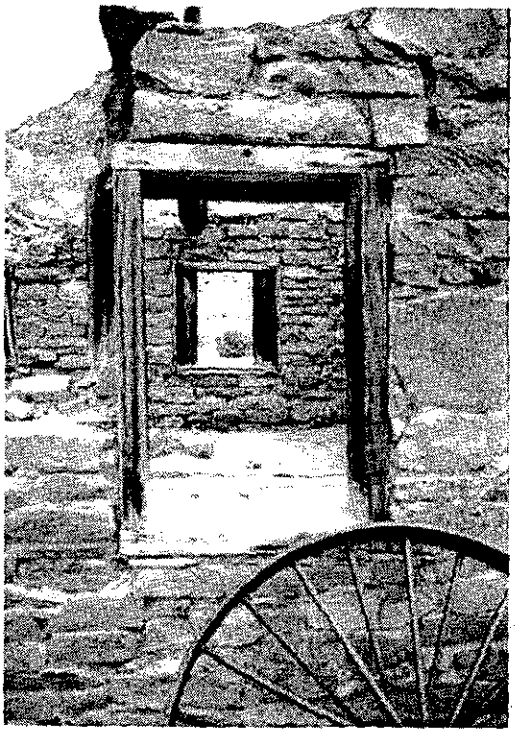
Photograph 184: Lee's Ferry Fort, East Elevation.



Photograph 185: Lee's Ferry Fort, West Elevation



Photograph 186: Lee's Ferry Fort, North Elevation



Photograph 187: Spencer Addition window frame supporting stones



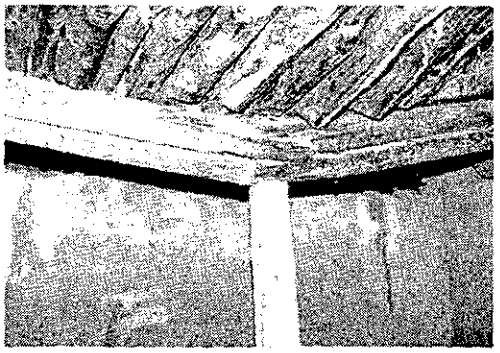
Photograph 188: Entry door at main Fort building



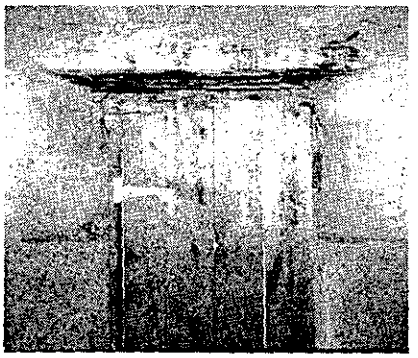
Photograph 189: Lintel at rear door.



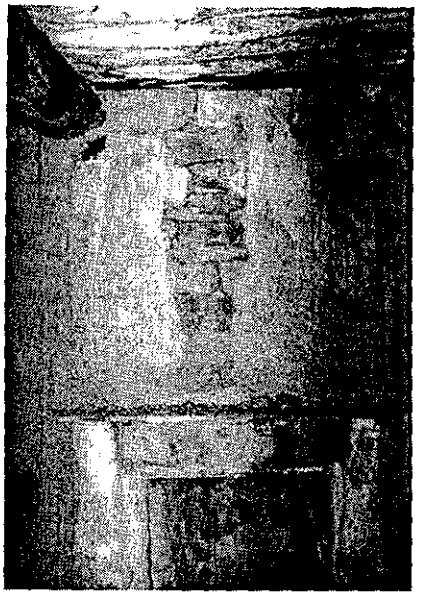
Photograph 190: Condition at reconstructed eaves.



Photograph 191: Collapsing roof structure supported on shoring.



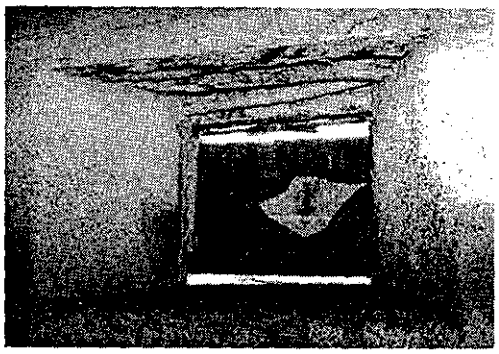
Photograph 192: Interior of door converted from old loop-hole



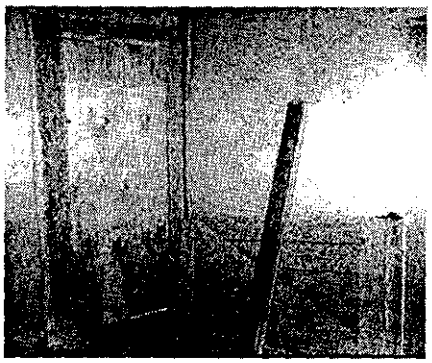
Photograph 193: Wall erosion above fireplace



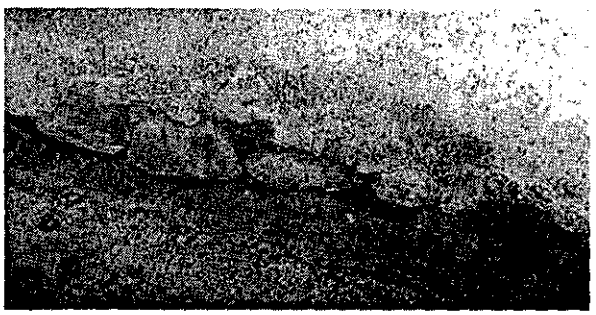
Photograph 194: Fireplace and metal shelf.



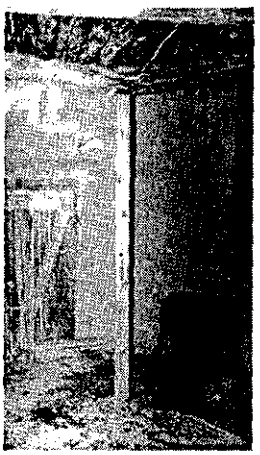
Photograph 195: Interior of typical loop-hole window.



Photograph 196: Entry door stored inside Fort.



Photograph 197: Erosion at base of interior side of wall.



Photograph 198: Structural shoring in the west room.

Outline Chronology – Lee's Ferry Fort

DATE	EVENT
1874	Building constructed as Fort, but used as trading post. Completed in July[139]
1875	Trading post closed[140]
January 1876	Warren Johnson moves into Fort[141]
March 1876	Warren Johnson occupies Fort with his family (two wives, four children)[142]
1889	Brown-Stanton expedition occupy Fort[143]
1898	Nathaniel Galloway takes up residence in Fort[144]
1899	Robert Stanton works on Fort for assessment purposes; removes flagstones that transformed windows into loopholes[145]
1900	Fort used briefly as home for John Emett and wife Sarah Ellen Wooley[146]
1910	Spencer sets up Fort as Mess Hall[147]
1911	Spencer addition for cook and food supplies; fort used as mess hall; soon abandoned[148]
1921	Irving G. Cockroft & wife Margery Cockcroft move into fort[149]
1923	Jim Klohr moves into vacated fort[150]
1924	I.G. "Rudy" Kasel joins Klohr as assistant; joins him in residence at fort[151]
1928	Used as residence for visiting engineer Baumgartner[152]
July-November 1931	Spencer employees set up lab inside (Spencer-Treadwell mining operation)[153]
1932	Al, Pete, & Ada Nelson live in fort[154]
1942	Frank Dodge disassembles part of Spencer addition[155]
March 1966	HABS documentation, interior of wood structure treated with epoxy[156]
1967	USGS demolishes many Spencer buildings; partial demolition of Fort addition probably occurs.
1976-77	NPS stabilization program, walls stabilized, roof treated[157]
1996-97	Roof beam fails; NPS installs temporary support

---

[139] Reilly, Lee's Ferry, p. 49-50.
[140] Ibid., p. 58.
[141] Ibid., p. 61.
[142] Ibid., p. 63.
[143] Ibid., p. 116-119.
[144] Ibid., p. 169.
[145] Ibid., p. 178.
[146] Ibid., p. 180.
[147] Ibid., p. 228.
[148] Ibid., p. 242; see also p. 228
[149] Ibid., p. 283.
[150] Ibid., p. 303.
[151] Ibid., p. 305.
[152] Ibid., p. 327.
[153] Ibid., p. 355. See also p. 352 and 348.
[154] Ibid., p. 356.
[155] Ibid., p. 419.
[156] Ibid., p. 451.
[157] Ibid., p. 458.

HS-221, American Placer Corporation Office

Chronology of Development and Use

Although often called the Post Office, this building was used as such only for about two years in the twenties. It was constructed in 1911 as the office headquarters building for Charles Spencer's American Placer Corporation.[158]

Charles Spencer's use of the building as offices was short-lived. Spencer abandoned the site in late 1911, with intent to return. The building was probably vacant or used as storage after abandonment.

In 1922, the Lee's Ferry Post Office (which had been discontinued in 1914) was reestablished in the American Placer Corporation office with Margery Cockcroft, the USGS Chief Hydrogropher's wife, as Postmaster. The Post Office was again discontinued in 1923 after less than one year in operation.[159]

During construction of the Navajo Bridge across Marble Canyon, some steelworkers were reported to have been housed in the Post Office.[160] As the bridge was completed in January, 1929, this use ended.

Charles Spencer reappeared at the site in 1931 and a part of the Spencer-Treadwell mining operations was located in the Post Office. This return was again short-lived, however, and the building was abandoned again in the same year.[161]

The uses of the Post Office between 1931 and 1967 are not known, but the site was occupied during this time by the USGS. They probably used the building for storage or a transient residence.

Because the original post office at Lee's Ferry was established in 1879, this building was classified as a 19th century building by Crampton and Rusho in 1965. This error may have saved the building from destruction, as most of the other Spencer buildings were demolished in 1967 by the USGS while other buildings were spared.[162]

By 1967, a portion of the north wall had collapsed. A team led by Roland Richert of the Ruins Stabilization Unit, Southwest Archeological Center, NPS documented existing conditions at that time and performed emergency repairs to the building. The work done included disassembly and reconstruction of the loose face stones and wall core on the sides and above the north window. In performing this work, a steel member 5'-9" long, ½" thick, and 4" wide was concealed within the wall assembly immediately under the north end of the ridge beam. The work was carefully done, to the extent of color-matching the mortar used to the color of the existing mortar.[163]

A major stabilization effort was initiated at Lee's Ferry by the Park Service Ruins Stabilization Unit in 1976. The work done included disassembly of the roof system, epoxy treatment of the major timber, replacement of the secondary roof members, repointing of the weathered mortar joints, and installation of new rolled

---

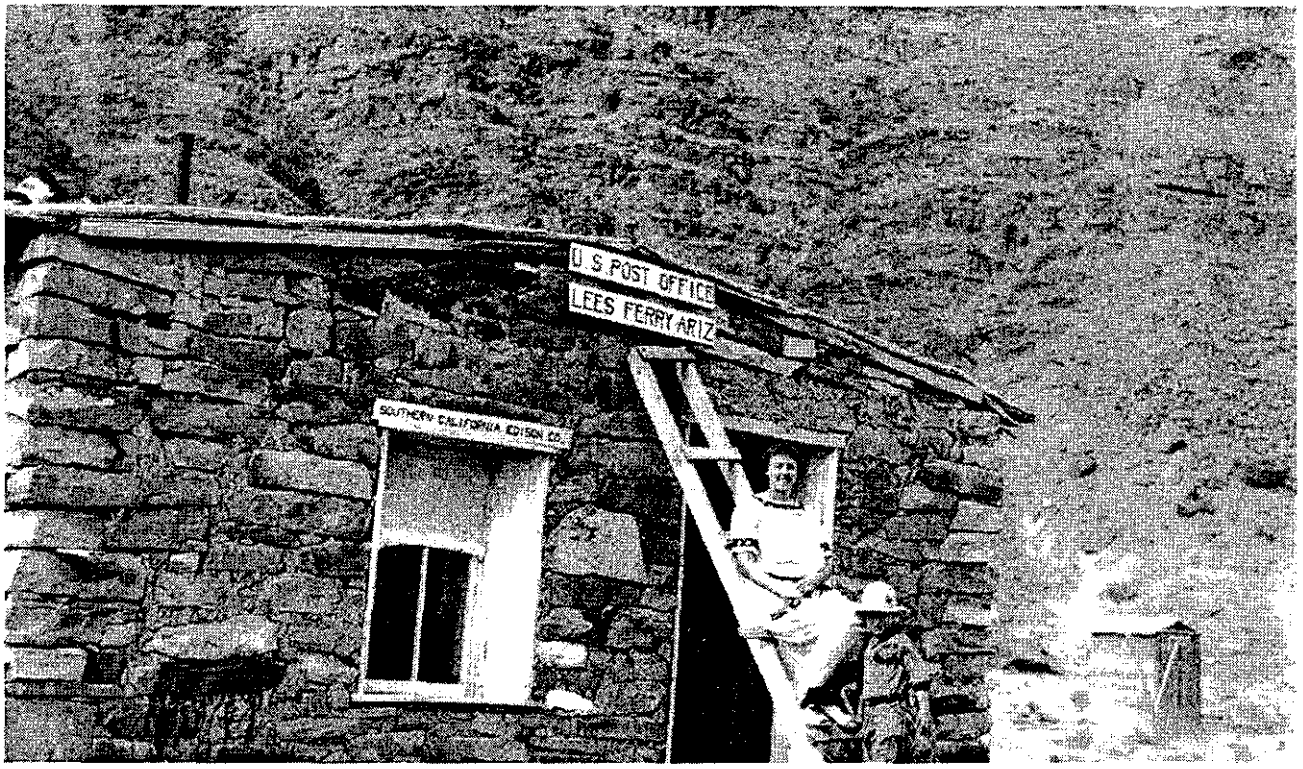
[158] Reilly, Lee's Ferry, p. 242.
[159] Ibid., p. 297.
[160] Ibid., p. 326.
[161] Ibid., p. 348.
[162] C. Gregory Crampton and W.L. Rusho, A Report on the History of Lee's Ferry, Arizona (Salt Lake City: Prepared for the National Park Service, 1965).
[163] Roland Richert, Ruins Stabilization Report, The Old Post Office, Lee's Ferry (Globe: NPS Southwest Archeological Center, 1967), p. 1.

roofing covered with a layer of soil.[164]

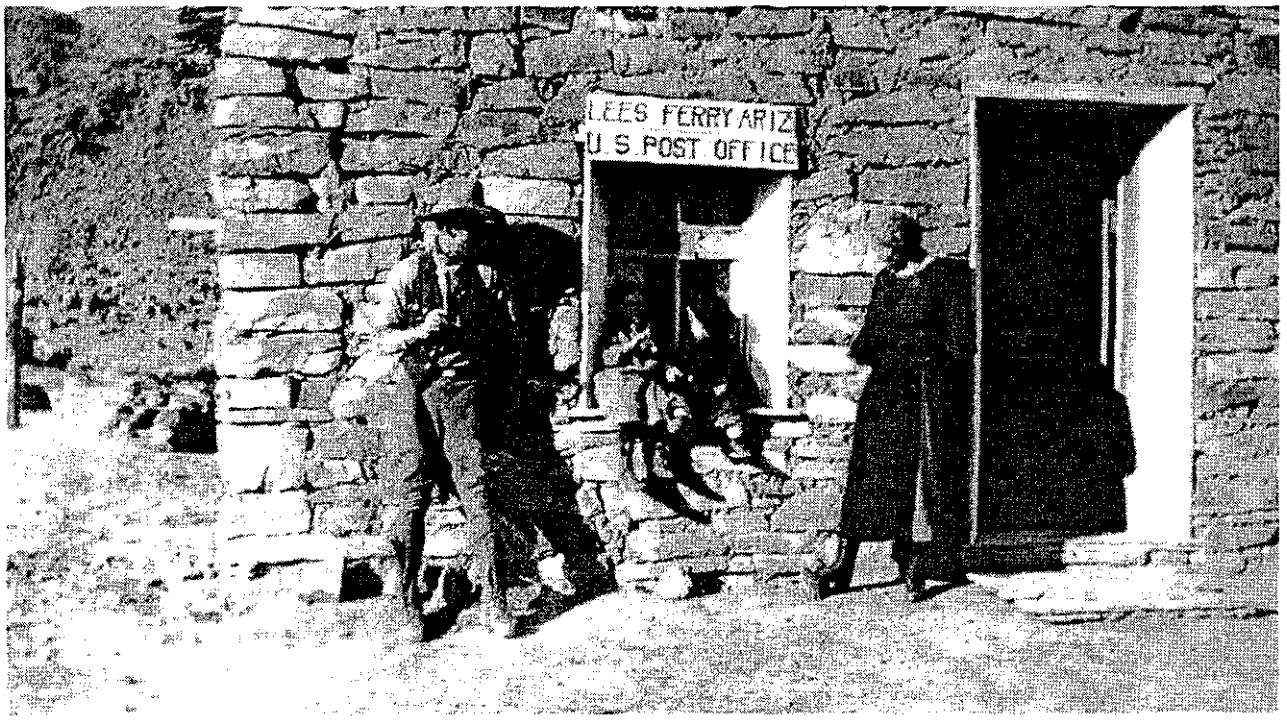
The building is used as an interpretive feature of the Lee's Ferry site. It is presently interpreted as an early building related to the establishment of the first Lee's Ferry post office.

[164] GLCA Administrative History – Lee's Ferry – History and Development, collection #17516, Folder 13, Lee's Ferry 1977 stabilization GLCA Archives, Page.

Historical Photographs – American Placer Corporation Office

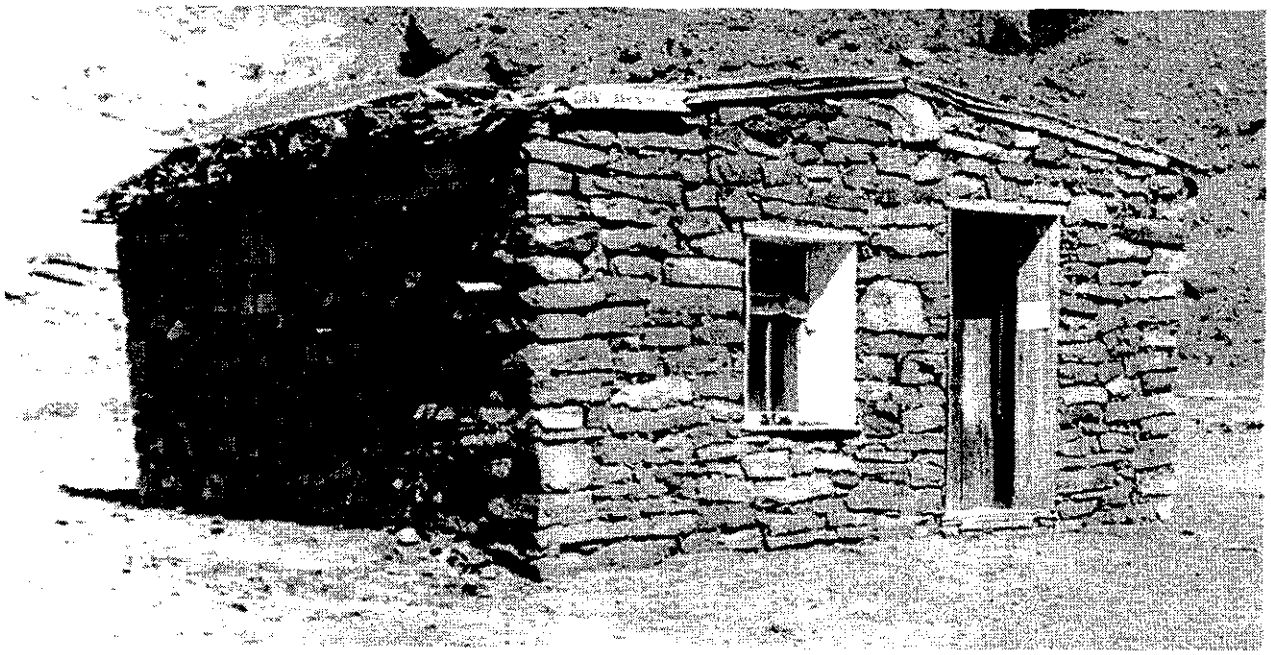


Photograph 199: Margery Cockcroft at the APC Office, June, 1923 *Cline Library – NAU, P. T. Reilly Collection*

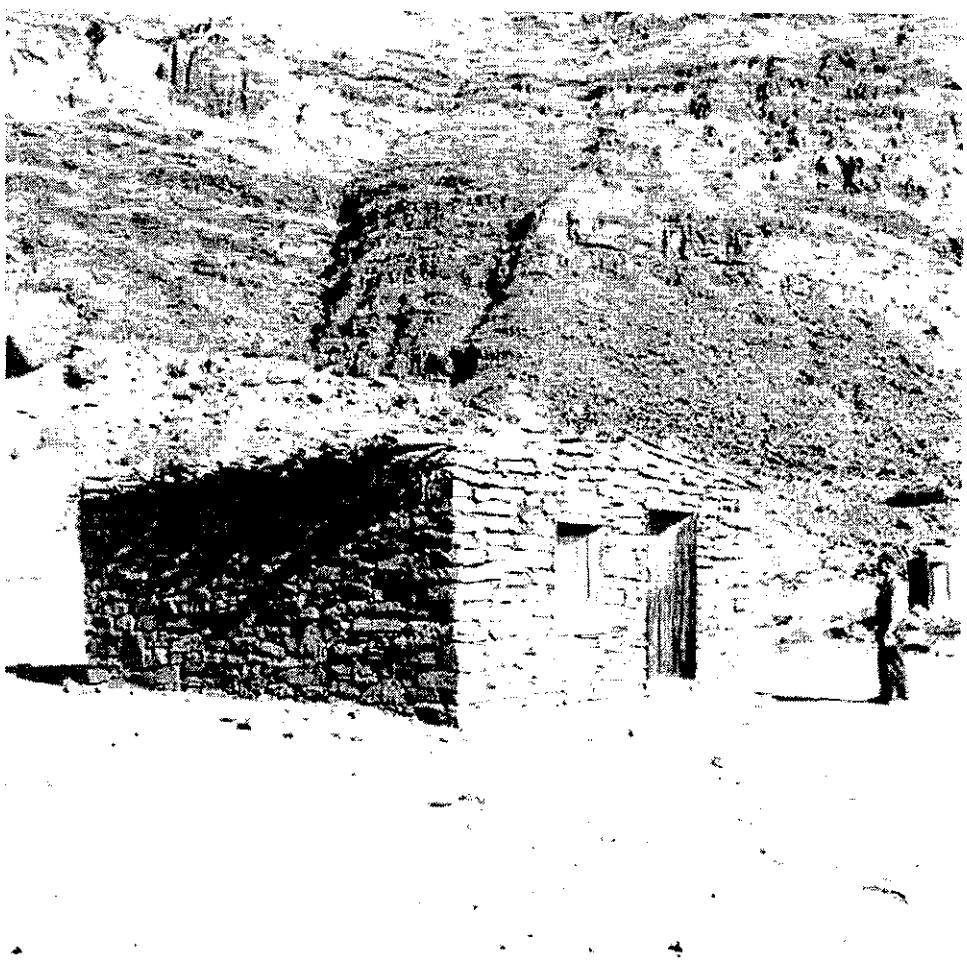


Photograph 200: Jim Klohr (& family?) at the APC Office, c. 1923

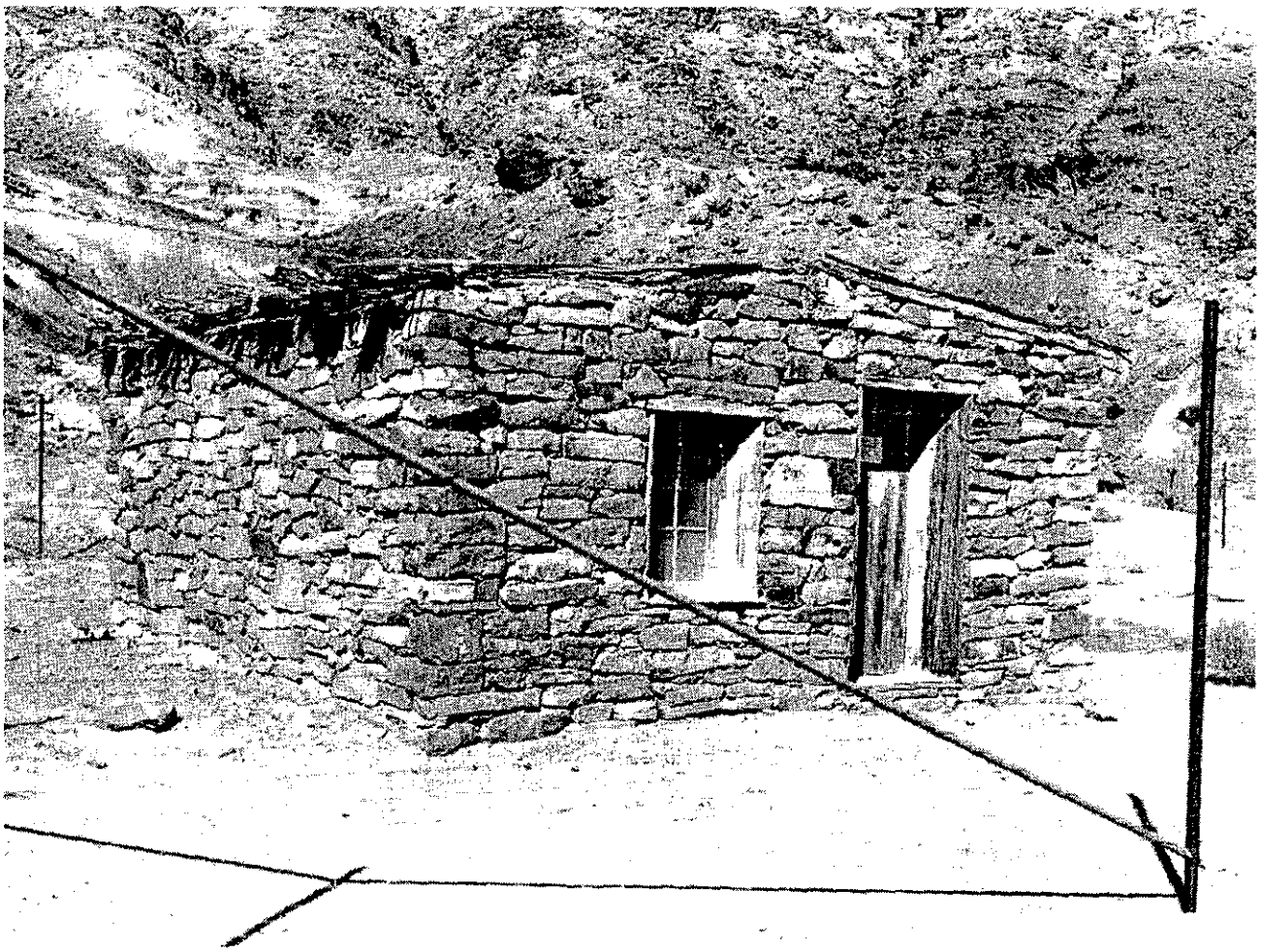
Cine Library – NAU – P. T. Reilly Collection



Photograph 201: APC Office c. 1931. *Cline Library – NAU, P. T. Reilly Collection*

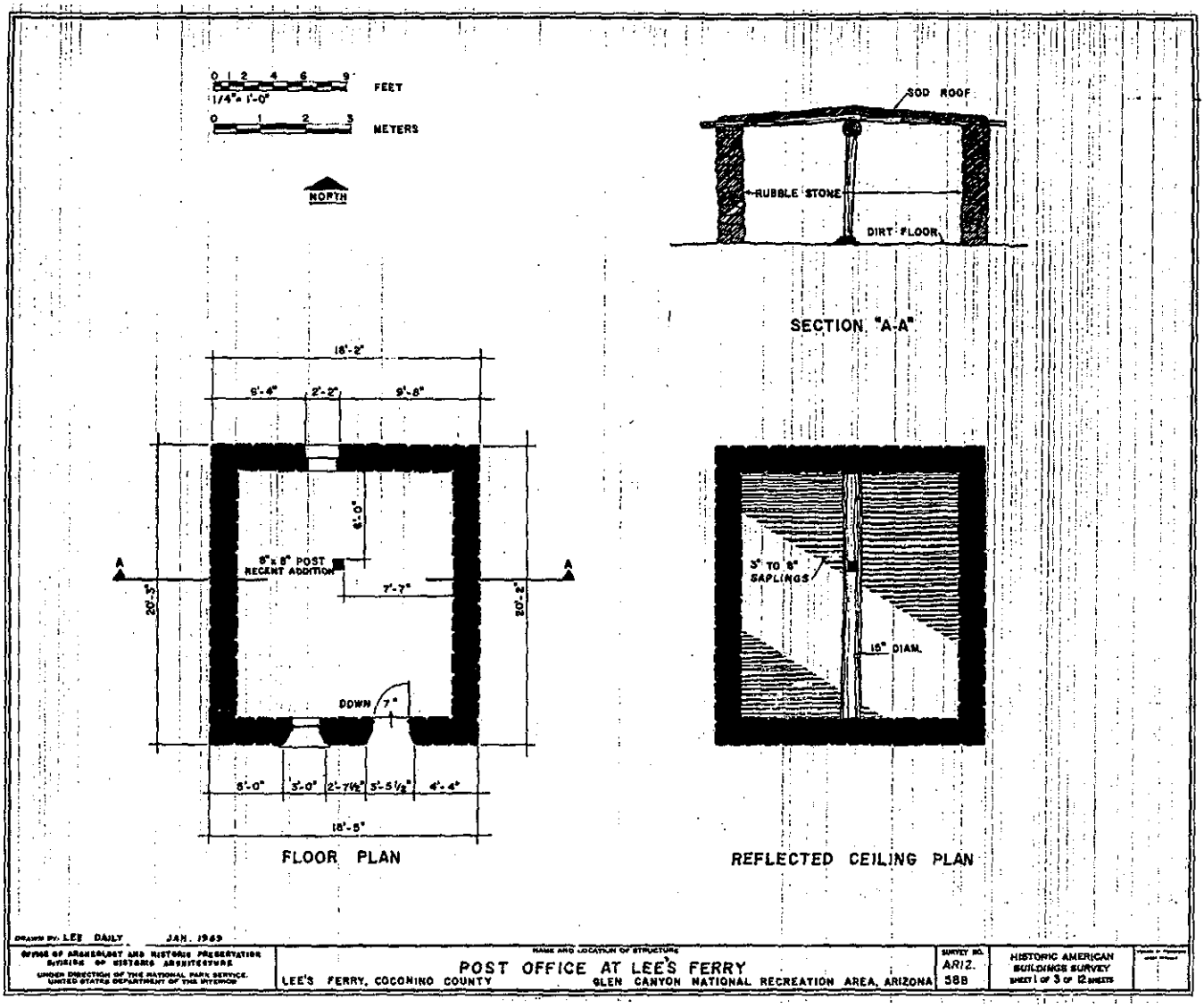


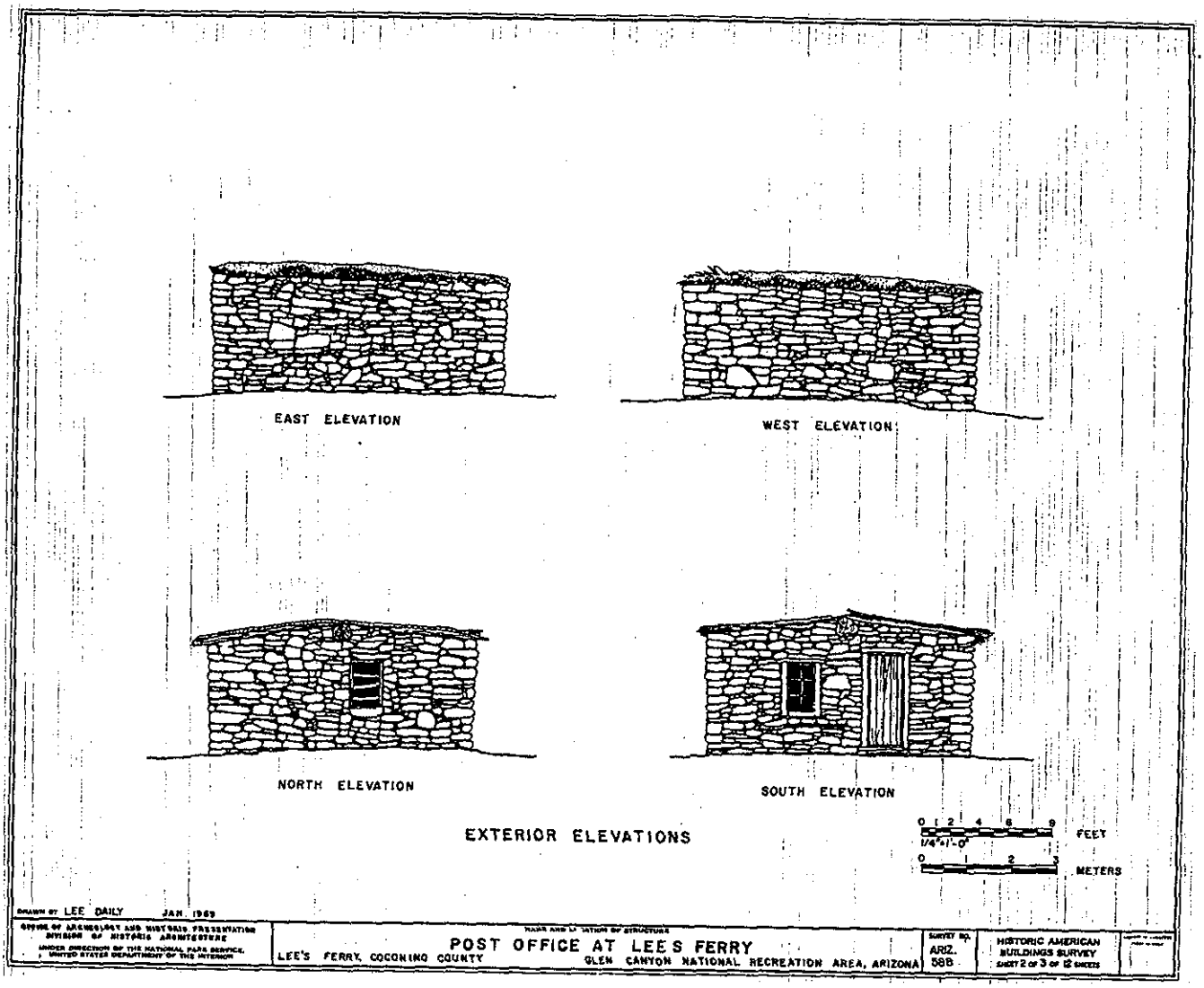
Photograph 202: APC Office as it appeared c. 1964 *University of Utah, Crampton Collection*

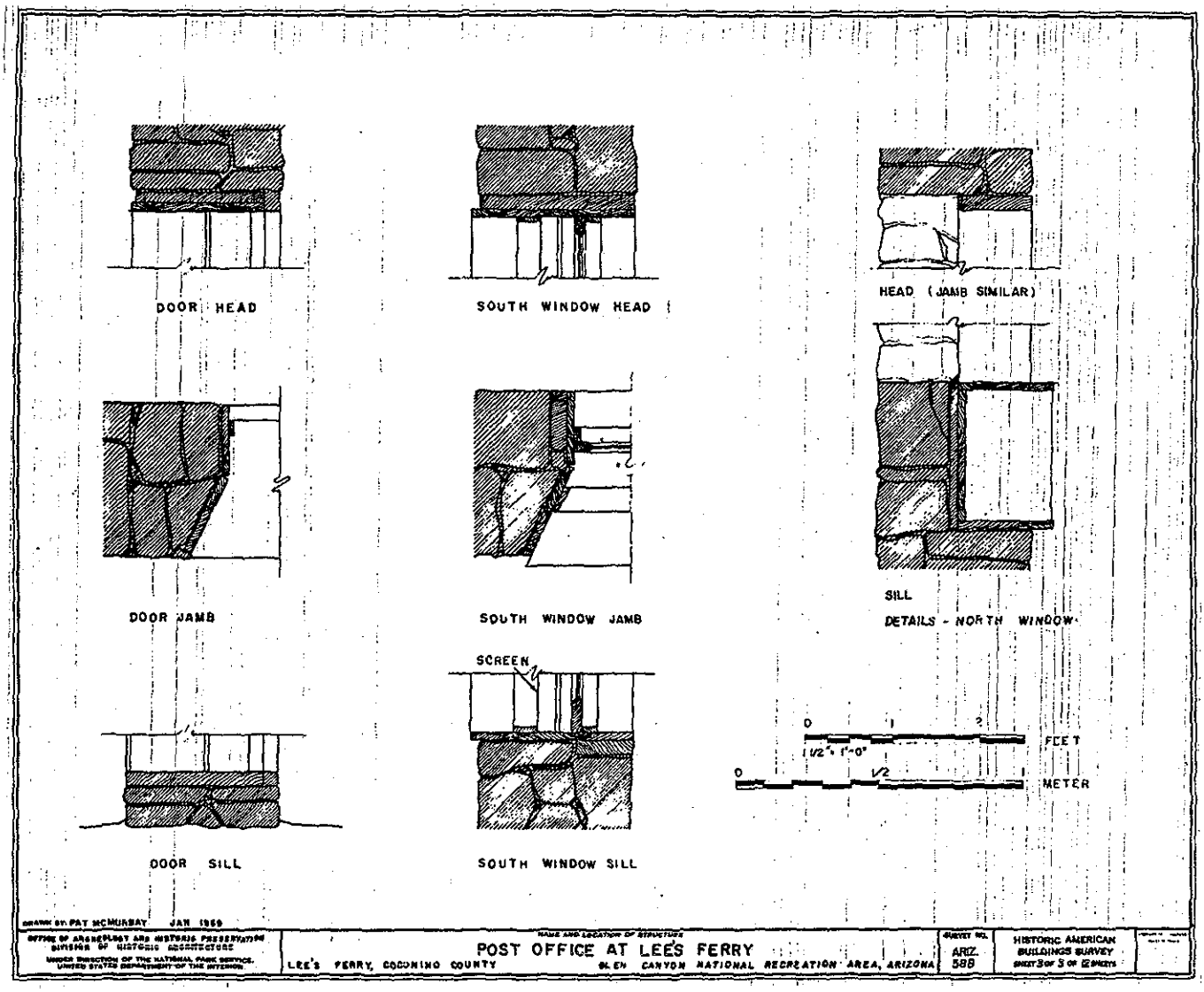


Photograph 203: Post Office as it appeared c. 1967. *NPS/GCNRA Archive*

HABS Drawings (1969)




EAST ELEVATION
WEST ELEVATION
NORTH ELEVATION
SOUTH ELEVATION
EXTERIOR ELEVATIONS
0 1 2 4 6 9
1/4"=1'-0"
FEET
0 1 2 3
METERS
DRAWN BY LEE DAILY JAN. 1969
POST OFFICE AT LEE'S FERRY
LEE'S FERRY, COCONINO COUNTY
GLEN CANYON NATIONAL RECREATION AREA, ARIZONA
ARIZ. 58B
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 2 OF 3 OF 12 SHEETS


DOOR HEAD
SOUTH WINDOW HEAD
HEAD (JAMB SIMILAR)
DOOR JAMB
SOUTH WINDOW JAMB
SILL
DETAILS - NORTH WINDOW
SCREEN
0 1 2
FEET
1/2" = 1'-0"
0 1/2 1
METER
DOOR SILL
SOUTH WINDOW SILL
DRAWN BY PAT MCMURRAY JAN 1959
OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
DIVISION OF HISTORIC ARCHITECTURE
UNDER DIRECTION OF THE NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
NAME AND LOCATION OF STRUCTURE
POST OFFICE AT LEE'S FERRY
LEE'S FERRY, COCONINO COUNTY GLEN CANYON NATIONAL RECREATION AREA, ARIZONA
SURVEY NO.
ARIZ. 59B
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 3 OF 5 OF 12 SHEETS

Physical Description – American Placer Corporation Office

Overview

The American Placer Corporation Office is very similar in construction to the Lee's Ferry Fort. The building is a single story with a rectangular plan, 18 feet by 20 feet. Walls are of stone. The roof structure is timbers and poles topped with dirt. There is a single door opening on the south, and window openings north and south. The interior has a dirt floor, mud-plastered walls, and exposed roof structure.

Walls

The walls of the Office are of uncoursed random rubble sandstone. Wall thickness is from 21" to 26", in a double-wythe configuration with a core of rubble and soil mortar. The stone blocks were laid originally in mud mortar but are presently pointed with portland cement mortar. There are numerous vertical cracks at the west wall. Most are hairline cracks, spaced irregularly throughout the length of the wall. The largest, occurring about three feet from the north end of the wall, is about 3/16" at the top, tapering to zero at the base (Photograph 210). An annual inspection by NPS in 1984 indicates that the crack was present then. A similar, smaller crack near the center of the wall is about 1/8" wide at the top, once again tapering to nothing. The other cracks are hairline but continue to be vertically oriented. The pattern of cracks suggests two possible causes: first, the possibility of foundation movement, which may include either settlement of the end walls or heaving at the center; or outward displacement of the top of the wall due to settlement or creep of the roof structure. Mortar patterns at both the east wall and the west wall indicate that the center of each has been repaired with portland cement mortar, with little regard to keeping the faces of the stone clear of the mortar. This may indicate similar structural problems in the past with both walls. Another, similar crack exists at the south façade through the window opening (Photograph 209). This damage was not reported in the 1984 annual inspection of the building by NPS. The crack above the window varies from 1/8" to 3/16" in width. There is no formal lintel at the window head. Because this crack was not previously noted, it may indicate continued movement of the structure. The interior side of the walls is plastered with mud. The interior plaster is soiled with bat guano and is damaged by graffiti and by water running down the walls from roof leaks (Photograph 208). The latter damage appears recent.

Door

The door frame is built up of finished lumber and is splayed outward at the jambs. The lintel consists of a 2" thick board with a 1" thick board nailed to the bottom. The entire door frame and lintel is set in portland cement mortar. The lintel has not sagged and there is no damage of the stonework above the lintel. There is a wooden sill at the base of the door opening, which is quite worn (Photograph 212). The splayed jambs are severely weathered as well, although damage appears to be limited to the surface. All wooden elements of the frame were painted white at one time, but almost all of this paint has weathered off. The door of the building is built up of ¾" x 3-1/4" wide T&G boards nailed to horizontal 2 x 4 rails. One board is missing. This door appears in the 1969 HABS drawings.

Windows

The south-facing window has a construction similar to the door, including lintel and splayed jambs. The sill is horizontal and does not shed water. The lintel is intact and not sagging; thus the cracking above it cannot be attributed to the lintel design. The window is a 6-light wood casement, opening inward. Frame and sill alike are severely weathered. The horizontal members are particularly damaged. The 1x portion of the lintel shows severe damage from water intrusion from above. The sill is so damaged that the outer inch of material has been lost (Photograph 213). The sash joints are beginning to spread at the bottom. All of the wooden

elements are, at this time, salvageable in some manner. The glazing putty is completely deteriorated; the latest attempts at reglazing were performed over an improperly prepared base and so failed prematurely (Photograph 211). From the inside, it can be seen that the window has a rough frame of 2 inch nominal thickness lumber and an inner frame of 1 inch nominal thickness lumber, into which is set the sash. The muntin bars within the sash appear to be late handmade replacements (as opposed to being shop milled); they are of rough sawn wood and are roughly nailed together.

A rear window apparently was used as a service window. This opening has a full stone lintel across the head. The opening is framed out with 2 x 12 lumber without a sash. Galvanized ¼ inch mesh hardware cloth has been nailed into the opening. At the interior, below what appears from the outside to be a sill but is actually a 2 x 12 countertop, is a recessed shelf. The wooden elements of the window are recessed into the opening and thus relatively protected. Some white paint remains, while the outer face of the frame is more weathered. The back of the shelf recess is lined with T&G boards. The ends of these boards are exposed at the sill and are deteriorating due to channeling of water into the ends and behind the boards into the wall (Photograph 214). Roofing nails have been driven into the interior face of the frame, probably to hold a late screen or other covering, now removed.

Roof

The roof structure, exposed on the interior, is made up of wood poles supporting thin, tapered wood pole latillas, which in turn are covered in dirt. The central log is 12 inches to 14 inches in diameter; latilla poles taper from about 4 inches to about 8 inches, alternating direction. Rolled roofing provides a membrane under the dirt topping. An additional pole is placed at the gable eave on top of the roof to hold in the soil. Except for the center beam, the wooden elements of the roof structure have a new-looking appearance with little trace of patina. The roof overhang on the eave ends is 1'-6" deep, which is different than the shallow 6 inch overhangs shown in the 1969 HABS drawings of the structure. The spaces between the poles at the eaves are chinked with mud. Mud roof covering has eroded from much of the roof, which appears to be a continuing maintenance problem.

Interior Features

The floor of the Office is dirt. The floor is kept neatly raked, but a large amount of bat guano continues to collect.

A board is mounted to the inside of the south wall between the door and window. The board has nails partially driven into it and has the letters "R D" chiseled into the face (Rural Delivery?). The board is unpainted and in good condition.

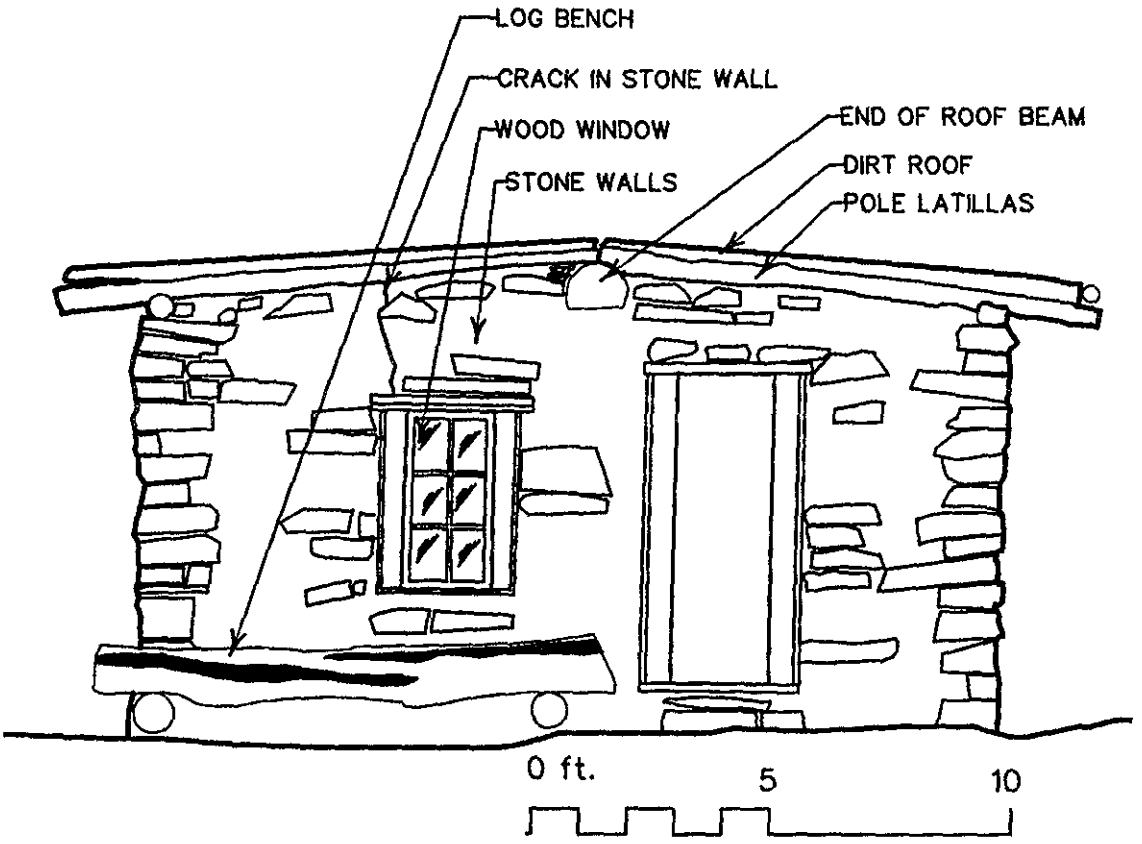


Figure 55: American Placer Corporation Office South Elevation

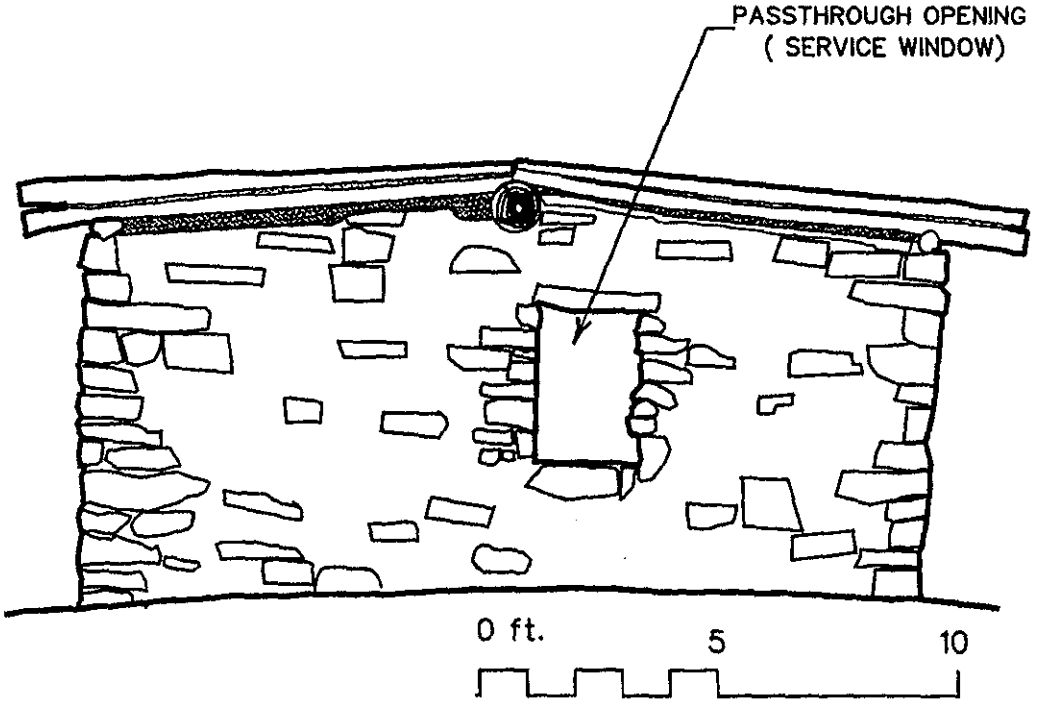


Figure 56: American Placer Corporation Office North Elevation

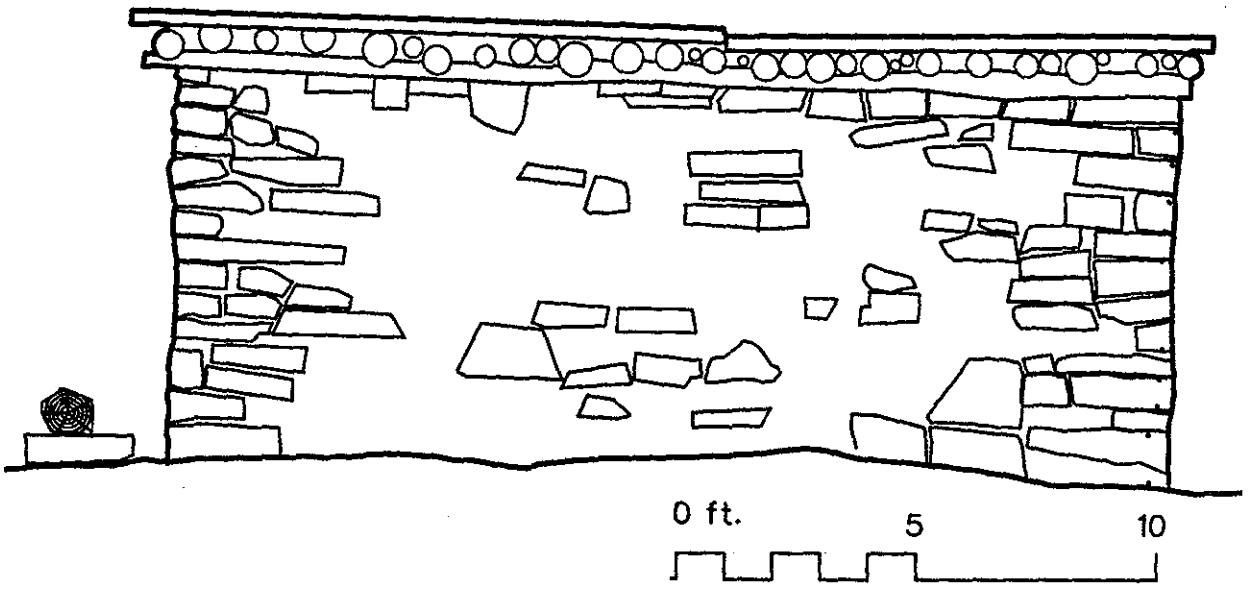


Figure 57: American Placer Corporation Office East Elevation

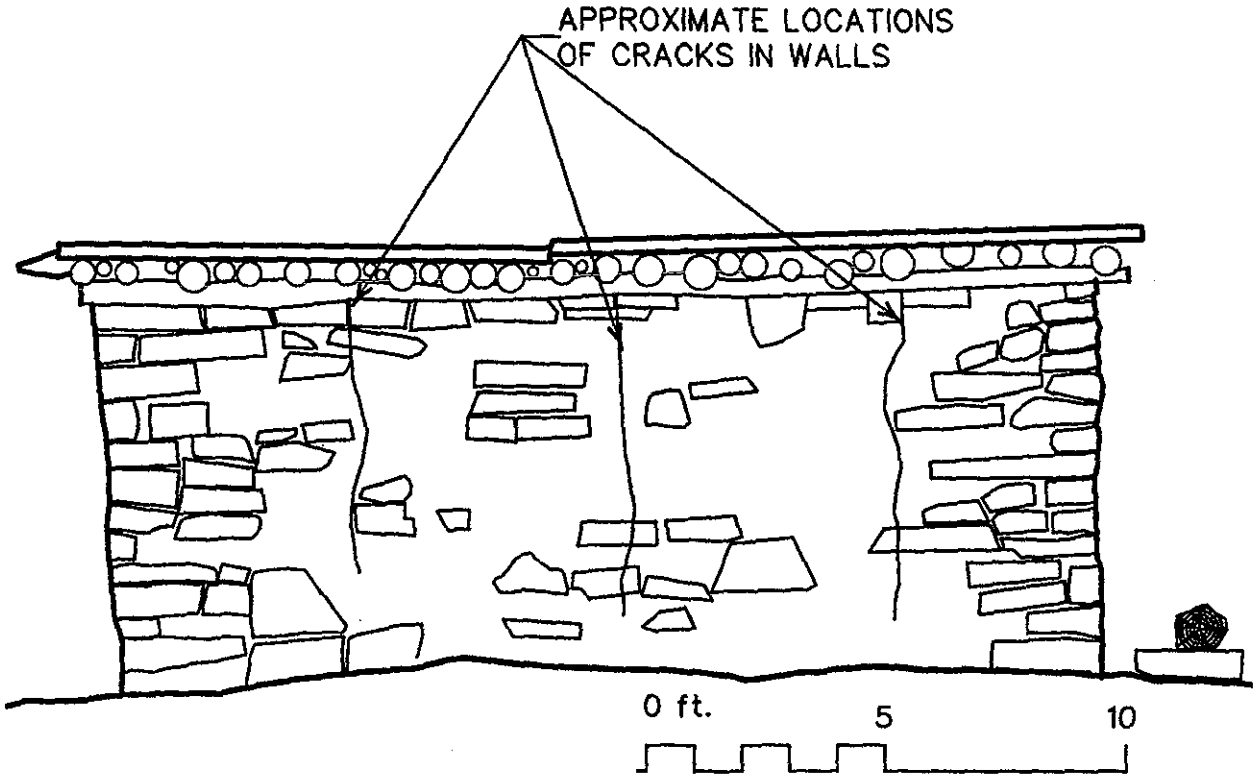


Figure 58: American Placer Corporation Office West Elevation

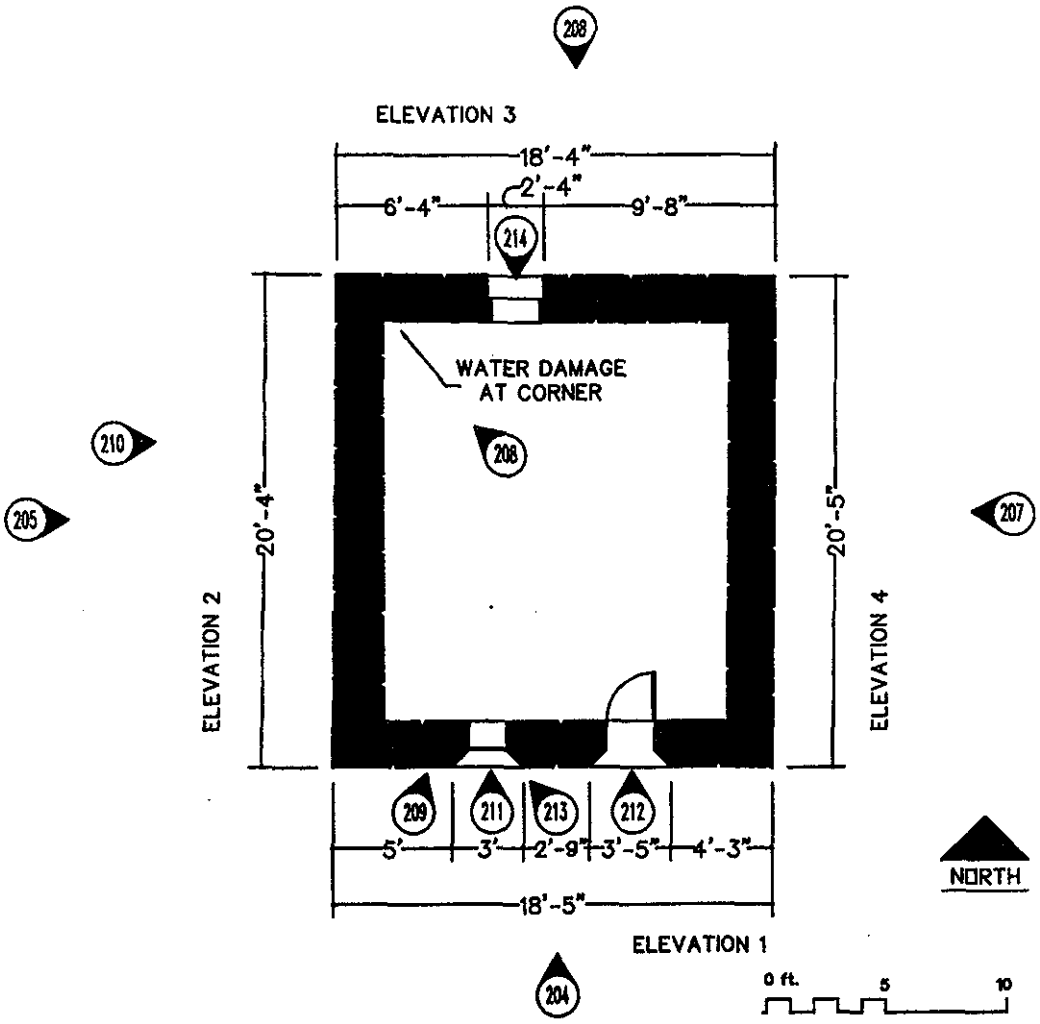


Figure 59: American Placer Corporation Office Floor Plan

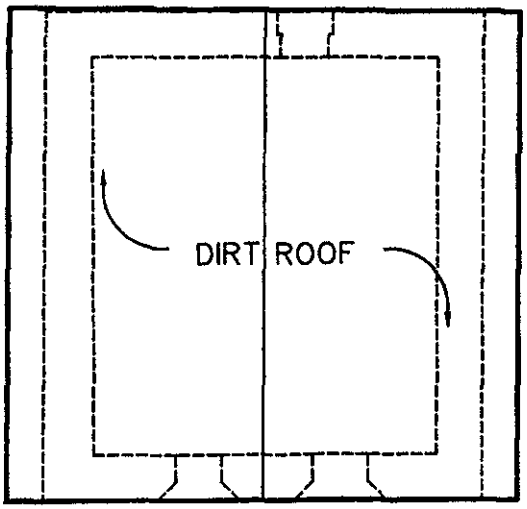
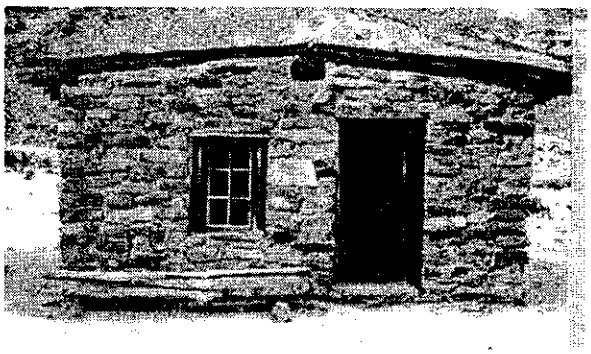
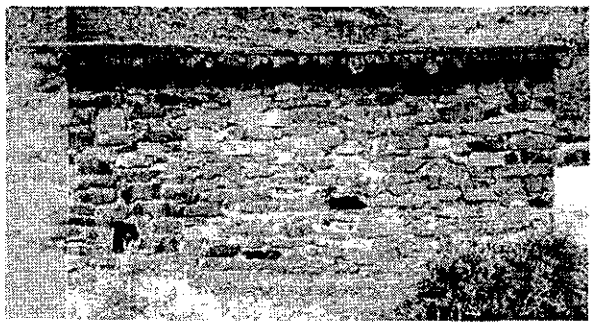


Figure 60: American Placer Corporation Office Roof Plan

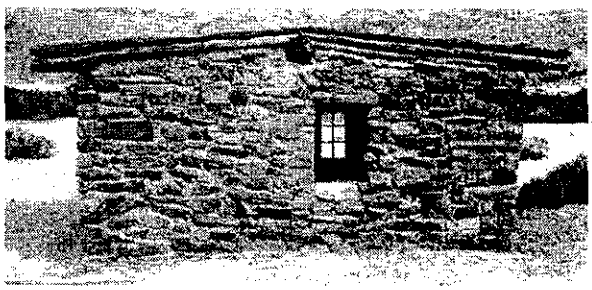
Existing Conditions Photographs – American Placer Corporation Office



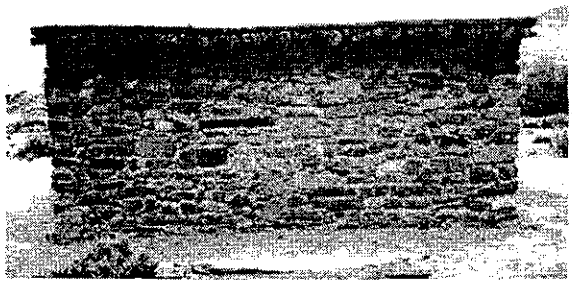
Photograph 204: American Placer Corporation Office South Elevation



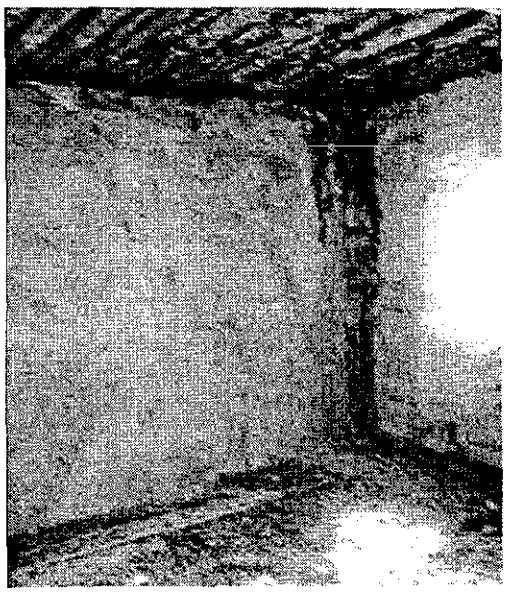
Photograph 205: American Placer Corporation Office West Elevation.



Photograph 206: American Placer Corporation Office North Elevation.



Photograph 207: American Placer Corporation Office East Elevation.



Photograph 208: Interior water damage, northwest corner.



Photograph 209: Crack above south window.



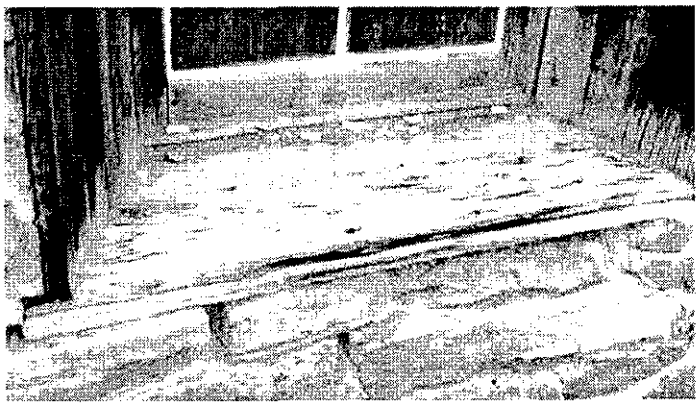
Photograph 210: Crack in west wall.



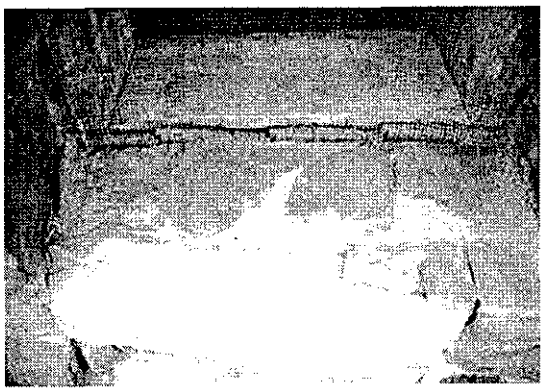
Photograph 211: Failure of glazing putty at window.



Photograph 212: Entry door.



Photograph 213: Deteriorated sill at south window.



Photograph 214: Sill at north window.

Outline Chronology – American Placer Corporation Office

DATE	EVENT
April, 1879	Postal service initiated[165]
January 1911	Bar Z ranch house (built 1886 by W. Johnson) used for post office; Frank Johnson postmaster[166]
1911	American Placer Corporation Office building constructed West of fort[167]
January 31, 1914	Post office discontinued[168]
August 12, 1922	Post office re-established in American Placer Corporation Office Building; Margery Cockroft, postmaster[169]
March 15, 1923	Post office discontinued[170]
1928	Some bridge crew steelworkers housed in this building[171]
1931	Part of Spencer-Treadwell mining operations located in this building[172]
September 20-22, 1967	Post Office north wall partially reconstructed[173]
1976	NPS stabilization project; roof rehabilitated, main beam consolidated with epoxy, secondary members replaced

[165] Reilly, Lee's Ferry, p. 84.
[166] Ibid., p. 232.
[167] Ibid., p. 242.
[168] Ibid., p. 257.
[169] Ibid., p. 297.
[170] Ibid., p. 298.
[171] Ibid., p. 326.
[172] Ibid., p. 348.
[173] Richert, "Ruins Stabilization Report, The Old Post Office, Lee's Ferry"

HS-224, Chicken House

Chronology of Development and Use

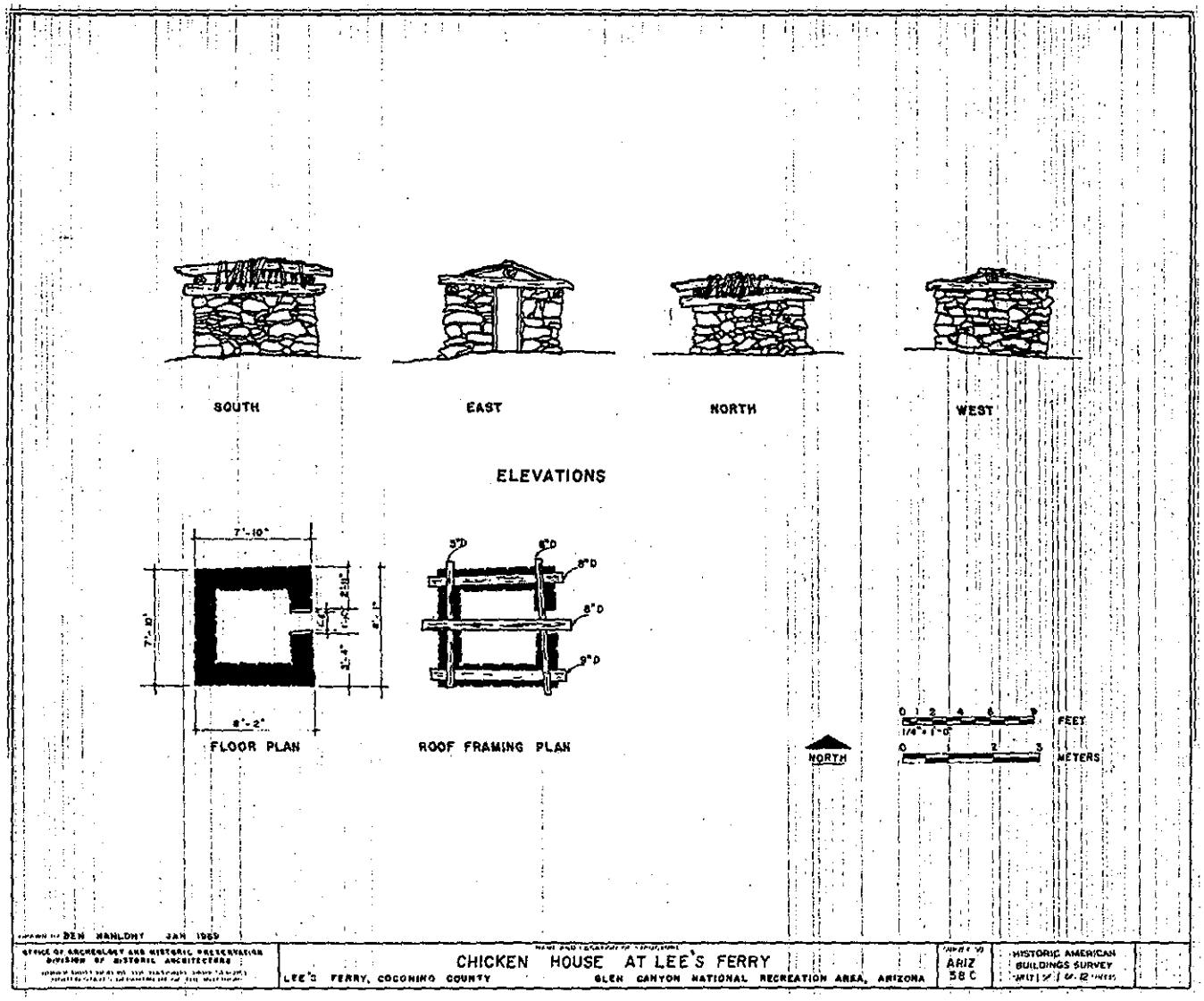
Very little information is available about this structure. It is attributed to the Cockroft residency at the Fort, in the early twenties.[174]

The Chicken House was documented in detail in 1969, when full HABS drawings were prepared. Changes that have occurred since 1969 include removal of the south door jamb, deterioration and separation of the north door jamb from the wall, and reconfiguration of the roof structure.[175]

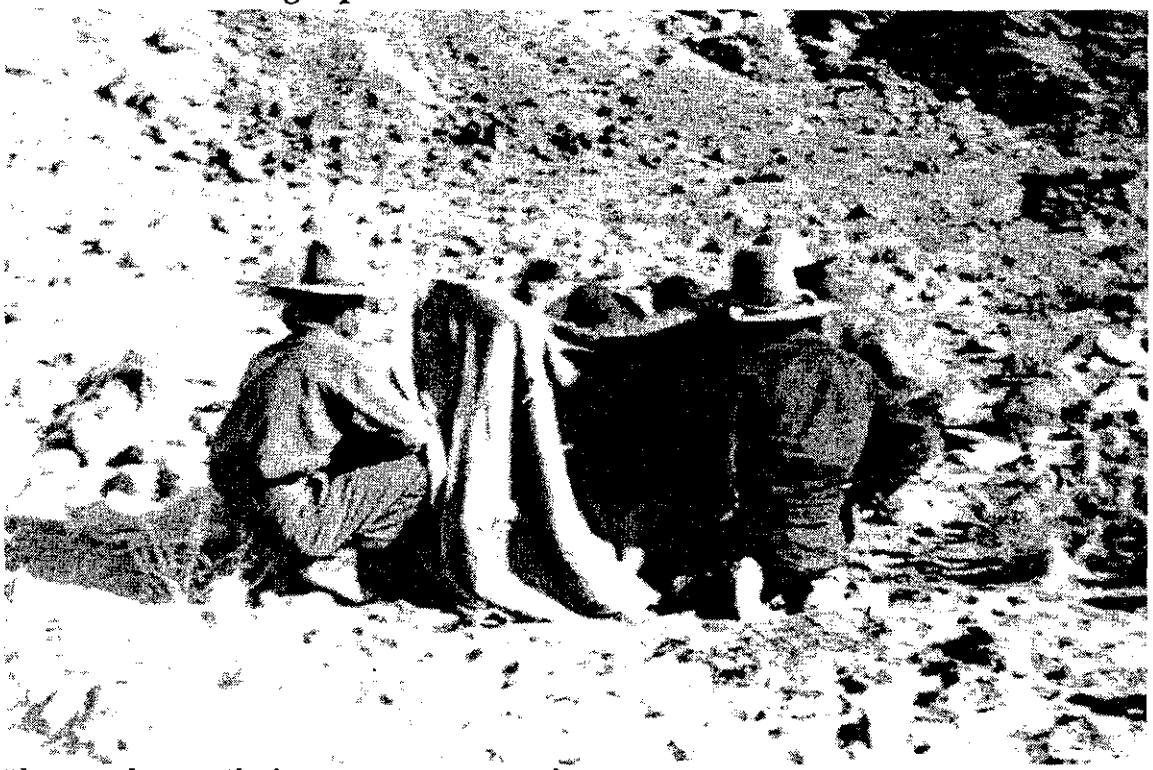
The Chicken House is used by NPS as an interpretive feature of the Lee's Ferry site.

[174] Reilly, Lee's Ferry, pp. 283 and 303.
[175] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).

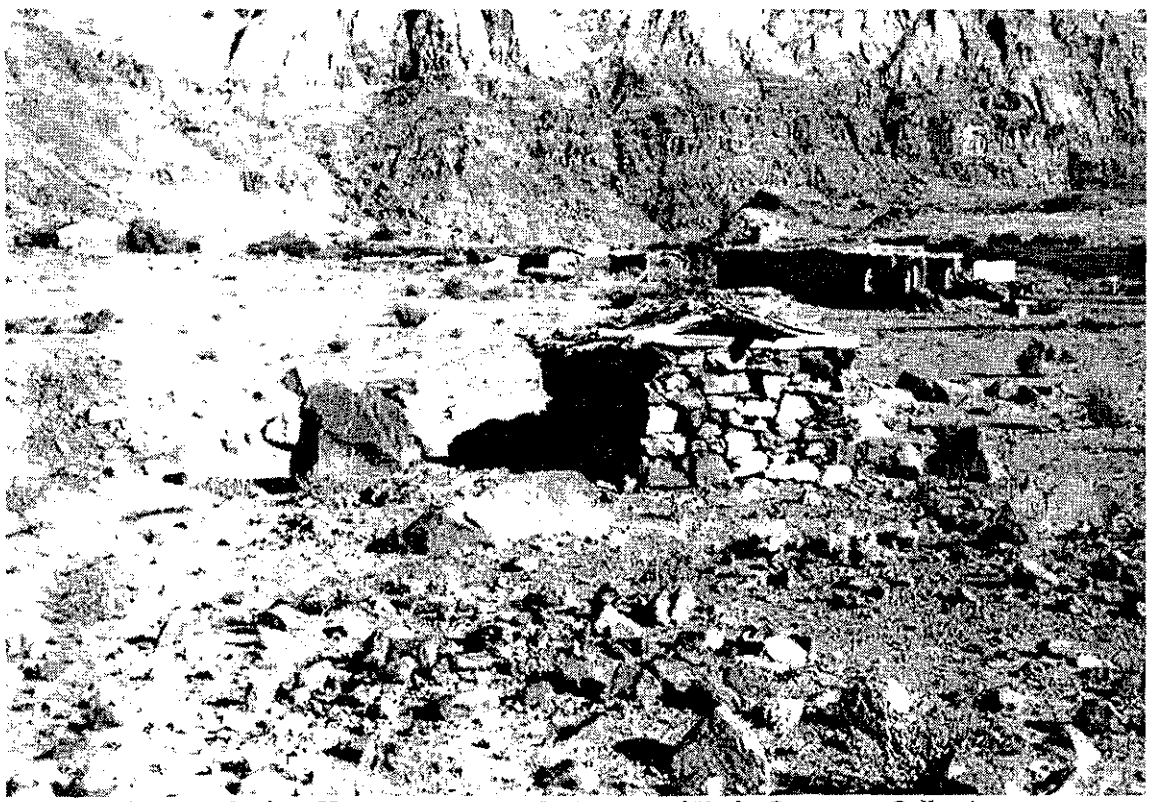
HABS Drawings (1969)



Historical Photographs – Chicken House



Photograph 215: Chicken House (at upper right), 1936
Southern Utah University, Palmer Collection



Photograph 216: Chicken House, 1959. *University of Utah, Crampton Collection*



Photograph 217: Chicken House, 1959 *University of Utah, Crampton Collection*

Physical Description – Chicken House

Overview

This is a small rectangular structure measuring 8 feet by 8 feet. The walls are of stone, and the roof structure has been removed except for five poles loosely resting atop the walls. An entry opening is placed on the east side.

Roof Structure

The roof structure as it appears in early photographs and in the 1969 drawings consisted of five logs or poles. Two poles were placed horizontally atop the side walls. Two other poles spanned between them. The last pole ran down the center ridge of the roof, supported by the intermediate poles. This basic structure was then covered with latillas and earth fill. Today it appears that the five same poles remain, but all five are simply running from side to side (parallel) and there are no signs of the latillas or the dirt roof (Photograph 224).

Walls

Walls are of red sandstone, 1'-6" thick and about four feet high. Stonework and masonry appear substantially the same as the 1969 HABS drawings. portland cement mortar pointing is in evidence throughout the structure (Photograph 223). The portland cement does not appear to be very deep, but rather was applied as a coating of sorts over the earlier mud mortar. As of yet, there is little evidence that the portland cement has resulted in any damage to the sandstone.

There is a remnant of a nailed-on piece of canvas at the door jamb (Photograph 222) that was not mentioned in previous reports or documentation.

Existing Conditions Drawings – Chicken House

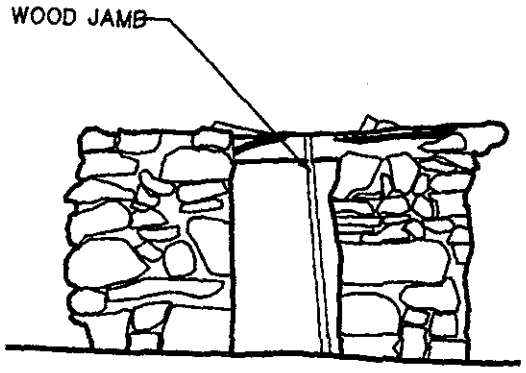


Figure 61: East Elevation "1"

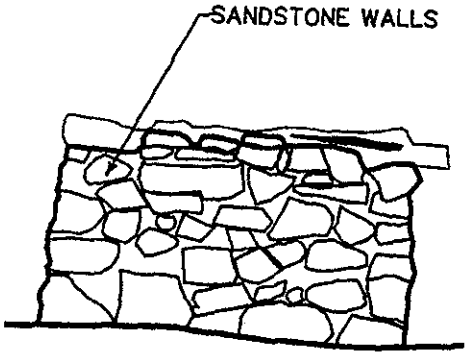


Figure 63: West Elevation "3"

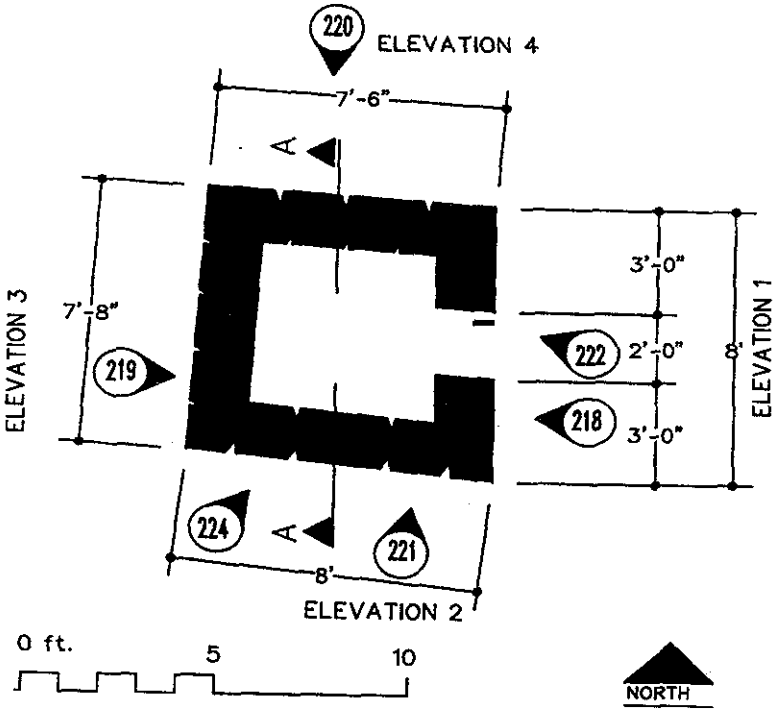


Figure 62: Chicken House Floor Plan

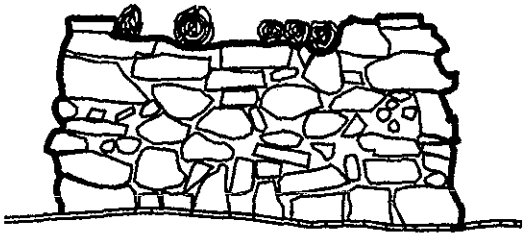


Figure 64: North Elevation "4"

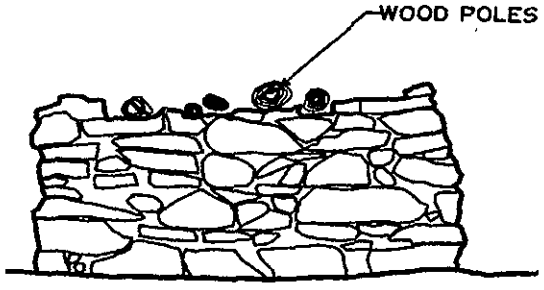


Figure 66: South Elevation "2"

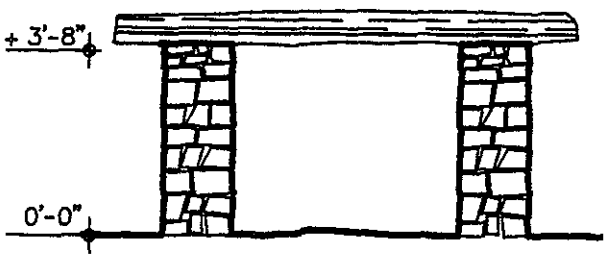
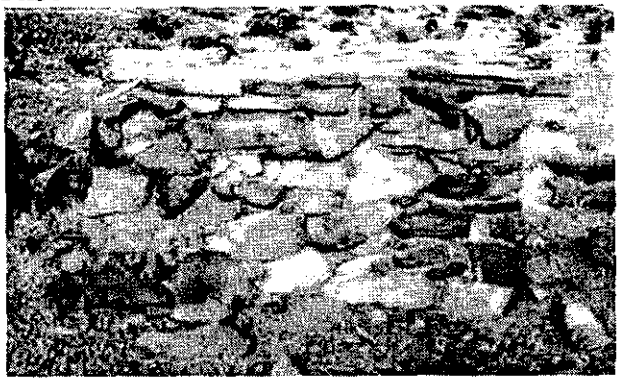


Figure 65: Chicken House Section A-A

Existing Conditions Photographs – Chicken House



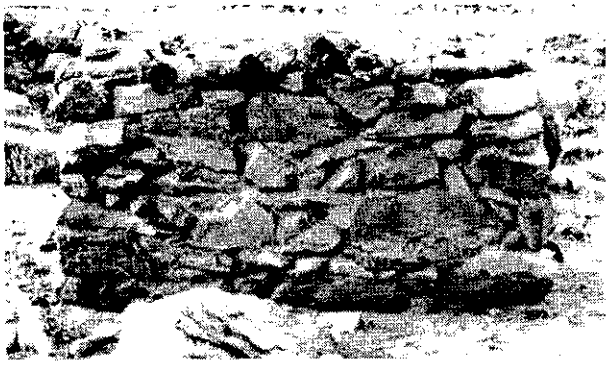
Photograph 218: Chicken House east elevation.



Photograph 219: Chicken House west elevation.



Photograph 220: Chicken House north elevation.



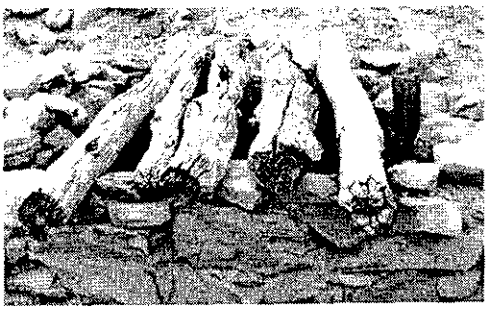
Photograph 221: Chicken House south elevation.



Photograph 222: Remains of door frame.



Photograph 223: Detail of masonry joints.



Photograph 224: Roof timbers.

Outline Chronology – Chicken House

DATE	EVENT
c. 1921	*Chicken House* probably constructed[176]
1969	*HABS Documentation*[177]

[176] Reilly, Lee's Ferry, pp. 283 and 303.
[177] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).

HS-225, Lee's Ferry Fort Root Cellar

Chronology of Development and Use

The Root Cellar was directly related to the Lee's Ferry Fort and is located immediately adjacent to its north side. Very little information is available about this structure. It is attributed to the Cockroft residency at the Fort, in the early twenties.[178]

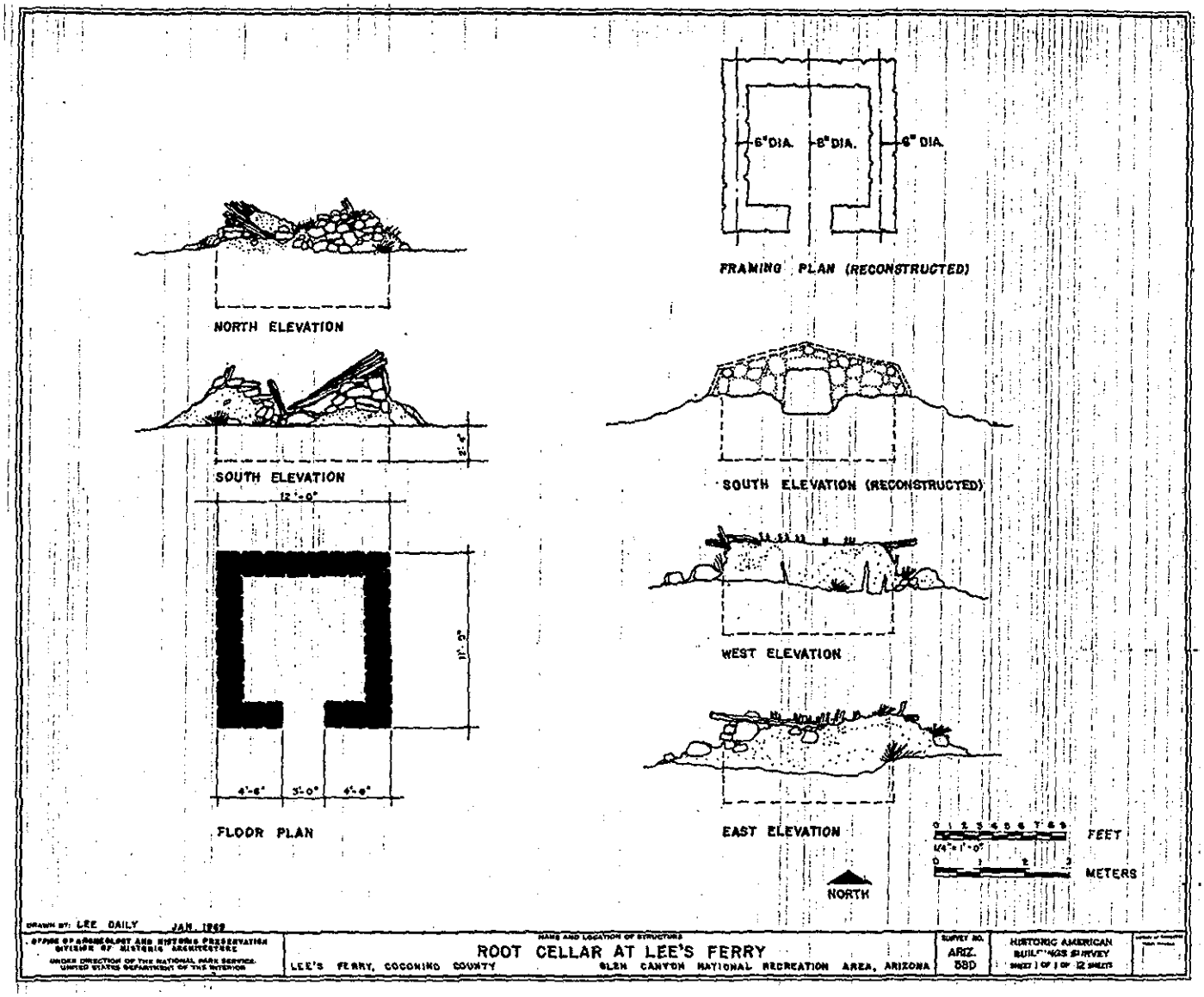
The root cellar was in a ruined condition when the Park Service took over the property (Photograph 225, Photograph 226). It was stabilized along with the Fort in 1967.

By 1969, HABS drawings show the structure to be collapsing.[179]

The Root Cellar is used by NPS as an interpretive feature of the Lee's Ferry site.

[178] Reilly, Lee's Ferry, pp. 283 and 303.
[179] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).

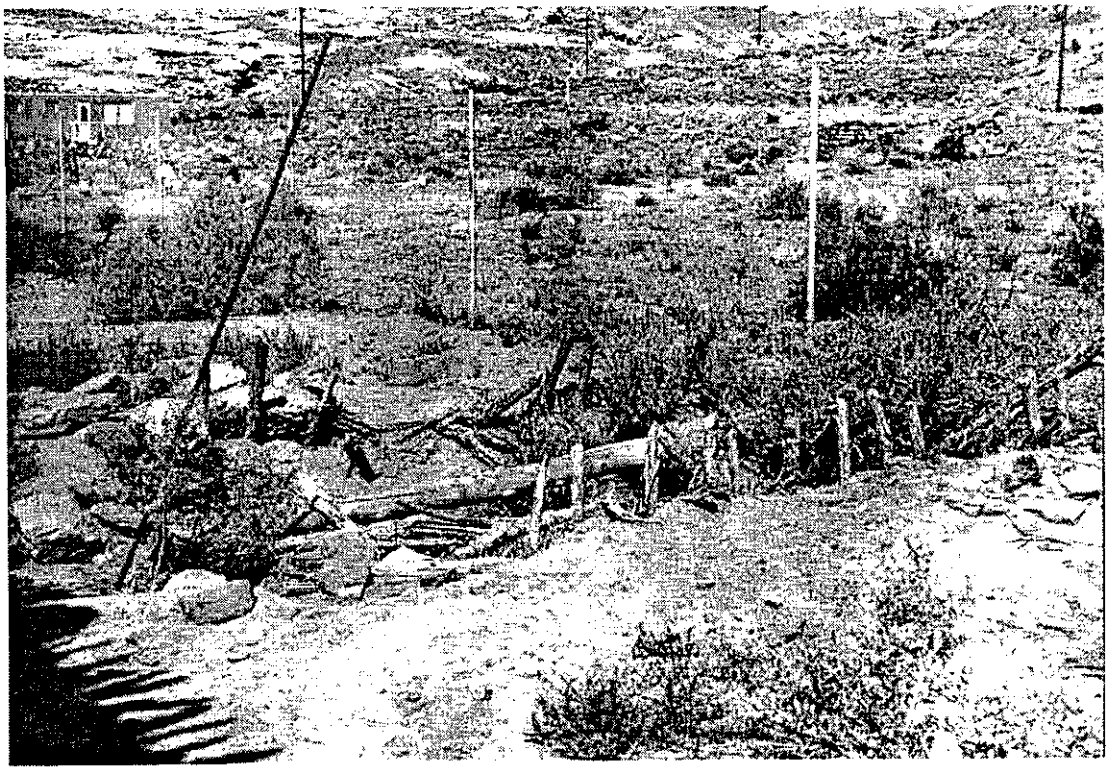
HABS Drawings (1969)



Historical Photographs - Lee's Ferry Fort Root Cellar



Photograph 225: Root Cellar entry prior to collapse, c. 1959.
University of Utah, Crampton Collection



Photograph 226: Root Cellar c. 1976. *NPS/GCNRA Archives*

Physical Description - Lee's Ferry Fort Root Cellar

All that remains of this structure is a shallow pit bordered irregularly by stones, and overgrown with brush (Photograph 227, Photograph 228).

The Root Cellar was originally a partial dugout structure with stone walls and a wood and earth roof. The building was approximately square in plan, measuring 11 feet by 12 feet, with walls 1-1/2 feet thick. The floor was 2'-4" below grade. The roof structure was built atop three 6 inch to 8 inch diameter wooden poles spanning north-south.

Today the Root Cellar is essentially an archaeological site. The depression in the ground is still evident at the Root Cellar location, and a few stones are visible, but there is little else visible above ground. There were no traces found of the earlier roof structure.

The Root Cellar site is heavily obscured by vegetative growth. This growth also may deteriorate sub-surface features through root action.

Existing Conditions Drawing - Lee's Ferry Fort Root Cellar

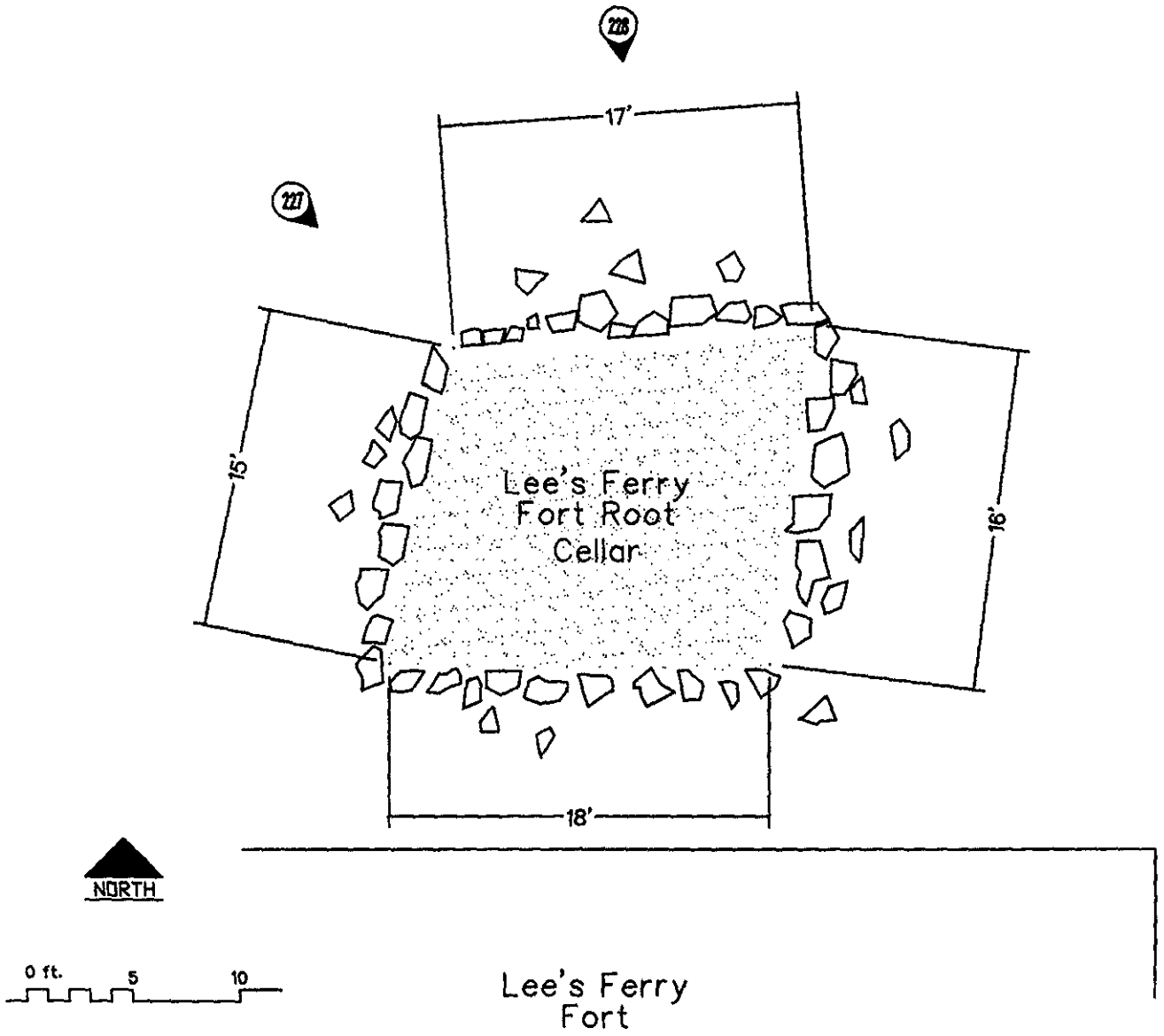
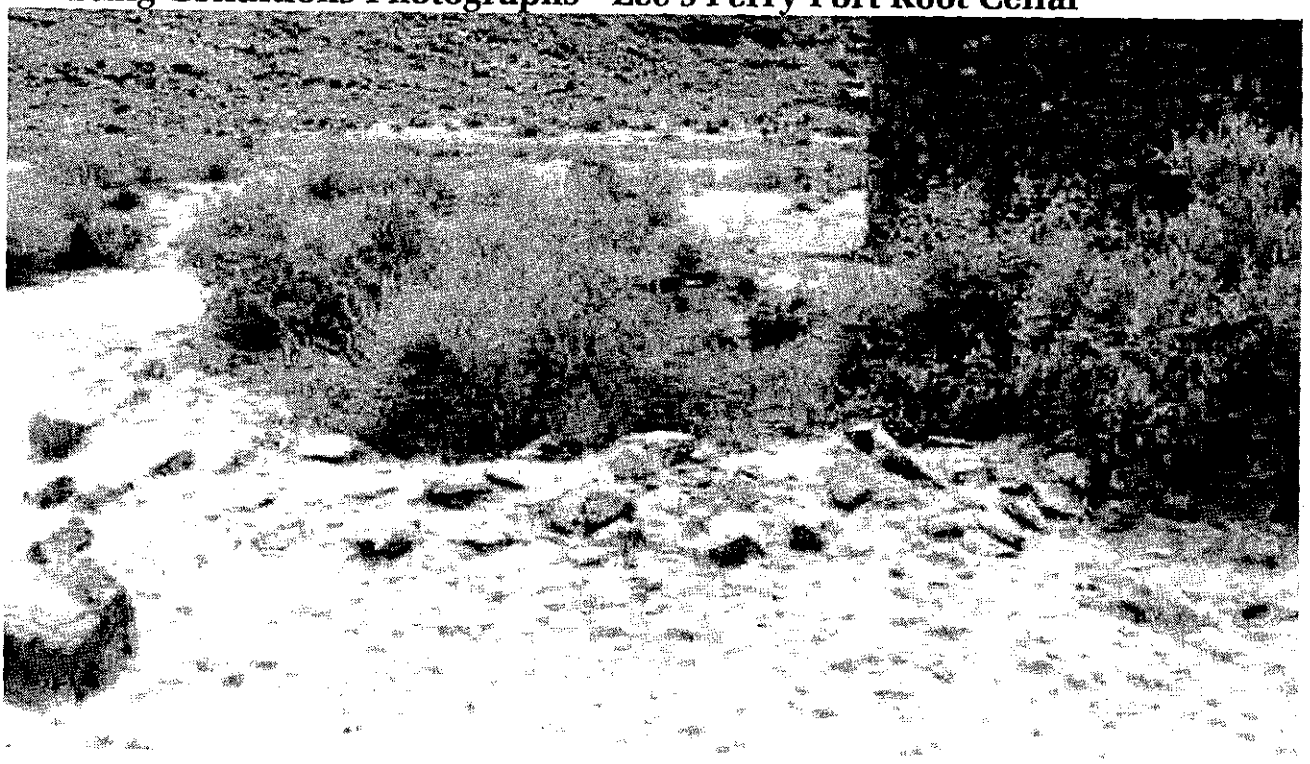


Figure 67: Lee's Ferry Fort Root Cellar Plan

Existing Conditions Photographs - Lee's Ferry Fort Root Cellar



Photograph 227: Root Cellar site, looking southeast.



Photograph 228: Root Cellar site looking south.

Outline Chronology – Lee's Ferry Fort Root Cellar

DATE	EVENT
c. 1923	Built by Cockroft.[180]
1969	HABS Documentation[181]

[180] Reilly, Lee's Ferry, p. 303.
[181] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).

HS-222, Spencer Building

Chronology of Development and Use

This building was constructed by Charles H. Spencer as part of his mining operation in 1911. It served as one of three similar bunkhouses for his workers. The rough sandstone walls, up to a height of about seven feet, represent this period. Spencer's use of the building ended shortly after construction.[182]

In the fall of 1921, Jerry Johnson started an unofficial school in this building. This use continued until 1925, when his polygamous clan refurbished the Samantha Johnson Cabin (HS-232) for use as a school. A chimney was added at this time.[183]

After 1925, it is likely that several USGS employees used this building for temporary residential purposes. The addition of a chimney during its use as a school must have added to its attractiveness as a residence. No specific individuals could be associated with this property during the USGS period. The one individual that spent the most time in the vicinity, Frank Dodge, converted Spencer's old assay office (demolished 1967) into his residence.

The building was modified by the USGS in 1947-48 for use as a residence (Dodge's Cabin was converted into a silt laboratory at this same time). The earlier roof, which was presumably of timber, poles, and earth, was removed and a new gabled roof was built in its place. Probably because the original walls were slightly out of square, transitional gable walls were built on top of the original walls but slightly offset to account for the irregularity. A stone chimney was removed from the north side. A ramada was removed from the east side. The original door, on the east end, was converted to a window and a new entry opening was made in the north wall.[184]

Following the construction of the USGS Residence in 1950 (HS-223), this building was converted into a silt lab. A concrete floor slab was placed inside the building. The interior was partitioned to create a new bathroom at the east end. A work bench with a sink was added against the south wall. These changes were complete by April of 1950.[185]

Probably because the building remained in use by the USGS, this building was spared from demolition in 1967 when most other Spencer-era buildings were demolished. The building was probably abandoned when USGS surrendered the property to the National Park Service in 1967.[186]

In 1969, the Spencer Building was documented as part of the HABS project on the site. Since that time, NPS has used the building as an interpretive feature of the Lee's Ferry historic district.[187]

---

[182] Reilly, Lee's Ferry, p, 242
[183] Ibid., pp. 314 and 327.
[184] Ibid., p. 428. . While Reilly on p. 428 Reilly refers to the construction of a new 18' by 30' building, this is an apparent reference to the reconstruction of the Spencer Building (HS-222) for USGS residential use and not to a new building.
[185] See US Geological Survey, "Recent Compilation Photo Album," sheet 53, Arizona District Office, Flagstaff.
[186] Reilly, Lee's Ferry, p. 454.
[187] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).

Evolutionary Drawings – Spencer Building

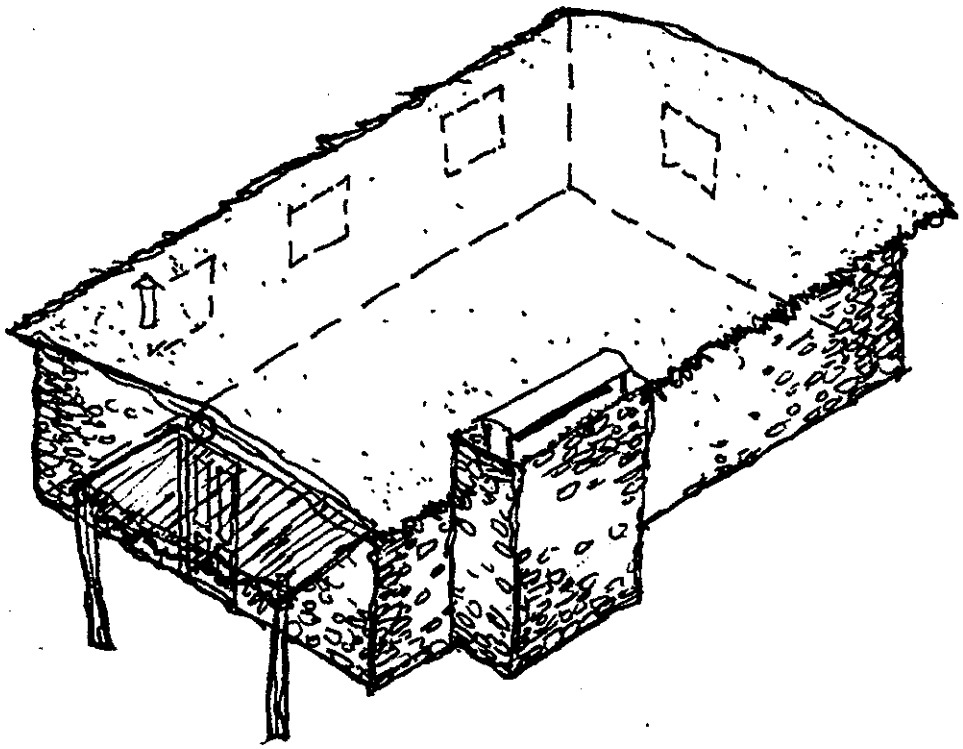


Figure 68: Spencer Building c. 1935. Stone walls, dirt roof, brush ramada over entry

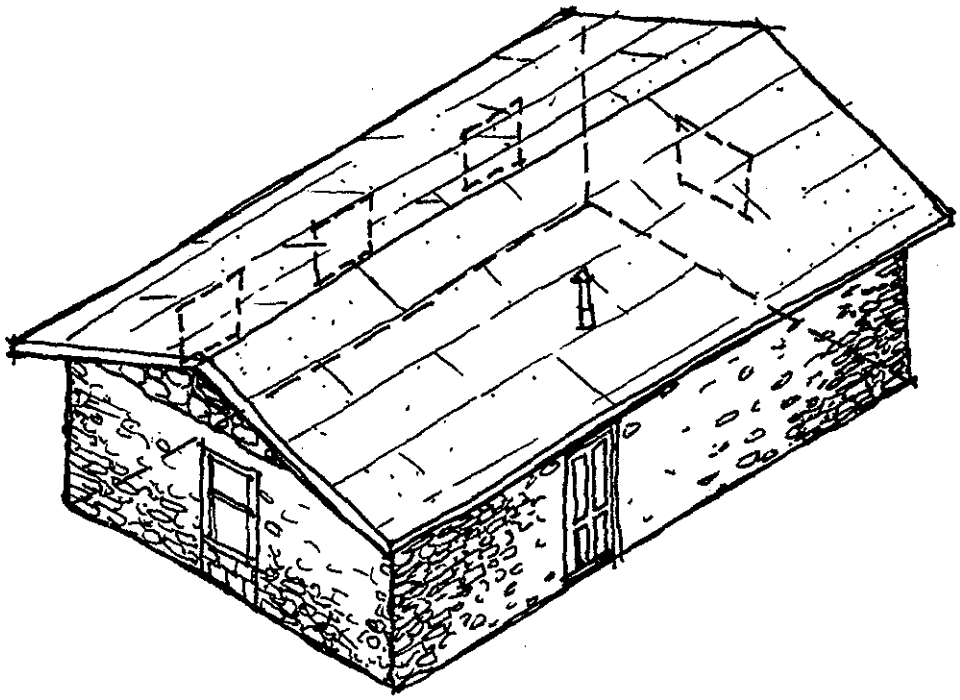
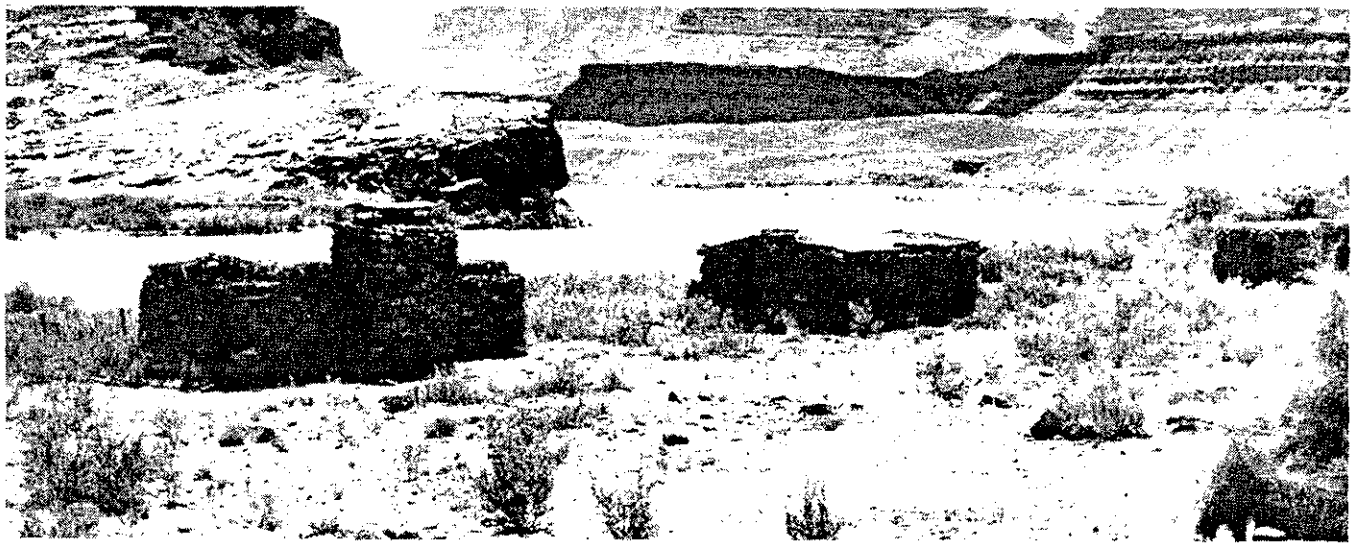


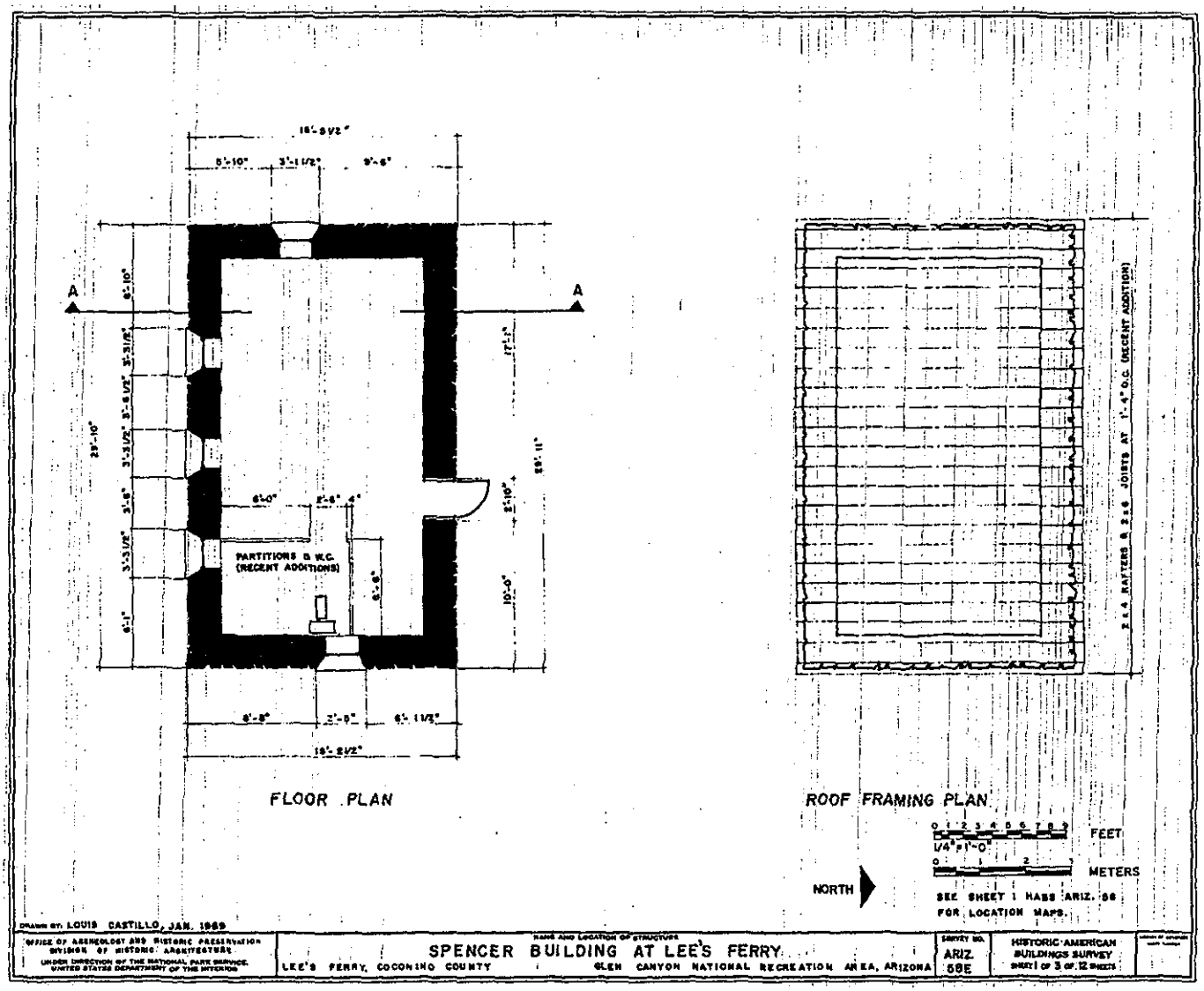
Figure 69: Spencer Building c. 1948. Roof replaced, ramada and chimney removed, entry door relocated

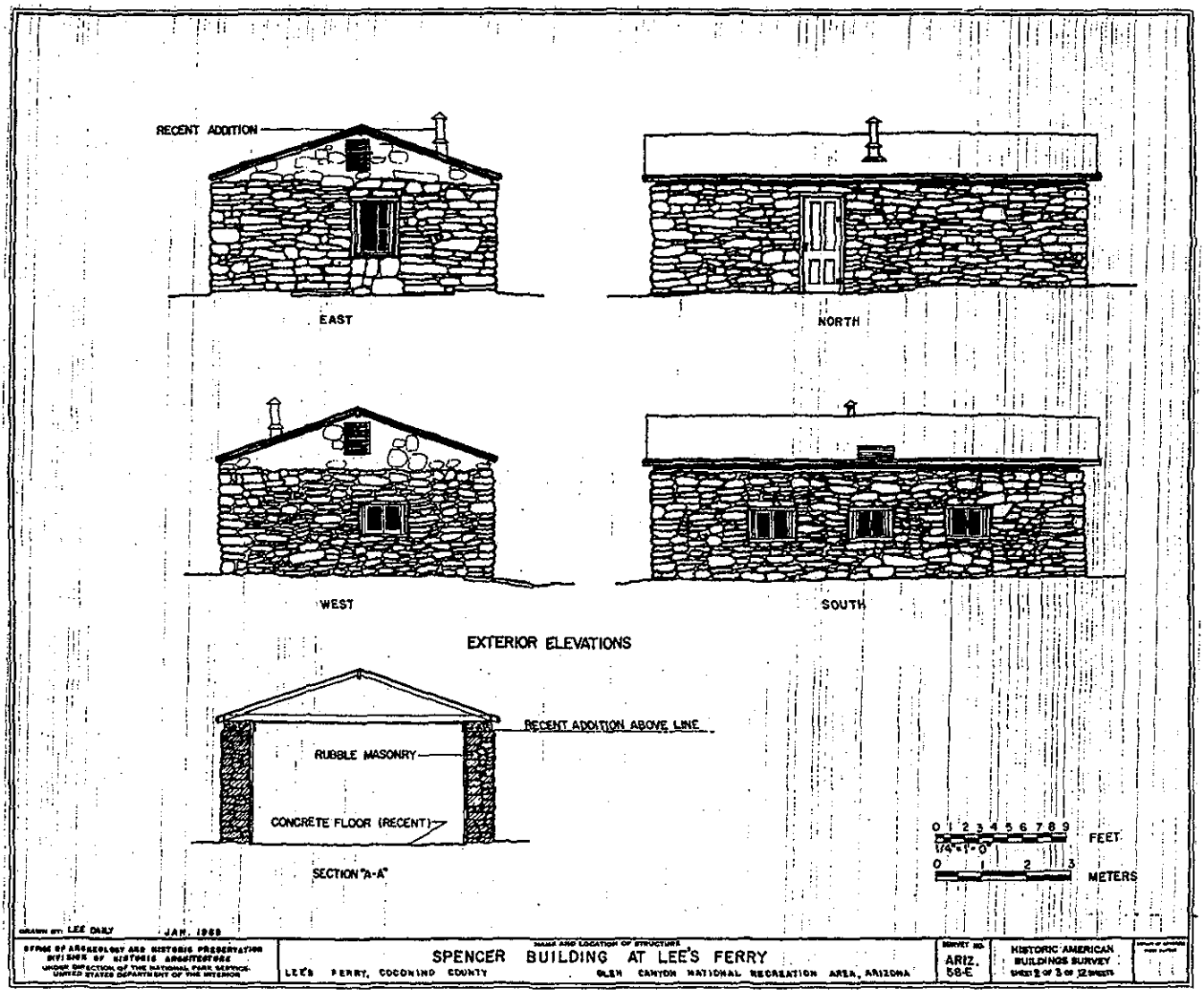
Historic Photographs – Spencer Bunkhouse

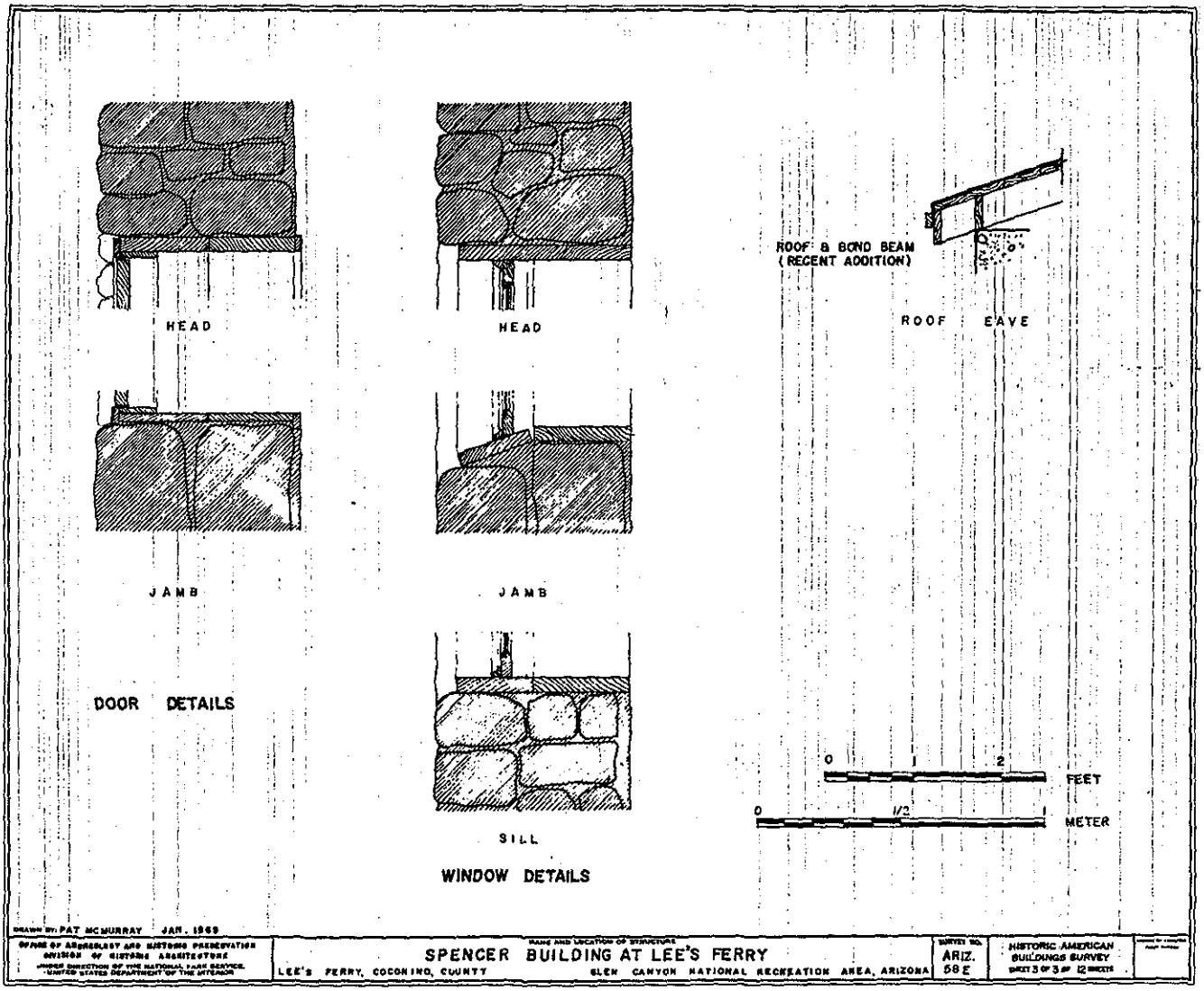


Photograph 229: Spencer Bunkhouse (left) c. 1935 *NPS/GCNRA Archive*

HABS Drawings (1969) – Spencer Building




RECENT ADDITION
EAST
NORTH
WEST
SOUTH
EXTERIOR ELEVATIONS
RECENT ADDITION ABOVE LINE
RUBBLE MASONRY
CONCRETE FLOOR (RECENT)
SECTION "A-A"
0 1 2 3 4 5 6 7 8 9
1/4"=1'-0"
FEET
0 1 2 3
METERS
DRAWN BY: LEE DALY
JAN. 1969
SPENCER BUILDING AT LEE'S FERRY
LEE'S FERRY, COCONINO COUNTY
GLEN CANYON NATIONAL RECREATION AREA, ARIZONA
ARIZ. 58-E
HISTORIC AMERICAN BUILDINGS SURVEY


HEAD
HEAD
ROOF & BOND BEAM
(RECENT ADDITION)
ROOF EAVE
JAMB
JAMB
DOOR DETAILS
0 1 2
FEET
0 1/2 1
METER
SILL
WINDOW DETAILS
DRAWN BY: PAT McMURRAY JAN. 1969
OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
DIVISION OF HISTORIC ARCHITECTURE
UNDER DIRECTION OF THE NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
NAME AND LOCATION OF STRUCTURE
SPENCER BUILDING AT LEE'S FERRY
LEE'S FERRY, COCONINO, COUNTY GLEN CANYON NATIONAL RECREATION AREA, ARIZONA
SURVEY NO.
ARIZ. 58 E
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 3 OF 3 OF 12 SHEETS

Physical Description – Spencer Building

Overview

The Spencer Building is a single story stone building with a rectangular plan measuring 18 feet by 30 feet (Photograph 230 through Photograph 233). The roof structure forms a gable on the sides, and is framed of conventional dimensional lumber. The entry door faces north. Five widows are placed on the other three facades. The interior has a concrete slab floor and exposed stone walls. A wood framed partition faced in paperboard encloses a restroom. The ceiling most recently was paperboard over the wood ceiling joists, but most of this has fallen, exposing the roof framing.

Walls

The walls up to a height of about seven feet are of rough sandstone ashlar laid in clay mud mortar. The roof structure and gable end walls are later additions. The gable end walls are made of similar stone but are laid in portland cement mortar. The planes of the gables are also slightly offset from the supporting construction below. Of the earlier stonework, the mortar joints are severely weathered. Most erosion averages about two inches in depth, although some joints are easily 10 to 12 inches deep (Photograph 237). A mortar leveling course or possibly a bond beam was placed at the top of the original wall prior to the upper level construction being added.

The stonework around the entry door perimeter has all been set in portland cement mortar, a result of alteration by USGS. Likewise, the east window was a door opening prior to rehabilitation (Photograph 235). This window opening was not provided with a formal lintel, but the wall above was simply supported on the wood window frame. This has resulted in a severe crack in the wall that extends all the way up to the roof line (Photograph 234). A similar crack also occurs at the west wall, beginning at the ground, passing through the window opening, and extending to the roof line (Photograph 238). This crack has been repointed numerous times in the past but recurs. Examination of the interior side of this crack reveals a severe structural separation of about ½". A portion of the north wall stonework adjacent to the entry door, an area of about two square feet, has collapsed outward because of mortar joint erosion (Photograph 236). Several stones are also missing from the east gable end wall above the attic vent. Wood lintels over all windows and doors are generally severely deteriorated from water and insect damage. They are sagging due to the weight of 2 to 2-1/2 feet of stone masonry above them.

Door

The entry door itself is detached and stored inside the building (Photograph 243). It is a four-panel wood door with a mortise lockset. While probably used as the main entry after the USGS remodel, it appears older and may have been salvaged from this or another building.

Windows

Windows are paired single-light casements (Photograph 239, Photograph 244). There are five window openings. The frame of each window supports the stone masonry above, and is in poor condition, sagging under the weight. Most of the windows are boarded up. All appear to be in a weathered condition, with deteriorated paint, sash, and glazing putty, particularly on the lower parts of the windows.

Roof

The roof structure is comprised of 2 x 4 rafters spaced at 16" on centers

supporting 1 x 8 roof sheathing. The ceiling joists are 2 x 6, and not only held the ceiling finish but also support a 1x4 king post to the center ridge beam. The ceilings were paperboard nailed to wood ceiling joists. All of the ceiling material has been lost or severely damaged.

There is a minimal overhang at the eaves, approximately 4". The roof structure is orthogonal in plan, while the original stone walls below were apparently not completely square. The rafters and roof sheathing are exposed at the underside of the eaves, while a 1 x 4 fascia trims the rafter tails. A small amount of white paint remains on some of the wood features, but most has weathered off leaving the wood unprotected.

Roofing includes several layers of green rolled asphalt cap sheet nailed to the roof sheathing. This feature has generally failed, exposing the wood decking in several places (Photograph 240). A galvanized iron stove pipe in good condition passes through the roof.

Attic Vents

Louvered attic vents at each gable are fabricated of 1 x 8 lumber with insect screen (Photograph 234, Photograph 238). The jamb pieces of the western attic vent are spreading apart, probably due to the widening of the wall crack that passes through the attic vent opening.

Interior Features

The interior, originally a single space, has had one corner partitioned off for a bathroom (Photograph 241). A work bench or countertop which also carries a sink has been added along the south wall (Photograph 242). In general, the interior is severely deteriorated due to roof leaks.

The interior face of the exterior wall is finished in white or light painted mud plaster. Most areas are deteriorated, some severely eroded from water streaming down the wall surface. Interior partitions are paperboard on wood framing. Wood trim at top and bottom of walls are molded 1 x 2 stock, matching the construction at the USGS building.

Floors are concrete, scored at about 6 feet on centers, and painted gray. The building probably originally had a dirt floor, with the concrete floor being added by USGS.

The interior door to the bathroom has been lost.

The work bench extends the full width of the south wall not including the bathroom. It is made of dimensional lumber, using two 2 x 12s for the top supported on a framework of 2 x 4s with two 1 x 12s used as a shelf below the countertop.

Plumbing Features

Plumbing fixtures include a water closet, matching that in the USGS Residence, which is in good condition except for a missing lid and cracked seat. A waste line connection is present for a second water closet but no fixture is extant. A work sink in fair condition is mounted in the east end of the work bench (Photograph 245).

The remains of a plumbing installation of some sort are found on the east side of the building. An outdoor lavatory appears to have been provided here. The fixture has been removed although some of the plumbing piping remains, in poor condition.

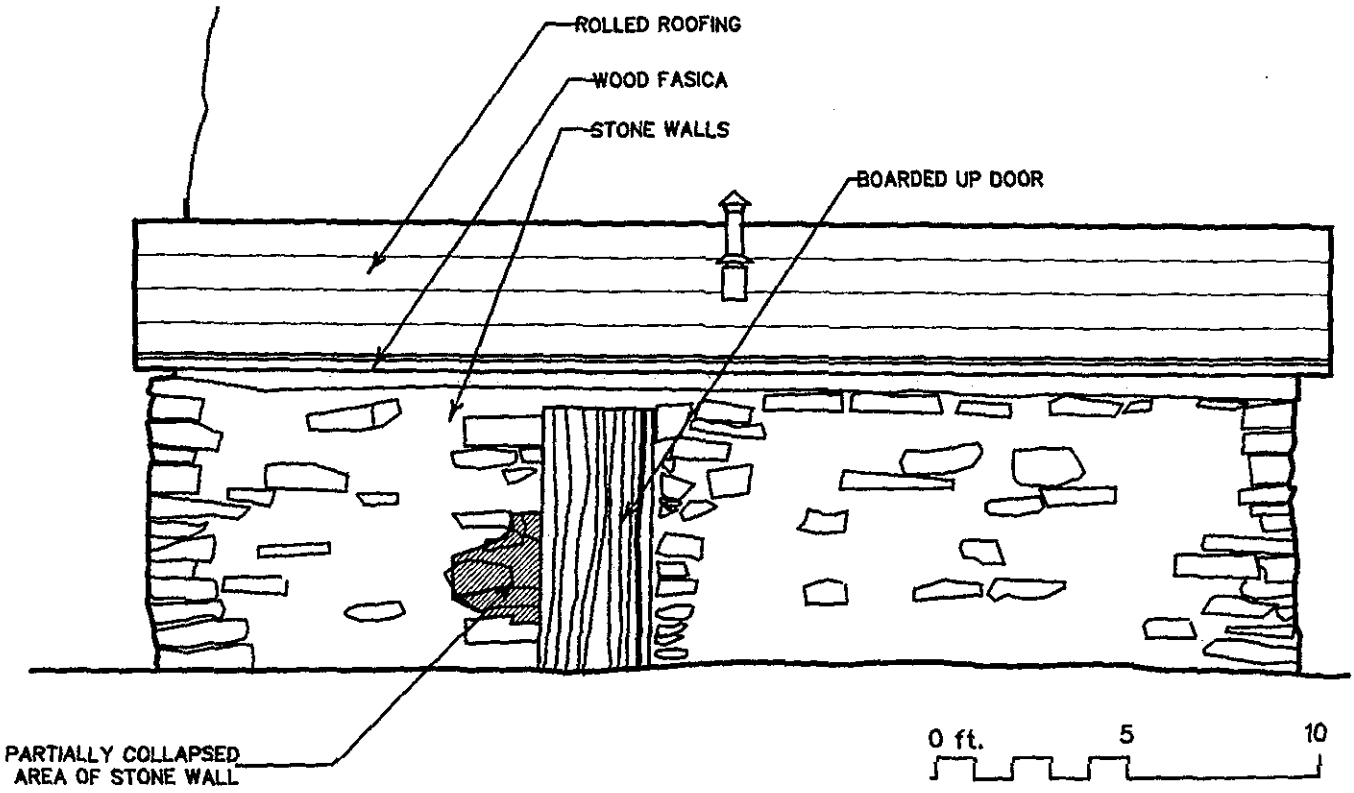


Figure 70: Spencer Building North Elevation

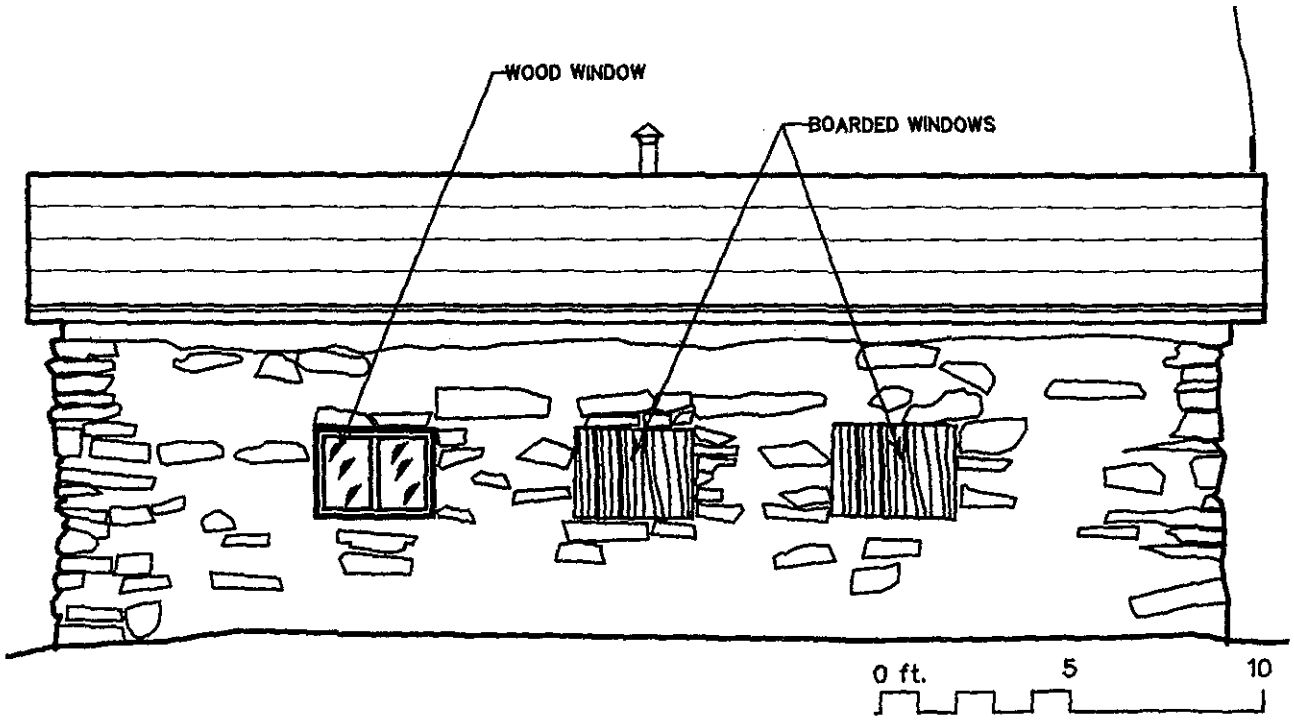


Figure 71: Spencer Building South Elevation

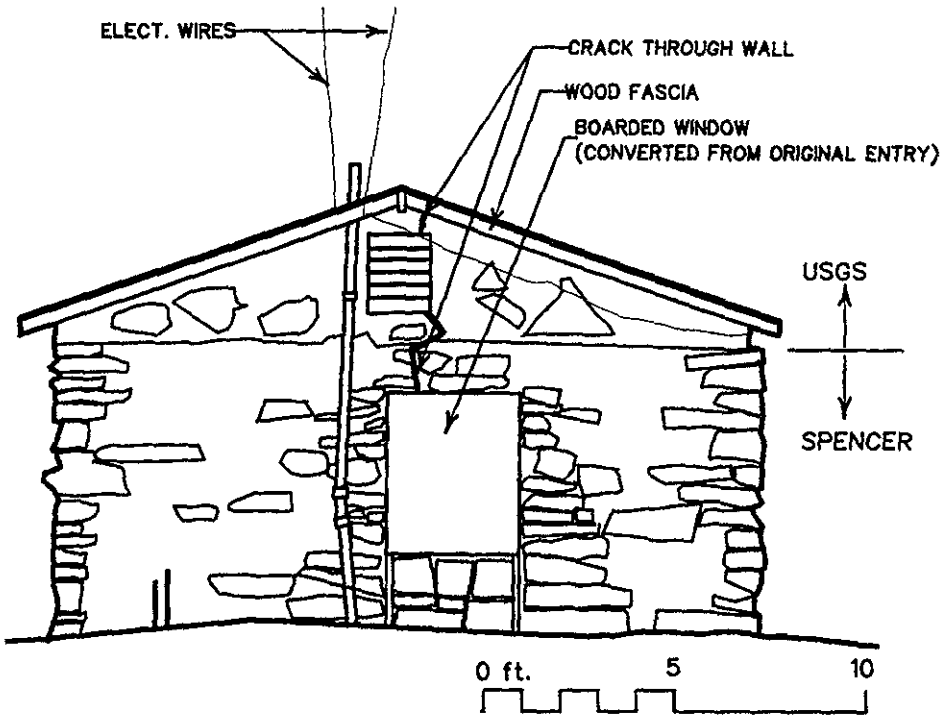


Figure 72: Spencer Building East Elevation

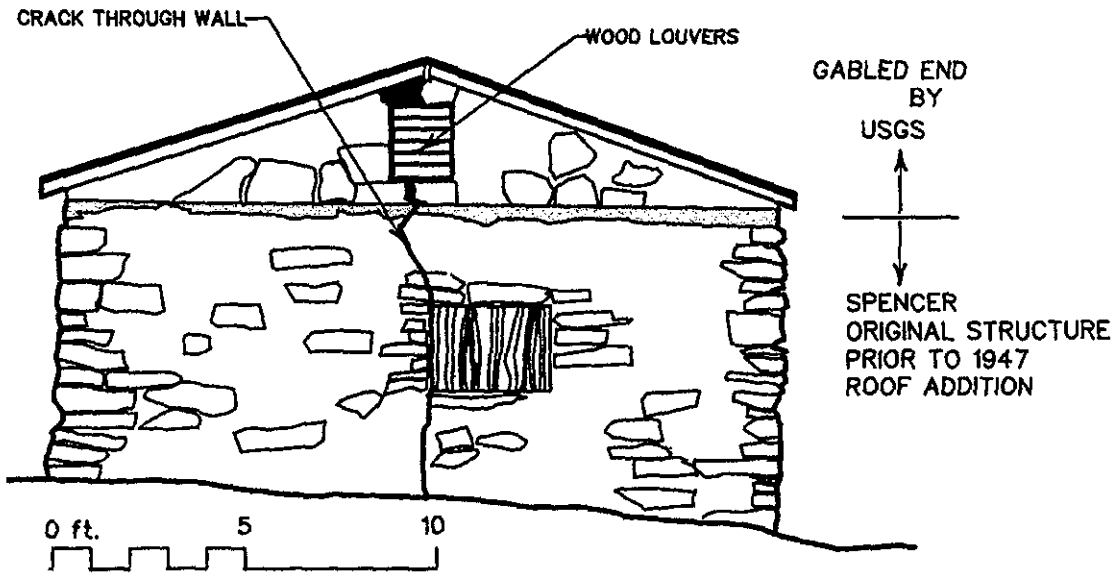


Figure 73: Spencer Building West Elevation

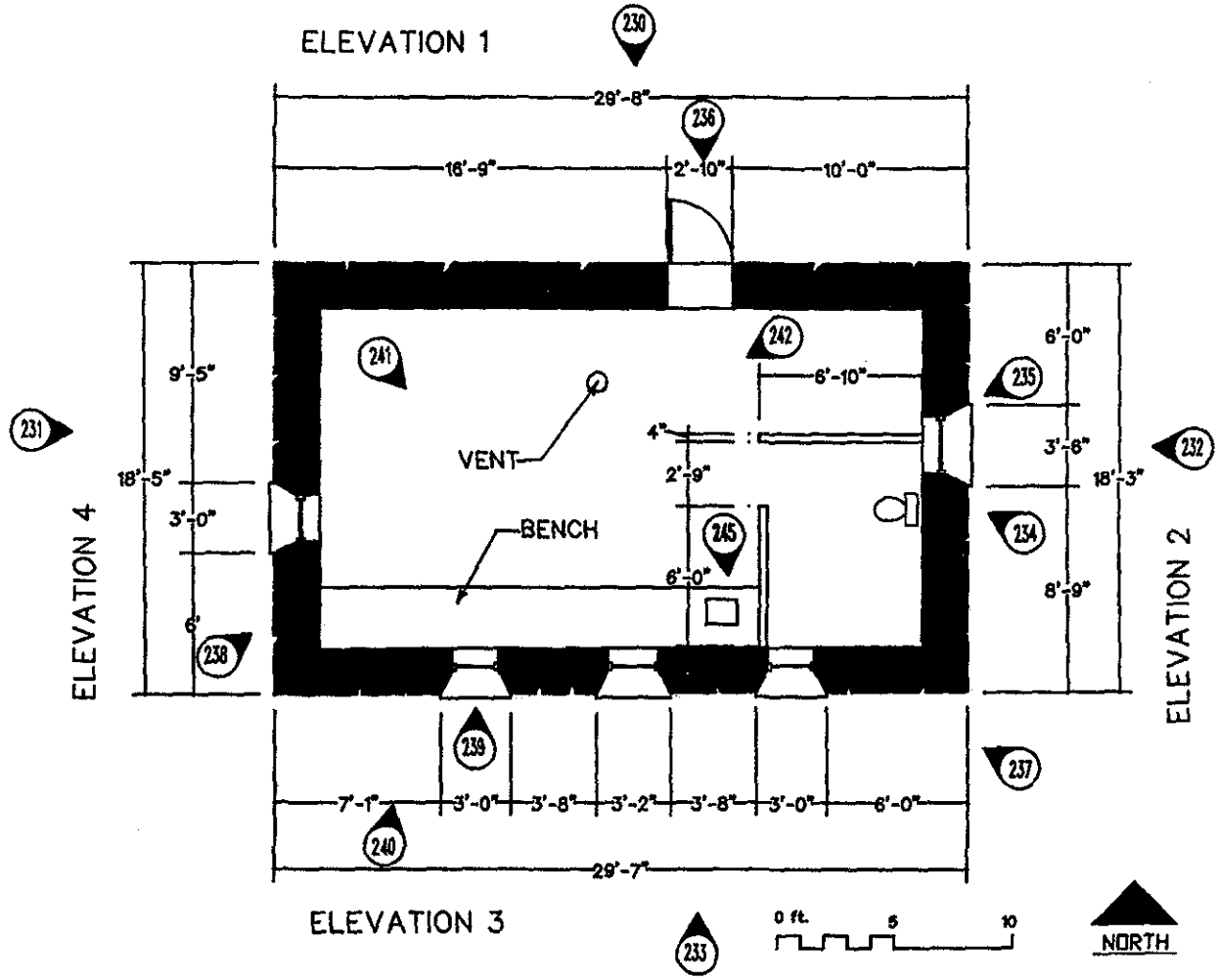


Figure 74: Spencer Building Floor Plan

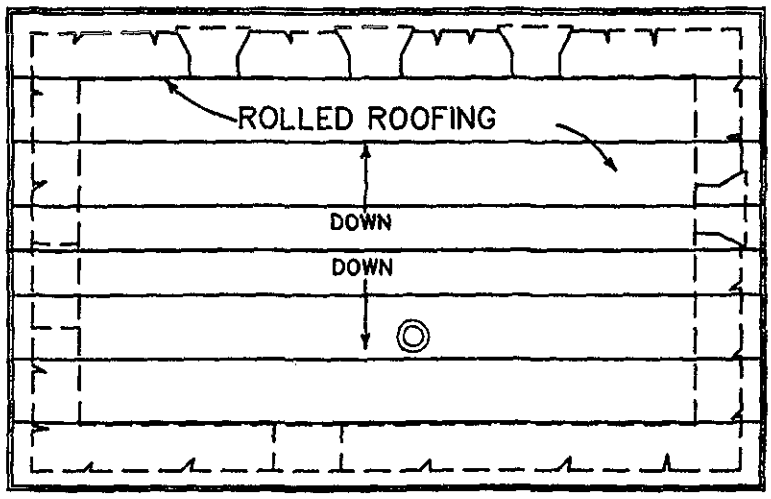
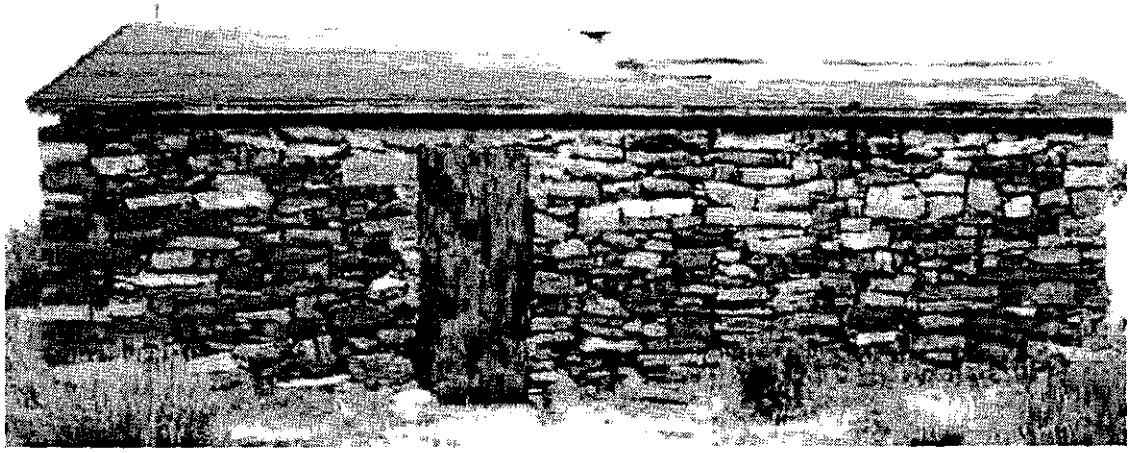
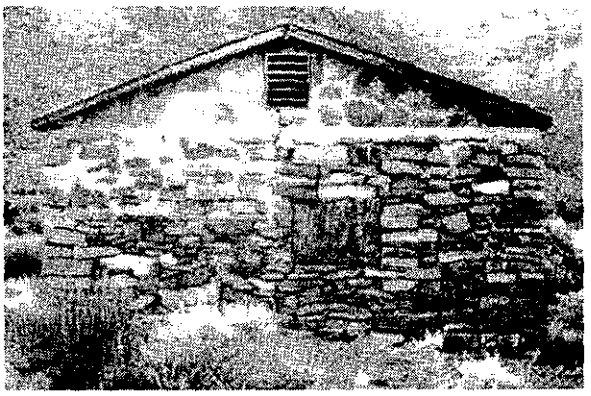


Figure 75: Spencer Building Roof Plan

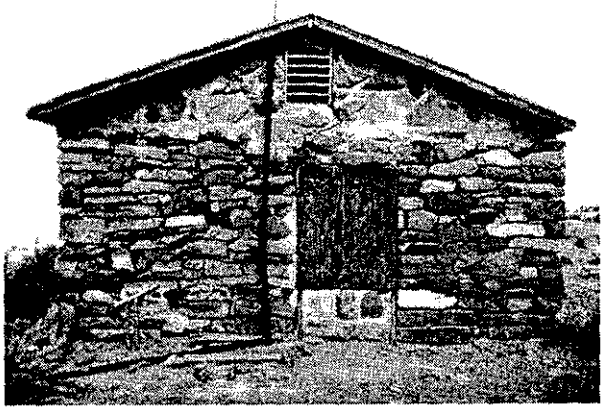
Existing Conditions Photographs – Spencer Building



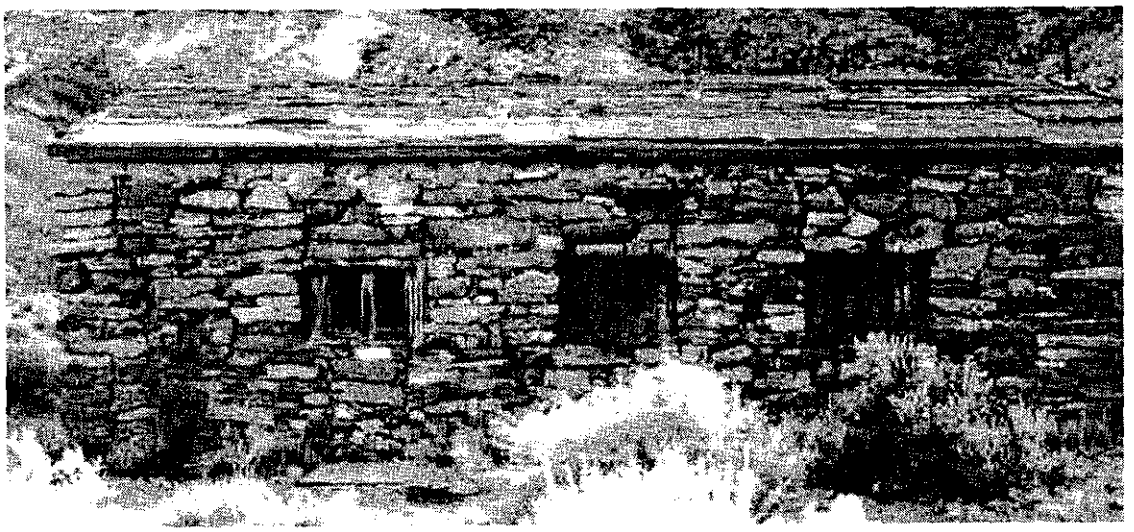
Photograph 230: North elevation.



Photograph 231: West elevation.



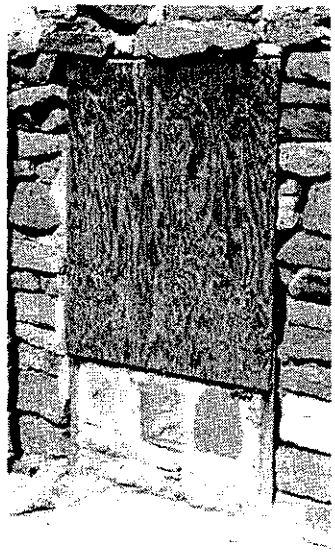
Photograph 232: East elevation.



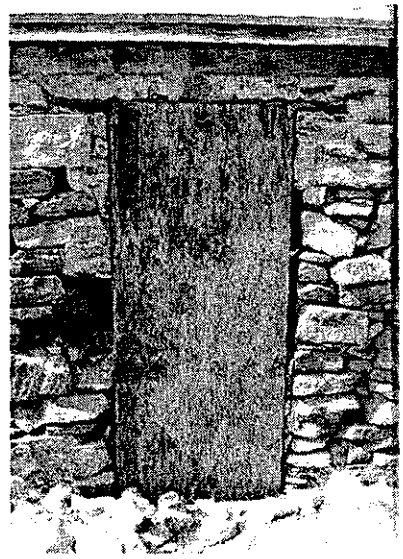
Photograph 233: South elevation.



Photograph 234: Crack at east vent.



Photograph 235: East window opening.



Photograph 236: North entry opening.



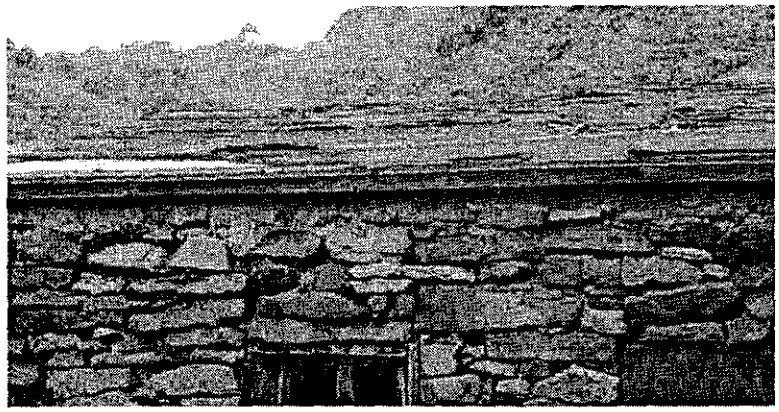
Photograph 237: Detail of wall jointing.



Photograph 238: Crack through west vent.



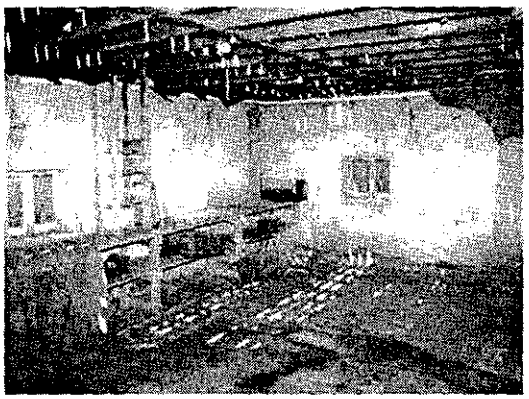
Photograph 239: Typical window.



Photograph 240: Roof condition.



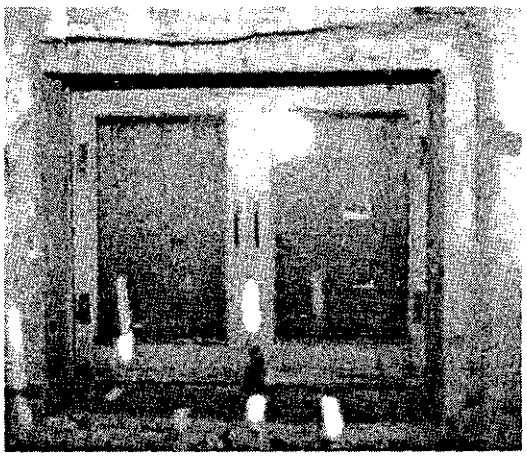
Photograph 241: Overview of interior, looking southeast.



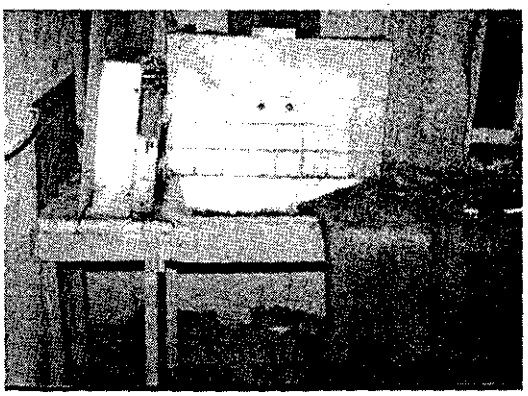
Photograph 242: Overview of interior, looking southwest.



Photograph 243: Entry door stored inside.



Photograph 244: Interior of boarded window.



Photograph 245: Work sink in bench.

Outline Chronology – Spencer Building

DATE	EVENT
1911	Spencer Bunkhouses built[188]
Fall 1921	Jerry Johnson converts building into unofficial school[189]
1925	Polygamists build new school, abandon use of this building[190]
November 1947	USGS remodels Spencer building for USGS residence.[191]
March-April 1950	USGS remodels Spencer building into sediment lab. Concrete floor, sink, shelves, butane stove, desk added.[192]
1967	USGS razes most Spencer buildings; NPS takes over site[193]
1969	HABS Documents Spencer Building[194]

[188] Reilly, Lee's Ferry, p. 242.
[189] Ibid., p. 314.
[190] Ibid., p. 327.
[191] P.T. Reilly, "Survey of Stone Buildings, Lee's Ferry," manuscript on file, Northern Arizona University, P.T. Reilly manuscript collection MS 275, Box 8, October 6, 1964; undated and untitled map, on file, Northern Arizona University, P.T. Reilly manuscript Collection MS 275, Box 8.
[192] See US Geological Survey, "Recent Compilation Photo Album," sheet 53, Arizona District Office, Flagstaff.
[193] Reilly, Lee's Ferry, p. 454.
[194] Walter A. Gathman and Donald A. Krueger, "Lee's Ferry, Coconino County," HABS/HAER Survey No. Ariz. 58, Library of Congress, Washington, D.C., (October 1965; Revised January 1969).

HS-223, USGS Residence

Chronology of Development and Use

This building was constructed by the USGS in 1950. Stones were salvaged from some of the 1910-11 Spencer buildings to provide material to construct the walls. The building was used as a residence or guest house.[195]

The building is relatively unaltered although in poor condition due to water damage. Maintenance activities executed by NPS after acquisition in 1967 include reglazing of windows, trimming back of nearby tamarisk trees, replacement of some roof sheathing boards, roofing, and painting of exterior wood. This work was done in the early 1980s (c. 1984). The doors and windows were boarded up with plywood shortly after repairs were completed.

NPS has used the building as an interpretive element of the Lee's Ferry site.

[195] Reilly, Lee's Ferry, p. 433. A photograph taken by "Johnson" in April of 1950 clearly shows the relationship between the "guest cabin" (USGS Residence, HS-223) and the "silt lab" (Spencer Building, HS-222). See US Geological Survey, "Recent Compilation Photo Album," sheet 53, Arizona District Office, Flagstaff.

Physical Description – USGS Residence

Overview

The building is single story, its stone walls forming a rectangular plan 19 feet by 17 feet. The roof is side-gabled, and built of conventional dimensional lumber. A small entry porch on the west side protects the single entry door. Steel casement windows are found on the other three facades. The interior has plastered wall surfaces over the stone structure, and floors are concrete slab on grade. Wood framed partitions finished in paperboard divide the interior into a main room, a closet, and a restroom. The original paperboard ceilings have been lost, exposing the roof structure.

Site

A tamarisk tree grows adjacent to the building on the south side (Photograph 256). The tree is in contact with the walls and eave of the building and has the potential to cause physical damage. Periodic reports by NPS staff have repeatedly identified this tree and recommended that it be trimmed back.

Walls

Exterior walls are rough sandstone, semi-coursed ashlar, set in portland cement mortar. The stones extend into the ground, and the foundation construction is not known. Mortar joints are relatively wide with grooved tooling. Door and window openings are spanned with single-stone lintels. Several of these lintels have cracked at the corners of the openings. One such crack appears at the entry door on the west side; another is above the east window (Photograph 252). Roofing tar has been drizzled over a portion of the north wall. The base of the east wall is partially eroded due to moisture backsplash from the roof.

Exterior Door

The entry door in place today does not appear to be the original. In fact, it appears to have been a half-screen door with a screened panel over a solid panel, separated by a horizontal rail. This door is in very poor condition and is basically inoperable. The latching hardware is missing. There is no trace of the original entry door.

Windows

Window units are multi-light steel casement types. Documents indicate that glass and glazing was replaced in 1984. The glazing workmanship was poor and the putty was never painted over. All of the windows except one have now been boarded up with plywood panels which have been bolted through the center mullion of each window. The painted finish on the steel window components is failing, with spots of rust showing up generally in all areas.

Roof

The roof is conventionally framed using finished dimensional lumber (Photograph 260). 2 x 4 rafters meet at a ridge beam and are tied together using 1x6 collar ties. Ceiling joists are independent from the rafters and are also 2 x 4 framing. 1 x 12 board sheathing spans between rafters. The roof structure is in good condition with the exception of the roof sheathing, much of which is water damaged. Several pieces of sheathing are new wood replacements dating to recent repair efforts.

The roof has two layers of rolled roofing, which includes mineral-surfaced asphalt cap sheet materials only (brown over green) over wood 1 x 12 board roof sheathing. A galvanized iron edge flashing is in place in good condition. The roofing appears to be nailed in place without asphalt mopping. The roof system has completely failed, exposing large areas of the roof sheathing to the elements and

admitting rainwater into the building (Photograph 253).

At the eaves, the underside of the rafters and sheathing is left exposed, the ends being trimmed with a 1 x 4 fascia board. 1" thick blocking is notched and fitted between the joists at the top plate of the wall. There are some remnants of white paint to be found under the eave, but there is virtually no paint left on the fascias. The fascia on the west side of the building is separating from the rafters and will probably soon be lost (Photograph 254). It is evident that several pieces of roof sheathing have been replaced with new wood painted brown, probably in the 1984 restoration program. The remaining paint finish has traces of brown paint over the earlier white, probably indicating a late change made by NPS.

An iron stovepipe in good condition passes through the roof and terminates in a weather cap.

Entry Porch

A small, shed-roofed entry porch roof protects the door on the west side. The structural connection of this porch to the rest of the building is tenuous. Each porch roof joist is connected to the bottom of a 2 x 4 wood plate using lag screws; this plate is then nailed up to the underside of several roof joists (Photograph 255). This places these nails in tension. The porch roof is supported on a pair of 2 x 4 posts, connected securely to the concrete porch slab with steel angle clips and lag screws. The paint finish on the posts has failed.

Vents

Attic ventilators appear at each gable end. The vents are fabricated from 1 x 6 lumber and painted white. They are relatively intact.

Electrical System

Remnants of a knob-and-tube wiring system are evident on the north side of the building, with wires connecting this structure to the Spencer Bunkhouse to the west.

Interior

The interior of the building includes a living area, a closet, and a bathroom with shower, lavatory, and water closet. It is being slowly degraded by water intrusion through the roof.

The interior side of the exterior stone walls throughout are finished with portland cement plaster applied over the structural stone. Interior partitions are wood framed with a painted paperboard finish. Areas of plaster as well as significant portions of the interior partitions have been water damaged. In addition, vandals have largely damaged the interior partitions (Photograph 258).

Floors throughout are concrete, which have been painted gray. The floor was carefully constructed with control joints, and no major cracking was noted.

The ceilings were originally paperboard over the wooden ceiling joists. Virtually all of the ceilings have been lost or damaged due to roof leaks.

There are no interior doors remaining in the building. A door was originally provided to the bathroom.

1 x 2 wood trim is used as baseboard, to trim the top of walls, and as door casing. Trim at the base and wall top has a molded profile, while the casings have a rectangular section. The base and wall moldings have been significantly water damaged, with only about half of the material in restorable condition.

Plumbing System

Plumbing fixtures appear original (Photograph 259). The shower is a

prefabricated enameled steel unit, in poor condition. The top rail is rusted and the unit is very dirty. The wall-hung lavatory is intact, but dirty. An intact medicine cabinet is provided above the lavatory. The water closet, also intact but dirty, has a cracked seat.

Existing Conditions Drawings – USGS Residence

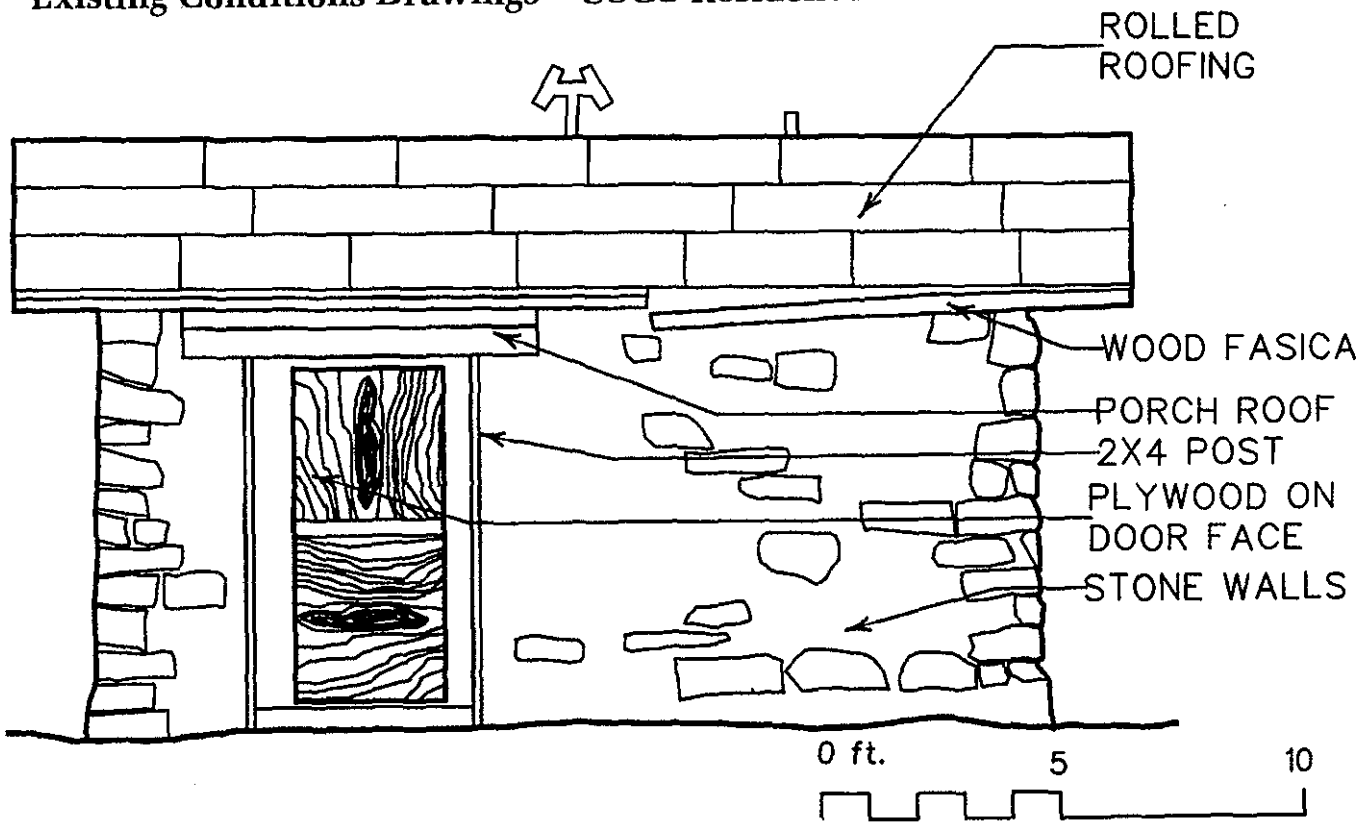


Figure 76: USGS Residence West Elevation

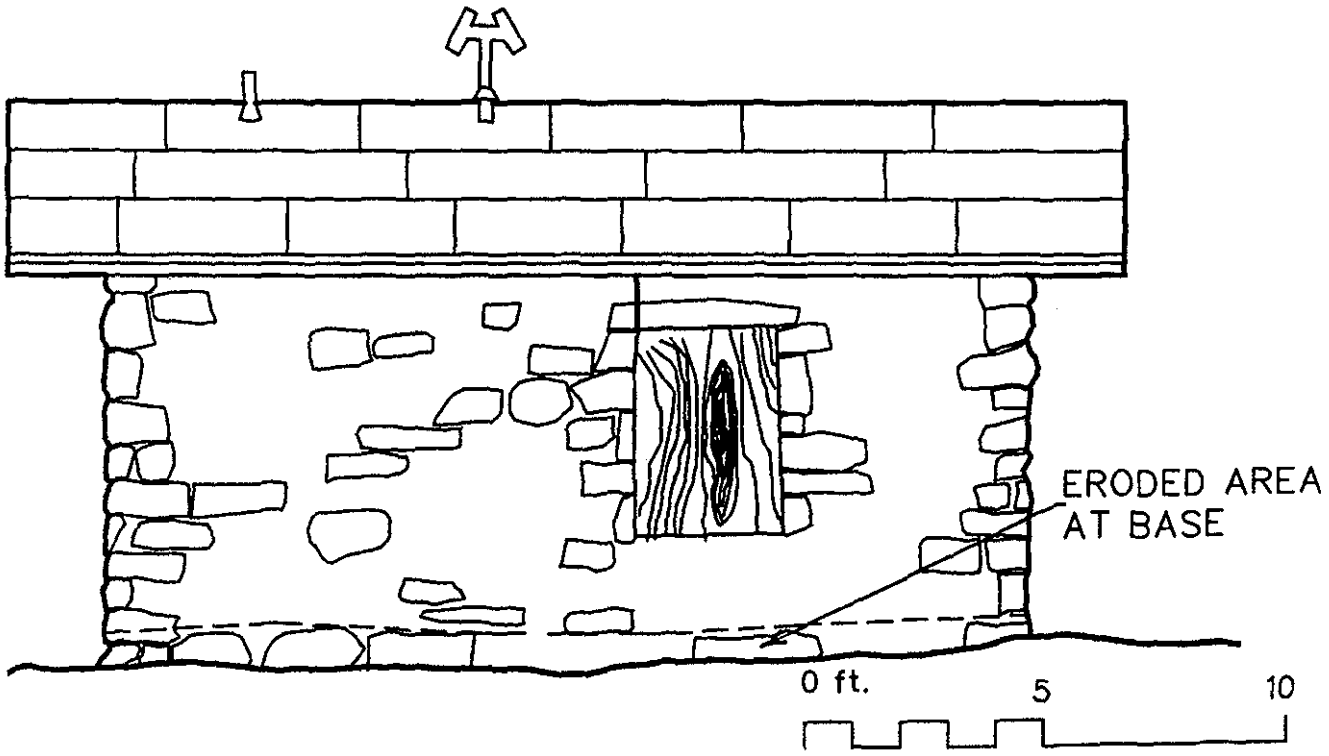


Figure 77: USGS Residence East Elevation

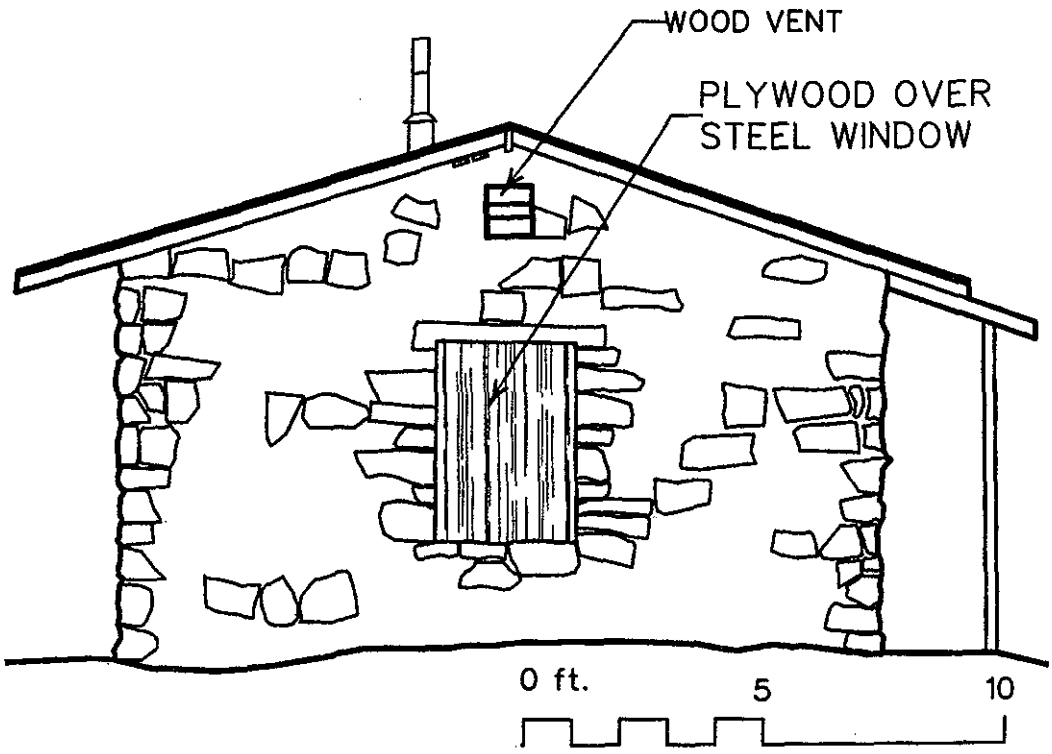


Figure 78: USGS Residence North Elevation

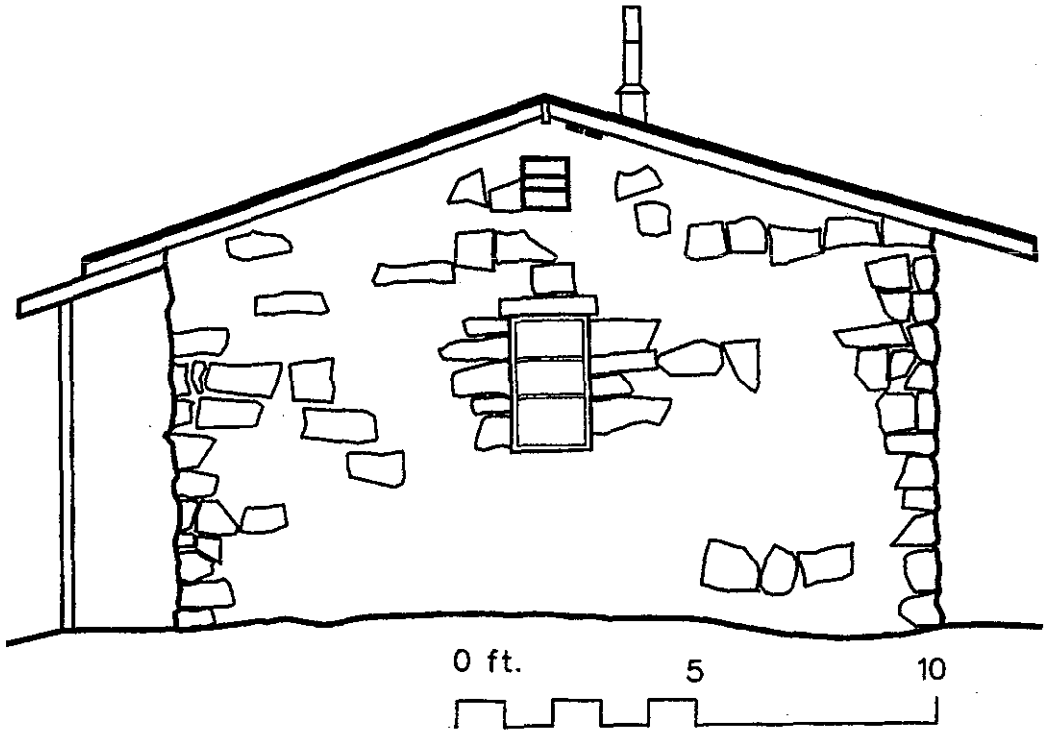


Figure 79: USGS Residence South Elevation

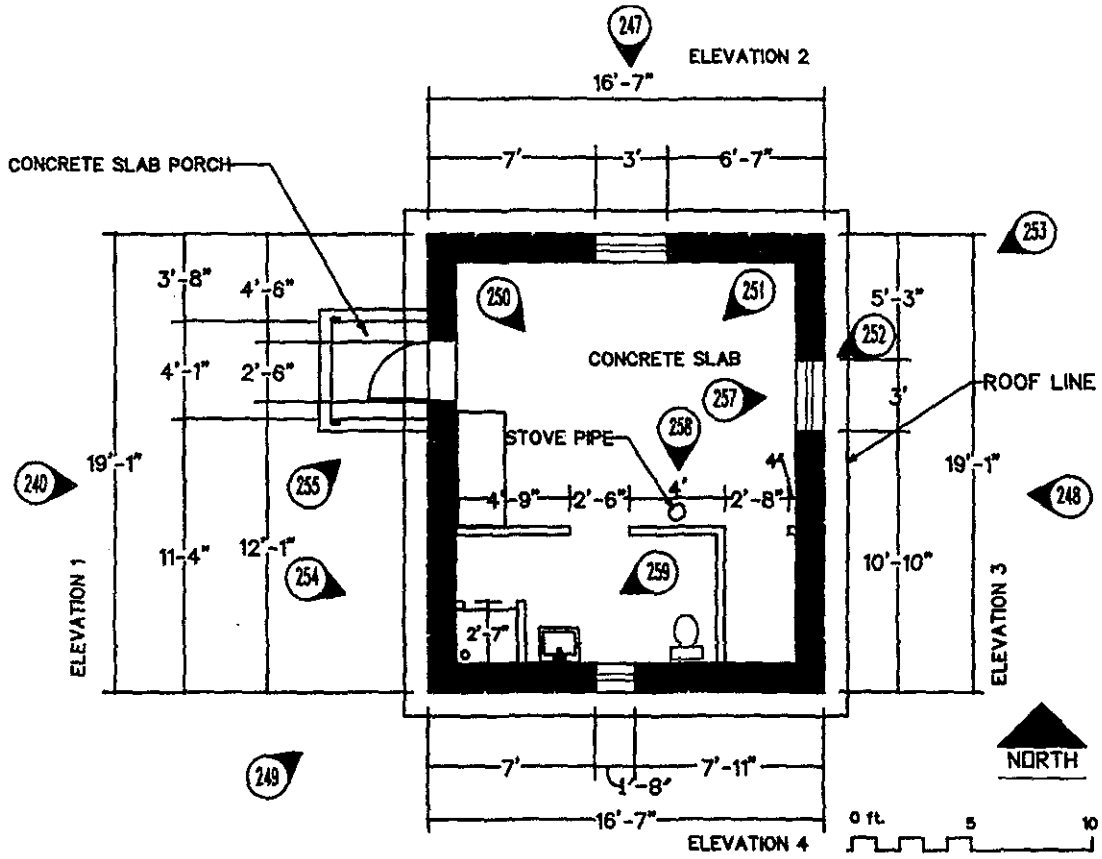


Figure 80: USGS Residence Floor Plan

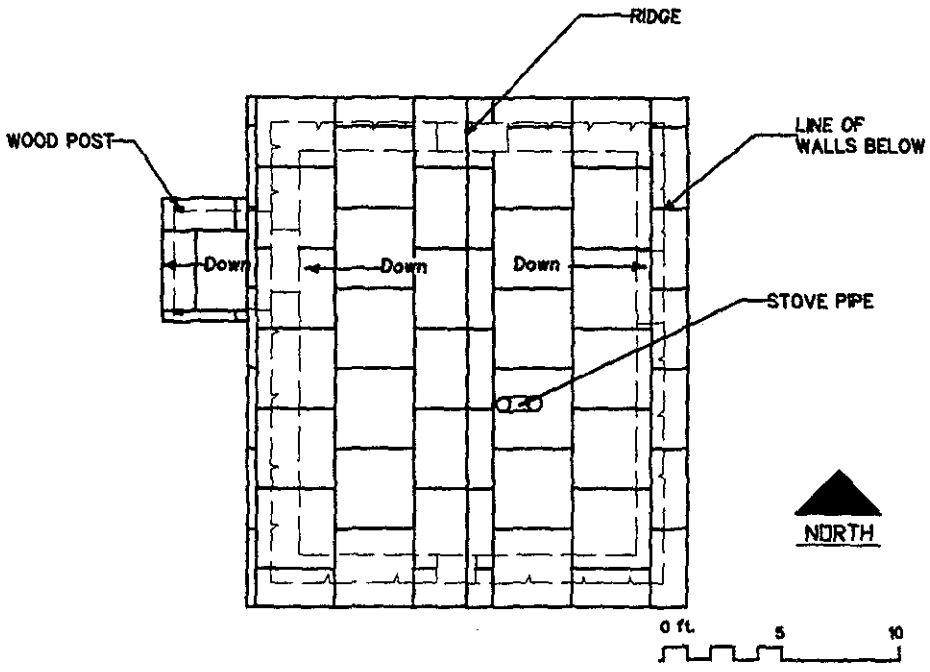
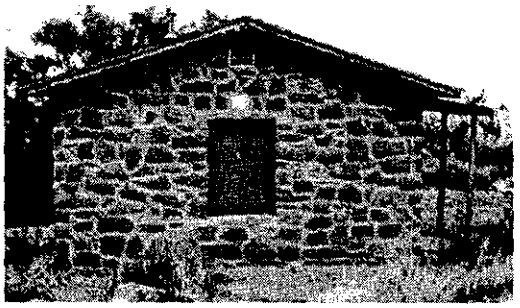


Figure 81: USGS Residence Roof Plan

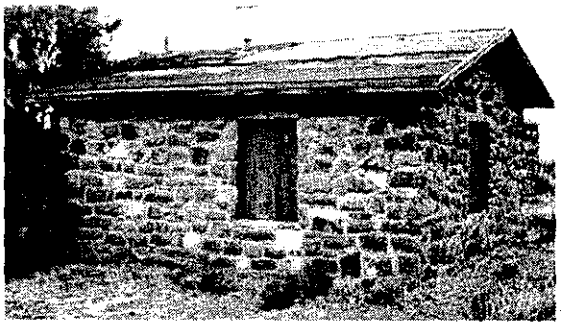
Existing Conditions Photographs



Photograph 246: USGS Residence west elevation.



Photograph 247: USGS Residence north elevation.



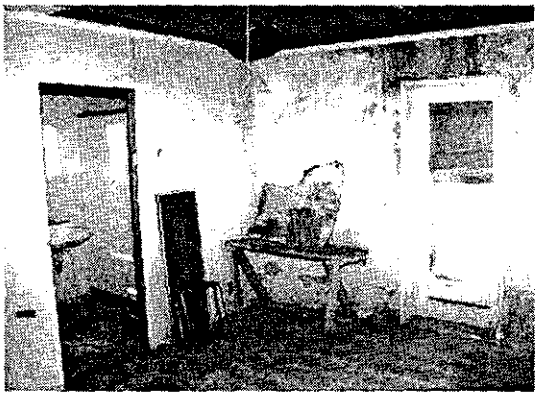
Photograph 248: USGS Residence east elevation.



Photograph 249: USGS Residence south side.



Photograph 250: Interior, looking southeast.



Photograph 251: Interior, looking southwest.



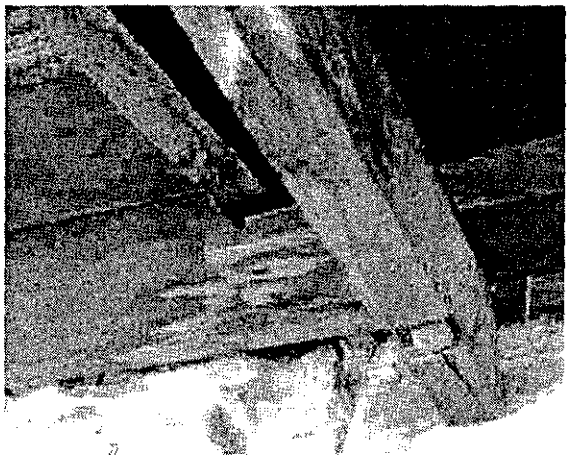
Photograph 252: Crack above east window.



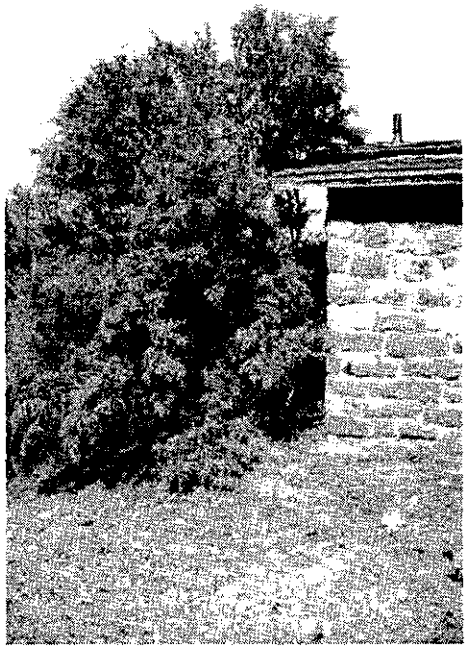
Photograph 253: Roof condition.



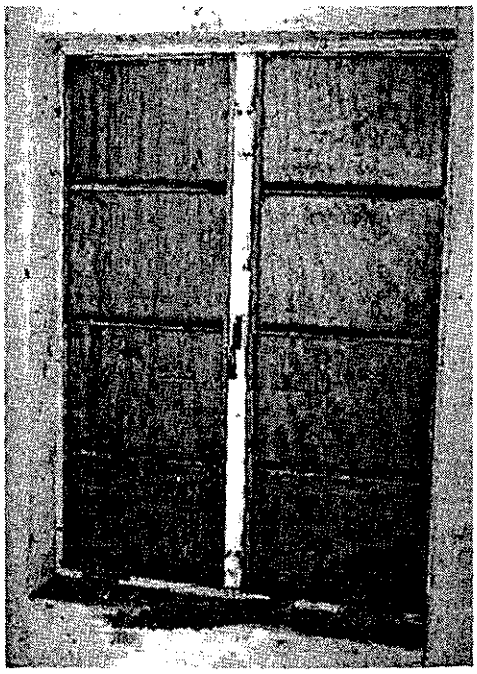
Photograph 254: Deteriorating fascia at west eave.



Photograph 255: Porch roof attachment to eave.



Photograph 256: Tamarisk tree at south side.



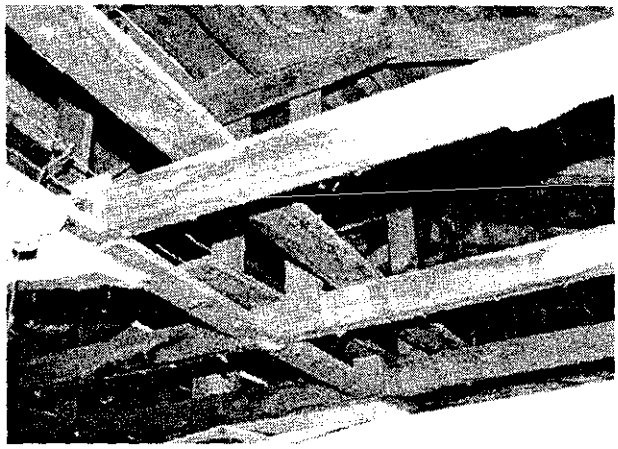
Photograph 257: Typical window interior.



Photograph 258: Interior wall damage.



Photograph 259: Restroom plumbing fixtures.



Photograph 260: Roof and ceiling framing.

Outline Chronology –USGS Residence

DATE	EVENT
May 1950	Building constructed from salvaged stones of Spencer's buildings[196]
1967	Former USGS site turned over to NPS
1984	NPS maintenance activities: roof, windows[197]

[196] Reilly, Lee's Ferry, p. 433.
[197] Park maintenance records

Upper Ferry Site

Chronology of Development and Use

The Upper Ferry Site includes the remains of five primary structures, generally referred to by number. Ferry service was moved to the site in 1899. The various structures at the Upper Ferry Site were probably all constructed between 1900 and 1928 to support ferrying activities and the residence of the ferryman.[198]

Remaining wooden structures at the site were burned down in 1959 or 1964, depending on the source. The most reliable source is probably C. Gregory Crampton, who claimed to have photographed the site in 1959 shortly after it was burned.[199]

The various features were documented and stabilized by a Nickens & Associates archeological crew under contract to the NPS in 1986. The Park Service uses the structures as interpretive features of the Lee's Ferry site.[200]

Structure #1 (LFSCABIN, South Cabin at Upper (Main) Ferry Site)

This structure is also known as the "Louse House". The Louse House dates to at least 1932, although it could have been constructed as early as 1900. It was apparently used to house passing travelers. It consisted of a base of stone walls in a rectangular footprint with a superstructure of logs. The stone originally continued up to the roof level on the river side of the cabin. The roof was earth, supported on logs. A single door and window faced the river. The wooden superstructure of the building was burned. Nickens & Associates stabilized the remaining stone walls in 1986.[201]

Structure #2 (LFNCABIN, North Cabin at Upper (Main) Ferry Site)

This structure was built by Frank Johnson in the winter of 1913-14. Johnson had been hired as ferryman and wanted a residence closer to the ferry than Lonely Dell Ranch. The north (downstream) half of the cabin was constructed of logs. A shed-roofed extension was built on the south. Apparently stone was used in construction of the east wall and fireplaces, and for other foundation and wall elements. The structure was burned in 1959, leaving only portions of the stone

---

[198] Reilly, Lee's Ferry, p. 174.

[199] W.L. Rusho, Lee's Ferry: Desert River Crossing (Salt Lake City: Tower Productions, 1998), p. 101 refers to the "Louse House;" Crampton photographs PO197 48b:1:4 and 48b:1:5, September 20, 1959, University of Utah Special Collections, show the Frank Johnson cabin shortly after it burned. In his book, P.T. Reilly dates the fire to 1964 and the reports the arsonist at Larry Lopp; see Reilly, Lee's Ferry, p. 447

[200] For the ferry site see Susan Eininger and Jonathon C. Horn, "Historical Documentation and Structural Stabilization of the Main Ferry Site, Lee's Ferry National Historic District," Ruins Stabilization Technical Report No. 25. (Montrose, Colorado: Nickens and Associates, 1987). Work at the dugway is described by Jonathon C. Horn and Susan Eininger, "Stabilization Assessment of Lee's Ferry Dugway, Glen Canyon National Recreation Area," Ruins Stabilization Technical Report No. 20 (Montrose, Colorado: Nickens and Associates, 1986). A complete summary of the entire project throughout the park is contained in James Firor and Susan Eininger, "Stabilization Monitoring: A Review of the Years 1-3 Stabilization Work at Glen Canyon National Recreation Area, 1984-87," Ruins Stabilization Report No. 44 (Montrose, Colorado: Nickens and Associates, 1987).

[201] The reference to the "Louse House" is found in Rusho, Desert River Crossing, p. 101. Nickens, Report No. 25, pp. 60-65.

masonry intact. Stone features were stabilized by a Nickens & Associates archeological team in 1986.[202]

Structure #3 (Small Corral)

This irregular oblong shaped structure of low stone walls probably dates to the Johnson era (1914-25). It was probably used as a small corral or possibly a chicken coop. The original appearance of this structure has not been discovered. Any wooden elements are no longer in evidence. The structure was stabilized by a Nickens & Associates archeological team in 1986.[203]

Structure #4 (ecorral, Large Corral)

The large corral of low stone walls, open to the river on one side, most likely dates to the Johnson era as well, but may date to as early as 1899 to house sheep and cattle until they could be transported across the river. The early appearance of this structure has not been established. The structure was stabilized by Nickens & Associates team of archeologists in 1986.[204]

Structure #5 (wcorral, Dugout)

This structure, the dugout or powder magazine, apparently dates to the Spencer era, approximately 1911. The idea that the structure was used to store explosives is conjectural, based on the location of the structure in relation to other Lee's Ferry buildings and the construction type.[205]

[202] Reilly, Lee's Ferry, pp. 257, 290; Crampton, 1959 photos; Nickens, Report No. 25, pp. 65-68.
[203] Nickens, Report No. 25, pp. 68-70.
[204] Ibid., pp. 70-72.
[205] Ibid., pp. 72-74.

Historical Photographs - Upper Ferry Site



Photograph 262: Overview of Upper Ferry Site, 1921. *USGS*



Photograph 261: Frank Johnson Cabin (Structure #2), c. 1925 *Sharlot Hall Museum*



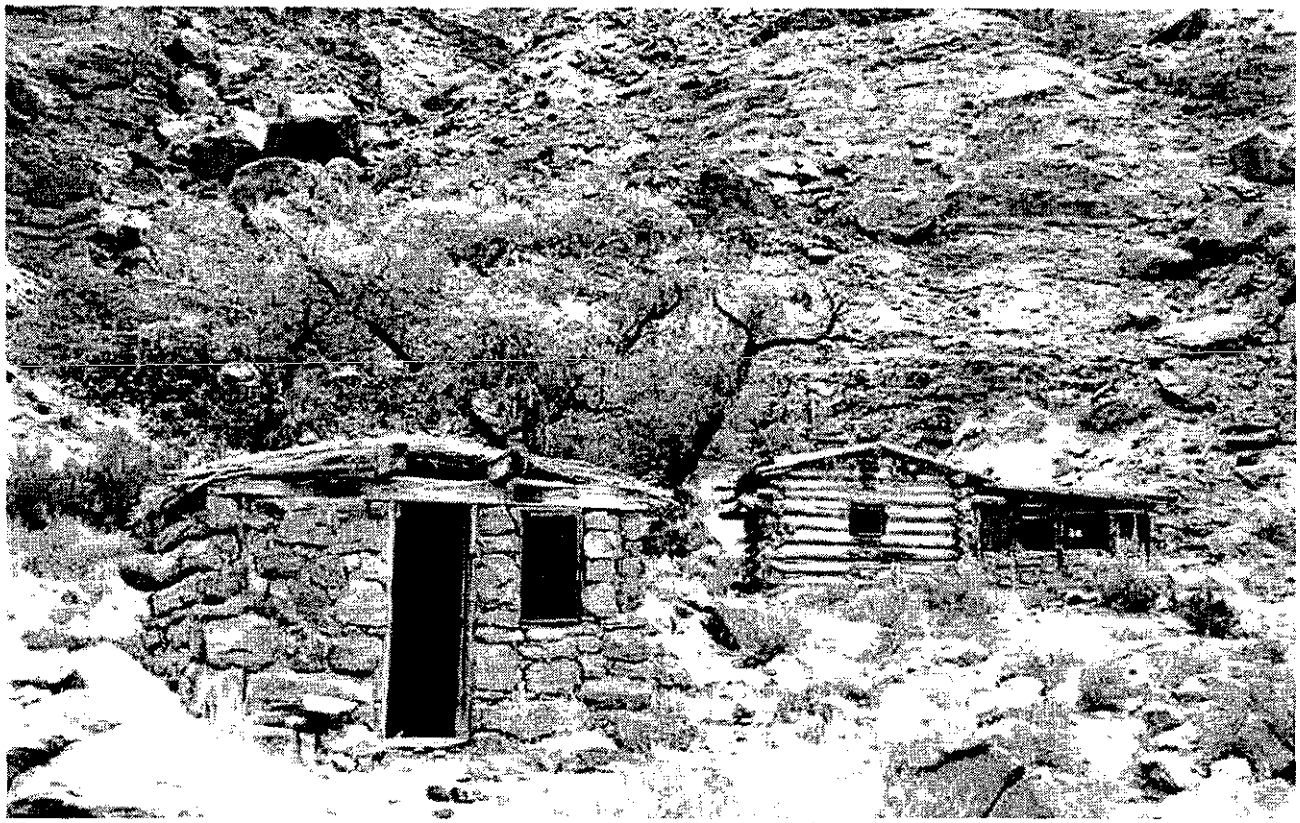
Photograph 263: Louse House (Structure #1) and a ramada, 1932. *Utah State Historical Society*



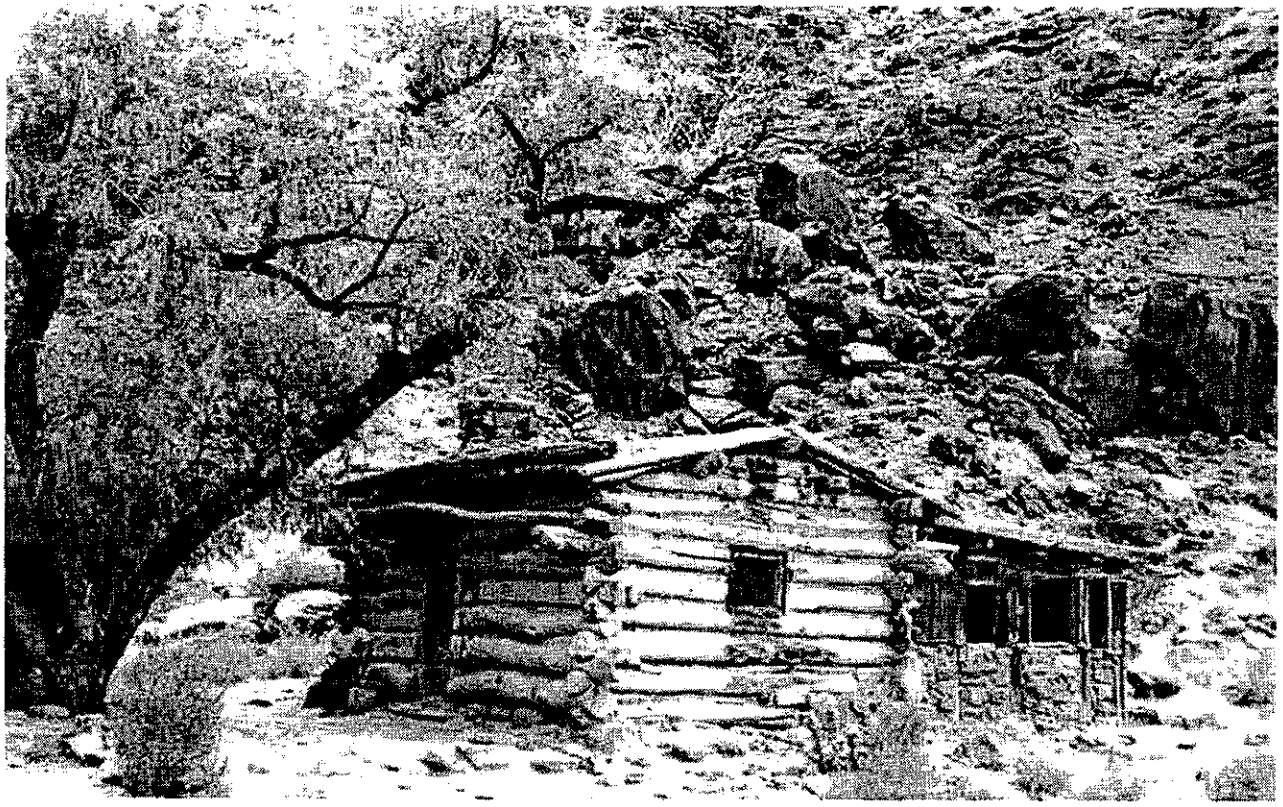
Photograph 264: Log cribbing for ferry cable (left) and the Louse House (Structure #1) (right), 1936.
Utah State Historical Society



Photograph 265: Overview of the Upper Ferry Site, 1936. *Utah State Historical Society*



Photograph 266: Louse House (Structure #1) and Frank Johnson Cabin (Structure #2), 1949.
University of Utah, Crampton Collection



Photograph 267: Frank Johnson House, c. 1949. *University of Utah, Crampton Collection*

Physical Description – Upper Ferry Site

Overview

The Upper Ferry Site is a complex group of archaeological features including partially standing structures (Figure 82). The five structures evaluated here are all built of dry-laid or mortared local sandstone, and include foundations and/or partial walls. No superstructures such as roofs remain. These five structures, as well as others, were documented and stabilized in 1986.

Structure #1 (LFSCABIN, South Cabin at Upper (Main) Ferry Site)

This is a rectangular structure consisting of four-foot high sandstone walls laid in mud mortar (Figure 83, Photograph 270). A door opening is found on the south side, facing the river. This structure was substantially stabilized in 1986. Previous documentation indicates that the east wall of the structure had partly collapsed by 1986 and that the structure was stabilized in this condition. However, the damage to this wall visible today indicates that the wall collapse is progressing (Photograph 275). Because the top course of stones was left off this area, rainwater could continue to saturate the interior of the wall and erode the adobe mortar. There has been some additional mortar deterioration, mostly limited to the top courses of stone masonry.

Structure #2 (LFNCABIN, North Cabin at Upper (Main) Ferry Site)

This structure has significant above-ground features on the northeast side of the site (away from the river) (Figure 84, Photograph 271). Features include a pair of fireplaces and remnants of stone walls. The rest of the site is limited to foundation stones and rock rubble. This structure, too, was significantly stabilized in 1986. There appears to be little or no change since that stabilization effort was completed. Like Structure #1, there has been some erosion of mud mortar due to rainwater.

Structure #3 (Small Corral)

This is an irregular structure of dry-laid stone masonry (Figure 85, Photograph 272). The irregular shape of the stone walls takes advantage of pre-existing stone monoliths to form some parts of the corral. There has been no discernable change to this structure following stabilization and documentation in 1986.

Structure #4 (ecorral, Large Corral)

Pre-existing stone monoliths were integrated into dry-laid field stone walls to enclose as much area as possible (Figure 87, Photograph 274). The structure is largely unchanged since the 1986 stabilization and documentation. Some erosion of the hill at the upper end (northeast) of the corral has occurred, due to natural drainage from the hillside above. A channel has been cut along the northeast border of the corral, running northwest and west to the river. Some continuing damage also occurs from hikers, since the main foot trail upriver from this point passes through the center of the corral.

Structure #5 (wcorral, Dugout)

This structure is substantially unchanged from when stabilization was completed (Figure 86, Photograph 273). It appears stable at this time. Future impacts to be consider include potential erosion from water streaming down the hill, and damage from hikers traveling along the trail which leads through the structure.

Existing Conditions Drawings – Upper Ferry Site

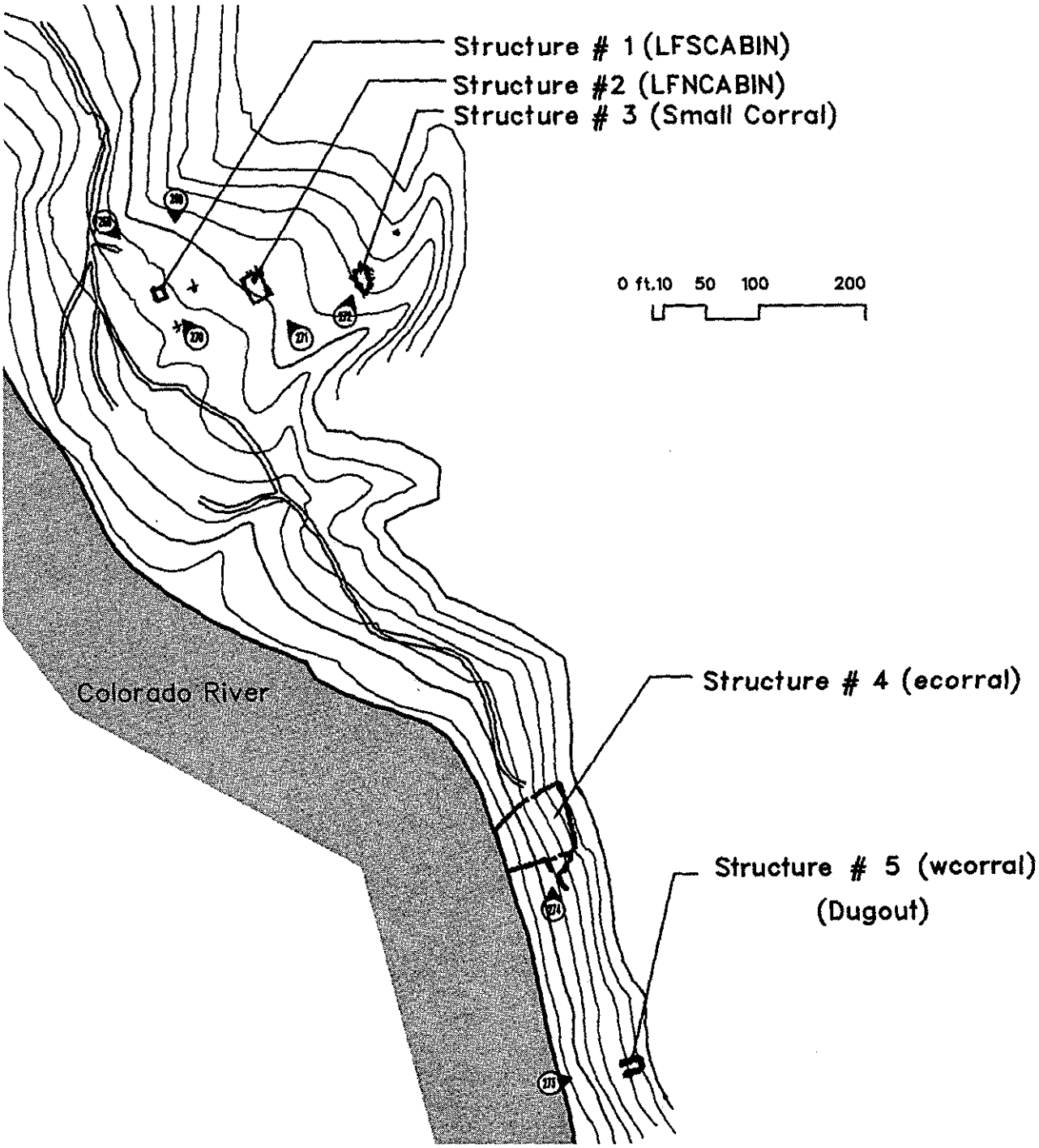


Figure 82: Upper Ferry Site Plan

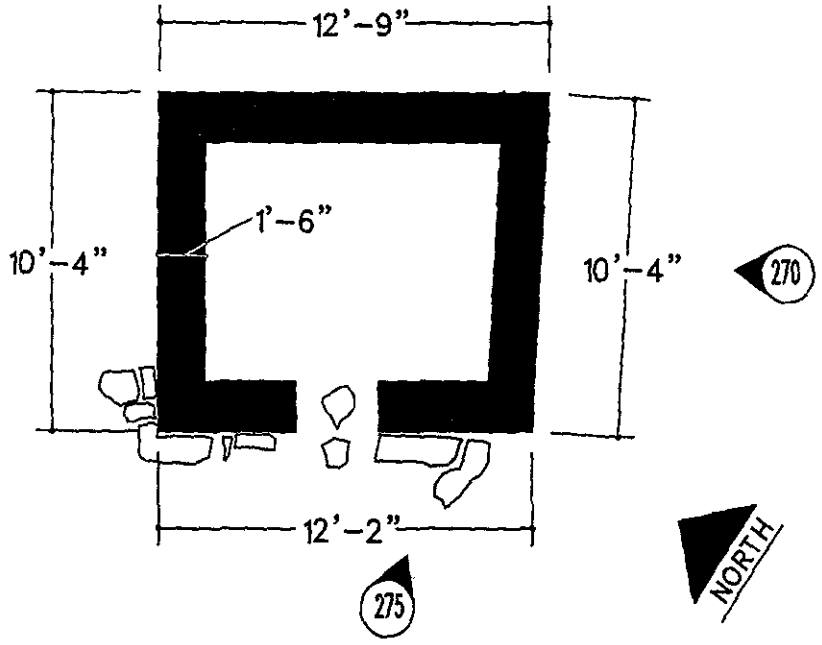


Figure 83: Upper Ferry Structure #1 (Louse House)

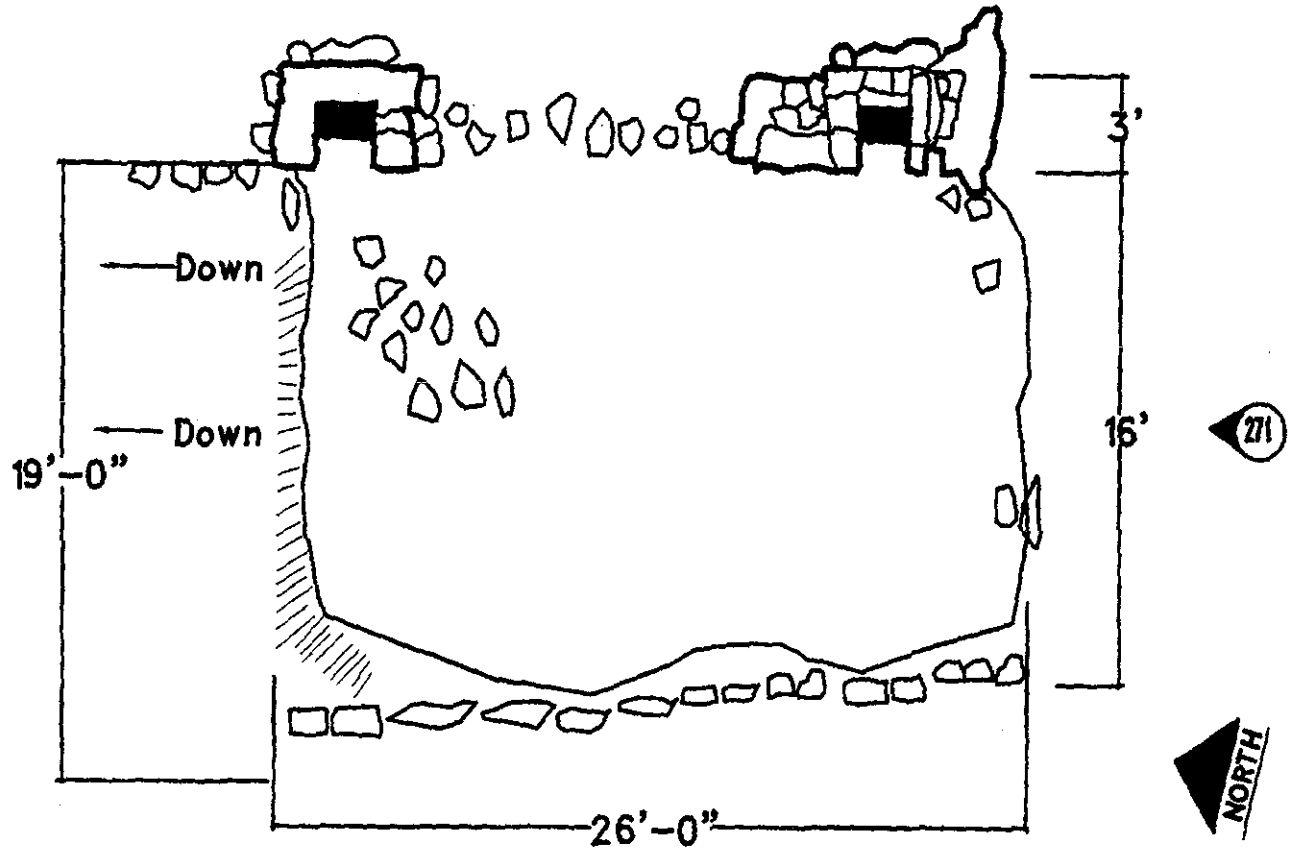


Figure 84: Upper Structure #2 (Frank Johnson Cabin)

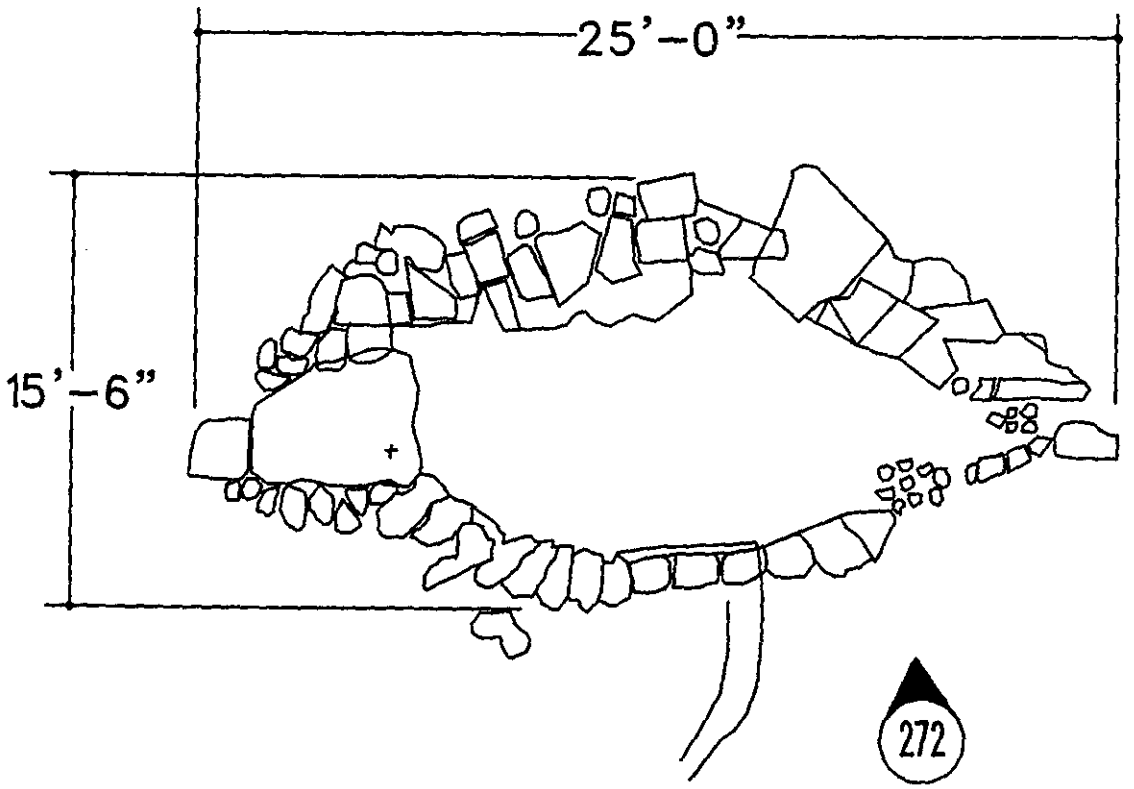


Figure 85: Upper Ferry Structure #3 (Small Corral)

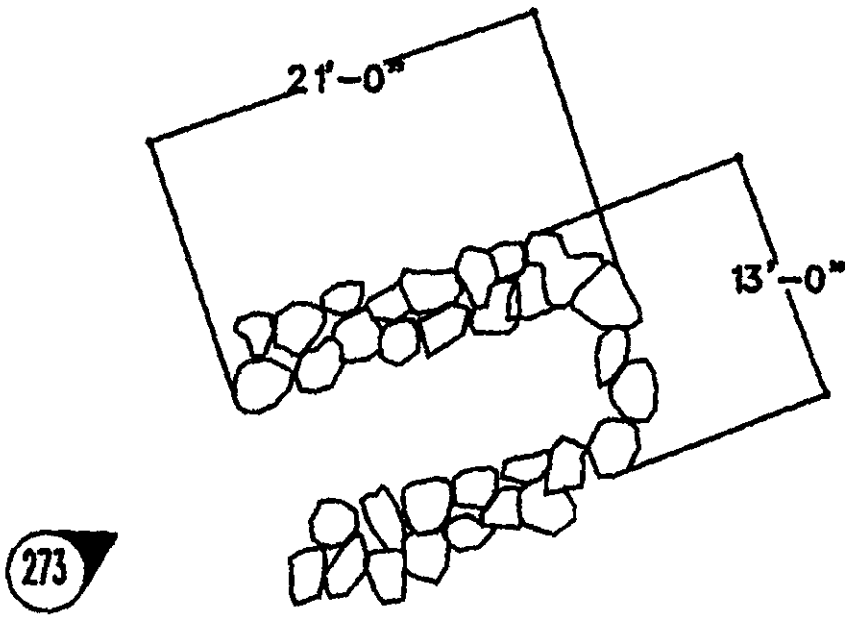


Figure 86: Upper Ferry Structure #5 (Dugout)

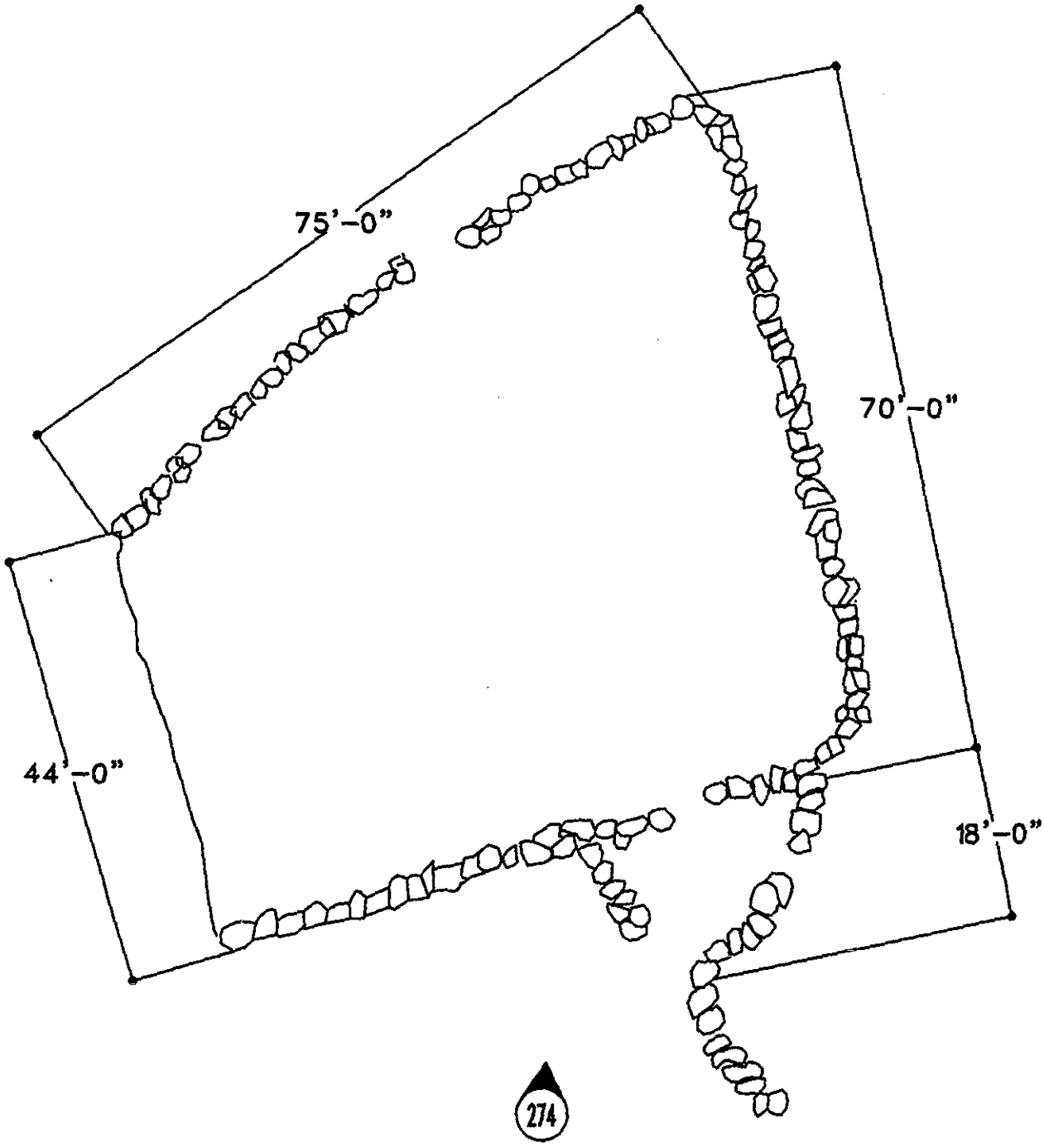
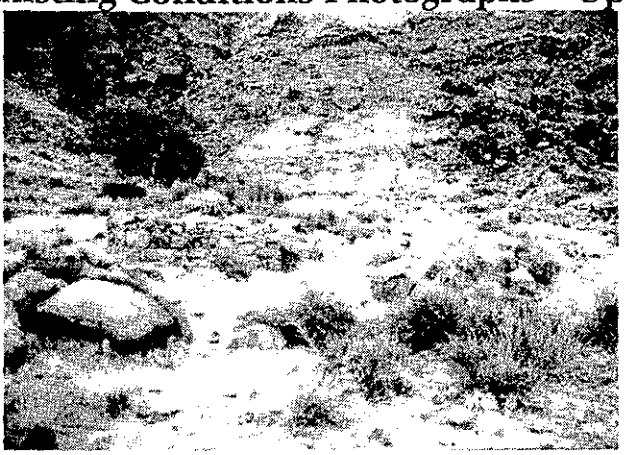


Figure 87: Upper Ferry Structure #4 (Large Corral)

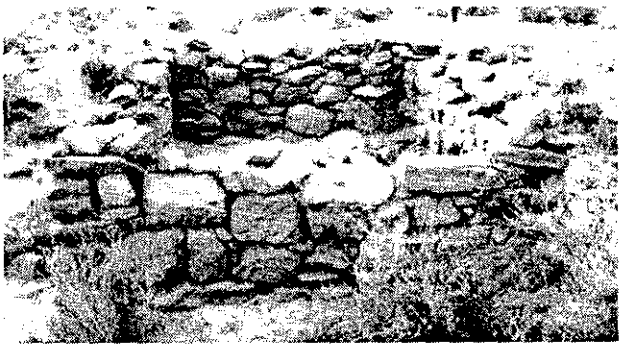
Existing Conditions Photographs – Upper Ferry Site



Photograph 268: Overview of site looking east.



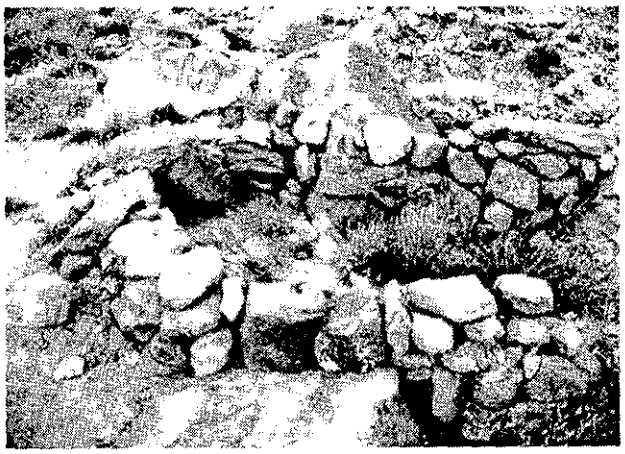
Photograph 269: Overview of site looking south. Structure #1 in foreground.



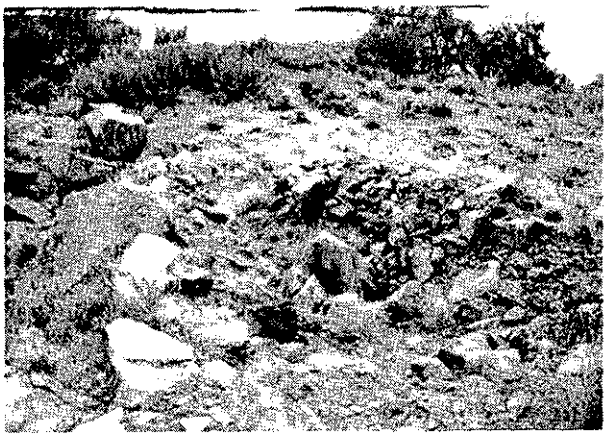
Photograph 270: Structure #1, the "Louse House".



Photograph 271: Structure #2, the remains of the Frank Johnson Cabin.



Photograph 272: Structure #3, the Small Corral.



Photograph 273: Structure #5.



Photograph 274: Structure #4, the Large Corral.



Photograph 275: Partially collapsed wall of Structure #1.

Outline Chronology – Upper Ferry Site

DATE	EVENT
1899	Ferry relocated to this site; John E. Brown & Jerry Johnson erect cable (first cable ferry); log crib constructed[206]
1913-14	Frank Johnson cabin built[207]
1922	Frank Johnson leaves ferry[208]
1925	Owen Clark and wife move into Frank Johnson cabin ("Papacito" & "Sweeter")[209]
1928	Ferry service discontinued after cable breaks
1933	Bobby & Betty Jo Games occupy Frank Johnson cabin[210]
1959	Johnson Cabin; Louse House burned[211]
1964	Lopp reportedly burns down Johnson cabin[212]
1986	Nickens stabilization work[213]

[206] Reilly, Lee's Ferry, p. 174.
[207] Ibid., p. 257.
[208] Ibid., p. 290.
[209] Ibid., p. 311.
[210] Ibid., p. 366-7.
[211] W.L. Rusho, Lee's Ferry: Desert River Crossing (Salt Lake City: Tower Productions, 1998), p. 101 refers to the "Louse House;" Crampton photographs PO197 48b:1:4 and 48b:1:5, September 20, 1959, University of Utah Special Collections, show the Frank Johnson cabin shortly after it burned. In his book, P.T. Reilly dates the fire to 1964 and the reports the arsonist at Larry Lopp; see Reilly, Lee's Ferry, p. 447
[212] Reilly, Lee's Ferry, p. 447. Although used by Reilly, this date appears to be incorrect based on the Crampton photographs.
[213] Susan Eininger and Jonathon C. Horn, "Historical Documentation and Structural Stabilization of the Main Ferry Site, Lee's Ferry National Historic District," Ruins Stabilization Technical Report No. 25. (Montrose, Colorado: Nickens and Associates, 1987). Work at the dugway is described by Jonathon C. Horn and Susan Eininger, "Stabilization Assessment of Lee's Ferry Dugway, Glen Canyon National Recreation Area," Ruins Stabilization Technical Report No. 20 (Montrose, Colorado: Nickens and Associates, 1986). A complete summary of the entire project throughout the park is contained in James Firor and Susan Eininger, "Stabilization Monitoring: A Review of the Years 1-3 Stabilization Work at Glen Canyon National Recreation Area, 1984-87," Ruins Stabilization Report No. 44 (Montrose, Colorado: Nickens and Associates, 1987).

PART 2: TREATMENT AND USE

General Information: Regulatory Considerations

Building Safety

Buildings are required to meet certain minimum standards to protect life and property from fire, structural failure, and other hazards. Specifically, conditions that represent an imminent hazard must be abated. New features added to a building, even if replicating an earlier condition, must generally comply with modern requirements for new construction. On the other hand, conditions which are not hazardous, but which never the less do not comply with modern building safety standards, are allowed to remain unchanged as long as the use of the building is not changed to a more hazardous use.

In general, the buildings reviewed in this study will be used as interpretive elements and not open to the public, or open to limited occupancy only. This use represents a low level of hazard.

Specific hazardous conditions that require treatment are discussed in the following sections on each structure.

Accessibility to the Disabled

All public buildings and sites are required to be accessible to the physically disabled by the Americans with Disabilities Act (ADA). As civil rights legislation, as opposed to a building code or ordinance, compliance with ADA at this time is relatively subjective and subject to judicial interpretation. The Americans with Disabilities Act Guidelines (ADAAG) attempt to codify circumstances that will result in accessibility in most situations. Specific mention is given to historic structures in ADAAG, allowing some variance from the guidelines where historic integrity of the resource will be affected. The intent of the guidelines it to achieve "reasonable accommodation" of disabled persons. The key requirement that distinguishes ADAAG from other accessibility legislation is that it is retroactive, applying to all public buildings whether new, altered, or existing.

As Federally owned buildings, all structures addressed in this HSR are also subject to the requirements of the Uniform Federal Accessibility Standards (UFAS). While unlike ADAAG, UFAS does not regulate existing buildings that remain unchanged, if a feature or space is altered, then those altered features or spaces must be made to comply with the accessibility standards of UFAS. Maintenance activities are specifically excluded from the definition of "alterations". UFAS also includes provisions to allow certain exemptions or waivers on a case-by-case basis for alterations to registered historic buildings whose significance will be affected by an accessibility requirement.

The affect of accessibility statutes on the buildings reviewed in this study is primarily focused on achieving an equal interpretive experience compared with the able bodied. Access to, and around each building is of primary importance in this regard and should be maintained to the extent feasible. Where building interiors are open to the public, some effort should be made to allow access to the disabled (through the use of ramps, handrails, etc.) or to provide additional interpretive materials (such as panels or brochures) that allow a similar understanding of the resource to the disabled visitor.

Hazardous Materials

Treatment of asbestos-containing materials (ACM) in existing buildings is regulated by AHERA and OSHA to minimize hazard to occupants and construction

workers. Prior to undertaking any construction work, NPS should have a current (within 12 months) asbestos survey of each building to identify potential sources of hazard. Work may be done without a report, but all materials of unknown composition must be treated as if they contain asbestos and these materials must be treated and disposed of accordingly.

Most of the structures addressed in this HSR are built of natural materials (wood, stone, and earth) with little danger of asbestos contamination. Rolled roofing used in the roofs of most buildings should be considered a suspect material. Only the Weaver Ranch House was noted to have other specific suspect materials, which included resilient floor coverings and associated mastics.

Treatment of lead-based paints is also regulated by OSHA to protect workers from the affects of lead poisoning. Early, inexpensive paints such as whitewash were lime-based, but "white lead" was often added to oil based paints to enhance opacity. Lead continued to be used in paints until the 1970s. At Lee's Ferry any painted surface should be considered as a potential hazard if the paint is to be sanded, scraped, or otherwise treated in a manner that would enable paint particles to become airborne. Testing should be undertaken to determine the extent and magnitude of lead-containing paint. All lead-containing paint that is to be disturbed must be treated as prescribed by OSHA regulations. The waste (paint chips or softened finishes) is also considered hazardous and should be disposed of accordingly.

Historic Preservation

Preservation of federally-owned historic buildings listed in, or determined eligible for the National Register of Historic Places is mandated by the National Historic Preservation Act of 1966, as amended. The structures reviewed in this study are listed, with one exception, as contributors to a National Register Historic District. The lone exception, the USGS Residence, is probably eligible for listing and if so would also be subject to the requirements of the Act.

Under Section 106 of the Act, any federal undertaking affecting these structures or cultural landscapes must follow a compliance and approval process, which generally results in the requirement of mitigation of adverse affects to historic structures or features.

If, as described in following sections, certain extant features planned for alteration or removal are determined to have acquired historic significance, the compliance process may require that alternatives to alteration be considered, and ultimately that these features be documented prior to alteration.

Disease-Related Hazards

The buildings discussed in this HSR are generally unoccupied and seldom cleaned. They have accumulated animal droppings, which may constitute a health hazard. Specifically, rodent droppings have been found to spread a deadly hantavirus in the "four corners" area of the U.S., which includes the Glen Canyon National Recreation Area. Infection with this malady has been attributed to inhalation of dried urine from the rodents. Any area with active rodent infestation is thus potentially hazardous. Droppings from other animals, including bats and birds, may be a source of other infectious agents such as fungi. All areas should be carefully cleaned prior to starting work in order to avoid making these agents airborne and potentially allowing workers to inhale them. In addition, any structures open to the public should be maintained in a clean and safe condition.

Lonely Dell Ranch Site

HS-232, Samantha Johnson Cabin

Ultimate Treatment

The Ultimate Treatment for the Samantha Johnson Cabin ("Emma's Cabin") called for in the DCP is Rehabilitation, which in the context of the DCP text has been interpreted to mean Restoration and Preservation. It will serve as an interpretive exhibit illustrating how the building and use of the site changed over time. The National Register Nomination identifies the significant elements of the building to be those related to John D. Lee and subsequent occupation of the building by his wife, Emma, and their children. However, it has been determined that the building does not carry these associations. Instead, it is most strongly associated with Warren Johnson, the original builder; his wife Samantha and her children, the original occupants; Jim Emett, who remodeled the home into a schoolhouse; and Leo Weaver, who once again remodeled the cabin for use as a lodging house for guests of his dude ranch. All of these activities took place prior to 1939, well within the 50-year cutoff for National Register eligibility; and all are associated with themes that are significant to the history of Lee's Ferry. Later alterations by Griffin and the Evans consortium were also substantial and may one day be viewed as significant.

Therefore, it is recommended to restore and preserve all elements of the existing building in its present evolution. The main advantage to this alternative (as opposed to restoration to an earlier date) is to allow for possible future preservation and interpretation of later periods of the building's evolution, 1950-64, in addition to those periods presently recognized as historically significant. This approach will also serve to avoid a potential for interpretive confusion if buildings in different parts of the site are restored to different periods, creating a scene that never existed.

Requirements for Treatment

General:

The building was found to have evidence of past and possibly present infestation by rodents, which could be a source of Hantavirus. The building should be carefully cleaned of rodent droppings and surfaces appropriately sterilized using approved procedures prior to any other work going forward.

Exterior Features:

The log walls should be returned to a weathertight condition. Many rotted logs were replaced in the 1982 restoration; few if any additional logs should require replacement at this time. The logs would benefit by saturating them with an FPL wood treatment of linseed oil and turpentine prior to further work (see Appendix D for details). This treatment will help to limit moisture saturation of the logs and subsequent dry-rot or promotion of insect damage. The chinking and daubing between logs, most recently maintained in 1984, should be patched.

As there is little documentation regarding the historic appearance of the east door, the existing door should be preserved. The chain-and-padlock method of securing the building should be changed to a more conventional type door lock, because the swinging chain has been wearing on the door and jamb.

Both windows require considerable repair and preservation work. Scope of repairs should include consolidation of deteriorated wood using diluted linseed oil,

wood filler, and/or epoxy consolidants and fillers, reattachment of loose joints, replacement of broken glass, reglazing, and painting.

The roof is watertight today but the shingles are weathering. The shingle roof will probably need replacement within the next five to ten years.

Interior Work:

A primary structural issue will be evaluation and repair of the cracked rafter within the roof structure. The bailing-wire repair may have been done long ago, but additional measures are probably required to fully stabilize the member. A structural engineer should be consulted regarding the proper repair method, which might include the use of epoxy and fiberglass pins, or possibly the installation of an unobtrusive modern sister joist to take the load from the broken member.

The interior whitewash probably dates to the Weaver period, and should be renewed to cover the recent staining of the walls.

Alternatives for Treatment

The alternative approach to treatment of Emma's Cabin is to restore the building to a logical historic period, such as the building appeared after Leo Weaver's extensive rehabilitation but before the late improvements made by Griffin and Evans. Alterations following the Weaver era and attributed to Griffin or Evans include removal of an earlier side porch before 1959; construction of a new veranda porch, re-orienting the building entrance to the east, which occurred between 1959 and 1967; removal of Celotex ceilings; and installation of the loft decking (dates of interior modifications probably after 1959).

The argument in favor of this alternative and against following the recommended treatment (preserving the cabin in its present state) is that the later alterations are not today considered significant to the history of the building or site.

Restoration of the Samantha Johnson Cabin to the Weaver period would require removal of additions made by Griffin or Evans (et. al.) after 1959. It would also require reconstruction of several features constructed by Weaver that were removed by Griffin.

Exterior Features:

The best resources to guide restoration are the photographs taken of the Cabin during Charles Kelly's visit to the site with R. B. Hildebrand in 1936 (Photograph 10). One photograph looks southwest and the other looks southeast. These photographs show an earlier board-sided room addition on the east side of the Cabin with the north side removed, making it into a covered entry vestibule or small carport. The roof is covered in rolled composition roofing, nailed at the edges. The north door appears to be built of vertical planks and is partially obscured by a screen door featuring one large screen opening over three narrow, horizontal wood panels. A table adjacent to the north door, braced to the log wall, also appears.

In order to achieve this appearance, the east porch would be removed, including roof, sheathing, joists, beams, posts, and stone foundations and flooring. The ledger beam attached to the face of the log wall could remain, as a similar ledger can be seen in the 1936 photo. The existing wood shingle roofing material on the main roof would also be removed. A reconstructed board-sided enclosure would be built in place of the existing porch on the east side. Both the main building and the new porch would be roofed in rolled asphalt with a mineral-surfaced cap sheet. The existing condition would be examined to see if the color of the original rolled roofing can be determined. The new roofing would match this

color. The north door would be removed and replaced with a wood-plank door in combination with a screen door matching the historic photographs. A 1 x 6 casing would be re-installed around the north door opening. The exterior of the cabin would be whitewashed. With the addition of details including the braced table visible in the photographs, the building would be restored to its 1936 exterior appearance.

Interior Features:

The interior of the building would mainly require the installation of a new ceiling on the existing ceiling joists to restore it to the Weaver period. The material for the ceiling would preferably be paperboard matching the original material, but paperboard has a high flame spread rating and may increase the fire hazard of the building. Alternative materials such as drywall finished to replicate the paperboard, are significantly heavier and would place additional structural loads on the lightly-framed ceiling. ¼" to 3/8" thick plywood would be preferred as a lighter material which could also be finished with paper and lath battens to replicate the original finish while posing less of a fire hazard. Because of the potential interpretive value of viewing the salvaged roof framing and painted collar ties, a portion of the ceiling could be left open. The "loft ladder" made of rough poles and sticks would be removed.

HS-233, Polygamist Era Cabin

Ultimate Treatment

The Ultimate Treatment for the Polygamist Era Cabin ("Blacksmith Shop") called for in the DCP is Rehabilitation, which has been interpreted in context with the DCP text to mean Restoration/Preservation. It will continue in use as an interpretive exhibit illustrating how the building and the site use changed over time. The building had previously been assumed to be an early Warren Johnson-related cabin, later used as a blacksmith shop and schoolhouse. It has since been determined likely that this is an error based on mistaken building identity. The building is now believed to be a remnant of Jerry Johnson's polygamist commune (1910-1932) and was probably built in 1925. It was modified in later years by Weaver, Griffin, and the Evans Consortium.

The building will be preserved substantially in its present appearance. The advantage with preserving the cabin "as-is" is that alterations which may have been made outside of the 50-year National Register limitation for eligibility could be re-evaluated at a later date. The alterations to the roof structure have been dated to approximately the 1950s. The ramada seen in early photographs on the north side may have been removed at the same time. These alterations might be seen in the future as having historical significance that may not be apparent today. This approach will also avoid the potential of having different buildings on the site restored to different periods, creating an overall appearance of the site that never existed.

Preserving the building as a representative of a later era would have one other positive benefit. While most of the timbers used in the wall construction can be traced back to early photographs, those photographs also reveal that the long, protruding ends of many timbers at building corners have been trimmed off. These trimmed ends can probably not be effectively restored to their c. 1936 appearance. Preserving the building's alterations through 1960 would eliminate this conflict.

Requirements for Treatment

The main features of the existing building that would remain to be preserved are the exterior log walls. While historic photos show the logs to be without chinking or daubing, this condition is unrealistic as a treatment for protection of the logs and the building interior. Most of the chinking in place today, last repaired in 1984, is in fair condition, and requires only minor repairs. The space under the west wall will require considerable filling.

It should be noted that the rodents currently nesting inside the cabin could pose a health risk to workers performing preservation and restoration work due to the prevalence of Hantavirus in northern Arizona. The interior of the Building should be carefully cleaned of rodent droppings using approved methods prior to any other work going forward. The building must be sealed from rodents and maintained free of them during and after preservation work is performed to avoid a re-infestation and recurrence of the hazardous conditions.

Long-term preservation of wall timbers will depend on protection from the action of water, fungus, and insects, primarily termites. Severely rotted timbers were replaced in the 1984 stabilization and no additional timbers are expected to require replacement at this time. Saturation of exterior wood using FPL wood preservative (see Appendix D) will improve the surface condition of the wood and help to resist weathering.

The roof is watertight today but the shingles are weathering. The shingle roof will probably need replacement within the next five to ten years.

Alternatives for Treatment

This building could be restored to its appearance c. 1936, the date of photographs taken during Leo Weaver's ownership of the site. These photographs depict a soil-roofed house with an open-sided ramada structure on the north end. This approach would require a combination of removal of modern alterations and reconstruction of missing features based on pictorial evidence.

The gabled roof structure on the cabin is a relatively modern replacement of an earlier pole, brush, and dirt roof. The entire roof structure above the level of the top wall timbers would be removed. The existing door and window coverings also do not appear in historic photographs, and would be removed.

A new roof structure of poles, brush, and dirt would be installed atop the existing walls. The historic photograph shows that the top south wall log appears to extend up past the roof like a short parapet wall, and that a similar detail may have existed at the north wall before addition of the ramada. While the precise structure of the roof is not known, it appears likely based on the construction of other buildings at Lee's Ferry that a center ridge pole (viga) ran in a north-south orientation and that thin poles (latillas) and brush spanned between this pole and the east and west walls. A layer of clay earth on the poles served as waterproofing. A very similar method could be used for the reconstruction. However, for maintenance purposes, an improved waterproofing method is recommended. NPS has had success in other locations using a system that includes a layer of plywood over the latillas, covered by a single-ply waterproofing membrane, a drainage fabric ("Miradrain") and finally the dirt cover.

In order to fully restore the structure to its c. 1936 appearance, an open ramada would be reconstructed at the north side of the Blacksmith Shop. The historic photographs show four log posts, approximately one foot in diameter, supporting similarly sized log beams (one at each side, and one as a ridge beam) which also bear on the log wall of the main cabin. A diagonal log brace provides lateral stability at the northeast corner. The log frame is then roofed with poles and soil in a method similar to the main cabin. (A modern roofing system as recommended for the main building would be used in the reconstruction.)

The main door to the cabin would be reconstructed to match the photographs, which show a door similar to, but not identical with, the existing door. The differences, however, of the modern door from the historic condition appear slight. The door would be reversed to hinge on the south jamb, and would have 2 x 6 horizontals on the outer face.

HS-237, Warren Johnson House Foundation

Ultimate Treatment

The ultimate treatment called for in the DCP for the Warren Johnson House Foundation is rehabilitation, which has been interpreted in context with the DCP text to mean restoration and preservation. This feature will be used as an interpretive exhibit illustrating the location and size of the original Warren Johnson House and how it related to the overall site use.

The foundation will be preserved in its existing configuration. Although the specific configuration of the Warren Johnson House may not be accurately interpreted, the overall location and size of the area outlined by surface stones appears relatively accurate. The primary advantage of this approach is cost savings. A secondary advantage is reduced impact on the resource. Archeological testing to establish the foundation lines more accurately would inevitably disturb the site to some extent.

Requirements for Treatment

Vegetation that has grown up on and around the site should be removed and the site should be maintained vegetation free.

The power pole in the corner of the Johnson House foundation supports the electrical power cables supplying the Weaver Ranch House. Power to the Weaver Ranch House should be relocated underground, more accurately interpreting historic conditions, and this power pole should be removed.

Alternatives for Treatment

The foundation could be restored to a configuration that more closely interprets the original location, size, and shape of the house, but not necessarily reconstructed to a complete foundation. The primary advantage of this alternative approach is the increased accuracy of the interpretive experience offered to visitors. If the foundation is more accurately shown, then historical photographs of the original Johnson House presented to visitors will have more of an impact and be more understandable.

Archeological testing would be required to establish the proper configuration of stones for the foundation. This testing, combined with a detailed analysis of historic photographs of the building, would reveal which, if any, existing exposed stones are actually original foundation stones, and where other proper wall alignments exist. Stones exposed at the surface would be relocated to their proper alignments and the site backfilled to preserve the original foundations.

Another alternative that may be considered is the possibility of adding interpretive features to the site that would convey more information about the house and how it related to surrounding features or structures. Such features could include "wire-frame" representations of the Warren Johnson House or partial reconstructions based on historical photographs, although this approach is discouraged by NPS policy. The main advantage of this approach is increased interpretive value. Disadvantages include cost, impact on the resource, and increased maintenance burden.

HS-234, Lonely Dell Dugout (Root Cellar)

Ultimate Treatment

The Ultimate Treatment for the Root Cellar called for in the DCP is Rehabilitation, which has been interpreted in context with the DCP text to mean restoration and preservation. The Root Cellar will remain in use as an interpretive feature, open to visitors. Available documentation indicates that alterations to this feature have been few.

Requirements for Treatment

Little restoration work will be necessary at the Root Cellar. The structure is substantially unaltered from its historic appearance. Most needed work relates to deferred maintenance and repairs.

Hantavirus contamination should be taken into consideration prior to commencing any work on the structure. The interior should be cleaned using approved methods to remove all rodent droppings and urine and sterilize surfaces.

Walls will require some repointing of mortar joints. This should continue to be done using adobe mud mortar, or to reduce future maintenance, a mud mortar amended with small amounts of portland cement to improve weatherability and cohesiveness.

The roof structure requires extensive repair in order to halt progressive deterioration. All soil and rolled roofing material should be removed from the roof in order to allow structural work to proceed. Board decking should be removed and stockpiled. The top plate logs on the east and west sides of the roof should be inspected, and consolidated with epoxy (if found to be practicable) or replaced with new logs matching the species, size, and general character of the existing logs. The broken log beam may have to be removed from the structure in order to repair it using fiberglass dowels and epoxy consolidant/filler. It may then be reinstalled. An alternative method of repair that would not require removal of the log involves cutting a channel into the log, crossing the cracked section, and insertion of a steel plate set in epoxy. In either case, the repair should be detailed by a registered structural engineer who will calculate the bearing capacity of the repair. Salvaged board decking in good condition should be reinstalled. New boards should replace the broken ones. All modern bracing and shoring may be removed if approved by the structural engineer.

Conventional rolled asphalt roofing materials are not intended for continuous moisture contact as would be encountered under a layer of soil. If this system is replicated, then the waterproofing system should not be expected to provide a very long life. The rolled roofing is not an original feature; the original roof probably relied only on the water-sealing properties of the clay in the soil to keep the inside of the building dry. This original method may also be unreliable, particularly if local clays are used. The modern method used by NPS at other sites uses a layer of plywood over the existing sheathing, covered by a single-ply membrane roofing sheet, a drainage fabric ("Miradrain"), and a layer of soil.

The wooden rooftop vent should be reassembled with a new top and reinstalled. If the wood is found to be in good condition, it should be saturated with FPL mixture (see Appendix D) in order to help preserve the old wood and repel moisture. If more advanced deterioration is encountered, wooden elements should be replaced in kind.

Although modern, the door is in character with the historic construction and should be retained and repaired. The jamb and head pieces of the door frame should be replaced with new, pressure-treated lumber to resist insect and fungal damage.

The treads of the stone steps leading down into the building should be carefully removed, the subsoils replaced and compacted, and the steps reset.

Access for the physically disabled is a potential problem for this structure. Presently, the interior is left open for visitors to enter and view. While the wheelchair-bound would not be able to enter the building, the single room is still somewhat visible from outside. This would probably be viewed as an acceptable reasonable accommodation in view of the historic significance of the building and the difficulty of achieving full compliance.

Alternatives for Treatment

No other alternatives were discussed or are recommended.

HS-235, Weaver Ranch House

Ultimate Treatment

The Ultimate Treatment for the Weaver Ranch House called for in the DCP is rehabilitation, which has been interpreted in context with the DCP text as meaning restoration followed by preservation. The building will mainly be used as an interpretive exhibit, illustrating Leo Weaver's occupancy of the site as Paradise Canyon Lodge. The wood frame east wing could be used separately as an NPS ranger residence if desired. This would provide the benefit of having an NPS presence at the Lonely Dell site at night.

Most of the building was constructed by or for Leo Weaver in 1936-7. The only notable alterations since that time have been the addition of a steel roof and interior rehabilitation by NPS in 1982.

Requirements for Treatment

General

Environmental Hazards

The building should be carefully cleaned prior to any work being undertaken due to past and present rodent infestations, which result in a risk of Hantavirus contamination. Cleaning should be done in an approved manner and should remove rodent droppings and urine and sterilize surfaces.

Some building elements have the potential for containing friable asbestos. In particular, resilient sheet flooring and mastics in kitchen and bath areas are suspect, as are sheetrock and joint compounds used in the east wing. As a complete asbestos survey was beyond the scope of this study, other elements may also be suspect. These elements should be tested prior to working with them and if necessary they should be treated as asbestos-containing materials during and after construction.

Because the Weaver Ranch House is more "finished" and has more painted surfaces than most other buildings at Lee's Ferry and Lonely Dell Ranch, the risk of exposure to lead-based paints is greater. Testing is warranted prior to any major construction work taking place.

Accessibility Issues

Full accessibility for the physically disabled in this building is very difficult unless significant features are altered. While the main floor level is close to grade and may be made accessible to wheelchair users through the installation of small exterior ramps, the interior poses additional barriers. The floor level is raised at the Dining area relative to the Kitchen and Living Room, which blocks the main accessible route through the house. Interior ramps would have to be 4 to 6 feet in length to accommodate these level changes. These level changes at both the Living Room and the Kitchen are difficult to ramp without altering significant historic features or making large areas unusable. In addition, restroom facilities within the building (in the east wing) are not designed to be accessible as required by ADAAG. If these facilities are put into use, either for the public or for Park staff, they should be altered to provide required fixtures, accessories, and clearances. Park administration should examine the overall accessibility issue relative to this building and decide upon a course that will result in reasonable accommodation. One option would be to limit access by the able-bodied to the same extent as the disabled are limited. (For instance, to allow people just inside the front door where they can view the interior, but no further.) Other solutions may be programmatic in nature and would provide equal experiences and uses to the disabled patron relative to those that are able to move freely through the building.

Preservation Work

Exterior:

Exterior walls should be restored to a weathertight condition. The structural cracks appearing over many door and window openings should probably be repaired. Repair of these conditions could take a number of forms. Additional study by a structural engineer is recommended of each opening to determine the best strategy for repairs. Where used for repairs, mortar should be custom mixed to match the pea-gravel texture, strength, and the color of the existing mortar. This mortar should also be used to re-point general voids between stones and at window sills to improve weatherability. Other needed wall repairs include re-setting of the stone skirt around the base of the 1938 addition and repainting of deteriorated paint finish on wood siding. Some stonework at wall bases will require replacement to repair basal erosion caused by flood irrigation. Irrigation water in the future should be kept as far as possible from the exterior walls of the structure.

Doors and windows, in fair to good condition, should be maintained. The window within the entry door should be reglazed. A replacement wooden screen door should be installed in the entry to the west porch. A cover flap of canvas or wood should be placed over the fireplace pass door. Windows, in general, will require removal and replacement of glazing putty and repainting.

Some exterior carpentry work will be necessary to preserve the house. Damaged bird blocking under the eaves should be replaced in kind and painted. An attic vent should be reconstructed for installation in the west gable. The other two attic vents should be repaired by repairing or replacing individual damaged elements and repainting. The cellar door should be reconstructed using new materials. The frame assembly could probably be repaired.

The south terrace floor stones should be taken up, the sub-base filled and stabilized, and the stones re-set. Care should be taken to ensure that drainage away from the exterior walls of the house is maintained in this location.

Interior:

The plaster finish of interior walls should be patched in those locations where it has been damaged. Patching plaster should match the general composition and surface texture of the surrounding plaster. General interior painting of wall surfaces is also needed.

Termite damaged flooring should be removed and replaced in kind, to ensure public safety. When these repairs are done, the substructure should also be examined in the same area to identify any serious damage that may have been done by the termites before they surfaced in the flooring. Worn areas of flooring should not be replaced or sanded out unless deemed hazardous. The entire wood floor should be cleaned, restained (where necessary) and top-coated with clear finish (shellac/wax or varnish) in order to protect the wood from further wear.

The ceiling boards should be replaced in kind and finished to match where they were damaged by installation of the stove pipe in the Dining Room. In the Kitchen, a portion of the ceiling should be carefully removed in order to expose the structural condition of the sagging ceiling. After the structural condition is assessed and a solution is implemented, the removed panel(s) should be reinstalled and the entire ceiling painted.

The Kitchen doors leading to the Dining Room and the Storage Room are dragging and should be corrected in order to eliminate further damage to the wood floors under these doors. Doors should be removed, disassembled, re-glued and reassembled, and reinstalled.

The incorrect door and window casings in the Living Room should be removed.

Replacement casings should be made matching the species, size, and finish of the intact casings found in other areas, such as the Dining Room.

A replacement wagon wheel hub should be found to restore the missing portions of the lamp support in the Living Room.

The fireplace should not be used in its present condition to prevent danger to life from flue gasses. Use of the fireplace may be prohibited by installing an unobtrusive blocking device (such as a black steel grate) in the opening or inside the fireplace to prevent stacking of logs. If the fireplace must be made useable, a number of flue-lining systems are commercially available that would be effective in this instance. Most systems are proprietary in nature and require qualified installers to perform the work.

The finish of the kitchen cabinets should be repaired. This will require the removal of contact paper and excess paint, and possibly the replacement of steel countertops to match the originals if the originals are found to have been damaged.

Much of the electrical system is visually intrusive, although clearly differentiated as a modern feature to the viewer. The electrical receptacle installation causes exposed conduit to be visible outside, and creates wall penetrations that could admit moisture. The installation would be much improved if wiring were placed under the floors in the crawlspace and stubbed up to finished receptacle boxes mounted to the floor. Similarly, the exposed ceramic fixtures at the ceilings would be less obvious if recessed lighting were installed. These alterations would require additional study prior to a design being chosen and should be considered optional.

Most if not all plumbing (piping and fixtures) in the east wing was probably replaced in the 1982-84 rehabilitation and will require only minor repairs. The piping in the west wing was not accessible and should be investigated further.

Alternatives for Treatment

The alternative treatment for the Weaver Ranch house is to restore it to an earlier appearance. The restoration would return the building to its appearance soon after its construction and during Leo Weaver's tenure on the site, 1937-9.

In this instance, the steel roofing would be replaced with rolled roofing and the interior of the east wing would be restored, if possible, to its original appearance.

A photograph taken in 1936 shows the completed first phase of the Weaver Ranch House (Photograph 77). The roofing material visible in this photograph is a rolled composition type roof. Restoration would require removal of the steel roof installed in 1982 and re-installation of a composition roof with a mineral surface cap sheet. For maintenance purposes, the roofing system installed could be a modified bitumen type, which would last longer and stay more flexible than conventional built-up roofing, while retaining the same appearance.

The interior of the 1937 addition reflects the wholesale refinishing of this wing in 1982. Original plaster and wood wainscoting were reportedly removed at that time and replaced with drywall in the revised room configuration. Restoration of this interior could be accomplished as a part of the overall work, but the original interior appearance would be conjectural. If the wing were to be used as a ranger residence, then the present interior could remain unchanged.

The disadvantages of this alternative include higher cost and decreased durability. The existing steel roofing material should be expected to last in excess of 50 years. The primary advantage to this alternative is increased quality of the interpretive experience for visitors.

HS-236, Picture Window Cabin

Ultimate Treatment

The ultimate treatment for the Picture Window Cabin ("Jackson's Cabin") called for in the DCP is Rehabilitation, which has been interpreted in context with the DCP text to mean restoration and preservation. In discussions with Park staff it has been determined that restoration is unrealistic. Although the building appears to be of historic age, its origins are not known. Stabilization and preservation will allow the treatment of the building to be reconsidered at a future date if more information becomes available. The use of the building will remain as an interpretive feature illustrating the history of the structure and the use of the Lonely Dell site over time.

Requirements for Treatment

Overall, Jackson's Cabin needs to be stabilized to prevent further deterioration.

The walls are relatively stable except for the sill logs, which are rotting due to earth contact. These sill logs should be repaired or replaced, depending on the extent of deterioration encountered. Repair work may be limited to replacement of deteriorated log faces or ends. The upper logs, which are subject to slow deterioration from occasional moisture from rain and snow, should be saturated with an FPL treatment (see Appendix D) in order to consolidate surface fibers and reduce the porosity of the logs. The chinking and daubing between logs should also be repaired as needed and maintained.

The leaning south end wall is probably stable in its present state. The building has remained in this condition for over thirty years without further noticeable movement.

Installation of a roof is of primary importance to the stabilization of the cabin. All remaining soil and old roofing should be removed from the roof. Because the roof sheathing is in poor condition, the sheathing boards may require replacement with plywood. A new built-up composition roof should be installed over the sheathing. Dirt should not be added to the roof, as this appears to have been a late re-interpretation of the earlier condition.

The door, presently stored flat on the floor, should be reinstalled in its opening. This will be more effective in preventing rot and insect damage to the door.

At present, the building is unsecured. A temporary closure of the "picture window" opening should be installed to provide security and further protect the interior of the structure.

Alternatives for Treatment

An alternative treatment would be to attempt a restoration of the building to an earlier appearance based on physical evidence. The window and door openings would be restored to their original size, and the roof would be reconstructed as a dirt roof. Unfortunately, such a restoration would inevitably require some elements of the design to be conjectural, given the scarcity of documentary information regarding this building. In addition, it is very likely that this structure was in a different location before it was altered. Thus, it would present an inaccurate interpretation of the Lonely Dell site at any point in history.

Ranch Cemetery

Ultimate Treatment

The Ultimate Treatment of the Ranch Cemetery is not well defined in the DCP. As a site feature, the DCP recommends that the Cemetery by managed for its scientific and interpretive value. Current Park plans for treatment of the Cemetery are for it to be preserved. The use of the Cemetery will be as an interpretive exhibit illustrating an important aspect of the history of Lee's Ferry and the Lonely Dell Ranch.

Requirements for Treatment

The various headstones and memorials require different preservation treatments depending on their condition and material.

NAME	TREATMENT
James Jackson	Continue protection of stones from vandals and animals.
Winifred Johnson	Fix to ground to protect from possible theft or dislocation
Neuman Brown	No work necessary
Mary Elinor Stowe & baby	Continue protection of stones from vandals and animals.
William Brinkerhoff	Treat to halt or limit sandstone erosion
Jonathan Smith Johnson	Treat to halt or limit further sandstone delamination
Laura Alice Johnson	Treat to halt or limit further sandstone delamination
Permelia Johnson	Treat to halt or limit further sandstone delamination
Melinda Johnson	Remove vegetation. Treat to halt or limit sandstone erosion
Johnson: Jonathan Smith, Laura Alice, Permelia, Melinda	No work necessary
Archimedes McClurg	Treat to halt or limit sandstone erosion
John Green Kitchen	No work necessary
Lucy Emett	Treat to halt or limit sandstone erosion
John Taylor Emett	No work necessary
Waddy Thompson Ligon	Patch cracked, spalling, and weathering areas to prevent further freeze/thaw deterioration
Calvin Marshall Johnson	No work necessary.
Lucius Henry Spencer	Treat to halt or limit sandstone erosion
Stillborn Infant	Fix stone to ground to discourage theft or misplacement of stone. Treat to halt or limit sandstone erosion.
Stillborn Infant	Treat to halt or limit sandstone erosion.
Stillborn Infant	Continue protection of stones from vandals and animals.
Infant, Shumway/Johnson	Continue protection of stones from vandals and animals.

Areas noted above to be treated for sandstone delamination or erosion should be studied further prior to a permanent solution being implemented.

The existing fence of barbed wire and steel posts is stable and will require no work at this time. However, replacement of this fence with one built of barbed wire

on rough wooden posts would be preferred to enhance the interpretive value of the cemetery and to match the historic appearance.

Alternatives for Treatment

No other treatments were evaluated.

C:2:42F9, Irrigation System

Ultimate Treatment

The ultimate treatment for the Irrigation System is not well-defined in past management documents. As a site feature, the DCP recommends that it be managed for its scientific and interpretive value. Recent discussions with Park administration indicate that the Irrigation System will be rehabilitated for future use in irrigating interpretive orchards and fields. The water source will continue to be the Colorado River via the pump and reservoir system in place today.

Requirements for Treatment

Rehabilitating the irrigation system to a useful condition will require considerable effort.

All damaging plant materials should be removed from inside and immediately adjacent to the ditch itself. This is particularly true of the non-native tamarisk trees.

Silt should be removed from the ditch. Cross-drainages should be re-channelized and controlled in pipe culverts passing over or under the ditch to prevent the ditch from becoming silted in with the next rainstorm.

Some minor repair of the stone lining should be performed where stones have been displaced by trees or ground movement. Stones may be set in place dry with the joints mortared with portland cement mortar or masonry cement.

Existing wooden head gates are probably not restorable to a useable condition. New head gates may be constructed where needed for irrigation of orchards or fields. The design of the new gates should be visually compatible with the character and appearance of the historic irrigation system. Gates constructed of sandstone and/or wood are preferred to concrete elements, which have no precedent on the site.

Alternatives for Treatment

The alternative treatment to rehabilitation and re-use of the Irrigation System is merely to preserve it as an interpretive feature of the Lonely Dell site.

Under this alternative, most treatments would remain the same, except that no additional features would be constructed to make the system useable. Action would also be taken to preserve the remaining wooden head gates.

Lee's Ferry Site

HS-220, Lee's Ferry Fort

Ultimate Treatment

The Ultimate Treatments for Lee's Ferry Fort as called for in the DCP are stabilization and preservation. The Fort now presents a mixed interpretation of time periods, having Fort-era loop-holes for windows as well as having numerous Spencer-era alterations and additions. The Fort will be used as an interpretive feature illustrating the evolution of the building and use of the Lee's Ferry site.

Requirements for Treatment

Overall, the Fort is in fair condition following a major repair project in 1976. However, a number of items will require stabilization to stop deterioration and extend the life of the building.

The interior of the building should be cleaned prior to any construction work taking place to limit exposure to Hantavirus and diseases that could be passed in bat guano. Roofing materials should be checked for asbestos content prior to their being disturbed.

Structurally, the walls of the original Fort have few defects. The Spencer addition, however, will require significant stabilization. First, the portland cement mortar used in repointing masonry joints should be removed (if found to be possible without damaging the stone faces) and the joints should be repointed using amended mud mortar. The southeast window of the Spencer addition, which is supporting 12 inches of unbraced masonry, may become unstable and dangerous as the wood window deteriorates. Although the area could be stabilized with steel frames or braces, the small quantity of masonry involved makes it more reasonable to simply remove the stones bearing on the wood frame. The northeast window in the same addition resides in an intact section of stone wall and is thus more stable. It will likely remain stable as long as the wood frame is kept in good condition. The unprotected tops of walls at the Spencer addition need to be stabilized. The precise method of stabilization should be the subject of further study. At the original Fort, the scope of wall repairs should be limited to patching eroded mud plaster within the building, and patching mortar joints as found to be required on the outside. The previously-installed portland cement based mortar pointing does not appear to have been causing damage and so may not need to be removed.

Door and window frames need to be stabilized, as well. Most, if not all, of the wooden features (frames, casings, and doors) remaining in place are still in good enough condition to be preserved. Treatments implemented will be those typical of dealing with weathered wooden elements. Treatment of sound wood with weathered surfaces will be accomplished using an FPL preservative (see Appendix D). More severe deterioration needs to be individually assessed for treatment. At the Fort, these wooden elements should be painted to help protect the wood from the elements. At the Spencer addition, which is in ruins, a freshly-painted appearance may seem out of place; therefore, in these locations we recommend treatment and maintenance on an ongoing basis using the FPL preservative every few years to keep the wood sealed from water penetration. The door to the main entry, stored inside the building, should be repaired and reinstalled.

Security is a continuing problem. The doors are subject to vandalism in an attempt to gain entry into the building. Because the interior is not on display and is

not accessible to the public, the doors could be reinforced on the inside with a steel tube structure or other means of reinforcing that will not be damaging to the wooden door. The use of dead-bolting locks should also be investigated. The exteriors of the doors should match the historic condition.

Aside from general wood repairs outlined above, the wooden lintels of both the western front door and of the small back door are sagging and should be replaced in kind.

There is a continuing bat problem. Bats are entering from the loop-holes, between the bars at the Spencer addition doorway, down the chimney, and between the latilla poles at the roof. All of these features should be sealed up and maintained in a closed condition in order to banish the bats. ¼" hardware mesh may be installed at the doorway, loop-holes, and chimney, and the gaps between latillas should be maintained closed with mud.

The broken roof beam should be repaired. The method of repair will require further study. Probable methods include the use of fiberglass rods and/or epoxy adhesive, or a steel plate reinforcing mortised into an epoxy-filled slot. A structural engineer should be consulted in the design of the repair in order to ensure the bearing capacity of the detail. In order to access the beam, the roofing and latillas in this area may have to be removed. The beam itself may also have to be removed in order to effect repairs. If removed, then after the beam is repaired this area of the roof should be reconstructed reusing the same materials.

The roof may be sealed by reroofing with a new system. NPS has had success at other sites by covering the latillas with plywood, installing a single-ply waterproofing membrane covered by a drainage fabric ("Miradrain"), which can then be covered with soil.

Alternatives for Treatment

It has been noted that the Fort presently represents a slightly confusing view of history, in that certain elements were restored to an earlier period out of context with the rest of the building. An alternative treatment would be to reverse the alterations as necessary to be interpretively coherent.

The only known alteration that would require reversal is the closing in of windows to form loopholes. The windows were originally enlarged in 1898. The windows would be returned to this enlarged configuration.

HS-221, American Placer Corporation Office

Ultimate Treatment

The Ultimate Treatment called for in the DCP for the American Placer Corporation Office (Post Office) is stabilization followed by preservation. The building will be used as an interpretive feature illustrating the evolution and history of the building and the Lee's Ferry site.

Requirements for Treatment

Stabilization treatments for the Post Office mostly involve minor repairs and maintenance activities.

Cracks visible in exterior walls have existed for several years and are probably stable. Crack monitors should be installed in inconspicuous locations to verify that no further movement is occurring. Because any movement is probably very slow, crack width/displacement status should be recorded monthly over a span of two to three years. If the cracks are found to be dynamic then steps should be taken to determine the cause of the cracks. A geotechnical engineer should be consulted to verify the composition and properties of the subsoil near the Post Office. If movement occurs, it may be due to changes in the moisture content of the soil causing expansion or collapse beneath the walls or due to lateral forces. Close monitoring of the cracks will help establish if there is a seasonal movement attributable to changes in soil moisture. If soil studies indicate that a continuing movement is attributable to moisture changes, then an attempt should be made to stabilize the moisture content of the soil in order to limit potential damage to the building. Methods to attain stabilization would be the subject of further study. In any case, the cracked joints should not be repointed again with portland cement. The original mortar appears to have been clay. The addition of lime or small amounts of portland cement to the clay mix may be acceptable to improve weatherability.

The interior, mud-plastered face of the wall should be maintained as needed by patching.

Wooden elements of the building such as doors, windows, and frames should be repaired and painted to protect them from weathering. The window sash should be removed, disassembled, and reglued. Missing or non-original muntins should be replaced with accurately milled pieces matching the original molding profiles. The window should then be reglazed using existing glass where remaining, or new glass where missing or broken. The frame should be repaired using wood filler. The sill should be extended to its original dimensions with new wood, attached with epoxy consolidant and filler. The door should be repaired by replacing the missing board in kind. The surfaces of weathered wood should be prepared and conditioned with Penetrol prior to painting. Existing elements should not be sanded except where fillers have been applied. Paint doors, windows, and frames white using alkyd gloss enamel.

While the roof structure is in good condition, the dirt roofing material itself does not appear to be adequately protecting the building interior. The roof system should be replaced with a modern system. The system that has met with success for NPS in other locations has included a layer of plywood over the latillas, covered with single-ply membrane waterproofing and a drainage fabric ("Miradrain"), which is then covered with soil.

Alternatives for Treatment

No other alternatives were evaluated.

HS-224, Chicken House

Ultimate use

The Ultimate Treatment called for in the DCP for the Chicken House is stabilization and preservation. The Chicken House was stabilized in the past. The building will be preserved and used as an interpretive feature illustrating the history and evolution of the building and the Lee's Ferry site.

Requirements for Treatment

The Chicken House is stable at this time. In the future, the condition of mortar joints should be periodically examined to ensure that moisture is not deteriorating the walls. The Chicken House may also be restored it to its earlier appearance through reconstructing the missing roof features and re-installing the door covering. Several good historical photographs may be used as guides. Restoration would not alter the apparent evolution of the site and will help preserve the walls.

Alternatives for Treatment

No other alternatives were evaluated.

HS-225, Lee's Ferry Fort Root Cellar

Ultimate Treatment

The Ultimate Treatment called for in the DCP for the Lee's Ferry Fort Root Cellar is stabilization followed by preservation. The structure is stable and will be preserved in a ruined condition and used as an interpretive feature illustrating the history and evolution of the Root Cellar, the Fort, and the Lee's Ferry site in general.

Requirements for Treatment

The remains of the Root Cellar are stable, with the exception of potential deterioration from action of plant roots. The site should be carefully cleared and then maintained free of vegetation.

Alternatives for Treatment

No other alternatives were examined.

HS-222, Spencer Building

Ultimate Treatment

The Ultimate Treatment called for in the DCP for the Spencer Building is stabilization and preservation. The building most accurately represents USGS's use following reconstruction of the roof. The building will be used as an interpretive feature illustrating the evolution and history of the building and the Lee's Ferry site.

Requirements for Treatment

The Spencer Building has deficiencies ranging from serious immediate structural concerns to longer term issues.

Prior to any work progressing on the structure, the building interior should be cleaned to limit the risk of Hantavirus or other hazards. Cleaning must be done in an approved way to remove rodent droppings and urine and to sterilize surfaces.

The stone walls require structural improvements to prevent or forestall wall failure. Specifically, the window openings, which have no formal lintels, have either structurally failed or have damaged and warped the supporting window frames. One method of repair of this condition would require installation of new steel frames of steel angles within each opening. A structural engineer should be consulted in the detailed design of any such feature. In order to install such frames, the stone openings would be shored up and the windows removed. Angle frames would be installed to support the opening head and bear on the stone sill. The windows could then be rehabilitated and reinstalled into the openings. Other repairs to the walls should include repointing of mortar joints and reconstruction of damaged areas. Mortar joints should be tightly packed with amended adobe mortar matching the color of the existing mud mortar. This treatment should generally be performed on all walls except for the gables. The walls adjacent to the entry door and at the east gable should be repaired where possible and reconstructed where they have collapsed. To the extent possible, the pattern of new stones in these areas should be made to match the patterns shown in the HABS drawings.

The pattern of large cracks at the east and west ends of the building may further indicate settlement of the north and/or south walls. Crack monitors should be placed on each of these cracks to determine if they are static or dynamic. It is likely that any settlement of the walls has already occurred and that they are now stable; however, if monitoring on a monthly basis over several years indicates continued movement, then a geotechnical engineer should be consulted regarding possible stabilization measures.

The entry door should be repaired and reinstalled. The frame and door will require minor repairs using filler, surface conditioning with Penetrol, and paint.

Exposed wood eaves should also be filled, conditioned, and repainted.

Reroofing of the building should be given a high priority in order to stop deterioration from rain and snow. The existing roofing materials should be removed and deteriorated sheathing boards should be replaced with new boards of the same specie and dimensions. New built-up roofing should then be installed over the sheathing. The color of the earliest remaining roofing layer present should be verified and the cap sheet of the new system should match that color. New roofing should be mopped or torched into place over a nailed cap sheet. The existing condition, which has nails penetrating through the surface of the cap sheet, should not be replicated.

The mud plaster on the interior side of the walls should be patched. This will make it easier to detect future changes indicating a new source of deterioration.

Alternatives for Treatment

No other alternatives were evaluated.

HS-223, USGS Residence

Ultimate Treatment

The ultimate treatment for the USGS Residence ("1955 USGS Building") called for in the DCP is stabilization and preservation. The building substantially represents its original appearance as a guest house for the USGS. The building will be used as an interpretive feature illustrating the history of the building and the Lee's Ferry site.

Requirements for Treatment

The USGS Residence is generally in fair condition. Most work that will be required for stabilization can be classified as maintenance.

Prior to any work progressing on the structure, the building interior should be cleaned to limit the risk of Hantavirus or other hazards. Cleaning must be done in an approved way to remove rodent droppings and urine and to sterilize surfaces.

The two broken stone lintels (at the entry door and east window) should be repaired if possible. The most effective method of repair may be epoxy injection. As this technique requires qualified and experienced applicators with the proper materials and equipment, it may prove to be unreasonably expensive to have this work executed. An alternative stabilization strategy would be to install steel angle frames behind the window or door, inside the opening to act as a lintel in place of the broken stone.

The erosion at the base of the walls should be stabilized. One solution is to install a gutter system at the roof eave to eliminate collection of water and backsplash at the base of the walls. The deterioration should be documented and monitored over several years to verify that erosion does not progress. If deterioration worsens, further study should be undertaken to find a different solution.

A new entry door should be installed in the existing door frame. Unfortunately, no photographs have been found of this historic feature. A typical five-panel wood door would normally be appropriate for this time period.

The steel windows should be repaired. Holes that were made in the steel mullions from boarding up the openings should be patched. The existing putty should be removed and the windows should be reglazed, replacing glass where necessary. Paint windows light gray.

Existing roofing materials should be removed and a new roof installed. Replace deteriorated board sheathing with new sheathing matching the original specie and dimensions. Install new built-up roofing, mopped or torched to a nailed-down base sheet. The existing condition using exposed nails through the cap sheet should not be replicated.

The deteriorated fascia board should be reattached, or if found to be warped beyond use, replaced in kind. At the entry porch, metal strap hangers should be installed to supplement the nails in tension supporting the roof. All exterior wooden elements, including the eaves, porch structure, and louvers, should be prepared and repainted. Paint these elements white.

Remove the tamarisk tree that is an ongoing maintenance concern on the south side of the building.

Alternatives for Treatment

No other alternatives were evaluated.

Upper Ferry Site

Ultimate Treatment

The Ultimate Treatment for the Upper Ferry Site called for in the DCP is stabilization and preservation. A previous stabilization project treated most of the structures on the site. Most of what remains to be done is maintenance work. The structures of the Upper Ferry Site will continue to be used as interpretive features illustrating the evolution and history of Lee's Ferry.

Requirements for Treatment

Structure 1, LFSCABIN, South Cabin at Upper (Main) Ferry Site (Louse House)

Reconstruct and re-stabilize the collapsing portion of this structure. Install a cap course of stone to protect the mortar joints from future intrusion of water into the top of the wall. Periodically monitor the structure for deterioration and vandalism.

Structure 2, LFNCABIN, North Cabin at Upper (Main) Ferry Site (Frank Johnson Cabin)

Maintain mortar joints by repointing with adobe mortar. Periodically monitor the structure for deterioration and vandalism.

Structure 3, Small Corral

This structure is stable. Periodically monitor the structure for deterioration and vandalism.

Structure 4, Ecorral, Large Corral

Restack minor areas of hiker damage. Periodically monitor the structure for deterioration and vandalism.

Structure 5, Wcorral, Dugout

This structure is stable. Periodically monitor the structure for deterioration and vandalism.

Alternatives for Treatment

No other alternatives were evaluated.

Cost Estimates

The following cost estimates reflect the work shown as the Ultimate Treatment for each building or structure. A summary of costs for all structures together is given on page 335.

Much of the work required on the Lee's Ferry and Lonely Dell structures in general is labor intensive, and relatively speaking, materials-light. Many of the materials may be obtained on or near the site (such as soil and rock). Where a line item of the estimate reflects a quantity of material, the unit cost includes both labor and materials cost. Where a line item is given in man-hours, materials are not included, or are assumed to be available for little or no cost. If necessary, each estimate has been provided with a small allowance for purchase or acquisition of such materials.

Samantha Johnson Cabin

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and sterilization	8	man-hours	$30.00	$240
FPL treatment of wood	1836	square feet	$1.80	$3,305
Chinking repairs	16	man-hours	$30.00	$480
Log replacement allowance	2	unit	$2,500.00	$5,000
Door repair, hardware modification	1	unit	$250.00	$250
Window repairs	2	unit	$300.00	$600
Structural engineering recommendation	8	man-hours	$75.00	$600
Rafter repair	4	man-hours	$30.00	$120
Interior whitewash	900	square feet	$0.50	$450
Wood trim painting	1	unit	$500.00	$500
Reroof/wood shingles	350	square feet	$4.00	$1,400
General roofing, flooring repairs	1	unit	$500.00	$500
Contingency factor	20	percent		$2,689
Overhead, profit, general conditions	25	percent		$4,033
Remote Location Factor	33	percent		$6,655
TOTAL ESTIMATED COST				**$26,822**

Polygamist Era Cabin

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and steriliztion	8	man-hours	$30.00	$240
FPL treatment of wood	1425	square feet	$1.80	$2,565
Chinking repairs	16	man-hours	$30.00	$480
Grading/fill under wall	1	unit	$500.00	$500
Allowance for log replacement	2	unit	$2,500.00	$5,000
General roof framing repairs	1	unit	$500.00	$500
Reroof/wood shingles	250	square feet	$4.00	$1,000
Contingency factor	20	percent		$2,057
Overhead, profit, general conditions	25	percent		$3,086
Remote Location Factor	33	percent		$5,091
TOTAL ESTIMATED COST				**$20,519**

Warren Johnson House Foundation

Work Item	Quantity	Units	Unit Cost	Total
Clear vegetation	8	man-hours	$30.00	$240
Remove/relocate power pole	1	unit	$500.00	$500
Trenching/backfilling for electrical	100	lineal feet	$3.75	$375
Electrical feeders	100	lineal feet	$14.00	$1,400
Contigency	20	percent		$503
Overhead, profit, general conditions	25	percent		$755
Remote Location Factor	33	percent		$1,245
TOTAL ESTIMATED COST				**$5,017**

Lonely Dell Dugout

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and steriliztion	8	man-hours	$30.00	$240
Repointing stone walls	250	square feet	$3.75	$938
Roof soil removal/replacement	16	man-hours	$30.00	$480
Board decking removal/replacement	154	square feet	$2.00	$308
Log repairs	32	hours	$45.00	$1,440
Structural engineering design	16	man-hours	$75.00	$1,200
Plywood deck	184	square feet	$1.00	$184
Single-ply Waterproofing & drain fabric	184	square feet	$3.50	$644
Vent rehabilitation	8	man-hours	$45.00	$360
Door/frame repairs	12	man-hours	$45.00	$540
Stone step repairs	16	man-hours	$30.00	$480
Contingency factor	20	percent		$1,363
Overhead, profit, general conditions	25	percent		$2,044
Remote Location Factor	33	percent		$3,373
TOTAL ESTIMATED COST				**$13,593**

Weaver Ranch House

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and sterilization	16	man-hours	$30.00	$480
Structural engineering recommendations	16	man-hours	$75.00	$1,200
Stone wall repair and repointing	1500	square feet	$3.75	$5,625
Re-set addition foundation stones	32	man-hours	$30.00	$960
Site grading and drainage	1	unit	$1,000.00	$1,000
Paint exterior wood	1980	square feet	$0.30	$594
Window reglazing and painting	32	sash	$150.00	$4,800
New west screen door	1	unit	$200.00	$200
Fireplace door cover	1	unit	$50.00	$50
Exterior carpentry repairs	16	man-hours	$45.00	$720
South terrace stabilization	32	man-hours	$30.00	$960
Interior plaster patching	24	man-hours	$45.00	$1,080
Misc. construction materials	1	allowance	$1,000.00	$1,000
Interior painting	2880	square feet	$0.50	$1,440
Flooring repairs	50	square feet	$10.00	$500
Flooring finishing	1200	square feet	$0.50	$600
Kitchen ceiling repair	1	allowance	$2,000.00	$2,000
Interior door repairs	2	unit	$150.00	$300
Interior trim replacements	100	lineal feet	$5.00	$500
Kitchen cabinet rehabilitation	1	allowance	$750.00	$750
Electrical rehabilitation	1	allowance	$2,000.00	$2,000
Plumbing rehabilitation	1	allowance	$1,000.00	$1,000
Contingency factor	20	percent		$5,552
Overhead, profit, general conditions	25	percent		$8,328
Remote Location Factor	33	percent		$13,741
TOTAL ESTIMATED COST				**$55,379**

Picture Window Cabin

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and sterilization	8	man-hours	$30.00	$240
FPL treatment of wood	1200	square feet	$1.80	$2,160
Chinking repairs	16	man-hours	$30.00	$480
Sill log repairs	2	allowance	$2,500.00	$5,000
Roof demolition, new plywood	250	square feet	$1.00	$250
Roofing	250	square feet	$1.50	$375
Door repair	1	unit	$250.00	$250
Window closure	1	unit	$150.00	$150
Contingency factor	20	percent		$1,781
Overhead, profit, general conditions	25	percent		$2,672
Remote Location Factor	33	percent		$4,408
TOTAL ESTIMATED COST				**$17,765**

Ranch Cemetery

Work Item	Quantity	Units	Unit Cost	Total
General attachments/repairs	4	man-hours	$30.00	$120
Stone treatments	1	allowance	$1,000.00	$1,000
Concrete patching	4	man-hours	$30.00	$120
Stone preservation study	1	unit	$5,000.00	$5,000
Fence replacement	240	lineal feet	$12.00	$2,880
Contingency	20	percent		$1,824
Overhead, profit, general conditions	25	percent		$2,736
Remote Location Factor	33	percent		$4,514
TOTAL ESTIMATED COST				**$18,194**

Irrigation System

Work Item	Quantity	Units	Unit Cost	Total
Plant removal, labor	40	man-hours	$30.00	$1,200
Equipment and hauling	1	allowance	$2,500.00	$2,500
Silt removal	80	man-hours	$30.00	$2,400
Stone resetting	80	man-hours	$45.00	$3,600
Head gates	6	unit	$250.00	$1,500
Contingency	20	percent		$2,240
Overhead, profit, general conditions	25	percent		$3,360
Remote Location Factor	33	percent		$5,544
TOTAL ESTIMATED COST				**$22,344**

Lee's Ferry Fort

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and sterilization	8	man-hours	$30.00	$240
Stone repointing	900	square feet	$3.75	$3,375
Interior plaster patching	4	man-hours	$30.00	$120
FPL wood treatment	300	square feet	$1.20	$360
Door repair	1	unit	$250.00	$250
Security features	1	allowance	$1,500.00	$1,500
Wood lintel replacement	2	unit	$90.00	$180
Bat screening	8	man-hours	$30.00	$240
Structural study	16	man-hours	$75.00	$1,200
Log beam repair	32	man-hours	$45.00	$1,440
Plywood sheathing	900	square feet	$1.00	$900
Single ply waterproofing/drainage fabric	900	square feet	$4.00	$3,600
Contingency factor	20	percent		$2,681
Overhead, profit, general conditions	25	percent		$4,022
Remote Location Factor	33	percent		$6,635
TOTAL ESTIMATED COST				**$26,743**

American Placer Corporation Office

Work Item	Quantity	Units	Unit Cost	Total
Cleaning	8	man-hours	$30.00	$240
Patch interior mud plaster	8	man-hours	$30.00	$240
Restore wood window	1	unit	$950.00	$950
Restore wood door	1	unit	$250.00	$250
Paint doors, windows, frames	1	sum	$1,000.00	$1,000
Remove dirt roofing	8	man-hours	$30.00	$240
Install plywood roof deck	480	square feet	$1.00	$480
Install single-ply membrane	480	square feet	$3.00	$1,440
Install drainage fabric	480	square feet	$1.00	$480
Install dirt topping	24	man-hours	$30.00	$720
Geotechnical engineering study	1	unit	$2,000.00	$2,000
Grading	1	unit	$500.00	$500
Crack repair and repointing	16	man-hours	$30.00	$480
Contingency factor	20	percent		$1,804
Overhead, profit, general conditions	25	percent		$2,646
Remote Location Factor	33	percent		$4,366
TOTAL ESTIMATED COST				**$17,836**

Chicken House

Work Item	Quantity	Units	Unit Cost	Total
Roof framing reconstruction	1	unit	$1,000.00	$1,000
Door covering reconstruction	1	unit	$250.00	$250
Contingency	20	percent		$250
Overhead, profit, general conditions	25	percent		$375
Remote Location Factor	33	percent		$619
TOTAL ESTIMATED COST				**$2,494**

Lee's Ferry Fort Root Cellar

Work Item	Quantity	Units	Unit Cost	Total
Plant Clearing	4	man-hours	$30.00	$120
Contingency	20	percent		$24
Overhead, profit, general conditions	25	percent		$36
Remote Location Factor	33	percent		$59
TOTAL ESTIMATED COST				**$239**

Spencer Building

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and sterilization	8	man-hours	$30.00	$240
Structural study	16	man-hours	$75.00	$1,200
Window opening reinforcement	4	unit	$200.00	$800
Window rehabilitation	5	unit	$250.00	$1,250
Stone repointing	770	square feet	$3.75	$2,888
Stone masonry repairs	24	man-hours	$45.00	$1,080
Door repair	1	unit	$150.00	$150
Exterior wood rehabilitation	24	man-hours	$30.00	$720
Exterior painting	1	allowance	$1,000.00	$1,000
Roof sheathing repairs	1	allowance	$200.00	$200
Roofing	720	square feet	$1.50	$1,080
Interior plaster patching	8	man-hours	$30.00	$240
Contingency factor	20	percent		$2,170
Overhead, profit, general conditions	25	percent		$3,254
Remote Location Factor	33	percent		$5,370
TOTAL ESTIMATED COST				**$21,641**

USGS Residence

Work Item	Quantity	Units	Unit Cost	Total
Cleaning and sterilization	8	man-hours	$30.00	$240
Lintel stabilization	2	allowance	$200.00	$400
Install gutter system	40	lineal foot	$3.75	$150
Window rehabilitation	3	unit	$250.00	$750
Install entry door	1	each	$200.00	$200
Exterior painting	1	allowance	$800.00	$800
Roof sheathing repairs	1	allowance	$100.00	$100
Roofing	450	square feet	$1.50	$675
Exterior wood repairs	1	allowance	$250.00	$250
Tree removal	1	unit	$250.00	$250
Contingency factor	20	percent		$763
Overhead, profit, general conditions	25	percent		$1,145
Remote Location Factor	33	percent		$1,888
TOTAL ESTIMATED COST				**$7,611**

Upper Ferry Site

Work Item	Quantity	Units	Unit Cost	Total
Structure 1 stone stabilization	8	man-hours	$45.00	$360
Structure 2 repointing	4	man-hours	$45.00	$180
Structure 4 stone stabilization	1	man-hours	$45.00	$45
Contingency factor	20	percent		$117
Overhead, profit, general conditions	25	percent		$176
Remote Location Factor	33	percent		$290
TOTAL ESTIMATED COST				**$1,167**

SUMMARY

LONELY DELL RANCH SITE

Samantha Johnson Cabin	$26,822
Polygamist Era Cabin	$20,519
Johnson House Foundation	$5,017
Lonely Dell Ranch Dugout	$13,593
Weaver Ranch house	$55,379
Picture Window Cabin	$17,765
Ranch Cemetery	$18,194
Irrigation System	$22,344
SITE TOTAL	**$179,633**

LEE'S FERRY SITE

Lee's Ferry Fort	$26,743
American Placer Co. Office	$17,836
Chicken House	$2,494
Lee's Ferry Root Cellar	$239
Spencer Building	$21,641
USGS Building	$7,611
Upper Ferry Site	$1,167
SITE TOTAL	**$77,731**

APPENDIX A:
Bibliography

BIBLIOGRAPHY

Archival Repositories

During the course of the research for this project a large number of archival repositories were consulted. These are listed below in alphabetical order. Where a specific individual could be identified that provided assistance to the research effort, that individual is named in parentheses.

Arizona Department of Library and Archives, Phoenix (Laurie Devine).
Arizona Department of Water Resources, Phoenix.
Arizona Historical Foundation, Tempe.
Arizona Historical Society, Tucson (Rose Byrne).
Arizona State Historic Preservation Office, Phoenix.
Arizona State Museum, Tucson (Susan Leubermann).
Arizona State University, Department of Library and Manuscripts, Tempe (Steven Phalen).
Bancroft Library, University of California, Berkeley.
Buffalo Bill Historical Center, Cody, Wyoming (Elizabeth M. Holmes).
Bureau of Land Management, Arizona State Office, Phoenix.
Bureau of Reclamation, Denver (Chris Pfaff, Britt Storey).
California State University, Meriam Library, Chico (William A. Jones).
Church of Jesus Christ of Latter Day Saints, Historical Department, Salt Lake City (Bill Slaughter).
Coconino County (Arizona) Board of Supervisors, Flagstaff.
Coconino County Department of Transportation, Flagstaff (Mike Anderson).
Coconino County Recorder, Flagstaff (Candace Owens).
Coconino County Treasurer, Flagstaff (Marsha K. Westling, Connie Fry).
Colorado School of Mines, Golden (Robert Sorgenfrei).
Denver Public Library, Colorado (Lori Swingle).
Herbert Hoover Library, West Branch, Iowa (Dwight M. Miller).
Huntington Library, San Marino, California (William P. Frank).
John Wesley Powell Memorial Museum, Page, Arizona.
Library of Congress, Prints and Photographs Division, Washington, D.C.
Museum of Northern Arizona, Flagstaff (Tony Marinella, Mike O'Hara).
National Archives and Records Administration, Washington, D.C.
National Archives and Records Administration, Rocky Mountain Region, Denver (Joan Howard).
National Archives and Records Administration, Pacific Southwest Region, Laguna Niguel, California.
National Park Service, Colorado Plateau Office, Denver (Sayre Hutchinson).
National Park Service, Glen Canyon National Recreation Area, Page (Chris Goetze, Joe Garrotto).
National Park Service, Submerged Cultural Resources Unit, Santa Fe.
National Park Service, Western Archeological and Conservation Center, Tucson (Kahlil Saba).
Nebraska State Historical Society, Lincoln (Chad Wall).
New Mexico State Records Center Archives, Santa Fe (Daphne S.O. Arnaiz-DeLeon).
Northern Arizona University, Cline Library Special Collections, Flagstaff, (Karen Underhill, Lanie Sutherland, Richard Quartaroli).

Phoenix Public Library, Arizona Room (Fay Freed).
Sharlot Hall Museum, Prescott (Mike Wurtz).
Southern Utah University, Sherratt Library, Special Collections, Cedar City (Janet Seegmiller).
Southwest Museum, Los Angeles (Kim Walters).
United States Geological Survey,
Flagstaff (Rich Hereford, Greg Fiske, Robert J. Hart).
Tucson (Bob Webb, Chris Smith).
Denver (Joe McGregor).
University of Arizona Library, Special Collections, Tucson (Jan Davis).
University of Utah, Mariott Library, Special Collections, Salt Lake City, (Roy Webb, Lorraine Crouse, Walter Jones).
Utah State Historical Society, Salt Lake City.
Yavapai County Recorder, Prescott, Arizona.

Interviews

In addition to archival and published materials, interviews were conducted with several authors that have studied Lee's Ferry over the years. Also, interviews were conducted with some family members who had relatives that had lived at Lee's Ferry. These interviews are listed below.

Valeen Tippetts Avery, Flagstaff, Arizona (December 2, 1999).
Janine Caywood, Missoula, Montana (June 18, 1999).
Arthur R. Cloutier, Page, Arizona (August 30, 1999).
Jim Klohr, San Diego, California (September 29, 1999).
Evelyn B. Measeles, Santa Fe, New Mexico (August 29, 1999 and December 7, 1999).
W.L. "Bud" Rusho, Salt Lake City, Utah (July 16, 1999 and July 29, 1999).
H. Lee Scamehorn, Longmont, Colorado (August 31, 1999).
Robert H. Webb, Tucson, Arizona (September 20, 1999).

Books, Articles, and Manuscripts

Anderson, A. Gary. "Events at Lee's Ferry, or Lonely Dell, 1864-1928." In Regional Studies in Latter Day Saint Church History, H. Dean Garrett and Clark V. Johnson, eds. Provo: Brigham Young University, 1989.

Anderson, Michael F. Living at the Edge: Explorers, Exploiters, and Settlers of the Grand Canyon Region. Grand Canyon: Grand Canyon Association, 1998.

Arrington, Leonard J., et al. Building the City of God. Salt Lake City: Deseret Book Company, 1976.

Arrington, Leonard J. Great Basin Kingdom: An Economic History of the Latter-Day Saints. Cambridge: Harvard University Press, 1958.

Avery, Valeen Tippetts. Free Running: Charlie Stanton and His Most Remarkable Water Project. Flagstaff: Flagstaff Corral of the Westerners, 1981.

Backus, Anna Jean. Through the Bonds of Love: In the Shadow of the Mountain Meadows Massacre. Ogden: AJB Distributing, 1998.

_____. Mountain Meadows Witness: The Life and Times of Bishop Phillip Klingensmith. Spokane: Arthur H. Clark, 1995.

Baily, Joel P. Jacob Hamblin, Buckskin Apostle. Los Angeles: Westernlore Press, 1948.

Balsom, Janet R., et.al. The Grand Canyon River Corridor Survey Project: Archeological Survey Along the Colorado River Between Glen Canyon Dam and Separation Canyon. Grand Canyon: National Park Service, 1994.

Barnes, Will C. Arizona Place Names. Tucson: University of Arizona, 1960.

Bear, Elwood. "John Wesley Powell: He Tamed the Colorado." Civil Service Journal (January-March, 1969): 3-7.

Bennion, Glynn. "There Are Stories Told of the Old Days at Lee's Ferry." The Deseret News (Salt Lake City). November 9, 1935.

Berns, Robert C. "The Murderous Mormon and His Teen Age Harem." Swank 7 (3) (July, 1960): 25-28, 54.

Billingsley, George H., et.al. Quest for the Pillar of Gold: The Mines and Miners of the Grand Canyon. Grand Canyon: Grand Canyon Association, 1997.

Birdseye, C.H. Plan and Profile of Colorado River from Lees Ferry Arizona to Black Canyon Arizona-Nevada and Virgin River Nevada. Washington: US Geological Survey, 1924.

Birney, Hoffman. Zealots of Zion. Philadelphia: Penn Publishing, 1931.

Briggs, Walter. Without Noise of Arms: The 1776 Dominguez-Escalante Search for a Route From Santa Fe to Monterey. Flagstaff: Northland Press, 1976.

Bleak, James G. Annals of the Southern Utah Mission, Books A & B. Salt Lake City: Historical Department of the Church of Jesus Christ of Latter Day Saints.

Broach, W.F. "Col. W.F. Cody's (Buffalo Bill) Wild West Trip to the Grand Canyon." Manuscript PH 2402, 1892. Church of Jesus Christ of Latter Day Saints Historical Department, Salt Lake City.

Brooks, Juanita. Jacob Hamblin: Mormon Apostle to the Indians. Salt Lake City: Howe Brothers, 1980.

_____. Emma Lee. Logan: Utah State University Press, 1975.

_____. The Mountain Meadows Massacre. New ed. Norman: University of Oklahoma Press, 1962.

_____. John Doyle Lee: Zealot, Pioneer Builder, Scapegoat. Glendale: A.H. Clark, 1961.

_____. "Lee's Ferry at Lonely Dell." Utah Historical Quarterly 25 (4) (October, 1957): 283-295.

_____. The Mountain Meadows Massacre. Stanford: Stanford University Press, 1950.

Brown, William. Lee's Ferry Historic Structure Report. Denver: National Park Service, 1966.

Bowden, Charles. "Cashing in on the Colorado." National Parks (May-June, 1988): 25-30.

Burke, John M. Buffalo Bill From Prairie to Palace: An Authentic History of the Wild West. Chicago: Rand, McNally, 1893.

Capshaw, Virginia. "Lee's Ferry at Lonely Dell." Phoenix 4 (February, 1969): 28-29.

Carothers, Steven W. An Ecological Survey of the Riparian Zone of the Colorado River Between Lee's Ferry and the Grand Wash Cliffs, Arizona: Final Research Report. Grand Canyon: National Park Service, 1976.

Carrel, Toni, ed. Submerged Cultural Resources Site Report: Charles H. Spencer's Mining Operation and Paddle Wheel Steamboat, Glen Canyon National Recreation Area. Santa Fe: National Park Service Submerged Cultural Resources Unit, 1987.

Cika, Cathy. "Lee's Ferry Project Supporting Information." Glen Canyon National Recreation Area Archives, Page, 1993-1994.

Cleland, Robert Glass and Juanita Brooks, eds. A Mormon Chronicle: The Diaries of John D. Lee, 1848-1876, reprint edition, Salt Lake City: University of Utah Press, 1983.

_____. A Mormon Chronicle: The Diaries of John D. Lee, 1848-1876. San Marino: Huntington Library, 1955.

Coconino County. "Records of Lee's Ferry, 1911-1925." Tucson: University of Arizona Special Collections, manuscript AZ 156.

Collier, John. "Shall White Men Confiscate Indian Money to Build Bridges?" Pamphlet on file, Arizona State University, Arizona Room, ca. 1926.

Colton, Harold S. "Steamboating in the Glen Canyon of the Colorado River." Plateau 35 (Fall, 1962): 57-59.

_____. "Early Failure to Solve the Water Shortage." Plateau 29(2) (1956). 36-40.

Connelly, Polly. "For the Adventurous ... A Good Hike Down the Paria Canyon." Westways 63 (9) (September, 1971): 41-42, 68-69.

Cooley, John. The Great Unknown. Flagstaff: Northland Publishing, 1988.

Corbett, Pearson H. Jacob Hamblin, Peacemaker. Salt Lake City: Deseret Book Company, 1952.

Cowley, Mathis F. Wilford Woodruff, History of His Life and Labors. Salt Lake City: Bookcraft, 1970.

Crampton, C. Gregory. "Historical Sites in Glen Canyon, Mouth of San Juan River to Lee's Ferry." University of Utah Anthropological Papers No. 46. Salt Lake City: University of Utah, 1960.

_____. "Historic Glen Canyon." Utah Historical Quarterly 28 (July, 1960): 274-289.

_____. "Outline History of the Glen Canyon Region, 1776-1922." University of Utah Anthropological Papers No. 42. Salt Lake City: University of Utah, 1960.

Crampton, C. Gregory and W.L. Rusho. A Report on the History of Lee's Ferry, Arizona. Salt Lake City: Prepared for the National Park Service, 1965.

Crampton, C. Gregory and Dwight L. Smith, eds. "The Hoskaninni Papers: Mining in Glen Canyon, 1897-1902." University of Utah Anthropological Papers No. 54. Salt Lake City: University of Utah, 1961.

Creer, L.H. "The Activities of Jacob Hamblin in the Region of the Colorado." University of Utah Anthropological Papers No. 33. Salt Lake City: University of Utah, 1958.

_____. "Mormon Towns in the Region of the Colorado." University of Utah Anthropological Papers No. 32. Salt Lake City: University of Utah, 1958.

Crumbo, Kim. A River Runners Guide to the History of the Grand Canyon. Boulder: Johnson Books, 1981.

Cundell, Nora. Unsentimental Journey. Oondon: Methuen & Co., 1940.

Darrah, W.C. Powell of the Colorado. Princeton: Princeton University Press, 1951.

Dellenbaugh, Frederick S. A Canyon Voyage. New York: G.P. Putnam's Sons, 1908. Reprint, Tucson: University of Arizona Press, 1996.

_____. The Romance of the Colorado River. New York: G.P. Putnam's Sons, 1902.

Delgado, James P. and Toni Carrel. "National Register of Historic Places Registration Form: The Hulk of the *Charles H. Spencer*." Glen Canyon National Recreation Area Archives, Page, 1989.

Dern, George Henry. "Dedication of Grand Canyon Bridge, Arizona, June 14-15, 1929." Ms. On file, Arizona State University, Arizona Room, Tempe.

Dodge, Frank B. The Saga of Frank B. Dodge: An Autobiography. Tucson: Friends of the Author, 1944.

Dolan, Robert, et.al., "Man's Impact on the Colorado River in the Grand Canyon," American Scientist (62) (1974): 392-401.

Eddy, Clyde. Down the World's Most Dangerous River. New York: Frederick A. Stokes, 1929.

Einiger, Susan and Jonathon C. Horn. "Historical Documentation and Structural Stabilization of the Main Ferry Site, Lee's Ferry National Historic District." Ruins Stabilization Technical Report No. 25. Montrose, Colorado: Nickens and Associates, 1987.

Embach, H.B. "Appraisal Report, Property of Denver E. Evans, et.al." Phoenix: Prepared for National Park Service, 1966. Glen Canyon National Recreation Area Archives, Record Group 17516, Folder 12.

Fairly, Helen C., et. al. The Grand Canyon River Corridor Survey Project: Archaeological Survey Along the Colorado River Between Glen Canyon Dam and Separation Rapid. Denver: National Park Service, 1994.

Fife, Austin E. "Folkways of the Mormons From the Journals of John D. Lee." Western Folklore 21 (4) (October, 1962): 229-246.

Firor, James and Susan Eininger. "Stabilization Monitoring: A Review of the Years 1-3 Stabilization Work at Glen Canyon National Recreation Area, 1984-87." Ruins Stabilization Report No. 44. Montrose, Colorado: Nickens and Associates, 1987.

Foster, Dave. Lee's Ferry: Angling, Boating, and Historical Guide. 1992.

Fowler, Don D., ed. Photographed all the Best Scenery: Jack Hiller's Diary of the Powell Expeditions, 1871-1875. Salt Lake City: University of Utah Press, 1972.

Freeman, L.R. Down the Grand Canyon. New York: Dodd, Mead & Co., 1924.

_____. The Colorado River, Yesterday, Today and Tomorrow. New York: Dodd, Mead & Co., 1923.

Froeschauer-Nelson, Peggy. Lonely Dell Ranch Cultural Landscape Inventory. Denver: National Park Service, 1996.

_____. Lee's Ferry Cultural Landscape Inventory. Denver: National Park Service, 1996.

Gardiner, John H. "Lee's Ferry." In The Saga of Frank B. Dodge: An Autobiography. Tucson: Friends of the Author, 1944.

Garrett, H. Dean & Clark V. Johnson, eds., Regional Studies in Latter-Day Saint Church History, Arizona. Provo: Brigham Young University, 1989.

Gathman, Walter A. and Donald A. Kruger. "Lee's Ferry, Coconino County." HABS/HAER Survey No. Ariz. 58. Washington, D.C.: Library of Congress, October, 1965; Revised January, 1969.

Glen Canyon National Recreation Area. "Environmental Assessment of Proposed Road, Ramps, Parking Lot, and Raft Boarding Jetty at Lee's Ferry," Glen Canyon NRA, January 1976.

Golder, Frank A. The March of the Mormon Battalion from Council Bluffs to California. New York: The Century Company, 1928.

Goldwater Barry. A Delightful Journey: Down the Green and Colorado River. Tempe: Arizona Historical Foundation, 1970.

Gottfredson, Peter. History of Indian Depredation in Utah. Salt Lake City: Skelton, 1919.

Hafen, LeRoy and Ann W. Hafen. The Utah Expedition, 1857-1858. Glendale: A.H. Clark, 1954.

_____. The Old Spanish Trail. Glendale: A.H. Clark, 1954.

Hall, Sharlot. Sharlot Hall on the Arizona Strip. C.G. Crampton, ed. Flagstaff: Northland Press, 1975.

Hamblin, W. Kenneth. Guidebook to the Colorado River. 3 Vol. Provo: Brigham Young University, 1968-71.

Hamilton, Dwight L. "An Inventory of Historic Sites and Buildings, Lee's Ferry." Glen Canyon National Recreation Area Archives, 1967.

Hegemann, Elizabeth Compton. Navajo Trading Days. Albuquerque: University of New Mexico Press, 1963.

Hekkers, James. "The Colorado River Railroad Survey." American History Illustrated 16 (4) (July, 1981): 31-37.

Henderson, Randall. "Grand Canyon Voyage." Desert Magazine 11 (1) (November, 1947): 4-10.

Hennie, Manetta Prince. Descendants of John Doyle Lee, 1812-1817. Provo: Privately printed, 1960.

Historic American Buildings Survey. Lee's Ferry Complex Technical Drawings. Washington, D.C.: National Park Service, 1974.

Hoffman, Ralph A. "Bridging the Grand Canyon of Arizona: The Highest Highway Bridge in the World." Arizona Highways 3 (8) (November, 1928): 5-8.

Horn, Jonathon C. and Susan Eininger. "Stabilization Assessment of Lee's Ferry Dugway, Glen Canyon National Recreation Area." Ruins Stabilization Technical Report No. 20. Montrose, Colorado: Nickens and Associates, 1986.

Hubber, Ann. "Lee's Ferry and Lonely Dell Ranch National Register Nomination." On file, Arizona State Historic Preservation Office, 1997.

Indexes to A Mormon Chronicle: The Diaries of John D. Lee, 1848-1876. Salt Lake City: University of Utah Press, 1984.

Ives, Joseph C. Report Upon the Colorado River of the West in 1857 and 1858. Washington, D.C.: US Government Printing Office, 1861.

Ives, Ronald L. "People on the River: Bert Loper - The Last Chapter." Journal of Arizona History 17(1) (Spring, 1976): 49-54.

Jaeger, Oscar R. The Grand Canyon Advantage: A Narrative of Rapid Shooting on the Colorado, the World's Wildest River. Dubuque, Iowa: Privately Printed, 1932.

James, George Wharton. In and Around the Grand Canyon. Boston: Little, Brown, 1900.

Jansen, Andrew. Church Chronology. Salt Lake City: Deseret News, 1914.

Johnson, Elmer. "Warren Marshall Johnson: Father, Saint, Pioneer," undated manuscript, Glen Canyon National Recreation Area Archives, GLCA #17516, Folder 14.

Johnson, Nephi, ed. "Biography of John G. Kitchen." Ms. on file, GLCA Archives, Page, n.d.

Jones, Albert H. Spencer Mining Operations on the San Juan River in Glen Canyon, 1908-11.

Judd, Mary Johnson. "Life History of Warren Marshall Johnson." Ms. on file, GLCA Archvies, n.d., Page.

Kelly, Charles. "J.D. Lee's Lost Gold Mine." Desert Magazine 9:10 (August, 1946): 9-10.

_____. "Lee's Ferry on the Colorado." Desert Magazine 7:1 (November, 1943): 6.

Kelly, Charles, ed. Journals of John D. Lee, 1846-47 and 1859. Salt Lake City: University of Utah, 1984. Reprint. Original published 1938.

Kelsey, Michael R. Hiking and Exploring the Paria River: Including the Story of John D. Lee and the Mountain Meadows Massacre. Provo: Kelsey Publishers, 1991.

Kildare, Mavrile. "Doctor Grandma French." Frontier Times 41 (July, 1967): 14-17, 63, 66-67.

King, David S. Mountain Meadows Massacre: A Search for Perspective. Washington: Potomac Corral of the Westerners, 1970.

Kolb, E.L. Through the Grand Canyon from Wyoming to Mexico. New York: Macmillan, 1914.

Krenkel, John H., ed. The Life and Times of Joseph Fish, Mormon Pioneer. Danville, Illinois: Interstate Printers, 1971.

Lair, Jim. Mountain Meadows Massacre: An Outlanders View. Marceline, Missouri: Waleworth, 1986.

Larson, A. Karl. Erastus Beaman Snow. Dugway, Utah: Pioneer Press, 1973.

_____. I Was Called to Dixie. Salt Lake City: Deseret News Press, 1961.

Larson, W.P. "The 'Letter,' Or Were the Powell Men Really Killed by Indians?" Canyon Legacy 17 (1993): 12-19.

LaRue, Eugene Clyde. "Water Power and Flood Control of Colorado River Below Green River, Utah." U.S. Geological Survey Water Supply Paper No. 556. Washington: US Government Printing Office, 1925.

_____. "Colorado River and Its Utilization." US Geological Survey Water Supply Paper No. 395. Washington: US Government Printing Office, 1916.

Lavender, David. River Runners of the Grand Canyon. Grand Canyon: Grand Canyon National History Association, 1985.

Lee, John D. "Journal of The Iron County Mission," ed. By G. Larson. Utah Historical Quarterly 20 (4) (1952).

Lucchitta, Ivo. Topographic Map of the Lee's Ferry Area, Arizona. Flagstaff: U.S. Geological Survey, 1994.

Lyford, C.P. The Mormon Problem: An Appeal to the American People, with an Appendix Containing Four Original Stories of Mormon Life, Founded upon Fact and a Graphic and Thrilling Account of the Mountain Meadows Massacre. New York: Phillips & Hunt, 1886.

McClintock, James H. Mormon Settlement in Arizona. Tucson: University of Arizona Press, 1985.

McCormick, J.A. "The Colorado Grand Canyon Mining and Imrpvement Company Expedition of 1891." Unpublished manuscript, Russel L. and Lyn Wood Mining History Archive, Arthur Lakes Library, Colorado School of Mines, Golden, Colorado, ca. 1945.

McEuen, Douglas. The Legend of Francis Marion Poteet and the Mountain Meadows Massacre: History of the Poteet Family. Federal Way: D. McEven, 1996.

Marston, Otis "Dock." "Early Travel on the Green and Colorado Rivers." The Smoke Signal (Tucson Corral of the Westerners) 20 (Fall, 1969): 231-236.

Martin, Russell. A Story that Stands Like a Dam: Glen Canyon and the Struggle for the Soul of the West. New York: Henry Holt, 1989.

Measales, Evelyn Brack. Lee's Ferry: A Crossing on the Colorado. Boulder: Pruett, 1981.

Merriell, F.C. Study of Ultimate Flow of the Colorado River at Lee's Ferry, Arizona. Denver: Colorado Water Conservation Board, 1937.

Nadeau, Remi A. "Crossing of the Pioneers." Westways Vol. 51 (September, 1959): 28-29.

_____. The Water Seekers. New York: Doubleday, 1950.

Nelson, Nancy. Any Time, Any Place, Any River. Flagstaff: Red Lake Books, 1991.

Nims, F.A. The Photographer and the River. Dwight L. Smith, ed. Santa Fe: Stage Coach Press, 1967.

Persons, William R. Fishery Investigation of the Colorado River from Glen Canyon Dam to the Confluence of the Paria River: Assessment of the Impact of Fluctuating Flows on the Lee's Ferry Fishery. Phoenix: Arizona Game & Fish, 1985.

Pewe, Troy L. Colorado River Guidebook: A Geological and Geographic Guide from Lee's Ferry to Phantom Ranch, Arizona. Tempe, 1974.

Phoenix, David A. "Geology of the Lee's Ferry Area, Coconino County, Arizona." U.S. Geological Survey Bulletin No. 1137. Washington: U.S. Government Printing Office, 1963.

Powell, J.W. The Exploration of the Colorado River and its Canyons. New York: Dover Publications, 1961.

_____. Canyons of the Colorado. Meadville: Flood & Vincent, 1895.

Reilly, P.T. Lee's Ferry: From Mormon Crossing to National Park. Logan: Utah State University Press, 1999.

_____. "My High Water Experience in Marble and Grand Canyons." Boatmans Quarterly 10:2 (Spring, 1997): 17-19.

_____. "The Lost World of Glen Canyon." Utah Historical Quarterly 63:2 (Spring, 1995): 122-24.

_____. "Norman Nevills: White Water Man of the West." Utah Historical Quarterly 55:2 (Spring, 1987): 181-200.

_____. "Historic Utilization of Paria River." Utah Historical Quarterly 45:2 (Spring, 1977): 198-19.

_____. "Kanab United Order: The President's Nephew and the Bishop." Utah Historical Quarterly 47:2: (1974): 153-59.

_____. "Warren M. Johnson, Forgotten Saint." Utah Historical Quarterly 38:1 (1971): 2-22.

_____. "How Deadly is Big Red?" Utah Historical Quarterly 37:2 (Spring, 1969); 254-256.

_____. "Survey of Stone Buildings, Lee's Ferry." Northern Arizona University Manuscript Collection No. 275, October 6, 1964, Flagstaff.

_____. "The Buildings at Lee's Ferry." Northern Arizona University Manuscript No. 275, n.d., Flagstaff.

_____, ed. "The Johnson Brothers Remember Lee's Ferry." Interview Transcript, May 16, 1974. Northern Arizona University Special Collections Manuscript No. 275, Flagstaff.

Reynolds, Temple A. "Lee's Ferry Historic District National Register Nomination." On file, Arizona State Historic Preservation Office, 1974.

Richert, Roland. Ruins Stabilization Report, the Old Post Office, Lee's Ferry, Glen Canyon National Recreation Area. Globe: National Park Service Southwest Archaeological Center, 1967.

Roosevelt, Nicholas. Theodore Roosevelt, the Man As I Knew Him. New York: Dodd, Mead, 1967.

Rusho, W.L. and C. Gregory Crampton. Lee's Ferry: Desert River Crossing. Salt Lake City: Cricket, 1992.

_____. Desert River Crossing: Historic Lee's Ferry on the Colorado River. Santa Barbara: Peregrine Smith, 1981.

_____. Desert River Crossing: Historic Lee's Ferry on the Colorado River. (Second Edition) Santa Barbara: Peregrine Smith, 1975.

Rusho, W.L. "Living History at Lee's Ferry." Journal of the West 7 (January, 1968): 64-75.

_____. "The Fugitive's Ferry". Westways (October, 1965): 45-46.

_____. "Charlie Spencer and His Wonderful Steamboat." Arizona Highways 37 (8) (August, 1962): 34-39.

Sorgenfrei, Robert "A Fortune Awaits Enterprise Here: The Best Mining Expedition to the Grand Canyon in 1891." Journal of the Southwest 40 (4) (Winter, 1998): 437-462.

Spencer, Ferrel G. "Lee's Ferry Experience." GLCA Archives Accession No. 213, n.d., Page.

Stanton, Robert Brewster. The Colorado River Survey. D.L. Smith and C.G. Crampton, eds. Salt Lake City: Howe Brothers, 1987.

_____. Down the Colorado. D.L. Smith, ed. Norman: University of Oklahoma Press, 1965.

_____. The Hookanini Papers. C. Gregory Crampton and Dwight L. Smith, eds. Salt Lake City: University of Utah Anthropological Papers No. 54. 1961.

_____. Colorado River Controversies. J.M. Chalfant, ed. New York: Dodd, Mead, 1932.

Stegner, Wallace. Beyond the Hundredth Meridian. Boston: Houghton Mifflin, 1962.

Stone, Julius F. Canyon Country. New York: G.P. Putnam's Sons, 1932.

Suran, William C., ed. The Papers and Journals Pertaining to the Kolb Brothers, 1911-1912 Trip Through the Canyons of the Green and Colorado Rivers, 1989.

Swarthout, Jeanne K. Final Report for an Archaeological Overview for the Lower Colorado River Valley, Arizona, Nevada, and California: Reach 1, Lee's Ferry to Grand Wash. Cliffs. Flagstaff: Museum of Northern Arizona, 1981.

Terrell, John Upton. War for the Colorado River. Glendale: A.H. Clark, 1965.

Tyler, Daniel A. A Concise History of the Mormon Battalion in the Mexican War, 1846-1848. Texas: Rio Grande Press.

U.S. Geological Survey. Plan and Profile of Colorado River, Lee's Ferry, Arizona to Mouth of Green River, Utah, San Juan River, Mouth to Chinle Creek, and Certain Tributaries. Washington, D.C.: U.S. Govt. Printing Office, 1922.

U.S. National Park Service. Environmental Assessment for Establishment of Native Plant Nursery at Lee's Ferry, Glen Canyon National Recreation Area. Page: USDI, 1987.

_____. Environmental Assessment, Development Concept Plan, Lee's Ferry, Glen Canyon National Recreation Area. Denver: National Park Service, 1986.

_____. Final Development Concept Plan for Lee's Ferry, Glen Canyon National Recreation Area, Arizona. Denver: National Park Service, 1986.

_____. Finding of No Significant Impact for the Development Concept Plan, Lee's Ferry, Glen Canyon National Recreation Area. Denver: National Park Service, 1986.

_____. Draft Lee's Ferry Upriver Recreation Plan and Environmental Assessment. Denver: National Park Service, 1984.

_____. Proposed Road, Ramps, Parking Lot, and Raft Boarding Jetty at Lee's Ferry, Glen Canyon National Recreation Area. Denver: USDI, 1975.

Warner, T.J., ed. and Fray A. Chavez, trans. The Dominguez-Escalante Journal. Salt Lake City: University of Utah Press, 1995.

Watson, Elmo Scott, ed. The Professor Goes West: Illinois Wesleyan University Reports of John Wesley Powell's Explorations, 1867-1874. Bloomington: Illinois Wesleyan University Press, 1954.

Webb, Robert H. Grand Canyon: A Century of Change. Tucson: University of Arizona Press, 1996.

Westec Services. Preliminary Environmental Resources Report: Colorado River Between Lee's Ferry Arizona, and the United States/Mexico Boundary. Los Angeles: Westec Services, 1981.

Westwood, R.E. Rough Water Man. Reno: University of Nevada Press, 1992.

Wheeler, Capt. G.M. Report of the United States Geological and Geographical Surveys West of the 100th Meridian, vol. 1. Washington: U.S. Government Printing Office, 1874.

Wise, William. Massacre at Mountain Meadows: An American Legend and a Monumental Crime. New York: Crowell, 1976.

Young, John V. "A New Boom at Lee's Ferry: Recreation Seekers Replace Ore Prospectors," New York Times (February 23, 1969): XX 13.

APPENDIX B:
Annotated Photographic Bibliography

Annotated Photographic Bibliography

This bibliography lists photos reviewed for this project. While there are hundreds of photos of Lee's Ferry, many are of the dugways only, show people only, or show only the ferryboat in the river or the river itself. These "dugway only," "people only," or "boat only" photos were of little utility for an analysis of historic buildings at Lee's Ferry. The following list is as comprehensive as possible. Photos of particular importance with regard to the historic building analysis are noted.

TIER ONE, LOCAL MARICOPA COUNTY RESOURCES

Arizona Department of Library, Archives and Public Records (Phoenix)

Photo records here include general history of the Mormon experience in Arizona and specific information about the Lee's Ferry site. While the collection is relatively large, few photos show buildings or structures. The few exceptions are a 1917 photo of the Johnson House, a ca. 1910 photo of the cemetery, and a ca. 1910 photo of the Spencer flume.

95-2837, John D. Lee photo portrait.
96-1720, W.H. Hopkins and Dolph Andrews photo, 1917.
96-1729, W.H. Hopkins and Dolph Andrews photo, 1917.
96-1730, W.H. Hopkins and Dolph Andrews photo, 1917, Warren Johnson house.
96-1893, Navajo Bridge.
96-1894, river only.
96-1897, boat only, ferry arriving in right bank.
96-1899, Navajo Bridge, bridge construction explosion.
96-3829, men pulling rope attached to ferry (duplicate).
96-3830, McClintock big wheel wagons, 5 men on boat.
96-3831, boat only, ferry.
96-3832, scenic.
96-3833, Spencer Flume.
96-3834, view upstream.
96-3835, McClintock big wheel wagon.
96-3836, McClintock view upstream.
96-3837, view upstream.
96-3838, view upstream.
96-3839, scenic.
96-3840, view of right bank, Spencer buildings and dock.
96-3841, duplicate of 3830.
96-3842, scenic.
96-3844, ox team on dugway - duplicate.
96-3845, photo ca. 1900, boat only, McClintock big wheel wagon on shore.
96-3846, good view of cemetery.
96-3847, small original of 3840.
96-3848, Buffalo Bill on trail with cattle.
96-3849, ferry crib.
96-3850, boats on river (modern).
96-3851, Lonely Dell showing heavy vegetation, McClintock photo.
96-3852, boat only, part view of boat man.
96-3854, not Lee's Ferry, lower Colorado ford.
96-3886, boat on river-no cable.
98-1935, U.S. Geological Survey photo, 1923 river only.

98-2163, Colorado River Survey Project photo, 1923 boat only.
98-2170, Colorado River Survey Project photo, 1923 boat only.
98-2171, Colorado River Survey Project photo, 1923 river only.
98-2172, Colorado River Survey Project photo, 1923 boat only.
98-2173, Colorado River Survey Project photo, 1923 boat only.
98-2174, Colorado River Survey Project photo, 1923 boat only.
98-2175, Colorado River Survey Project photo, 1923 boat only.
98-2176, Colorado River Survey Project photo, 1923 boat only.
98-2177, Colorado River Survey Project photo, 1923 boat only.
98-2178, Colorado River Survey Project photo, 1923 boat only.
98-2428, AZ Highway Dept., 1925 Navajo Bridge location.
98-5282, Hoffman, 1927 Navajo Bridge.
98-5283, Hoffman, 1927 Navajo Bridge.
98-5284, Hoffman, 1927 Navajo Bridge.
98-5285, Hoffman, 1927 Navajo Bridge.
98-5286, Hoffman, 1927 Navajo Bridge.
98-5287, Hoffman, 1927 Navajo Bridge.
98-5288, Hoffman, 1927 Navajo Bridge.
98-5289, Hoffman, 1927 Navajo Bridge.
98-5700, 1927. Navajo Bridge.
98-5701, Hoffman, 1927 Navajo Bridge.
98-5702, Hoffman, 1927 Navajo Bridge.
98-5703, Hoffman, 1927 Navajo Bridge.
98-5705, Duberstein, 1927 Navajo Bridge.
99-0469, ca. 1880, ferry boat only, no cable, original was lantern slide.

Arizona Historical Foundation (Arizona State University, Tempe)

This private historical archives is located on the campus of Arizona State University in the Hayden Library, but is independent from the University. It is closely associated with the late Arizona Senator and presidential candidate Barry Goldwater. The foundation houses a good collection of early Arizona photographs and manuscripts. However, the coverage for Lee's Ferry is a bit thin. The following photos were reviewed:

General Photo collections

N-2196, John D. Lee Cabin (sic. – Samantha Johnson Cabin, HS-232), Published in Delightful Journey, p. 85.
Hoop-31, Rachel Woolsey Lee. Mildred Hooper photo collection.
DC-4 1792, Paria Riffle and dugway, June 19, 1956. Dock Marston photo, river only.

Suzi Sato photo collection

48-1, Lee's Cabin (Samantha Johnson Cabin, HS-232), color print, 1981.
48-2, Lee's Cabin (Samantha Johnson Cabin, HS-232), color print, 1981.
48-3, orchard at Lonely Dell showing young trees, color print, 1981.
48-1, Colorado River at Lee's Ferry, color print, 1981.
48-1, Cemetery at Lee's Ferry, color print, 1981.
48-1, Lee's Ferry Fort, color print, 1981.
48-1, Lonely Dell Ranch dugout, color print, 1981.
48-1, Lonely Dell Ranch dugout, color print, 1981.

Arizona Collection, Hayden Library, Arizona State University (Tempe)

The special collections division of Hayden Library at ASU has a good collection of manuscripts and photos of Arizona subjects. Of particular note are the extensive collection of papers and photographs amassed by Senator Carl Hayden during his long career. These include a visit by Hayden to Lee's Ferry in 1922.

Forrest Doucette collection

SPC 94: 3: 184, shows Spencer buildings at Lee's Ferry, 1927.

Henry S. McClusky collection

CP MCC 5, Henry McClusky (aide to Arizona Governor George Hunt) greeting Utah Governor George Dern at Lee's Ferry, 1926.

CP MCC 6-19, other photos of Dern party at Lee's Ferry; boat only or river only.

Carl T. Hayden collection

CTH-300, Evaporation station in foreground; Fort & APC Office in background, 9-23-1921.

CTH-301, Lee's Ferry Fort area taken from Left bank dugway, 10-3-1921.

CTH-306, good view of Lee's Backbone looking downstream, 8-1-1922.

CTH-307, Fort area, looking downstream, 8-1-1922.

CTH-308, mouth of Paria Creek; ranch in background, 8-1-1922.

CTH-309, aerial view of ranch, 8-1-1922.

CTH-2428, Hayden party at Lee's Ferry; people identified on back of photo.

CTH-2413, duplicate 8X10 of above, marked August 1, 1922.

Phoenix Public Library

This institution has only one collection of photographs, but the size and extent of the McClintock collection make up for the lack of diversity in the holdings. McClintock was an early pioneer and surveyor who traveled extensively in the West. Not all of the photos can be attributed to McClintock. Some were taken by him while others were photos he collected. This collection includes some good early views of Lee's Ferry.

James H. McClintock, Jr. Collection

7: 61, Cemetery at Lee's Ferry.

7: 62, Lonely Dell Ranch, showing heavy vegetation and trees.

7: 63, scenic view of Paria River delta.

7: 64, "boat only" view.

7: 65, "river only" view.

7: 66, "river only" view.

7: 73, shows wagons with large wheels disembarking from ferry. Reproduced in Measeles, p. 51 (top).

7: 74, Cemetery at Lee's Ferry.

7: 75, "river only" view at Lee's Ferry.

7: 76, "river only" view at Lee's Ferry.

7: 77, "river only" view at Lee's Ferry.

7: 78, men pulling ferry with rope. Reproduced in Measeles, p. 50 (top).

7: 79, ox team pulling wagons on dugway.

TIER TWO, ARIZONA STATE RESOURCES

Sharlot Hall Museum (Prescott)

This state-supported independent museum contains an excellent collection of Arizona photos. Specific photos of Lee's Ferry / Lonely Dell Ranch are as follows:

John Lee Residence. Photo number Bu-Re-4136P.

Purported photo of Lee Cabin, but obscured by line of trees, ca. 1920. Shows stone cabin with flat dirt roof.

Lee's Ferry. Photo number Ft-118pc.
Shows wagon train with oxen, ca. 1875.

Jordan Collection: LA-113p and LA-138pg.

Photo number LA-138pg is a good view of an unidentified stone building with flat dirt roof.

Glenn C. Collins photographer, Box 77, Folder 8, Item 6.
Photo shows Spencer sluice in operation.

E.M. Jordan photo, box 2A, Album 8, page 86.
Shows Navajo Bridge.

Harlow Yeager Collection, Photo Box 164, Folder 42.

Item 1 and Item 2 of this collection are "boat only" photos of Lee's Ferry, ca. 1890.

Sharlot Hall Collection, photo box 111, Items 1-19.
These photos show Sharlot Hall's 1911 trip through the Arizona Strip. Item 9, Item 10, and Item 19 are "boat only" photos of the ferry boat on the Colorado River.

Glen Canyon NRA Park Archives (Page)

The photo archives at GLCA headquarters in Page were reviewed. Significant photos were found in the following collections:

Area Development Photo Albums, collection #16871
This photo collection includes some good aerial photos of Lee's Ferry taken during the early years of NPS ownership and control. This includes about seven photos taken ca. 1963-65, image number 30-37. None of these photos show enough detail to be valuable for individual building descriptions, although they do show the site as a whole.

Glen Canyon NRA Vertical File Photos, collection #16877
This large photo collection contains many images of Lee's Ferry. These are described by folder number, as follows:

Folder 38 - contains images numbered 274 to 315, many of which are aerial photos early in the NPS tenure of the property.
Folder 39 - Boat Docks. This folder contains images of boats only; of little value for historic building analysis.
Folder 40 - Campgrounds. Contains aerial photos showing NPS campground development at Lee's Ferry, ca. 1965-66.

Folder 41 - bulldozer clearing for campground ca. 1966.
Folder 42 - NPS Residences, water tower ca. 1966.
Folder 43 - Lee' Ferry signage.
Folder 44 - views of Marble Canyon, Lee's Ferry road junction.
Folder 45 - missing.
Folder 46 - *photos of Colorado River near Lee's Ferry.*
Folder 47 - photos of the Paria River near Lee's Ferry.
Folder 48 - Boat Ramps at Lee's Ferry.
Folder 49 - Empty.
Folder 50 - concessionaire (Ft. Lee Co.) motel, ca. 1970
Folder 51 - concessionaire river rafts, ca. 1970.
Folder 52 - *concessionaire gas station, ca. 1970*
Folder 53 - concessionaire store & restaurant, ca. 1970
Folder 54 - Lee's Ferry concessions
Folder 55 - Living history at Lee's Ferry. Most photos show a visit by students of the Page middle school in 1977. Some images have good views of Samantha Johnson Cabin, HS-232, in the background.
Folder 56a - Lee's Ferry historical. Mainly from the NPS era, ca. 1965-1973. Also contains some copies of photos used in the Crand Canyon Natural History Association brochure of Lee's Ferry.
Folder 56b - Lee's Ferry historical. Contains copies of historical photos used in the preparation of exhibits at Lee's Ferry.
Folder 57 - Buffalo Bill at Lee's Ferry.
Folder 58 - Historical sites at Lee's Ferry. Photos of buildings ca. 1974.
Folder 59 - Lee's Ferry historical. Some of Lonely Dell Ranch; some Klohr photos.
Folder 60 - Lee's Ferry historical. Spencer operation buildings and steamboat ca. 1960.
Folder 61 - Lee's Ferry - prehistoric pertroglyphs.
Folder 62 - "Empty as of 3/22/93."
Folder 63 - Lee's Ferry wayside exhibits.
Folder 64 - "Empty as of 3/22/93."
Folder 65 - Ranger patrol boat. This folder also contains some pre-Glen Canyon Dam photos that show beach sedimentation.
Folders 66 & 67 - "Empty as of 3/22/93."
Folder 68 - Boating at Lee's Ferry.
Folders 69 and 70 - "Empty as of 3/22/93."
Folder 132 – VIPs. Photo 1966b shows Stewart Udall at Samantha Johnson Cabin, HS-232.

Lee's Ferry Historical Report and Photographs, collection #16878

The photographs in this collection are in two sections. The first shows NPS operations between 1967 and 1973. The second section includes some copies of historical photos.

Joseph Muench Photographs, collection #16879

This collection consists of photos taken by noted photographer Joseph Muench during a boat trip along the Colorado River, ca. 1953. Also contained in this collection are two historical prints, one of the Johnson House and one showing people working in an agricultural field. Some of these Muench photos were published in Desert Magazine 21 (4) (April, 1958): 22-23 and to illustrate an article by Remi Nadeau, "Crossing of the Pioneers," in Westways 51 (9) (September, 1959). Muench had made an earlier trip to Lee's Ferry, but photos of this earlier trip do not appear to be included with those in the Park's collection. These earlier photos accompanied the article by Joyce and Josef Muench, "Taking the Measure of the Colorado River," Arizona Highways 23 (6) (June, 1947): 4-7. Photos in the Park's collection of significance with regard to the historic building analysis include:

A-126-A, cemetery at Lonely Dell Ranch.
6815, good view of the Frank Johnson Cabin at the upper ferry site.
4205, second view of Frank Johnson Cabin with river in background.
4200, somewhat distant view of Fort and Spencer buildings.
4208, closer view of Fort and APC Office.

Theodore Roosevelt in Northern Arizona, collection #16883

This collection consists of photos copied from a larger collection located at Grand Canyon National Park. The photos duplicated here include photos of locations which are now in or near Glen Canyon National Recreation Area. The photos were taken during Roosevelt's 1913 trip to Northern Arizona.

19437, shows Nicholas Roosevelt standing in front of a building – possibly a Spencer building.
19438, shows Archibald Roosevelt standing in front of a building – possibly a Spencer building.
19497, distant view of Lee's Ferry.
19499, possible Spencer building at Lee's Ferry

Dudley Humphrey Scott Photograph Album, collection #16884

These photos were taken in 1926 and 1929 by Dudley Humphrey Scott. The 1926 photos show Lee's Ferry and the 1929 photos show Rainbow Bridge. They were loaned to the National Park Service for copying in 1992 by Dudley's son, David Humphrey Scott. Of particular importance for Lee's Ferry are the following:

8, good photo of upper ferry site.
10, "Tourist Camp – Sleeping Accomodations," shows cots laid out beneath trees.
12, Lee's Ferry. Headquarters of Deputy Sheriff/Ferry man – shows ramada at upper ferry site.

GLCA Administrative History – Lee's Ferry – History and Development, collection #17516

This collection includes manuscript material and photographs concerning the administrative history of Lee's Ferry. The majority of the material consists of written documents. Photos of interest include the following:

Folder 4, 1974 photos; some show buildings.

Folder 12, contains copy of H.B. Embach 1966 appraisal report with photographs.

Folder 13, Lee's Ferry 1977 stabilization; contains many good photos of work in progress.

Folder 16, 1970s photos; one good 1950 photo of Fort and Post Office.
Folder 17, 1962-63 photos.

Spencer Mining Operations in the San Juan River and Glen Canyon, collection #17557

This collection contains an album of text and photographs prepared by Albert H. Jones documenting the Spencer mining operations on the Colorado River. The album contains numerous photos, many of which were taken at Lee's Ferry.

Nickens Stabilization, collection #18625

This collection consists of color slides taken during the Nickens stabilization of the Upper Ferry site in 1985. These photos are curated at the Midwest Archaeological Center (MWAC) and thus only an index is available at GLCA. The index notes two rolls of color slides were taken before, during, and after stabilization on the Upper Ferry features. These rolls of film are designated "LF-1C" (36 slides) and LF-2C (9 slides).

Special Collections, Cline Library, Northern Arizona University (Flagstaff)

This collection an excellent photographic collection on the Mormon experience in Northern Arizona and on the Colorado Plateau in general. Of particular significance is the Kolb Collection of photgraphs. Also housed at NAU are the photo collections of the Northern Arizona Division of the Arizona Historical Society.

Kolb Collection, No. 568.

657, good aerial view of Lee's Ferry – no buildings visible.
676, good view of "Lee's Backbone"
725, "boat only" ca. 1921.
1025, aerial view, long view, 1911.
1067, gold dredge operation, 1911. Good photo of dredge. Duplicated at #5576.
1142, Kolb family in camp at Lee's Ferry, 1923.
1143, Edith Kolb in camp at Lee's Ferry, 1923.
1383, Lonely Dell – good overview, 1921. Reproduced in National Register nomination. Duplicated at #5371 and 8651.
1384, negative for No. 1383.
1404, Lee's Ferry, scenic view, negative only.
2239, photo of Spencer boiler.
2289, good aerial view.
2299, good photo of stone cabin – negative only.
2890, Lee's Ferry.
2891, Lee's Ferry.
2892, Lee's Ferry.
2894, Lee's Ferry, Ranch House, 1923, nitrate negative file.
2895, Lee's Ferry, the boat Edith, 1923.
2896, Lee's Ferry, placer mine,1923.
3221, Lee's Ferry, working on boats, 1923.
3295, "people only" photo of 1923 USGS trip.
3296, launching the USGS boat "Marble" at Lee's Ferry, 1923.
3297, USGS boat "Boulder" at Lee's Ferry, 1923.
3332, USGS crew at Lee's Ferry, 1923, "people only."
3348, Lee's Ferry – Edith Kolb in camp, 1923.

3361, famous picture of the boat "Charles H. Spencer." Reproduced in National Register nomination.
3367, Lee's Ferry, USGS boats Boulder, Grand, Granite, and Marble.
3369, Lee's Ferry USGS camp, 1923.
3370, Lee's Ferry, the boat "Mohave," 1923.
4046, Lee's Ferry USGS boat house, 1923.
4059, wreck of the Charles H. Spencer, 1923.
4600, Colorado and Paria rivers at Lee's Ferry, view southwest.
4653, Lee's Ferry the boat "Edith," 1923.
4659, Lonely Dell Ranch, Lee's Ferry. Reproduced in National Register nomination.
5109, Lee's Ferry USGS crew with boats, 1923.
5119, Lee's Ferry USGS crew ready to leave, 1923.
5129, Lee's Ferry, the boat "Marble," 1923.
5130, Lee's Ferry, the boat "Marble," 1923.
5149, Blanche and Edith Kolb at Lee's Ferry, 1923, E.C. LaRue photo No. 13.
5193, USGS crew and boats, Lee's Ferry, 1923.
5202, "Radio" Building, also known as USGS boathouse, 1923.
5204, Ferry at Lee's Ferry, E.C. LaRue photo, 1923.
5205, Colorado River at Lee's Ferry, 1923.
5206, Colorado River at Lee's Ferry, 1923.
5207, USGS crew leaving Lee's Ferry, 1923.
5208, USGS crew leaving Lee's Ferry, 1923.
5209, USGS crew leaving Lee's Ferry, 1923.
5210, USGS crew leaving Lee's Ferry, 1923.
5211, USGS crew working on boat "Marble," Lee's Ferry, 1923, Freeman photo No. C-2.
5212, USGS crew working on boats, 1923.
5213, USGS crew working on boat "Marble," 1923, Freeman photo No. C-1.
5216, Trucks of equipment on road to Lee's Ferry, E.C. LaRue photo No. 1.
5217, Trucks of equipment on road to Lee's Ferry, E.C. LaRue photo.
5218, Trucks of equipment on road to Lee's Ferry, 1923, R.C. Moore Photo No. D-119.
5228, Balanced Rock near Lee's Ferry, E.C. LaRue photo No. 16.
5356, Lee's Ferry, USGS boats, 1921.
5357, Lee's Ferry, Emery Kolb at end of USGS trip, 1921.
5371, Lee's Ferry, Lonely Dell Ranch, 1921. Negative at #1383
5571, Lee's Ferry, Charles H. Spencer boat with crew.
5572, Ferry boat at Lee's Ferry.
5573, Ferry boat at Lee's Ferry.
5574, placer operation at Lee's Ferry, 1911. Reproduced in National Register nomination.
5575, placer mine.
5576, placer mine (duplicate of #1067).
5577, Johnson Ranch house at Lee's Ferry.
5828, Lee's Ferry.
6473, dugway at Lee's Ferry.
6491, wagons on ferry boat at Lee's Ferry.
7503, Blanche Kolb at Lonely Dell ranch.
8220, Herbert Hoover [sic.] and Emery Kolb at Lee's Ferry; shows dugout.
8224, Herbert Hoover [sic.] at Lee's Ferry (people only).
8583, Indian man at Lee's Ferry.
8651, Lee's Ferry from Lee's Lookout, 1911 (negative at #1383; duplicate at #5371).
9651, Balanced rock on way to Lee's Ferry, 1923.

8651, Lee's Ferry from Lee's Lookout, 1911 (negative at #1383; duplicate at #5371).
9651, Balanced rock on way to Lee's Ferry, 1923.
10,468, USGS cars on road to Lee's Ferry, 1923.
10,469, USGS cars on road to Lee's Ferry, 1923.
11,237, Lee's Ferry, working on boat.
11,277, Lee's Ferry, group of men.

Lee's Ferry Bridge Collection, No. 114.
114-1, Navajo Bridge (five miles downstream from Lee's Ferry).
114-3, Navajo Bridge.
114-4, Navajo Bridge.
114-6 to 10, Navajo Bridge.

Warren Family Collection, No. 412.
412-1, cabin at Lee's Ferry.
412-2, cabin at Lee's Ferry.

Edward T. Lamb collection, No. 438.
438-7, Buffalo Bill on Ferry at Lee's Ferry (boat only).
438-13, cattle and Buffalo Bill on dugway.

Platt Cline collection, No. 634.
473-634, ferry with upper ferry site and crib in background.
473-898, ferry – boat only.

Frank Gold collection, No. 491.
491-21, upper ferry site with ferry crib.
491-27, ferry boat only.

In addition to the general collections at NAU, the archives has recently opened the P.T. Reilly collection of photographs. Reilly collected a large number of historic photos during his research on Lee's Ferry. He also took many photos during his several trips to the site. Both prints and negatives are represented in the collections. The prints are generally organized by subject matter, then by photographer or collection name. The negatives are organized by "roll number," a roughly chronological list of rolls of film exposed by Reilly. The following list is not an exhaustive one of Lee's Ferry photographs; however, it does identify those photos in the collection that are significant for historic building analysis.

P.T. Reilly Other Photos Collection, Box 12 A-F

Allen, Robert N.
2110 LSFY 140.3, Spencer Camp 10-16-1921.
2110 LSFY 139.12, North Ferry Landing 10-16-1921.

Bennett, Lena Emett
G-295, Lee's Ferry From distance 5-14-1921.
G595, Emma Jane Emett & family.

Bowlen, Hazel
G-635, James S. Emett portrait (Reilly book p. 146).
G-351, Sid & Don Owen, (Reilly book p. 295).

Boyer, Emily Deans

G-770, boat & landing 1926.
H-773, on the ferry 1926 (Reilly book p. 307).
H-774, portrait of Lewis Tsinnie 1927.
H-775, river gauger's house.
G776, ferry boat ca. 1926-27.
H-1183 to H-1197, photos copied from Hopkins 1917 album. A copy of this album is located at the Arizona Department of Library and Archives, Phoenix.
H-1189, cable crib at upper ferry site.
H-1192, "Ferryman's House" (Warren Johnson House).

Brimhall, Edna

G-857, John D. Lee portrait.
H-858, Rachel Woolsey Lee portrait.
G-856, Lee's house at Jacob's Pools 1872 (duplicated at USHS).

Broach, W.H.

H-347, boat and lower crossing November 1892.
G-117, Cody & party on boat (Reilly book p. 134).
G-176, cattle and wagons on dugway.
L1403-24, Johnson house & possibly Picture Window Shack (HS-236).
G-174, Johnson family on steps of house (Reilly book p. 109; not a Broach photo).
L1402-76, Johnson house.
G-197, 2 men & horses (not Lee's Ferry).
H-345, different view of Johnson house 11-15-1892.
G-199, men at Kane ranch (exhausted dude photo; duplicated in NR nomination) [not Lees Ferry].
G-175, Johnson house (duplicate of Fryer photo).

BYU

L-435-10, Ben Cliff Party at Lee's Ferry May 17, 1900.
L-435-11, Cluff Party on ferry boat.
L-435-12, Cluff Party crossing baggage.
L-435-13, Cluff Party on river.
L-435-14, Cluff Party on dugway.
G-436, Ben Cluff S.D. expedition boarding ferry.

Cockroft Collection

8-9-23, hoisting car on cable.
8-9-23, hoisting car on cable.
8-9-23, good view of crib.
8-9-23, good view of crib.
8-9-23, good view of upper ferry site.
C-277, upper ferry at 80,000 cfs.
C-279, upper ferry at 80,000 cfs.
23-1, boat on river.
C-280, drift at Lee's Ferry.
C-278, Bird's Eye Party, 8-1-22.
C-278, gauge Well, 1923.
C-278, gauge Well, high water.
C-278, pumping water to tank – 1922.
C-278, pump and boy in boat.

C-276, Gov. Thomas. E. Campbell party at Edison Dam site (Hayden party at Glen Canyon Dam).
-- the old Fort, August, 1923.
-- Mrs. Cockroft getting ready to remove Post Office Sign, June, 1923.
-- Mrs. Cockroft removing sign, June, 1923.
-- Haying at Lee's Ferry Ranch, 1923 shows Charlie Lewis and Irv Cockcroft, Jr.
C-283, Sid Wilson's Ranch, 1923.
C-286, birdseye view of Spencer Bldgs., 1923.
G-1055, Bar Z Ranch, June 28, 1923.
C-289 (aka G-354) – Dup.
237-2, boat only.

Cook, R. Elton
H-846, Portrait – USGS Engineer at Lee's Ferry.

Q.C. Cornelius Collection
H-809, Paria in Flood, 10-41.
H-810, Cornelius and Dodge measuring river.
H-811, Frank B. Dodge portrait.
H-812, Dorothy Cornelius at corner post of fence (rock egg on post).
H-813, Quince getting water from upper ferry spring.
H-814, Quincy C. Cornelius at hydrograph residence, 1941.
H-815, Cornelius and A.J. Hanson repairing Paria crossing.
H-816, Spencer Bldgs., 1940s.

Decker, Ida and S.O.
H-1282, Essy Bowers Group, (Reilly book, p. 355).
H-1282, gauger's residence 1935.
-- Shows Sid Wilson's A+ brand board at gauger's residence.
-- Shows Sid Wilson's gauger's residence in snow.
-- Dec. 1935 – photo with A+ brand gone.
Decker neg. #7 – getting water at spring, June 1935.
H-844, old Fort, summer, 1935.
H-843, Wilbur Heckler at Lee's Ferry, 4-10-1936.
H-842, Spencer Bldg., 1935 chicken house? (school), cow pen, saddle, house.
H-841, close up of Esther H. Bowers.
H-838, Sherman D. Decker at water tank, 1935.
H-845, Hazel and Leo Weaver in door of house.
13 - panoramic Spencer Bldgs., 1935.
14 - Ida and Sherm at gate to residence, 1935.
11 – miner's assay house.
12 - Residence – (miner's mess hall).
15 - A-Frame.
9 - clouds and Spencer buildings.

Douglass, A.E.
G-221, Emett Family and house, 1901, (Reilly book p. 154).
G-484, James S. and Emma Jane Smith at Kitchen grave Nov. 1901.
G-486, mouth of Paria, Nov. 1901.

Edison Co.
G-321, "*Navajo*" boat going down dugway –(Reilly book p.283).
G-313, *Navajo* moored in river.

G-314, *Navajo* paddle wheel.
G-315, boat at upper ferry.
G-316, Frank Dodge and Price Johnson on *Navajo*.
G-317, mouth of Paria from rim.
G-318, end of dugway.
G-319, mouth of Paria.
G-320, *Navajo* at top of dugway.
G-322, *Navajo* on lower dugway.
G-323, *Navajo* in river.
G-324, upper ferry coming in for a landing.
G-327, upper ferry from left bank.
G-328, Navajo on lower dugway.
G-329, Spencer building area.
G-330, Lee's Ferry gauge well.
G-332, Edison crew in the *Navajo*.

Emmett, Dean
L-223, portrait of David Brinckerhoff.

P.T. Reilly Other Photos Collection, Box 13, F-Jon

Fisher, Ed
G-307, Shine Smith at Isabella Mosey and Sid Wilson/Fisher cabin – Reilly book, p. 402
G-678, Ed Fisher at Weaver Ranch House
H-1299, Wilson-Fisher Cabin 1938 (T41 N, R7E, S34, NW ¼ of SW ¼)

Mina Fleischaur Coll.
H-779, on the cable ferry

N. Galloway
G-191, Sadie Staker and kids, Reilly book p. 175
G-190, Emma Jane and Besssie Emettt, 1898
G-617, Sadie Staker's hair, 1-8-1899 (Reilly book p. 173)

Harker, Allie D.
G-222, upper cable ferry
G-624, Nell Caffall at Lee's Ferry, 19B – portrait

Hatch, Virginia
G-527, Bar Z cattle at upper ferry
G-536, Bar Z cattle at upper ferry
G-523, Warren Johnson house, 8-2-1913
G-528, T.R. at Camp Rust (7-15-1913-chopping wood, (Reill book p. 257)
G-530, high water at Lee's Ferry
G-524, Lonely Dell – 1915
G-533, Spencer boat in water, 1915

W.L. Heckler Coll
H-834, Hydro res. 1931 (Reilly book p. 359)
L-1399, Lee Lookout to Mormon Farms
H-825 (duplicate)
H-836, Galloway Bros., at Lee's Ferry, 1912
H-832, Spencer Bldg. Area

H-835, Spencer Bldg. Area
H-833, Interior of Hydrographer House [stream gauger's residence]
H-848, Lee's Ferry School Class of 1931-32
H-849, Lee's Ferry School Class of 1931-32
H-837, Lela Heckler and Ida B.
-- Decker at Spencer house, 1935
-- snow at Lee's Ferry, Spencer areas
-- snow at Lee's Ferry, Spencer areas
-- snow at Lee's Ferry, Spencer areas

Hoskins Collection
G-984, Lee's Ferry Ranch, 1910, showing orchard and alfalfa.
H-970, Lovett Pipe Dredge in operation.
H-971, Amalgamator at Lee's Ferry.
H-971, Pipe Dredge at Lee's Ferry.
H-974, Sand Bar Upper Ferry, 1910.
G-982, Warren Johnson House, Aug. 1910 / shows chickens,
G-985, cabin in deep shade - Lonely Dell
G-986, Lee's Ferry Fort (w/screen, 1910)
G-987, Lush vegetation at Lonely Dell, group portrait 1910
G-989, Spencer group at Lee's Ferry

A.R. Hromatka Collection
G-489, Ferry in mid-river, Reilly book p. 306
H-778, Lee's Ferry dugway, 1926-27
286-2.3, shows part of sunken ferry, June, 1928

James, George Wharton
G-255, lower ferry 1897, Reilly book p. 159
G-249, Galloway party river camp, (Reilly book p. 157), 1897
G-243, Lee Cabin at Moenave
-- Mouth of Paria from Lee's Backbone Road, 1897
G-241, James wagon moving and ferry boat, 1897
G-242, upstream from lower dugway
G-244, lower crossing boat only, 1897
G-249, Emett boys in cave below lower crossing
G-256, Emett boys in cave below lower crossing

Frank Johnson Collection
G-185, Spencer's coal mine
L-268, Frank T. & Jeremiah Johnson, 7-20-1919, (Reilly book p. 269)
G-492, Adolpha Johnson, (Reilly book p. 330)
G-192, Frank Aldolpha Johnson and Warren Glen Johnson
G-186, arrival of Jerry's Dodge truck
G-195, Lee's Ferry R.H. Crib, upon cross Ca. 1930

J.S. Johnson Collection
G-178, Spencer barges and *Violet Louise*, (Reilly book p. 239) – Aug. 1911
G-386, mouth of Paria, 1892
G-387, mouth of Paria, 1892
G-394, mouth of Paria 1892
--403, mouth of Paria in 1891, shows "rip-gut" fence and cabin at edge of Lee's Ferry Ranch
G-404, mouth of Paria in 1891, shows "rip-gut" fence and cabin at edge of Lee's Ferry Ranch

Group Photos

Owen Johnson Collection
G-202, cable ferry
G-210, upper ferry
G-211, mouth of Paria from Spencer Trail
G-212, Lonely Dell Ranch from top of Spencer Trail

W.E. Johnson Collection
G-337, Johnson House, 1917 – shows porch and foundation.
G-338, same, with people now in foreground, (Reilly book p. 264).
H-564, Sunday school class of 1925, stone school, Spencer Bldg.
G-565, school class 1926, may be standing in front of Samantha Johnson House
H-290, Lonely Dell Ranch Ca. 1931 (good view of barn)

P.T. Reilly Other Photos Collection, Box 14, Jon-L

W.E. Johnson, (con't.)
L-88-07, Spencer Wagon Train, Jan. 1910, (Reilly book p. 219).
G-942, Launching the *Canopy* 6-20-1910, (Reilly book p. 224).
G-938, *Canopy* on dugway
G-946, boat only
G-914, *Canopy* in Glen Canyon
G-915, *Canopy* in Glen Canyon
G-917, *Canopy* in Glen Canyon
G-927, boat only
G-928, group portrait – Spencer crew.
G-929, boat only
G-932, Lovett pipe dredge at Lee's Ferry.
G-931, ferry in midstream
G-939, ferry in midstream
G-926, boiler set up on left bank
G-902, Lee's Ferry Ranch at mouth of Paria River, June 10, 1910
G-915, Mouth of Paria, 1910
-- Spencer portrait, (Reilly book p. 250).
-- C.H. Spencer at Camp Ibex
G-013, mouth of Paria River

Hazel Jordan Collection
G-260, Leo Weaver in Ramada of blacksmith shop, 1936 (site of his snake bite)
G-261, Leo Weaver portrait (Reilly book p. 375)
G-262, Leo and house at Lee's Ferry, 1935
G-263, Leo and Hazel Weaver portrait, 1950
G-272, barn at Lee's Ferry ranch –1938's
G-273, Lee's Ferry Fort, 1935
G-274, blacksmith shop at ramada
G-275, interior of Weaver Ranch house
G-276, Carling Spencer cabin torn down by Leo Weaver
G-277, Weaver pump house and water tank
G-278, Lee's Ferry Ranch house, view of "t" section
G-279, Lee's Ferry Ranch house, view from another angle
G-280, Jerry Johnson cabin

G-281, Ferry man's house – upper ferry

W. Dart Judd Collection
G-339, Warren Johnson portrait – USHS
G-340, Lizzie Johnson Carling

Klohr Family Collections
L-219-23, Jim Klohr at Lee's Ferry 1923, (Reilly book p. 313)
L-219-15, Klohr family at House in old fort, 1926
L-219-16, Klohr outfit on dugway
L-219-18, frozen river
L-219-19, big freeze, Jan. 1925
L-219-20, Klohr outfit
L-219-21, old fort, home to Klohr and Cockcroft, flag at half-mast for Harding, 8-2-23
G-218, fixing flat tire at Lee's Ferry
G-220, Jim Klohr in gaging car
L-291-22, Post Office with people
R-173-3, boat only ferry
L-219-14, boat only ferry
1912 view of Spencer operations, garage in middle
U137-2, Spencer Buildngs 1925, showing Owen Clark's white chickens
R-137-6, Upper ferry site
C-285, Sid Wilson horses crossing at Lee's Ferry

Kolb photos
G-179, *Charles H. Spencer* steamboat, (Reilly book p. 247)
108, Kolb photo of boat under construction, 1911

E.C. LaRue photos
G-172, *Charles A. Spencer*, Aug. 1915. In U.S.G.S. Water Supply Paper 164, plate 27B

Bert Leach
G-180 Spencer crew at Lee's Ferry, 1911

Annie LeBaron
H-563, Carling Spencer family portrait at Lee's Ferry
H-566, Mary W. Williams and Lee's Ferry Class of 1933-34
H-855, Grover Cleveland w/wife and children at Lee's Ferry Ranch, 3-11-1934

Clara B. Lee
G-392, Emma B. Lee French ca., 1890, (Reilly book p. 79), portrait
G-390, Bill Lee, 1902 portrait
G-389, Clara B. Lee portrait, 1902

Julia Emett Leigh Collection
G-203, log house w/ blacksmith shop in background, 1930
G-204, Jones S. Emett, 1914

P.T. Reilly Other Photos Collection, Box 15, M-R

C.C. McDonald

H-880, 1931-32, school photo
H-826, Lee's Ferry 1931-shows all 8 Spencer buildings
H-827, Colo. River file, 1931-32
H-828, m/m Marion B. Scott and their Essex car at Lee's Ferry 1931
H-829, Doris McDonald at Lee's Ferry, 1931

Durwood McKinney
G-349, ferry boat on river-from Frank Gold Coll.

Dock Marston
572-9, cabin at upper ferry
572-7, cable crib remains

Abbie Wilson collection
G-336, Warren N. Johnson family portrait, fall 1891

F.A. Nims
H-346, W.M. Johnson family – photo mentioned in Reilly book but not published.
Christmas photo, p. 119, F.A. Nims photo, original in National Archives.

T.H. O'Sullivan
G-286, mouth of Paria Creek, Wheeler survey, Sept. 1873, (Reilly book p. 40).

H.A. Parkyn Collection
G-996, testing ferry for weight before risking boiler, 9-1-1910
L-94-01, ferry test load of horse and mules.
G-997, first boiler being ferried
L-94-02, first boiler being ferried
L-94-03, pulling the boiler
G-954, boat only
G-994, Spencer group at Lee's Ferry
L-94-04, first Spencer camp on right bank, Sept. 1910-shows ramada on old fort, but no office building.
G-1000, different view of same
L-94-05, first Spencer camp
L-94-06, Spencer machine shop ramada
G-1003, Sluce operation
G-2004, mouth of Paria from dugway
L-94-07, boat only
L-94-08, pipe dredge
L-94-09, pipe dredge
L-94-10, boat only
L-94-11, pipe dredge
L-94-12, Pierce amalgamators
L-94-13, frame
L-94-14, pipe dredge
L-94-15, pipe dredge
L-94-16, pipe dredge
L-94-17, pipe dredge
L-94-19, pipe dredge
L-94-20, amalgamators
L-94-21, hydraulicking
L-94-22, hydraulicking

L-94-23, hydraulicking
L-94-24, hydraulicking
L-94-25, Spencer supplies arriving by wagon
L-94-26, mouth of Paria from dugway
L-94-27, Lee's Ferry Fort w/ William Bower
L-94-78, Parkyn portrait

D.D. Post Collection
H-718, Lee Ferry-cable
H-719, Ferry boat on river
H-730, dugway construction, April 1899.

P.T. Reilly Other Photos Collection, Box 16, S-Z

Leah M. Savage collection
G-593, dugway crew 1890-99, NMSA photo

M.B. Scott Coll.
H-811, Owen Clark at Lee's Ferry – (Reilly book p. 341).
H-820, Ferry boat in river, 1926-27
H-847, Elmer Johnson children, Lee's Ferry School class of 1930-31
H-817, Colorado and Paria, 1930-31
H-819, Spencer buildings

Charles Spencer collection (from ORM) [Dock Marston]
Spanish portraits
10-2.7, ferry on river
09-11, Sharlot Hall photo of wagon, Aug. 7, 1911
11-2.11, ferry boat, 1911
11-2.8, Spencer dredge
12-7, Frank Watson at Lee's Ferry
10-8, laboratory interior
12-11.11, dredge operation

F.A. Stearns
11-22, cable ferry, 1922

P. R. Thiers collection
L-1354-01, unloading Dodge [truck] at Lee's Ferry, 1927
L-1356-03, loading Dodge at Lee's Ferry 1927
L-1357-04, Thiers waiting for ferry
L-1359-06, Theirs' truck on ferry
L-1362-09, state road locator's camp at Lee's Ferry
L-1363-10, ferry only
L-1364-10, state road locator's crew at Lee's Ferry

USGS
L-82-09, ferry way USGS at #1717
L-82-10, Spencer building area
L-82-11, Edison boathouse
L-82-12, bathroom addition to Stream Gagers Residence, 3-4-1939, USGS #2451
L-82-13, cable car in river

L-82-11, Edison boathouse
L-82-12, bathroom addition to Stream gaugers Residence, 3-4-1939, USGS #2451
L-82-13, cable car in river
L-82-14, USGS crew at fallen cable car
L-82-15, Navajos being crossing on ferry
L-82-16, crossing horse and buggy, 5-23-1925
L-82-17, Colorado and rapid sand base
L-82-19, USGS gate, 9-23, 1939, USGS #1969
L-82-21, Gate well 1928
L-83-0, mouth of Paria and Colorado
L-83-01, old chicken house, 2-19-1935
L-83-02, old school house, 2-19-1935
L-83-03, old fort and office, 2-19-1935
L-83-04, addition to old fort, 2-19-1935
L-83-05, visitor tents, Oct. 13, 1935
L-83-06, old saddle barn, 7-19-1935
L-83-07, gaugers Residence, 5-28-40
L-83-08, school house, chicken house, saddle barn
L-83-10, A-frames
L-83-11, gaugers Residence, 3-23-33
L-83-12, changing A-frames, 5-18-33
L-83-13, old office building, "Grand Canyon Bridge", sign 3-23-33
L-83-14, upper and lower springs, 6-11-33
L-83-14, putting new mud roof as garage, 6-3-33
L-83-15, garage, 3-23-33
L-83-20, mess hall and cookhouse, 3-23, 1933
L-83-21, gaugers residence w/new bathroom, water tank on hill, 3-5-1939
R137-5, old fort with Spencer equipment on hillside, 3-23-33
G-213, Lee's Ferry, spring, 1921

Ura Maude Wagner Collection
H-681, Weaver ranch house, April 1939
H-682, under Weaver ramada.
H-684, Poli Hungavi portrait
-- Lee's Ferry Ranch, April, 1939
-- Shows barn corner, cabins in background
-- Lee's Ferry ranch shows barn and cabin

A.C. Waller collection
G-1021, mouth of Paria, 1910
G-1022, Spencer boiler on dugway
G-1023, Spencer boiler on dugway
G-1024, Spencer boiler on dugway
G-1027, Johnson house, 1910
G-1028, another view, 1910
G-1025, Tom Caffall and others, eating watermelon (in book).

Hazel Weaver
R-137-7, Lee's Ferry Barn
R-137-8, Ranch, scenery
R-137-9, Interior of Ranch House
R-137-10, Interior of Ranch House

H-499, Ferry boat, 1929
H-496, submerged ferry after accident, 6-8-1928
H-497, submerged ferry after accident, 6-8-1928
H-511, Lowry and Clark porch on mess hall 1926-27
H-508, Pathe-Bray party at Lee's Ferry, boat only

P.T. Reilly Oversize Box, 8 X 10s

G-177, Cody party on boat, (Reilly book p. 234)
G-348, Johnson Horse, 1892, (Reilly book p. 135).
G-221, Johnson House, 1901, (Reilly book p. 154).
G-617, Sadie Staker's hair (Reilly book p. 173).
G-533, *Charles H. Spencer* at anchor
G-989, Spencer crew shot
G-991, Spencer crew shot
G-993, Spencer crew shot
G-992, Spencer crew shot
G-989, Ferry boat, p. 306
H-778, lower dugway
-- G.W. James photo, (Reilly book p. 158).
-- G.W. James photo, (Reilly book p. 158).
G-247, G.W. James photo, (Reilly book p. 157).
G-178, Spencer wagon, 1911, p. 237
G-186
G-336, Johnson
H-346, Nims' photo of Stanton Christmas, (Reilly book p. 119).
G-286, O'Sullivan, 1873
G-994, Stanton group photo
G-593, 1898-99 dugway photo
G-2027, Johnson House
G-878, ferry boat

P.T. Reilly Lee's Ferry and area slides, Box 1

Folder 1 - to 1960
Mouth of Paria, 6-10-57, 3 slides
#25, office, 6-10-57
#26, fort, 6-10-57
Folder 2 – Lee's Ferry area, 6-18-63
8 slides, scenic
Folder 3 - May, 1964
#22, remains of *Charles H. Spencer*, 5-23
#23, new bridge across Paria, 5-21
Folder 4 – Lee's Ferry, June, 1984
10 - *Charles H. Spencer*, at 1000 cfs, 6-21-64
9 - *Charles H. Spencer*, at 1000 cfs ,6-21-64
8 - *Charles H. Spencer*, at 1000 cfs, 6-21-64
14 - *Charles H. Spencer*, at 1000 cfs, 6-18-64
12 - *Charles H. Spencer*, at 1000 cfs, 6-18-64
13 - Cellar and foundation of Warren Johnson house, 6-21-64
10 - Cellar "John D. Lee" cabin, 6-21-64
10 slides, Johnson house, 6-24-1961
Folder 5 – Lee's Ferry, October, 1964
19 Dugway, 10-3-64

16 Sign, 10-3-64
17 Ferry Mooring Post?, 10-3-64
18 Ferry Mooring Post?, 10-3-64
22 Lee's Fort [sic.], 10-3-64
24 *Navajo* Paddlewheel 10-4-64
26 Ramona and Gus Griffin, 10-4-64
29 Ramona and Gus Griffin, 10-4-64
29 Ramada and Gus Griffin, 10-4-64
12 Dugway, 10-4-64
13 Dugway, 10-4-64
10 Lee's Ferry ranger station under construction 10-5-64
2 Old Lee's Ferry Post Office, 10-5-64
3 Old Lee's Ferry Fort, 10-5-64

Folder 6 – Lee's Ferry Slides, 5/64 and 10/65
general views of dugway

P.T. Reilly Lee's Ferry and area slides, Box 2

Folder 1 – May, 1966
Cemetery, Old Cabin (Picture Window Shack)
Folder 2 – May, 1967
Oct., 1967
5-7-67, photos of razed area
Folder 3 – Lee's Ferry area, May, 1968
Folder 4 – Lee's Ferry Area, 10 / 69
Folder 5 - Paria Canyon, back pack trip May, 1971
Folder 6 – Lee's Ferry area
4/75
10/77
6/81

P.T. Reilly Oversize Photos, 8 X 10s & 8 X 8s

Folder 9A –
35-12, Paria Creek
35-12, *Charles H. Spencer* remains
35-12, *Charles H. Spencer* remains
35-12, *Charles H. Spencer* remains

Folder 9
35-5, SW of Lee's Ferry
112-6, aerial of Lee's Ferry
112-7, aerial of Lee's Ferry
111-5, aerial of Lee's Ferry
R118-10, Lee's Ferry scenic
R118-17, Lee's Ferry scenic
R107-11, dugway
R107-12, dugway
R112-9, aerial Lee's Ferry
G1160, USGS cable
R965, Lee's Ferry aerial
R120-3, Lee's Ferry aerial
111-3, Lee's Ferry aerial
112-8, Lee's Ferry aerial
R119-12, Spencer diggings

R96-7, Lee's Ferry aerial
110-10, aerial of ranch
111-6, aerial of ranch
111-7, aerial of ranch
R135-5, ranch after orchard
R-117-6, Griffin pump

P.T. Reilly Prints (taken by Reilly), Box 6

100-1, Lee's Ferry Fort, 10-3-64
100-2, Lee's Ferry Fort, 10-3-64
100-3, Lee's Ferry Fort, 10-3-64
100-4, Lee's Ferry Fort, 10-3-64
100-12, Lee's Ferry Fort, 10-5-64
103-1, Lee's Ferry fort, 10-5-64
G-1154
117-1 and 117-2, Lee's Ferry Fort, 5-1-68
130-8, Lee's Ferry Fort, 5-9-68
130-9, Detail, 5-9-68
130-10, Lee's Ferry Fort, 4-19-75
154-5, Interior view of Lee's Ferry Fort, 4-19-75
154-12, View S. over Lee's Ferry Fort, 4-20-75
L87-20, View S. over Lee's Ferry Fort, 4-20-75

Lee's Ferry Ranch
L72-37, Lee's Ferry Ranch from dugway, 5-26-64
L74-10, "John D. Lee" cabin, 6-21-64
R88-11, "John D. Lee" cabin, 6-21-64
102-1, Ramada of Gus Griffin, 6-21-64
102-2, Weaver Ranch House, 10-4-64
102-3, Gus Griffin, good view of cellar in backyard, 10-4-64
102-4, Gus and Johnson cellar, 10-4-64
102-5, Gus Griffin portrait, 10-4-64
G1129/97-2, Lee's Ferry Ranch, 10-4-64
G1130/97-3, Lee's Ferry Ranch, 10-5-64
G701/9-1, Weaver and Griffin furniture & interior 10-6-64
G705/96-5, repeat photo of Tadje, Spencer area, 10-4-64
G-711/96-11, Jerry's old wagon at Lee's Ferry Ranch, 10-7-64
103-4, Lees Ferry ranch from Lee lookout, 10-7-64
103-7, Lee's Ferry ranch from Lee lookout, 10-7-64
103-12, boat timber in "Lee Cabin," 10-7-64
106-1, Ada and Frank Johnson at cellar, 4-29-65
106-2, Frank J. at Johnson Foundation, 4-29-65
106-3, Frank J. at Lee's Ferry storage cabin, 4-29-65
106-4, Frank and Ada at Jerry's wagon, 4-29-65
106-7, Frank on site at "Lee Cabin," 4-29-65
106-8, Frank at gate post – Lee's Ferry Ranch, 4-29-65
110-9, Aerial of Lee's Ferry Ranch, 6-5-65
110-16, Aerial of Lee's Ferry Ranch, 6-5-65
111-6, Aerial of Lee's Ferry Ranch, closer, 6-6-65
111-7, Aerial of Lee's Ferry Ranch, closer, 6-6-65
111-11, "cow holler," ranch and Lee's Ferry, aerial, 6-6-65
118-8, Lee's Ferry Ranch, with pond construction trucks, 10-17-65
G1161/117-8, Lee's Ferry Ranch from Shinarump Ledge, 10-18-65
1172, Lee's Ferry Picture Window Shack, 5-1-66

111-7, Aerial of Lee's Ferry Ranch, closer, 6-6-65
111-11, "cow holler," ranch and Lee's Ferry, aerial, 6-6-65
118-8, Lee's Ferry Ranch, with pond construction trucks, 10-17-65
G1161/117-8, Lee's Ferry Ranch from Shinarump Ledge, 10-18-65
1172, Lee's Ferry Picture Window Shack, 5-1-66
135-5, Lee's Ferry Ranch, 10-9-69, shows orchard
L80-5, Lee's Ferry Ranch, 1—9-69, shows orchard
153-2, Johnson Cabin at upper ranch, 4-19-75
153-6, filling reservoir w/pond water, 4-19-75
153-10, ditch to Lee's Ferry ranch, truck and cabin in background 4-15-75
153-11, Hoston Alvin Tso and children repairing fence, 4-19-25
153-12, Blacksmith Shop at Lee's Ferry Ranch, 4-19-25
154-2, Blacksmith Shop showing narrow gauge r/r timbers, 4-15-75
154-2, Blacksmith Shop, different view, 4-15-75
154-6, site of J.D. Lee Cabin, 4-19-75
154-7, timbers from *Nellie* showing peg construction, 4-19-75
154-8, Blacksmith shop, 4-19-75
154-9, Weaver Ranch house, 4-19-75
L87-16, Weaver Ranch house, 8-20-75
L87-17, old shed, 4-20-75
L87-17, so called "Lee Cabin," 4-20-75
R164-06, cellar, 4-4-84
R164-11, Gerald Terry in dry reservoir at upper reservoir, 4-5-84
R164-12, settling and storage reservoirs, 4-5-84
117-3, Griffin pump at Paria Creek, 5-1-66
117-5, Griffin pump at Paria Creek, 5-1-66
117-4, Griffin pump at Paria Creek, 5-1-66
117-6, Griffin pump at Paria Creek, 5-1-66
117-7, Griffin pump at Paria Creek, 5-1-66
L80-16, New pump at Paria, 10-11-69
88-12, cemetery, 6-21-64
6702/96-2, cemetery, 6-21-64
67-4/96-4, cemetery, 10-7-64
104-8, Lucy Emett grave stone, 10-10-64
104-9, C.M. Johnson, 10-10-64
117-8, Lee's Ferry cemetery, 5-1-66
117-9, Lee's Ferry cemetery, 5-1-66
R164-07, Johnson tombstone erected 2-2-84, photo taken 4-4-87
R164-08, Lee's Ferry cemetery, 9-4-64

Spencer Buildings

103-2, office building, 10-5-64
L79-04, Spencer boiler, 5-7-67
L79-05, Spencer boiler, 5-7-67
123-3, Spencer buildings razed, 5-7-67
123-4, Site of razed Spencer mess hall, 5-7-67
91-1, APC wheels and axle, 6-27-64
91-2, close up of wheel and hub, 6-22-64
R135-3, site of Spencer diggings, 10-9-69

Charles H. Spencer hulk

78-7, hulk, 6-18, 63
L66-22, hulk, 6-19-63
L66-23, hulk, 6-18-63

88-6, hulk, 6-21-64
88-7, hulk, 6-21-64
88-8, hulk, 6-21-64

Northern Arizona Pioneers Historical Society (NAPHS)
Photographs housed at
Special Collections, Cline Library, Northern Arizona University (Flagstaff)

The collections of the Northern Arizona Division of the Arizona Historical Society, formerly known as the Northern Arizona Pioneers Historical Society (NAPHS) are housed at special collections in NAU's Cline Library. This arrangement is pursuant to an agreement between the Arizona Historical Society and NAU.

George Hochderffer collection, NAPHS No. 32.
32-541, Arizona Governor George W.P. Hunt visiting Lee's Ferry (people only). Reproduced in Measeles, p. 57.
32-1148, Lee's Ferry, 1925
32-1368, boat with ferry crib in background, 1925.
32-1605, Lee's Ferry.

Frank Gold collection, NAPHS No. 34.
34-3, Lee's Ferry, ca. 1924. Appears to be duplicate of #32-1368.

P.T. Reilly collection, NAPHS No. 42.
42-2, Lee's Ferry. Poor photo.

Marjorie Robinson Flaherty collection, NAPHS No. 340.
340-14, distant view of upper ferry crib.

Gladwell Richardson collection, NAPHS No. 666.
666-32, photo of John Doyle Lee.
666-33, photo of Emma B. Lee.
666-271, Lee's Ferry.
666-272, Samantha Johnson Cabin (HS-232)– excellent photo with caption.
666-273, Ferry crossing river (boat only).

Wells slide collection, NAPHS No. 706.
706-387, Lee's Ferry, 1960.
706-388, Ruin of stone building.
706-389, Sign.
706-390, Lee's Ferry
706-391, View of cliffs, 1960
706-392, 1960
706-393, Rustic cabin, 1960
706-394, Cabin interior
706-395, Lee's Ferry

Coconino County (Flagstaff)

Following the creation of Coconino County from parts of Yavapai County in 1891, official county records were housed in Flagstaff. Coconino County owned and operated the ferry from 1909 to 1928. Mike Anderson of the Coconino County Department of Transportation reported on July 2, 1999, that the county had no photos of Lee's Ferry. Anderson stated further that the county had received similar requests in the past and had made a thorough search to no avail. The Coconino County Recorder's Office has a map drawn in 1898 by James S. Emmett which shows the location and plat of the "Lee's Ferry Toll Road," this being the only document of a visual nature at Coconino County.

Museum of Northern Arizona, Flagstaff

This private museum has the archaeology of the Colorado Plateau as its main area of concentration. However, MNA also has an extensive collection of photographs and documents concerning the history and ethnohistory of the plateau area. Of particular interest for the history of Lee's Ferry are photographs in the Carl O. Lampland collection. These photos were taken in 1928. Three Lampland photos were used to illustrate the National Register of Historic Places nomination of Lee's Ferry and the Lonely Dell Ranch.

MS 48, Carl O. Lampland Collection.

48-1-13, view of dugway showing car. Reproduced in National Register nomination.
48-1-14, view of dugway with buildings in distance.
48-1-15, Lee's Ferry showing dugway.
48-1-16, looking downstream from Lee's Ferry.
48-1-17, looking upstream from Lee's Ferry, good view of sand bar.
48-1-18, good view of buildings on shore. Reproduced in National Register nomination.
48-1-19, view upstream.
48-1-20, mouth of Paria River.
48-1-21, mouth of Paria River from Colorado River; shows heavy vegetation and farm trees.
48-1-22, ferry boat crossing river. Reproduced in National Register nomination. Reproduced in Rusho & Crampton, 3rd ed., p. 104.
48-1-23, view up Paria River.
48-1-24, view up Colorado River.
48-1-25, Paria River mouth from dugway.
48-1-26, view down river from dugway.
48-1-27, view downriver from dugway.

MS122, Rainbow Bridge – Monument Valley Expedition. 1935, C. Bond, photographer.

MV1771, Good photo of cable stays for USGS gaging station at Lee's Ferry.
MV1772 , Somewhat distant photo of Lee's Ferry Fort & Post Office from river.

MS 254, J.C. Clarke Collection

MS-254-6-35, good view of Charles Spencer building with ramada.

MS 292, Lenore Eberle Collection

MS-292-1-3, photo of car on dugway.

US Geological Survey, Arizona District Office, Flagstaff

In addition to the USGS photos located at the Arizona State Office in Tucson and Headquarters in Denver, the District Office in Flagstaff has a good collection of photos. These are organized into two photo albums. The first is an original album compiled by District Engineer Roger C. Rice from 1921 to 1923. The second is a recent compilation of photos organized in rough chronological order. Some of these photos, both in the Rice album and the recent album, are duplicated in USGS collections in Tucson. In addition, some of the photos are duplicated in the Carl Hayden collection at ASU.

Roger C. Rice photo album, 1921-1923

Page 13, Two photos of cable car and cable in river due to failure of left bank eye-bolt, September 20, 1921.
Page 14, Sid Wilson "Mayor of Lee's Ferry" fixing cable with come-along; R.Q. Grant, H.W. Dennis and Sid Wilson working on cable.
Page 15, two photos of men working on cable car, September 20, 1921.
Page 16, two photos of first measurements being taken by cable car, August 2, 1921.
Page 19, two photos of original gauge No. 1, installed by E.C. LaRue in May of 1921. Photos taken October 3, 1921
Page 20, two photos of No. 1 and No. 2 sections of dugway gauge, September of 1921.
Page 21, I.G. Cockcroft at highwater gauge at dugway, September 1921; control for Lee's Ferry gauges, October 12, 1921.
Page 22, two photos of No. 4 gauge, October 2, 1921.
Page 23, additional photos of No. 4 gauge, October 2, 1921.
Page 24, one photo of No. 4 gauges, October 2, 1921; one photo of USGS camp on right bank near upper ferry site with the boat Navajo, October 2, 1921.
Page 25, two general views showing locations of gauges and other features on right bank, October 3, 1921.
Page 26, one photo of Lee's Ferry "in action;" one photo of mouth of Paria River, both October 1921.
Page 27, one photo of cable "A" frame on left bank, one portrait of R.C. Rice above dugway gauge, both October 1921.
Page 28, two views of the "Class A Evaporation Station" erected in front of Lee's Ferry Fort, September 23, 1921.
Page 29, one view of evaporation station; one view of H.W. Dennis relaxing in camp on right bank at cable ferry site (USGS camp).
Page 33, two views of dugway, August 1, 1922.
Page 37, one photo of Carl Hayden's party at Glen Canyon Dam site; one photo of Paria Creek, both taken August 1, 1922.
Page 38, one photo taken looking toward measuring cable gaging station; one photo of gaging car, both August 1, 1922.

Recent Compilation Photo Album

Sheet 1, three general views of Lee's Ferry in 1923; one photo of gauge well.
Sheet 2, three photos of ice on Colorado River, December 26, 1924; two photos of gauge well, 1923.
Sheet 3, one photo of ice on River, 1924; two photos of Paria River entering Colorado River, May 23, 1925.
Sheet 4, three photos of Colorado River, May 23, 1925.

Sheet 5, three photos of ice on Colorado River in January of 1927; one photo of Colorado River on May 23, 1925; one photo undated.
Sheet 6, three views of Colorado River at Lee's Ferry in June of 1928; one view of Lee's Ferry Fort, ca. 1928.
Sheet 7, two views of gauge well June 2, 1928; one view of Colorado River, June 2, 1928.
Sheet 12, six views of erecting wooden "A" frame on left bank near boathouse, ca. 1928.
Sheet 13, five views of erecting "A" frame near boathouse on left bank; one view of evaporation station, ca. 1928.
Sheet 24, five photos of snow and ice at Lee's Ferry, December 30, 1932; one photo of Colorado River at high stage 17.5, May 23, 1932.
Sheet 25, five views of snow and ice at Lee's Ferry, December 30 and 31, 1932.
Sheet 26, two views of gauge well interior with water bailed out, March 18, 1933; three views of ice jam at gauge, January 14, 1933.
Sheet 27, five views of gauge well taken March 19, 1933; one view of Colorado River taken from lower left A-Frame, March 22, 1933.
Sheet 28, three views of spring at cable ferry site, March 22, 1933; one view of dugway, March 22, 1933; photo of site of proposed landing tower.
Sheet 29, four Baumgartner survey photos, March 23, 1933: spring, garage, residence, residence.
Sheet 30, five Baumgartner survey photos, March 23, 1933: garage, residence, site of mining operations, interior of garage, Spencer office building.
Sheet 31, five photos showing erection of new steel A-Frame to replace wood one; May, 1933.
Sheet 32, two photos of left side tower; one photo of concrete forms for spring improvement; one photo of roof work on garage. May and June 1933.
Sheet 33, four views of completed tower on left side of lower cable; one view of garage after repair work complete, June 11-12, 1933.
Sheet 34, four views of new rock fence and gate; one view of garage, June 12, 1933.
Sheet 39, two views of new steel A-frame on right bank lower cable, October 29, 1933; one view each of "old chicken house," "old school," and addition to old fort, February 19, 1935, Heckler survey with notations "to be removed."
Sheet 40, five Heckler survey photos, most with notations "to be removed": saddle barn; three Spencer bunkhouses (old school, old chicken house, old saddle barn); old fort & office (addition to Fort to be removed; fort & office to be saved); office building (to be saved), all February 19, 1935.
Sheet 41, three views: fort; "Pioneers Improvement Area;" Colorado River near improvement area, November of 1935.
Sheet 42, view of spring showing position of two cabins; two general views of improvement area, November of 1935.
Sheet 43, wash showing site of old bridge; road; "old chicken house" (Spencer Building), November of 1935.
Sheet 44, three photos: wash; fort; schoolhouse; November of 1935.
Sheet 44, three photos: Paria Valley; wash where old highway bridge was; saddle barn cabin, all November of 1935.
Sheet 47, one photo of gate on road between Paria River and residence, shows sign installed September 21, 1935, photo taken September 23, 1935.
Sheet 48, five photos: two views of new bathroom on gauger's residence; two longer views of residence with new bathroom; one of domestic water well and windlass; residence photos March of 1939, well December 4, 1938.
Sheet 50, four views of lower cable assembly; two views of gauger's residence, 1939-1940.

Sheet 51, two photos of upper cableway; two views of gauger's residence; one view of gauge well, all taken in May of 1940.
Sheet 52, two views of staff gauge; one view of gauger's residence with Quincy and Dorothy Cornelius standing in front; one view of gauge well, photos taken 1940-41.
Sheet 53, two views of USGS guest house; one view of septic tank for guest house and silt lab; one view of gauge, taken in April of 1950.
Sheet 54, three photos: guest house; guest house & silt lab (Spencer Building); general view of buildings, taken August of 1950.
Sheet 58, one photo of gauger's residence; two photos of cable ferry site, ca. 1960.
Sheet 59, five photos: fort; two of Spencer building area; two of river; one of USGS fence & sign, all ca. 1960.

Arizona Historical Society (Tucson)

This state-sponsored historical society has a good collection of Lee's Ferry photos. Many of these were donated by Lee descendant Mrs. Edna Lee Brimhall. The AHS collections are grouped by portraits of John D. Lee and family and by "Places, Lee's Ferry."

Portraits, John D. Lee and family

11994, portrait of John D. Lee in 1857, taken in Salt Lake City.
11995, headstone of John D. Lee in Panguitch, Utah.
11996, portrait of Rachel Woolsey Lee, wife of John D. Lee.
11997, portrait of Emma Bachelder Lee, wife of John D. Lee; reproduced in Measeles, p. 24.
11998, attorneys and Judge at trial of John D. Lee; Lee in center.
11999, Lizzie Lee Young, Sarah Lee Young, Josephene Lee (sisters).
12000, Lee and family at the Pools; reproduced in Measeles, p. 9.
12001, portrait of John Doyle Lee during trial at Beaver; reproduced in Measeles, frontispiece.
12003, portrait of John D. Lee and wives Rachel Woolsey and Caroline Williams Lee; reproduced in Measeles, p. 8.

Places, Lee's Ferry

23,566, Upper Ferry Site, George Hochderffer collection (December, 1925).
23, 567, ferry boat in river, George Hochderffer collection (December, 1925).
51436, Lee's Ferry, Colorado River (1870); C.R. Savage photo. Also identified as "Downstream in the Grand Canyon;" reproduced in Measeles, p. 102.
76695, ferry boat on left bank; right bank in background, shows very high ferry crib, Gilbert Sykes photo.
6-4271, Johnson family reunion; group standing in front of Samantha Johnson Cabin, ca. 1929, O.D. Flake photo.
56315, area above Lee's Ferry; river only, Arthur Fleming photo
43633, river only, scenic view, poor quality, A.E. Douglass photo, 1901.
43634, stone cabin, A.E. Douglass photo; purported to be at Lee's Ferry but was actually taken at Tanner Crossing on the Little Colorado River, 1901.
43635, river only scenic view, A.E. Douglass photo, 1901.
43636, Emett family standing in front of Warren Johnson house, A.E. Douglass photo, 1901; reproduced in Reilly, p. 155.
6314, stone building at Lee's Ferry. Will C. Barnes photo, Box I, folder 17.

6315, scenic view of river at Lee's Ferry. Will C. Barnes photo, Box I, folder 17.
6316, scenic view of river at Lee's Ferry. Will C. Barnes photo, Box I, folder 17.

Arizona State Museum (Tucson)

The state museum at the University of Arizona has at its main focus the collection of photos and artifacts related to archeological and ethnographic sites. A reference was found to the Bernard Fontana collection of photos at ASM, but these could not be located by ASM's photo archivist. The museum does have the Larry Lowe collection of photos; however, all of these photos show the river only, ca. 1930-1940.

33479, river only at Lee's Ferry, Larry Lowe photo, ca. 1930-1940.
33480, river only at Lee's Ferry, Larry Lowe photo, ca. 1930-1940.
33481, river only at Lee's Ferry, Larry Lowe photo, ca. 1930-1940.
33482, river only at Lee's Ferry, Larry Lowe photo, ca. 1930-1940.
33483, river only at Lee's Ferry, Larry Lowe photo, ca. 1930-1940.
33484, river only at Lee's Ferry, Larry Lowe photo, ca. 1930-1940.

University of Arizona Special Collections (Tucson)

Collections at the University of Arizona are most renown for the ferry book during the Coconino County era. This book, dated from 1911 to 1922, is one of the few surviving records of actual ferry crossings. Photographs here include a general collection of Lee's Ferry photos, and photos within the A.E. Douglass collection.

Lee's Ferry photos

N-2761, Lee's Ferry, 1926, boat only, Percy Jones Collection.
N-2764, Lee's Ferry, 1926, boat only, Percy Jones Collection.
N-2765, Lee's Ferry, 1926, boat only, Percy Jones Collection.

N-2775, Lee's Ferry, 1926, view of left bank from top of crib, Percy Jones Collection.

N-2764, Lee's Ferry, 1926, "John Lee's House" (sic. – Fort), Percy Jones Collection.
1605571, Eddy expedition of 1927, boats in river, gift of Stuart L. Udall.

1605572, Ferry only, Pathe-Bray expedition of 1927, gift of Stuart L. Udall; shows Adolpha Johnson.
No number, three Nevills boats in river, 1938.
No number, view of ferry at Upper Ferry site, ca. 1926.

A.E. Douglass Collection, AZ 172 (Box 26, Folder 6)

18, Lee's Ferry looking west, river only, 1901.
27, Lee's Ferry looking east at mouth of Paria Creek, 1901.
28, Layton & Emett's family at Lee's Ferry, 1901; Johnson House in background, Arizona Historical Society photo #43636; reproduced in Reilly, p. 155.
29, Mr. & Mrs. Jim Emett at Kitchen grave, Nov./Dec., 1901.
30, Lee's Ferry looking west, river only, 1901.

US Geological Survey, Arizona State Office (Tucson)

This Federal agency has a tremendous collection of photographs and negatives; unfortunately, they are poorly indexed and organized. It appears that many of the negatives are of photos that are housed in Flagstaff. Two photo albums contain photos of Lee's Ferry, as follows:

District Engineer Roger C. Rice photo album, 1921-1923

Page 13, Lee's Ferry gaging station recording gauge well under construction, 1922.
Page 19, Paria Creek ranch, L.R. Freeman photo 9-22.
Page 20, distant view of dugway and Lee's Backbone, 1922.

Page 21, Cable car on left bank of river, Lee's Ferry.
Page 22, Cable car on cable above river, Lee's Ferry.
Page 23, Navajo Indians on dugway at Lee's Ferry.

Permanent Tech File #09380000, Colorado River at Lee's Ferry

Page 1 top, view of gauge will from right bank, September 1, 1938.

Page 2 bottom, looking upstream at control, Paria enters from left, September 1, 1938.
Page 2 top, gauge well looking downstream, March 1933.
Page 2 top, close-up of recorder shelter, March 1933.
Page 2 bottom, view iside well with water bailed out, March 1933.

Page 3 top, view of right A-frame and landing tower of lower cable and gauge well, June 1939.
Page 3 bottom, view from right to left of lower cable assembly, June 1933.
Page 4 top, left A-frame and landing tower of lower cable, June 1933.
Page 4 top, view of upper cable landing tower and A-frame on left bank, June 1939.
Page 4 bottom, view of channel upstream from lower cable, June 1939.
Page 5 top, view of channel downstream from lower cable, June 1939.
Page 5 bottom, station residence, March 1939.

TIER THREE, REGIONAL RESOURCES

Historical Department, Church of Jesus Christ of Latter Day Saints, Salt Lake

The Historical Department of the Church of Jesus Christ of Latter Day Saints was consulted for photographs not located in other repositories. This archive is most noteworthy for photographs from Col. W. F. (Buffalo Bill) Cody's 1892 trip to the Grand Canyon. This trip included a crossing at Lee's Ferry.

PH2402, W.H. Broach Collection

P2402, Folder 2 / Item 3: Shows group at stone building. While this has been described in some accounts [including the 1997 National Register nomination] as being a photo from Lee's Ferry, this does not appear to be taken at the site. Shows "exhausted English dude" (a.k.a. Maj. Henry St. John Mildway).
P2402, Folder 2 / Item 4: Shows Warren Johnson House at Lee's Ferry, 1892. Pictured are Johnny Baker and W.H. MacKinnon (Cody party), Lovina Lee Brinckerhoff, Permelia Smith Johnson, Le Roy Johnson, and Frank Johnson.
P2402, Folder 2 / Item 10: Lee's Ferry Ranch, looking north. May show Picture Window Shack.
P2402, Folder 3 / Item 2: Cody party descending dugway to Lee's Ferry. This photo is in poor condition – very faded. Photo also shows many cattle on dugway.

P2402, Folder 4 / Item 3: Lower Ferry at Lee's Ferry. This is a "boat only" photo. Original is very faded.

P2402, Folder 5 / Item 5: Crossing Lee's Ferry, 1892. People are identified as: (no number) Ferryman, 1) Johnny Baker, valet & crack shot, 2) obscure, 3) Dan Seegmiller, 4) Louis, French Cook, 5) W.F. "Buffalo Bill" Cody, 6) Joe Young, driver, 7) Col. W. Henry MacKinnon, 8) Maj. Henry St. John Mildway, 9) Junius F. Wells, 10) Arizona Adams, 11) Alva Huntington. Reproduced in Measeles, p. 90. Measeles credits the Edward T. Lamb collection at NAU.

Charles W. Carter Glass Negative Collection

499a, John D. Lee "fly-away" hair photo.
499b, John D. Lee dead in coffin.
622, John D. Lee "fly-away" hair photo in better condition.
648, John D. Lee sitting on his own coffin.

PH1455, Arizona Misc. Photos

P1455, Folder 3 / Item 2:
Shows automobile being carried across at upper ferry. "Boat only" photo.
P1455, Folder 3 / Item 5:
Dr. George Wharton James photo of Lee Ranch, ca. 1898. Original glass plate negative located at Southwest Museum, Los Angeles.
P1455, Folder 4 / not individually numbered:
Warren M. Johnson House, 1910. Belonged to Grand Canyon Cattle Co.
P1455, Folder 4 / not individually numbered:
Lee's Ferry from across the river. Shows mining company camp, 1910.

Utah State Historical Society, Salt Lake

This archive contains an excellent collection of photographs. These are well organized and easily available in a research collection. In addition to the general research collection, the Utah State Historical Society has specialized collections from individual donors.

386.1, General Collection

00991, Jerry Johnson bringing Dodge truck across river on ferry. Taken by I.G. Cockroft, 1922. Reproduced in Rusho & Crampton, 3rd ed., p. 100; Reproduced in Measeles, p. 51 (bottom). Measeles identified the vehicle as a Model T Depot Hack.
00992, Ferry unloading on left bank of river; background shows main ferry site, ca. 1925. Reproduced in Rusho & Crampton, 3rd ed., p. 99.
00993, Ferry unloading on right bank of river, dugway in background. Reproduced in Rusho & Crampton, 3rd ed., p. 99; reproduced in Measeles, p. 53 (bottom).
20164, ferry boat and cable.
16898, the boat *Charles A. Spencer*, Kolb Brothers photograph donated by W.L. Rusho to Utah State Historical Society. This photograph frequently duplicated; reproduced in Rusho & Crampton, 3rd ed., p. 85; reproduced in Measeles, p. 46.
01009, Robert Burns Hildebrand, age 79, holding end of ferry cable, May 31, 1936.

718, General Collection

4674, p-7, p-8, p-9, three views of John D. Lee recent gravestone.
4675, John D. Lee Monument at Navajo Bridge, 1961, showing Juanita Brooks, Peggy Gregory (Huntington Library), and Sara Lund Williamson (Lee relative).

728, General Collection

7413, "Dude Ranch" (Weaver Ranch House) and R.B. Hildebrand, 1936.

917.85, General Collection

10364, John D. Lee inscription at Cane Spring, dated 1867 (photo taken 1938).
10350, Huntington-Holliday inscription at Two-Mile Spring near Lee's Ferry (photo taken 1938).

917.911, General Collection

10559, Steward Expedition beaching boats at main ferry site, 1932. Some structures visible in background.
10560, "boat only" view of Steward Expedition, 1932.
10561, Steward expedition photo of "louse house," 1932. Reproduced in Rusho & Crampton, 3rd ed., p. 101.
10562, view of cabin at upper ferry site, Steward Expedition, 1932.
18960, view of Samantha Johnson Cabin (HS-232) and Polygamous Era Cabin (HS-233) in heavy vegetation, Steward Expedition, 1932.
10563, Samantha Johnson Cabin (HS-232), Steward Expedition, 1932. Frequently duplicated photo showing screen door on cabin and ox harness leaning against building. Reproduced in Rusho & Crampton, 3rd ed., p. 127.
10564, Steward expedition 1932, corner of Fort in background; Hoffman Birney in foreground. Reproduced in Rusho & Crampton, 3rd ed., p. 142.
10565, "boat only" view, Steward Expedition, 1932.
10566, "boat only" view, Steward Expedition, 1932.
10510, Stanton Crew having Christmas dinner in front of Lee's Ferry Fort, 1889. Reproduced in Rusho & Crampton, 3rd ed., p. 72; reproduced in Measeles, p. 34.
19645, second Powell expedition boats. Reproduced in Rusho & Crampton, 3rd ed., p. 23. Rusho credits the National Archives for this photo.
10471, remains of the Nellie Powell at Lee's Ferry.
10433, Samantha Johnson Cabin (HS-232) at Lee's Ferry, Frazier-Kelly Expedition, 1937.

921, General Collection

12683, portrait photo of Warren Marshall Johnson.
12856, portrait photo of Emma Batchelder Lee. Reproduced in Rusho & Crampton, 3rd ed., p. 125; reproduced in Measeles, p. 24. Measeles credits the Arizona Historical Society.
12871, portrait photo of John D. Lee. Reproduced in Measeles, (fronticepiece). Measeles credits the Arizona Historical Society.
12872, John D. Lee sitting on his coffin, 1877. Reproduced in Rusho & Crampton, 3rd ed., p. 50. Rusho credits the Library of Congress for this photo.
12873, John D. Lee laying dead in his coffin, 1877.
12874, portrait photo of John D. Lee.
12875, portrait drawing of John D. Lee made from photo, "fly-away" hair.
12876, wagons carrying firing squad to Mountain Meadows, 1877.
12877, firing squad at Mountain Meadows, 1877.
12878, old, damaged daugerrotype of John D. Lee
12879, drawing of firing squad wagons at Mountain Meadows, 1877.
12880, drawing of Lee sitting on his coffin, 1877.
12881, drawing of Lee being shot and falling into coffin, 1877.
12882, drawing of Lee laying dead in his coffin, 1877.
12883, drawing of John D. Lee working on his autobiography in Beaver City, 1877. Reproduced in Rusho & Crampton, 3rd ed., p. 49.

12884, Attorneys and Judge at trial of John D. Lee; Lee in center. Reproduced in Rusho & Crampton, 3rd ed., p. 48.

979.1, General Collection

14882, view of ferry crib and cabin at upper ferry site.
14883, same as above; view to northeast.
14884, R.B. Hildebrand in front of ferry crib, 1936.
14885, a second view of Hildebrand and log crib, 1936.
14887, Hildebrand at Blacksmith Shop, 1936.
14888, Blacksmith Shop in 1932.
14889, second view of Blacksmith Shop, 1932.
14891, Samantha Johnson Cabin (HS-232), 1936
14892, Samantha Johnson Cabin (HS-232), 1932?
14893, Samantha Johnson Cabin (HS-232), 1936.
14894, Samantha Johnson Cabin (HS-232), 1932.
14895, Lee's Ferry Fort before Spencer addition, 1909. Reproduced in Rusho & Crampton, 3rd ed., p. 46. Photographed from the rear by Julius Stone.
14896, Frank Johnson Cabin at upper ferry site; photographed by Charles Kelly in 1932. Reproduced in Rusho & Crampton, 3rd ed., p. 104.

C-112, Russell G. Frazier Collection

Box 1, Folder 6, Image 6. "John D. Lee's old house at Lees Ferry Arizona." Duplicate of 979.1 – 14894.
Box 6, Photo Album Volume 1, photo 3-1. Loading boats at Lee's Ferry, July 19, 1934.
Box 6, Photo Album Volume 1, photo 3-2. "Sleeping Indian" rock formation across from Lee's Ferry, July 19, 1934.
Box 6, Photo Album Volume 1, photo 3-3. Loading boats at Lee's Ferry, July 19, 1934.
Box 6, Photo Album Volume 1, photo 3-4. Downstream at Lee's Ferry. Old dugway on cliff at left, July 19, 1934.

C-361, William Culp Darrah Collection

Folder 1, image 2, Emma Dean Powell, wife of John Wesley Powell, ca. 1869 or 1870.
Folder 1, image 6, the *Emma Dean*, Powell's lead boat in 2nd expedition, 1871-72.
Folder 1, image 15, a halt for observations on the Colorado River (boat only).
Folder 1, image 16, repairing the *Maid of the Canyon* at the mouth of the Fremont River.
Folder 1, image 18, Emma Dean Powell, ca. 1869.

Southern Utah University (Cedar City)

The Special Collections division at the Gerald R. Sherratt Library has a good collection of manuscript material and photographs regarding Utah's "Dixie." The largest collection is that of William Rees Palmer. A native of Cedar City, Palmer received an appointment from the LDS church to minister to Native American tribes during the depression. He traveled extensively throughout the Southwest and took many photos.

Ph1, William R. Palmer Photograph Collection

B2 F3 (179), rock house; possible Spencer building, Lee's Ferry, Arizona; n. d.; Palmer, photographer.

B2 F3 (180), another view of the rock house; Lee's Ferry, Arizona; n. d., Palmer, photographer.
B2 F3 (181), rock house; possible Spencer building, Lee's Ferry, Arizona; n. d., Palmer, photographer.
B2 F3 (182), A Navajo home (not Lee's Ferry), Arizona; n. d., Palmer, photographer.
B2 F4 (189), rock trading post (Lee's Ferry Fort); Lee's Ferry, Arizona; n. d.; Palmer, photographer.
B2 F9 (231), Navajo camp; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (232), Navajo group with wagon; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (233), Navajo camp, showing corner or rock house at left; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (234), Colorado River scene with woman seated in foreground; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (235), four men seated on rocks in foreground; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (236), Six men seated in a circle; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (237), Six men seated in a circle; Fort chicken coop in background; Lee's Ferry, Arizona; 1936; Palmer, photographer.
B2 F9 (238), Navajo man and boy bringing water from river; Lee's Ferry, Arizona; 1936; Palmer, photographer.
F50 F4 (159), Lee's Ferry; n. d.; Palmer, photographer (duplicate of B2 F3 179).
B50 F4 (160), Lee's Ferry; 1935; Palmer, photographer (duplicate of B2 F9 234).
B50 F4 (161), Lee's Ferry; 1935; Palmer, photographer.
B50 F4 (163), Lee's Ferry; 1935; Palmer, photographer (duplicate of B2 F3 180).
B50 F4 (164), Lee's Ferry; hulk of the *Charles H. Spencer*; 1935; Palmer, photographer.
B50 F4 (165), Lee's Ferry; October 12, 1935; Palmer, photographer (duplicate of B2 F3 181).
B50 F4 (166), Lee's Ferry, four unidentified men; 1935; Palmer, photographer (duplicate of B2 F9 235).
B50 F4 (168), Lee's Ferry; October 12, 1935; Palmer, photographer (duplicate of B2 F9 233).
B50 F4 (170), Navajos at Lee's Ferry; 1935; Palmer, photographer (duplicate of B2 F9 238).
B50 F4 (171), Navajos at Lee's Ferry; 1935; Palmer, photographer (duplicate of B2 F9 237).
B50 F4 (172), Navajos at Lee's Ferry; 1935; Palmer, photographer (duplicate of B2 F9 232).
B50 F4 (173), Navajo card game at Lee's Ferry; 1935; Palmer, photographer (duplicate of B2 F9 236).
B5 F10 (1047), Jerry Jackson telling story of Ferry to men and boys on Aaronic (lesser) priesthood outing; Lee's Ferry, Arizona; May 14, 1949; photographer unknown.
B5 F10 (1048), Kanab Stake Lesser Priesthood Meeting; Lee's Ferry, Arizona; May 14, 1949; photographer unknown.
B12 F3 (1049), The mighty Colorado River at Lee's Ferry; n. d.; Palmer, photographer.
B12 F4 (1053), Joel Roundy at rock where father Lorenzo Roundy died.
B12 F9 (2077), John D. Lee at the time of his trial; Fort Harmony, Utah; 1877; photographer unknown.

MS 34, Caroline Parry Woolley collection

B24 F1 (3), pile of rocks marking location of where John D. Lee was shot by US Soldiers at the location of the Mountain Meadows Massacre. Later replaced by a monument.

US Geological Survey, Photographic Library, Denver

The United States Geological Survey has a large collection of photographs collected during the many USGS expeditions in the western United States. These photographs are located at the USGS Photographic Library in Denver. Since many of the USGS expeditions passed through Lee's Ferry, several of the photos are of interest for the historic structure report. These photos are identified as follows:

F.L. Ransome (all photos ca. 1945)

1357, Echo Cliffs from road, Flagstaff-Lee's Ferry.
1358, Echo Cliffs from road, Flagstaff-Lee's Ferry.
1359, Colorado River south of the mouth of Paria River.
1360, Colorado River at mouth of Paria River.
1361, cliffs and proposed power site at Lee's Ferry.
1362, cliffs and proposed power site at Lee's Ferry.
1363, power boat on way up Marble Canyon.
1364, power boat landing opposite mouth of Paria River.

H.E. Gregory (all photos 1915)

285, Paria River from south side of Colorado River at Lee's Ferry.
286, Colorado River at Lee's Ferry.
287, head of Marble Canyon and Vermilion Cliffs.
288, face of Echo cliffs two miles south of Lee's Ferry.
289, panorama with 288.
298, Vermilion cliffs from junction of Paria and Colorado Rivers.
299, party on trail along cliff from Lee's Ferry.

E.C. LaRue

290, Lee's Ferry gaging station (1921).
292, driftwood in river after a flood (1921).
293, Lee's Ferry gaging station (1921).
294, Lee's Ferry (1921).
295, view upstream of Lee's Ferry (1921).
296, steamboat *Charles H. Spencer* (1921).
297, small waterfall in Dodge Gulch (1921).
298, deserted mining cabin above Lee's Ferry (1921).
299, Paria River above Lee's Ferry (1921).
300, meter boat on Colorado River (1921).
301, lowering meter boat to Lee's Ferry (1921).
302, motorboat at head of dugway, Lee's Ferry (1921).
318, the *Grand* being tried out at Lee's Ferry (1923).
319, the Colorado River at Lee's Ferry (1923).
325, Geological Survey party ready to leave Lee's Ferry (1923).
326, near view of the party (1923).
327, the party in boats leaving Lee's Ferry (1923).
328, view near mouth of Paria River (1923).
330, Geological Survey temporary quarters at Lee's Ferry (1923).

New Mexico State Records Center and Archives, Santa Fe

Collections here are most noteworthy for the E.R. Fryer photographs. There are two series of Fryer photos; one set taken in 1893 and the other taken in 1978 (one photo is dated 1898). Additional images of Lee's Ferry are found in the McNitt Collection and the Lambert Collection.

E.R. Fryer Collection

#6424, Lee's Ferry Ranch, 1893. Corral in foreground; Johnson House in trees. Reproduced in Measeles, p. 89.
#6451, View of Lee's Backbone across river from Lee's Ferry. Taken in 1893 prior to construction of dugway. Reproduced in Measeles, p. 38.
#6452, View of dugway constructed in 1898 across Colorado River from Lee ranch. Note on back of photo states dugway was built about 1909 [sic. – 1898]. Reproduced in Measeles, p. 59.
#6613, Two-story wood house. Johnson home on Lee's Ferry Ranch. Destroyed by fire in 1920s. Reproduced in Measeles, p. 89.
#6817, Photo of five men, part of large group working on dugway across Colorado River from John D. Lee's ranch, 1898. Identified include (l-r) 1. unidentified, 2. unidentified, 3. Nephi Forman, 4. Samuel Alverius Mecham (dugway contractor), and 5. Joseph Staker. Reproduced in Measeles, p. 58.
#7010, Warren Johnson and family on steps of home at Lee's Ferry, 1893. Reproduced in Measeles, p. 88.
#24431 to #24448, nineteen photos taken by E.R. and Alton Fryer (brothers) in 1978.

Lambert Collection

#26154, Colorado River at Lee's Ferry. USGS Boathouse in foreground; right bank in background, 1924.
#37447-37449, Slides of Colorado River at Lee's Ferry, 1972.

McNittt Collection

#6520, View of location of Lee home at Lee's Ferry, looking east. August 15, 1959.
#6521, One of "Lee's cabins" at Lonely Dell, Lee's Ferry, 1959.
#6634, Lee's Ferry from left side of Colorado River, dugway in foreground.
#6638, Lee Ranch ca. 1950-1960 (transparency).

University of Utah

This archive is most noteworthy for the Gregory Crampton collection of photographs. Crampton was a professor at the University of Utah and conducted historic resource surveys in the Colorado River Canyon before planned dam construction. A second collection of importance is the Norman Nevills collection. Nevills was an early river runner. The individual images are designated by three sets of numbers separated by semi-colons which represent box: folder: image.

PO197, C. Gregory Crampton Collection

7: 1: L-10-1, 1909 Kane inscription on Fort, 1985 photo
7: 1: L-10-2, downstream view 1985.
7: 1: L-10-3, downstream view 1985.

12: 21: 61, Lee House in Moenavi, George Wharton James photo.
12: 21: 61, Lee House in Moenavi, George Wharton James photo.

14: 1: 1-30, Robert Stanton photos at Lee's Ferry 1897-1898. Quality of these photos is generally poor; most consist of "boat only" views. Some show chopping ice in river for passage of boats.

14: 2: 31-60, additional Stanton photos. Of particular importance are:
14: 2: 48, shows Fort surrounded by a vegetation-topped ramada Stanton photo 1902.
14: 2: 53, shows man standing in doorway of dugout at Lonely Dell Ranch, Stanton photo, 1902.

14: 6: 151-161, additional Stanton photos. Of particular importance are:
14: 6: 164, shows horses swimming across river being led from boat.
14: 6: 180, boats at Lee's Ferry.

24: 1: various; W.L. Rusho Bureau of Reclamation photos; "boat only" at Lee's Ferry.

48: 4 & 5: total of sixty photos of Lee's Ferry area. Number 16 to 20 are "river only" photos taken on August 26, 1966; number 21-30 are "artistic" (scenic) photos of Lee's Ferry. Noteworthy individual photos are as follows:
48: 4: 38, cemetery, January 30, 1977.
48: 4: 39, cemetery, January 30, 1977.
48: 4: 40, "dude ranch" (Weaver Building), December 12, 1964.
48: 4: 41, "dude ranch" (Weaver Building), December 12, 1964.
48: 4: 42, "dude ranch" (Weaver Building), photographed by J.M. Kitchen in August of 1967.
48: 4: 50, irrigation flume across wash, December 12, 1964.
48: 5: 54, USGS guest house, December 12, 1964.
48: 5: 55, USGS water lab and guest house, December 12, 1964.

48b: 1: 4, ruins at upper ferry site, right bank (Louse House), September 1959.
48b: 1: 5, remains of log cabin at right bank approach to ferry. Cabin had been burned and was still smoldering when visited, September 20, 1959 (Frank Johnson Cabin).
48b: 1: 6, log cabin on right bank at ferry landing, June 1950 (Frank Johnson Cabin).
48b: 1: 7, main cabin at upper ferry site, July 6, 1949 (Frank Johnson Cabin).
48b: 1: 8, cabins at upper ferry, July 6, 1949 (Frank Johnson Cabin & Louse House).
48b: 1: 9, cabins on right bank at upper ferry from river, July 5, 1949.
48b: 1: remaining photos in this folder are views of Lee's Backbone & dugway.
48b: 2: 1-35, views of Lee's Backbone & dugway.
48b: 2: 36, Lee's Ferry Fort and APC Office, December 12, 1964.
48b: 2: 37, Lee's Ferry Fort, December 12, 1964, used in report to NPS on Lee's Ferry in January 1965.
48b: 2: 38, Lee's Fort, August 25, 1962.
48b: 2: 39, Lee's Fort – names on the walls, September 1959.
48b: 2: 40, Lee's Ferry – building west of Fort, December 12, 1964.
48b: 2: 41, Lee's Ferry Fort, December 12, 1964.
48b: 2: 42, Lee's Fort, September 1959.
48b: 2: 43-52, Lee's Ferry Fort 1980.
48b: 2: 53, Lee's Fort – east end, September 1959.
48b: 2: 54, main building "Lee's Fort," September 20, 1959.
48b: 2: 55, Lee's Fort close up, August 25, 1962.

48b: 2: 56, Lee's Fort close up (interior), August 25, 1962.
48b: 2: 57, Lee's Ferry Fort, details, December 12, 1964.
48b: 2: 58, Lee's Ferry Fort, details, December 12, 1964.
48b: 2: 59, Lee's Ferry Fort, details, December 12, 1964.
48b: 2: 60, Lee's Ferry Fort, details, December 12, 1964.
48b: 3: 1, building west of fort, December 12, 1964.
48b: 3: 2, building west of for, December 12, 1964.
48b: 3: 3, Lee's Ferry Fort, details, December 12, 1964.
48b: 3: 4-13, additional Fort and Post office details, December 12, 1964.
48b: 3: 14, Post Office, 1980.
48b: 3: 15, Lee's Fort – dugout cellar in rear, September 2, 1959.
48b: 3: 16, small building – coop? North of Lee's Ferry Fort, December 12, 1964.
48b: 3: 17, chicken coop? - north of Lee's Fort, September 1959.
48b: 3: 18, chicken coop? – north of Lee's Fort, September 1959.
48b: 3: 19, Lee's Ferry Fort – name inscription (E. Kane), November 23, 1985.
48b: 3: 20, Lee's Ferry Fort – name inscription (J. Hislop), May 9, 1983.
48b: 3: 21, Lee's Ferry Fort – name inscription (J. Hislop), November 23, 1985.
48b: 3: 22, Lee's Ferry Fort – name inscription (E.W. Stevens), November 23, 1985.
48b: 3 23-27, name inscriptions on Lee's Backbone.
48b: 3: 28, Lee's Ferry Fort – name inscription (E. Kane), September 2, 1959.
48b: 3: 29, Lee's Ferry Fort – name inscription (E. Kane), September 1959.
48b: 3: 30, Lee's Ferry Fort – name inscription (E.W. Stevens), September 1959.
48b: 3: 31-46, additional name inscriptions.
48b: 3: 47-53, John D. Lee ranch cabins, 1985.
48b: 3: 54, John D. Lee ranch – two log cabins, December 12, 1964.
48b: 3: 55, (Samantha Johnson Cabin, HS-232) at mouth of the Paria, September 20, 1959.
48b: 3: 56, (Samantha Johnson Cabin, HS-232) 1980.
48b: 3: 57-60, (Samantha Johnson Cabin, HS-232) 1977.
48b: 4: 1, John D. Lee ranch – two cabins, December 12, 1964.
48b: 4: 2-4, John D. Lee ranch, 1985.
48b: 4: 5, John D. Lee ranch, 1980.
48b: 4: 6-7, John D. Lee ranch, 1977.
48b: 4: 8-11, John D. Lee ranch, 1973.
48b: 4: 12, (Polygamous Era Cabin, HS-233) 1973.
48b: 4: 13-14, Lee cabins, 1983.
48b: 4: 15, (Samantha Johnson Cabin, HS-232) at mouth of the Paria, September 20, 1959.
48b: 4: 16, Polygamous Era Cabin (HS-233), photo by J.M. Kitchen, August 1967.
48b: 4: 17, John D. Lee ranch, secondary log cabin, December 12, 1964 (Picture Window Shack, HS-236).
48b: 4: 18, John D. Lee ranch, secondary log cabin, December 12, 1964 (Picture Window Shack, HS-236).
48b: 4: 19, chicken house? – 1967.
48b: 4: 20, log barn above John D. Lee ranch (Picture Window Shack, HS-236), December 12, 1964.
48b: 4: 21-23, dugout, 1985.
48b: 4: 24, John D. Lee ranch (Samantha Johnson Cabin, HS-232) by J.M. Kitchen, August 1967.
48b: 4: 25, John D. Lee ranch, (Samantha Johnson Cabin, HS-232), December 12, 1964.
48b: 4: 26, John D. Lee ranch, (Samantha Johnson Cabin, HS-232), December 12, 1964.

48b: 4: 27, John D. Lee ranch, (Samantha Johnson Cabin, HS-232), December 12, 1964.
48b: 4: 28, John D. Lee ranch, (Samantha Johnson Cabin, HS-232), December 12, 1964.
48b: 4: 29, John D. Lee ranch, (Samantha Johnson Cabin, HS-232), December 12, 1964.
48b: 4: 30, cliffs.
48b: 4: 31-37, cliffs and scenic views.
48b: 4: 38-51, Spencer era artifacts.
48b: 4: 52-60, Spencer buildings, 1964.
48b: 5:, 1-7, Spencer buildings, 1964.
48b: 5: 8-27, *Charles H. Spencer* hulk.
48b: 5: 28-29, Spencer Trail.

PO277, Roy Webb Collection

This collection consists of nine photos of Lee's Ferry taken in 1985.

PO341, Norman D. Nevills Collection

2: 7: 27, 1938 view of Lonely Dell showing heavy vegetation.
4: 5: 9, shows Fort in May of 1942.
5: 15: 2, shows Fort in 1948 (distant view).
5: 15: 7, Fort and Post Office in 1948.
5: 15: 20 Fort in 1948.
5: 15: 27 close up view of Fort, 1948.
5: 21: 2, Fort and Post Office in 1948; duplicate of 5: 15: 7.
5: 36: 6, good view of Spencer hulk in low water.

Southwest Museum (Los Angeles)

The Southwest Museum in Los Angeles was founded by Charles F. Lummis and houses his collection of Western Americana. The museum is also associated with Western writer George Wharton James and houses his collection of photographs taken during his 1897 trip to the Grand Canyon of Arizona. While the Southwest Museum has a number of images of Arizona, many of the images of the state are not cataloged. In addition, many of the Arizona images are arranged in a manner which makes it difficult to locate photos of a particular subject, such as Lee's Ferry or the Lonely Dell Ranch. It is likely that there are more photos of Arizona and Lee's Ferry represented in the collections of the Southwest Museum, but the following are those that have been entered into the Museum's computer system.

P.36618, George Wharton James photo of landscape at Lee's Ferry, ca. 1900.
P.36619, George Wharton James photo of landscape at Lee's Ferry, ca. 1900.
P.36620, George Wharton James copy print of family photo titled "John D. Lee with two of his eighteen wives," copied ca. 1900.
P.36621, George Wharton James photo of John D. Lee home at Moenave, ca. 1900.
P.36622, George Wharton James photo of Canyon View at Lee's Ferry, ca. 1900.
P.41704, George Dewar photo of Lee's Ferry Bridge (Navajo Bridge), ca. 1928.
P.41740, George Dewar photo of Lee's Ferry Bridge (Navajo Bridge), ca. 1928.
P.42080, Herbert Summer photo of Lee's Ferry landscape, ca. 1922.
P.43998, George Wharton James photo of John D. Lee cabin at Moenave.
P.44000, George Wharton James photo titled "Breakage in Walls of Marble Canyon, 2 Miles below Lee's Ferry."

P.44002, George Wharton James photo titled "Entrance to Marble Canyon from Lee's Ferry, about Mile 0.5 from Head of Lower Crossing.
P.44006, George Wharton James photo of J.D. Lee cabin at Moenave.
P.44006A, copy print of above image.
P.44007, George Wharton James photo of lower ferry, 1897.
P.44007A, copy print of above image.
P.44008, George Wharton James photo upstream from lower dugway, 1897.
P.44008A, copy print of above image.
P.44010, George Wharton James photo upstream from lower dugway, 1897.
P.44010A, copy print of above image
P.44010B, copy print of 44010.
P.44011, George Wharton James photo of Lee's Ferry, Marble Canyon.
P.44014, George Wharton James photo of lower dugway.
P.44014A, copy print of above image.
P.44353, George Wharton James photo of Galloway at two mile riffle.
P.44353A, copy print of above image.
P.44365, George Wharton James photo of men in boat at lower dugway.
P.44365A, copy print of above.
P.48945, Elizabeth Compton Hegemann photo of Lee's Ferry Fort, ca. 1920s.
P.57590, Edward Kemp photo of Lee's Ferry Bridge (Navajo Bridge).

P.O.7606, film positive image of dignitaries at Lee's Ferry Bridge dedication (Navajo Bridge).
P.O.15943, film positive image of row boat at Lee's Ferry, George Wharton James image.

N.2831, George Wharton James glass plate negative of Lee's Ferry.
N.2832, George Wharton James glass plate negative of Lee's Ferry.
N.7351, George Wharton James glass plate negative of Lee's Ferry. This photo is reproduced in Reilly, Lee's Ferry, p. 159.
N.7376, George Wharton James glass plate negative of Lee's Ferry.
N.7471, George Wharton James glass plate negative of Lee's Ferry.
N.28217, glass plate negative; perhaps Timothy O'Sullivan image of Lee's Ferry 1873
N.29151, glass plate negative copied from existing photographic image.
N.29348, glass plate negative of George Wharton James photo of "John D. Lee and two of his eighteen wives."
N33224, glass plate negative of Colorado River at mouth of Paria Canyon.
N35554, glass plate negative of T.H. O'Sullivan photo.

In addition to negative N.7351, Reilly reproduces N.2677 and N.2848 at pages 157 and 158 respectively. These two images did not appear on the Southwest Museum computer print-out.

Huntington Library (San Marino, California)

The Huntington Library contains an unsurpassed collection of Western Americana. A noteworthy part of its collection consists of early Mormon diaries, including the diaries of John D. Lee. This focus of collections led to a collaboration between Mormon scholar Juanita Brooks and the Huntington Library during her research on John D. Lee. The Huntington published John D. Lee's diaries edited by Robert Glass Cleland and Juanita Brooks as *A Mormon Chronicle* in 1955. In terms of its photographic collections of Lee's Ferry, the Huntington is best known for the Otis R. "Dock" Marston collection. Dock Marston was an early Colorado River runner with an intense interest in history. He amassed a tremendous collection of historical materials on the Colorado River, including Lee's Ferry. These include a number of photos of Lee's Ferry. Based on the finding aid provided by the Huntington, the following images are noteworthy:

George Bauwens collection

Box 411, folder 4, 1917-18 photos of trip along the Colorado including Lee's Ferry.

Lewis Ransome Freeman collection

Box 412, folder 1, photo of John D. Lee Ranch from Lee's Lookout, ca. 1923.

Otis R. "Dock" Marson photo albums

Volume 36, Glen Canyon Dam
Volume 37, Lee's Ferry
Volume 38, Lee's Ferry
Volume 39, Flagstaff region to Lee's Ferry
Volume 40, boats and crews at Lee's Ferry
Volume 141, Galloway-Stone expedition of 1909

California State University, Meriam Library, Chico

This archive contains the James Fennemore collection of photographs. Fennemore photographed the execution of John D. Lee at the site of the Mountain Meadows Massacre in 1877. These photographs were described by William A. Jones in his article "James Fennemore's Photographs of John Doyle Lee" in the journal History of Photography (January 1984). However, the only photos in the special collections at Meriam Library were those duplicated in the article. No additional photos were located at the library that would be of use for historic building analysis. The Utah State Historical Society in Salt Lake has a much more extensive collection of the Fennemore photos, as well as illustrations drawn from the photos and published in Frank Leslie's Illustrated Newspaper (April 7 and April 14, 1877).

Buffalo Bill Historical Center, Cody, Wyoming

This archive contains an excellent collection of Buffalo Bill (W.F. Cody) artifacts and manuscripts. These include some W.H. Broach photographs of Buffalo Bill's 1892 trip to the Grand Canyon. There are also some additional photographs of other trips Cody took to Arizona. However, none of the photos at the Buffalo Bill Historical Center are of Lee's Ferry.

APPENDIX C:
Photographic Logs

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** A
Photographer: Robert Graham **Date:** 7/6/99

Photo No.	Description	View to
00		
0	Emma's Cabin: East elevation	W
1	Emma's Cabin: South elevation	N
2	Emma's Cabin: West elevation	E
3	Emma's Cabin: North elevation	S
4	Emma's Cabin: Interior	SW
5	Emma's Cabin: Interior	NE
6	Weaver Ranch House: West elevation	E
7	Weaver Ranch House: North elevation	S
8	Weaver Ranch House: North elevation, west end	S
9	Weaver Ranch House: North elevation, center	S
10	Weaver Ranch House: North elevation, east end	S
11	Weaver Ranch House: East elevation	SW
12	Weaver Ranch House: East elevation	NW
13	Weaver Ranch House: South elevation, east end	N
14	Weaver Ranch House: South elevation, center	N
15	Weaver Ranch House: South elevation	N
16	Weaver Ranch House: South elevation, west end	N
17	Weaver Ranch House: Interior, Dining/Living	NE
18	Weaver Ranch House: Interior, Dining/Living	SE
19	Weaver Ranch House: Interior, Dining/Living	NE
20	Weaver Ranch House: Interior, Dining/Living	NW
21	Weaver Ranch House: Interior, northeast bedroom	NE
22	Weaver Ranch House: Interior, southeast room	SE
23	Weaver Ranch House: Interior, Kitchenette	NW
24	Weaver Ranch House: Interior, southeast room	W
25	Blacksmith Shop: West elevation	E
26	Blacksmith Shop: West elevation	E
27	Blacksmith Shop: North elevation	S
28	Blacksmith Shop: East elevation	W
29	Blacksmith Shop: South elevation	N
30	Blacksmith Shop/Weaver Ranch House overview	N
31	Blacksmith Shop/Emma's Cabin/Weaver Ranch House Overview	NW
32	Jackson's Cabin: West elevation	E
33	Jackson's Cabin: North elevation	S
34	Jackson's Cabin: East elevation	W
35	Jackson's Cabin: South elevation	N
36	Jackson's Cabin: Interior	NW

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** B
Photographer: Robert Graham **Date:** 7/6/99

Photo No.	Description	View to
00		
0	Overview, Cemetery Site	N
1	Overview, Cemetery Site	S
2	Cemetery	SW
3	Cemetery: Waddy Thompson Ligon site	E
4	Cemetery: Archimedes McClurg site	E
5	Cemetery: John Green Kitchen site	E
6	Cemetery: John Taylor Emett site	E
7	Cemetery: Lucy Emett site	E
8	Cemetery: Stillborn infant site	E
9	Cemetery: Stillborn infant site	E
10	Cemetery: Stillborn infant site	E
11	Cemetery: Shumway-Johnson infant site	E
12	Cemetery: Lucius Henry Spencer site	E
13	Cemetery: Calvin Marshall Johnson site	E
14	Cemetery: Linda Johnson site	E
15	Cemetery: Permelia Johnson site	E
16	Cemetery: Johnson 4 site	E
17	Cemetery: Jonathan Smith Johnson site	E
18	Cemetery: James Jackson site	E
19	Cemetery: Neuman Brown site	E
20	Cemetery: Winifred Johnson site	E
21	Cemetery: Mary Elinor Stowe & baby site	E
22	Cemetery: William Brinkerhoff Site	E
23	Lonely Dell Root Cellar: South elevation	N
24	Lonely Dell Root Cellar: West elevation	E
25	Lonely Dell Root Cellar: North elevation	S
26	Lonely Dell Root Cellar: East elevation	W
27	Lonely Dell Root Cellar: Detail of steps	E
28	Warren Johnson House Foundation	SW
29	Warren Johnson House Foundation	NW
30	Warren Johnson House Foundation	NE
31	Post Office: South elevation	N
32	Post Office: West elevation	E
33	Post Office: North elevation	S
34	Post Office: East elevation	W
35	Post Office: Interior	NW
36	Post Office: Interior	NE
37	Overview, Lee's Ferry Site	E

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** C
Photographer: Robert Graham **Date:** 7/6/99

Photo No.	Description	View to
00		
0	Chicken House: West Elevation	E
1	Chicken House: North Elevation	S
2	Chicken House: East Elevation	W
3	Chicken House: South Elevation	N
4	Lee's Ferry Fort: West Elevation	E
5	Lee's Ferry Fort: North Elevation	S
6	Lee's Ferry Fort: East Elevation	W
7	Lee's Ferry Fort: South Elevation	N
8	Lee's Ferry Fort: Interior, west room	NE
9	Lee's Ferry Fort: Interior, east room fireplace	E
10	Upper Ferry Site: Overview	N
11	Upper Ferry Site: Structure #1, "Louse House" South elevation	N
12	Upper Ferry Site: Structure #1, "Louse House" East elevation	W
13	Upper Ferry Site: Structure #1, "Louse House" North elevation	S
14	Upper Ferry Site: Structure #1, "Louse House" West elevation	E
15	Upper Ferry Site: Benchmark rock	N
16	Upper Ferry Site: Structure #2, Johnson House	N
17	Upper Ferry Site: Structure #2, Johnson House	W
18	Upper Ferry Site: Structure #2, Johnson House	S
19	Upper Ferry Site: Structure #3, Small Corral	N
20	Upper Ferry Site: Structure #3, Small Corral	N
21	Upper Ferry Site: Structure #3, Small Corral	N
22	Upper Ferry Site: Structure #3, Small Corral	W
23	Upper Ferry Site: Overview from Small Corral	S
24	Upper Ferry Site: Structure #3, Small Corral	E
25	Upper Ferry Site: Overview from Small Corral	S
26	Upper Ferry Site: Overview looking upriver	E
27	USGS Building: North elevation	S
28	USGS Building: East elevation	W
29	USGS Building: Context view back to Fort	W
30	USGS Building: West elevation	E
31	USGS Building: South elevation	NE
32	Spencer Bunkhouse: West elevation	E
33	Spencer Bunkhouse: South elevation	N
34	Spencer Bunkhouse: East elevation	W
35	Spencer Bunkhouse: North elevation	S
36	Spencer Bunkhouse and USGS Building	SE

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** D
Photographer: Robert Graham **Date:** 7/21/99

Photo No.	Description	View to
00		
0		
1	Upper Ferry Site: Structure 5 (Dugout)	W
2	Upper Ferry Site: Structure 5 (Dugout)	W
3	Upper Ferry Site: Structure 5 (Dugout)	S
4	Upper Ferry Site: Structure 5 (Dugout)	E
5	Upper Ferry Site: Structure 4 (Large Stone Corral)	E
6	Upper Ferry Site: Structure 4 (Large Stone Corral)	W
7	Upper Ferry Site: Structure 4 (Large Stone Corral)	N
8	Upper Ferry Site: Structure 4 (Large Stone Corral)	E
9	Upper Ferry Site: Structure 4 (Large Stone Corral)	E
10	Upper Ferry Site: Structure 4 (Large Stone Corral)	S
11	Upper Ferry Site: Structure 4 (Large Stone Corral)	N
12	Upper Ferry Site: Structure 4 (Large Stone Corral)	S
13	Upper Ferry Site: Structure 1 ("Louse House")	E
14	Upper Ferry Site: Structure 1 ("Louse House")	W
15	Upper Ferry Site: Structure 1 ("Louse House")	N
16	Upper Ferry Site: Structure 1 ("Louse House")	N
17	Upper Ferry Site: Structure 1 ("Louse House")	W
18	USGS Building: North wall and eave	S
19	USGS Building: Wall above window	W
20	USGS Building: Overview of roof	SW
21	USGS Building: West eave	SE
22	USGS Building: West eave	SE
23	USGS Building: Porch connection	E
24	USGS Building: Porch connection	E
25	USGS Building: Tamarisk tree at south	W
26	USGS Building: Attic vent	SW
27	Spencer Bunkhouse: Crack through east attic vent	W
28	Spencer Bunkhouse: East window opening	W
29	Spencer Bunkhouse: North door	S
30	Spencer Bunkhouse: Wall damage by door	S
31	Spencer Bunkhouse: Plumbing remnants at east side	W
32	Spencer Bunkhouse: Detail of stone joint erosion	SE
33	Spencer Bunkhouse: Crack through west attic vent	E
34	Spencer Bunkhouse: Typical south window	N
35	Spencer Bunkhouse: Gable end alteration	NW
36	Spencer Bunkhouse: Roofing	N
37	Spencer Bunkhouse: Attic vent	E

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** E
Photographer: Robert Graham **Date:** 7/21/99

Photo No.	Description	View to
00		
0	Spencer Bunkhouse interior: Salvaged door	N
1	Spencer Bunkhouse interior: Typical window	S
2	Spencer Bunkhouse interior: Water closet	S
3	Spencer Bunkhouse interior: Window bisected by wall	E
4	Spencer Bunkhouse interior: Boarded window	S
5	Spencer Bunkhouse interior: Sink	S
6	Post Office Interior: Overview	NW
7	Post Office Interior: Overview	SE
8	Post Office Interior: Service window	N
9	Post Office Interior: Front window	S
10	Post Office Interior: Front window detail	S
11	Post Office Interior: Board by door	S
12	Post Office Interior: Door	S
13	Weaver Ranch House: Typical window sill	S
14	Weaver Ranch House: Typical window head	S
15	Weaver Ranch House: Wall construction/joint detail	S
16	Weaver Ranch House: Chimney	SE
17	Weaver Ranch House: Wood-framed wall sheathing at base	SE
18	Weaver Ranch House: Windows in addition	SE
19	Weaver Ranch House: Wall failure at window head	S
20	Weaver Ranch House: Exterior door	E
21	Weaver Ranch House: Window glazing failure	S
22	Weaver Ranch House: Log pass door	S
23	Weaver Ranch House: Weathering wood on windows	N
24	Weaver Ranch House: Wall crack above window	E
25	Weaver Ranch House: Gaps in blocking/top of wall	S
26	Weaver Ranch House: Attic vent at wood framed addition	N
27	Weaver Ranch House: South stone terrace	W
28	Weaver Ranch House: Hole in terrace to crawlspace	N
29	Weaver Ranch House: Conduit through wall	NE
30	Lonely Dell Root Cellar: Roof and framing detail	SE
31	Lonely Dell Root Cellar: Roof and framing detail	NW
32	Lonely Dell Root Cellar: Wooden vent cap	N
33	Lonely Dell Root Cellar: Door frame	N
34	Lonely Dell Root Cellar: Steps	W
35	Lonely Dell Root Cellar: Roof shoring	N
36	Lonely Dell Root Cellar: Wall construction detail	W

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** F
Photographer: Robert Graham **Date:** 7/21/99

Photo No.	Description	View to
00	---	
0	Lonely Dell Root Cellar: Cracked/braced beam	E
1	Lonely Dell Root Cellar: Interior of wall and post	NE
2	Lonely Dell Root Cellar: Interior	NW
3	Lonely Dell Root Cellar: Interior	SW
4	Lonely Dell Root Cellar: Door from inside	S
5	Emma's Cabin: Northeast log corner	S
6	Emma's Cabin: Detail of log joinery and missing chinking	S
7	Emma's Cabin: East wall beneath porch	SW
8	Emma's Cabin: Detail of salvaged timbers, east wall	W
9	Emma's Cabin: Detail of salvaged timbers, east wall	W
10	Emma's Cabin: East door	W
11	Emma's Cabin: Detail of salvaged timbers, west wall	NE
12	Emma's Cabin: Detail of salvaged timbers, west wall	SE
13	Emma's Cabin: North door	S
14	Emma's Cabin: West window	E
15	Emma's Cabin: Detail of log deterioration	E
16	Emma's Cabin: South window	NE
17	Emma's Cabin: Detail of porch joist/beam connection	NW
18	Emma's Cabin: Detail of porch joist/beam connection	NW
19	Emma's Cabin: Overview of porch	SW
20	Emma's Cabin: View of porch floor	S
21	Blacksmith Shop: Detail of log joinery at corner	SW
22	Blacksmith Shop: East door	W
23	Blacksmith Shop: Foundation at south side	NW
24	Blacksmith Shop: Detail of salvaged timbers, west wall	E
25	Blacksmith Shop: West window	E
26	Blacksmith Shop: Detail of eave	E
27	Blacksmith Shop: Detail of salvaged timbers, west wall	E
28	Blacksmith Shop: Detail of twisted ridge beam	S
29	Blacksmith Shop: North window	S
30	Blacksmith Shop: Detail of missing chinking	S
31	Blacksmith Shop: View of roof	NE
32	Blacksmith Shop: Foundation at west	NE
33	Blacksmith Shop: Foundation at south	NE
34	Irrigation System: Southern end	
35	Irrigation System: Southern end	S
36	Irrigation System: Southern end	N

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** G
Photographer: Robert Graham **Date:** 7/21/99

Photo No.	Description	View to
00		
0	Lee's Ferry Root Cellar	W
1	Lee's Ferry Root Cellar	E
2	Lee's Ferry Root Cellar	S
3	Cemetery: Side view headstone deterioration	S
4	Cemetery: Detail headstone falling over	S
5	Cemetery: Side view headstone deterioration	S
6	Cemetery: Headstone surface weathering	E
7	Cemetery: Headstone with modern metal marker	E
8	Cemetery: Small headstone	E
9	Cemetery: Headstone deterioration	NW
10	Cemetery: Deteriorated concrete plaque mount	E
11	Cemetery: Concrete deterioration	D
12	Cemetery: Concrete deterioration	D
13	Irrigation System: Modern upper supply piping	NW
14	Irrigation System: Turning box, north end	SE
15	Irrigation System: Pair of headgates, north end	E
16	Irrigation System: Headgate and typical ditch, north end	S
17	Irrigation System: Ditch	S
18	Irrigation System: Ditch liner detail	E
19	Irrigation System: Ditch crossing	N
20	Irrigation System: Old supply pipe	W
21	Irrigation System: Headgate	S
22	Irrigation System: Pipe culvert	NE
23	Irrigation System: Headgates	NE
24	Jackson's Cabin: Window head showing former width	N
25	Jackson's Cabin: Window will showing alterations	N
26	Jackson's Cabin: Window sill showing deterioration	NW
27	Jackson's Cabin: Door jamb/head	NW
28	Jackson's Cabin: Logs	S
29	Jackson's Cabin: Roof overview	SE
30	Jackson's Cabin: Log joinery at corner	NE
31	Jackson's Cabin: Door on floor	S
32	Jackson's Cabin: Ceiling poles	U
33	Jackson's Cabin: Exterior timber detail	NW
34	Irrigation System: Ditch	SW
35	Irrigation System: Pipe culvert	SW
36	Irrigation System: Gate	N

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** H
Photographer: Robert Graham **Date:** 7/21/99

Photo No.	Description	View to
00		
0	Irrigation System: Near Emma's Cabin	S
1	Irrigation System: Turning box near Emma's Cabin	S
2	Warren Johnson House Foundation	N
3	Warren Johnson House Foundation	NE
4	Warren Johnson House Foundation: Pole	NW
5	Weaver House Interior: Kitchen	NW
6	Weaver House Interior: Storage Room door	N
7	Weaver House Interior: Kitchen sink/cabinets	NW
8	Weaver House Interior: Wall base in Storage Room	NE
9	Weaver House Interior: Kitchen cabinet	NE
10	Weaver House Interior: Typical light fixture	NE
11	Weaver House Interior: Overview of Dining/Living	NE
12	Weaver House Interior: Damaged lamp support	W
13	Weaver House Interior: Intact lamp support	E
14	Weaver House Interior: Entry door	S
15	Weaver House Interior: Fireplace elevation	N
16	Weaver House Interior: Fireplace firebox	N
17	Weaver House Interior: Fireplace firebox	N
18	Weaver House Interior: Flooring	D
19	Weaver House Interior: Minor wall damage	W
20	Weaver House Interior: Overview Living to Dining	SW
21	Weaver House Interior: Overview Living to Dining	NW
22	Weaver House Interior: Kitchen/Dining door	W
23	USGS Building Interior: Overview	SE
24	USGS Building Interior: Overview	SW
25	USGS Building Interior: Typical window	E
26	USGS Building Interior: Interior wall damage	NW
27	USGS Building Interior: Entry door	W
28	USGS Building Interior: ceiling/attic	NW
29	USGS Building Interior: Wall damage	S
30	USGS Building Interior: Shower and lavatory	SW
31	USGS Building Interior: Water closet	SE
32	Spencer Bunkhouse Interior: Overview	SE
33	Spencer Bunkhouse Interior: Overview	SW
34	Spencer Bunkhouse Interior: Wall damage	NW
35	Spencer Bunkhouse Interior: Stored door	NW
36	Spencer Bunkhouse Interior: Wall damage	N
37	Spencer Bunkhouse Interior: Ceiling/attic	E

PHOTOGRAPHIC LOG

Project: Lee's Ferry/Lonely Dell Ranch Historic Structures Report **Roll:** I
Photographer: Robert Graham **Date:** 7/21/99

Photo No.	Description	View to
00		
0	Chicken House: Door jamb	W
1	Chicken House: Detail of stone	W
2	Chicken House: Roof structure	S
3	Post Office: Window head	N
4	Post Office: West wall detail	NE
5	Post Office: Crack at west wall	E
6	Post Office: Detail of east wall	NW
7	Post Office: Detail of window	N
8	Post Office: Detail of window sill	N
9	Post Office: Detail of door and sill	N
10	Post Office: Sill detail of pass widow	S
11	Post Office: Pass window	S
12	Lee's Ferry Fort: Masonry supported on window/Spencer addition	N
13	Lee's Ferry Fort: Interior of Spencer addition	NE
14	Lee's Ferry Fort: Door to west room	N
15	Lee's Ferry Fort: Door to east room	N
16	Lee's Ferry Fort: Jamb/head detail at door to east room	NE
17	Lee's Ferry Fort: Head of door to Spencer addition	E
18	Lee's Ferry Fort: Head of rear door	S
19	Lee's Ferry Fort: Window frame, Spencer addition	SE
20	Lee's Ferry Fort: Roof eave	S
21	Lee's Ferry Fort: Boarded up window	S
22	Lee's Ferry Fort: Failed roof timber, propped up	N
23	Lee's Ferry Fort: Exterior door to west room, converted from window	S
24	Lee's Ferry Fort: Fireplace elevation	E
25	Lee's Ferry Fort: Chimney breast elevation	E
26	Lee's Ferry Fort: Fireplace	SE
27	Lee's Ferry Fort: Interior of typical window	N
28	Lee's Ferry Fort: Entry door	SW
29	Lee's Ferry Fort: Ceiling/roof structure	E
30	Lee's Ferry Fort: Rear door	N
31	Lee's Ferry Fort: Ceiling at exterior wall	N
32	Lee's Ferry Fort: East room	NE
33	Lee's Ferry Fort: Floor and base of wall	SW
34	Lee's Ferry Fort: Floor and base of wall	NW
35	Lee's Ferry Fort: West room	N
36	Lee's Ferry Fort: Interior passage	SW

APPENDIX D:

Preservation Techniques

FPL (Forest Products Laboratory) Wood Treatment

Wood preservative ingredients:

- One part boiled linseed oil
- One part gum turpentine
- One ounce melted paraffin per gallon

Mix ingredients together and apply when the temperature is 70 degrees F. or above.

The proportions of linseed oil to turpentine can vary from 60%/40% to 40%/60% depending on climate. The correct proportion is determined through experimentation. The correct mixture is one that soaks into the wood without leaving an oily residue on top. Application is generally through the use of a garden sprayer. The linseed oil-richest mixture possible is preferred.