

Officer's Quarters No. 1, 2 & 3

Adkins Steel Parcel

Building Condition Assessment Report



Prepared by:



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Prepared for:

Pima County Cultural Resources Office

Adkins Steel Parcel
Fort Lowell Officer's Quarters No. 1, 2 and 3 Building Condition Assessment

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EXECUTIVE SUMMARY

The Adkins Steel Parcel comprises the western extent of historic Fort Lowell. It was acquired by the City of Tucson and is intended to become a part of Fort Lowell Park. Master planning for the park, including the Adkins Steel Parcel, and its future development, is proceeding under the management of the Pima County Cultural Resources Department.

Burns Wald-Hopkins Architects was contracted to provide architectural services at the site including Building Conditions Assessments for four structures on the property – the Adkins Residence and the three remaining Fort Lowell Officer’s Quarters.

Three Officer’s Quarters remain of the seven originally built during the construction of Fort Lowell and are the most significant remaining structures from the fort. One is a ruin, one a partial ruin, and one was inhabited until 2006, but suffers from many years of neglect. The original structures were site fabricated adobe with a wood roof structure and encompassed approximately 1,700 square feet under roof.

Part of the work performed at the property consisted of development of Emergency Temporary Stabilization Plans for the four structures. Given the significant historic nature of the Officer’s Quarters, the majority of the stabilization work occurred at these structures, as detailed in the following report.

The Master Planning effort will soon be initiated by the Pima County Cultural Resources Department and part of its outcome will be Restoration Plans for structures to remain on the Adkins Steel Parcel. This plan may make further recommendations for treatment at the Officer’s Quarters, beyond the work accomplished during the stabilization phase.



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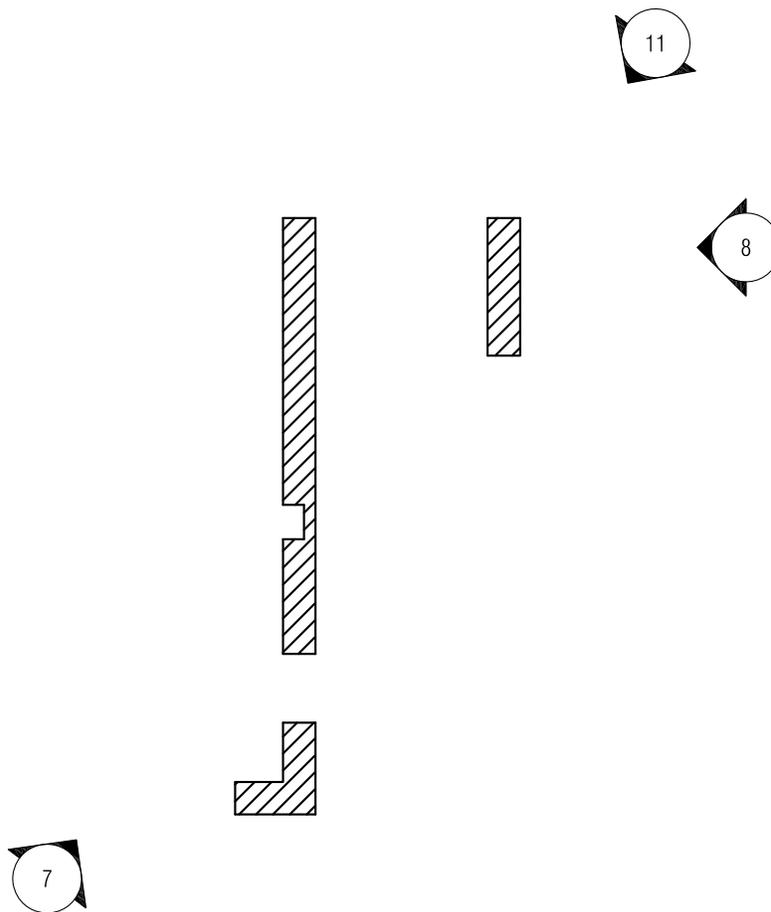
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Photography Credits

BW - Burns Wald-Hopkins Architects
PCCR - Pima County Cultural Resources
AHS - Arizona Historical Society
EM - Eugene Magee
HD - Hy-Lite Design
RO - Randy Oden
ASM - Arizona State Museum

Plan of Officer's Quarter's No. 1 with Figure Tags



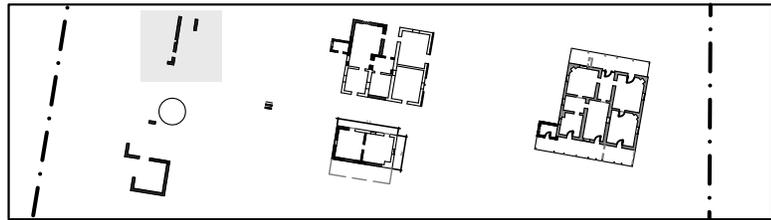
FLOOR PLAN - Officer's Quarters No. 1



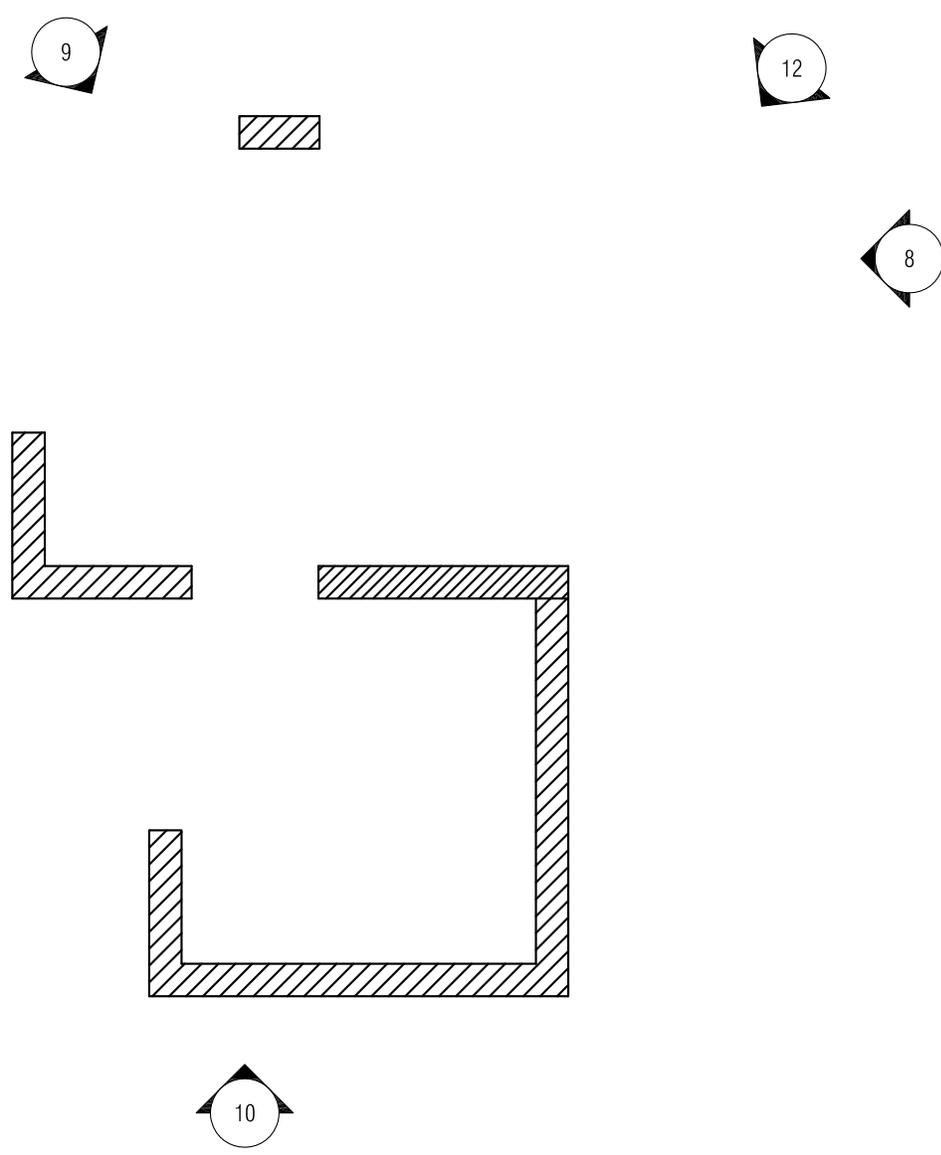
LEGEND

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▧	PARTIALLY ERODED

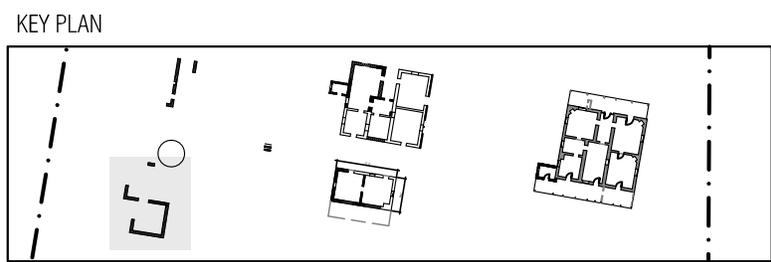
KEY PLAN



Kitchen No. 1 with Figure Tags



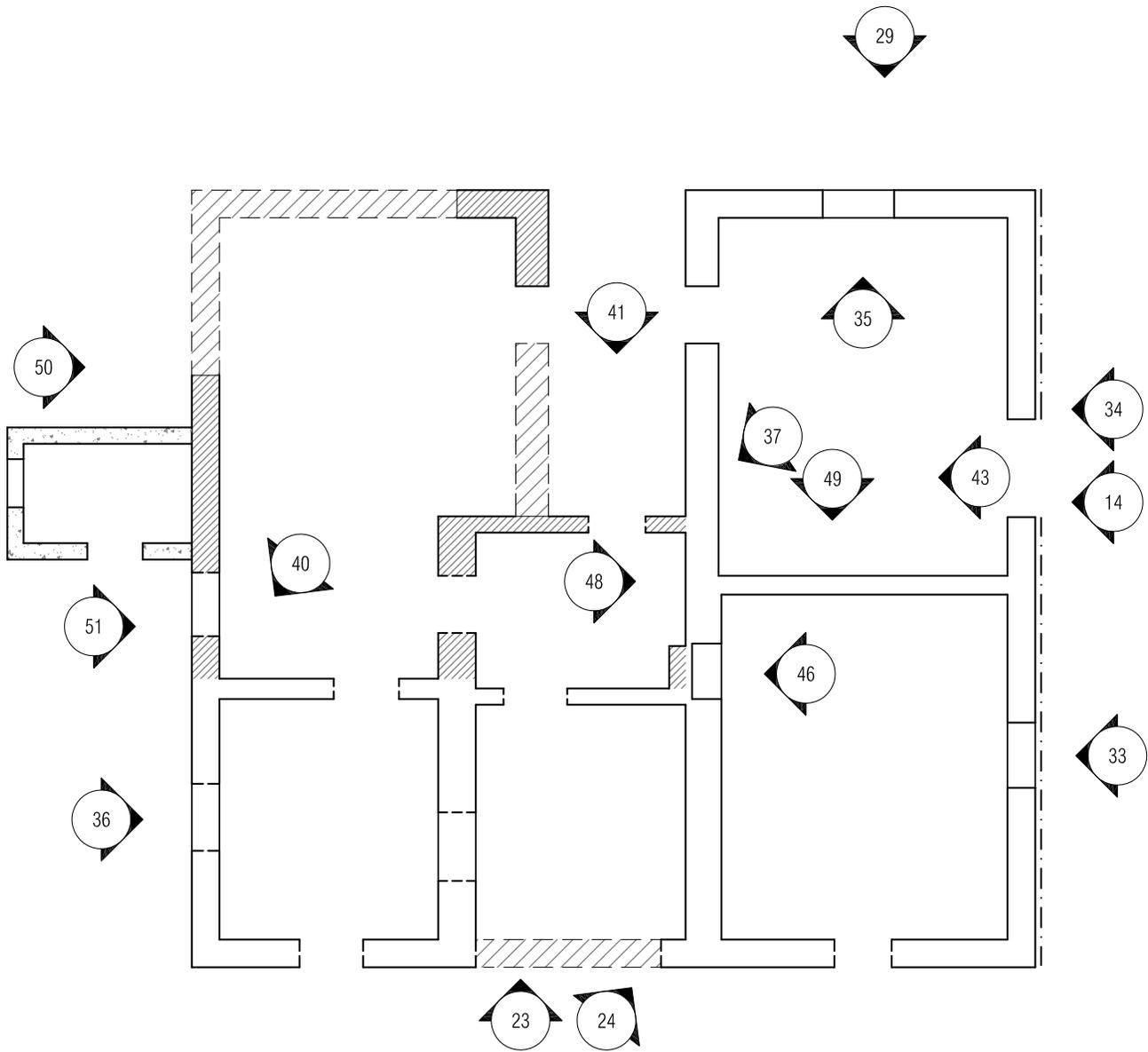
FLOOR PLAN - Kitchen No.1 



LEGEND

	EDGE OF WALL ERODED
	NO LONGER EXISTING
	PARTIALLY ERODED

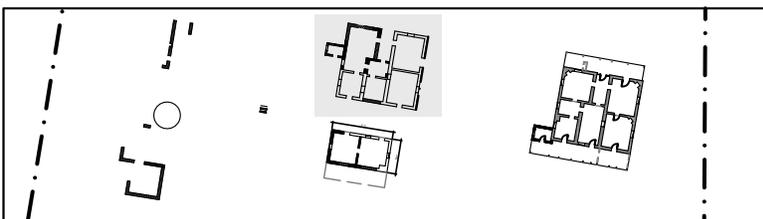
Plan of Officer's Quarter's No. 2 with Figure Tags



FLOOR PLAN - Officer's Quarters No. 2



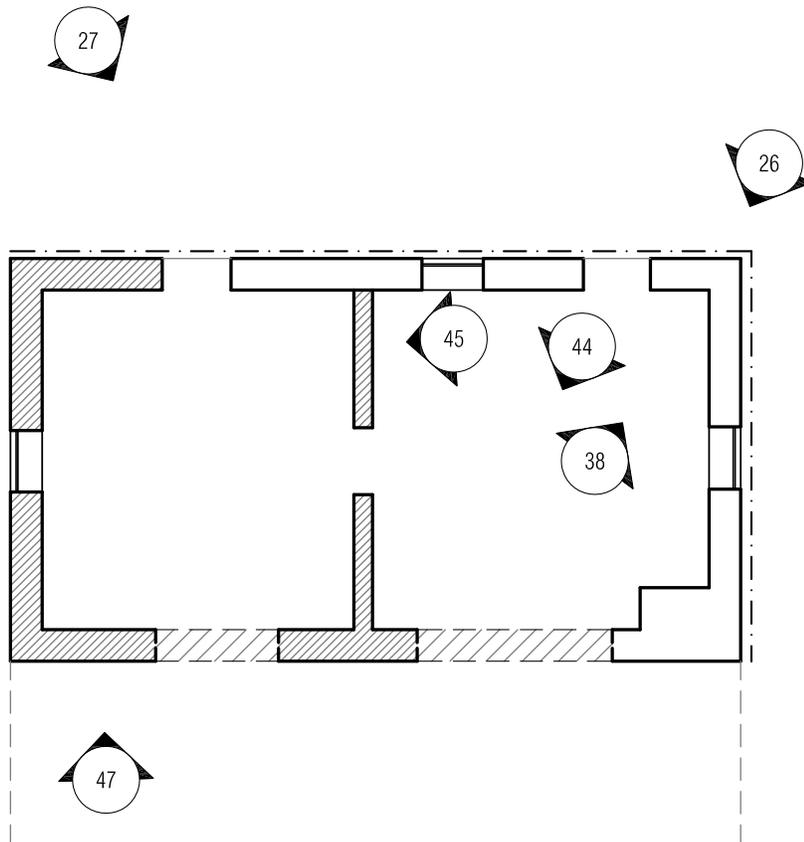
KEY PLAN



LEGEND

- EDGE OF WALL ERODED
- ▨ NO LONGER EXISTING
- ▩ PARTIALLY ERODED
- ▬ CONTRA-PARED
- ▧ CAST IN PLACE CONCRETE

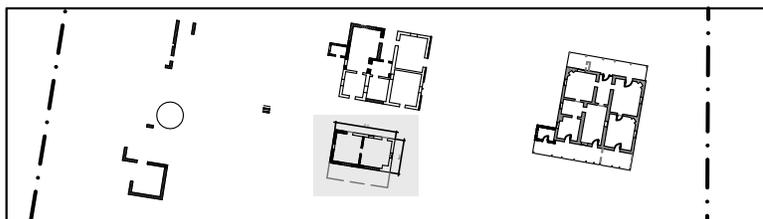
Plan of Kitchen No. 2 with Figure Tags



FLOOR PLAN - Kitchen No. 2



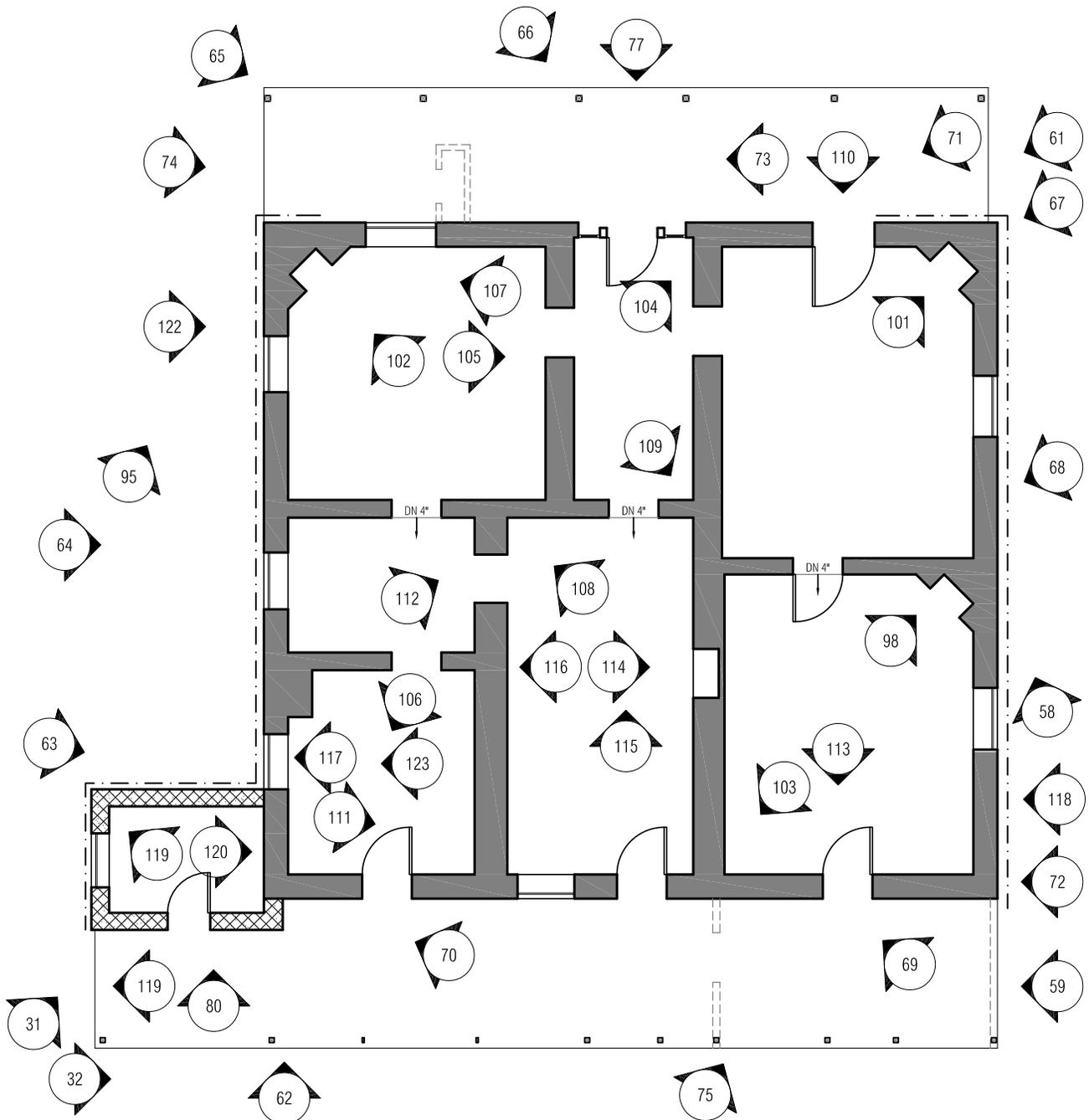
KEY PLAN



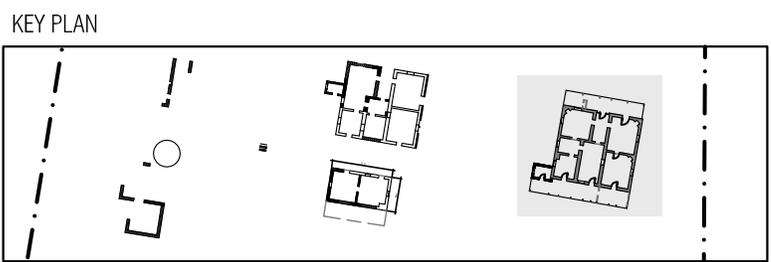
LEGEND

-  EDGE OF WALL ERODED
-  NO LONGER EXISTING
-  PARTIALLY ERODED
-  CONTRA-PARED

Plan of Officer's Quarter's No. 3 with Figure Tags



FLOOR PLAN - Officer's Quarters No. 3



LEGEND

- ADOBE BLOCK
- ADOBE BLOCK ADDITION
- WOOD FRAME

Section 1

Introduction

The purpose of this building assessment report is to evaluate existing conditions, make critical recommendations, and provide cost estimates for the recommendations for the three Officer's Quarters located on the south end of the Adkins Steel Parcel at the intersection of Craycroft and Fort Lowell Roads in Tucson, Arizona. The assessment focuses on a description of existing conditions and any work required to maintain the structure in this condition until such time as the disposition of the structure is known. Also included are reports from structural, electrical, mechanical/plumbing and adobe consultants.

The Historic Architectural Building Survey written historical and descriptive data and drawings, prepared by Place and Place Architects, measured in 1937, and drawn in September of 1940, served as the basis for the drawings of the extant officer's quarters (see appendix F). We compared these drawings on site to the actual structures. It is the intent of the drawings of the buildings that are ruined or partially ruined to generally reflect their present condition.

Each Officer's Quarters contains a "plan of the existing structure with historic overlay" which compares the present floor plan to a conjectural floor plan based on a historic drawing of the layouts of the three Officer's Quarters. The historic drawing (Figure No. 2) became a comparative tool that was used to analyze the present condition in order to determine which portions of the original structures remain and how the structures have changed throughout their multiple occupations. The historic drawing shows the three Officer's Quarters (letter B), the three kitchens (letter C) and the privies (letter V).

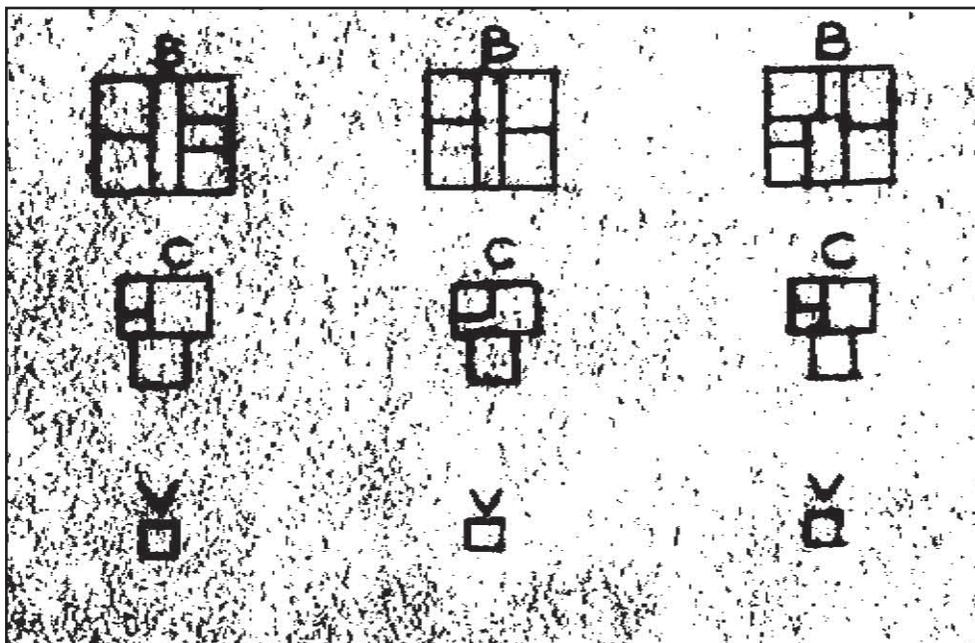


Figure No. 2 - Historic drawing of three Officer's Quarters extracted from 1876 map of Fort Lowell (AHS 12880)

Planning Process for Fort Lowell and the Adkins Steel Parcel

There is currently a planning process under the direction of the Pima County Cultural Resources Department that is determining the scope for a master planning study of Fort Lowell, the Adkins Parcel, as well as the City owned structures from Fort Lowell on the northwest corner of Craycroft and Fort Lowell Roads. A Request for Proposal has been issued to interested architects and planners. The selected team will then master plan the total Fort Lowell Park, and after the plan has been finalized, document restoration plans detailing particular treatments for each of the structures to remain on the Adkins Parcel. Until such time as this Master Plan has been completed, the ultimate use of the three Officer's Quarters is not known. This study of the three structures therefore seeks to address items that need immediate attention to keep them intact until such time as further treatment is determined.

Hazardous Materials

Hazardous materials documentation and the impact of abatement at the site was not a part of the scope of this work. The City of Tucson is preparing a comprehensive report concerning hazardous materials and their treatment. Knowledge of type and extent of hazardous materials on the site is very important in relation to particular restoration and rehabilitation approaches, and will be considered in conjunction with recommendations of this report. The City of Tucson has already removed subterranean steel tanks from the property.

ADA Compliance

Officer's Quarters No. 1: These ruins sit on a small rise formed from adobe melt. An accessible walkway could be provided around the structures if viewing and interpretation was desirable.

Officer's Quarters No. 2: Currently these partial ruins are surrounded by wood bracing elements which make any approach to the structure very hazardous. Unless a permanent treatment is considered which enables these walls to be supported on their own, there will be no way to approach or enter either the Summer Kitchen or the Officer's Quarters.

Officer's Quarters No. 3: If such treatment occurs that allows the existing wall and ceiling bracing to be removed, this building offers the most potential for future use. The main entry door is at exterior finish grade and is of an accessible width (nominal 36"). The rear doors are shown as nominal 35" wide and if the doors are able to open the full width, may be accessible (hardware and condition is such that they are not able to open full width now). Interior doors are nominal 36" wide and therefore compliant with accessibility requirements. There are, however, floor elevation changes between the Pantry and the Living Room, the Zagan and the Dining Room, and Bedrooms 1 and 2 (between 3" and 4") which would have to be addressed to provide an accessible path from the rear door at the kitchen to the

entry door. The existing toilet is located in an adobe addition (ca 1904-1937) and entered through a south facing door on the exterior. The door is short (one must stoop to enter) and narrow (27" wide X 70" tall) and the toilet room is not ADA accessible. If a toilet is required for this building (or to serve all three Officer's Quarters), it should be constructed as a separate structure to meet all accessibility requirements.



Figure No. 3 - Toilet addition at west end of building

HISTORIC BACKGROUND

Historical Significance of the Fort Lowell Area

On September 7, 1976 the Pima County Board of Supervisors designated approximately 70 acres on the north side of Fort Lowell Road and immediately north of Fort Lowell Park, together with the 57-acre park, as a Historic District. On December 13, 1978 the area of Fort Lowell district in the City of Tucson, along with the Pima County Historic District, was included in the National Register of Historic Places under the designation of “Fort Lowell Multiple Resource Area.”

The Fort Lowell Historic District conducted an inventory of all the major structures in the district as part of the application to be listed on the National Register of Historic Places. The Officer’s Quarters were deemed, based upon the National Register criteria and the criteria presented in the Historic Zone Ordinances to be “Class A” sites and structures, “that possess historical, architectural, or archaeological significance. The Adkins Residence was recorded in the inventory as a “Class C” structure, architecturally and contextually acceptable, that is it “did not necessarily conform to the collective characteristics of the historic structures within the study area, but did not cause undue visual tension.” The remainder of the parcel, housing the steel fabrication shed, water towers, various structures, and accumulated debris, was deemed “Class D”, architecturally and contextually noncompatible”, that is “its form, massing and size conflicted with the collective characteristics of the historic structures within the study area.” (Fort Lowell, Class Project of the Committee on Urban Planning, The University of Arizona, Tucson).

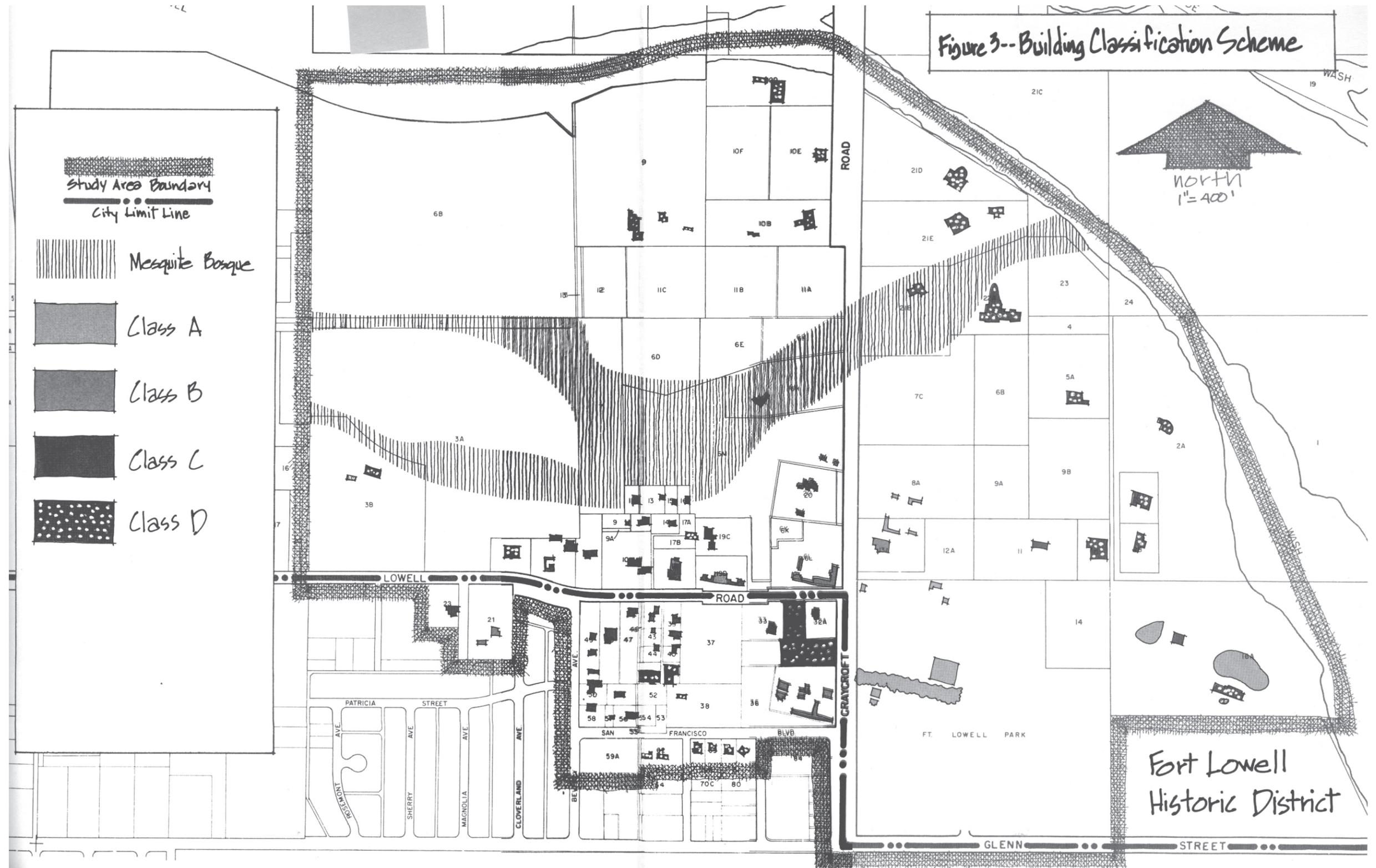
The 2004 Pima County bond election contained funds for work at Fort Lowell, and in conjunction with an Intergovernmental Agreement with the City of Tucson executed in 2006, the work was funded to proceed. Pima County Cultural and Historic Resources Department is managing the study of the property, as well as working with the Fort Lowell Historic District Board to plan the future development of the property as part of Fort Lowell Park.

The history of Fort Lowell typifies development in the west from prehistoric times. The Hardy Site contains the remains of a large community of Hohokam people who lived and farmed here for about 500 years – approximately 700 to 1200. About 25% of the site currently lies under Historic Fort Lowell Park and has great archaeological potential.

Camp Lowell was relocated from downtown to Fort Lowell in 1873, closer to dependable water and convenient grazing and further from the temptations of town. After Geronimo’s surrender and the end of the Apache Wars, orders were received in 1891 that the troops be transferred to Fort Wingate in New Mexico.

After abandonment of the fort, the fort became the center of a small Mexican community called El Fuerte which expanded west along Fort Lowell Road to include a small school, church and store. By the 1940s Anglo-Americans had displaced most of the Mexican-American families.

Map of Fort Lowell Historic District



Harvey Adkins purchased the Adkins Steel Parcel from Dolly Cates in 1928 and the family lived and worked on the property until 2006. The Arizona State Museum acquired 40 acres east of Craycroft Road with the fort ruins in 1929 and it was then sold to George Babbitt in 1945. Pima County purchased 37 acres of the property in 1957 and the remaining three acres in 1972. Thanks to Tom Peterson's efforts, what was left of the post was preserved and in 1963 a duplicate of the Commanding Officer's house was constructed, a structure now administered by the Arizona Historical Society.

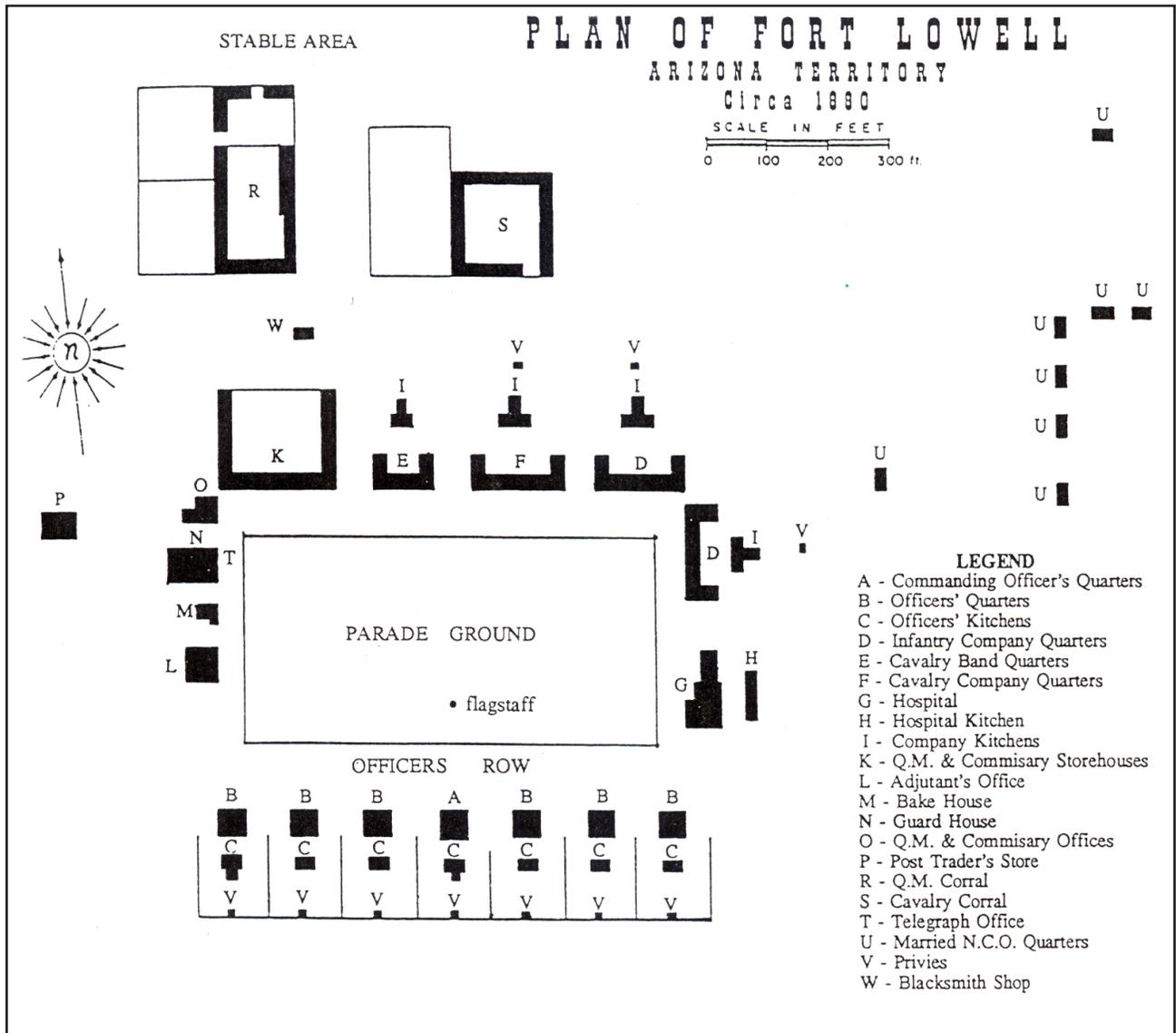


Figure No. 4 - Plan of Fort Lowell; 1880

The City acquired the Hardy property in 1985 and the northwest portion of the fort in the 1990s, including the Quartermaster and Commissary Warehouse and most recently Pima County and the City acquired the Adkins parcels in 2006, using 2004 Pima County historic preservation funds.

The area exemplifies the way the Southwest, and Tucson, have been settled and inhabited since prehistoric times. It is also important that these modes of settlement are all reflected in the physical record extant at the site. The Adkins Parcel has been unavailable for research and analysis until very recently and thus presents a new set of data that may yield important and heretofore unknown information about Fort Lowell, its inhabitants and its environs.

Historical Context of Fort Lowell and the Adkins Steel Parcel

The City's interest arises in that the property is the last remaining portion of Fort Lowell that they needed to acquire to complete the assemblage of the original Fort Lowell boundaries. Currently Fort Lowell Park on the west side of Craycroft Road comprises the majority of the holding, augmented by the City's holdings on the north side of Fort Lowell Road.

The Adkins Steel Parcel consists of about 5.47 acres at the southwest corner of Craycroft and Fort Lowell roads in Tucson, Arizona. The parcel represents the western boundary of Fort Lowell and contains the three remaining Officer's Quarters of the seven originally built at the fort - No. 1 in ruins, No. 2 a partial ruin and No. 3 intact with serious problems.

Originally consisting of rural river plain property, typically used for farming, and covered with mesquite trees and grasses, the site is now in a residential neighborhood with most vegetation, except directly around the Adkins Residence, removed or dead. The site was filled with junked cars, machine parts, metal debris, etc., until purchased and cleared by the City of Tucson/Pima County.

On the property exist the remains of three of the seven Officer's Quarters that were built during the original construction of the Fort, and one, Officer's Quarters No. 3, is of great historical integrity, representing the only extant remainder of Fort Lowell.

The original structures typically consisted of a kitchen, pantry, dining room, two bedrooms, and an entry hall (Zaguan), comprising approximately 1700 gross square (net usable square footage is less considering the thickness of adobe walls). Each quarters is shown to have a kitchen behind it, but there are no visible surface ruins at officer's Quarters No. 3. The Fort Lowell Plan also shows a privy at the back of each house, but these were demolished and no longer exist on the surface.

At Officer's Quarters No. 1, a cement water storage tank exists in an area that would have been occupied by part of the house. Overlaying the original fort plans over the existing remains shows that the plan is generally reflected in the ruins.

Officer's Quarters No. 2 was altered, probably in the 20's, during its tenure as a tuberculosis sanatorium. A porch was added to the east side of the house, accessed from Bedroom No. 1 (front bedroom). This may have served as a sleeping porch. The door to Bedroom No. 2 from the Living Room was infilled with a bookcase, so that the only entry to this room

was from the rear of the house, between the kitchen and the house. Perhaps this was a room for rent or it served as an isolation room with limited access to the rest of the house. There is also a cast-in-place addition that was probably a bathroom and its date of construction is unknown.

At Officer's Quarters No. 3, an addition (wood framed with lap siding) was added to the southwest corner of the house (it appears in the 1904 picture – AHS 61561). At a later date, this addition was replaced with an adobe toilet room, containing a lavatory, bathtub and toilet, of approximately 80 overall square feet. The HABS drawings refer to this as a "Recent Addition." It was constructed between the 1904 photograph and the measurement of the HABS drawings which took place in 1937.

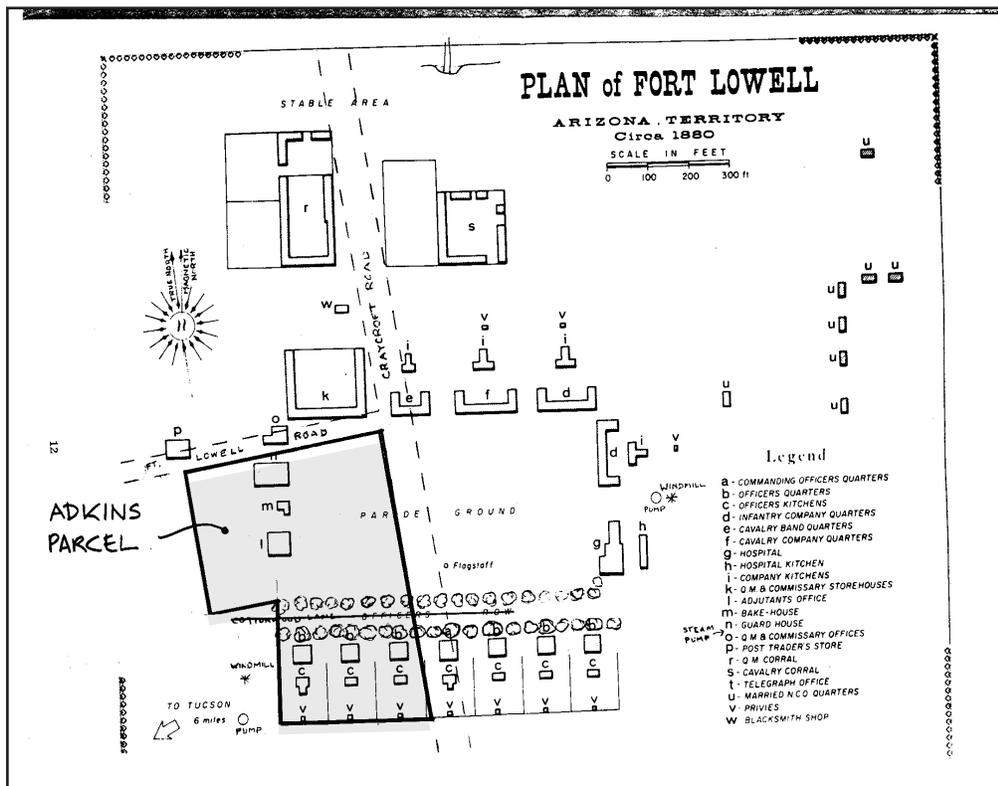


Figure No. 5 - Drawing showing relationship of Adkins Parcel to Fort Lowell

Historic Context: Fort Lowell, and by extension, the structures on the Adkins Steel Parcel, may be associated with the following historical contexts:

1. Architecture of southern Arizona, indigenous Sonoran adobe style, military adapted (Sonoran-Military – Fort Lowell Historic Preservation Zone – Design Review Guidelines.
2. The military in the West, expansion of the United States government influence in western America.

Fort Lowell is associated with events that made a significant contribution to the broad patterns of our history. Upon its founding south of Tucson in 1863, it represented the first steps of the Federal Government to reassert itself in the west after the Civil War, and a spearhead for the government in the fight against the Apaches. Due to the deleterious influences of “town” living upon the personnel, in 1873 the fort was relocated to its present site. At full operation in its location north of the Rillito River, it served as the most important supply center for southern Arizona forts in the Indian Wars, and in 1878 was designated regimental headquarters for the 6th Cavalry. In 1887, Geronimo surrendered in the Chiricahua and the Indian Wars came to an end. With its mission completed, the fort was decommissioned and abandoned in 1891. All of the building components were auctioned off by the US Government in 1896.

The Adkins Steel property went through several property owners hands before being acquired by the Cate family in 1908, who owned it and other properties in Tucson (see complete chronology in Cultural Resources Assessment). Harvey and Fronia Adkins purchased the property from Dolly Cate in February 1928. Mrs. Cate’s Tuberculosis Sanatorium operated in the Officer’s Quarters at the south end of the property. The Adkins brought their daughter Dicey to a tuberculosis sanatorium in the city and were reported to be living at the Cate’s rest home when Dicey died in June, 1927. The Adkins operated the Adkins Rest Ranch, also a tuberculosis sanatorium, on the property until at least 1950. The Adkins family and their descendants lived on the property until 2006, as well as operating Adkins Steel there, when possession of the parcel was taken by the City of Tucson.

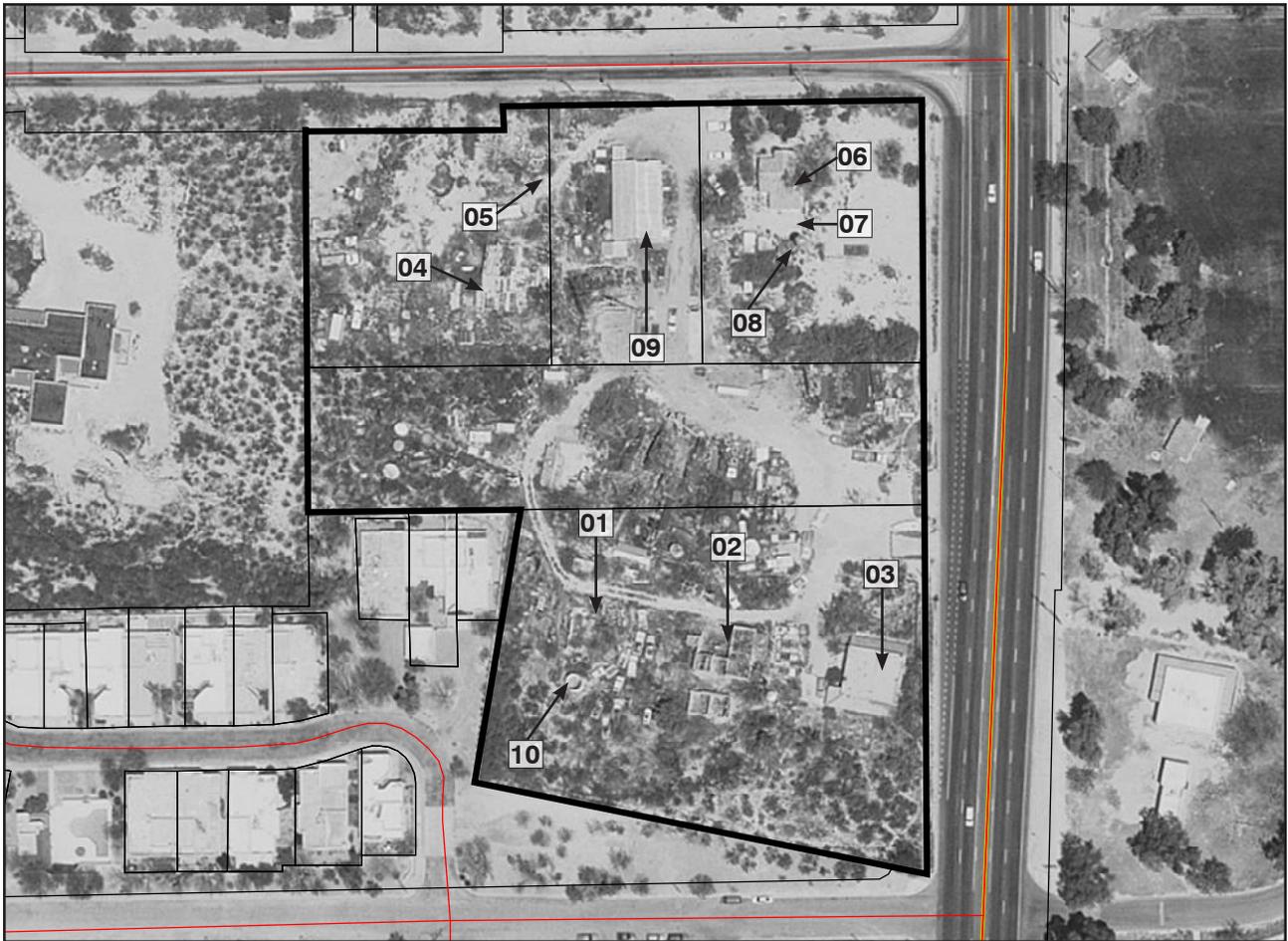
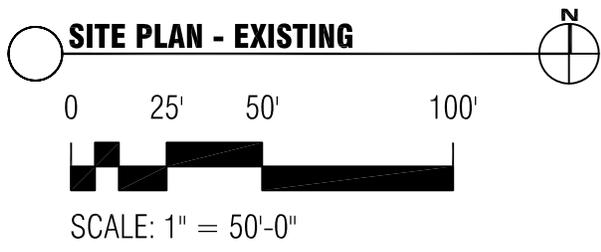
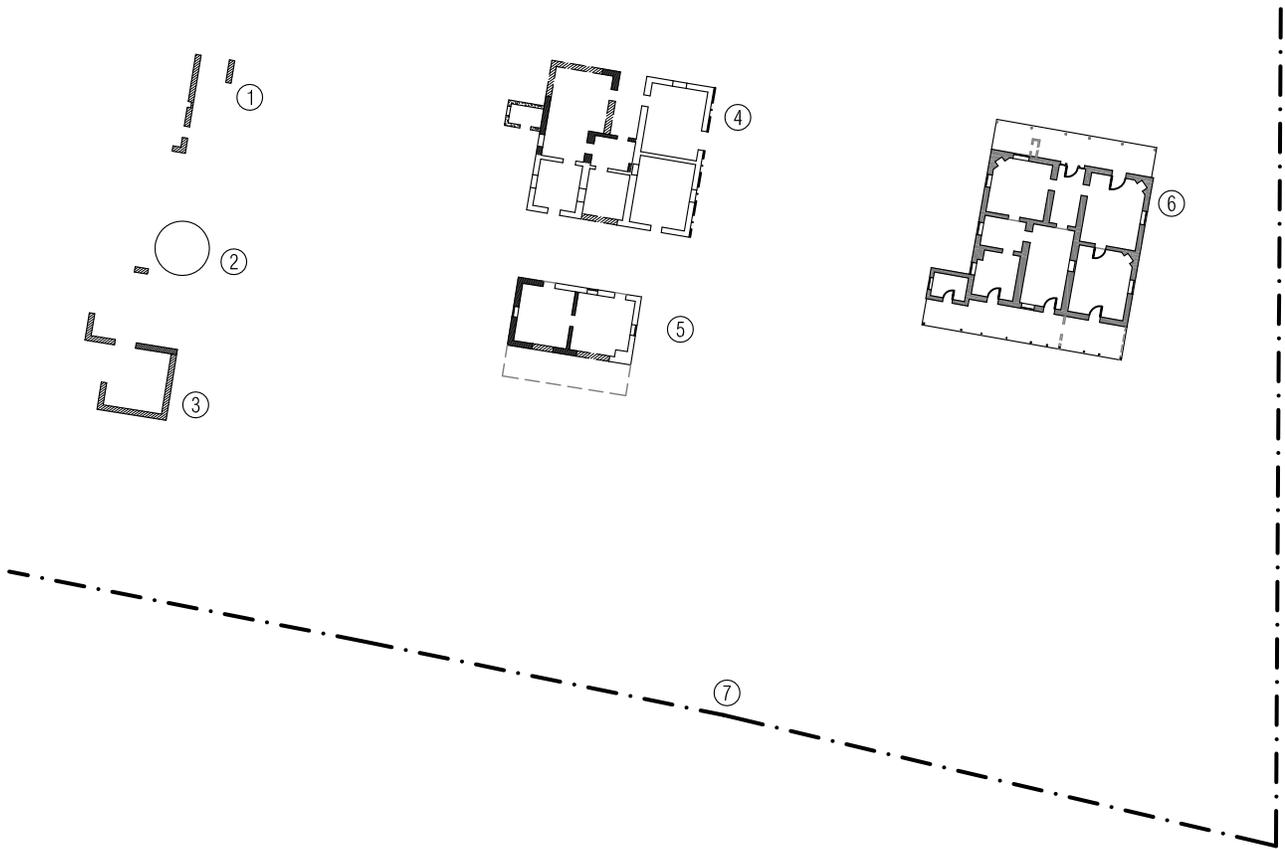


Figure No. 6 - Aerial photograph showing structure locations at the Adkins Parcel

Key

- 01. Officers Quarters No.1 (ruin, includes kitchen remains)
- 02. Officers Quarters No. 2 (partial ruin, includes kitchen building)
- 03. Officers Quarters No. 3 (intact)
- 04. Adobe Building (located west of the steel tank fabrication shed)
- 05. Guard House (located east of the steel fabrication shed)
- 06. Adkins Residence
- 07. Water Tower
- 08. Windmill Base
- 09. Steel Fabrication Shed (located north of Officers quarters No.1)
- 10. Circular Concrete Structure

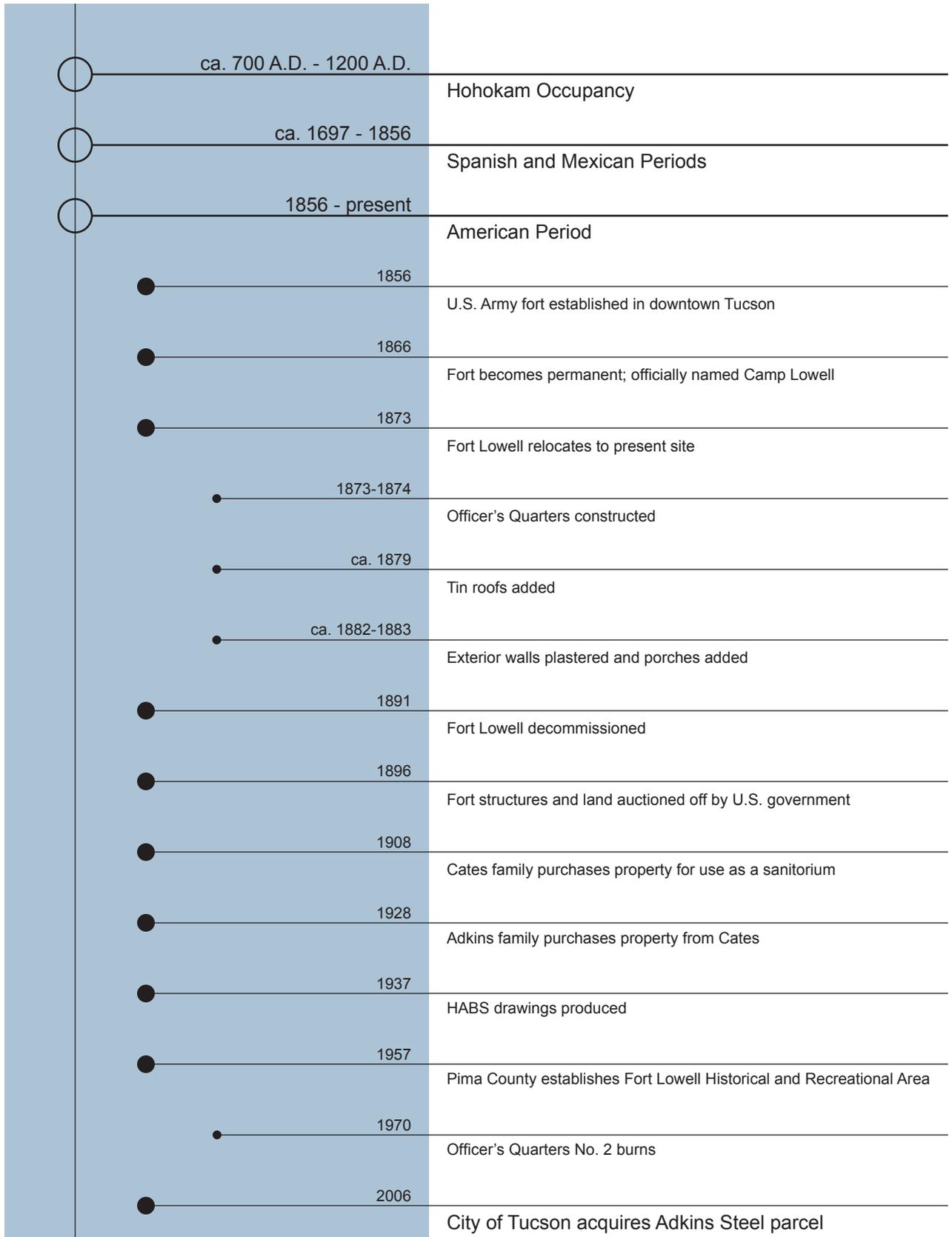
Site Plan of Existing Structures



KEY

1.	OFFICER'S QUARTERS NO. 1
2.	WATER TANK
3.	KITCHEN NO. 1
4.	OFFICER'S QUARTERS NO. 2
5.	KITCHEN NO. 2
6.	OFFICER'S QUARTERS NO. 3
7.	PROPERTY LINE

Timeline of Site Occupation

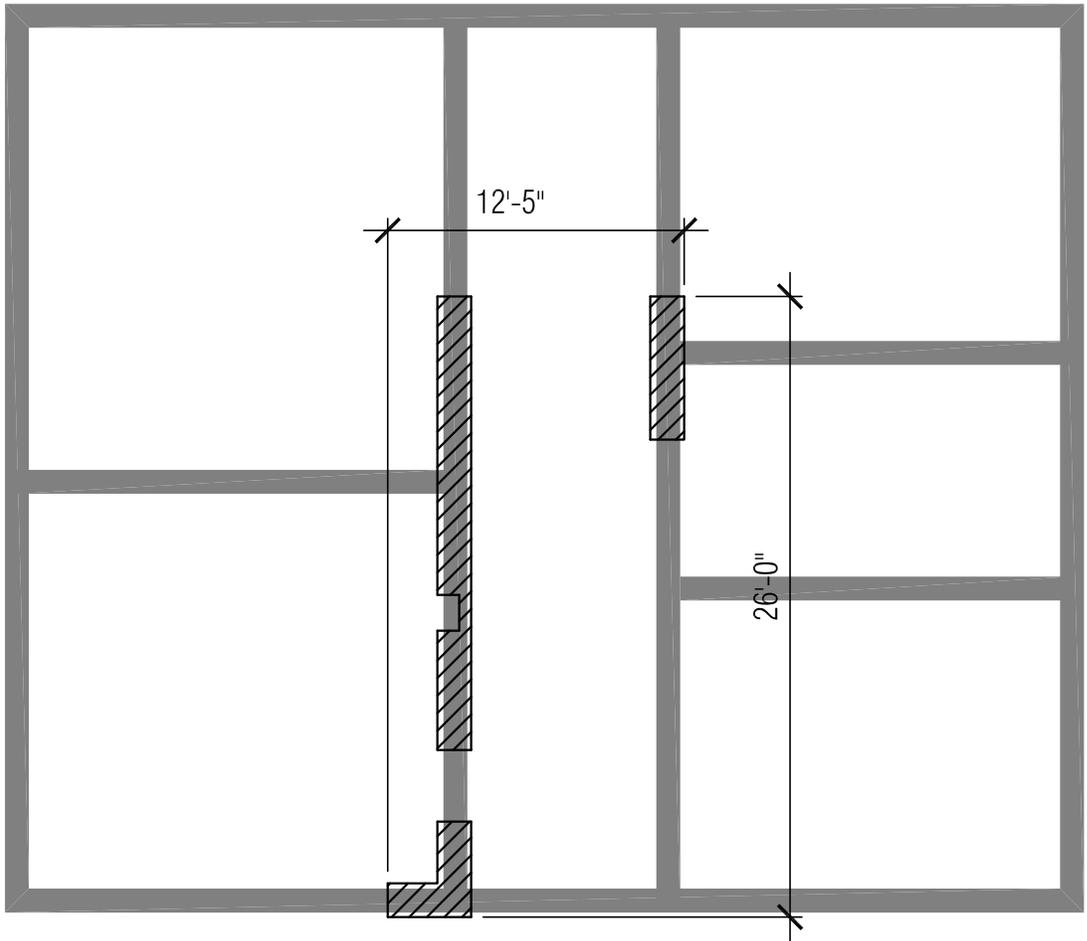


Section 2

Officer's Quarters No. 1 and Kitchen

Officer's Quarters No. 1 is the western-most of the seven original officer's quarters constructed at the fort. Its current condition is the most deteriorated of the three extant structures – consisting of a few segments of eroded walls. There is also an existing concrete water tank which was built at some point early in the century that occurs within what would appear to be the historic footprint of the house or its kitchen. The remaining wall remnants have been topped with a nominal 2" thick sacrificial coating of adobe mud to mitigate ongoing erosion.

Floor Plans of Existing Structures With Historic Overlay



1 FLOOR PLAN - Officer's Quarters No. 1

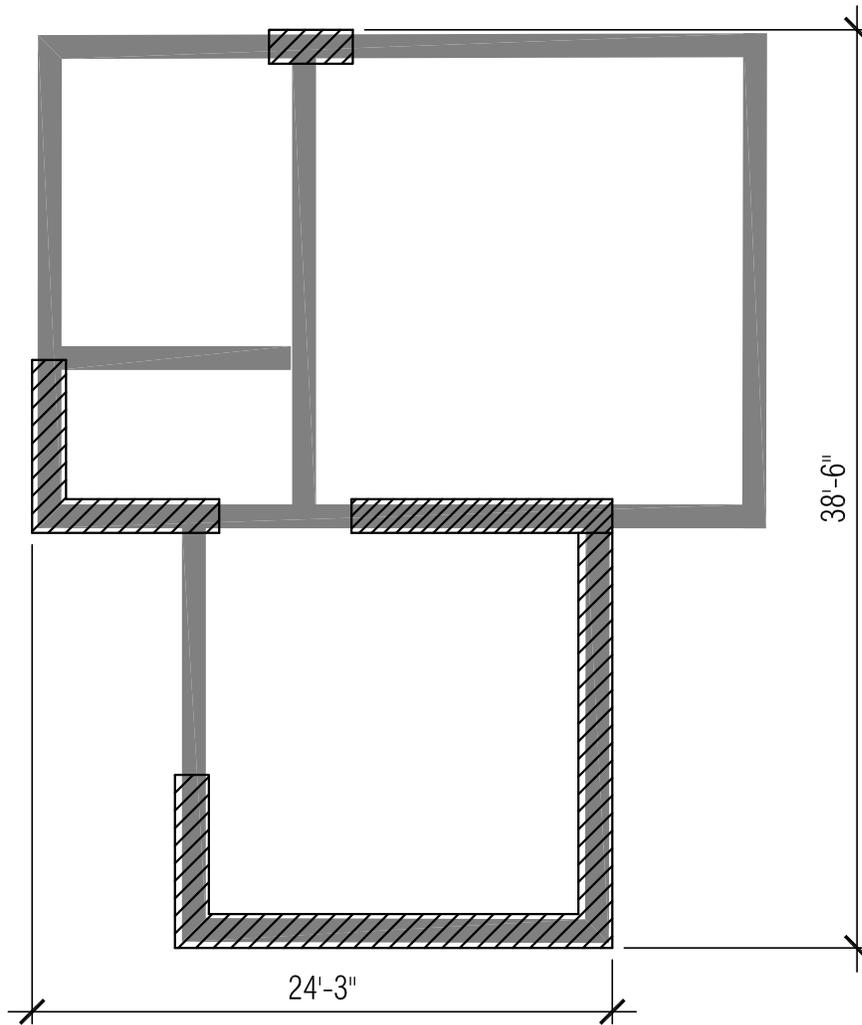
0 4' 8' 16'

SCALE: 1/8" = 1'



LEGEND

	CONJECTURAL WALL LOCATION
	EXISTING WALL LOCATION



2 FLOOR PLAN - Kitchen

0 4' 8' 16'



SCALE: 1/8" = 1'



LEGEND



CONJECTURAL WALL LOCATION



EXISTING WALL LOCATION

Exterior Photographs of Structures

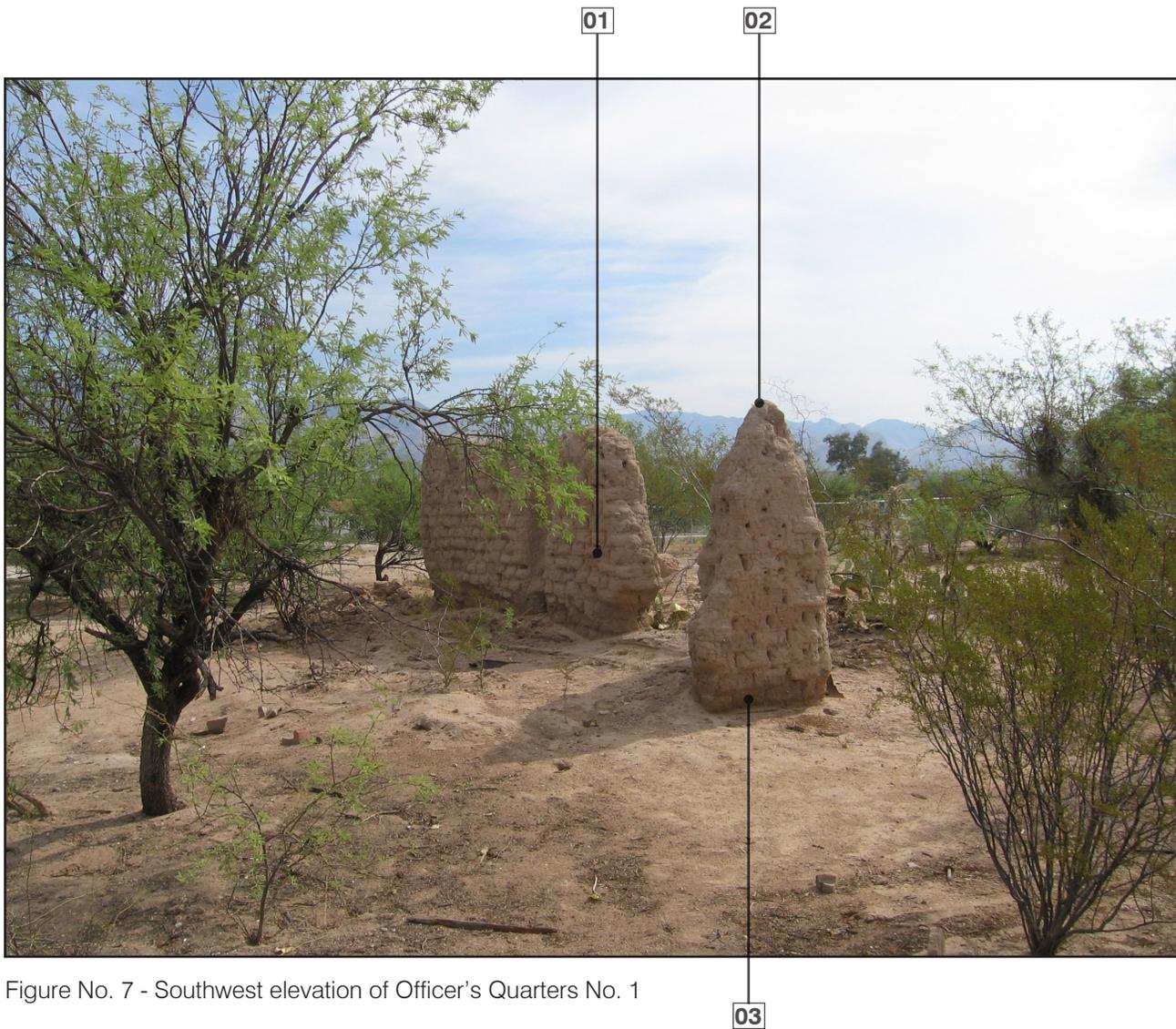


Figure No. 7 - Southwest elevation of Officer's Quarters No. 1

Key

- 01. Adobe block wall
- 02. Erosion at top of wall
- 03. Coving at base of wall



Figure No. 8 - East elevation of Officer's Quarters No. 1 and Kitchen No. 1

Key

- 01. Adobe block wall
- 02. Concrete water tank
- 03. Coving at base of wall

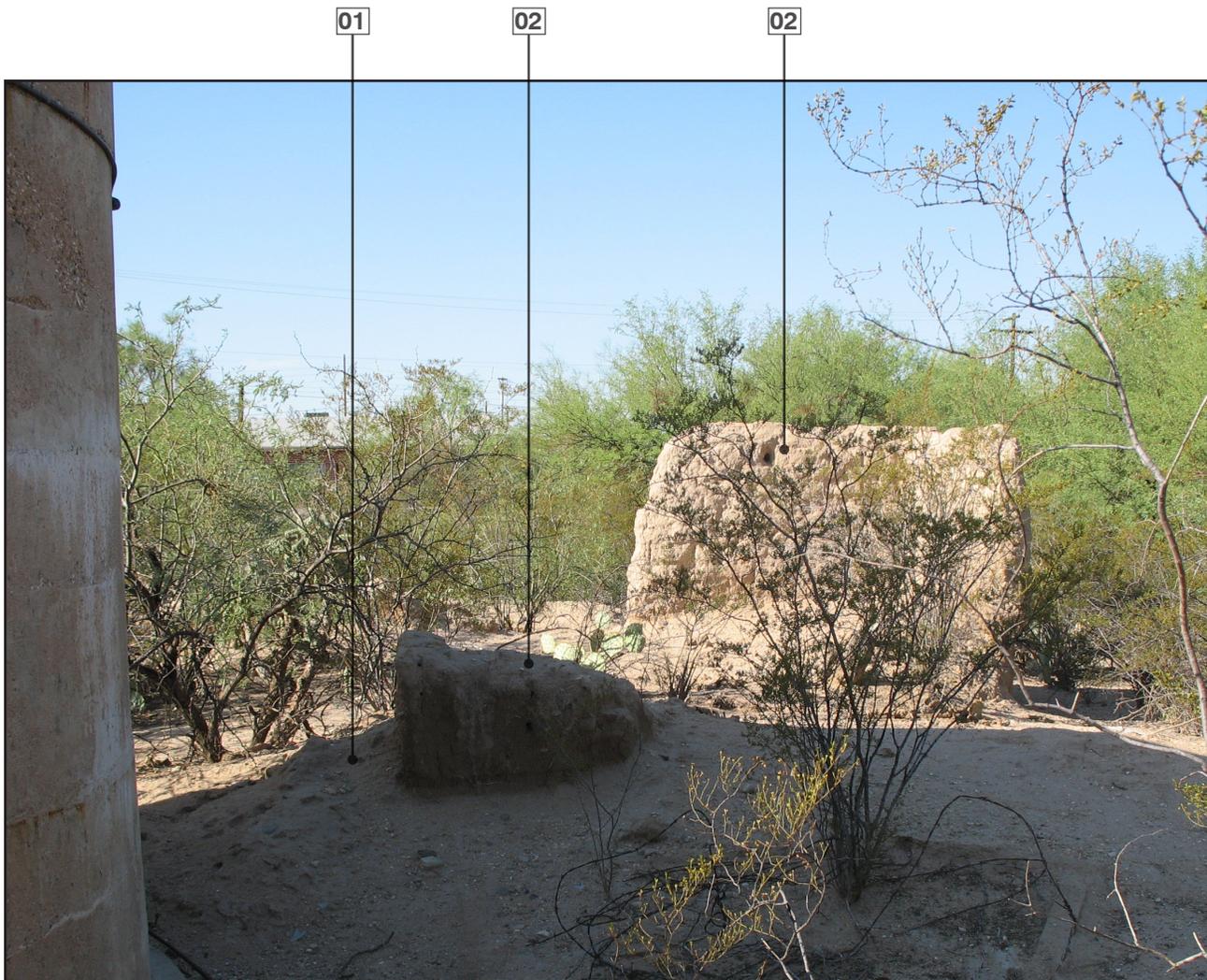


Figure No. 9 - North elevation of Kitchen No.1

Key

- 01. Eroded adobe at base of wall
- 02. Erosion at top of wall
- 03. Adobe wall

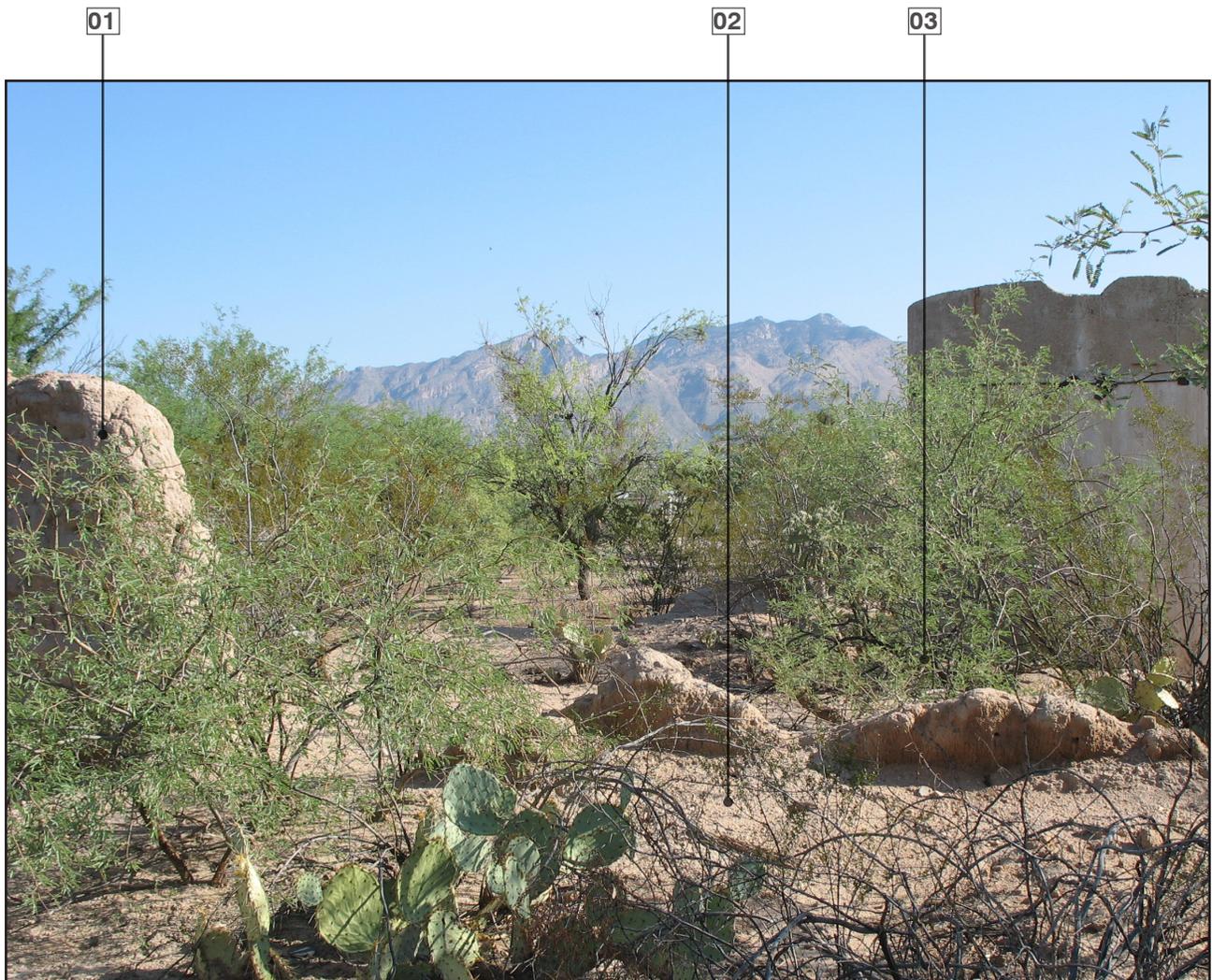


Figure No. 10 - East elevation of Officer's Quarters No. 1 and Kitchen No.1

Key

- 01. Adobe block wall with erosion at top of wall
- 02. Eroded adobe at base of wall
- 03. Vegetation growing at interior of Kitchen No. 1

Condition of Assessed Elements

Building Feature	Recommendation	Alternative	Priority*
Site Grading	None		
Site Construction	None		
Foundations	None		
Exterior Walls and Porches	Coat tops of walls with adobe mud regularly	None	Serious
Exterior Doors	None		
Exterior Windows	None		
Roof Framing	None		
Roofing	None		
Chimneys	None		
Interior Walls	None		
Interior Windows and Doors	None		
Flooring	None		
Ceilings	None		
Interior Wood Trim	None		
Built-in and fabricated features	None		
Insulation and weatherstripping	None		

Heating, Ventilation and Air Conditioning	None		
Electric Power, Lighting, and Appliances	None		
Plumbing and Plumbing Fixtures	None		
Fire Detection and Alarm	None		

*Reference appendix A for evaluation system

Opinion of Probable Cost for Recommended Repairs

Item of Work	Unit	Cost/Unit	Quantity	Subtotal
Coat tops of wall with mud	ls	\$1,500.00	1	\$1500.00
subtotal				\$1500.00
GC markups, taxes and bond @ 25%				\$375.00
Total				\$1,875.00

Building Condition Assessment

The following items have been evaluated and its condition reported.

Site Grading

The remaining standing wall segments are surrounded by adobe melt and drainage is positive away from them.



Figure No. 11 - Remaining wall segment

Site Construction (walls, paths, etc.)

The concrete water tower sits in the south end of the footprint of this Officer's Quarters. It is approximately 10' in diameter and 12' high with 5" thick cast-in-place concrete walls. To the west side of the tower is the concrete base of a windmill which is covered with a steel plate.



Figure No. 12 - Concrete water tower



Figure No. 13 - Water tank with windmill adjacent; remains of house to left contains tool storage and cow barn, ruin of Kitchen to the south

Foundations

The existing adobe stub walls rise directly out of the ground with no foundations.

Interior Walls

Adobe stub walls are present.

Section 3

Officer's Quarters No. 2 and Kitchen

Officer's Quarters No. 2 sits between Officer's Quarters No. 1 and No. 3 and is a partial ruin. It is also the only quarters with an extant Summer Kitchen building, also a partial ruin. Both structures were heavily damaged in a fire in April, 1970 and nothing had been done to maintain the buildings since that time until the City of Tucson acquired the site, so they continued to deteriorate.

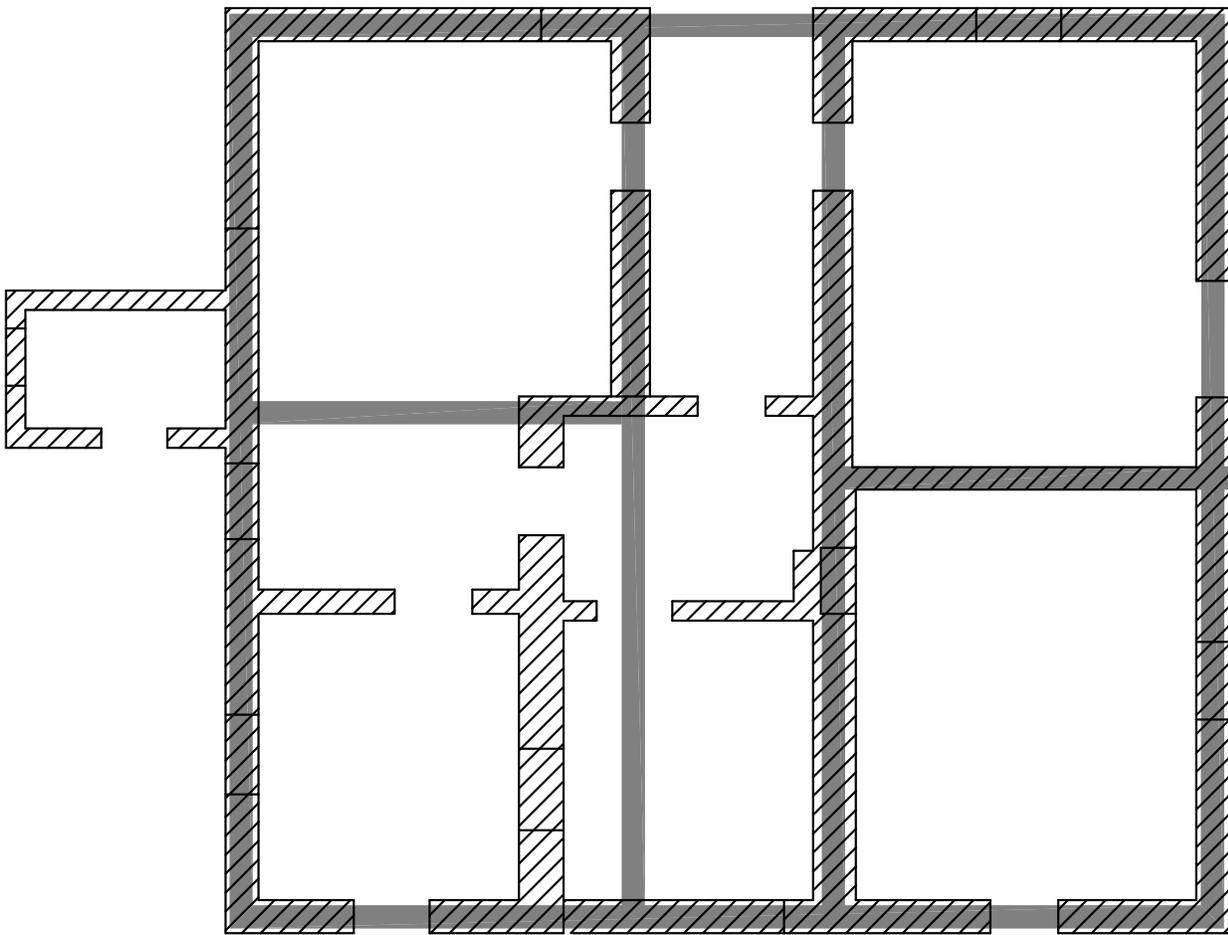
Emergency stabilization work took place at the structure in the summer of 2007. It included the removal of debris from the around and inside the buildings, including burnt material, and remains of furniture and equipment. This removal was monitored by Desert Archaeology and designated items were tagged and are stored in the fabrication shed at the north side of the property.

The future disposition of this structure has not been determined, so only stabilization recommendations are included.



Figure No. 14 - Extensive debris inside building from collapsed roof prior to cleanup

Floor Plans of Existing Structures With Historic Overlay



3 FLOOR PLAN - Officer's Quarters No. 2

0 4' 8' 18'



SCALE: 1/8" = 1'



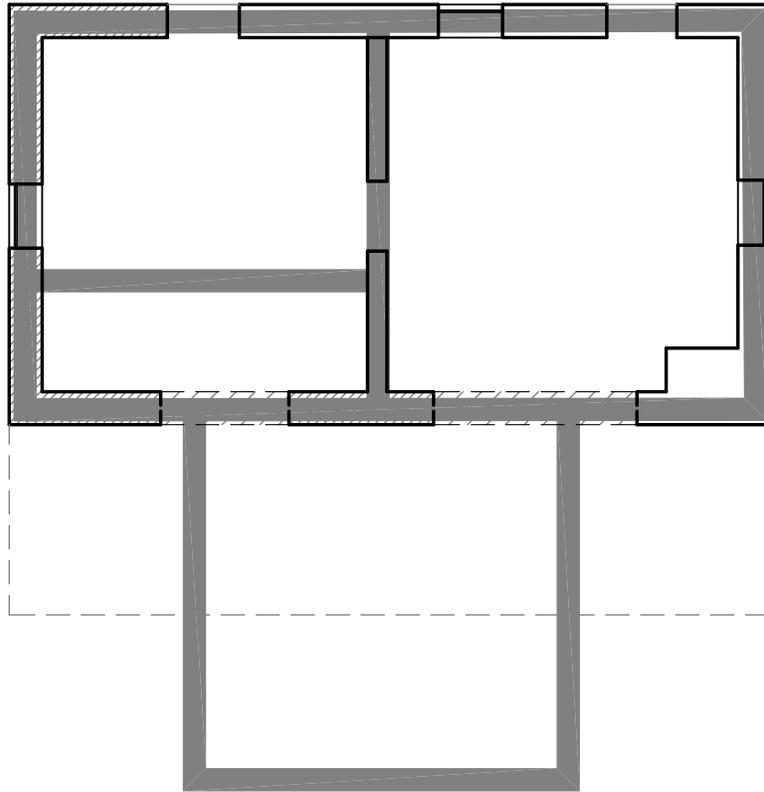
LEGEND



CONJECTURAL WALL LOCATION



EXISTING WALL LOCATION



4 FLOOR PLAN - Kitchen No. 2

0 4' 8' 16'



SCALE: 1/8" = 1'



LEGEND

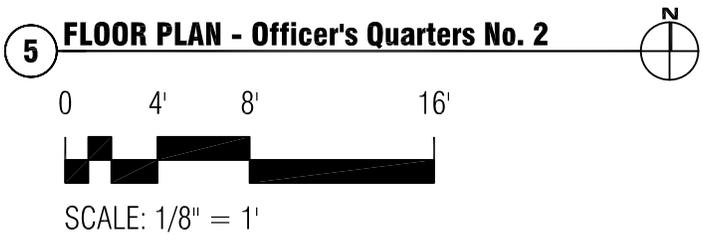
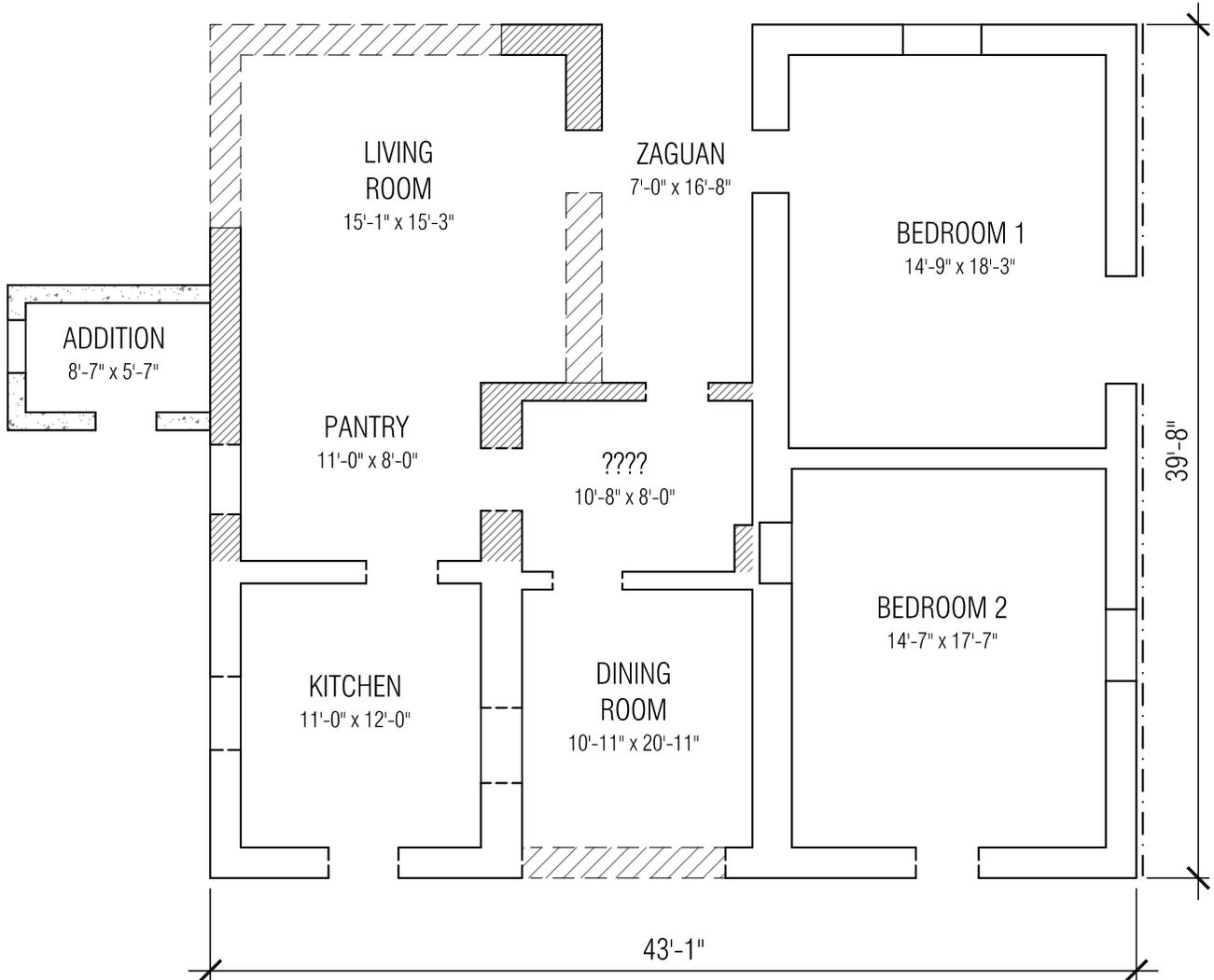


CONJECTURAL WALL LOCATION



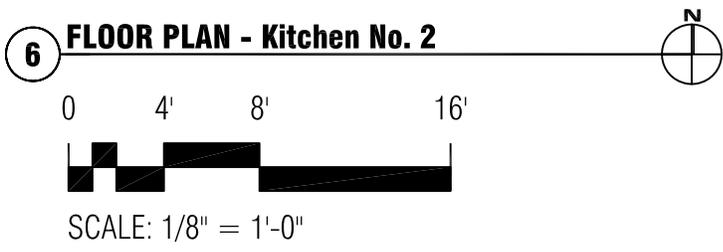
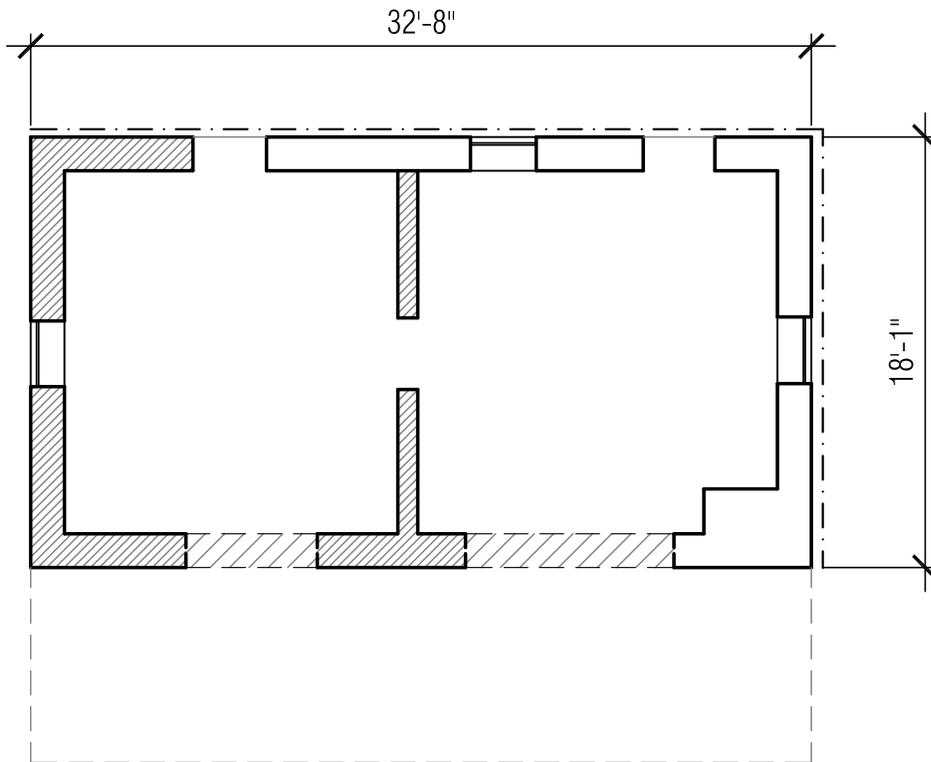
EXISTING WALL LOCATION

Floor Plans of Existing Structures



LEGEND

---	EDGE OF WALL ERODED
///	NO LONGER EXISTING
///	PARTIALLY ERODED
---	CONTRA-PARED
▒	CAST IN PLACE CONCRETE



LEGEND

---	EDGE OF WALL ERODED
▨	NO LONGER EXISTING
▩	PARTIALLY ERODED
▬	CONTRA-PARED

Exterior Photographs of Existing Structures Prior To Stabilization



Figure No. 15 - South elevation of Officer's Quarters No.2

Key

- 01. Wood lintel
- 02. Concrete parapet cap
- 03. Roof framing
- 04. Adobe block wall
- 05. Plaster on adobe block

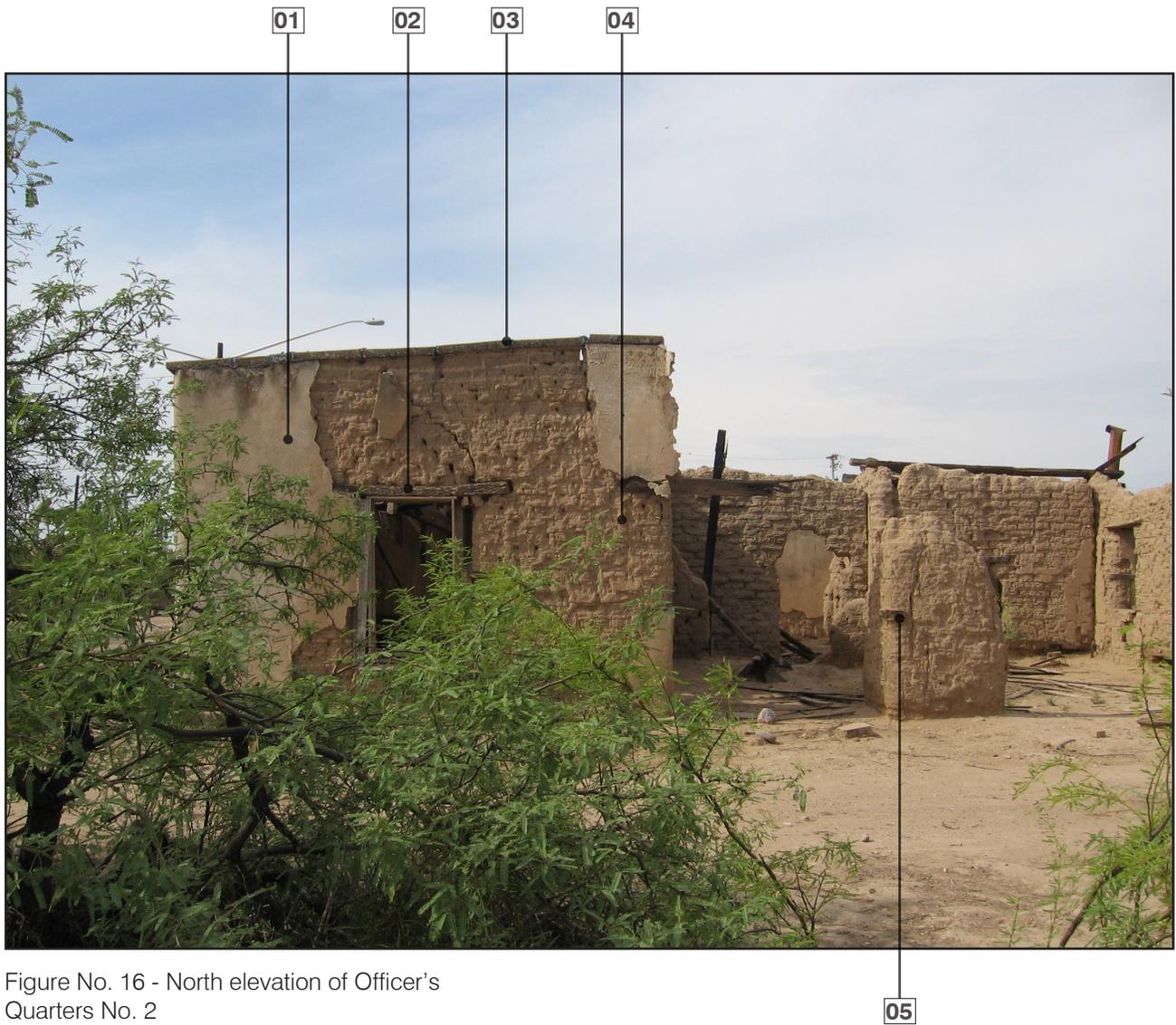


Figure No. 16 - North elevation of Officer's Quarters No. 2

Key

- 01. Plaster on adobe block
- 02. Wood lintel and door frame
- 03. Concrete parapet cap
- 04. Adobe block wall
- 05. Eroded adobe wall



Figure No. 17 - East elevation of Officer's Quarters No. 2

Key

- 01. Plaster on adobe block
- 02. Roof framing collapsing
- 03. Concrete parapet cap
- 04. Wood lintel and door frame at side porch
- 05. Adobe block wall
- 06. Remains of side porch and roof



Figure No.18 - West elevation of Officer's Quarters No. 2

Key

- 01. Roof framing collapsing
- 02. Adobe block wall
- 03. Cast in place concrete addition(bathroom)
- 04. Plaster on adobe block

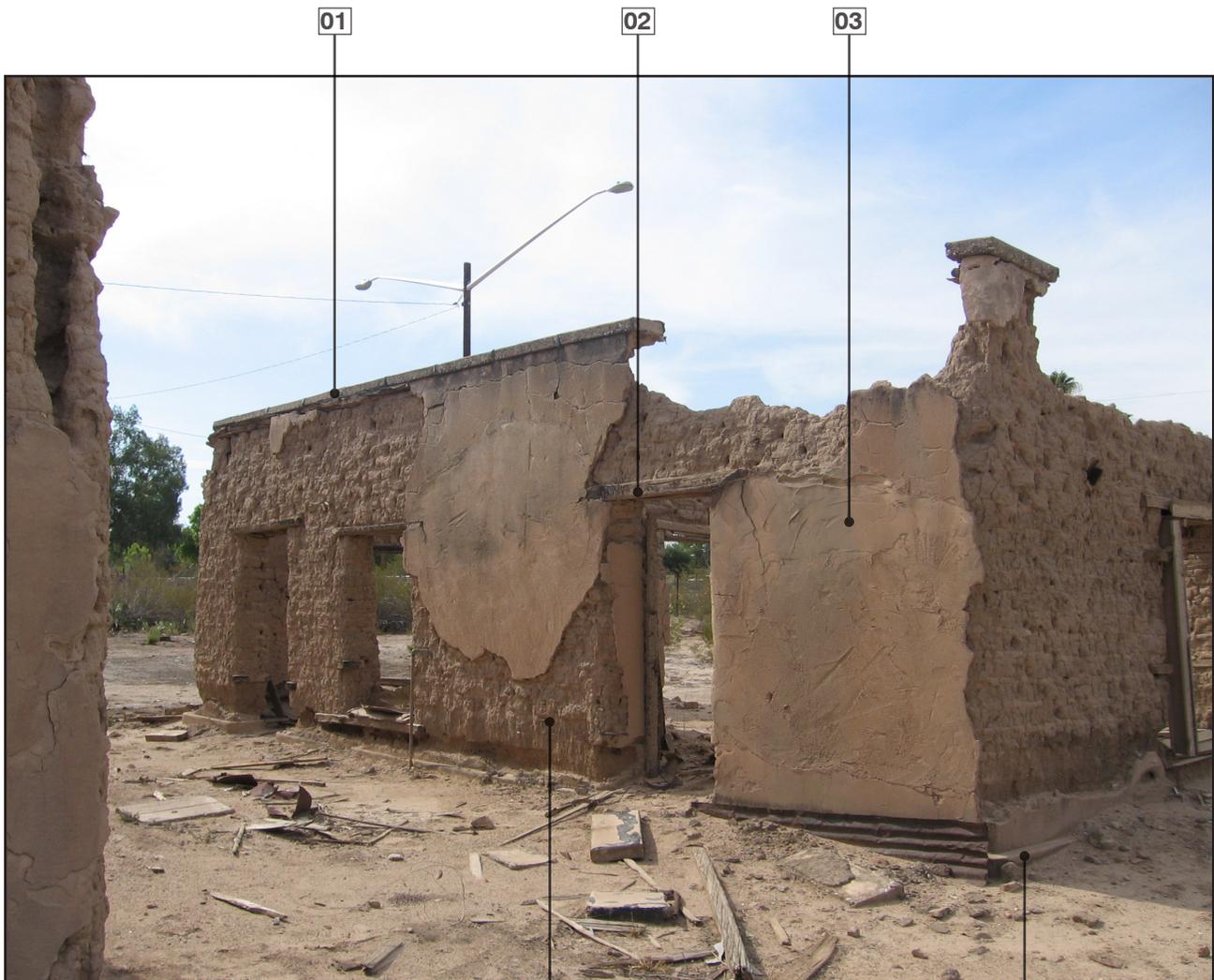


Figure No. 19 - North elevation of Kitchen No. 2

Key

- 01. Concrete parapet cap
- 02. Wood lintel
- 03. Plaster on adobe block
- 04. Contra-pared at base of wall
- 05. Adobe block wall



Figure No. 20 - South elevation of Kitchen No. 2

Key

- 01. Wood lintel
- 02. Concrete parapet cap
- 03. Adobe block wall
- 04. Remnants of wood porch floor



Figure No. 21 - East elevation of Kitchen No.2

Key

- 01. Concrete parapet cap
- 02. Wood lintel
- 03. Adobe block wall
- 04. Contra-pared at base of wall



Figure No. 22 - West elevation of Kitchen No. 2

Key

- 01. Plaster on adobe block
- 02. Concrete parapet cap
- 03. Wood door lintel and frame
- 04. Adobe block wall

Condition of Assessed Elements

Building Feature	Recommendation	Alternative	Priority*
Site Grading	Provide positive drainage away from building and out of spaces	None	Serious
Site Construction	None		
Foundations	None		
Exterior Walls and Porches	Regularly coat tops of walls with adobe mud on a regular basis	None	Serious
	Brace remaining unsupported walls	None	Serious
Exterior Doors	Brace remaining unsupported openings	None	Serious
Exterior Windows	Brace remaining unsupported openings	None	Serious
Roof Framing	None		
Roofing	None		
Chimneys	None		
Interior Walls	Brace remaining unsupported walls	None	Serious
Interior Windows and Doors	None		
Flooring	None		
Ceilings	None		
Interior Wood Trim	None		
Built-in and fabricated features	None		
	None		

Insulation and Weatherstripping	None		
Heating, Ventilation and Air Conditioning	None		
Electric Power, Lighting, and Appliances	None		
Plumbing and Plumbing Fixtures	None		
Fire Detection and Alarm	None		

*Reference appendix A for evaluation system

Opinion of Probable Cost for Recommended Repairs

Item of Work	Unit	Cost/Unit	Quantity	Subtotal
Coat tops of wall with adobe	ls	\$2,500.00	1	\$2,500.00
Site grading to drain out of and away from house	ls	\$1,500.00	1	\$1,500.00
Brace remaining openings	ls	\$7,500.00	1	\$7,500.00
Subtotal				\$11,500.00
GC markups, taxes and bond @ 25%				\$2,875.00
Total				\$14,375.00

Building Condition Assessment

The following items have been evaluated and its condition reported.

Site Grading

Some minor grading is required within the interior of the building to discourage ponding water next to walls. Work was performed during the stabilization process but this should be continued.

Foundations

The exterior perimeter of the walls experienced severe basal coving over the years, in the worst cases reducing walls thickness almost by half, and at one area in the Living Room, undercutting through the wall completely. Most areas were infilled with new adobes during the stabilization work.



Figure No. 23 - Coving at base of walls; these areas were infilled with new site-fabricated adobes



Figure No. 24 -Same area as above after cleanup and infill with adobes

There are contra-pared, typically cast-in-place concrete curbs often fabricated at the bottom face of adobe walls at grade, and intended to moderate the effects of basal coving, but often aggravating the problem by holding more moisture behind them. These are contributing to the erosion at the wall base, all around the kitchen building, and along the east and north sides of the house. These are typically 4” deep thick and average 6” above finish grade (it is not determined how far they go below finish grade at this time). If further treatment is considered at this structure, all the contra-pared should be removed.



Figure No. 25 - East wall of house with contra-pared visible at right; this continued along side of the house under debris(now removed)



Figure No. 26 - Contra-pared at northeast corner of kitchen, typical of thin section on this structure; it can be pried away from the base of the wall

Exterior Walls

Exterior walls are constructed of “unfired adobe brick. Individual bricks measured 50 cm. in length, 30 cm. in width, and 10 cm. in thickness (20” x 12” x 4”). The bricks were manufactured locally, at the site, as attested to by the fact that many of them contain pre-historic shards from a large archaeological site (Hardy Site) occupying the same ground as the fort.” “Outer walls of the building were constructed by laying the bricks crosswise to the axis of the wall, thereby forming a wall 50 cm. (20”) in thickness.” (Alfred Johnson Report) There are inconsistent remains of cement plaster on some walls, but most has eroded away, and loose materials were removed during stabilization. Tops of walls had precast concrete caps that were site-fabricated in the 1920’s. They were cast on the ground using newspaper on the bottom as a bond breaker. Some newspaper is still adhered to the precast caps which gives clues to their date of origin, see Figure No. 28.



Figure No. 27 - North elevation of kitchen showing precast caps, sections of cement plaster; note severe erosion of walls under caps, the top portion to the right was removed due to its precarious condition; also note basal coving above contra-pared

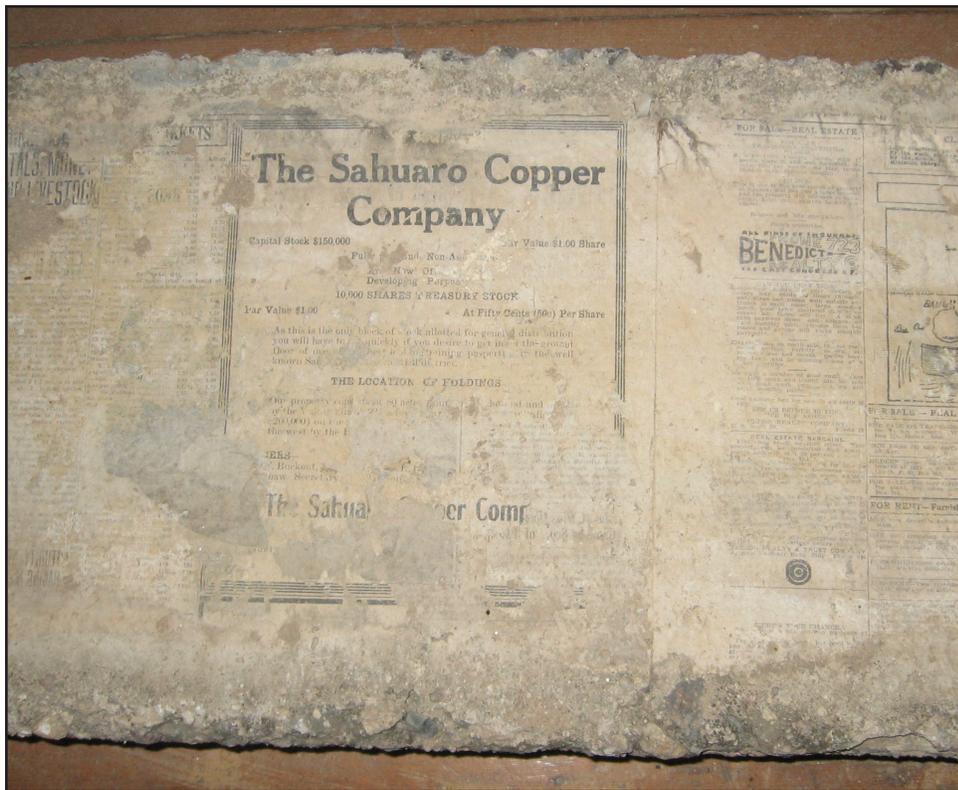


Figure No. 28 - Newspaper on bottom side of precast cap, ca 1920



Figure No. 29 - Remaining cement plaster on north side of house and parapet caps

Porches

There was a porch along the south side of the house that spanned between the house and kitchen and another porch along the south side of the kitchen. Both of these porches are clearly visible in a 1940's aerial photograph probably taken by Eugene Magee (see Figure No. 30). Johnson notes in his investigations of Officer's Quarters No. 5 "*On the south, doorways from three rooms opened into a ramada which connected the officer's quarters with the kitchen and servant's quarters.*"



Figure No. 30 - Aerial photograph from 1940's showing Officer's Quarters No.2 with ramada(porch) between kitchen and house; kitchen with porch on south side

There was a porch that existed on the east side of Officer's Quarters No. 2 that does not show up in the 1940s aerial and was built prior to the structure burning in the 1970s, see Figure No. 31. The porch between the quarters and kitchen does not appear to be intact at this time also. By this time the structure has deteriorated and the vegetation is almost gone at east side of quarters.



Figure No. 31 - Porch at the east side of the house; edge of kitchen is visible;



Figure No. 32 - Rear porch at Officer's Quarters No. 3 with framing similar to that on porch in Figure No. 31

Exterior Doors

There are no extant doors. Some wood casements and lintels remain in openings, all in a very deteriorated condition. All openings should be braced.



Figure No. 33 - Window opening on east side with severely deteriorated lintel and remaining "gringo blocks" at jamb below



Figure No. 34 - Door frame and roof support at porch on east side of Officer's Quarters No. 2(see Figure No. 31); this porch, of similar construction to the porch on the south side of Officer's Quarters No. 3, is thought to have been added during the 1920's; it may have been a sleeping porch; note eave overhang to upper right

Exterior Windows

Similar to doors, there are existing casings and lintels, in a very deteriorated condition. At Bedroom 1, the casing for the exterior window to the south exists on the interior of the wall. Its configuration is similar to those at Officer's Quarters No. 3. There are also portions of frames remaining at the Kitchen.



Figure No. 35 - Casing at window of bedroom 1 with bracing

“Gringo blocks” still remain in the walls as seen in figure No. 36. They are wood members built into the walls to provide solid substrate for attaching door frames and other similar applied items to the walls.



Figure No. 36 - Window frame at west end of Kitchen, with water pipe to right

Roof Framing

When the building burned most of the roof framing collapsed into the structure. All of this framing was removed during the stabilization process as it presented a safety hazard to the workers and also to the structure – some members were impinging on standing walls. Typical members were saved for reference by the Archaeologist.



Figure No. 37 - Debris of roof structure in Bedroom 1(front bedroom)

Roofing

It may be assumed that the roofing system was similar to that on Officer's Quarters No. 3: A dirt roof over saguaro rib latillas. These were reported to be terribly leaky, and new roofs were approved for the buildings in July 1879 (MS 266, file AHS), and the roofs were covered with "new tin roofs... These were the standing seam type and were nailed to wood sleepers laid on top of the existing dirt roofs." (HABS Written Historical and Descriptive Data). Over time the roof was likely built up with additional framing members, boards and sheathing, and covered with asphalt felts and roof tar, similar to Officer's Quarters No. 3. Figures No. 30 and 31 show the roof from above and from the edge, respectively. It appears in the photograph that the roof has parapets along the north and south sides and that the roof drains from the center ridge line to the east and west. The parapet caps were added in 1920 along the parapets, laid atop heavy-gauge sheet metal flashing that projected out on to the roof surface. From the coating on the cap, it appears that the entire roof received an asphalt emulsion coating as its finish.



Figure No. 38 - Sheet metal flashing projecting out from under cast concrete cap (with asphalt emulsion coating) at the kitchen; note burned member



Figure No. 39 - Tin roof panels

Interior Walls

Interior walls are single wythe (thickness) adobe block. Johnson states “*Outer walls of the building, and some of the interior room partitions, were constructed by laying the bricks crosswise to the axis of the wall, thereby forming a wall 50 cm. in thickness. Other room partitions were formed by placing the bricks length-wise to the axis of the wall. The latter walls were, therefore, only 30 cm. in thickness. None of the room corners in Officer’s Quarters No. 5 were bonded; in every case one wall simply butts against another.*”



Figure No. 40 - Interior partition butting into west exterior wall; also undercutting through wall at bottom right, this location was filled in with adobes during the stabilization work; window modifications were made by Adkins family and include a cast-in-place concrete sill and brick overlaid on wall



Figure No. 41 - Interior wall butting at both sides into other walls; this wall appears to have been installed some-time after original construction, though still of similar adobes; the plaster on the wall in the center of the picture runs beneath the intersecting wall; see also remaining plaster on upright wall at center and stub wall

Johnson also notes that “Each of the walls was plastered, at least on the interior, with two coats of plaster. The undercoat, which was 1 to 2 cm. in thickness was probably mixed at the site. It appears to be a slightly more refined variety of the mortar used between the (adobe) bricks, and occasionally contains prehistoric sherds. The outer-coat of plaster is a true-lime plaster, and is usually about 5 mm. in thickness.” There is evidence of this in the remaining interior plaster finishes – a smooth mud coat overlain with a thin layer of white lime and then painted.



Figure No. 42 - Section of remaining smooth plaster at interior; note white lime at center.

Flooring

Floor framing members exist at Bedroom No. 1 (front bedroom) consisting of 2" x 4" lumber (actual dimensions) sitting upright on sleepers laid flat in the dirt. Sleepers run east/west with the floor joists perpendicular. According to the HABS Written and Historical Data *"In 1882 new floors were installed in most of the buildings. These were pine laid on sawed floor joists placed directly on the ground."* This is in general agreement with Johnson, except for the material of the floors. He states *"At some time later, wooden floors of redwood cut with tongue and groove were added to the rooms. ...the redwood floors were placed on 2 x 4 stringers which were set in trenches dug into the adobe floor."*



Figure No. 43 - Floor joists over sleepers at Bedroom 1

Burned wood flooring and wood base at the kitchen are visible in the northwest corner of the eastern room.



Figure No. 44 - Burned flooring at Kitchen; this was excavated during stabilization and is now being covered again by rains washing dirt over it



Figure No. 45 - Wall base at west side of east room at kitchen; wood floor pictured above is immediately adjacent but has been covered with dirt since the picture was taken

Interior Wood Trim

A section of wood base is present in the Kitchen as reported above. Johnson states “*Occasional pieces of ornamental baseboards were encountered during the excavation. These were in place, nailed to 2 x 4 blocks... The blocks, or holes in the walls where blocks had once been, were present in the walls of all the rooms indicating the former presence of baseboards.*” We looked for these blocks at the base of the walls but were unable to find them. It should be noted that wall erosion has altered the interior rooms so that the existing ground surface is above the historic finish floor; excavation could reveal the block. The burnt remnants of the door frame between the Zagan and Bedroom 1 are present but very little detail remains.

Built-In and Fabricated Features

The door between the dining room and Bedroom No. 2 (back bedroom) had been removed and the opening infilled with a bookcase.



Figure No. 46 - Bookcase infill with storage toward Bedroom 2

Heating, Ventilation and Air Conditioning

These systems are not present. There is also a flue that comes out of the west wall of the Living Room which may have served some sort of heater. A heater was removed during the stabilization process, but it was not connected and we cannot be sure where it had been located in the house.

There is also the remains of a flue at the west end of the kitchen which may have served a stove.



Figure No. 47 - Remains of flue at the Kitchen

Plumbing and Plumbing Fixtures

This structure has a sink hung on the south wall in Bedroom 1. The water line penetrates the south wall and stops inside the southeast room. The soil line is routed along the south wall, penetrates through the west wall, and turns to underground in the center room. In the center room adjacent to the soil line is a pressure tank that is half buried. The purpose of this tank is unknown. It appears that none of these materials are original and the sink and piping was added for an unknown use; they may have been added during the Cate's Sanitorium era to serve its purpose.



Figure No. 48 - Pressure tank in room adjacent to living room; pipe appears to have served the wall-mounted lavatory in Bedroom 1



Figure No. 49 - Lavatory on rear wall of Bedroom 1

The cast-in-place addition at the west was apparently a bathroom. There is a cast-iron pipe present that may have served as a vent pipe and also a water pipe entering the structure.



Figure No. 50 - Vent pipe at bathroom addition



Figure No. 51 - Water pipe at bathroom addition

Building Emergency Stabilization - Officer's Quarters No. 2

This structure received extensive temporary stabilization work in the summer of 2007 in an effort to mitigate its further decay until a programmatic direction can be determined from the Fort Lowell Master Plan. The work included:

- a. Removal of cast concrete parapet caps and covering of wall tops with a nominal 2" thick coating of adobe mud.
- b. Infill of covered areas at wall base with new site-fabricated mud adobe blocks to prevent further erosion and collapse of wall.



Figure No. 52 - Infill at covered area with site-fabricated adobes; photograph taken 08/30/07

- c. Bracing of walls and openings with wood posts and plates to help prevent lateral movement, settling, or collapse.
- d. Minor earthwork to mitigate standing and ponding water next to walls, and to improve general drainage flow.

Note: All bracing should be monitored on a regular basis and adjusted as needed to provide positive support.



Figure No. 53 - Bracing at a window and against the walls in Bedroom No. 1 (the front bedroom); photograph taken 09/06/07

Section 4

Officer's Quarters No. 3

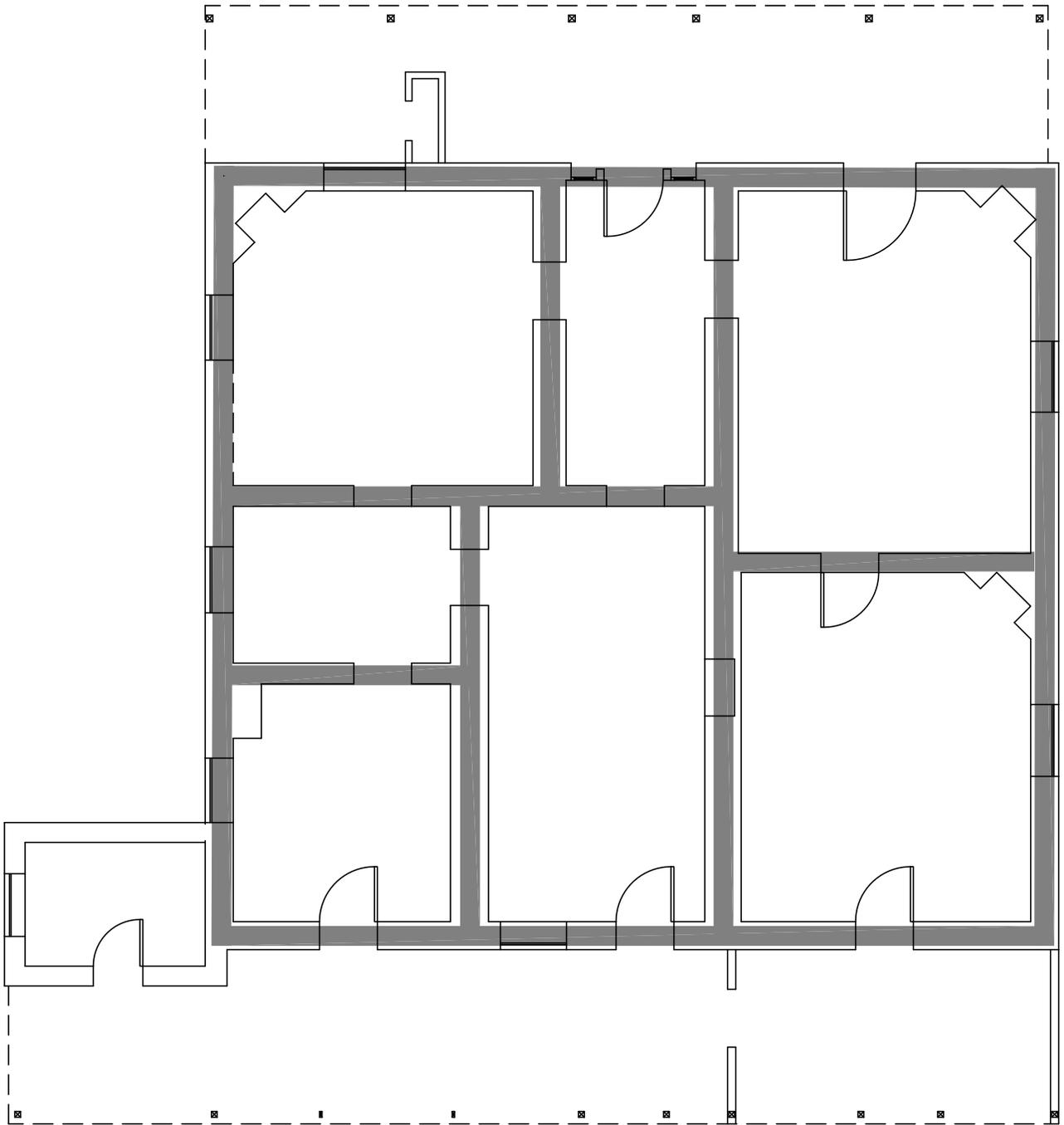
Officer's Quarters No. 3 is located at the southeast corner of the Adkins Steel Parcel, immediately adjacent Craycroft Road. Officer's Quarters No. 4, which was the Commanding Officer's house, was actually demolished with the construction of Craycroft Road, leaving the three existing officer's quarters isolated from the rest of the Fort Lowell Park.

Officer's Quarters No. 3 is of particular significance because it is the best preserved structure remaining from Fort Lowell. We do not know the condition of the interior of the building prior to the 1940 HABS documentation, but it appears to have stayed largely intact since at least that time. It was inhabited for most of the century, and as late as October of 2006. Even though it was inhabited, the lack of maintenance on the part of the owners had the effect of saving elements of the structure as they were originally constructed, and allowing them to age in place. Thus, the condition of the house is mostly an effect of years of benign neglect which will require, at the time the programmatic direction and uses of the structure are determined, repair or restoration. Reconstruction other than structural repair will probably not be needed, as most of the significant building elements still exist.

An adobe addition was added to this structure at an unknown date, replacing the wood framed addition shown in the 1905 photograph. It is currently used as a toilet. Though the maps of the fort indicate that this Quarters may have had a summer kitchen, there are no visible signs on the ground surface at this time.

Only stabilization recommendations have been included as the future disposition of this structure has not been determined.

Drawing of Existing Structure With Historic Overlay



7 FLOOR PLAN - Officer's Quarters No. 3



0 4' 8' 16'



SCALE: 1/8" = 1'

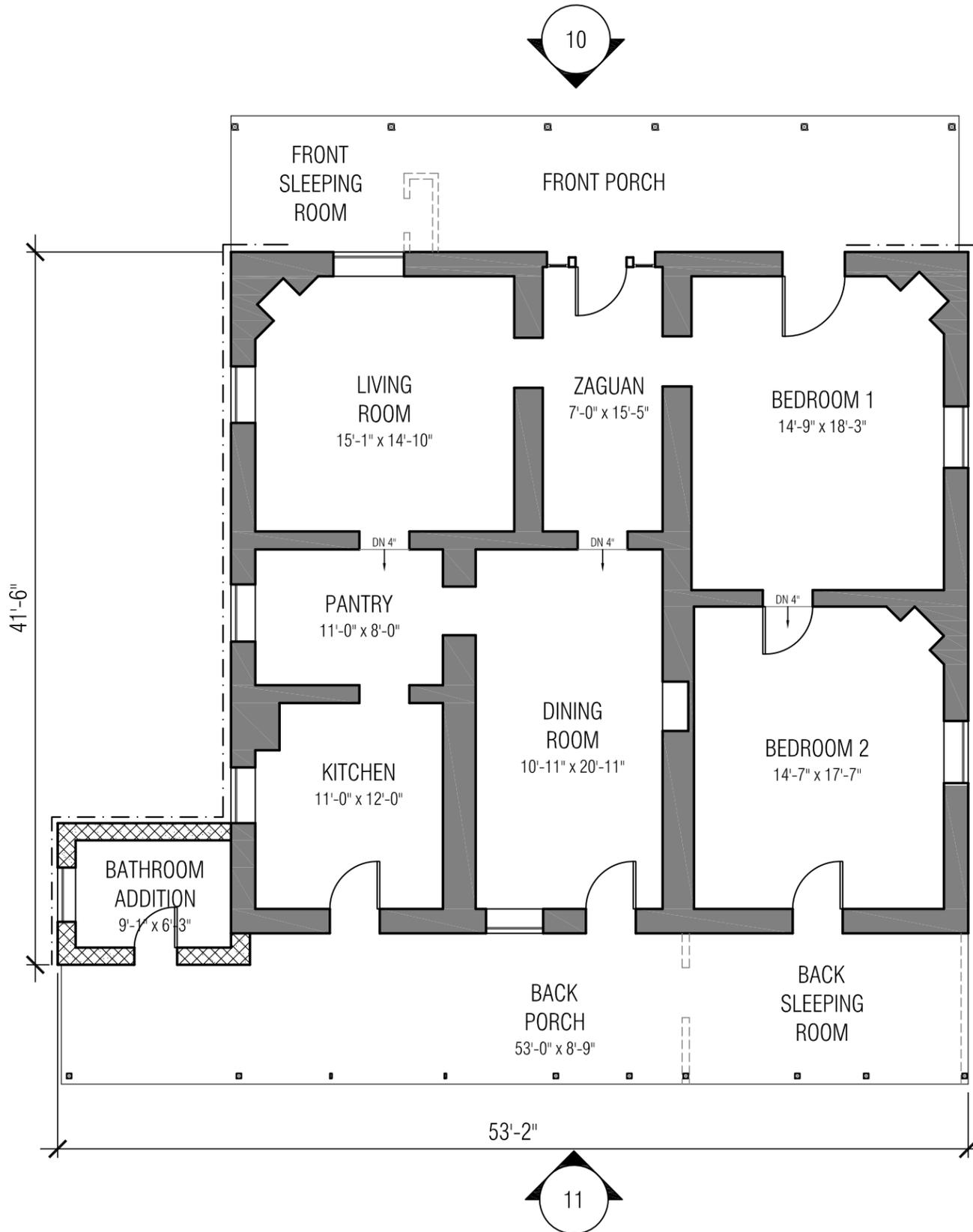
LEGEND

	CONJECTURAL WALL LOCATION
	EXISTING WALL LOCATION

Drawings of Existing Structure

LEGEND

-  ADOBE BLOCK
-  ADOBE BLOCK ADDITION
-  WOOD FRAME
-  CONTRA-PARED

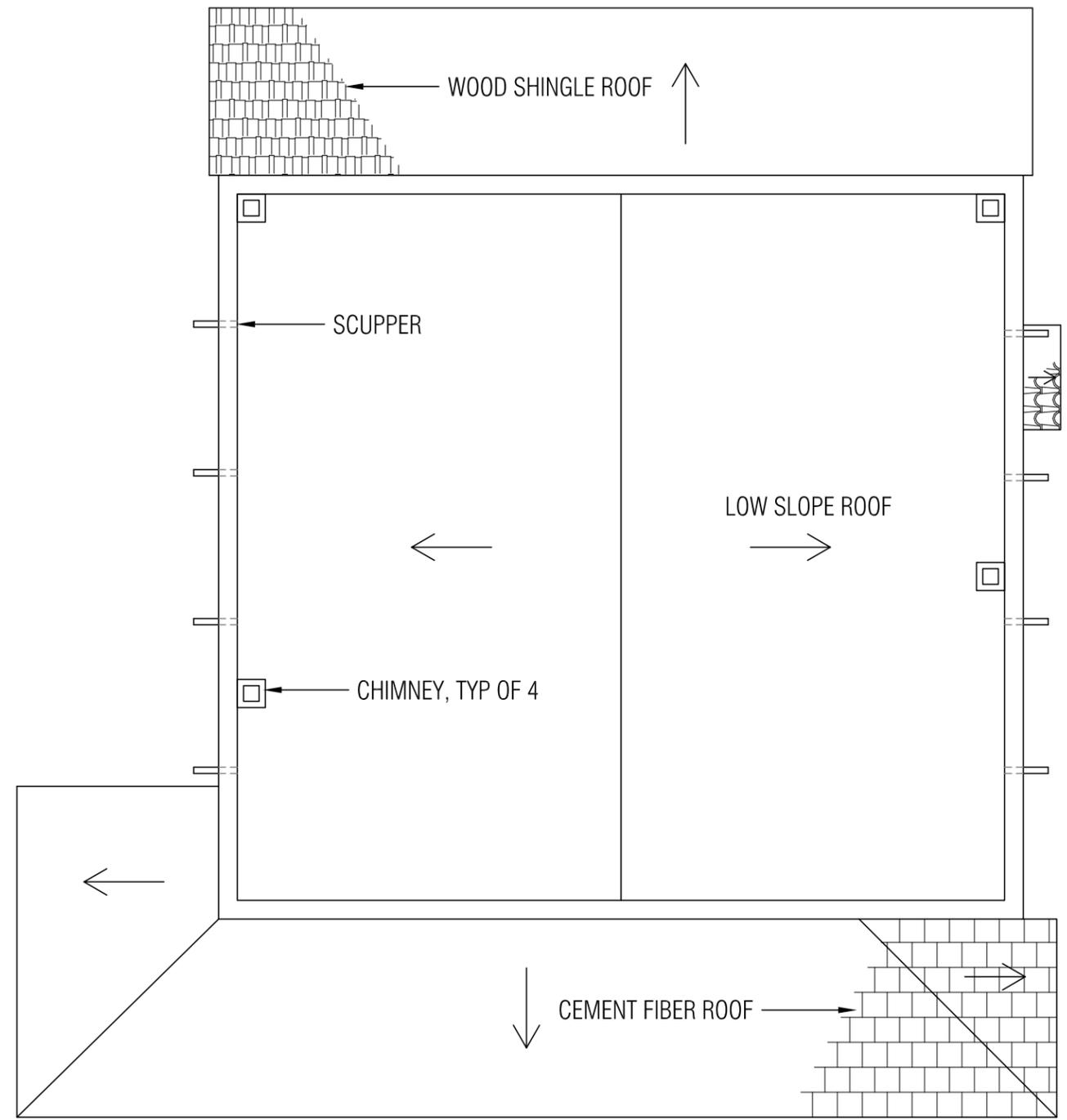


8 FLOOR PLAN - Officer's Quarters No. 3

0 4' 8' 16'

SCALE: 1/8" = 1'

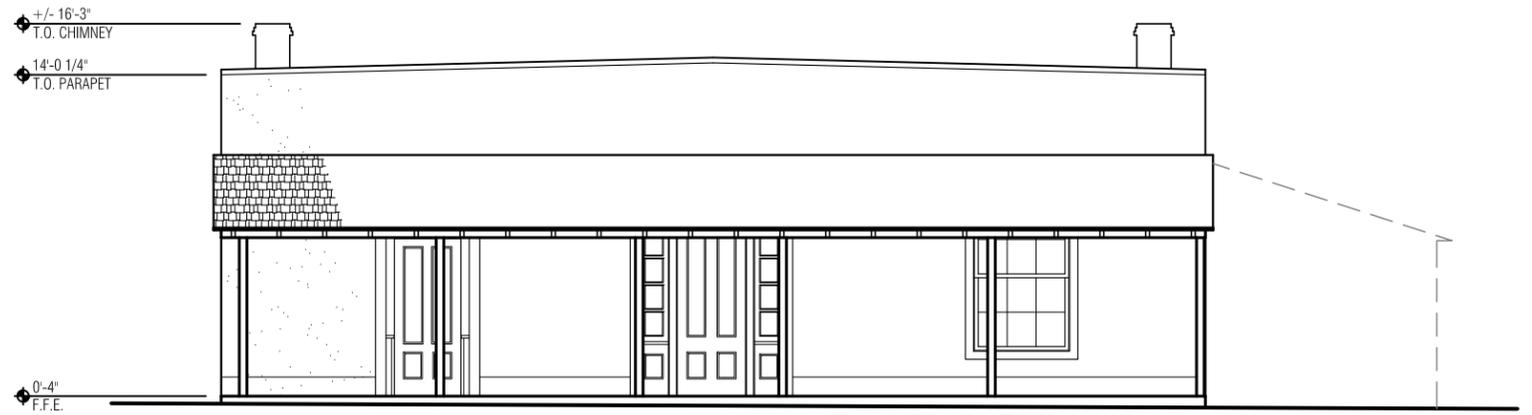
N



9 ROOF PLAN - Officer's Quarters No. 3


0 4' 8' 16'

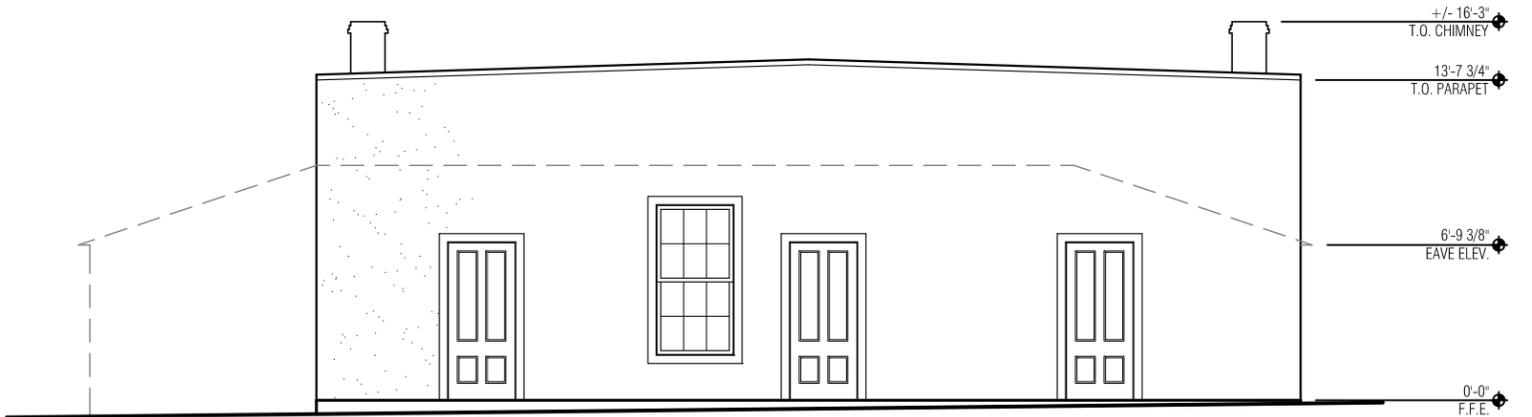
 SCALE: 1/8" = 1'



8 NORTH ELEVATION - Officer's Quarters No. 3

0 4' 8' 16'

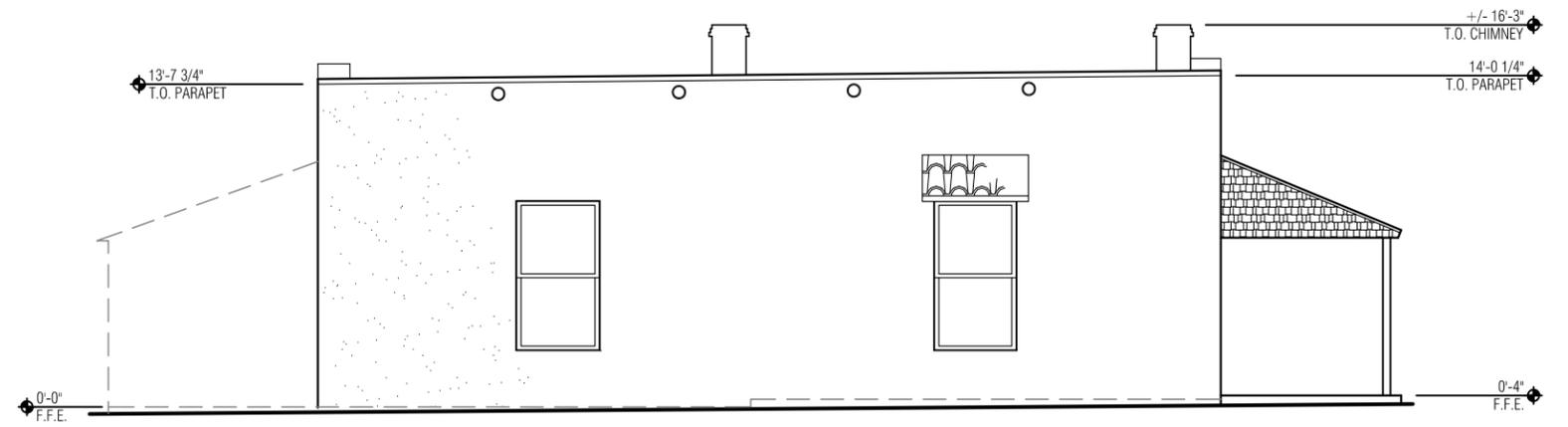
SCALE: 1/8" = 1'



9 SOUTH ELEVATION - Officer's Quarters No. 3

0 4' 8' 16'

SCALE: 1/8" = 1'

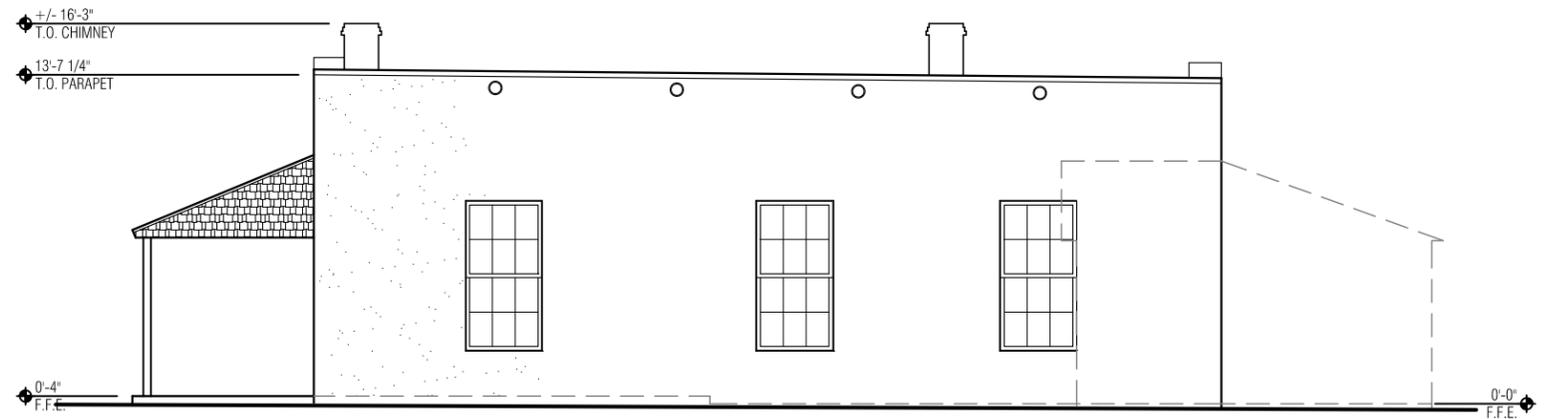


10 EAST ELEVATION - Officer's Quarters No. 3

0 4' 8' 16'



SCALE: 1/8" = 1'



11 WEST ELEVATION - Officer's Quarters No. 3

0 4' 8' 16'



SCALE: 1/8" = 1'

Exterior Photographs of Existing Structure Prior to Stabilization



Figure No. 54 - North elevation

Key

- 01. Brick chimney
- 02. Contra-pared
- 03. Concrete parapet cap
- 04. Wood shingle roof on porch
- 05. Plaster on adobe
- 06. Entry door
- 07. Wood floor at porch
- 08. Wood wall of sleeping porch
- 09. Double hung window

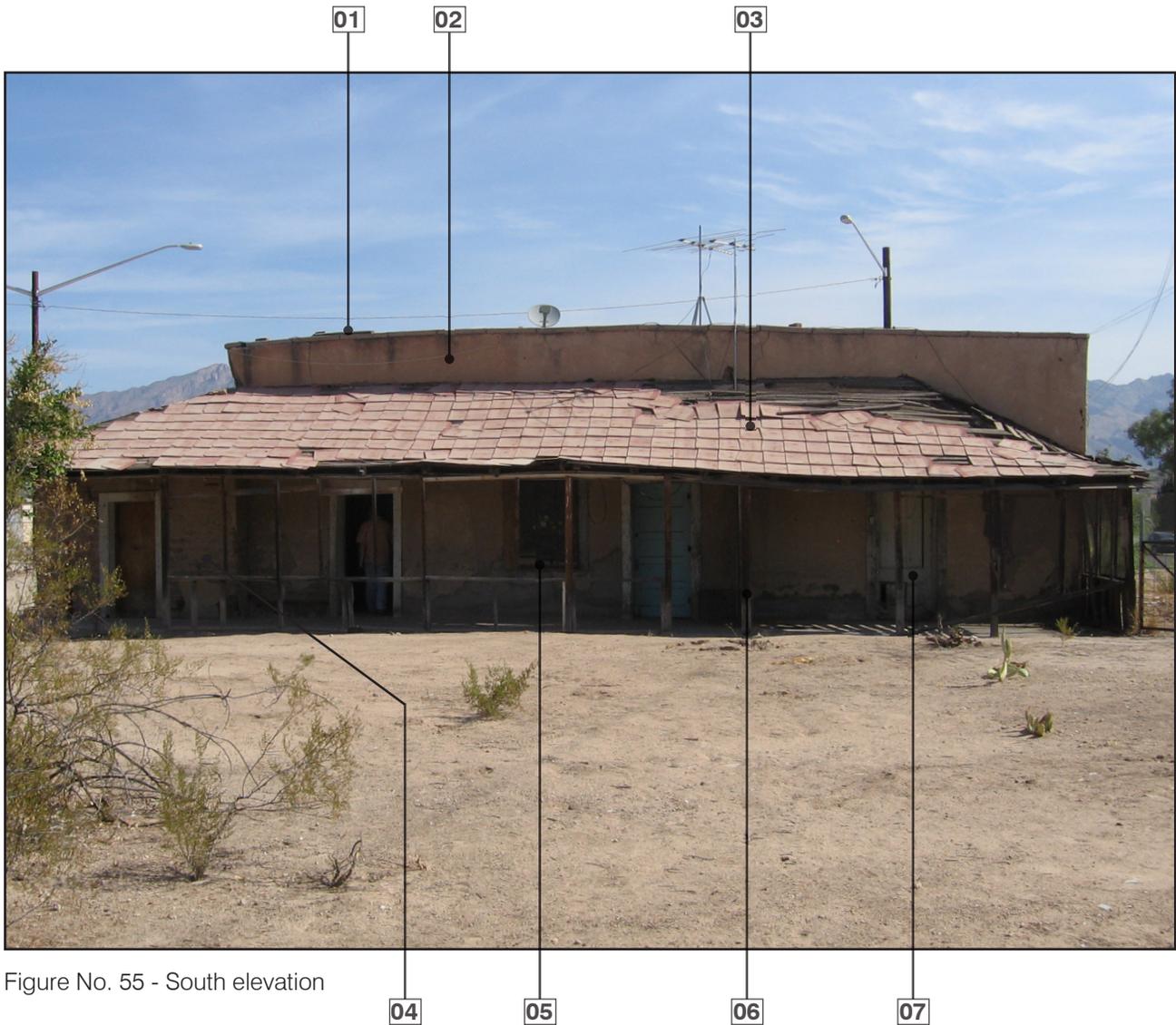


Figure No. 55 - South elevation

Key

- 01. Concrete parapet cap
- 02. Plaster on adobe block
- 03. Fiber Cement shingle roof at porch
- 04. Bathroom addition
- 05. Double hung window
- 06. Wood wall of sleeping porch
- 07. Wood door



Figure No. 56 - East elevation

Key

- 01. Electrical service
- 02. Concrete parapet cap
- 03. Canale
- 04. Brick chimney
- 05. Clay tile window awning
- 06. Wood porch
- 07. Contra-pared
- 08. Wood window
- 09. Plaster on adobe block



Figure No. 57 - West elevation

Key

- 01. Wood framed front porch
- 02. Concrete parapet cap
- 03. Plaster on adobe block
- 04. Canale
- 05. Brick chimney
- 06. Wood framed sleeping porch
- 07. Contra-pared
- 08. Wood window
- 09. Adobe block bathroom addition

Condition of Assessed Elements

Building Feature	Recommendation	Alternative	Priority*
Site Grading	None		
Site Construction	None		
Foundations	Remove contra-pared	None	Serious
Exterior Walls and Porches	Porch roofs are severely decayed and present a structural hazard - may want to consider removal	None	Serious
	Removal of contra-pared recommended to inhibit moisture intrusion	None	Serious
Exterior Doors	Repair hinges and hardware so they are operable so that exterior doors may be secure	Replace	Minor
Exterior Windows	None		
Roof Framing	None		
Roofing	Maintain temporary coating on a yearly basis	None	Serious
Chimneys	None		
Interior Walls	None		
Interior Windows and Doors	None		
Flooring	None		
Ceilings	None		

Interior Wood Trim	None		
Built-in and fabricated features	None		
Heating, Ventilation and Air Conditioning	None		
Electric Power, Lighting, and Appliances	None		
Plumbing and Plumbing Fixtures	None		

*Reference appendix A for evaluation system

Opinion of Probable Cost for Recommended Repairs

Item of Work	Unit	Cost/Unit	Quantity	Subtotal
Maintain roof coating	sf	\$0.60	1,700	\$1,020.00
Repair hardware to secure exterior doors	ls	\$2,500.00	1	\$2,500.00
Subtotal 1				\$3,520.00
GC markups, taxes and bond @ 25%				\$880.00
Total 1				\$7,920.00

If determined to be advisable:

Document and remove porch roofs	ls	\$5,000.00	1	\$5,000.00
Remove interior concrete slab at Living Room and Bedroom 1	lf	\$25.00	126	\$3,150.00
Subtotal 2				\$8,150.00
Renovation contingency @15%				\$1,223.00
GC markups, taxes and bond @ %25				\$1,250.00
Total 2				\$10,623.00

Building Condition Assessment

The following items have been evaluated for each subject structure and its condition reported.

Site Grading

As part of the emergency stabilization, a shallow swale was formed stretching along the east side of the house, then turning and going along the south side of the house. The high point appears to be at the southeast corner and the swales drain water from here, around the house and away. The east side, along Craycroft Road, is all higher than the house, which has caused damage along this elevation over the years, and the new swale intercepts this flow. The swale is approximately 12" wide at the bottom and of varying depth. This should remain in place until further sitework and landscape is designed as part of the eventual building use.



Figure No. 58 - Swale looking north



Figure No. 59 - Swale
looking west beyond gate

Integrity: Low
Significance: Low
Condition: Poor
Comments: None

Site Construction (walls, paths, etc.)

There are some existing wire fences on the site – along the southeast side coming off the corner of the house going south, and along the northwest side going north, marking off the “front yard” from the driveway; along with site rocks in the same alignment. The property has a wire fence along the south property line. There is concrete slab accessed by a concrete walk from the back porch, previously used for parking and for working on vehicles.



Figure No. 60 - Slab used for parking and working on vehicles

Integrity: Low
Significance: Low
Condition: Fair
Comments: None

Foundations

According to the Alfred E. Johnson Report, based on subsurface investigation at Officer's Quarters No. 5, "*Foundations were not present, and the walls were placed on what was apparently the surface of the ground at the time of construction.*" At Officer's Quarters No. 4 (the Commanding Officer's Quarters that was demolished with construction of Craycroft Road) "*The walls of Officer's Quarters No. 4 were underlaid by foundations of four to five courses of adobe bricks. The foundations were placed in trenches dug through a layer of fine, brown sand, the top of which was probably the surface of the ground at the time of construction, to the top of the underlying caliche layer. The foundations were the same thickness as the wall.*" There are no visible foundations existing at the structure where the base of the wall is not covered by contra-pared and it is assumed that the walls were laid on the surface of the ground.

Integrity: Low
Significance: Low
Condition:
Comments: None

Exterior Walls and Porches

Exterior walls are constructed of "*unfired adobe brick. Individual bricks measured 50 cm. in length, 30 cm. in width, and 10 cm. in thickness (20" x 12" x 4"). The bricks were manufactured locally, at the site, as attested to by the fact that many of them contain pre-historic shards from a large archaeological site (Hardy Site) occupying the same ground as the fort.*" "*Outer walls of the building were constructed by laying the bricks crosswise to the axis of the wall, thereby forming a wall 50 cm. (20") in thickness.*" (Alfred E. Johnson Report)

The mud adobe walls still have plaster remaining on most of the walls, consisting of lime plaster with sand, along with large areas of Portland cement plaster patching. There are large cracks and separations in the plaster and in the adobe, particularly at the northeast corner where it is severely cracked and deteriorated and has been temporarily shored to prevent immediate collapse.



Figure No. 61 - Northeast corner of structure showing severe cracking; both faces (north and east wall) are trying to separate from the building; there is also slab cracking on the interior floor indicating that this corner of the building is subsiding; the swale installed during stabilization will mitigate further damage, but this corner represents a critical structural concern



Figure No. 62 - Parapet above Kitchen is peeling away from building; this has been braced during the stabilization process

Contra-pared, cast-in-place concrete curbs often fabricated at the bottom face of adobe walls at grade, and intended to moderate the effects of basal coving, actually aggravate the problem by holding more moisture behind it, have been placed at the base of almost all exterior perimeter walls. They vary in height and in some cases have two applications, one atop the other. In some areas, rather than building the contra-pared, portland cement plaster patches have been applied to the coved areas. All of this material should be considered for removal in the Restoration Plan.



Figure No. 63 - Contrasted at bathroom addition; 11" high by 5"-6" wide(after stabilization)



Figure No. 64 - Contrasted at west elevation; 12" high by 5"-6" wide; rougher concrete mix than that used at bathroom(larger aggregate) erosion visible(after stabilization)



Figure No. 65 - Mortar patching at northwest corner, instead of applied contra-pared, adjacent coved section of wall; wood trim at base of wall appears to be missing at coved area (after stabilization)



Figure No. 66 - More patching at left of door; indent may indicate location of trim similar to extant on right of door (after stabilization)



Figure No. 67 - Braced north corner with +/- 18" by 3"-3 1/2" contra-pared; two layer on east side, bottom 11" by 5" and top 14"-15" by 3" (after stabilization)



Figure No. 68 - Remaining section of east wall of house with a single layer contra-pared (after stabilization)



Figure No. 69 - Patching along south side and board form contra-pared 12" high



Figure No. 70 - Patching along remainder of south wall with covered area west of kitchen up to toilet addition (after stabilization)

Wall Anomaly: It appears that the top of the porches on the north and south side are resting on a ledger of some sort, that is, a protruding section of wall that supports the framing. This occurs on the north and south elevations. The wall below the porch roof projects two-three inches beyond the face immediately above the roof. The houses were not plastered on the exterior until sometime in the Dolly Cate's period (early 1900's) and this anomaly may have been created at that time, though it seems that the top of the porch is integral with the projection and so built at the same time. This was not noticed when the Officer's Quarters building was reconstructed across the street and so is not reflected on that building. Nor does the condition appear on Officer's Quarters No. 2 – the north wall is too deteriorated to show it if it existed, and it does not appear on the south wall.

The following speculation concerning the change in apparent wall thickness is from the Desert Earth and Wood report: *“Of interest was that I noted that the North and South walls appear to have a thinner adobe installed at the approximate height of what would be the ledger or rafter support of the attached porch structures. It was theorized that due to the fact that these walls are parallel to the rafter system, they were not required to carry the main load of the roof structure. This would give the designer the freedom to lighten those sections of the walls and thereby save material and labor. The transition to these thinner walls seems to correlate to the height of the ceiling and in essence the height of bond beam. The upper area of these sections apparently has a thicker application of stucco to create a continuous visual plane.”*

This is one explanation, but does not really take into account the fact that the projection follows the line of the porch roof, which is gabled at the west end of the south elevation. Any complete understanding of this condition will require further investigation of the wall structure.



Figure No. 71 - Projection at south elevation; with porch joists pocketed into plaster and a board across the top



Figure No. 72 - End of porch at southwest corner, "stepping" in wall above porch line is clearly visible

Porches: In 1883 a request for the construction of porticos (porches) for each of the three quarters was submitted to the Army, and porches were installed and are shown in the 1889 photo of Cottonwood Lane with Officer's Quarters on the left. The 1904 photo shows no roofs on any of the quarters. The HABS drawings note "*Modern Porch*" with "*original red-wood posts*" and indicate a beveled corner detail on the posts. The posts still exist, though the term "original" in the HABS report is unclear – no porches are shown in the 1905 photograph. It is speculated the modern porches were installed in the 20's, coincident with the addition of the side porch to Officer's Quarters No. 2. During Ken Matesich's residence in the 1970's, he and his roommate acquired and installed the diamond-shaped cement fiber tiles that exist on the south porch roof today. (Interview with Ken Matesich). The current condition of the porches is very poor – most of the guard rails are missing along the south side, the ceiling framing is rotting and collapsing; the cement-fiber tiles are also most likely asbestos-containing. The post at the southwest corner of the south porch was braced during stabilization.

The wood porch floors are also very deteriorated and are not original – they do not appear in the 1905 photo.



Figure No. 73 - North porch showing remaining primary roof framing and floor that is deteriorating into the ground

Both porches contain the remnants of exterior sleeping areas. The one on the north porch is reflected in the HABS drawings and all that exists is the remnants of a storage closet that must have served the sleeping porch



Figure No. 74 - Closet at sleeping porch on north



Figure No. 75 - Divider wall between Dining Room door and Bedroom 2 door at rear porch designating sleeping area; cement roof tiles are visible above

Significance: Low
Integrity: Low
Condition: Poor
Comments: None

Exterior Doors

The 1905 photo clearly shows Officer's Quarters No. 3 and the corner of No. 2. Both have raised panel doors and the one at No. 2, which is more clearly visible, is very similar to those detailed in the HABS and that exist today on No. 3. One may speculate that the exterior doors matching the HABS drawings are original. Officer's Quarters 4, 5, 6 and 7 can be seen also.

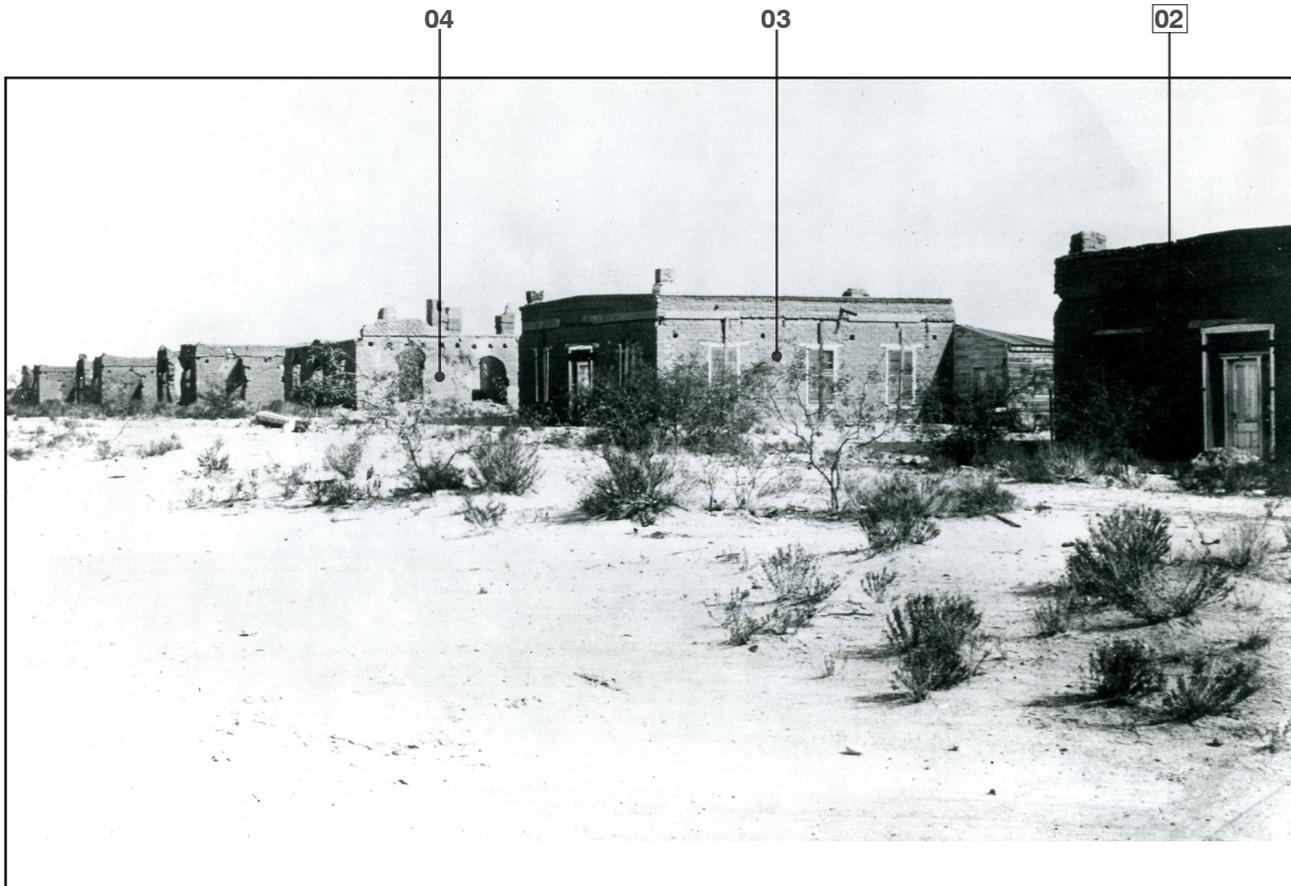


Figure No. 76 - Officer's Quarters No. 2 at right with raised panel door; Ca. 1904 looking east

The main entry door is original, but has lost the remaining frosted glass noted on the HABS drawings; most of the original hardware is gone – there exists a deadbolt and a padlock hasp on the exterior; the lockset is contemporary and is mounted up high where a deadbolt would typically occur.

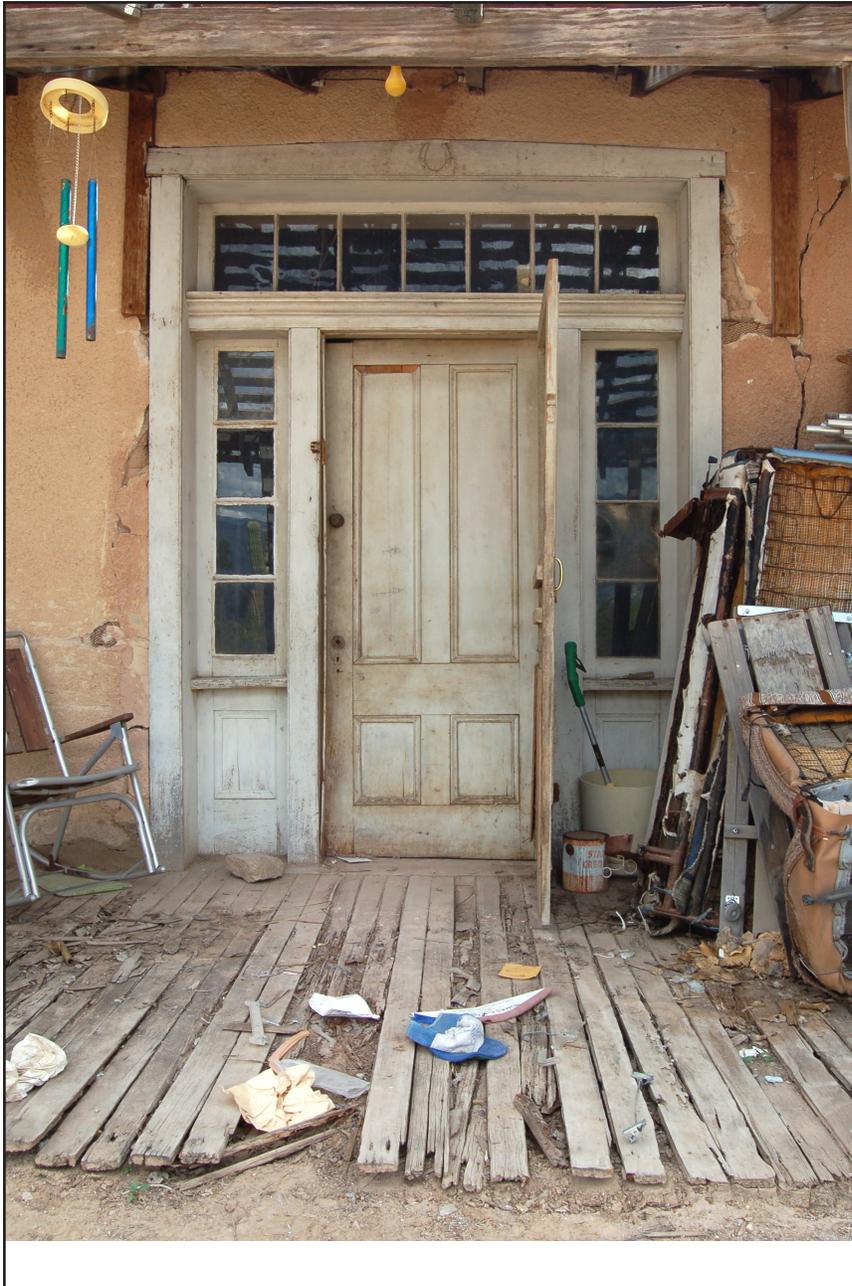


Figure No. 77 - Entry door, photo taken at the time the City took possession of property (fall 2006); windows on each side of door are operable to allow ventilation

Significance: High
Integrity: High
Condition: Fair
Comments: None

The exterior door from Bedroom 1 to the north appears to be original. This door appears to have been introduced in place of a window during the Cates time of use. The 1904 photo clearly shows the main entry on No. 3 with a window to each side. The exterior bead board detail could have been fabricated at the same time as the cabinets and the infill of the door between the dining and Bedroom No. 2. That would also account for the difference in the mullions between the main entry and this door – they are both as detailed on the HABS drawings, which would be correct because HABS would show all previous modifications. Johnson prepared rough floor plan sketches with his report of Officer's Quarters No. 4 and No. 5. No. 5 has the same floor plan as No. 3 – 3 doors along the south side and the one entry door at the north, with a window on each side of it. Further investigation will be required to determine if this opening originally contained a window. This door appears to have not been used recently and has no operating hardware, though hinges may be original. The panels on this door have dried out and cracked.



Figure No. 78 - Interior side of door at Bedroom 1



Figure No. 79 - Exterior entry door at Bedroom 1 with wainscot detail

Significance: High
Integrity: Low
Condition: Fair
Comments: None

The door exiting Bedroom 2 is original but is severely damaged and has been very badly repaired with pieces of sheet metal and lumber. Hardware consists of a padlock hasp; hinges may be original.



Figure No. 80 - Door to Bedroom 2 with damage and mending

Significance: High
Integrity: Low
Condition: Poor
Comments: None

The door exiting the dining room is not original. It is a painted 5-panel, similar to that in kitchen.



Figure No. 81 - Door exiting Dining Room; the frame is original but the door is not

Significance: High

Integrity: Low

Condition: Fair

Comments: Replace with door to match original

The door exiting the kitchen is similar to the one exiting the Dining Room, and does not appear original. It has been cut down from another opening and the original frame has been modified with raw lumber.



Figure No. 82 - Door exiting Kitchen; see lumber casing at right

Significance: High
Integrity: Low
Condition: Fair
Comments: Replace with door to match original

The door at the bathroom is made of plywood with a slide-handle bolt, fabricated by the Adkins family.



Figure No. 83 - Plywood bathroom door

Significance: Low
Integrity: Low
Condition: Fair
Comments: None

Exterior Windows

Exterior windows are well-detailed on the HABS drawings and typically consisted of 6 over 6 double hung wood windows in wood casements glazed with clear glass, with in-jamb counterbalances on braided cotton cord. The windows present the same dilemma as the doors – the 1905 shows the window openings but it is difficult to determine any layout of casements themselves. One can speculate today that windows that exist may or may not date to the time of the preparation of the HABS drawings. The jambs are all in fairly good condition and structurally sound so that no sash weights are available for inspection without disassembling a window. It should also be noted that the plywood on the exterior was placed during stabilization to prevent further damage to the windows. Typical window size is 3'-4" x 6'-7".



Figure No. 84 - Window at Kitchen looking west; bottom sash has collapsed

Significance: High
Integrity: Medium
Condition: Poor
Comments: Repair needed



Figure No. 85 - Window at Pantry looking west; particleboard infill was existing condition and it appears that muntins may have been replaced at some time

Significance: High
Integrity: Medium
Condition: Poor
Comments: Repair needed



Figure No. 86 - Window at Living Room looking west; bottom sash was replaced with plywood panel with cut-out for side-flow evaporative cooler; electrical supply is up to left; this is the wall section that experienced severe water degradation from canale above

Significance: High
Integrity: Medium
Condition: Poor
Comments: Repair needed



Figure No. 87 - Window looking north out of Living Room; of all the windows this one is the most historically complete

Significance: High
Integrity: High
Condition: Good
Comments: Minor repair needed

There is a mission tile awning over the Bedroom 1 window (the aerial photograph from the 1940's shows these over all windows on east and west). This should be removed.



Figure No. 88 - Window looking east out of Bedroom 1; all the muntins are gone and replaced with single panes of glass; there is evidence of a plastic storm liner in window and picture rail above

Significance: High

Integrity: Low

Condition: Poor

Comments: Original frame exists, replace sash to match historic



Figure No. 89 - Window at Bedroom 2 looking east; bottom sash replaced with plywood with duct opening; top sash infilled with plywood

Significance: High

Integrity: Low

Condition: Poor

Comments: Original frame exists, replace sash to match historic



Figure No. 90 - Window at Dining Room looking south

Significance: High
Integrity: High
Condition: Good
Comments: Minor repair needed

Roof Framing

Main joists are 3" x 9" rough sawn lumber at approximately 16" O.C. running east/west supporting saguaro rib (latillas) loose-laid over the joists, running north/south. The bottom of joists are at 11'-7". The original dirt roof surface was applied over the latillas, and mantas (protective underhanging cloths) were installed below to catch dirt sifting through the latillas.

The roof structure consists of a double layer of framing. There is a main support joist (3x12) above the plaster ceiling with wood (1x6) decking that span from wall to wall of each room. On top of this framing is another level consisting of 3x4's spanning perpendicular and supported on the the ceiling joists via 2x and 3x shims with 1x6 decking over the 3x4's. The roofing material is applied to the top of this level. It appears that most of the dirt has been removed during the process of adding all the additional members above the original framing system, though some is still visible on top of the latillas in areas exposed from below.

The main roof joists beams are supported by bearing on the adobe walls. The adobe walls are deteriorated and the bearing for some of the joists has given way. Several of the roof areas are currently being temporarily shored to prevent them from collapsing. None of the existing roof framing meets code requirements for example the framing is not tied to the top of the wall, inconsistent fastening of framing members and there is also additional loads that the roof framing and walls should not be supporting. The entire roof and roof framing should be removed and reconstructed.



Figure No. 91 - Beams with latillas and planks visible from below



Figure No. 92 - Underside of top layer of decking supporting the final roof membrane

Significance: Medium
Integrity: Low
Condition: Poor
Comments: None

Roofing

According to reports (Cultural Resources Assessment) the original dirt roofs over saguaro latillas were very leaky during the rains, demonstrating that *“the dirt was not of the proper kind, nor properly put on when built as the leakage is far greater that with ordinary private houses in this vicinity. There is as much dirt now on the roofs as it is advisable to put with regard to the safety of the occupants – and this remark will apply to all the buildings at the Post.”* Tin roofs, soldered together from panels were recommended (April, 1882) and installed over the dirt on sleepers. Portions of the sheet metal panels were recovered from Officer’s Quarters No. 2. During the 1920’s (evidenced by newspapers stuck to the bottom of the 30-1/4” x 12” x 3-1/2” precast roof parapet caps) the roofs were reworked, with flashing extending from under the added precast caps to some distance onto the metal roof panels. The roof at No. 3 consisted of deteriorated mineral-surface rolled roofing over boards or sheathing at the time of its acquisition by the City. The roof has been coated as described under Emergency Stabilization.

The tops of the walls had the cast concrete parapet caps as occurred on Officer’s Quarters No. 2. The flashing that they had held in place on No. 2 and had probably been removed previously from No. 3.



Figure No. 93 - Parapet with concrete caps removed

Significance: Low

Integrity: Low

Condition: Temporarily stabilized

Comments: Replace roof after structure has been repaired/replaced

Eaves, Guttering and Downspouts

There are four pipe canales each on the west and east elevations, 4" diameter steel sheet metal or cast iron, projecting from wall 10" or more. The roof side of the canales is just at or above the roof surface and the emulsion coating runs into them. The one at the north-west corner of the house has been problematic for years – the wall is nearly eaten through on the interior above the window due to moisture intrusion, the lintel is collapsing, and there are cement patches over the window at the exterior.



Figure No. 94 - Deteriorated wall/lintel at interior below canale



Figure No. 95 - Exterior showing recently extended canale with concrete patch below and braces

Significance: High
Integrity: Low
Condition: Poor
Comments: None

Chimneys

The existing chimneys have been removed and their constituent bricks stacked on a slab next to the building. The chimneys were fabricated from a local, smooth faced red brick 8-3/8" x 2-3/8" x 4 (Pictures – west elevation and – south elevation). See original locations on the roof plan.



Figure No. 96 - Chimney at northeast corner of house prior to removal

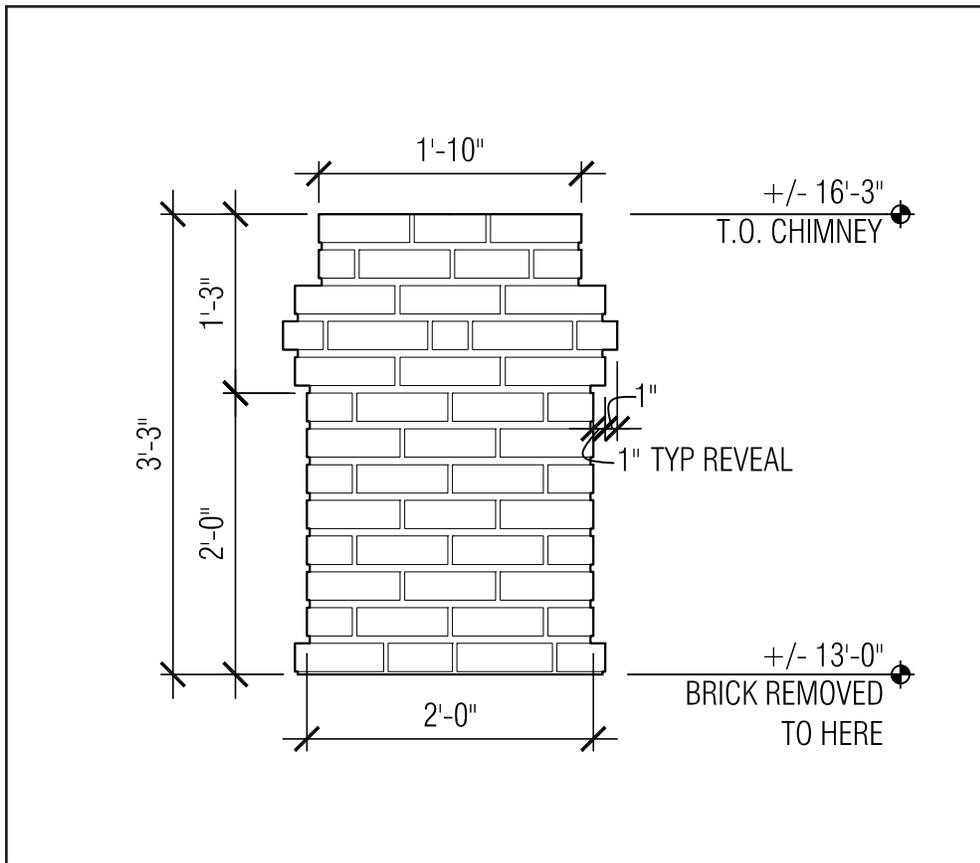


Figure No. 97 - Documentation of chimney for reconstruction

Significance: High

Integrity: Low

Condition: Poor

Comments: Reconstruct from salvaged brick in accordance with documentation drawings

There is a fireplace in the living room, and one each in Bedroom 1 and Bedroom 2. According to the HABS drawings these were built of adobe with plaster facing. The plaster had become damaged over the years and had been patched with cement plaster.



Figure No. 98 -
Fireplace at Bedroom
2 showing patching
with Portland cement
plaster; latillas visible
in exposed ceiling
above and bracing
placed during
stabilization



Figure No. 99 - Brick in rear of fireplace at Bedroom 2 with stamped mark "TCARR" - imported from England see Figure No. 100



Brand name: TCARR

Company: Thomas Carr & Son

Location: Newcastle-on-Tyne, England

Years: 1827-1918

Type: Fire brick

Description: Brand name impressed into face.

Comments: Imported to California as ship ballast. This brick was donated by Gary Drummond, Livermore, CA.

Source: Gurreke, Karl, 1987, *Bricks and Brickmaking*, p. 74.

Figure No. 100 - Evidence of brick's origin



Figure No. 101 - Chimney at Bedroom 1 with exposed adobe and some patching; bracing was placed during stabilization to support ceiling



Figure No. 102 - Fireplace at Living Room with evidence of water intrusion from flue

Significance: High
Integrity: Medium
Condition: Poor to fair
Comments: Fireplaces can be restored to original condition

Interior Walls

Interior walls consist of adobe with two coats of plaster – mud plaster, of similar constitution as the block mortar but with finer aggregate, and then a lime plaster. (Alfred E. Johnson Report) This was then painted blue and then white, according to Mr. Johnson, and has been painted several times since. The dining room has been given a coating meant to resemble the original plaster by inhabitants of the house in the 1970's. (Ken Matesich interview). Physical testing of the wall surface should be used to determine the composition of the finishes and order of colors on the wall.

There is cracking at some interior walls. These may represent separation at the non-bonded intersection of interior wall with exterior wall or some structural movement.



Figure No. 103 - Cracking in southwest corner of Bedroom 2 behind closet



Figure No. 104 - Cracking adjacent entry door; note knob and tube wiring and circular knob light switch by door

Significance: Medium
Integrity: Medium
Condition: Fair to good
Comments: None

Interior Doors

The interior doors appear to be original. They are stile and rail panel doors closely matching details shown on the HABS drawings.

Between Living Room and Zaguan – stained, original hinges; lock altered

Between Zaguan and Dining Room – missing, but probably one of two stacked in Dining Room; both painted, non-original hardware

Between Living Room and Pantry – painted, non-original hardware

Between Zaguan and Bedroom 1 – missing, but probably one of two stacked in Dining Room

Between Bedroom 1 and Bedroom 2 – stained, non-original hardware



Figure No. 105 - Door between living room and zaguan

Significance: High

Integrity: Medium

Condition: Fair to good

Comments: None

Flooring

Floors were originally reported to be “*adobe, a mixture containing a good deal of sand and gravel. All were quite hard.*” In 1882, wood floors were laid on the dirt, with 2” x 4” stringers set in trenches dug into the adobe floor with 3-1/4” x 7/8” tongue and groove planking laid over the stringers. Johnson notes them as redwood, though HABS notes them as pine. Existing floor surfaces vary:

Kitchen and Pantry – particleboard laid over the wood flooring with sheet vinyl over that, all in poor condition.



Figure No. 106 - Sheet vinyl flooring in kitchen over particleboard with the original wood floor visible below, with sleeper on dirt running crosswise at top

Living Room and front bedroom – red stained concrete slab, approximately 4” thick, running from wall to wall in these rooms, placed by Adkins family ca. 1940s-1950s

Entry hall, Dining Room and Bedroom 2 (back bedroom) – original wood flooring; in Dining and Entry Hall in fair condition; in back bedroom in poor condition due to leaks

It should be noted that the HABS drawings state that the Living Room and Bed Room 1 are pine flooring, so the existing red stained concrete floors were installed subsequent to the date of the site measurement (1937). These concrete floors have contributed to basal coving of the interior walls, particularly at the Living Room, by trapping moisture and causing it to rise in the walls. A sawcut should be made around the perimeter of this room and Bedroom 1 and a one foot wide section of the concrete flooring should be removed and

replaced with sand-set brick pavers or similar, to allow moisture transmission from the ground and the walls to mitigate further coving.



Figure No. 107 - Basal coving under north window at Living Room; right side of fireplace is also disintegrating

The HABS drawings note existing floor elevation changes as one goes from north to south through the house. These are existing now – so that Bedroom 1, the Zaguán, and the Living Room are at the same floor elevation, and one steps down approximately 3” into the other rooms.

Significance: High
Integrity: Low
Condition: Poor(except concrete - good)
Comments: None

Ceilings

In the 1880's plaster ceilings were installed – scab lumber shims were installed on the bottom of the joists to level the ceiling and then 1-1/4" x 5/16" wood lath was nailed to the underside and then plaster was applied. The composition of the plaster has not been analyzed.

The finished plaster ceilings are at varying heights above finish floor:

Kitchen:	11'-9"
Pantry:	11'-8"
Living Room:	11'-5"
Dining Room:	12'-5"
Zaguan:	12'-3"
Bed Room 1:	11'-5"
Bed Room 2:	11'-11"

The ceilings in front of the fireplaces at Bedrooms 1 and 2 are suffering collapse and these were braced during the stabilization effort. They should be stable until appropriate repairs are determined. The damage in Bedroom 1 probably arises from the pulling away of the corner of the house disrupting the roof structure and with it the ceiling. The damage in Bedroom 2 may arise from previous roof leaks – there is wall and floor damage in this room also from water intrusion.

Significance: High

Integrity: Medium

Condition: Poor to fair

Comments: Significant repair is needed in Kitchen, Living Room, Bedroom 1 and Bedroom 2

Interior Wood Trim

Flat pine or redwood casing exists around all doors and windows, typically 4-1/4" wide.

There is a picture molding at the Dining Room and Bedroom 1 at a height of 9'-7" to top above finish floor.



Figure No. 108 - Picture molding at Dining Room; below is the finish applied in the 1970s; date of rail installation unknown

Significance: High
Integrity: High
Condition: Good
Comments: None

Wood base, 4-3/4" high with a beaded (rounded) top and a quarter round at the bottom, exists at the Dining Room, portions of Bedroom 2, the Zaguán, and partially covered by the addition of particleboard and vinyl flooring at Kitchen and Pantry, and is configured as detailed on the HABS drawings. There is no base in the Living Room or Bedroom 1.



Figure No. 109 - Wood base in Zaguán

Significance: High
Integrity: Low to high
Condition: Poor to good
Comments: None

An interesting detail is the wainscot with beadboard that occurs at the exterior entry to Bedroom 1. This door opening is probably not from the Fort Lowell era and replaced a window. The beadboard could have been built with the remainder of the beadboard cabinetry inside the house. The door may have been relocated from either the Kitchen or Dining Room which know have non-original doors.



Figure No. 110 -
Beadboard wainscot
at exterior of entry
door to Bedroom 1

Significance: Low

Integrity: Low

Condition: Good

Comments: Depending on era of significance to which the building is restored, this door may be replaced with a window

Built-In and Fabricated Features

There are beadboard cabinets in the kitchen, painted blue by Ken Matesich in the 1970's. There are two beadboard corner cabinets in the pantry, painted white. There is also a closet in Bedroom 2 constructed of beadboard, painted brown. These cabinets may have been installed coincident with the infill at door between the Dining Room and Bedroom 2 as documented on the HABS drawings.



Figure No. 111 -
Typical cabinet at
Kitchen with wood
countertop



Figure No. 112 - Corner cabinet in Pantry; similar corner cabinet is visible at lower right



Figure No. 113 - Beadboard closet at Bedroom 2

There is also a built-in cabinet at the Dining Room constructed of beadboard. HABS notes this as a “doorway remodeled into a china case about 1909 or 1910.”



Figure No. 114 - “China Case” at dining room

It may be speculated, since the construction of all the beadboard cabinetry is very similar to the china case, that all the beadboard cabinetry, as well as the beadboard wainscot at the Bedroom 1 entry, may be attributed to the same time period, noted by the HABS drawings to be circa 1909 or 1910 (we do not know how this was determined). The HABS drawings do not show the other cabinetry, but that may be because it was not considered by them to be “built-in”. Architectural drawings will often only show “built-in” cabinets and omit things that could be put in place after construction has been completed.

Significance: Low
Integrity: Low
Condition: Good
Comments: None

Insulation and Weatherstripping

There appears to be no insulation under the roof structure (you can see through holes in the ceiling) and the walls are plaster on adobe. There is no weatherstripping existing on the doors or windows.

Significance: Low

Integrity: Low

Heating, Ventilation and Air Conditioning

No cooling system was found although it is reported that window type evaporative cooling or air conditioning units were used (there was a plywood panel cut to accommodate a unit at Bedroom 1). Heating appears to be provided from the three fireplaces and stub-outs from the gas piping routed through the building. There was a cast-iron wood stove in the Dining Room at the time of the property acquisition. The stovepipe went out through the kitchen (it still exists in the kitchen) and was/is a single-wall pipe that leaked smoke/gasses badly discoloring the wall and ceiling above the pipe in the kitchen back. The stove sat on bricks laid on the floor. The gas water heater in the corner of the kitchen exhausted into the same stove pipe serving the wood stove, a dangerous code violation. This stove has since been removed by Pima County Cultural Resources and the flue pipe remains and crosses the end of the kitchen.

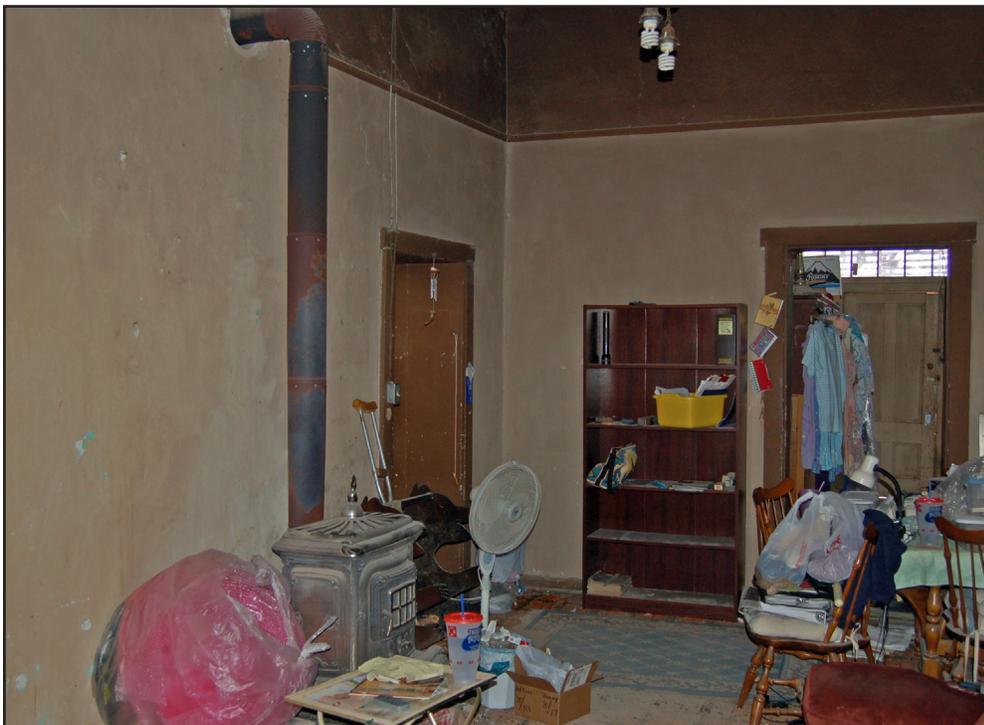


Figure No. 115 - Non-original stove in Dining Room



Figure No. 116 - Remaining flue from stove as it exists; also two interior doors are stacked at left



Figure No. 117-
Piping in northwest
corner of Kitchen
previously serving the
water heater

Significance: Low
Integrity: Low

Electrical Power, Lighting and Appliances

Power and Distribution: The electrical service to the building is an overhead drop, with the metal brackets to support the overhead drop secured to the wood frame work through the exterior finish. The service is 120/240 volt – 1 Ø and fused at 50 amps. The disconnect switch is locked off by T.E.P. It is located on the east side of the building at the south end and is located over 8 feet above the ground. It is not over 30 years old based on the style of the disconnect switch and the condition of the metal exterior surface. The service feeds a single 6 circuit, screw-in fuse panel that is located on the south wall at the east corner and the front cover is missing. It is located over 7 feet above the floor. It is hard to judge the age of this type of fuse panel and all of the wiring is non-metallic sheathed type, but varying in age from cloth to neoprene type jacketing.



Figure No. 118 - Electrical service connection; note remaining paneling on porch similar to that shown in photograph of side porch at Officer's Quarters No. 2 (no longer exists)

The wiring throughout the building and cover porch varies from different versions of knob and tube type (K&T) wiring, which probably dates back to Miss Cate's sanatorium, in the early 1900's, to different types of nonmetallic sheathed cable (NMC). In some instances the NMC wiring is connected to the older K&T to complete a circuit. It does not appear that any metal conduit or cabling was used for wiring the building.



Figure No. 119 - Knob and tube equipment on rear porch

Light Fixtures: The light fixtures that exist vary in age from lights that were part of the K&T installation, suspended hanging cables with sockets fed from K&T connectors, a suspended decorative fixture attached to a concealed outlet box, to present day fluorescent fixtures.



Figure No. 120 - Brass fixture in bathroom 1; probably 1930s or 1940s

Similar to the light fixtures, the electrical switches and receptacles and their installation vary greatly in age. There is a rotary light switch that is wired with original K&T for which it was designed to modern devices in metal boxes (fed with NMC). Some of the receptacles are the grounded type and some of the modern NMC included a ground conductor.



Figure No. 121 - Fixture in Zagan, bare suspended wire installed with knob and tube system; a similar fixture exists at Bedroom 2

Telephone Service: Telephone is serviced overhead to the west wall near the north end; there is a surface receptacle at that same location that is exposed to the weather and not weatherproof construction.



Figure No. 122 - Telephone entry on west wall above Living Room window

Appliances: No appliances exist. It appears that a water heater stood in the northwest corner of the kitchen.

Significance: Low

Integrity: Low

Condition: Poor

Comments: All services will have to be replaced with new if the building use requires power or communications

Plumbing and Plumbing Fixtures

The facilities currently have domestic water supplied from a ¾" meter and reduced pressure principle backflow preventer located on Ft. Lowell Road near the west portion of the site. Underground piping is routed throughout the site to various hose bibbs and buildings. The material for the underground piping appears to be non-coated galvanized steel or black iron pipe with threaded joints. (NOTE: Water has been reconnected by the City of Tucson to serve the site during ongoing work. There are active hose bibbs adjacent the Adkins Residence and Officer's Quarters No. 3).

Natural gas is supplied from a single gas meter located on Ft. Lowell Road just north of the Adkins Residence. Underground gas piping is routed to the Adkins Residence and the Officers' Quarters No. 3. The material for the underground piping appears to be non-coated galvanized steel or black iron pipe with threaded joints. Gas piping rises from underground outside the east side of the building and penetrates the exterior wall adjacent to the fireplace in the southeast room. The gas piping is routed along the floor, through the rooms, out the west side of the building, then back into the building to the removed water heater location adjacent to the kitchen sink. All of the gas piping is galvanized steel or black iron pipe with threaded joints.

There is no sewer connection to the Pima County Waste Water system on this site. Officer's Quarters No. 3 however is known to be connected to a septic system south of the building; installed by the Adkins family. Pima County Waste Water does have an 8" sewer line on the west side of Craycroft Road with a manhole just north of the Craycroft entrance to the site. There is also a 36" sewer line in the middle of Craycroft Road.

This facility has a bathroom with a tank type water closet, corner wall mounted lavatory, and tub. A kitchen sink is located in the Kitchen and piping still remains adjacent to the sink where a water heater was removed. Bedroom 2 has a drain assembly for a lavatory that is no longer present. A hose bibb is located outside the west side of the building and in the southeast room.



Figure No. 123 - Double sink at Kitchen; the drain went through the wall into a drain pipe



Figure No. 124 - Lavatory at Bathroom



Figure No. 125 - Cast-iron tub set into a cast concrete base, note the plywood access panel cover to the plumbing

Cold water was still working for all of these fixtures at the time of review. Water piping is supplied from underground and rises up outside the building to the bathroom, kitchen, and hose bibbs. The piping within the bathroom is exposed and routed on the wall. Hot water piping is routed from the removed water heater location to the kitchen sink, then outside the building along the wall to the bathroom. All of the water piping is either galvanized steel or black iron pipe with threaded joints.

Soil piping from the bathroom fixtures penetrates through the floor to underground. Soil piping from the kitchen sink penetrates the exterior west wall and terminates into a 4" broken steel pipe that goes underground. A 4" broken steel pipe also is routed underground at the southwest and northeast corners of the building. The purpose for these steel pipes is unknown. A 12" diameter inspection port is located +/- 50' from the southwest corner of the building. This is probably for the septic system.

Significance: Low

Integrity: Low

Condition: Fair

Comments: All plumbing systems will have to be replaced with new if the building use requires such services

Building Emergency Stabilization - Officer's Quarters No. 3

This structure has received temporary stabilization work in an effort to mitigate its further decay until a programmatic direction can be determined from the Fort Lowell Park Master Plan. Work included:

- a. The building has been stabilized with the addition of a temporary roof consisting of an asphalt emulsion seal coat (Henry 107 Emulsion), a layer of yellow fiberglass fabric and another emulsion coat.



Figure No. 126 - Temporary roofing system , in foreground is chimney base with plywood cap and temporary roofing cap

- b. The brick chimneys were falling down – they were documented photographically and have been accurately drawn so that they may be reconstructed.



Figure No. 127 - Falling down chimney on west side of roof, overlooking Officer's Quarters No. 2



Figure No. 128 - Bricks from chimney stacked on the ground after removal from roof, behind are the cast concrete caps removed from both Officer's Quarters No. 2 and 3

- c. The chimneys were then disassembled and the bricks stacked on a concrete slab adjacent the house. The flue openings were covered with plywood and then the temporary roof system was applied over the plywood.

- d. Bracing has been applied to interior collapsing ceilings at the Living Room and Bed room No. 1 and at the Living Room west window, and the northeast exterior corner of the building has been braced. The south side porch has been resupported and a portion of the parapet on that same side has been braced. Bracing has also been applied to the exterior of the building at the northeast corner



Figure No. 129 - Bracing at Bedroom 1 ceiling



Figure No. 130 - Bracing at Bedroom 2 ceiling



Figure No. 131 - Bracing at north-east corner of building

- e. A swale has been dug around the house to encourage positive drainage away from the structure (see Site Drainage).
- f. Documents have been prepared for a temporary protective structure – a steel framed fabric tent – that may be procured and erected over the building to protect it from rain and the elements.
- g. All work was monitored continually by an archaeologist who tagged and directed storage of items of interest in the Fabrication Shed at the north side of the site.

Note: All bracing should be monitored on a regular basis and adjusted as needed to provide positive support.

Section 5

Appendix

Appendix A

Evaluation System

Integrity: The authenticity of physical characteristics from which building elements obtain their significance, and the actual amount of original historic fabric remaining from period of significance. Integrity is noted as Good, Fair, or Poor, relative to the amount of work to repair or replace the element and how much integrity the element exhibits.

Significance: The relative significance of a building feature is generally based on its age in relation to an association with an historic event or person, and/or its importance as a character defining element of the building. The period of significance is directly related to these associations and refers to the span of time in which significant events and activities occurred. NOTE: The period of significance for the Adkins Residence has not been established; significance of particular building elements is attributed due to its importance to the character of the building.

Physical Condition: This refers to the physical state of repair of building elements. Deficiencies and their severity, along with recommended repair options, have been set out. The physical condition of building elements are noted as Critical, Serious, or Minor, defined as follows:

A CRITICAL deficiency of an element exists where:

- a. there is advanced deterioration which has resulted in the failure of the building element or will result in the failure of the building element if not corrected within two years, and/or
- b. there is accelerated deterioration of adjacent or related buildings materials as a result of the element's deficiency, and/or
- c. there is a threat to the health and/or safety of the user
- d. there is a failure to meet a legislative requirement

CRITICAL deficiencies may include, but are not limited to: undersized floor joists which are inadequate for the load of the building, leaking roof, failed drainage system, or a furnace located in an unprotected crawl space

A SERIOUS deficiency of an element exists where:

- a. there is advanced deterioration, which if not corrected within 2-5 years, will result in the failure of the building element, and/or
- b. a threat to the health and/or safety of the user may occur within 2-5 years if the deterioration is not corrected, and/or
- c. there is a deterioration of adjacent or related building materials and/or systems as a result of the element's deficiency, and/or
- d. there is a failure to meet a legislative requirement

SERIOUS deficiencies may include, but are not limited to: an old electrical system that is inadequate for present use, inadequate ventilation of crawl space, a public building which is not accessible to the handicapped

A MINOR deficiency of an element exists where:

- a. standard preventative maintenance practices and building conservation methods have not been followed, and/or
- b. there is a reduced life expectancy of affected or related building materials and/or systems, and/or
- c. there is a condition with a long-term impact beyond 5 years

MINOR deficiencies may include, but are not limited to: cracked window glass, cracked plaster on interior walls surfaces

Appendix B

The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (1990)

Definition: Rehabilitation is defined as “the process of returning a property to a state of utility, through repair or alteration, which makes possible contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values.” The following standards are codified program requirements.

The Secretary of the Interior's Standards for Rehabilitation

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of basic materials or alterations of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historical significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a historic property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the deterioration requires replacement of a distinctive features, the new feature shall match the old in design, color, texture and other visual qualities, and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archaeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or relocated new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be impaired.

Treatment Methods: The Secretary of the Interior's Standards outline four distinct, but inter-related, approaches to the treatment of historic properties as follows:

-Preservation focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time

-Rehabilitation acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.

-Restoration depicts a property at a particular period of time in its history, while removing evidence of other periods.

-Reconstruction recreates missing or non-surviving portions of a property for interpretative purposes.

The four approaches to treatment are more fully defined as follows, and are not necessarily mutually exclusive, as each method may overlap with the others in the implementation of some measures.

-Preservation means the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.

-Rehabilitation means the act or process of making possible an efficient compatible use for a property through repair, alterations and additions while preserving those portions or features that convey its historical, cultural or architectural values.

-Restoration means the act or process of accurately depicting the form, features and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.

-Reconstruction means the act or process of depicting, by means of new construction, the form, features and detailing of a non-surviving site, landscape, building, structure or object for the purpose of replicating its appearance at a specific period of time and in its historic location.

All building elements have been individually reviewed to assess historic significance, integrity, and physical condition based on criteria identified in the Department of Interior Standards for Treatment.

Appendix C

Documents and Information Sources

In the preparation of these reports we have consulted various resources:

Historic American Buildings Survey (H.A.B.S. No. Ariz. – 17, 10-Tucson 2) Drawings:

Built In America. The Library Of Congress. September 2007.
(http://memory.loc.gov/cgi-bin/query/D?hh:1:./temp/~ammem_weOU::)

Reports:

Fort Lowell Historic District Portfolio II – 1979, revised 2004

Historic American Buildings Survey (H.A.B.S. No. Ariz – 17) – Written Historical and Descriptive Data

Archaeological Investigations at Fort Lowell, Alfred E. Johnson, 1960

Historic Inventories of Fort Lowell District, 1974, and updated 1980

Cultural Resources Assessment for the Fort Lowell-Adkins Steel Property within Historic Fort Lowell, Tucson, Pima County, Arizona Report No. 07-119, Desert Archaeology

Miscellaneous:

Adkins, Harry. Personal Interview. July 2007.

Hartman, Lannie. Personal Interview. August 2007.

Matesich, Ken. Personal Interview. September 2007.

Appendix D

Consultant Reports

Consultant Team

Structural: Turner Structural Engineering
3026 N. Country Club Road
Tucson, AZ 85716

Adobe: Desert Earth and Wood, LLC
421 N 5th Ave Suite 107
Tucson, AZ 85705-8417

Electrical: Hy-Lite Design
3109 N. Madera Mesa Place
Tucson, AZ 85749

Mechanical/Plumbing: SMU Mechanical
5447 East Fifth Street #112
Tucson, AZ 85711

TURNER STRUCTURAL ENGINEERING

October 26, 2007

Mr. Arthur Stables
Burns Wald-Hopkins Architects
261 N. Court Ave
Tucson, AZ 85701

Adkins Steel Parcel – Ft. Lowell
Structural Condition Assessment

Officer's Quarters No. 1

There is only some partial adobe wall remnants remaining from this former structure.

Officer's Quarters No. 2

The roof structure is completely gone from the structure.

The walls are partially standing and have temporary bracing in some hazardous locations to prevent them from toppling over. In the deteriorated walls still standing there are some large cracks and separations between wall elements. There is no plaster on the inside or outside faces of the walls.

The floor areas are dirt.

Officer's Quarters No. 3

The Officer's Quarter No. 3 is a lot more intact than either O.Q. No. 1 or No. 2, but it is still in a very deteriorated poor condition.

Roof Structure:

The roof structure has recently had a protective rolled roofing installed to protect the roof and top of walls from further deterioration. The roof structure consists of a double layer of structure. There is a main support joist (3x12) above the plaster ceiling with wood (1x6) decking that span from wall to wall of each room. On top of this framing is another level consisting of 3x4's spanning perpendicular and supported on the the ceiling joists via 2x and 3x shims with 1x6 decking over the 3x4's. The roofing material is applied to the top of this level.

The main roof joists beams are supported in bearing on the adobe walls. The adobe walls are deteriorated and the bearing for some of the joists has given way. Several of the roof areas are currently being temporarily shored to prevent them from collapsing.

Porch Structures:

There are porches running the full building width on the north and south sides of the building. The porches are in a severely deteriorated condition. The cement shingle roof is missing from most of the roof area. The wood roof framing is all exposed to weather and the decking is gone, the rafters and beams are in dilapidated condition. The porch floor is wood planking on dirt. Much of the wood planking is missing or severely deteriorated.

Exterior Walls:

The mud adobe walls still have plaster remaining on most of the walls, but there are large cracks and separations in the plaster and in the adobe. The northeast corner is severely cracked and deteriorated and is temporarily shored to prevent the corner from collapsing.

Note: The recently installed shoring consists of wood bracing that is set in the exterior dirt grade. It appears that the recent rains have caused the wood bracing to settle. All of the temporary shoring that has recently been installed should be periodically observed and adjusted as needed to insure that it remains functional.

This concludes our assessment.

If you have any questions, please give us a call.

Sincerely,

TURNER STRUCTURAL ENGINEERING CO.

Mark S. Turner, PE

Tel: (520) 624-5602 • Fax: (520)624-5521
421 N 5th Ave Suite 107 Tucson AZ 85705-8417
ROC 186274 KB-02

Assessment Notes

Date: November 2, 2007

Arthur Stables
Burns Wald-Hopkins Architects
261 North Court Avenue
Tucson, AZ 85701

RE Property:
"Adkins Steel Parcel at Fort Lowell" meeting of October 10, 2007

After meeting On October 10th, 2007 with Arthur Stables, Mark Turner, and Simon Herbert, Arthur has asked for comments concerning the structural stability of buildings on the Adkins property. The buildings of interest were Officer's Quarters #3 and Officer's Quarters #2. In addition, questions were raised pertaining to the temporary shoring of the buildings and what additional bracing should be addressed. Arthur also requested an estimated value of per square foot costs relating to repairs to the base of the adobe walls.

On a walk through of Officer's quarters #2, Mark, Arthur, and I noted particular walls in need of additional bracing. This applied to free standing ruins and or situations lacking lateral support of adjoining walls. Several windows were in need of structural support to prevent collapse at lintel situations. The window on the east side of the building we discussed shoring and rebuilding, as it is in imminent danger of collapse.

In my opinion the shoring that has been installed should be considered a temporary measure and I would recommend a more permanent bracing system if intended to function for more than 18 to 24 months. This might be as simple as small concrete footings with brackets to attach to 4X4 kickers.

Quantifying per square foot cost (surface area) to the repairs to the condition of basil covering is a fairly nonobjective task and perhaps should be approached on a visual assessment of the scope of the requested project. It is my understanding that the current experimental repairs were done using native soil and eroded adobe on site to create the adobes, and this is a cost to be factored in to these types of repairs. Excavating next to the base to remove non original concrete reinforcement would also be necessary. A 20' X 2' section of wall could be estimated to take in the range of 120 to 140 man hours. Assuming contractor rates

of \$50 per man hour, and a minimum of necessary construction materials, a contractor would need to charge in the realm of \$160 per square foot (surface area). This again might be dramatically reduced if the activity was assessed as a larger project. My general experience is that these activities are very difficult to quantify.

It was noted in Officer's quarters #3 that more substantial temporary shoring be installed in the Northeast bedroom. It is necessary to suggest that when these types of shoring of the roof system is being done, great care and finesse should be used so as to prevent deflection or tension that would potentially cause forces to push or pull on the adobe walls.

Water damage caused by leaking canales will require lintel repairs over several windows. Some invasive measures may be needed at some of the lintels as part of the temporary stabilizing activities.

Of interest was that I noted that the North and South walls appear to have a thinner adobe installed at the approximate height of what would be the ledger or rafter support of the attached porch structures. It was theorized that due to the fact that these walls are parallel to the rafter system, they were not required to carry the main load of the roof structure. This would give the designer the freedom to lighten those sections of the walls and thereby save material and labor. The transition to these thinner walls seems to correlate to the height of the ceiling and in essence the height of bond beam. The upper area of these sections apparently has a thicker application of stucco to create a continuous visual plain.

If you have further questions let me know.

Respectfully,

Timothy Barrett

SMU MECHANICAL ENGINEERING

Introduction

SMU Mechanical Engineering performed an assessment of the Officers' Quarters No. 2 & 3 and the Adkins Residence on the Adkins Steel parcel at Fort Lowell. All of the remaining mechanical and plumbing systems are deteriorated and are required to be replaced. This includes all of the site plumbing and septic systems. The following is a description of the mechanical and plumbing systems that were observed during a review of the site.

Site

The facilities currently have domestic water supplied from a $\frac{3}{4}$ " meter and reduced pressure principle backflow preventer located on Ft. Lowell Road near the west portion of the site. Underground piping is routed throughout the site to various hose bibbs and buildings. The material for the underground piping appears to be non-coated galvanized steel or black iron pipe with threaded joints.

Natural gas is supplied from a single gas meter located on Ft. Lowell Road just north of the Adkins Residence. Underground gas piping is routed to the Adkins Residence and the Officers' Quarters No. 3. The material for the underground piping appears to be non-coated galvanized steel or black iron pipe with threaded joints.

There is no sewer connection to the Pima County Waste Water system on this site. The existing facilities appear to have had some type of septic system. Pima County Waste Water does have an 8" sewer line on the west side of Craycroft Road with a manhole just north of the Craycroft entrance to the site. There is also a 36" sewer line in the middle of Craycroft Road.

Officers' Quarters No. 2

This structure has a sink hung on the south wall in the northeast room. The water line penetrates the south wall and stops inside the southeast room. The soil line is routed along the south wall, penetrates through the west wall, and turns to underground in the center room. In the center room adjacent to the soil line is a pressure tank that is half buried. The purpose of this tank is unknown. It appears that none of these materials are original and the sink and piping was added for an unknown use.

Officers' Quarters No. 3

This facility has a bathroom with a tank type water closet, corner wall mounted lavatory, and tub. A kitchen sink is located in the southwest room and piping still remains adjacent to the sink where a water heater was removed. A hose bibb is located outside the west side of the building and in the southeast room.

Cold water is still working for all of these fixtures. Water piping is supplied from underground and rises up outside the building to the bathroom, kitchen, and hose bibbs. The

pipng within the bathroom is exposed and routed on the wall. Hot water piping is routed from the removed water heater location to the kitchen sink, then outside the building along the wall to the bathroom. All of the water piping is either galvanized steel or black iron pipe with threaded joints.

Soil piping from the bathroom fixtures penetrates through the floor to underground. Soil piping from the kitchen sink penetrates the exterior west wall and terminates into a 4" broken steel pipe that goes underground. A 4" broken steel pipe also is routed underground at the southwest and northeast corners of the building. The purpose for these steel pipes is unknown. A 12" diameter inspection port is located +/- 50' from the southwest corner of the building. This is probably for the septic system.

Gas piping is rises from underground outside the east side of the building and penetrates the exterior wall adjacent to the fire place in the southeast room. The gas piping is routed along the floor, through the rooms, out the west side of the building, then back into the building to the removed water heater location adjacent to the kitchen sink. All of the gas piping is galvanized steel or black iron pipe with threaded joints.

No cooling system was found although I was informed that window type AC units were used. Heating appears to be provided from the three fire places and a couple of stub-outs from the gas piping routed through the building.

November 5, 2007 -

ADKINS STEEL PARCEL AT FT. LOWELL

OFFICER'S QUARTERS – Building # 3

ELECTRICAL ASSESSMENT

Observations

1. The electrical service to the building is an overhead drop, the metal brackets to support the overhead drop are secured to the wood frame work through the exterior finish. The service is 120/240 volt – 1 Ø and fused at 50 amps. The disconnect switch is locked off by T.E.P. It is located on the east side of the building at the south end and is located over 8 feet above the ground. It is relatively new, not over 30 years old based on the style of the disconnect switch and the condition of the metal exterior surface.
2. The service feeds a single 6 circuit, screw-in fuse panel that is located on the south wall at the east corner and the front cover is missing. It is located over 7 feet of the floor. It is hard to judge the age of this type of fuse panel and all of the wiring is non-metallic sheathed type, but varying in age from clothe to neoprene type jacketing.
3. The wiring throughout the building and cover porch varies from different versions of knob and type (K&T) wiring, which can date back to the original structure, to different types of nonmetallic sheathed cable (NMC). In some instances the NMC wiring is connected to the older K&T to complete a circuit. It does not appear that any metal conduit or cabling was used for wiring the building.
4. The light fixtures that exist vary in age from original equipment, suspended hanging cables with sockets feed from K&T connectors, a suspended decorative fixture attached to a concealed outlet box, to modern fluorescent fixtures.
5. As for the light fixtures, the electrical switches and receptacle and their installation vary greatly in age. There is a rotary light switch that is wired with original K&T for which it was designed to modern devices in metal boxes (feed with NMC). Some of the receptacles are the grounded type and some of the modern NMC included a ground conductor.

6. Telephone is serviced overhead to the west wall near the north end; there is a surface receptacle at that same location that is exposed to the weather and not weatherproof construction.

Code Issues

1. The electrical service and panel are above the 6'-6" maximum height for access and the panel does not have a cover. A new electrical service and will have to be installed on the building with a meter, main and panel and verify the ground installation.

Appendix E

Interior Elevation Photographs



Kitchen/North



Kitchen/South



Kitchen/West



Kitchen/East



Pantry/North



Pantry/South



Pantry/West



Pantry/East



Living Room/Northwest



Living Room/Northeast



Living Room/South



Living Room/West



Living Room/East



Zaguan/North



Zaguan/South



Zaguán/West



Zaguán/East



Bedroom 1/North



Bedroom 1/South



Bedroom 1/West



Bedroom 1/East



Bedroom 2/North



Bedroom 2/South



Bedroom 2/West



Bedroom 2/East



Dining Room/North



Dining Room/South



Dining Room/West



Dining Room/East

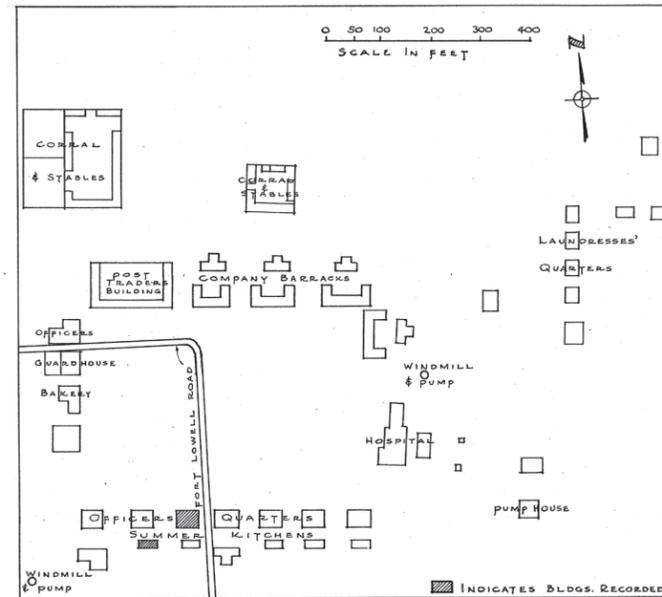


Bathroom/North



Bathroom/West

FORT LOWELL OFFICERS' HOUSE NEAR TUSCON PIMA COUNTY, ARIZONA



**ORIGINAL GROUND PLAN OF
FORT LOWELL IN 1873**

LOUIS WILLIAMS - DEL.

HISTORIC AMERICAN BUILDINGS SURVEY
U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
BRANCH OF PLANS AND DESIGN

MEASURED: DECEMBER 1937

DRAWN: SEPTEMBER 1940

MEASUREMENTS CHECKED: MIGUEL J. SLACK - APRIL 1940



DRAWINGS APPROVED:

DRAWINGS APPROVED:

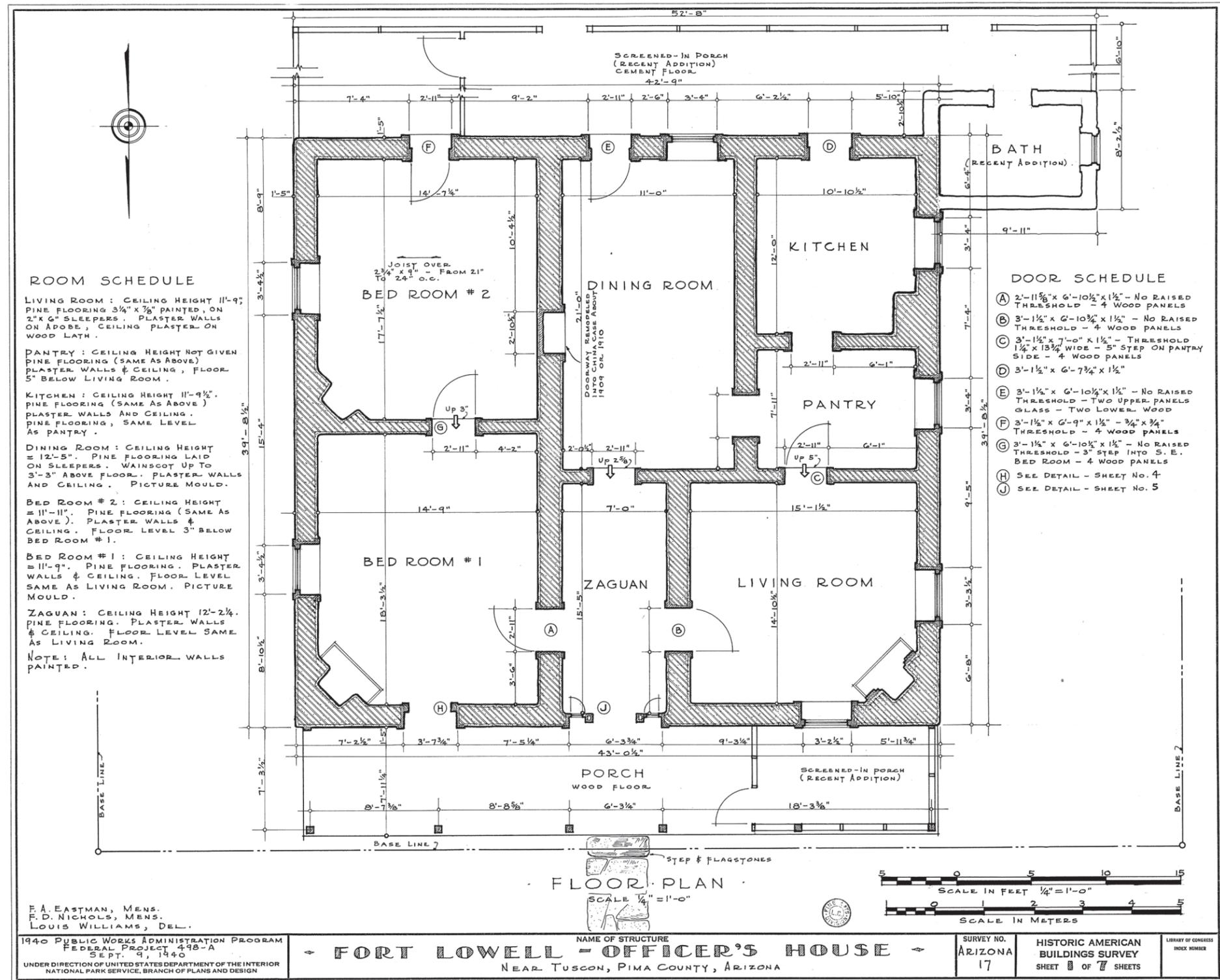
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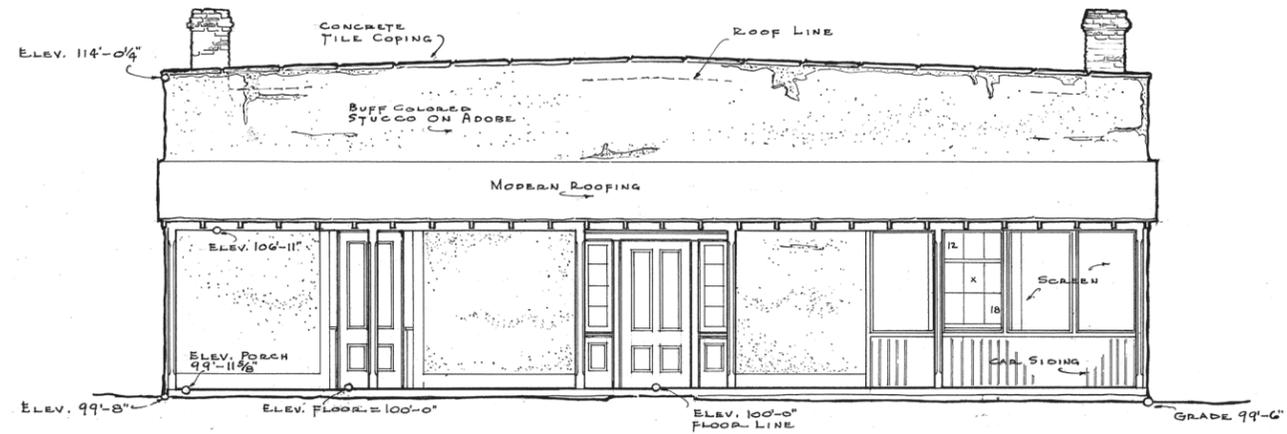
Roy Place DISTRICT OFFICER.
H. E. Pennington CHIEF ARCHITECT.

SOUTHWEST DISTRICT
ROY PLACE
DISTRICT OFFICER
H. E. PENNINGTON
TUSCON, ARIZONA
FIELD PARTY
F.A. EASTMAN, F.D. NICHOLS

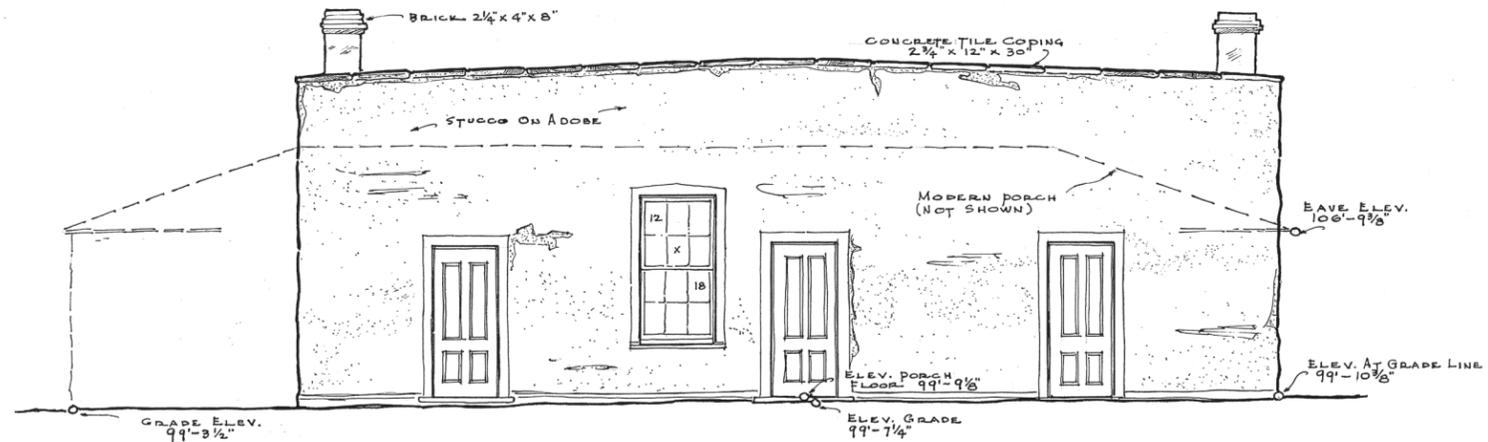
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SHEETS
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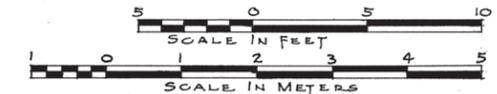




- NORTH - ELEVATION -
SCALE 1/4" = 1'-0"



- SOUTH - ELEVATION -
SCALE 1/4" = 1'-0"



LOUIS WILLIAMS - DEL.

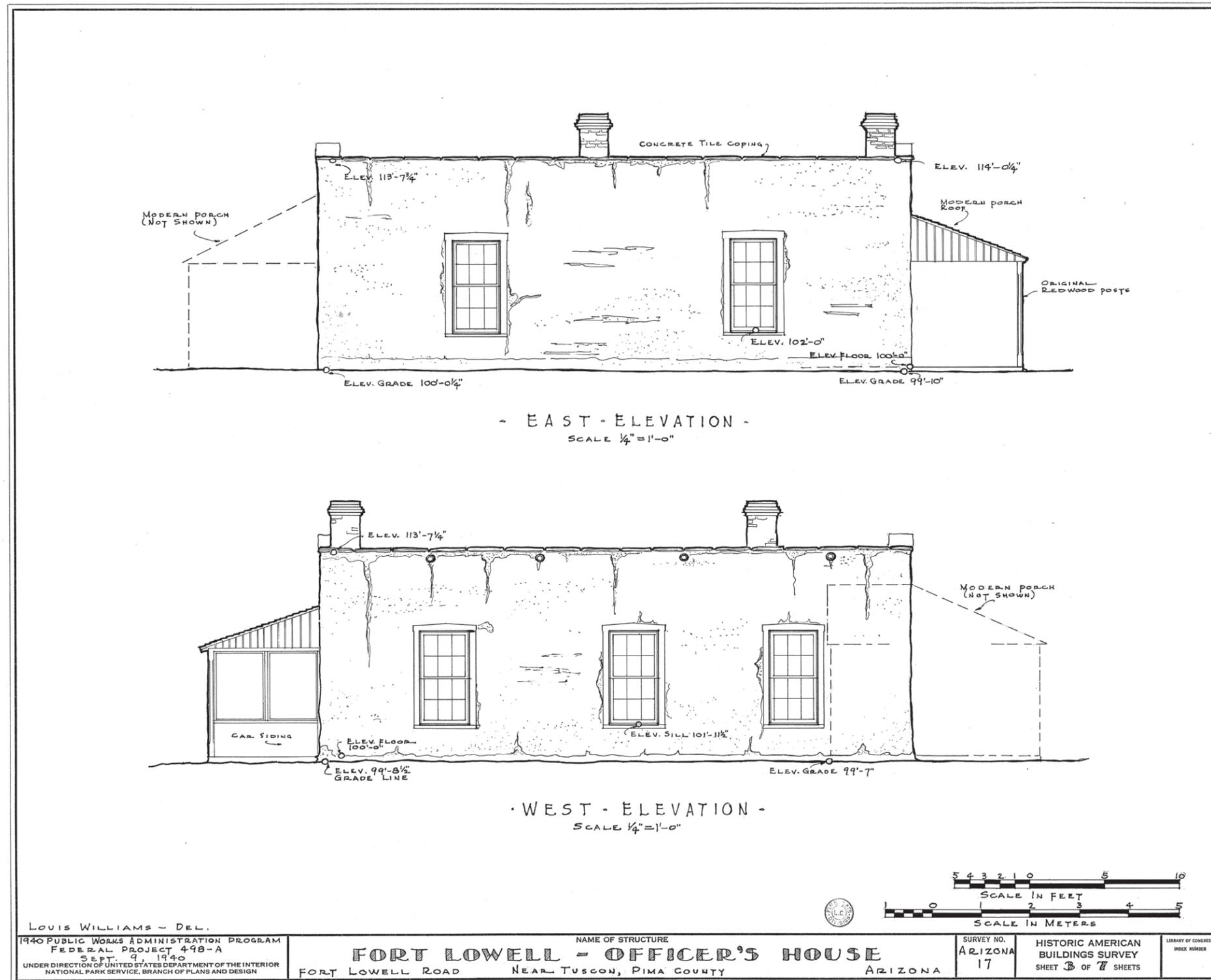
1940 PUBLIC WORKS ADMINISTRATION PROGRAM
FEDERAL PROJECT 498-A
SEPT. 9 1940
UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

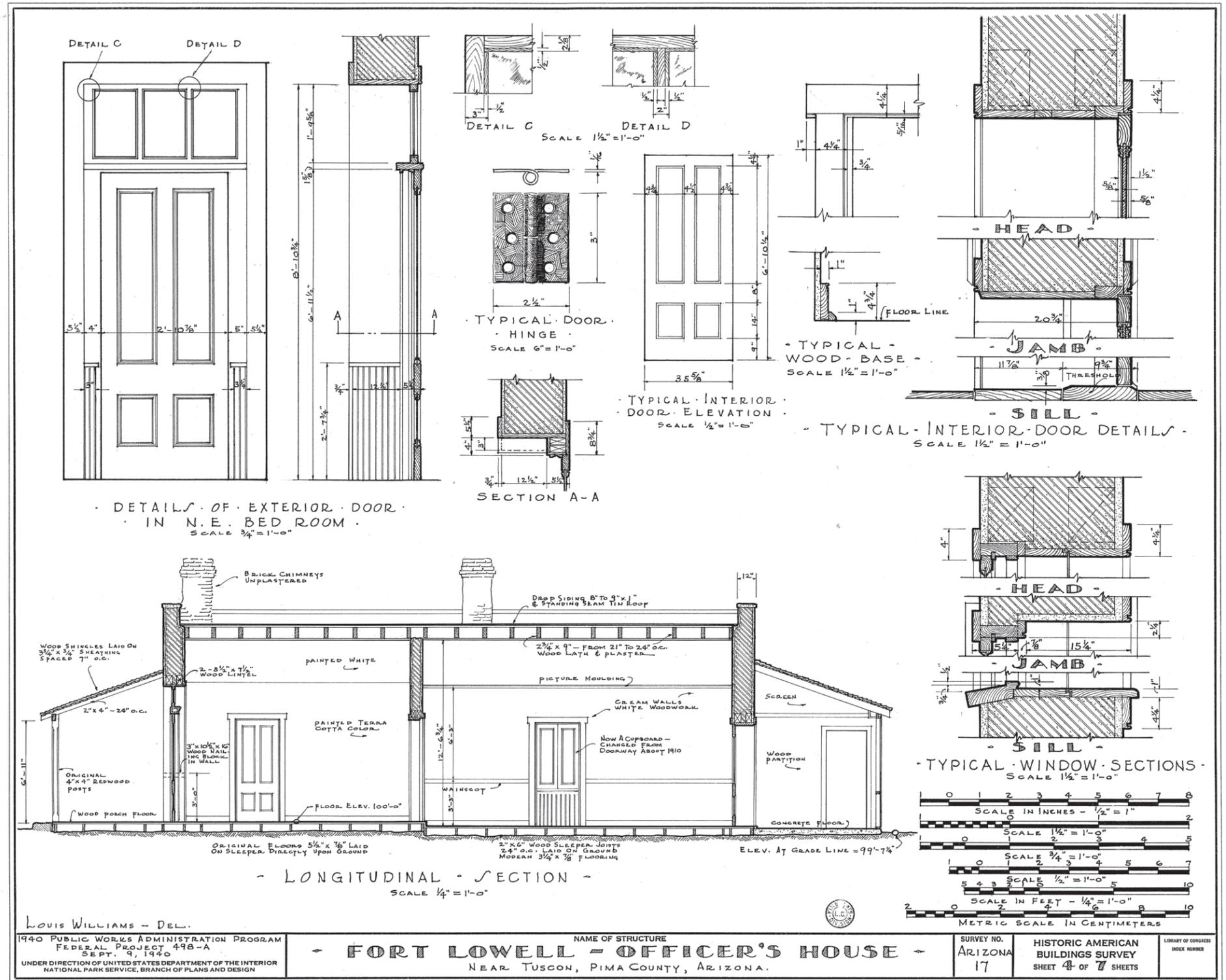
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- FORT LOWELL - OFFICER'S HOUSE -
FORT LOWELL NEAR TUSCON, PIMA COUNTY ARIZONA

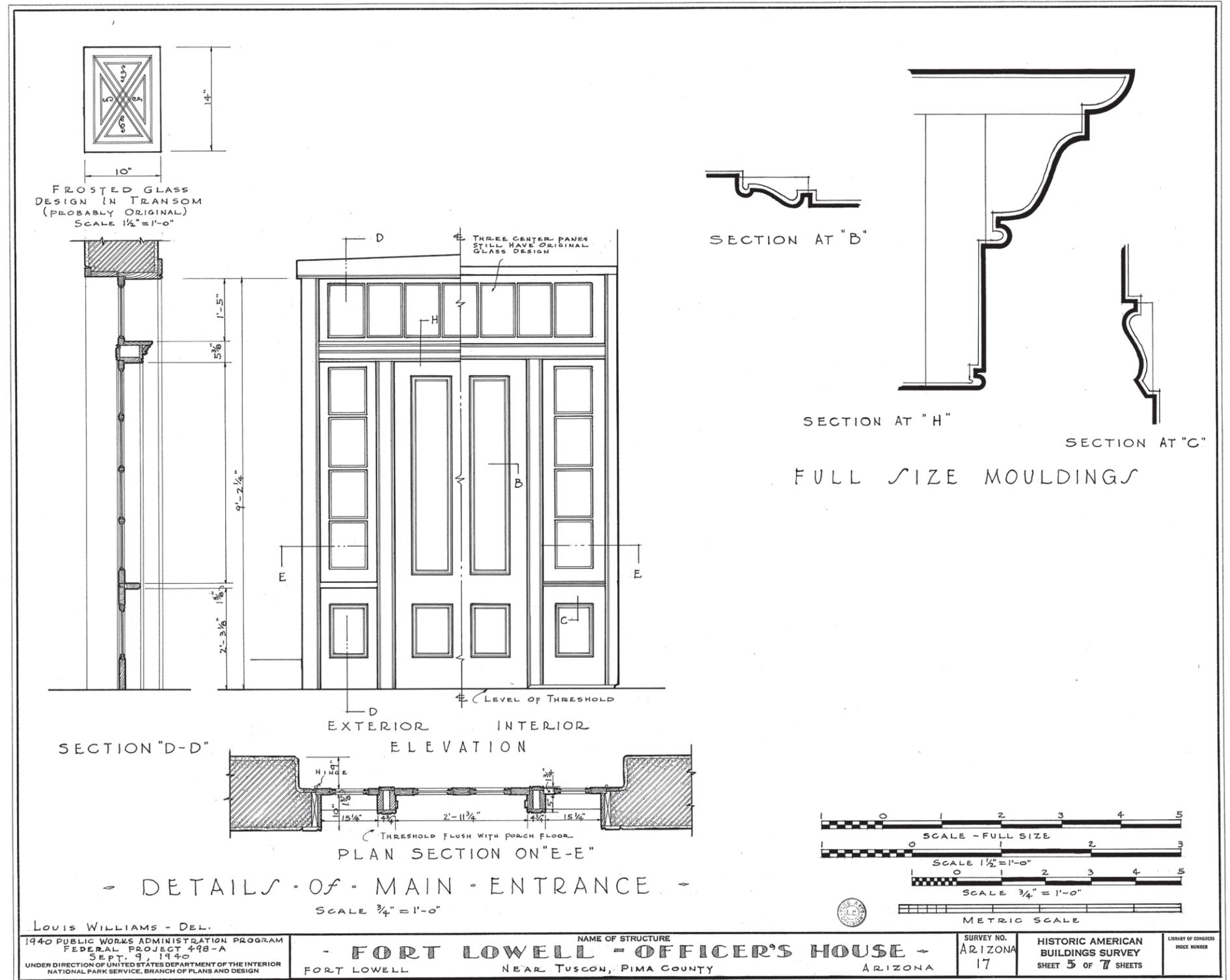
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HISTORIC AMERICAN
BUILDINGS SURVEY
SHEET 2 OF 7 SHEETS

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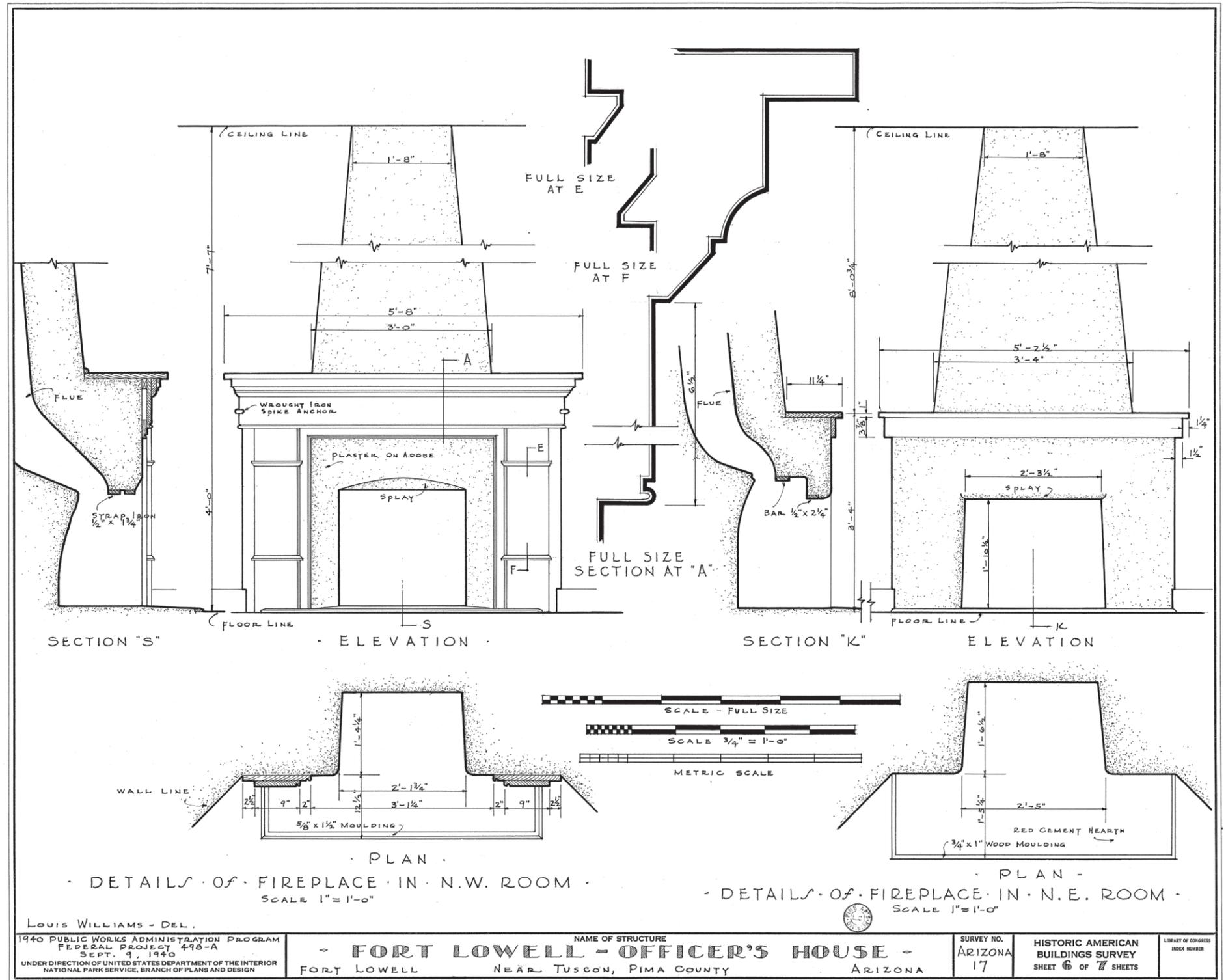


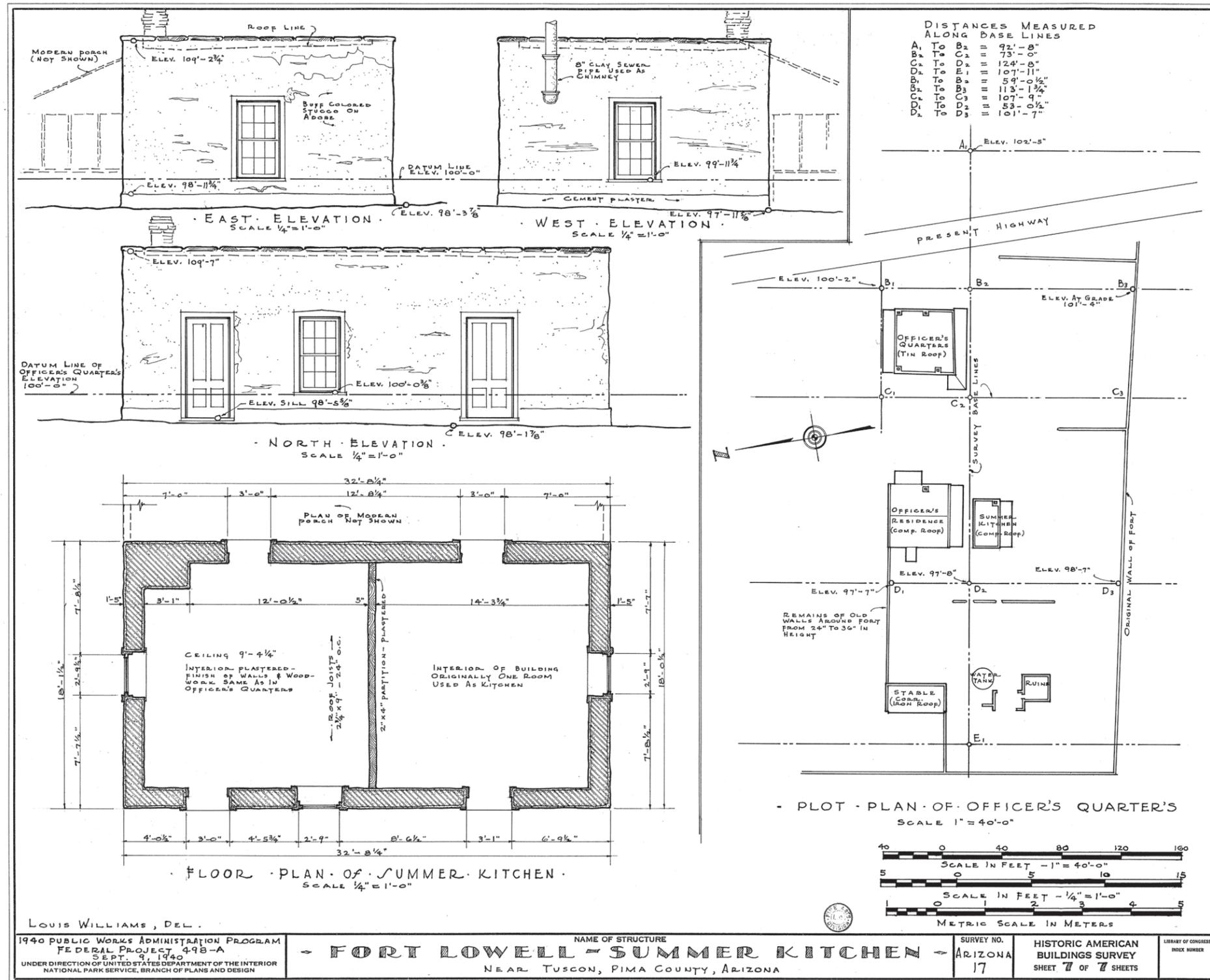


LOUIS WILLIAMS - DEL.
 1940 PUBLIC WORKS ADMINISTRATION PROGRAM
 FEDERAL PROJECT 498-A
 SEPT. 9, 1940
 UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
FORT LOWELL - OFFICER'S HOUSE
 FORT LOWELL NEAR TUSCON, PIMA COUNTY ARIZONA

SURVEY NO. ARIZONA 17
 HISTORIC AMERICAN BUILDINGS SURVEY SHEET 5 OF 7 SHEETS
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 FEDERAL PROJECT 498-A
 SEPT. 9, 1940
 UNDER DIRECTION OF UNITED STATES DEPARTMENT OF THE INTERIOR
 NATIONAL PARK SERVICE, BRANCH OF PLANS AND DESIGN

NAME OF STRUCTURE
FORT LOWELL - SUMMER KITCHEN
 NEAR TUSCON, PIMA COUNTY, ARIZONA

SURVEY NO.
 ARIZONA
 17
 HISTORIC AMERICAN BUILDINGS SURVEY
 SHEET 7 OF 7 SHEETS
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H.A.E.S. No. Ariz. - 17.

HABS.
ARIZ.

10-Tucson
2

FORT LOWELL

(OFFICERS' HOUSE AND SUMMER KITCHEN)

Near Tucson, Pima County, Arizona.

—PHOTODUPTS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historical and Descriptive Data
Southwest District

HISTORIC AMERICAN BUILDINGS SURVEY

Roy Place, District Officer,
11 East Pennington,
Tucson, Arizona.

MARS
ARIZ.

JOHN LOWELL

10-Tucson
2.

OFFICERS' HOUSE AND SUMMER KITCHEN

Near Tucson, Pima County, Arizona.

Owner: University of Arizona, owner of most of property; many ruins outside University property privately owned. Harvey Adkins owner and present occupant of buildings recorded.

Date of Erection: 1874.

Architect: Unknown.

Builder: Quartermaster Department, United States Army.

Present Condition: Fair; essentially unchanged except for new rear porch, bath addition, new roof, floor and screened portion of front porch, new stucco on exterior, cement tile coping, new lime plaster on interior, which is painted, and minor repairs.

Number of Stories: One.

Materials of Construction: Foundations, adobe and brick with adobe mortar; floors, pine; exterior and interior walls, adobe with adobe mortar; roof, tin over pine roof sheathing laid across sawed rafters (originally adobe soil on split saguaro laid close transversely over the joists or vigas and coiled with Manta); exterior finish, cement stucco; interior finish, lime plaster, painted; fireplaces, adobe; wood mantels; brick chimneys.

Other Existing Records:

Written records, Barnes, Will C., "Arizona Place Names", Arizona Pioneers' Historical Society, Tucson Arizona; "United States Army, Q. M. Department, "Archives and Claims Branch", Washington, D. C., documents on file with Regional Historian Neesham, National Park Service, Region III, Santa Fe, New Mexico; Circular No. 8, War Department, Surgeon General's Office, Washington, May 1, 1875, "A Report on the Hygiene of the United States Army with descriptions of Military Posts"; Drawings attached.

Additional Data:

The building recorded is the only one of the many buildings comprising the post that is standing intact; it having been continuously used as a residence since abandonment of the fort in 1892. All the others are in ruins. Harvey Adkins, the present occupant, has occupied it since 1928; a family by the name of Gates occupied it for nineteen years previously. The other oc-

cupants are not known.

All the buildings of Fort Lowell, as originally constructed, were adobe. They had no foundations other than the adobe walls, and had no floors; the earth being moistened and tamped made a smooth, hard surface and very good floors. This was in accordance with most of the native houses of that period and locality and is still in use by the natives today. The roofs were six to eight inches of adobe soil placed on top of dried saguaro trunks split into small strips which were placed transversely across the roof beams of either native pine logs (vigas) with the bark pulled off, or sawed pine timbers, acting as both roof rafters and ceiling joists. The ceilings were of "Manta" (common domestic) stretched and tacked to the under side of the joists. The exterior and interior walls were plastered with adobe plaster.

In 1882 new floors were installed in most of the buildings. These were pine laid on sawed floor joists placed directly upon the ground.

In 1883 ramadas (porches) were added to all the officers' quarters and many of the other buildings for protection against the intense sun rays and excessive heat of summer.

So much trouble had been experienced with the dirt roofs leaking so badly during the rainy season, usually during the summer months, that new tin roofs were added to most of the buildings. These were of the standing seam type and were nailed to wood sleepers laid on top of the existing dirt roofs. The building recorded had received new roof sheathing in place of the original earth roof at some later date, presumably when the joists rotted and had to be replaced with new ones.

In 1885 lath and plaster ceilings were installed to take the place of the "Manta" covering which were "infested with moths and vermin".

Prior to 1885 the post had been designated as Camp Lowell. In 1885 the name was changed to Fort Lowell. The camp was named for General G. R. Lowell, U. S. Army, killed May 21, 1862 at Cedar Creek, Virginia. Most of the doors, windows, frames, mill-work, including fireplace mantels, hardware and other accessories, were fabricated at San Francisco, California, the Military Division of the Pacific and were shipped by way of boat to Yuma, Arizona, and by wagon train from there to the post. Some were made at the post.

Most of the labor employed in the construction of the Fort was by the troops, skilled labor being employed where necessary.

"Camp Lowell is situated on the Rillito, about eight miles south of the highest peak (Mount Lemon) of the Catalina (Santa Catalina) Mountains, and seven miles east of Tucson, in Pima County, Arizona Territory. Latitude, $32^{\circ} 12'$ north; longitude, $33^{\circ} 49'$ west; altitude, about 2,530 feet above the sea.

"Tucson, the capital of the Territory, the nearest town, according to the last census, had a population of 3,200. Seven-eighths of the people are Mexican, and the Spanish language is more spoken than the English. It has been a town of some importance for a century. The Mexican Government had a military post there before the country was ceded to the United States, and it is now the principal place for the exchange of commodities between Arizona and Sonora.

"The stores are good, and almost anything essential to comfort, except furniture, can be procured, although at higher price than in the east.

"The reservation extends five miles north, five miles, south, eleven miles east, and four miles west from the center of the camp, embracing a sufficient area of territory for foraging purposes, as well as securing control of the water course. This tract of land, like the Mesa of which it forms a part, has a dry, sandy soil, and is studded with mesquite-trees, sage brush, and several varieties of cacti. It also affords excellent grama and sacaton grasses which are utilized for the cavalry horses and stock pertaining to the post.

"A military post of the same name as this was established near Tucson during the war of the rebellion, and was garrisoned until March 19, 1873, when the troops were removed to this post, with a view to the establishment of a permanent station. This camp is important as a military station because of its proximity to the Mexican border, the Sonora line being only about eighty miles distant.

"The only buildings completed are two sets of Officers' quarters, the guard-house and the store-house. There is in process of construction two sets of infantry and one of cavalry quarters, one set of quarters for the band, and a hospital. All these buildings are constructed of adobes, with mud roofs. The barracks are not yet roofed (Dec. 31, 1874). The infantry barracks will be 145 by 18 feet. The cavalry barracks will be 85 by 18 feet.

"The commanding officer's quarters consist of a main building, 46 by 46 feet, external measurement, two halls each 9 feet, 8 inches wide, pass at right angles to each other through the center of the house, dividing it into four equal sized rooms. The walls are ten feet high, and the rooms well ventilated at the eaves. In rear of this house is a detached building, $32\frac{1}{2} \times 18\frac{1}{2}$ feet, with an addition, $27\frac{1}{3}$ by $15\frac{1}{2}$ feet, external measurements. This building contains a dining room, $21\frac{2}{3}$ feet long, a kitchen, two rooms for servants and a pantry. There is a cellar under part of this building.

"The other officers' quarters consist of a main building, containing two rooms, each 18 by 15 feet, one 15 by 15, one 15 by 13, and one 15 by 7 feet. A rear building with addition contains a mess-room, 18 by 15, a kitchen, 15 by 15, a servants room, 12 by 12, and a pantry $5\frac{1}{2} \times 12$ feet. (This is the summer kitchen recorded.)

"The guard house, probably one of the best in the Territory, is 52 feet square, external measurement, to which is attached a corral, or inclosed yard, 28 by 48 feet, internal measurement. This inclosure is for the use of the prisoners when not in labor. The building has two halls at right angles to each other, cutting it each way nearly through the center. It is divided into a general prisoners' room (with stone walls) $20\frac{1}{6} \times 19\frac{3}{4}$ by $18\frac{1}{2}$, room for garrison prisoners, $18\frac{1}{2} \times 11$, room for officer of the guard, 16 x 11, room for sergeant of the guard, 8 x 11 feet, a wash-room and tool room. All the rooms are ten feet high, lighted by windows with iron gratings, and are excellently ventilated at the eaves. There are, in addition, four cells, each $7\frac{1}{6}$ by $4\frac{1}{2}$ feet, 10 feet in height, like the general prisoners' room, built of stone, all the rest of the building being constructed of adobe. Only the cells are used for prisoners, the balance of the building being used as adjutant's office, library, and quarters for the non-commissioned staff. Prisoners are kept in tents.

"The hospital, under course of erection, when finished will be, it is believed, almost unexceptional in all its appointments; an effort to comply with the instructions in circular No. 2, Surgeon General's Office, July, 1871. The roof is made of mud, therefore ventilation will be at the eaves instead of at the ridge. A comparatively cool place can always be found in the building, in consequence of the arrangement of the halls. The ward will be heated in the winter by stoves, the rooms by fireplaces. The ward is 15 feet in height, thus allowing 1,200 cubic feet of air-space to each bed, if the number is restricted to twelve, and 1,125 feet to each, if four additional ones are required. The rooms are to be 15 by 15 feet, and will be very convenient and ample. The building

containing the kitchen and mess-room is separated by a distance of thirty feet from the main building. In this hot climate this separation is absolutely necessary, for if the kitchen and ward were under one roof, the flies in summer would be unendurable. The ward rooms will be sufficiently lighted.

"The store-house for the quarter master and commissary contains five rooms, each 18 by 18 feet, 12 feet in height.

"The post bakery measures $31 \frac{1}{6}$ by $15 \frac{1}{2}$ feet, and has an addition, for the ovens, this extension is $13 \frac{1}{3}$ by $16 \frac{1}{6}$ feet, external measurement. The building is divided into three rooms; one, the bake-room, is 12 by $15 \frac{7}{12}$ feet; another is $11 \frac{5}{12}$ by $4 \frac{7}{12}$ feet; the third, $11 \frac{5}{12}$ by $6 \frac{7}{12}$ feet, is used as a sleeping room by the baker. The walls of this house are ten feet high; the ventilation is at the eaves. Capacity of the ovens, two hundred rations.

"The garrison has been and still is quartered in tents. Before leaving the subject of quarters it is proper to add that the beds of the men are in wooden bunks, elevated about 18 inches above the floors of their tents.

"There are no adequate facilities for bathing, but these are contemplated in the erection of the new quarters.

"So far, it has not been decided to build a chapel or school-house at the post, but it is very desirable that the latter, especially, should be built.

"The cemetery is located just without the limits of the town of Tucson. It has a wall around it, and a considerable amount of care has been taken in preserving it.

"The location of this camp is favorable, so far as the supply of vegetables is concerned. Situated as it is in the Valley of the Rillito, the garrison has been and can be liberally supplied with these products, without an extraordinary amount of labor or a great expenditure of money.

"The post garden comprising about five acres of excellent land, is located northeast of the camp, and about six hundred yards distant from it. The garden is irrigated by means of an acequia.

"Throughout the Territory it is customary to cool the drinking water by means of porous "ollas". These, when filled, are suspended in a current of air, and protected from direct and indirect

rays of the sun; evaporation takes place rapidly, and thus the temperature of the water is reduced.

"Mails are received from the east, via San Francisco, three times a week; from Santa Fe and Prescott, twice a week, returning as often; time from this camp to San Francisco, ten days; to St. Louis, via San Francisco, ten days; to St. Louis, via Santa Fe, about fifteen days. The stage carrying the mails to and from San Diego and Yuma, Prescott, and Tucson also carries passengers.

"The annual medical supplies are received from San Francisco, are brought thence by steamer to Yuma, from which point they are conveyed in citizen trains to this place; time occupied in coming here, from date of requisition, generally about four months. Medical supplies are also obtained from the sub-depot at Yuma, and were it not for the slow means of transportation of all kinds of stores passing through the Territory, that point would be invaluable in emergencies as a base of supplies to the distant points."

"Excerpts from "Circular No. 8, War Department, Surgeon General's Office, Washington, May 1, 1875. A Report on the Hygiene of the United States Army, with descriptions of Military Posts."

Trunt Thomas

Trunt Thomas,
Architect in Charge, HABS, Southwest Unit.

Approved November 7, 1940.

Roy Pluco
Roy Pluco, District Officer.

TW 11/19/40



East elevation of Officers Quarters No. 3



West elevation of Officers Quarters No. 3



Front door at Officers Quarters
No. 3



Northeast elevation of the
Kitchen at Officers Quarters
No. 2

End of Report