

Grand Canyon South Rim

Historic Maintenance and Warehouse Complex

Historic Structure Report for 11 Buildings



GRAND CANYON
National Park • Arizona

Grand Canyon South Rim Historic Maintenance and Warehouse Complex

Historic Structure Report

RECOMMENDED
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Cover: View of South Rim Grand Canyon

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GRAND CANYON

National Park • Arizona

United States Department of the Interior

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0.2.2.1 PROJECT TEAM DIRECTORY

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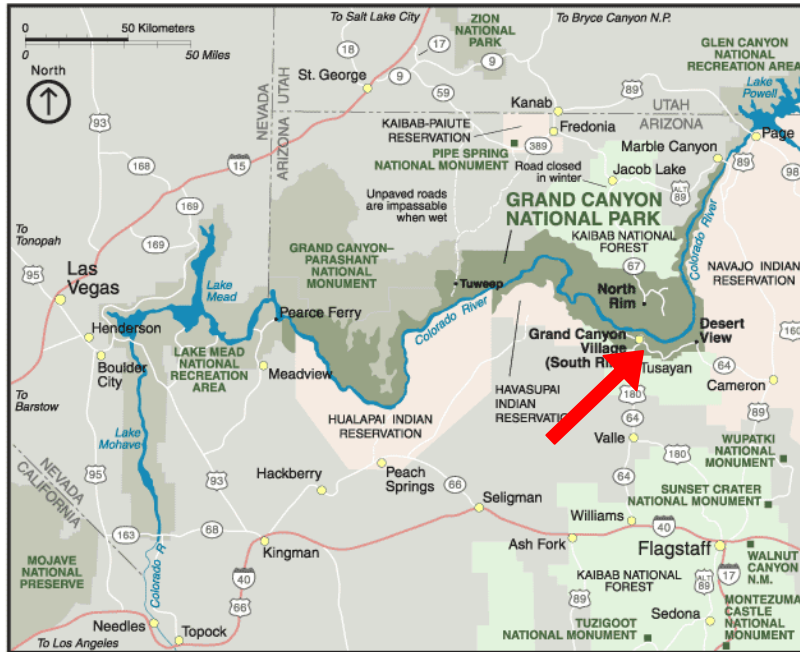
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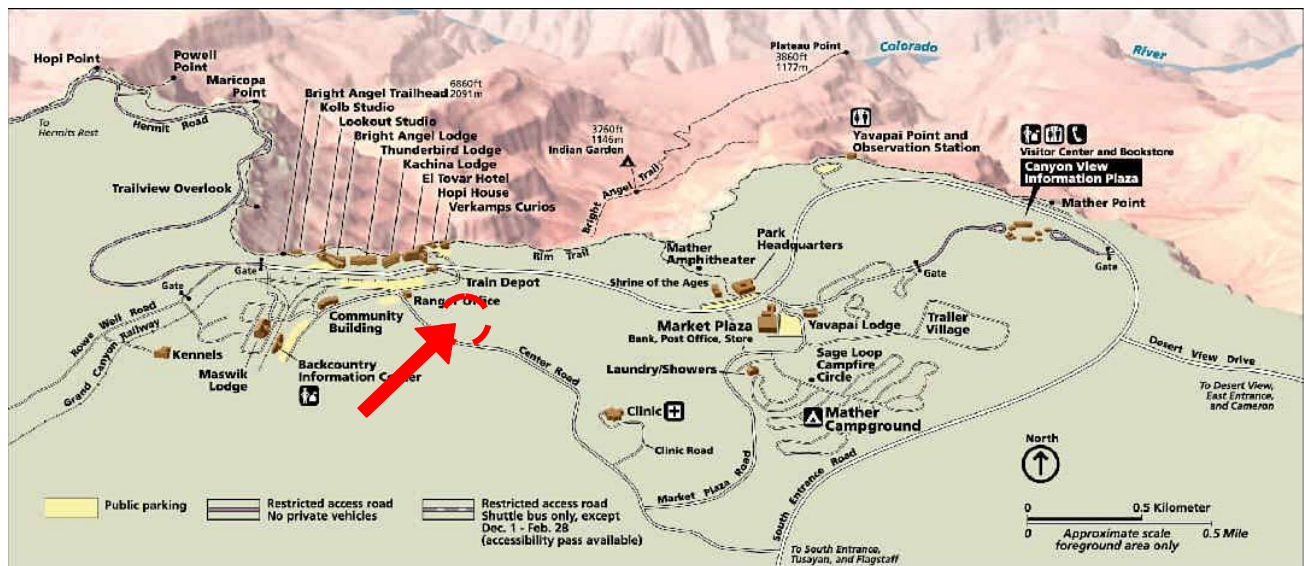
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GRAND CANYON NATIONAL PARK – LOCATION MAP

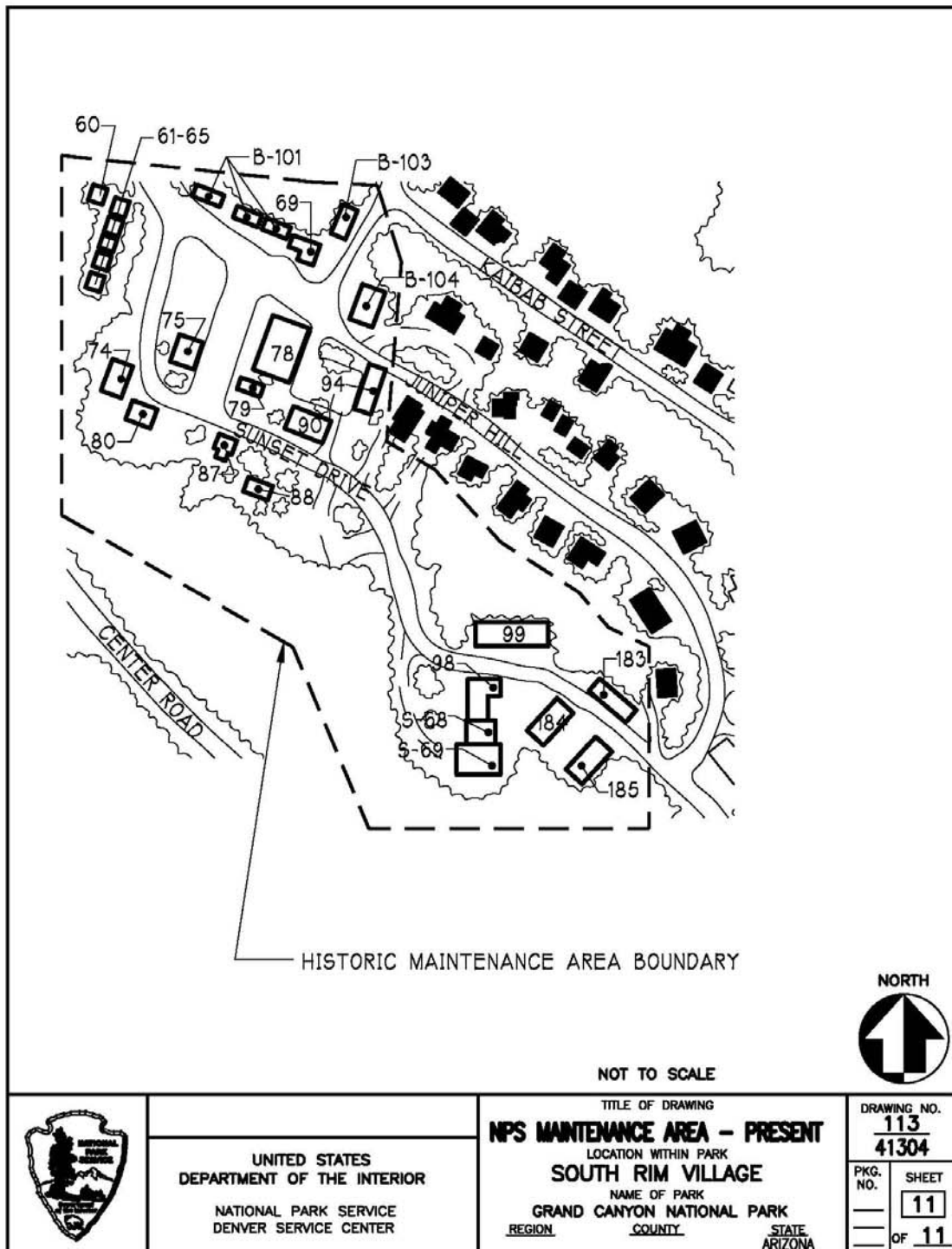


<http://www.nps.gov/grca/>

HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX – LOCATION MAP



<http://www.nps.gov/grca/>



O.2.3 EXECUTIVE SUMMARY

RESEARCH DONE TO PRODUCE THE HSR

The task order for this project called for a Historic Structure Report for eleven buildings in the Historic Maintenance and Warehouse Complex of the South Rim Village at Grand Canyon National Park. The Grand Canyon Village National Historic Landmark District Cultural Landscape Report (CLR) and the General Management Plan were consulted to assess past evaluations and recommendations. The scope of work called for "limited" research, described as "...research in available published sources, usually of a secondary character; research in documentary sources if easily accessible and known to be of high yield; brief interviews of readily available persons to answer specific questions; and a report in no greater detail than directly required by the scope in the project agreement."

Most of the research for this report drew upon source materials available at the Grand Canyon Museum Collection, the Grand Canyon National Park Office of Cultural Resources, the Grand Canyon National Park Library and the National Park Service files at the Denver Service Center. Primary sources included microfiche of original plans and historic photographs of some of the buildings. These sources are located at the Grand Canyon Museum Collection and the National Park Service Denver Service Center. A few brief interviews were conducted consisting of one or two questions of some of the Park Service employees working at or near the buildings.

Other studies and published works were also consulted and are listed in the Bibliography. Of those resources, the major references regarding the history of the Park were the 1996 National Historic Landmark nomination for the Grand Canyon Village Historic District, and an administrative history and a popular history of the Grand Canyon National Park that were each written by Michael F. Anderson (*Polishing the Jewel, An Administrative History of Grand Canyon National Park* and *Under the Rim*). Information about New Deal programs and the National Parks is widely available, but the NPS publication written by John C. Paige ("The Civilian Conservation Corps and the National Park Service, 1933-1942, An Administrative History") was particularly useful. Two helpful studies of rustic style architecture and of landscape architecture in the National Parks were Linda Flint McClelland's *Building in the National Parks; Historic Landscape Design and Construction*, and "National Park Service Rustic Architecture: 1916-1942." by William Tweed, Laura Soulliere and Henry Law.

SUMMARY OF MAJOR RESEARCH FINDINGS

The buildings in this report were constructed between 1924, when the seminal Grand Canyon Village Master Plan was adopted, and the late 1930s concurrent with the works of the Emergency Conservation Work (ECW) program and the Civilian Conservation Corps (CCC) program.

The research clarified the role of the Grand Canyon National Park's service buildings and the development of the Park's maintenance area as part of the overall implementation of the Grand Canyon Village Master Plan. The construction histories of the buildings illustrate the important role of New Deal funding in the completion of the master plan. Research also gave some insight into the service needs in developing and maintaining the Grand Canyon National Park.

Two remarkable aspects of the 1924 Master Plan are that the plan outlined innovative and appropriate development strategies, and that the plan was almost fully executed soon after its adoption.

The 1924 Master Plan prioritized the existing natural setting and adapted development to the terrain and vegetation. The plan also grouped similar, compatible uses and separated potentially conflicting uses. Buildings were located to take advantage of the terrain and the natural vegetative screenings.

The Park Service began to enact the plan as soon as it was approved in 1924, but the New Deal programs during the Depression provided the bulk of the funding and labor. The most significant of the New Deal

programs, the Emergency Conservation Work program, helped bring the plan to fruition through extensive building, landscaping, road and utility work resulting in the historically significant character and features of the Grand Canyon Village Historic Landmark. The buildings included in this Historic Structure Report were all constructed in the Village Maintenance Area, in compliance with the plan.

Although it is one of the more humble parts of the Village, the Historic Maintenance and Warehouse Complex embodies many of the original plan elements. The arrangement of the buildings defines the edges of the open-air work space, and intentionally shields maintenance and service work from nearby residences and from the visitors' interactions with the Park. The number of buildings and the level of activity in the complex appear to have peaked between 1956 -1961. The construction of the buildings is consistent with the overall architecture of the Park in that they are all very simple utilitarian structures with basic adherence to the rustic style that became the hallmark of National Park Service architecture in the 1920s and 1930s.

While some of the buildings have served more than one purpose in their lifetime, all of the functions are typical of and appropriate to a maintenance area. Uses include storage of lumber and fuel, blacksmithing and machinery work, and carpentry. The jail is the only building that might not readily fit within the standard collection of functions within a designated maintenance area. This less than desirable necessity was well-situated because the maintenance area is somewhat self-contained and is located in a place remote from, and visually shielded from, the general public.

Some of the uses in the maintenance area reflect the changing activities in the Grand Canyon National Park. The construction of a gas station in the complex in 1930 reflected the greater need for automobiles for National Park Service employees and visitors alike. In a 1961 Master Plan, all of the structures in the Historic Maintenance and Warehouse Complex were slated for "obliteration." Fortunately, that never happened; but by 1971, seven buildings had been demolished.

The relatively recent expansion of the boat operations into larger buildings reflects another shift in park activities, but still maintains the qualities, character, and activity of the complex. For the foreseeable future, the use of these buildings will continue much as they currently exist.

MAJOR ISSUES IDENTIFIED IN THE PROJECT AGREEMENT

This Historic Structure Report addresses eleven buildings located in the Historic Maintenance and Warehouse Complex of the Grand Canyon Village at the Grand Canyon National Park; however, there are currently more than thirty buildings and structures in the complex, eight of which have been determined non contributing to the historic district. This group of eleven was identified as higher priority due to the likelihood of these buildings undergoing various levels of rehabilitation in the near future. Historic research was conducted on the entire maintenance area, as well as the individual buildings. Each structure was studied by a team of architects and engineers to discover possible historic features and to assess the condition of the buildings. National Park Service staff were interviewed when available and proved to be both knowledgeable and engaged in the architecture of the park.

Of significant concern to the Park Service, in this project agreement, is deterioration due to "lack of sufficient operating funds" including "leaky roofs, lack (*sic*) suitable floor surfaces, structural deficiencies, inadequate lighting, heating and ventilation." Additionally, the buildings slated for rehabilitation also "lack compliance with current National Park Service policies for accessibility, safety, and fire protection and (*sic*) energy use."

Serving National Park Service staff and various related entities, the complex has evolved since the 1920s from a handful of small buildings to a group of varied buildings laid out in a grid. Over time, a number of large buildings were demolished, causing the area to lose some of its grid pattern. Roads in the area were graded, raised, and re-graded, sometimes to the detriment of the buildings in this study. Positive drainage patterns were eroded, causing significant damage toward the west end of the complex.

The buildings have been occupied and/or maintained throughout their existence, so neglect has not been a significant issue, despite the NPS concerns mentioned earlier. Occupants and uses have changed, sometimes from passive use to active use, as is the case with the two warehouse buildings (SRB-0078 and SRB-0090). In these cases, the buildings must take more demanding abuse just as they enter "old age." The buildings can withstand this type of transition, but certain issues must be addressed to strengthen and adapt them.

Electrical service issues abound in these buildings. The entire complex's electrical distribution system and building service lines should be updated. Service appears to be shallowly buried in places where accidental interference is likely and could have tragic consequences. There is no lightning protection, no fire suppression within the buildings, and no electronic security other than a camera on the jail. If these features are determined necessary for the buildings, care should be taken to integrate the systems into the buildings with minimal visual intrusion and loss of historic material.

O.2.4 ADMINISTRATIVE DATA

NAMES, NUMBERS, AND LOCATION DATA

The eleven buildings with their corresponding names, numbers and location data are listed in the following summary chart. Since some of the buildings have served more than one purpose, alternative commonly used names are included in the chart to try to ensure the future researcher is aware of possible other names for building. Use of the building number is the best means of identifying the building.

NPS Structure	CLR ID	LCS ID	Preferred Structure Name	LCS Name & Other	Current Use in 2007
Number			(per NHL nomination)	(per August 2006 reports)	
SRB-0069	B-102	55411	Carpenter's Shop	Boat Shop Juniper Hill Boat Shop	Law Enforcement / Ranger Storage - ammunition is stored here.
SRB-0074	B-105	55412	Equipment Shed & Electric Shop	Equipment Shed & Electric Shop / Blacksmith Shop/Garage / Sunset Drive Horse Barn	Horse Barn
SRB-0075	B-109	55413	Park Service Machine Shop*	Sunset Drive Blacksmith Shop / NPS Machine Shop / Park Service Machine Shop	Blacksmith Shop
SRB-0078	B-111	55414	Park Service Warehouse	Park Service Warehouse / Sunset Drive Old Warehouse	River Operations Boat Shop
SRB-0079	B-110	55415	Park Service Gas Station	Gas and Oil Station / Sunset Drive Old Fuel Shed / NPS Gas Station / Park Service Gas Station	Law Enforcement Ranger "Inactive" Storage
SRB-0080	B-106	55416	Park Service Vehicle Paint Shop	Plumbing Shop / Sunset Drive Paint Shop / NPS Vehicle Paint Shop / Park Service Vehicle Shop	General Employee Support space: meeting area, shower, restroom, lockers, mail area and leather / tack shop
SRB-0087	B-107	55417	Park Service Jail	Jail and Watchman's Office / Sunset Drive Jail / Park Service Jail	Short term prisoner holding
SRB-0088	B-108	55418	Park Service Coal Storage	Coal Shed / Sunset Drive Old Coal Shed / NPS Coal Storage Building	Vacant - not in use
SRB-0090	B-112	55419	ECW Warehouse	ECW Warehouse / Sunset Drive Appliance Shed / Plumbing and Sheet Metal Shop	River Operations Kitchen
SRB-0094	B-113	55421	Storage Building	Lumber Shed / Sunset Drive Old Warehouse Shed / Storage Shed	Storage
SRB-0099	B-115	55424	Vehicle Storage Building	Vehicle Storage Shed / Sunset Drive Storage Shed / Equipment Shed	Road and Trails Storage

* This building was misidentified in the NHL Nomination as the Machine Shop. It has always been the Blacksmith Shop and will be referred to as such in this report.

CLR = Cultural Landscape Report (1997)

LCS = List of Classified Structures (August 2006)

Some of the buildings were constructed as part of the Emergency Conservation Work (ECW) program. This program was unofficially referred to as the Civilian Conservation Corps, but the name of the program was not

changed until 1937. The original, pre-1937, plans for the buildings researched in this report refer to Emergency Conservation Work programs and are referenced as such in this text. Work that clearly took place after 1937 is referred to in this text as Civilian Conservation Corps work.

This report was produced under NPS Task Order T2000040561, which states the work shall include "limited" documentary research and "limited" physical investigation. The assessment team was further instructed that engineering calculations would be unnecessary for this report. Buildings SRB-0088, SRB-0090, and SRB-0099

have no plumbing, HVAC, or electricity, and Building SRB-0079 has no plumbing or HVAC. That portion of the assessment was excluded for those buildings.

ULTIMATE TREATMENT OF THE STRUCTURES

The Historic Maintenance and Warehouse Complex is a working maintenance facility and, as such, must stay viable for activities that will test the Park's ability to retain historic integrity in these buildings. Rehabilitation is the recommended treatment for the buildings. None of the buildings will likely ever be restored to a certain period, although elements of the buildings should be considered for restoration.

Many of the buildings need considerable rehabilitation to remain viable in the Park. The entire facility needs new utilities, which will also impact the buildings. Many of the buildings need updating to address accessibility. This can be done sensitively, but not without compromises. Upgrading the elevator in the Park Service Warehouse (SRB-0078) is an example of such a compromise; because elevator access is important to continued use and accessibility. Although the existing, character defining feature (hoist, platform, and shaft) can be retained, a new functioning elevator would need to meet code and would take up currently useable floor space. Meeting Architectural Barriers Act Accessibility Standard (ABAAS) guidelines will also be challenging in these buildings. For instance, while the door hardware is not necessarily a character defining feature of these buildings, replacing knobs with levers may have more impact on the character of the building than anticipated. In this case the compromise may come from the ABAAS side to allow a retrofit lever that simply aids those with impaired grip.

In all cases, rehabilitation should take into account the age of the buildings and honor that virtue. Avoid making historic features look new through excessive restoration efforts. More character is retained if the buildings are not perfect, witnessed when a celebrity has "one too many facelifts." This should, however, not prevent replacement of deteriorated materials when needed.

RELATED STUDIES

Four studies provided a considerable amount of background material on the Grand Canyon Village. The National Historic Landmark nomination form provided historical perspective on the development of the Village. A support study entitled "Report on the Cultural Landscape of the Grand Canyon Village 1893-1994" prepared in 1994 by the Grand Canyon National Park (Rebecca Chorzempa and Laura Skawski authors) provided background material for the National Historic Landmark nomination. The study provides a summary of the built environment on the Village up to 1994 through a written description of its history, architecture and spatial organization, accompanied by a series of maps. The recently (2004) completed "Grand Canyon Village National Historic Landmark District Cultural Landscape Report" prepared by John Milner Associates for the Grand Canyon National Park assessed the status of the Village in terms of integrity and significance. The 1995 General Management Plan for the park, authored by a Park Service planning team, provided additional insight into proposed uses for the Historic Maintenance and Warehouse Complex.

Studies related to the specific buildings were not located. The original plans, or microfiche of the plans, and photographs of many of the buildings are on file at the Grand Canyon Museum Collection located within the Park and the National Park Service Technical Information Center (TIC) in Denver, Colorado. Individual files are also maintained for each of these structures at the Grand Canyon National Park Office of Maintenance / Facility Management within the Park. The individual files contain brief building descriptions and some administrative data.

Other related studies of a more general nature include various National Park Service publications related to architecture and landscape architecture in the national parks. They are listed in the Bibliography section. The Cultural Landscape Report and the General Management Plan are summarized below, as they are currently the primary reference documents for planning in the Historic Maintenance and Warehouse Complex.

Cultural Landscape Report Summary

As referenced in the Grand Canyon Village National Historic Landmark District Cultural Landscape Report (January 2004) a survey of the site for the NPS Service Area was completed. The "NPS Service Area" refers to the Historic Maintenance and Warehouse Complex, and summarizes existing site conditions. The Historic Maintenance and Warehouse Complex stretches from the southernmost corner of the Village Historic District, west to the Center Road and includes several service related structures. These include thirty-one featured structures, including labor cabins, a machine shop, a warehouse, gas station, jail, coal shed, fire house, storage buildings, a mule barn and corral.

The Historic Maintenance and Warehouse Complex is located on a gently sloping hill located east of the Center Road ravine. The area of the site is bounded by ponderosa pine woodland edges and screening vegetation intermixed with the structural building elements of the site.

The central work plaza, the principle area of the site is defined by building facades. Circulation is paved with asphalt and contains clusters of structures and vehicular drives. Associated areas, such as the mule barn node, located on the eastern slope of the Historic Maintenance and Warehouse Complex are flanked by vegetation, corral fencing and building facades.

The vehicular corridors are defined by woodland vegetation, building facades, and pavement connecting the central work plaza and mule barn node. Circulation patterns include primary roads, parking, and driveways and secondary pedestrian walks and paths. Primary circulation is constructed of gravel and asphalt pavement.

Three clusters of buildings and structures were identified in the report at the Historic Maintenance and Warehouse Complex. All are associated with the service and maintenance operations including residential use within the defined service area. The three clusters are defined as: the northern cluster which consists of residential labor cabins and staff housing; the largest cluster includes maintenance facility structures; the southern cluster which contains livestock-related storage buildings.

Recommendations outlined in the report include spatial organization, vegetation, views and vistas, and circulation within the Historic Maintenance and Warehouse Complex.

The spatial organization, as outlined in the report includes the three primary spaces that define the character area. These include the central work plaza, mule barn node, and vehicular corridor. The report recommends retaining these three primary spaces in order to preserve the primary spaces that define the character area. Removal or relocating original structures is not recommended as this would change the spatial configuration of the historic spaces.

The report also recommends retaining all "existing, contributing vegetation" in the defined Service Area, particularly the stands of ponderosa pines located between the work plaza, the Labor Cabins, and the mule barn node. The report advises retaining a "generous vegetative buffer" around the three primary character areas. Any new vegetation should mimic the natural, wooded environment.

It is recommended that the current views and vistas defined by the general arrangement of the built structures be maintained. Any new construction features should not obscure these existing views.

Circulation throughout the Service Area should also be retained. The informal, uncurbed roads currently throughout the area should be preserved. The report recommends avoiding the installation of curbs,

medians, gutters, or other upgrades to all circulation corridors so as to avoid creating a separation between Juniper Hill and the work plaza. It is recommended that all circulation features be repaired and maintained that are evaluated as fair or poor. Parking areas that are not associated with the work plaza and formal pedestrian paths, such as concrete sidewalks should be avoided.

General Management Plan Summary

The General Management Plan (GMP) was authored in 1995 with the intent of providing guidance for the management of resources, visitors, and development at the Grand Canyon National Park for a period of 10-15 years. The implied expiration date on that document has nearly arrived, but much of the content remains relevant. The plan recommends moving maintenance operations to a new facility near the NPS Helibase and includes the project in the proposed Phase I (1995-2002) for an estimated cost of \$17.7M. However, that refers to moving the Mission 66 Maintenance Facility, the successor to the Historic Maintenance and Warehouse Complex. The original, the "Historic Maintenance and Warehouse Complex" (1920s-1930s) was altered as a result of the Mission 66 Maintenance Facility in which operations and staff were relocated. In 2004 the new Maintenance Complex near the Helibase was completed per the GMP recommendations.

The GMP addresses a wide variety of issues ranging from spiritual qualities of the park to phone service technology. An emphasis on cultural and natural resources guides much of the analysis and recommendations in the plan. Transportation is highlighted, with value placed on alternative transportation, bicycle and foot traffic by visitors and residents alike.

The plan concludes that park facilities should be maintained and developed as a "model of excellence in sustainable design and management." This extends to encouraging adaptive reuse of existing structures and preserving the natural environment. The plan recommends a thorough survey, documentation, and evaluation of cultural resources for listing on the National Register of Historic Places, which appears to have culminated in a National Historic Landmark District designation in 1997.

Specific to the Historic Maintenance Area and Warehouse Complex, the GMP states that "the boat shop will be moved to Lees Ferry." Twelve years later, there remains much debate among park staff about the likelihood of this occurring.

As illustrated in the GMP, graphic 113/20079A (pg. 39), calls for the Historic Maintenance and Warehouse Complex to be "converted to community services." This project is included in the plan's proposed Phase 2 (2003-2010) action items with an estimated cost of \$3.4M.

CULTURAL RESOURCE DATA

The structures under review are located within the Grand Canyon Village. On November 20, 1975, a concentration of 39 historic buildings identified as the Grand Canyon Village Historic District was entered into the National Register of Historic Places. The boundary of the historic district has been expanded twice since the initial entry. In 1982, the Bright Angel Lodge and 24 other contributing historic features were added.

In 1995 the perimeter of the district was revised to reflect the boundaries of the entire village as defined by the 1924 master plan (formally titled the "Grand Canyon National Park General Plan Community Development"). The 1995 expansion added Historic Maintenance and Warehouse Complex to the district. The entire district as defined in 1995 contained 247 buildings, 55 landscape structures and 3 sites. The district was listed on the National Register of Historic Places and deemed significant under Criterion A for its association with the development of the Grand Canyon National Park, and under Criterion C as a representation of community planning within a national park and as a comprehensive illustration of the National Park Service's rustic architectural style. The Village District is deemed exceptionally valuable because it is the most significant example with the greatest integrity of National Park Service community planning. The district's period of significance reflects the origins, growth and development of the Grand Canyon Village as the hub of tourist and transportation-related activities. The period of significance begins with the construction of the oldest surviving rim structure, Buckey O'Neill's Cabin, in 1897 and ends in 1942 when the

Civilian Conservation Corps was discontinued and most of the village had been constructed. The buildings under review in this report are all contributing structures within the district.

On February 18, 1997, the district was designated a National Historic Landmark, containing everything included in the 1995 district description, except for two non-contiguous sites that are cemeteries. As a National Historic Landmark the district meets Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture.

The Grand Canyon National Park was also listed as a World Heritage Site in 1979.

DOCUMENTATION RECOMMENDATIONS

The Grand Canyon Museum Collection and the National Park Service Technical Information Center are appropriate locations for the archival materials related to the buildings in this study. The individual building files maintained in the Grand Canyon National Park Maintenance Division are also important resources to provide centralized information related to and organized by the specific resource. While the original should be placed within the on-site Grand Canyon Museum Collection archival facility, the Grand Canyon National Park Library, the National Park Service Technical Information Center should also receive copies of the information recovered by this study.

1.1 HISTORICAL BACKGROUND AND CONTEXT

UNITED STATES INVOLVEMENT

Human activities in the Grand Canyon span a large timeframe from the Paleo-Indian hunters of almost 13,000 years ago to the souvenir-hunting visitors of today. The history of the buildings in this study fit within the period that is tied to the early development of the Grand Canyon National Park.

The United States gained jurisdiction over the Grand Canyon region in 1848 via the Treaty of Guadalupe Hidalgo at the end of the Mexican American War. The treaty placed many future western states, including Arizona, under American ownership. A trickle of explorers followed. Army Lieutenant Joseph Christmas Ives and his party camped along the Colorado River at Peach Springs in 1857-58. Major John Wesley Powell navigated and charted the Colorado River through the Canyon in 1869 and again in 1871.

President Benjamin Harrison initiated the first formal federal recognition in 1893 when he proclaimed the Grand Canyon a forest preserve under the jurisdiction of the Department of the Interior General Land Office. Administration fell to the Forest Service for this and subsequent designations until Congress established the Grand Canyon National Park in 1919.

Only a few ranchers and miners were attempting to make a living off the land when Harrison made the designation. Ranchers had set up near the canyon edge while miners sought copper, gold and silver. Realizing little gain from their work some expanded into tourist services. At first, the region's remote location and difficult access kept the tourist population down to a manageable limit. Visitors arrived via a stagecoach ride or an arduous horseback trip, or a combination of the two.

The situation changed almost overnight when the Santa Fe and Grand Canyon Railroad arrived in 1901 from Williams. Train transport revolutionized the numbers and types of tourists who could visit the canyon and simplified the conveyance of goods and services both into and out of the canyon.

The railroad increased visitation and defined the future location of the central village for the Grand Canyon. The train deposited its cargo at one point along the rim where, as historian Michael Anderson explains, "The railway simply worked as a vacuum to suck the life out of far flung South Rim enterprises and to draw cross-country travelers directly north to the depot..."ⁱ Led by the railroad's subsidiary hospitality company, the Fred Harvey Company, the tourism businesses flocked to the railroad terminus, creating a series of stylized buildings along the rim.ⁱ

With each train trip, the clutter of commercial enterprises, shacks and tents grew around the depot and up the slope to the rim structures. Very few attempts were made to bring order to this chaos. As the administrative entity for the area, the Forest Service was oriented toward managing the timber and land, and had little financial backing to deal with tourism and the growing needs for services and utilities in and around the canyon. One can imagine that at least some Forest Service officials breathed a sigh of relief at handing over the administration of this burgeoning blight to the newly created National Park Service.

NATIONAL PARK SERVICE DEVELOPS THE PARK

Grand Canyon National Park was established in 1919, three years after Congress created the National Park Service. When National Park Service (NPS) officials first arrived at the Grand Canyon in 1919, they found the haphazard scattering of cabins, tents, hotels and curio shops had created unsightly and unsanitary conditions. Private concessionaires had built visitor facilities, but most of the park lacked basic services, such as roads, water, sewer treatment and electric power. The situation was poised to deteriorate further, as more and more people came to the park. 38,000 people visited the Grand Canyon National Park in its first official year in 1919. By 1924, visitation had almost tripled to 113,106.

In 1919, there were few drivable roads within the park, and the majority of visitors arrived by train. The changing trend to automobile travel was anticipated by the leaders of the National Park Service and substantial funding was devoted to developing functional automobile roads both to access the parks and then to travel within each park. With a \$275,000 appropriation in 1924 for road and trail construction, Grand Canyon National Park began an ambitious program to survey, grade and surface both internal circulation roads in the village and rim roads. The work continued until 1936.

The basic provisions of water and sewage treatment were a challenge. Much of the water had been carried in on the train until the source from Indian Gardens was improved in 1927, leading finally to a permanent water supply on the rim in 1932. The first formal sewage treatment system was installed in 1926, the same year that a solid waste incinerator went on line and helped to reduce the mass collecting in garbage dumps.

While electricity was available, its range was very limited. The Santa Fe Railroad had constructed a direct current power plant near the depot in 1913, but it is unlikely that the electrical service extended very far.ⁱ A new alternating current power plant, constructed in 1926, may have provided the earliest power to properties outside of the tourist services zone. Utilities were not extended to many of the park buildings until the federally funded programs during the Depression provided the means for the extensions.

VILLAGE MASTER PLAN DEVELOPMENT

While park officials worked to construct and provide basic services, planning efforts were initiated to address the most heavily visited and impacted areas of the park. This effort was one of many throughout the National Parks system to employ professional designers in the development of the National Parks.ⁱ The new Grand Canyon National Park plans were influenced by earlier suggestions of Forest Service staff, Don P. Johnston and Aldo Leopold (and later formalized for the National Forest Service by Frank Waugh in 1918) who supported the popular City Beautiful movement and urged a general zoning, or clustering of uses—an incipient concept at the time in American cities.

National Park Service Landscape Architect Daniel Hull's plan expanded on the 1918 document. By 1921, Hull was circulating drafts of the plan for park administrators to review. The proposed plan established a village, acknowledging the existing development of the private concessionaires as the central tourist-services portion of the village. Similar uses were proposed to be clustered together and separated from incompatible uses. The plan defined the circulation system, and located potential building areas where they could blend and harmonize with the natural environment.

Hull's proposed layout recognized and respected the existing terrain and vegetation. The plan incorporated the topography into the layout of streets and clustering of uses, minimizing the needs for major excavation, fill and elaborate drainage plans. Terrain changes were employed to emphasize separations between uses. The plan also took full advantage of the screens offered by areas of woodlands that shielded and softened a visitor's views of the buildings and work areas to be constructed in the park.

This master plan development encountered an 18 month delay related to efforts by the Fred Harvey Company to influence the plan, illness of the Harvey Company's hired architect and the distractions of a growing conflict over property and mineral rights on land located within the park with entrepreneur and Arizona politician, Ralph H. Cameron. When the "Grand Canyon National Park General Plan Community Development" finally received approval in 1924 it became, as the Grand Canyon Village National Historic Landmark nomination noted, "...the essential blueprint for construction in the village over the next 20 years."

Daniel Hull also had a very strong influence on the architectural parameters for future development under the plan. He designed, or influenced the design of, many of the buildings constructed at Grand Canyon National Park, solidifying the evolving "Rustic" style that characterized National Park building projects up to the 1940s.

Typical elements of rustic style include the use of native materials in proper scale to the surrounding vegetation, avoidance of rigid or straight lines, and the subordination of the building to the natural setting. Employment of the style was intended to give the feeling that a project was executed by pioneer craftsmen with limited hand tools.ⁱ

Harmony between the structure and the natural surrounding was encouraged through employing a combination of methods, the most common of which were:

- Sensitive use of native vegetation around the building
- Incorporation of natural colors on the building exterior
- Use of local stone around the foundation to enhance the sense of a rough rock footing or a natural outcrop
- Emphasis on horizontal rather than vertical forms
- Application of these techniques to all sides of the building

The design parameters were applied to all types and sizes of buildings. Large buildings made ample use of local stone and wood. Small scale and more humble buildings, including service buildings, were usually designed to be simple, non-intrusive structures, commonly finished with rough-sawn wood exteriors that were painted in tones of brown or gray.^{vi} As the definition of the rustic style evolved, the Park Service produced drawings of standard acceptable designs that could be used in the different parks.^{vii}

IMPLEMENTATION OF THE PLAN

Grand Canyon National Park Superintendent Walter Wilson Crosby (1922-1924) held up construction, as directed by his superiors, until the authorization of the master plan. Once the master plan was approved, he went to work on his backlog of building plans. The next two superintendents-- John Ross Eakin (1924-1927), and Miner Raymond "Tillie" Tillotson (1927-1938)—carried on the building program.

All of the buildings addressed in this Historic Structure Report were constructed in the newly established service area under the guidance of these three superintendents. In accordance with the recommendations of the 1924 Master Plan, the service area was located on a site that is removed from visitor traffic. Vegetation helped screen the view of the area. The buildings were placed at right angles to each other, creating internal central work yards to shield the utility area from the public and the nearby employee residences. The professional design staff of the National Park Service provided building plans and conducted periodic inspections of the work. The buildings comport with the general description of utilitarian rustic style buildings.

ⁱ *Living at the Edge* Michael Anderson, Page 84

ⁱⁱ The remaining building from those early days include the pioneer Buckey O'Neil Lodge (1897) the El Tovar Hotel (1905), the Hopi House (1905), Verkamp Curios (1905), and Lookout House (1914), all located along the rim. The Depot (1909) was located down slope from the rim structures.

ⁱⁱⁱ DC power cannot travel very long distances with any economy, so it is unlikely that this plant provided electricity to the service area.

^{iv} *Historic Landscape Design and Construction*. Linda Fling McClelland page 162

^v "National Park Service Rustic Architecture: 1916-1942." William C. Tweed et al, Page 93

^{vi} "National Park Service Rustic Architecture: 1916-1942." William C. Tweed et al, Page 76

^{vii} *Park and Recreation Structures* (1938) Albert Good

STRUCTURE CONDITION DEFINITIONS

Condition is categorized and defined as follows:

- GOOD** The structure and significant features are intact, structurally sound, and performing their intended purpose. The structure and significant features need no repair or rehabilitation, but only routine or preventive maintenance.
- FAIR** The structure is in fair condition if either of the following conditions is present:
- a) There are early signs of wear, failure, or deterioration though the structure and its features are generally structurally sound and performing their intended purpose, - or -
 - b) There is failure of a significant feature of the structure.
- POOR** The structure is in poor condition if any of the following conditions is present:
- a) The significant features are no longer performing their intended purpose, - or -
 - b) Significant features are missing, - or -
 - c) Deterioration or damage affects more than 25% of the structure, - or -
 - d) The structure or significant features show signs of imminent failure or breakdown.
- UNKNOWN** Not enough information is available to make an evaluation.

IMPACT LEVELS CODES AND DEFINITIONS (PER NPS)

An impact is a detectable result of an agent or series of agents having a negative effect on the significant characteristics or integrity of a structure, and for which some form of mitigation or preventative action is possible. The assessment should include only those impacts likely to affect the structure within the next five years.

The Level of Impact Severity and their definitions are given below. For all levels, except UNKNOWN, two criteria are given. At least one of the criteria must be met for the declared Level of Impact Severity.

Level (Code)	Definition
Severe (S)	a) The structure will be significantly damaged or irretrievably lost if action is not taken within two (2) years. b) There is an immediate and severe threat to visitor or staff safety.
Moderate (M)	a) The structure will be significantly damaged or irretrievably lost if action is not taken within five (5) years. b) The situation caused by the impact is potentially threatening to visitor or staff safety.
Low (L)	a) The continuing effect of the impact is known, and will not result in significant damage to the structure. b) The impact and its effects are not a direct threat to visitor or staff safety.
Unknown (U)	Not enough information is available to make an evaluation.

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

CONSTRUCTION IN THE SERVICE AREA

Four of the buildings in this study were designed between 1923 and 1928.ⁱ Consisting originally of a carpentry shop (SRB0069), a blacksmithing shop (SRB0074), and a warehouse (SRB0078), these buildings provided basic shelter for park's industrial projects and storage needs. A second blacksmithing shop (SRB0075) was constructed in 1928.

In the period from September of 1926 to September of 1927, the number of visitors arriving by car surpassed the number that came on the train. The increased reliance on the automobile is also reflected, in 1930, in the construction of the fifth building in this study, a gas and oil station for Park Service vehicles (SRB0079).

The remaining six buildings constructed in the service area and included in this study were funded by the Federal Emergency Conservation Work program during the Depression. New Deal funding enabled significant construction throughout the National Park Service system. Under the direction of Horace Albright, the National Park Service was well-positioned to access the federal relief programs offered during the Depression. In the late 1920s and early 1930s, each of the national parks was in the process of developing a park plan under Albright's direction. When the 1931 Employment Stabilization Act was passed, it mandated that government bureaus, requesting federal appropriations for construction, had to prepare 6-year plans as part of the request. Park Service administrators were able to quickly adapt their plans to the requirements of the act.

At the same time, Albright represented Secretary of the Interior Harold Ickes on the four person logistics team that would set up and run the newly created Emergency Conservation Work program (ECW) under President Franklin D. Roosevelt. Albright worked with representatives from the Labor, War and Agriculture Departments on the ECW. His particular assignments were to work with the Agriculture Department, represented by the United States Forest Service, on the camp locations and operations, and to define the work tasks.

Popularly known as the Civilian Conservation Corps (the name was not made official until 1937) the ECW focused on providing unemployed young men with work that would conserve the nation's natural resources. The ECW was unique among New Deal relief agencies because its success depended on the collaboration of the Departments of Labor, War, Agriculture and the Interior. In its first year in Arizona, more than 4,000 men were employed at 20 regular and three veterans' camps.ⁱ Enrollment peaked in Arizona at 9,000 men in 50 camps.

Six camps operated at the Grand Canyon National Park. Three camps (NP-02-A, NP-04-A and NP-06-A) were located at the South Rim; two were on the North Rim and one operated at Phantom Ranch.ⁱⁱⁱ About 200 men lived in each camp. Many of the labor-intensive projects in the 1924 master plan that might never have come to fruition were completed thanks to the large low-wage workforce provided by the camps. Construction was inspected and in some part overseen by the landscape architects and the architects on the staff of the National Park Service.

Park Superintendent, Miner Raymond "Tillie" Tillotson, capitalized on the ECW and other federal programs to maximize the funding made available to the National Park Service. He used New Deal programs to build or improve roads, conduct landscaping projects, install utilities, and build a number of landscape structures and buildings. ECW crews extended public utilities to all public buildings in the village and some time after May 1933 built Tonto and Juniper Streets, two of the major thoroughfares in the service area.^{iv}

Deflation during the Depression contributed to the construction of numerous buildings at or below estimated contract prices. Six of the buildings constructed in the service area and included in this study were constructed through the ECW programs. The oldest approved design of the six buildings is the Coal Shed

(SRB0088, 1932), followed in 1934 by the Vehicle Storage Building (SRB0099). The storage building was one of four identical storage buildings (SRB0099 and SRB00183-SRB00185) constructed by the ECW along Sunset Drive. The ECW warehouse (SRB0090) followed in 1935. Three buildings were constructed in 1936. They are the Vehicle Paint Shop (SRB0080), the Jail (SRB0087), and the lumber Storage Building (SRB0094). Two of the older buildings included in this study, the 1924 Carpenter's Shop (SRB0069) and the 1928 Blacksmith Shop (SRB0075) received remodeling and upgrades in 1935-1936 through the ECW program.

It appears that some times a lag occurred between approval of the plans for these buildings and their actual construction. Reports to the Chief Architect from visiting members of the National Park Service design staff noted that both the Vehicle Paint Shop and the Jail were completed in 1936, even though the plans for these buildings were approved one to two years earlier.^v

The ECW was reorganized in 1937 and the name of the program officially changed to the Civilian Conservation Corps (CCC). By the end of the CCC program in 1942, the cumulative efforts of the CCC and other New Deal funded work resulted in more than 70 new buildings in the Grand Canyon National Park.

The work of the ECW brought the 1924 plan to fruition and strengthened the established land use, circulation patterns, landscaping character and architectural character of the park. The successful implementation of the plan is credited to a combination of the hard workers in the camps and the active supervision of the professional designers of the National Park Service.

WORK AFTER THE DEPRESSION

The end of the Depression and its associated federal relief programs brought an end to the remarkable progress on implementing the master plan for the Grand Canyon Village. After World War II, Americans enthusiastically embraced the automobile in every aspect of their lives, including touring and camping in the national parks. Visitation soared, while the aging park facilities suffered. The response was a Park Service redevelopment campaign called "Mission 66".

While many national parks experienced major changes to their facilities as part of Mission 66, the Grand Canyon Village maintained some of its original layout and features. The major access route from the south was changed and two modern motels filled the area that was once reserved for an unrealized annex to the El Tovar Hotel. Other additions have occurred to accommodate both increased tourism and park housing and service needs.

The Historic Maintenance and Warehouse Complex is basically unchanged. Some of the uses have changed within the service buildings, but the uses are all storage, carpentry, blacksmithing, animal care, or functions of a light industrial nature that are consistent with the original intent of the area. The former gas station has no current active use.

The buildings under review in this report have retained much of their original fabric and form and are still in use as service buildings. The building locations have been maintained, preserving the original layout of the area. With construction dates including the initial adoption of the Grand Canyon Village Master Plan and the involvement of the ECW/CCC camps, the complex illustrates the successful application of the master plan that falls within the period of significance identified for the historic district.

ⁱ Given the prohibition against building until the master plan was adopted in 1924, it is likely (but not confirmed) that construction of these buildings began in 1924.

ⁱⁱ *The New Deal in Arizona*. William S. Collins page 210

ⁱⁱⁱ Updated Walking Tour, located in the vertical files of the Grand Canyon Library

^{iv} *Polishing the Jewel, An Administrative History of Grand Canyon National Park*, Michael Anderson pages 29-30

^v "Report to the Chief Architect, February 1936" Harry Langley, Document D578 in Grand Canyon Archives

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

CONSTRUCTION TIMELINE

(See 4.3 for Chronological Site Plans and 4.4 for Master Plans and Aerial Photos)

Pre-1928	# 69	Carpenter's Shop	1923
	# 74	Equipment Shed & Electric Shop	1923
	# 78	Park Service Warehouse	1926
1928-1932	# 75	Park Service Machine Shop*	1928
	# 79	Park Service Gas Station	1930
1932-1935	# 80	Park Service Vehicle Paint Shop	1934
	# 88	Park Service Coal Shed	1932
1935-1938	# 90	ECW Warehouse	1935
	# 87	Park Service Jail	1936
	# 94	Storage Building (Partial)	1936
	# 99	Vehicle Storage Building	(late 1935, or 1936)
1938-1941		
1941-1956	# 94	Storage Building – ELONGATED	
1956-1961	(All slated for demolition, however most remained)	
1961-1971	# 74	Equipment Shed & Electric Shop – HALF DEMOLISHED	
1971-1980		
1980-1981	# 87	Park Service Jail – ADDITION	
1981-2007		

1.3 PHYSICAL DESCRIPTION

SITE - LANDSCAPE

Landscaping in the Historic Maintenance and Warehouse Complex features native vegetation as noted in the original 1924 master plan; however, over time it has lost some of its earlier density that served as a buffer to the residential area (1956, 1971, 1978, 1988 aerial photos). Vegetation within the compound historically defined the spatial and organizational relationships of the complex. Native vegetation still abounds, but most of the open surfaces are currently hard pack gravel or decomposing asphalt. The complex is not a public space, and therefore requires little formal attention to landscaping.

Site vegetation includes scattered native scrub trees, with the perimeter buildings backed up to ponderosa pine woodlands. Weeds grow at the base of many of the buildings. This assessment team was unable to determine if any are noxious.

The central work plaza is a large open area of patched asphalt with hard pack gravel edges. The ECW Warehouse (Building SRB-0090) features a large open area to the north which is hard pack gravel; however, as recently as 1978, that space was bisected north to south by a grove of trees that created a path for vehicle traffic between the ECW Warehouse and the Storage Building (SRB-0094) (See 1978 aerial photo).

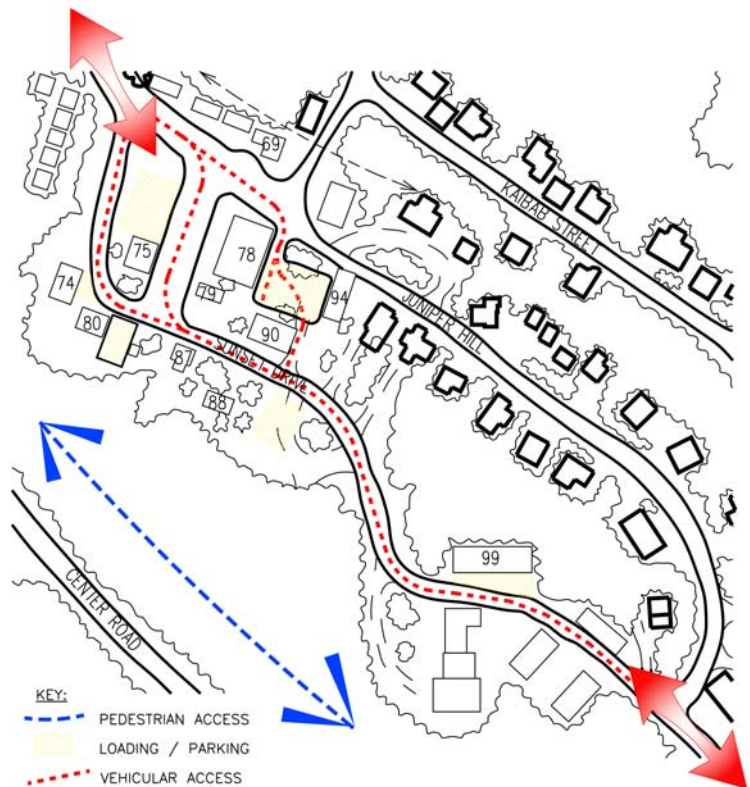
An assessment of the structures suggests that the site grade has risen in some areas over the years. This has been caused by road grading, paving, erosion, and general traffic patterns.

Wildlife is abundant in this quiet corner of the park. Elk and deer frequent the area, as do many smaller animals. Occasionally, people may hike along the woodland path just to the south of the complex, but generally this area isn't highly visited.

SITE - VEHICLE AND PEDESTRIAN ACCESS

The utilitarian nature of this group of buildings requires access by a variety of vehicles access, including large trucks for hauling rafts, livestock trailers, park ranger SUVs, and personal vehicles belonging to staff. Add into that mix horse patrol and maintenance activity, and the wide open spaces seem appropriate.

Snaking through the complex from northwest to southeast is Sunset Drive, with varying sized open lots on each side, and no clear path to follow through much of the work area. A 1956 aerial photograph reflects a more formal work yard layout with Sunset Drive coming in on the northwest corner and exiting at a right angle on the southeast corner of the central work yard.



Pleasant, narrow asphalt bike/walking path runs through the woodland along the south edge of the complex. It is used largely by residents and the occasional park visitor.

STRUCTURES

The buildings located in the Historic Maintenance and Warehouse Complex are of a common construction style and are located in a group within a residential area, with a few additional buildings trailing down Sunset Drive to the southeast. All of the buildings are wood framed, except the Jail, with all, but one, wood-sided. A further description of each building appears later in this report.

Early aerial photographs and master plans reflect the buildings laid out in a more rigid grid. When seven buildings were demolished after 1961, responding to the master plan completed that same year, the grid eroded along with the "work yard" layout.

Mechanical and electrical elements are limited. Active telecommunications systems exist in only three of the buildings.

1.4 CHARACTER DEFINING FEATURES

Per the National Park Service, Denver Service Center Workflows, and NPS 28, a character-defining feature is a prominent or distinctive aspect, quality, or characteristic of a historic property that contributes significantly to its physical character. Structures, objects, vegetation, spatial relationships, views, furnishings, decorative details, and materials may be such features.

Excerpt from the Secretary of the Interior Standards for Rehabilitation and Guidelines for Rehabilitation: *Guidance for the treatment rehabilitation begins with recommendations to identify the form and detailing of those architectural materials and features that are important in defining the building's historic character and which must be retained in order to preserve that character. Therefore, guidance on identifying, retaining, and preserving character-defining features is always given first. The character of a historic building may be defined by the form and detailing of exterior materials, such as masonry, wood, and metal; exterior features, such as roofs, porches, and windows; interior materials, such as plaster and paint; and interior features, such as moldings and stairways, room configuration and spatial relationships, as well as structural and mechanical systems.*

The NHL nomination carries two themes: "Expressing Cultural Values and Transforming the Environment". Additionally, it lists the areas of significance as:

1. Landscape Architecture
2. Community Planning and Development
3. Politics / Government

According to the NHL nomination, "contributing resources" within the National Historic District, which are particularly featured in the Historic Maintenance and Warehouse Complex are:

- Spatial Organization
 - "Utility areas...planned to be separate from both the public zone along the rim and the private residential areas"
- Circulation
 - "Park Service utility area,...was arranged orthogonally; the arrangement of utility buildings created central work yards that were well screened from the nearby residential area."
 - "Park Service utility area, with its very wide, rectilinear streets, featured a sixth typical street section."
- Topography
 - "The alignment of the streets of the village generally curves where necessary to better conform to topography."
- Vegetation
 - "Such plantings never hid the architecture behind a screen of vegetation, however, but enhanced and augmented the effect of the façade elevation. Local trees and shrubs planted strategically at the corners of buildings or as foundation plantings contributed as much to the buildings' total effect as did the choice of building materials."
- Structures
 - "Roads: Juniper Street"
 - "Historic District Street Lamps"
 - Buildings
 - "dark log or wood siding on upper stories, the Park Service landscape architects created a powerful and controlled imagery, now known as Park Service Rustic....projecting appropriate sensibility."
 - All buildings assessed in this report are listed as contributing buildings in the NHL nomination.

- Sites
 - The NHL does not identify any contributing sites within the complex.

The following is a list of specific character-defining features identified by this assessment team in the Historic Maintenance and Warehouse Complex:

LANDSCAPE

- Native vegetation – Native vegetation compliments this utilitarian landscape and gives the complex a more park-like character while providing an intentional buffer between it and the adjacent residential area.
- Scrub trees – These smaller scale trees compliment the scale of the complex buildings and have been present since inception in the 1920s.
- Hard pack gravel – This is an informal area with light traffic by heavy vehicles. While circulation routes are paved with asphalt, parking areas and work yards appear to have been historically gravel. Historic photos indicate the roads were originally unpaved. As noted in the Cultural Landscape Report (CLR), various unimproved road treatments completed in the 1930s such as roads of crushed stone, and oiled dirt roads are referenced. No obvious evidence was found to support this reference.



Vegetation at Vehicle Storage

FORMS

- Spatial Organization – The original organization of these buildings, work areas, and streets reflected an orthogonal grid pattern. Buildings were arranged in parallel or perpendicularly to one another with broad expanses of streets and open work areas filling the interstitial spaces. Early photos seem to indicate that vegetation was held primarily to the perimeter of the complex with the exception of some trees that were retained within the work areas and between buildings (see pgs 41-55). Even though buildings have been removed and vegetation patterns have changed, the original grid layout remains.
- Simple forms – The buildings generally reflect simple forms. Lines are clean; decoration is non-existent. Low profiles help blend the buildings with their environment.
- Gable/shed roofs – All of the buildings feature simple shed or gable roof structures, with eaves, with the exception of the Carpenter's Shop (SRB-0069) which has an evolved combination of shed and hip roofs.
- Roof extensions – Roof extensions shade and protect dock activities.
- Entry at Grade – Eight of the eleven buildings enter on grade, with wood siding meeting the ground.



Simple Building Form at Park Service Warehouse

CONSTRUCTION

- Vertical board and batten siding – The earliest buildings feature dark colored vertical board and batten wood siding.
- Corrugated sheet metal roofs – Unpainted metal roofs reflect an agricultural/utilitarian style that is distinct in the Historic Maintenance and Warehouse Complex, and also contributes to the Park Service Rustic style mentioned in the NHL nomination.
- Wood lap siding – The buildings constructed after 1930 appear to feature a variety of siding, but wide (8"-10" exposure) dark colored horizontal lap siding dominates.
- Wood paneled and batten doors – Buildings have a variety of door styles that reflect earlier uses. Traditional paneled man doors with windows in the upper 1/3 appear throughout the complex (currently and in historic drawings), and large wood batten double doors are characteristic of the larger hard-working buildings such as the two warehouses (SRB-0078 and SRB-0090) and the Blacksmith Shop (SRB-0075). These door styles are common in Park Service Rustic architecture.
- Exposed rafter tails – Open eaves with exposed rafter tails are a result of the simple construction methods used to build most of the structures in the complex.
- Brick chimneys – Brick chimneys extend through the sheet metal roofing to accommodate early combustion heaters, originally with no caps or adornment of any kind.
- Wood windows with clear glass – The buildings feature a variety of window styles, but all are wood, all have wood muntins, and all feature clear glass (with the exception of the Paint Shop, SRB-0080). Many have flat casings inside and out, and thick 2" sills.
- Lighting – Historic exterior lighting still exists in remnants on some of the buildings. All feature a domed reflector directing light down. There is evidence of pendant fixtures in the gas station and wall-mounted gooseneck fixtures on a number of other buildings. This style of lighting is well in keeping with the historic function of this area (and also reflects elementary historic sustainable design as it limits light bleed and preserves night sky viewing).
- Interior finishes – Interiors were largely unfinished. Few of these buildings required finished spaces, so wood wall and roof construction is exposed to the interior. A few buildings have had ceiling and wall finishes added, but these largely reflect modern "upgrades."



Construction Detail at Carpenter's Shop

1.5 GENERAL CONDITION ASSESSMENT

SITE - LANDSCAPE

Landscaping in the Historic Maintenance and Warehouse Complex is sparse and disappearing. Native tree species thrive with no maintenance and can provide much-needed shade for the buildings and staff working in the area, but historic photos indicate a marked reduction in vegetation, over time.

SITE – VEHICLE AND PEDESTRIAN ACCESS

Wayfinding through the complex is non-existent, largely due to the access road morphing into a wide open paved lot and then back to a narrow road again on the far side of the complex. Excessive hard paving creates storm water drainage problems and heat islands, limits biodiversity, and is costly to maintain. With an emphasis on maintenance vehicles and horse and mule movement, the complex has only the occasional social paths from building to work yard.

ACCESSIBILITY (ABAAS – “ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARD”)

Currently, neither the site nor the buildings themselves meet accessibility requirements of the Architectural Barriers Act Accessibility Standard (ABAAS). Site paving is typically non-compliant deteriorating asphalt, dirt or gravel. No handicap parking spaces are provided for any of the buildings. Most building entries have non-compliant steps or doorways that are too narrow to meet the ABAAS’s 32” clear width requirement.

ARCHITECTURE

The buildings are in varying condition, but are all currently usable and in use, except for the Park Service Gas Station (SRB-0079) which is unused at this time. The exteriors have suffered from the extremes of weather experienced in the area, with the south facades consistently exhibiting the most damage. Many layers of paint applied over the years have obscured the wood siding and trim to the point that replacement may be necessary if stripping paint becomes impractical. The Blacksmith Shop (SRB-0075), the Horse Barn (SRB-0074), and the Coal Shed (SRB-0088) suffer from poor site drainage.

STRUCTURAL

With one exception, at the Park Service Warehouse (SRB-0078), the buildings in the Historic Maintenance and Warehouse Complex are structurally stable. (The warehouse structural issues were remedied in the summer of 2007).

MECHANICAL

The buildings have limited mechanical systems, if any at all. Most exceed their use lives and are not code-compliant.

ELECTRICAL

Like the mechanical systems, these buildings have limited electrical service, if any. Site utilities are also problematic, with potential for harm to people or livestock.

SAFETY

FIRE PROTECTION

None of the buildings in the complex has fire protection. Recommendations for fire protection were developed per a discussion among park and DSC staff to determine how to address fire protection in these buildings to comply with DO-58. Further discussion regarding the level of fire protection for any of these buildings will be adjusted based on when and how use is changed. The following three conditions are guidelines that will determine how fire protection is to be addressed:

- A. If the building has heat (or a likely future use that would require heat).
Sprinkler the building and install smoke detection.

- B. If the building has electrical service (or a likely future use that requires electrical service) but is not now heated nor ever likely to be heated...
Install fire detection.
- C. If the building does not have nor likely ever will have either heat or electricity...
No fire protection needed.

See Recommendations for Treatment (2.1) for specific fire protection recommendations.

HAZARDOUS MATERIALS

For the purpose of producing this report, neither lead paint nor asbestos testing was performed. It is quite common to find both lead and asbestos in historic buildings. Lead was used in paint to improve its durability and colorfast qualities. Asbestos had proven fire resistive, thermal and chemical resistance and high tensile strength properties and was woven into a broad range of building materials from around the 1920s to the 1980s.

The presence of either lead or asbestos in an historic building will increase rehabilitation costs if mitigation is required.

Andrews & Anderson, Architects PC is not qualified to either test for the presence of lead or asbestos or to oversee mitigation efforts, but can provide general observations.

Lead Containing Paint

If paint tests positive for any amount of lead concentration/contamination: mitigation (removal or encapsulation), construction worker personal protection/air monitoring, and disposal of construction waste as hazardous materials may be required in the course of rehabilitation, restoration and even demolition.

What triggers the need for mitigation? In general, OSHA's lead standard protects construction workers. Contractors are required to provide training for workers and to perform air monitoring to document exposure levels in buildings where lead containing material has been identified and construction activities are planned.

HUD and State of Arizona regulations protect building occupants. For instance, a day care center for children will demand a much higher level of mitigation than an office building, due to the fact that children are more likely to ingest paint and because children are more seriously affected by lead poisoning.

EPA regulations protect the environment and require testing of lead waste so that lead will be disposed of properly and won't leach out into ground water.

Asbestos

From the 1920s to the 1980s, there were many materials that incorporated asbestos, but among the most common were:

- Fireproofing
- Roofing/flashing materials
- Exterior coating systems (a paint-like coating that usually has a textured surface)
- Asbestos/cement shingles and exterior wall panels (Transite)
- Roofing shingles and shingle siding
- Glazing putty at windows
- Pipe and pipe fitting insulation
- Vinyl sheet and tile flooring
- Plaster
- Construction adhesives
- Building insulation

"Friable" and "non-friable" are the two terms applied to asbestos with "friable" evoking the most concern and the greatest level of care in removal and disposal. "Friable" means that when the material is disturbed in any way, (sawn, moved, removed, cut, etc.) it will introduce asbestos fibers into the air that could be inhaled by unprotected workers and building users. Pipe and building insulation typically fall into this category and therefore require the highest degree of worker protection and controlled handling during the abatement process.

Non-friable materials tend to maintain their compositional integrity during abatement and therefore may not pose the same health risks. Abatement still requires proper methods, monitoring and disposal to meet EPA, OSHA, and State of Arizona regulations.

It is important to identify all asbestos-containing materials as even non-friable materials may become friable under certain conditions (e.g. if asbestos-containing floor adhesive is sanded).

2.1 ULTIMATE TREATMENT AND USE

The Historic Maintenance and Warehouse Complex has served in a utilitarian capacity during its entire existence. Its ultimate treatment and use is currently under debate; however all parties agree that for the foreseeable future it will remain much as it is, therefore, rehabilitation and restoration on an as-needed and as-funding-allows basis are the anticipated treatments.

The 1995 General Management Plan (GMP) states that the area will likely be integrated into the adjacent residential neighborhood as recreational space for residents. The proximity of the residential area and the enormous popularity of the park may result in this area undergoing significant change in the future. Although it is likely, according to park staff, that this area will remain in its current capacity for many years to come, such as the Paint Shop (SRB-0080), a few of the buildings, such as the two warehouse buildings previously mentioned, are well suited for adaptive use. Some buildings, such as the storage sheds, are really only suited for storage. The previously approved 1995 General Management Plan recommends "The Historic NPS Maintenance Facility will be converted to recreational space for residents." The GMP further advises the "boat shop will be moved to Lees Ferry in the *Development Concept Plan* (prepared by the Glen Canyon National Recreation Area)." Refer also to Section 0.2.4 of this report, for the Cultural Landscape Report's recommendations for this complex.

It is important to remember that, while these buildings are historic, they also serve useful functions within the park. Historic features should be retained whenever possible, without sacrificing utility. If these buildings are rehabilitated, care should be taken to preserve the passage of time. The flaws and distinct features give these buildings much of their character.

SITE - LANDSCAPE

Aerial photos from 30 years ago show more vegetation than is currently present. Loss of vegetation undermines the original intent for vegetation to provide a visual buffer to the residential area.

We recommend a parking study to determine how much hardscape is required and appropriate. Excess paving should be removed. This will determine where, on the site, trees can be re-introduced. Noxious weeds should also be identified and removed, allowing beneficial native plants to thrive.

The center of the complex should be re-graded when possible to re-direct storm water flow away from buildings such as the Blacksmith Shop (SRB-0075) and the Horse Barn (SRB-0074).

SITE – VEHICLE AND PEDESTRIAN ACCESS

We recommend removing the existing asphalt and replacing roadways only with pervious paving (concrete or asphalt), following the historical grid of streets. Resurface required parking areas with hard pack gravel with binder to keep it in place. The remaining open areas should be seeded with native grasses and allowed to go natural with the addition of an appropriate quantity of native trees.

ACCESSIBILITY (ABAAS – "ARCHITECTURAL BARRIERS ACT ACCESSIBILITY STANDARD")

Although the nature of the complex is service and maintenance-oriented, there are a number of buildings that either currently house or could house office functions that could be supported by disabled employees. In consultation with park and DSC staff, the following "tiered" approach to providing access to these buildings was established and agreed upon:

- Tier 1: Buildings that currently house offices or buildings that could easily accommodate office uses: Rehabilitate these buildings to comply with ABAAS requirements to the extent possible – include at a minimum: accessible entry, accessible restrooms (where existing or required), accessible work area(s).
- SRB-0069 – Carpenter’s Shop
 - SRB-0078 – Park Service Warehouse
 - SRB-0080 – Vehicle Paint Shop
 - SRB-0087 – Park Service Jail
 - SRB-0090 – ECW Warehouse
- Tier 2: Buildings that are currently vacant or that currently serve maintenance or equine care functions but which could be adaptively reused for office or other uses at some future date: Anticipate rehabilitation to comply with ABAAS requirements at the time of a change in use.
- SRB-0074 – Horse Barn
 - SRB-0075 – Blacksmith Shop
 - SRB-0079 – Park Service Gas Station
- Tier 3: Buildings that currently serve storage functions and which can not reasonably be adapted to other uses: do not anticipate ABAAS alterations.
- SRB-0088 – Park Service Coal Shed
 - SRB-0094 – Lumber Shed
 - SRB-0099 – Vehicle Storage Building



ABAAS Accessibility Strategy

Individual building assessments, within the body of this report, will discuss accessibility issues that are specific to each building. In order to achieve an accessible site, accessible parking areas, accessible routes to buildings from parking areas, accessible routes between accessible buildings and ramps to accessible entries will need to be developed. These issues will require further study.

ARCHITECTURE

In general several of the roofs are in need of replacement. Windows and siding require restoration and selective replacement of members. Building interiors have evolved to meet the needs of the occupants for the most part and most are still unfinished. The ECW Warehouse (SRB-0090) should, however, be rehabilitated if the commercial kitchen remains in use. Code violations are clearly present at stairs and shafts, and unsafe walking surfaces are common in these buildings and should be addressed.

STRUCTURAL

The failed girder in the Park Service Warehouse (SRB-0078) building should be shored and repaired immediately (this work was accomplished in the summer of 2007). Previously mentioned poor drainage has undermined some of the buildings' exterior wall integrity, and grading should be improved to deter further damage.

As these buildings become adapted for new uses, all framing and lateral load resisting systems should be checked for compliance with code required live and lateral loads.

MECHANICAL

The needs of the occupants should be assessed to determine what types of systems are appropriate for these buildings in the future. Mechanical system replacement, or introduction, could impact the historic character of these buildings and should be carefully considered.

ELECTRICAL

We recommend complete replacement of the electrical service to the site and within the buildings themselves. Size the service for the actual load to be served.

TELECOMMUNICATIONS

Basic telephone service is provided in three buildings with active offices. If the park decides to switch to a new communications technology, service should be evaluated for future use.

SAFETY

FIRE PROTECTION

Park staff and the DSC have determined that the level of fire protection required will relate directly to the type of equipment in the building and the occupancy. The following chart reflects fire protection recommendations for all buildings included in this report per a discussion that took place on 05/08/2007:

Participants in this discussion were:

Brian Olson – DSC Struct. Fire Mgmt

Denny Sutherland – IMR AHJ

Kent Mechem – GRCA Struct. Fire Mgmt

Amanda Zeman - GRCA FMD/AE

Bob Powell – GRCA FMD/AE

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Number	Preferred Building Name (per NHL Nomination)	Current Use in 2007	Area	Recommendation
#69	Carpenter's Shop (Former River Operations Boat Shop)	Law Enforcement Ranger Storage - ammunition is stored here.	1,100 sf	Sprinkler – Not Required. Detection – Yes/ consider use of "Protectowire" or eq.
#74	Equipment Shed & Electric Shop	Horse Barn	1,000 sf	Sprinkler – Not Required. Detection – Yes/ consider use of "Protectowire" or eq. Consider running off of panel in Bldg. #80
#75	Park Service Machine Shop*	Blacksmith Shop	670 sf	Sprinkler – Yes Detection – Not required; sprinkler system flow switch will report
#78	Park Service Warehouse	Boat Shop	5,100 sf	Sprinkler system is REQUIRED. Consider use of wet pipe glycol system. Detection - REQUIRED
#79	Park Service Gas Station	Law Enforcement Ranger "Inactive" Storage	200 sf	Sprinkler – Not Required Detection - Not Required
#80	Park Service Vehicle Paint Shop	General Employee Support space: meeting area, shower, restroom, lockers, mail area and leather/tack shop	816 sf	Sprinkler – Not Required Detection – Yes/ consider use of "Protectowire" or eq. Consider using panel in this building to serve Bldg #74 as well.
#87	Park Service Jail	Short term prisoner holding	420 sf	Sprinkler system not required per IBC exception. Detection system required; install in booking area only, not holding cells.
#88	Park Service Coal Shed	Vacant - not in use	700 sf	Sprinkler – Not Required Detection - Not Required
#90	ECW Warehouse	River Operations Kitchen	1,200 sf	Sprinkler is REQUIRED. Detection is not required. Sprinkler system flow switch will report. Provide commercial range hood w/suppression system which will also report to alarm panel.
#94	Storage Building	Storage	1,400 sf	Sprinkler system is not required. Detection system is not required. Current storage of propane tanks should be moved out of Bldg #94 to new flammable storage shed.
#99	Vehicle Storage Building	Roads and Trails Storage	4,000 sf	Sprinkler system is not required. Detection is not required
	Total Building Square Footage:		16,606 sf	

* This building was misidentified in the NHL Nomination as the Machine Shop. It has always been the Blacksmith Shop and will be referred to as such in this report.

HAZARDOUS MATERIALS

Hazmat Summary

Lead containing paint and asbestos can present health risks to building users and construction workers; can trigger both state and federal hazardous material regulations for control and abatement and can add significant cost to a rehabilitation project. We strongly recommend that hazardous material testing * be performed prior to planning rehabilitation/restoration activities. Qualified licensed professionals should execute all testing.

Their findings and recommendations should ultimately be worked into rehabilitation and restoration plans with a word of caution: hazardous material abatement crews are not always sensitive to the issue of preserving historic materials (e.g. scraping lead-based paint may damage the underlying surfaces). Ideally, abatement of historic, character-defining elements can be performed by the General Contractor responsible for the rehabilitation work, with close oversight by a historic architect.

*Please note: There are many other hazardous materials (e.g. radon, petrochemicals, pcbs, etc.) that may affect rehabilitation plans for a building but that discussion is outside the scope of this report. Asbestos and lead containing paint are the two most commonly found in historic buildings.

Asbestos Regulatory Review:

EPA and OSHA regulate any materials that contain greater than 1% asbestos. The EPA National Emissions Standard for Hazardous Air Pollutants (NESHAP) regulation requires that Asbestos Containing Material (ACM) be identified prior to demolition and rehabilitation activities. NESHAP requires that no friable ACM be disturbed during these construction activities. The Arizona Department of Health, Regulation 8, Part B, requires that prior to demolition or remodeling activities that could disturb greater than 160 s.f., 260 l.f. or the equivalence of a 55 gallon drum of a suspect ACM, an asbestos inspection following the AHERA protocol be conducted.

The October 11, 1994 revision to the OSHA Construction Standard requires that suspect ACM in buildings built prior to 1980 be assumed to be asbestos or an inspection be conducted by an inspector trained according to AHERA.

In some circumstances, point count analysis is required for bulk samples. Point counting is a more detailed means of analysis than standard PLM. Federal and State agencies define ACM as materials containing greater than one percent asbestos. The NESHAP regulation requires that if standard PLM analysis determines that a sample contains less than 10% asbestos, the material must be considered asbestos containing or be point counted. Even if the sample is less than one percent by standard PLM, the material either has to be assumed to be ACM or point counted. If the point counting analysis is different than the PLM analysis, the point counting result takes precedence. If standard PLM analysis determines that a material has no asbestos or that the material contains greater than 10% asbestos, point counting is not necessary.

Lead Regulatory Review:

OSHA's CFR 1926.62 applies to the disturbance or demolition of components that contain lead in measurable quantities. Therefore, the employee protection and safety precautions as outlined by CFR 1926.62 must be initiated if any paint that contains a detectable amount of lead is physically disturbed during rehabilitation, demolition or salvage. CFR 1926.62 applies to construction activities where an employee may be exposed to lead. This includes but is not limited to the following:

- Demolition or salvage of structures where lead or materials containing lead are present.
- Removal or encapsulation of materials containing lead.
- New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, which contain lead, or materials containing lead.

The regulation states that, where lead containing coatings or paint are present, an initial employee exposure assessment must be conducted when any of the following activities take place:

- Manual demolition of structures
- Manual scraping or sanding
- Heat gun applications
- Power tool cleaning
- Abrasive blasting
- Welding
- Cutting
- Torch burning

The employee exposure assessment includes air monitoring for airborne lead levels above the action level of 30 micrograms/cubic meter or permissible exposure limit (PEL) of 50 micrograms/cubic meter. During employee exposure assessment, the employer is required to implement the following protective measures:

1. Appropriate respiratory protection designed for airborne lead levels up to at least ten times the PEL.
2. Personal protective clothing.
3. Clean change areas equipped with separate storage facilities for protective work clothing and equipment and street clothes.
4. Hand washing facilities.
5. Initial biological monitoring in the form of employee blood sampling.
6. Lead hazard training. In addition, the regulation requires engineering and work practice controls, written compliance programs, and medical surveillance of employees.

If any materials coated with lead containing paint are scheduled for waste disposal, a waste characterization must be performed to determine the appropriate disposal requirements as regulated by the Environmental Protection Agency's Resource Conservation and Recovery Act (RCRA). Waste characterization includes sample collection and analysis using the Toxicity Characteristic Leaching Procedure (TCLP) method as outlined by EPA. Material must be considered toxic waste and disposed of in the appropriate manner if the TCLP results in extraction of lead above five parts per million.

REGULATORY REVIEW

Lead Containing Paint:

While some rehabilitation activities and/or occupancies will require complete paint removal, there are three less-invasive options in other situations:

1. Scrape loose paint (under controlled conditions).
2. If the paint surface is in good condition it may be possible to just paint over it.
3. Prohibit welding on or torch cutting of painted metal substrates.

Whether lead containing paint is being stripped completely or just scraped, the following conditions must be adhered to:

1. Paint removal must be performed by qualified subcontractors who have been trained to do the work and who have undergone medical testing.
2. Air monitoring by a qualified professional must be in place during the mitigation process.
3. Paint waste must be tested, documented by qualified professionals and disposed of properly.

2.2 REQUIREMENTS FOR TREATMENT

NPS 28, Chapter 8 instructs that the Requirements for Treatment section will identify laws, regulations, and functional requirements that would apply to the historic structure. This calls for specific attention to issues of life safety, fire protection, energy conservation, abatement of hazardous materials, and handicapped accessibility. In addition to the issues as called for by NPS 28, this section includes cultural resource protection and management.

The following is a matrix of these issues, relevant policies, laws, codes, and standards that comments on the possible impacts that will shape future treatments of the Historic Maintenance and Warehouse Complex buildings. Although not necessarily all inclusive, the matrix should be considered a starting checklist for design of rehabilitation treatment and management of the resource. Further guidance and a listing of related regulations may be found at: http://workflow.den.nps.gov/staging/11_Laws/laws_policies.htm. It is important to understand that, although regulations may appear prescriptive, their application to historic buildings and structures always requires careful consideration of the resource's historic character and integrity along with interpretation and/or alternative means of fulfilling regulatory requirements.

Topic	Code/Policy/Law	Comments
Life Safety	<p>National Fire Protection Association - NFPA 101</p> <p>International Building Code 2006</p> <p>Executive Order 12941</p> <p>ASCE7</p> <p>International Existing Building Code 2006</p> <p>Amendment to Public Buildings Act 1988</p> <p>NFPA 70 National Electrical Code</p>	<p>Life safety issues are those that relate to fire, storm, collapse, crowd behavior, and other related considerations. See individual building reports for specific life safety deficiencies. It is important to note that even though a feature's condition may be "poor", it does not necessarily mean it poses a life safety threat. For instance, exterior siding is in some cases, severely deteriorated, but this condition does not constitute a life safety issue.</p> <p><u>Life Safety Issues:</u></p> <ul style="list-style-type: none"> * Branch circuiting is not provided with ground conductors * Obsolete electrical wiring is still in use at all buildings excluding those that have no electrical service. (Bldgs 88, 94 and 99) See page 33 for general electrical recommendations for the site and buildings. * Lack of a main electrical circuit breaker (Blacksmith Shop, Bldg 75) * Several chimneys are in a very deteriorated condition and could cause injury in collapse (Bldgs 69,74,75,78,80,87 and 90) * An immediate life safety threat in the Park Service Warehouse, Bldg. 78 (a failed girder near the freight elevator) was mitigated by the Park in the summer of 2007; other structural deficiencies, associated with the loading dock and basement still exist. <p>All buildings have a suitable number of exits for their current uses and typical small size, but each building has at least one entry door that lacks a code-compliant landing on both sides of the door. Building 78, pending its ultimate use may require a second set of egress stairs from the 2nd floor and panic hardware at the doors.</p>

Life Safety cont'd		<p>With regard to egress concerns in buildings that are unconditioned storage (Bldgs 88, 94 and 99) and are likely to remain in this or similar use, egress concerns are not relevant. For the other buildings, impacts may include reversal of exterior door swings and change of door hardware. Specific impacts for each building would be identified upon development of schematic rehabilitation design for the ultimate use.</p> <p>* Stairs, in general, lack code-compliant handrails and guardrails (Bldgs 78 and 90).</p> <p>* With regard to the buildings' ability to resist seismic events (see Executive Order 12941), evaluation of seismic capacity was beyond the scope of this report. It is the authors' understanding that the NPS is currently evaluating its facilities' seismic capacities under a separate contract. This applies to all buildings.</p>
Fire Protection	<p>National Park Service Director's Order 58 Structural Fire Management</p> <p>Various NFPA Standards</p> <p>National Park Service Director's Order 28-NPS 28</p> <p>National Park Service Management Policies 2006, 5.3.1.2. Fire Detection, Suppression and Post Fire Rehabilitation</p> <p>National Park Service Management Policies 2006, 9.1.8, Structural Fire Protection and Suppression</p> <p>International Building Code 2006</p> <p>ASCE7 International Existing Building Code 2006</p>	<p>To establish fire performance requirements for the complex and for this report, members of the Park and DSC met and discussed the issues. They concluded that introduction of fire detection/alarm and/or fire suppression systems be recommended for the buildings based on their current use. These systems will have exposed conduit sprinkler branch lines, and sprinkler main. It was agreed that the fire protection system components will be compatible to the utilitarian character of the buildings. See pages 28-29 and 33-34.</p>
Energy Conservation	<p>Guiding Principals of Sustainable Design</p> <p>Greening Federal Facilities, An Energy, Environmental and Economic Resource Guide for Federal Facility Managers and Designers</p> <p>IESNA 9th Edition</p> <p>ASHRAE/IESNA 90.1</p> <p>International Mechanical Code 2006</p>	<p>This report does not address this topic in depth. Many of the buildings still utilize incandescent (vs. more energy efficient fluorescent and/or LED lighting). With regard to thermal insulation energy concerns in buildings that are unconditioned storage (Bldgs 96, 79, 88, 94 and 99) and are likely to remain in this or similar use, the topic of energy conservation is not relevant. For the other buildings, impacts to the building relative to this topic depend on ultimate use of the buildings. Specific impacts for each building would be identified upon development of schematic rehabilitation design for the determined use. The building reports do address minor impacts to the buildings such as the addition of weather stripping to doors and windows.</p>

Hazard Material Abatement	<p>Resource Conservation and Recovery Act</p> <p>Environmental Protection Agency Regulations</p> <p>Occupational Safety and Health Administration Regulations</p> <p>Arizona Department of Health Services</p>	<p>Pages 29, 30, 35 & 36 provide general information on this topic. Generally all painted surfaces are suspect as having lead based paint in underlying coats. Future treatment (rehabilitation) would not result in direct impact to the building but would trigger construction personnel protection requirements during preparation of surfaces for re-painting. Specific impacts to each building should be identified and evaluated once qualified personnel have completed a hazardous material survey/testing.</p>
Accessibility	<p>General Administration Services (GSA), Architectural Barriers Act Accessibility Standards (ABAAS)</p> <p>National Park Service Director's Order 28-NPS 28</p>	<p>Page 28 notes general accessibility deficiencies for the site. Pages 31 and 32 identify typical modification required for the building based on categories of potential use.</p>
Cultural Resource Protection and Management	<p>Director's Order 28, & NPS 28 Cultural Resource Management</p> <p>The Secretary of the Interior's Standards and Guidelines for Rehabilitating Historic Buildings 1995</p> <p>Archeological and Historic Preservation Act 1974</p> <p>Executive Order 11593: Protection and Enhancement of the Cultural Environment</p> <p>Programmatic Memorandum of Agreement among the NPS, Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers (1995)</p> <p>National Historic Preservation Act of 1966 as amended, Section 106, and Section 110</p> <p>Advisory Council on Historic Preservation's regulations, <i>Protection of Historic Properties</i> 36CFR 800</p>	<p>All these buildings have significance related to the history of the nation per their discussion as contributing structures to a National Historic Landmark District. The rehabilitation designs will undergo strict scrutiny to ensure that every reasonable effort to retain historic character and integrity has been addressed. Rehabilitation design and construction that conforms to the Secretary of Interior's Standards and Guidelines for Rehabilitation will facilitate avoiding adverse effect determinations.</p>

2.3 ALTERNATIVES FOR TREATMENT

Physically, the buildings in the Historic Maintenance and Warehouse Complex should be treated as viable, active utilitarian structures. Restoration or period reconstruction of the buildings is unlikely, and not necessary given the less significant aspect of this area compared with many of the other structures that make up the National Historic Landmark District. However, these buildings certainly warrant sensitive rehabilitation as they fall into disrepair or change use.

As individual buildings are updated and rehabilitated, alternatives will present themselves during design and construction. Because of severe deterioration on many of the buildings, in-kind replacement, of historic materials where needed, will be required. Care should be taken to avoid attempting to make the buildings look as if new.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

Adverse effects can be evaluated as that which diminishes the integrity of the characteristics that qualify the building as a contributing structure in a historic district. It is the opinion of the authors of this report that the recommended treatments may be accomplished without diminishing a building's individual or the site's collective characteristics (location, design, setting, workmanship, materials, feeling, and association) that qualify these properties for inclusion on the National Register of Historic Places and designation as contributing structures to the Grand Canyon Village National Historic Landmark District.

PART IV - 4.1 BIBLIOGRAPHY

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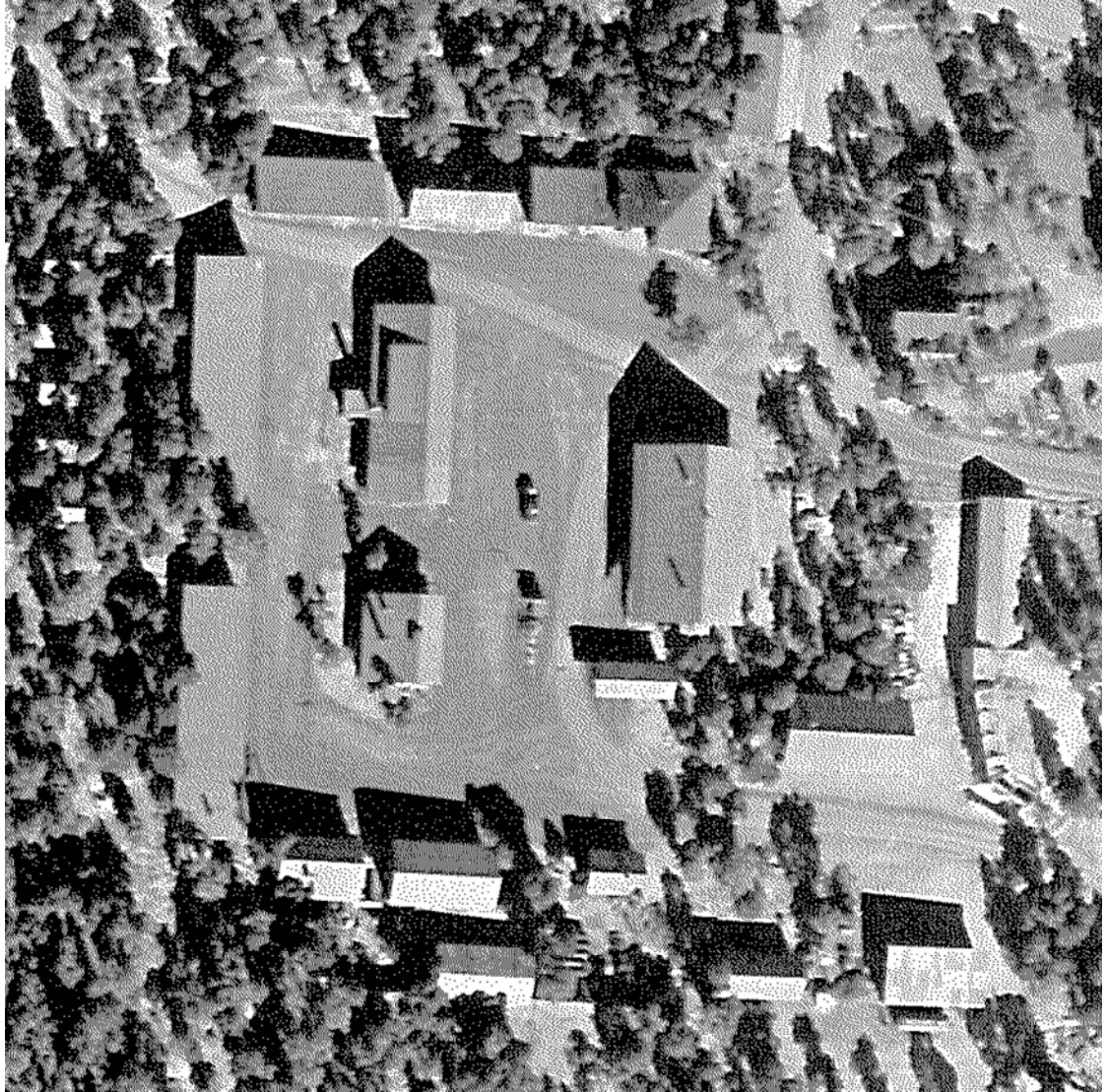
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Tweed, William C., Laura Soulliere, Henry G. Law. "National Park Service Rustic Architecture: 1916-1942." Denver: National Park Service Western Regional Office, February, 1977.

United States Department of the Interior, National Register of Historic Places. "National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation." Revised 1995. National Park Service; Department of the Interior.

Repositories Containing Additional Referenced Information

DSC Workflows	http://workflow.den.nps.gov
Grand Canyon Library	http://www.nps.gov/grca/historyculture/reslib.htm
Museum Collection	http://www.nps.gov/grca/historyculture/muscol.htm
Cultural Resources Office	http://www.nps.gov/grca/historyculture/index.htm



1956 AERIAL PHOTO (MAINTENANCE AREA ENLARGED)
NPS records – FL03, Exposure #7-5 date 01.08.1956



1971 AERIAL PHOTO (MAINTENANCE AREA ENLARGED)
NPS records – FL08, Exposure #1 date 04.28.1971



1978 AERIAL PHOTO (MAINTENANCE AREA ENLARGED)
NPS records –FL14, Exposure #1-03 date 05.17.1978



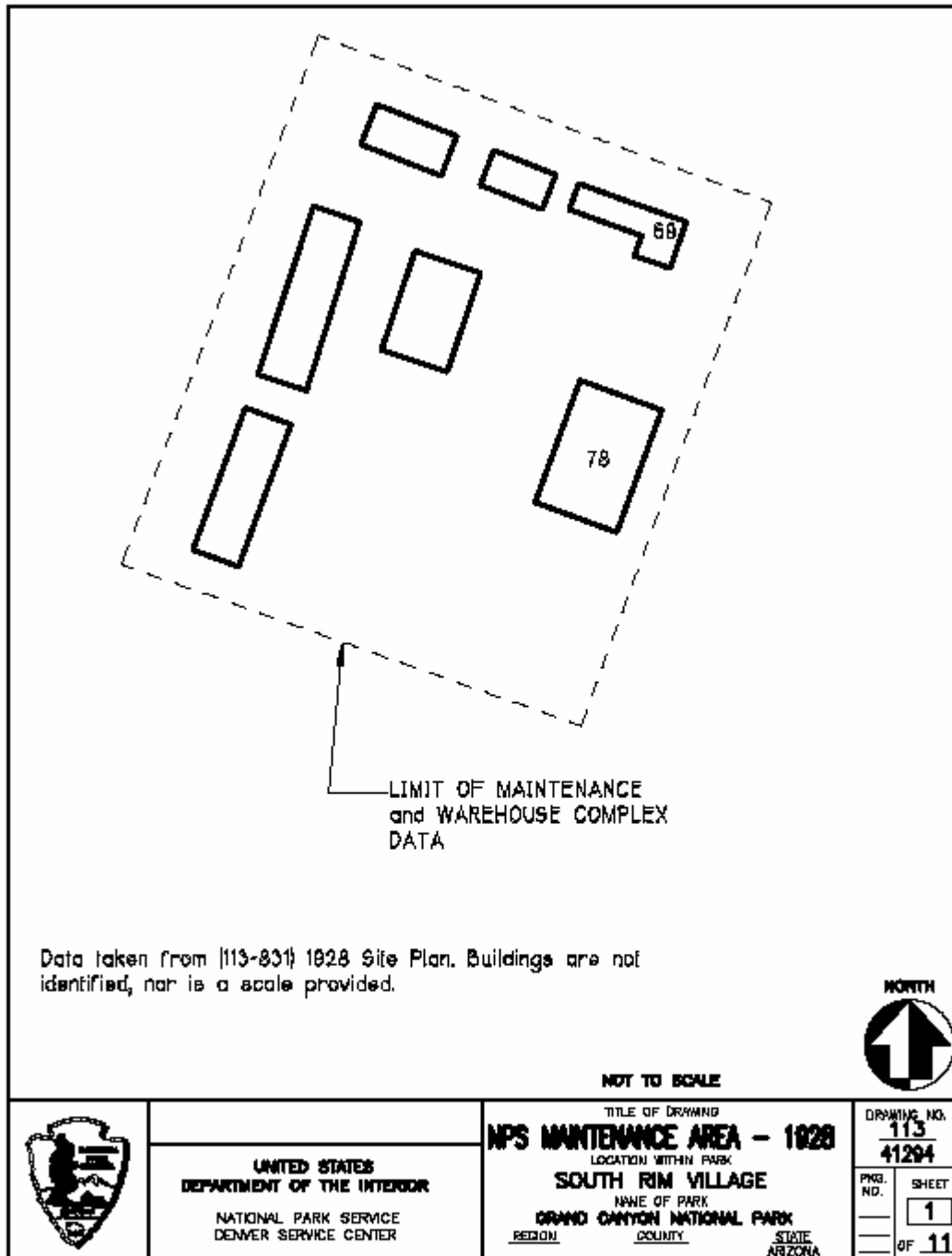
1988 AERIAL PHOTO (MAINTENANCE AREA ENLARGED)
NPS records – FL22, Exposure #2 date 04.10.1988

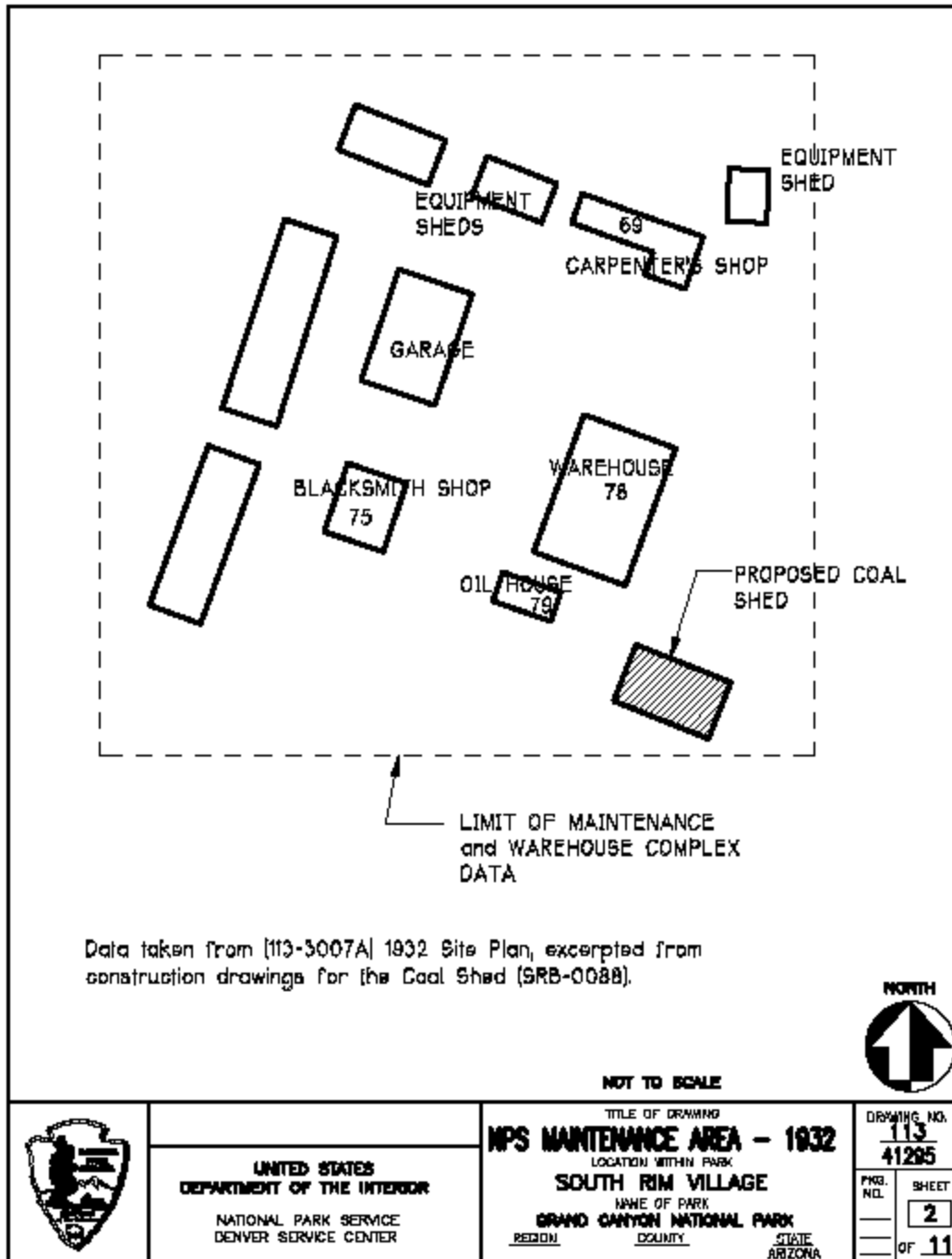


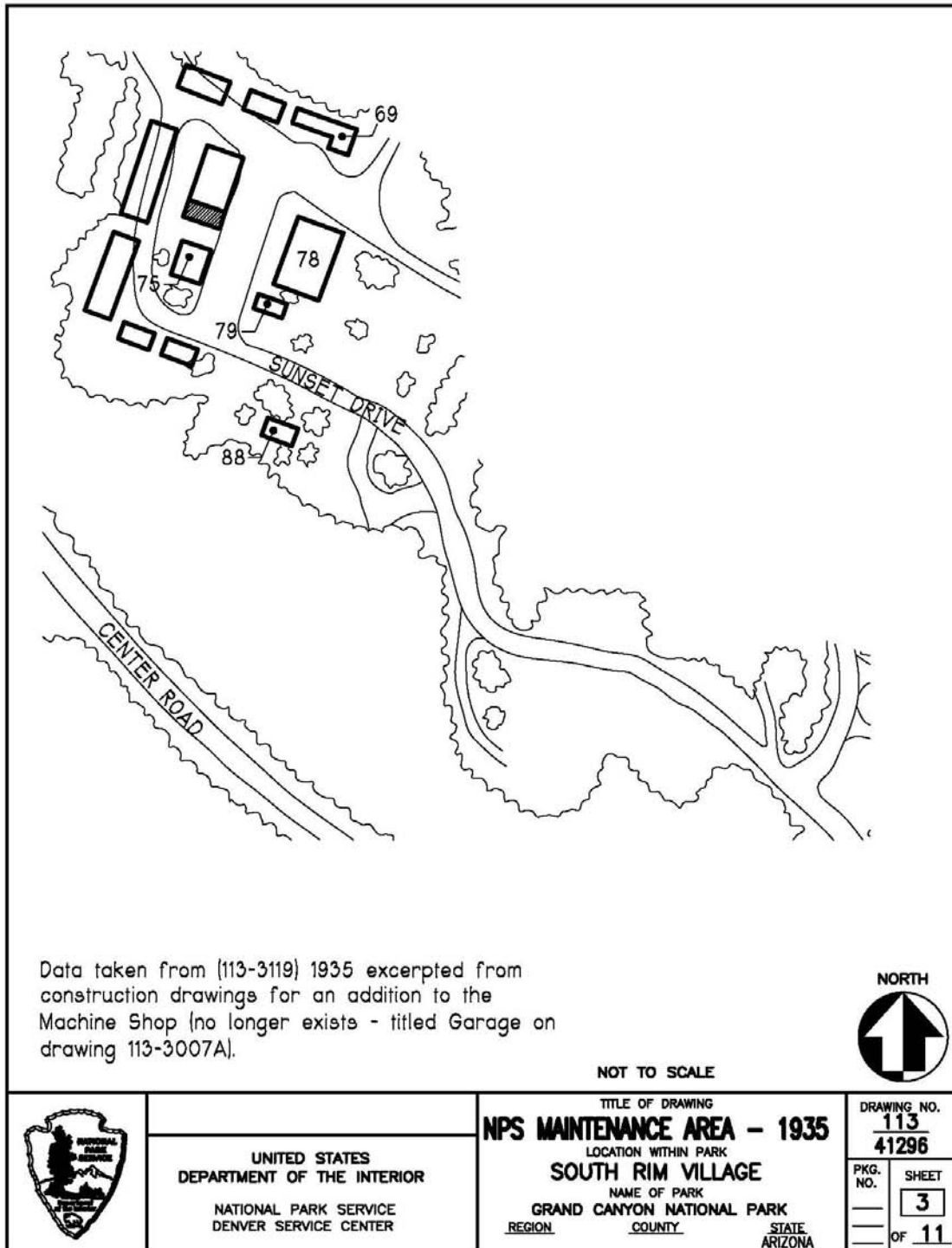
Looking South at the Complex – Building SRB-0080 in distance
National Park Service Grand Canyon Museum Collection (Photo # 00906)

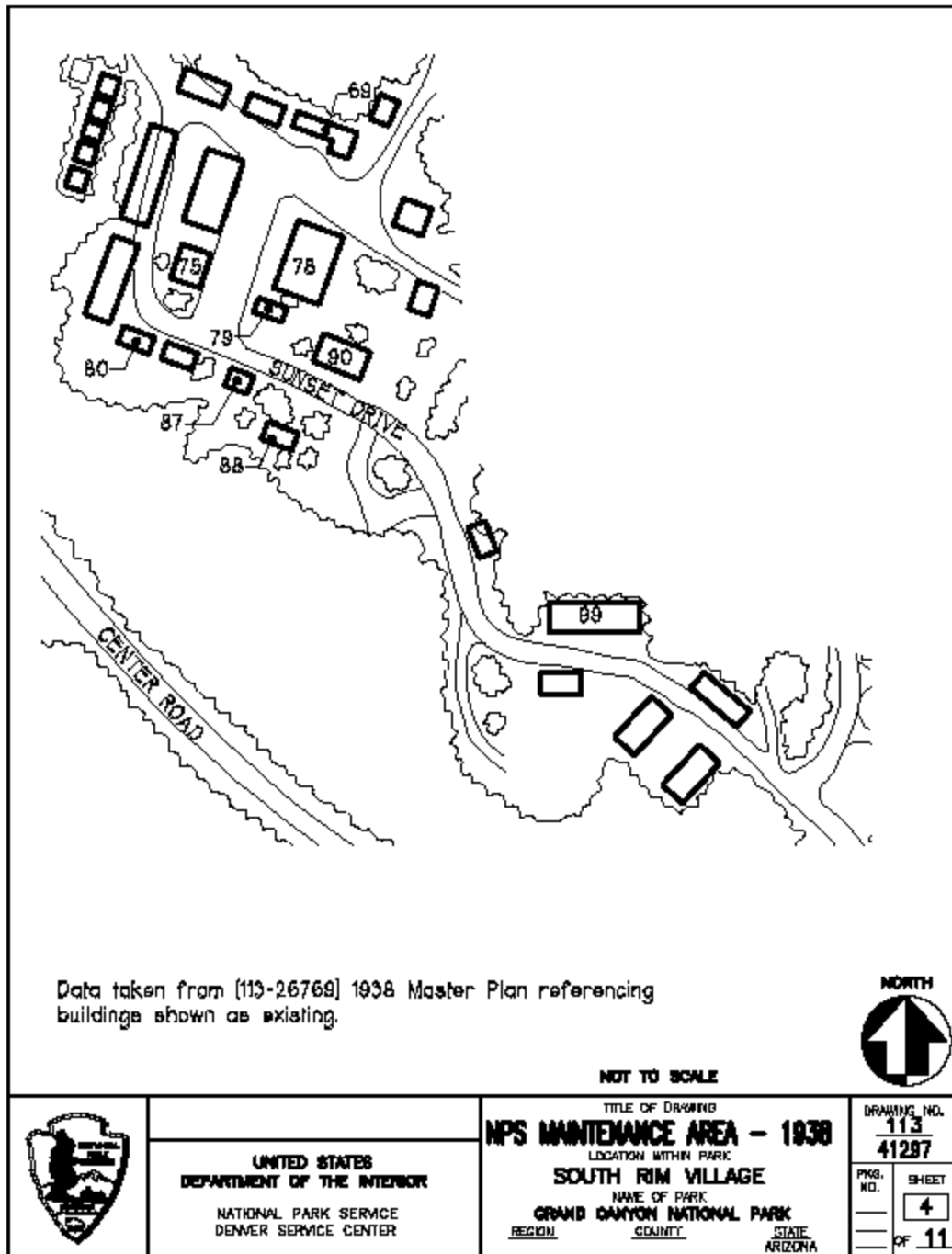


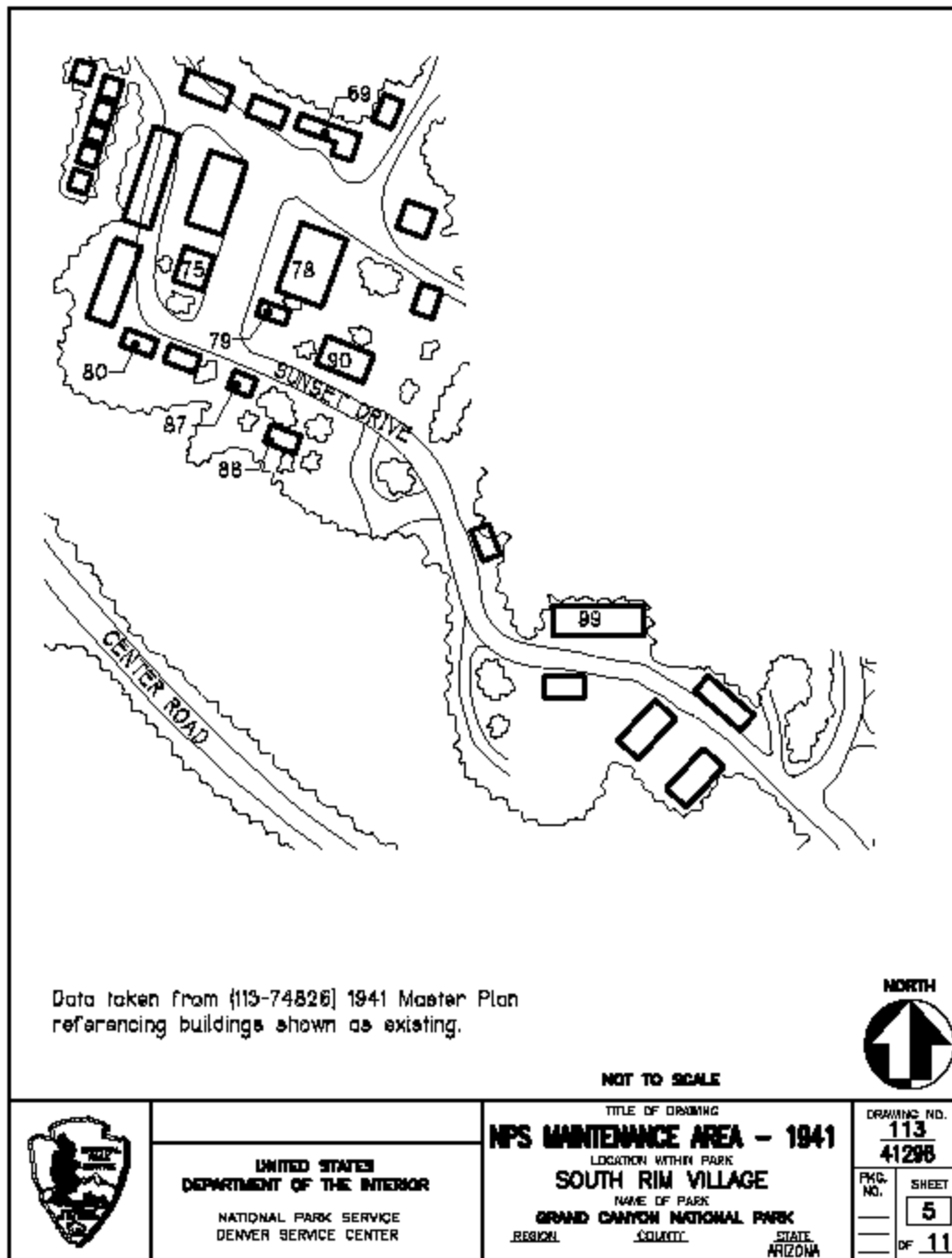
Looking North at the Complex – Building SRB-0075 on left
National Park Service Grand Canyon Museum Collection (Photo # 09163)

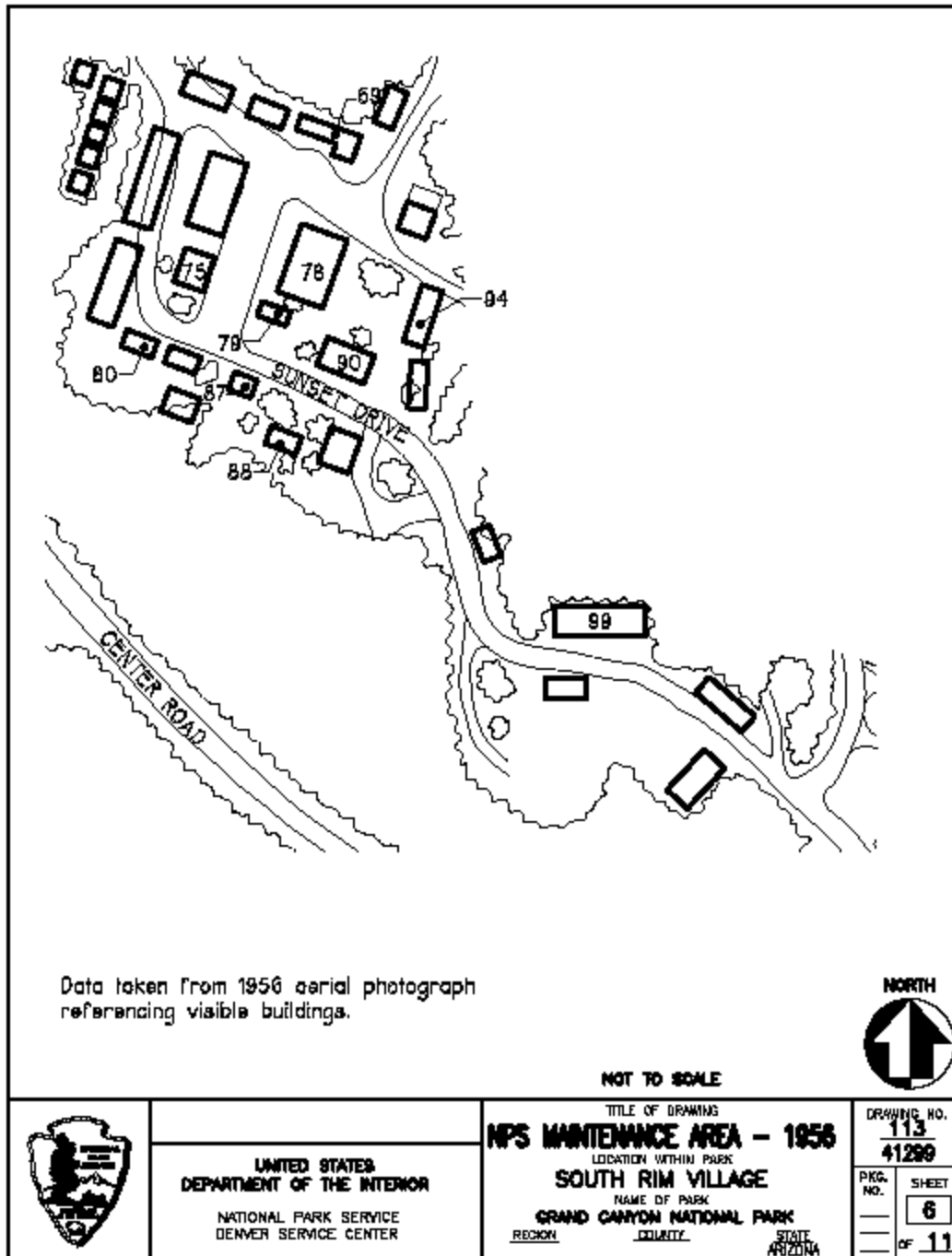


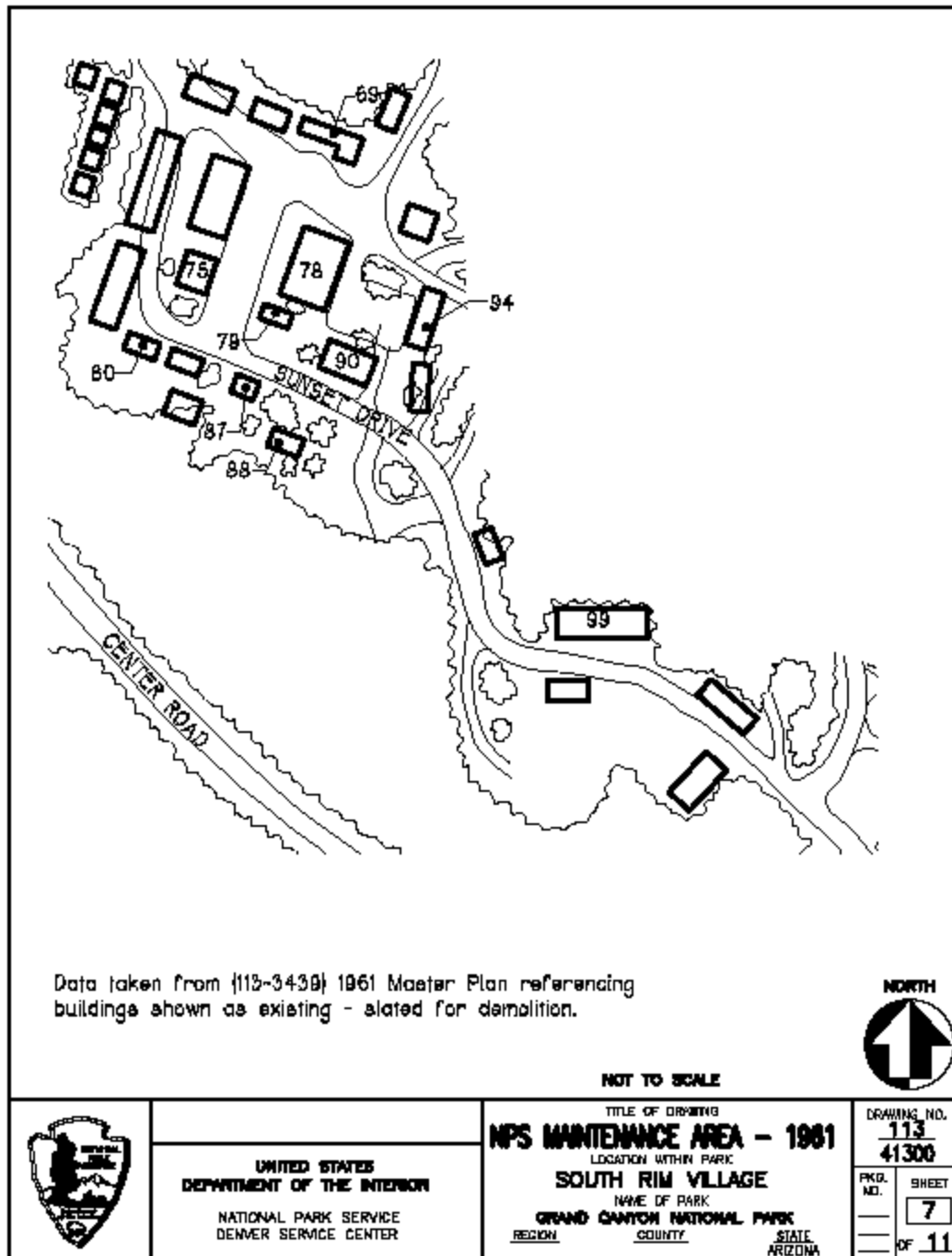


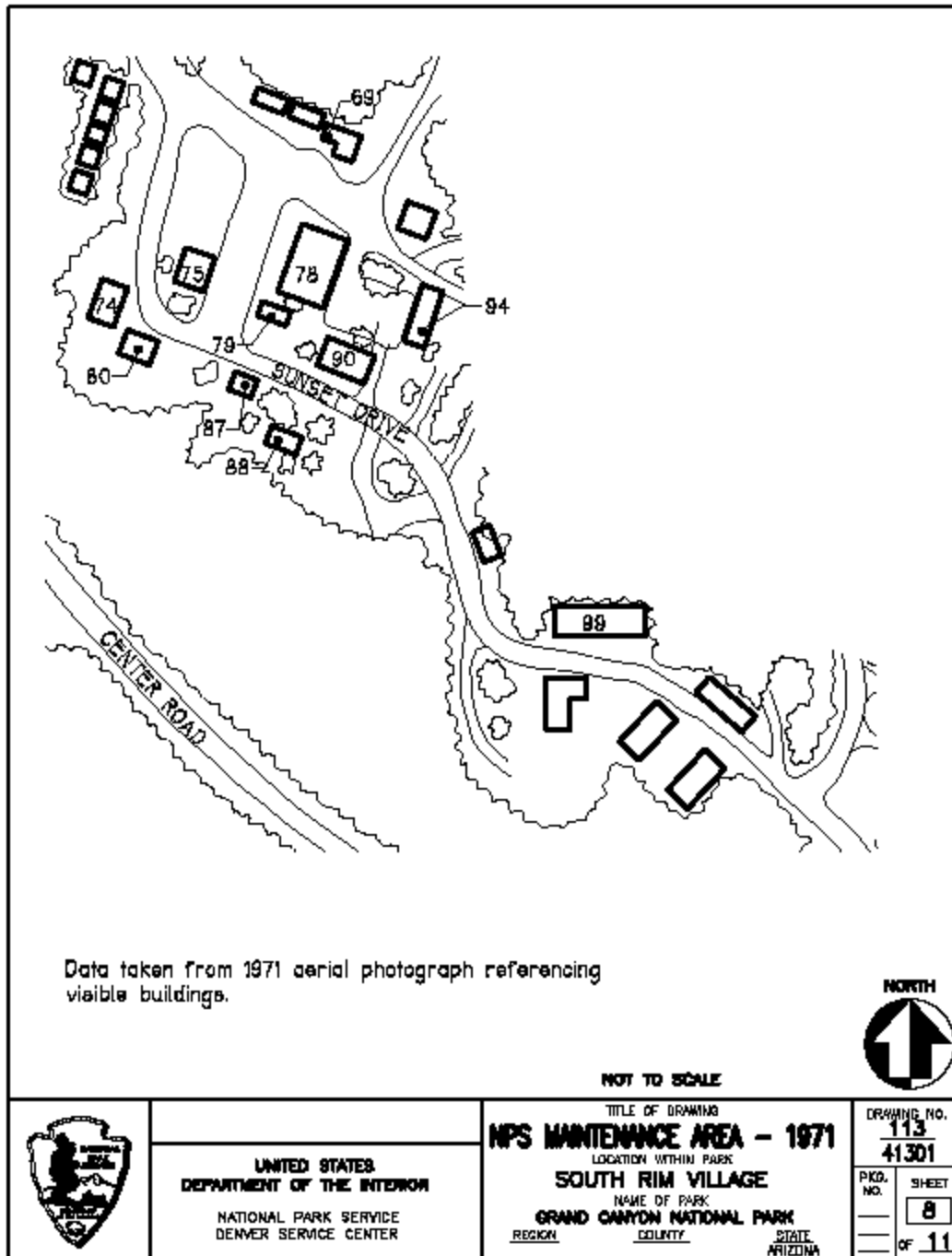


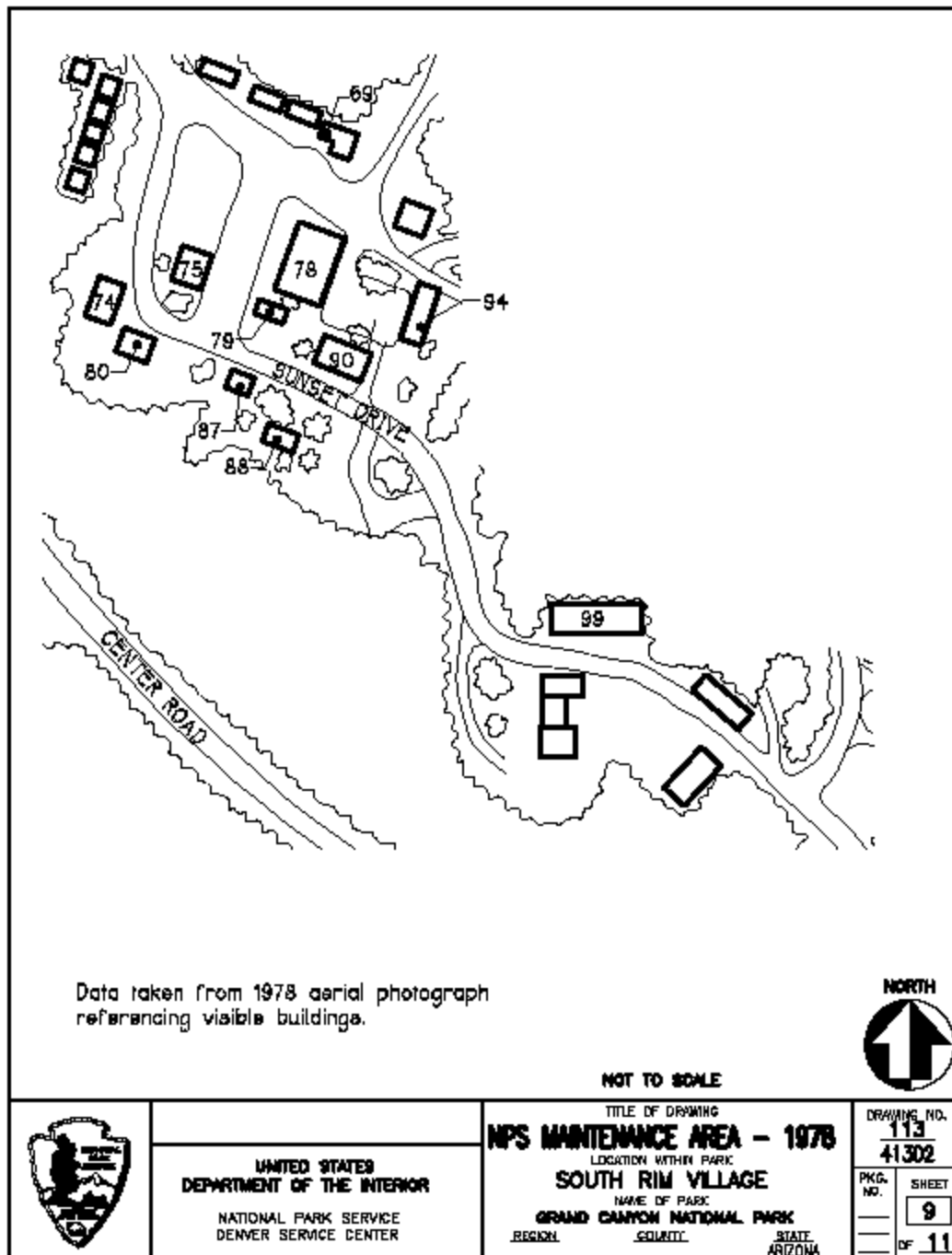


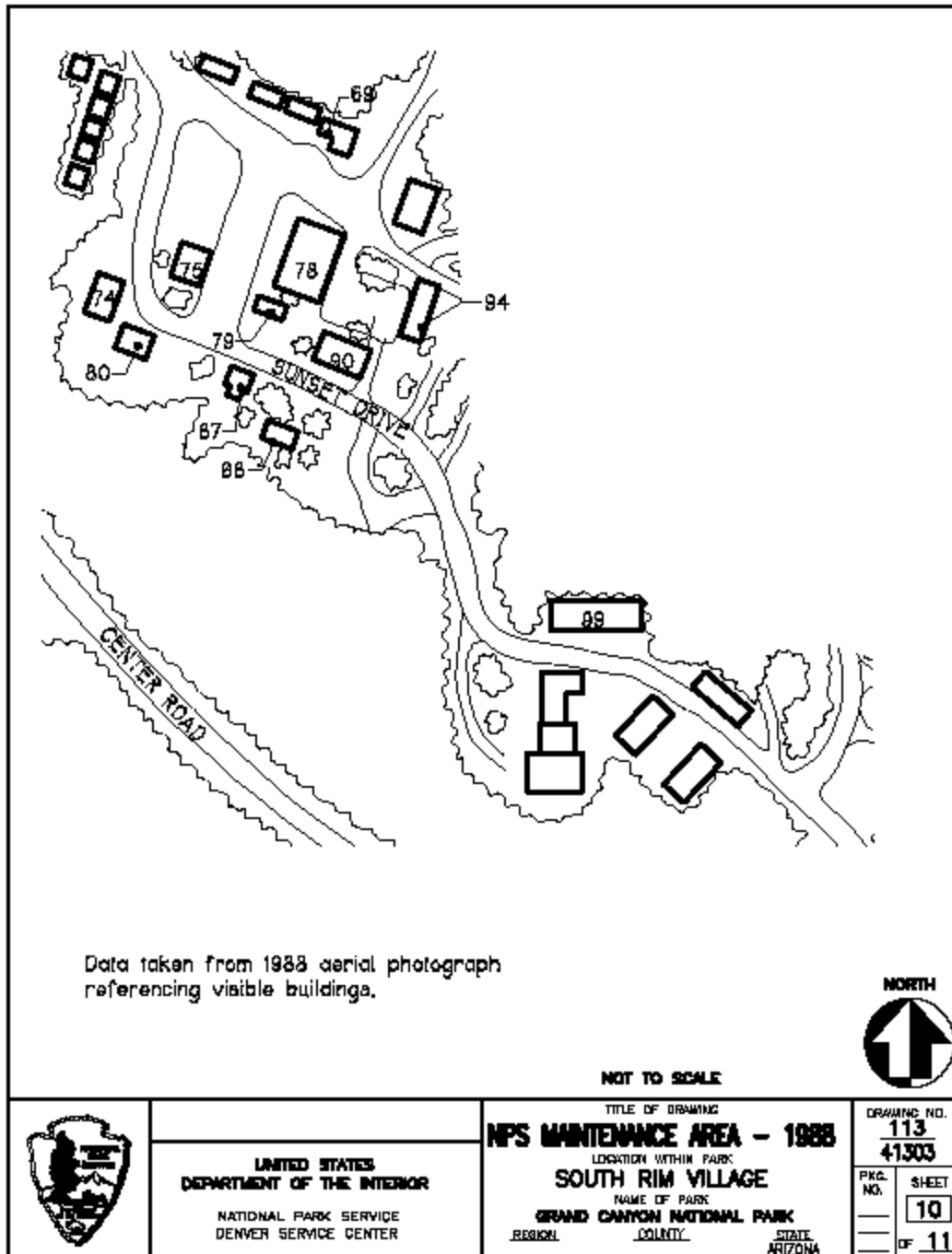




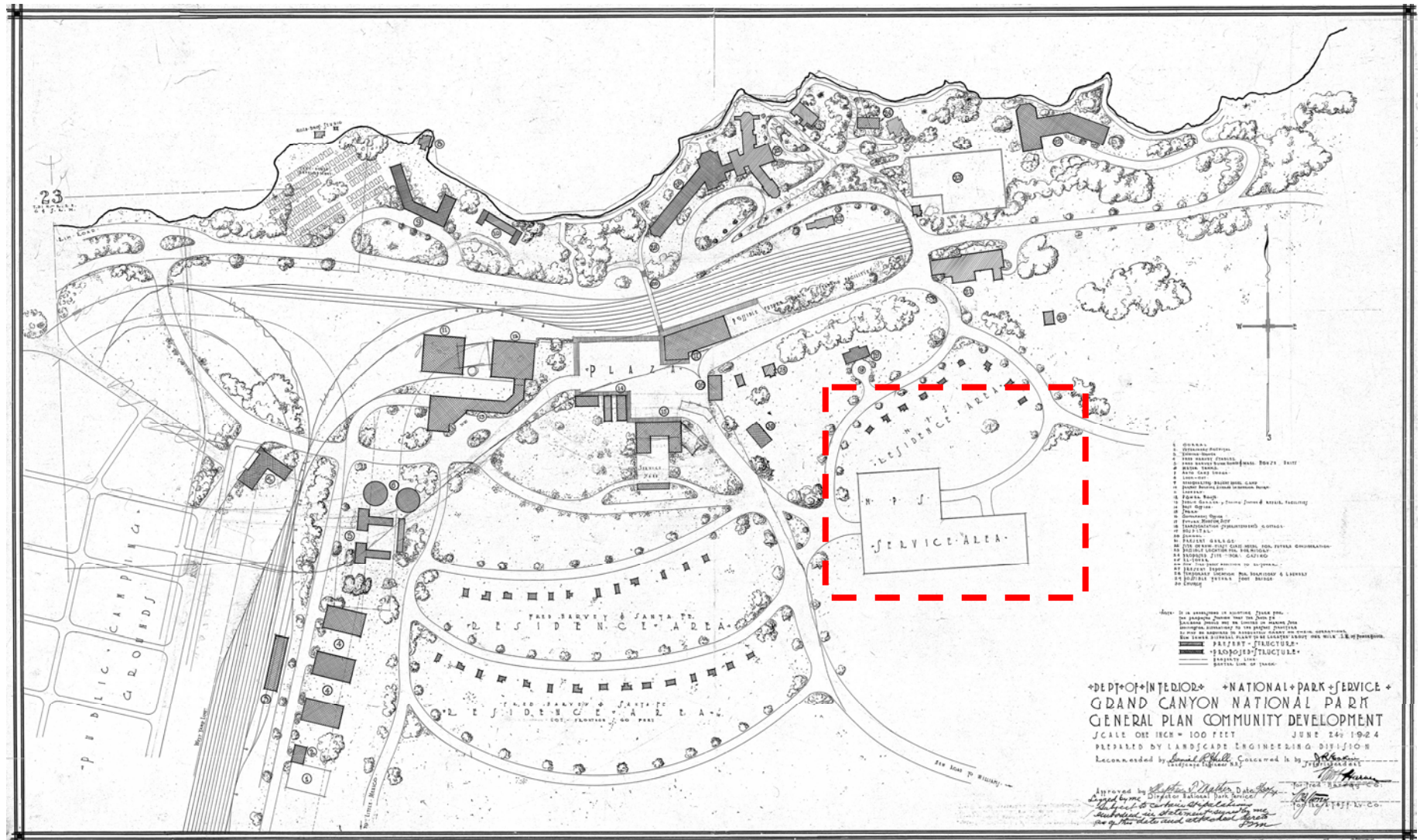






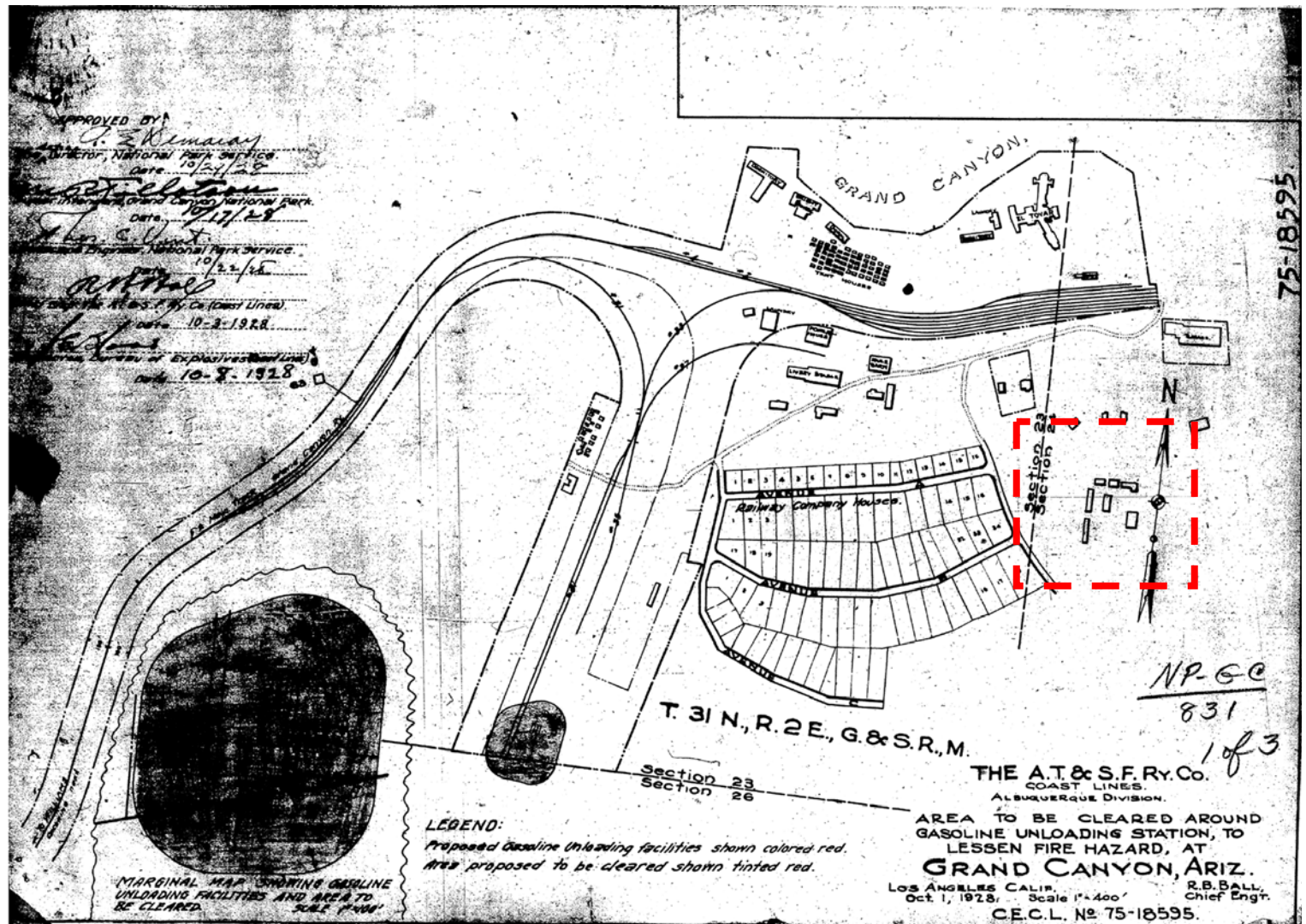


GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT

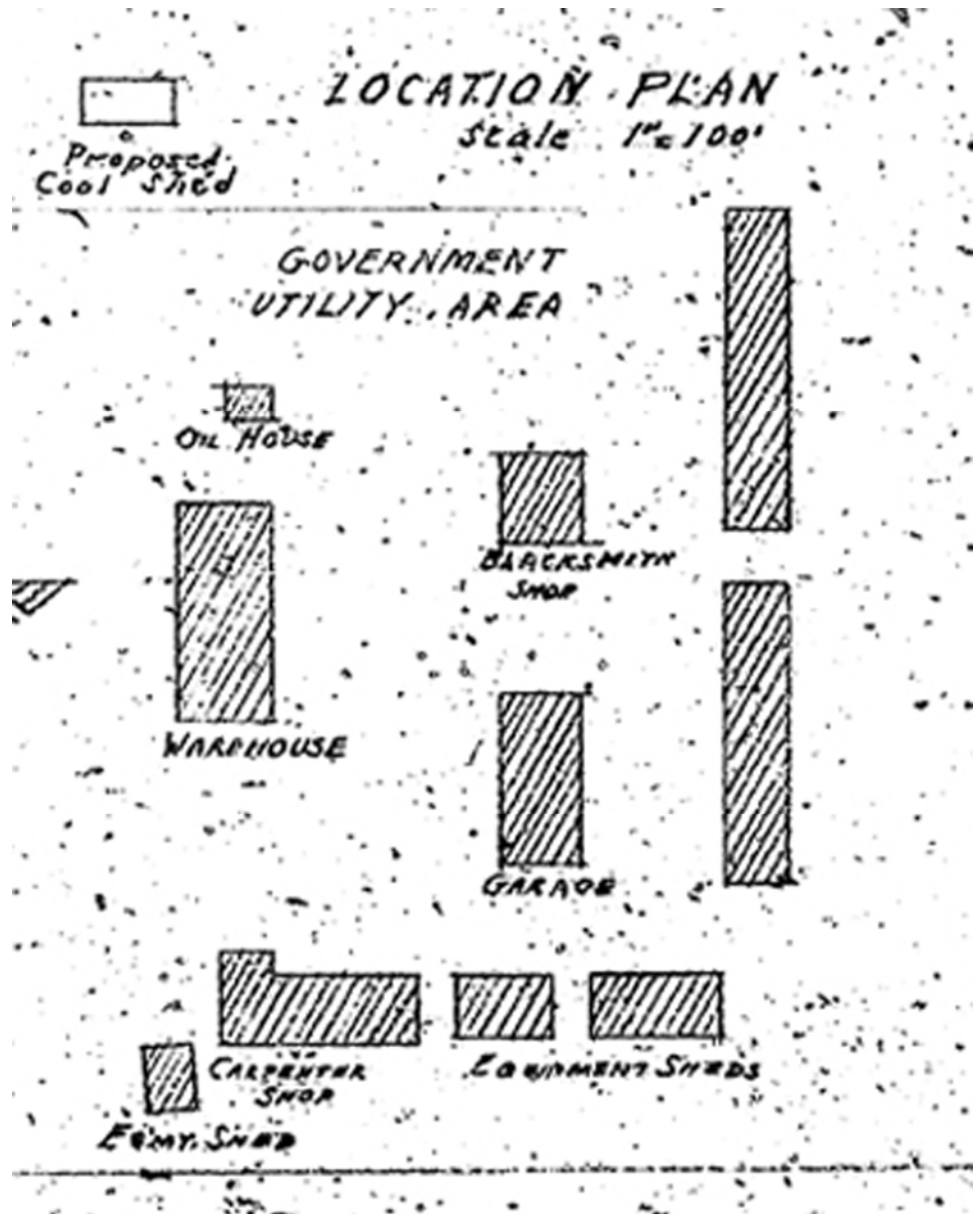


1924 GENERAL PLAN COMMUNITY DEVELOPMENT:
(NPS Technical Information Center #113-46)
Maintenance Complex dashed in red

GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT

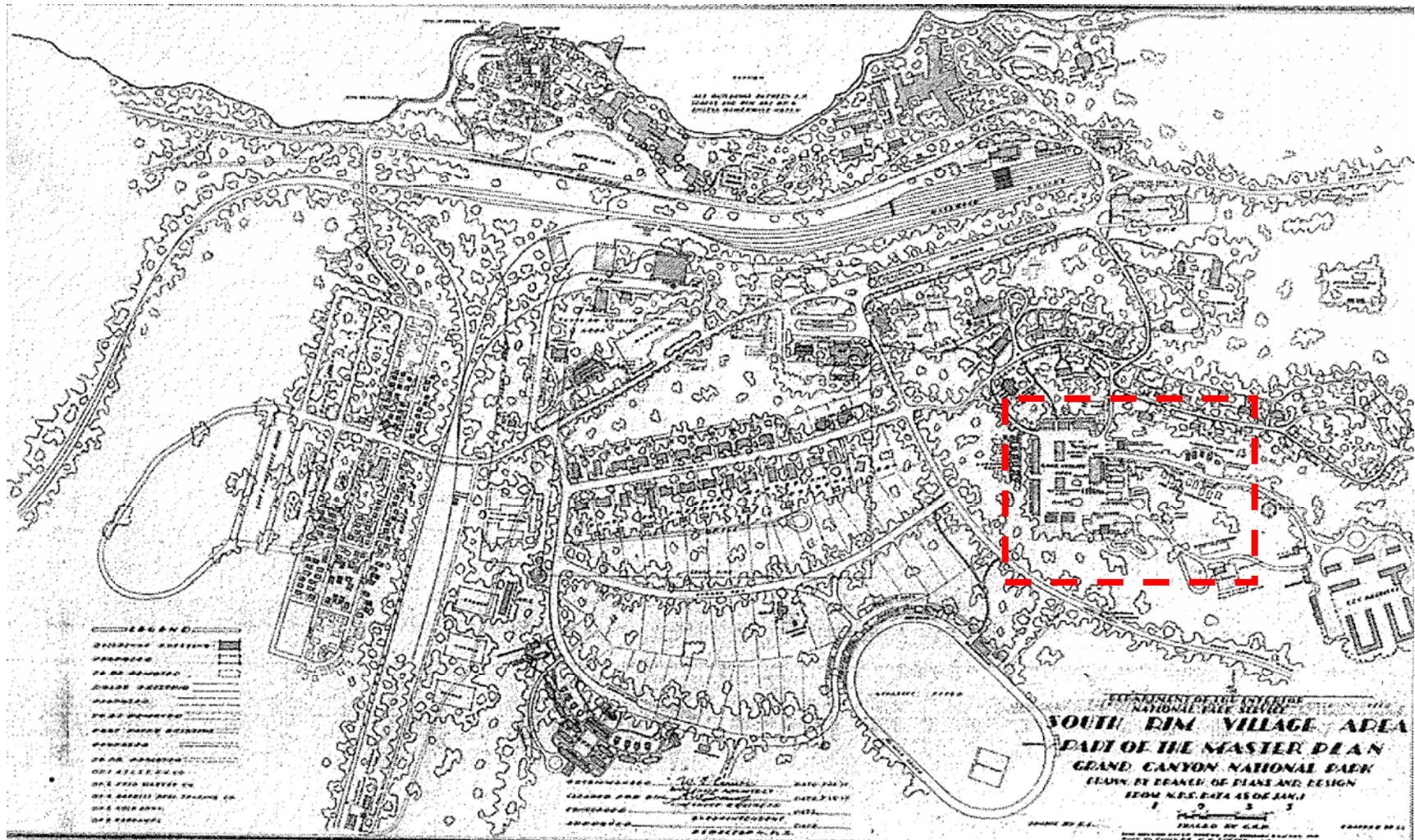


1928 SITE PLAN:
(NPS Technical Information Center #831)
Maintenance Complex dashed in red



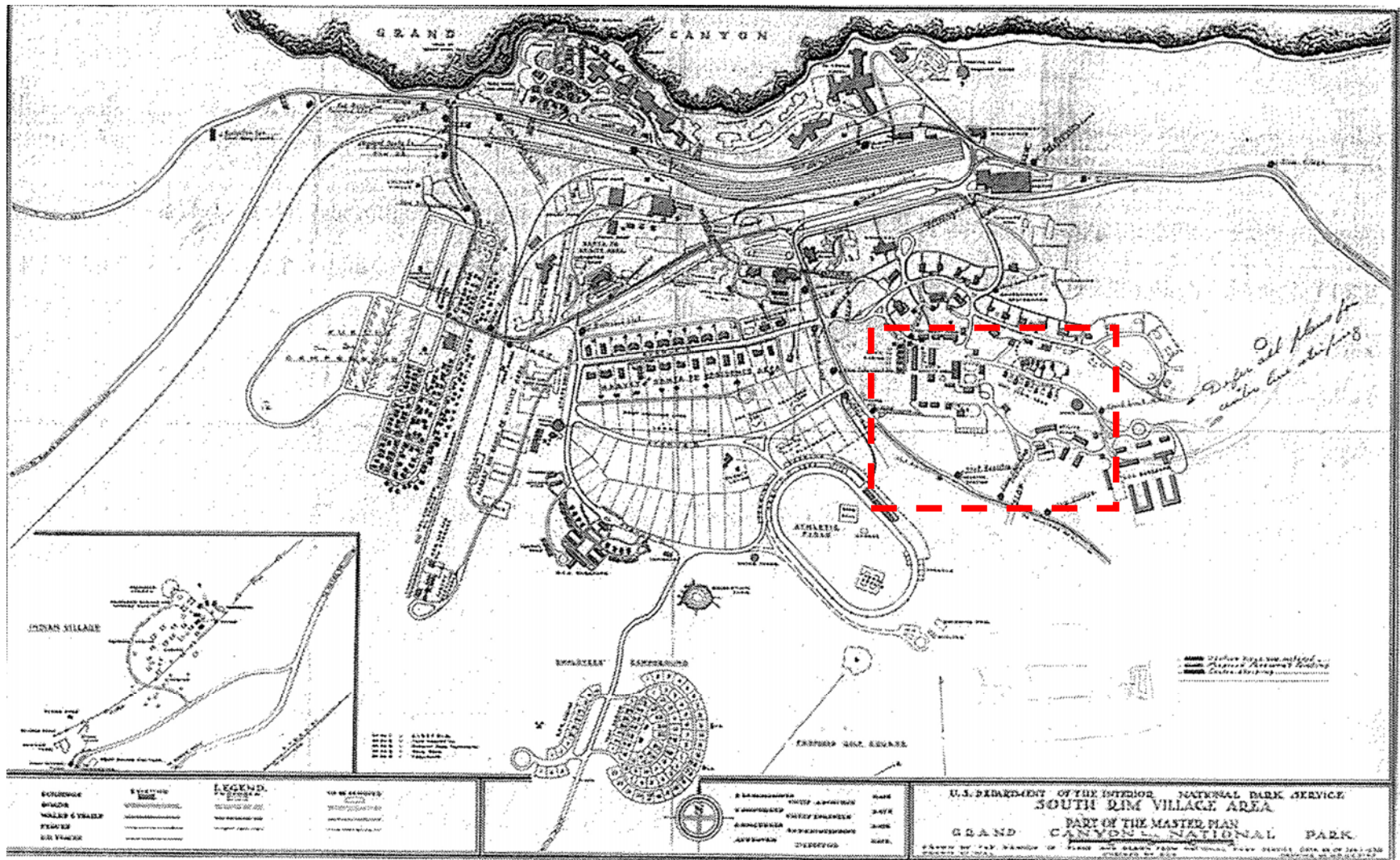
1932 SITE PLAN:
(Excerpt from NPS Drawing #113-3007A)
North points down

GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT



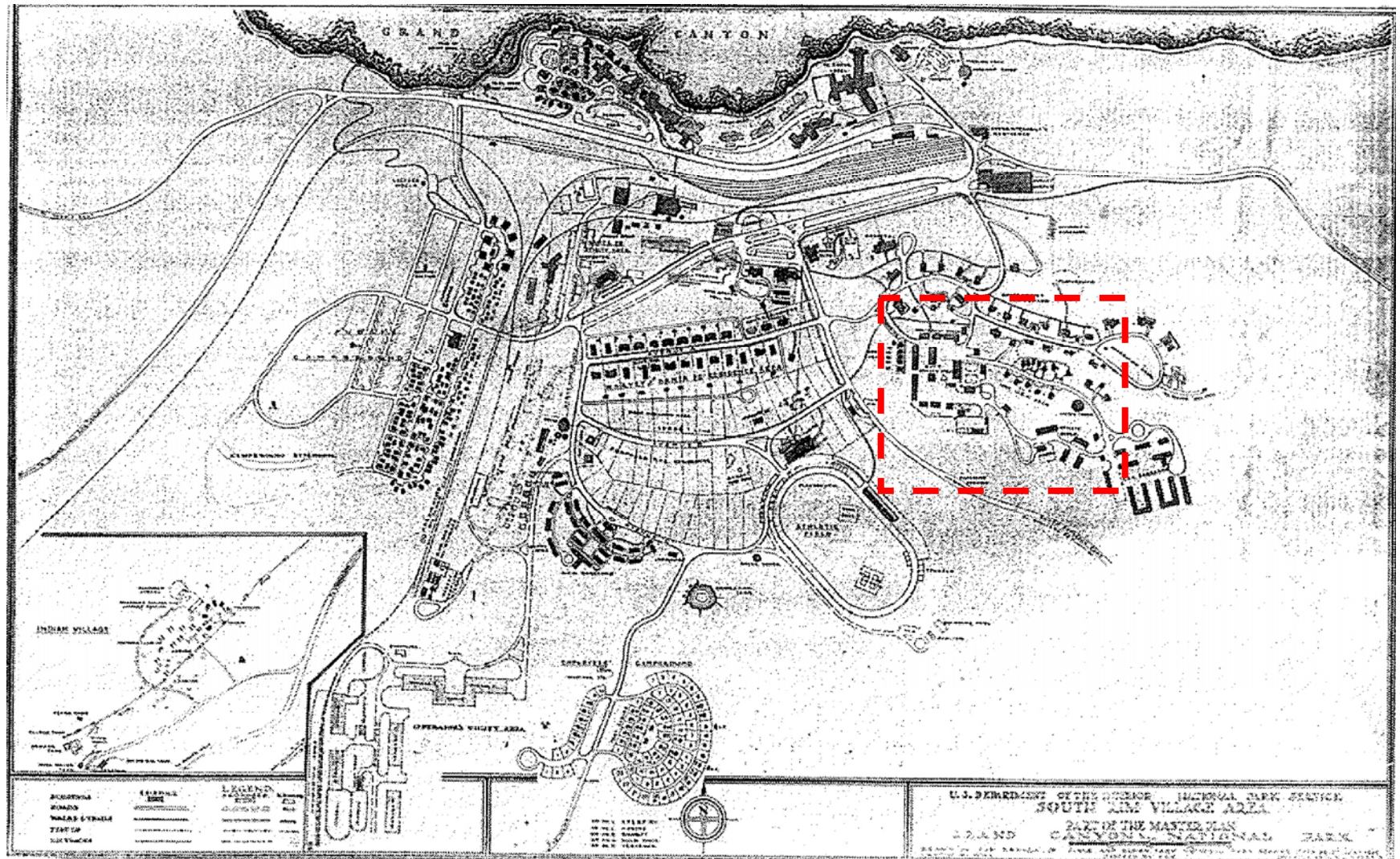
1935 MASTER PLAN - SOUTH RIM VILLAGE AREA:
(NPS Technical Information Center #28342)
Maintenance Complex dashed in red

GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT



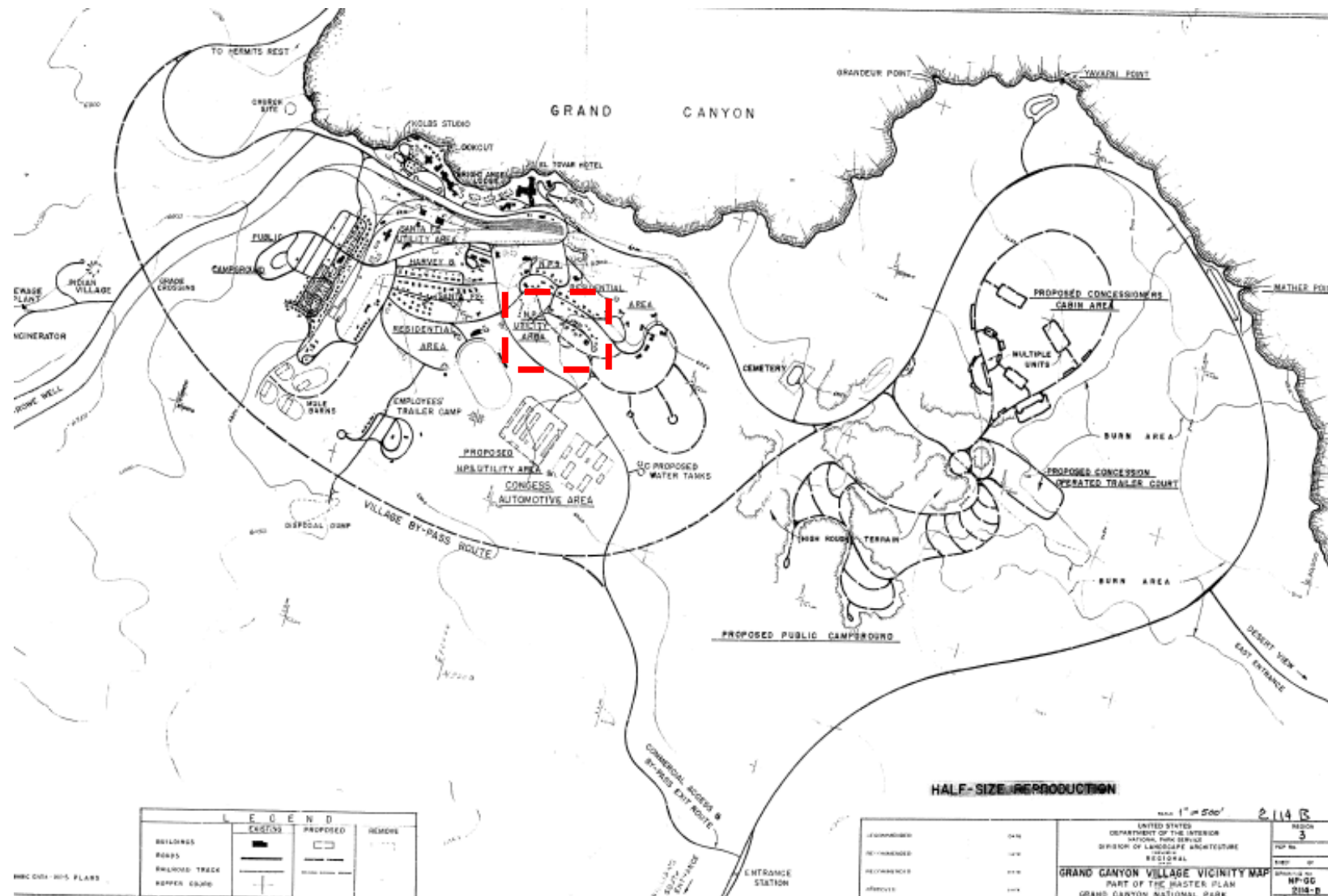
1938 MASTER PLAN - SOUTH RIM VILLAGE AREA:
(NPS Technical Information Center #26769)
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GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT



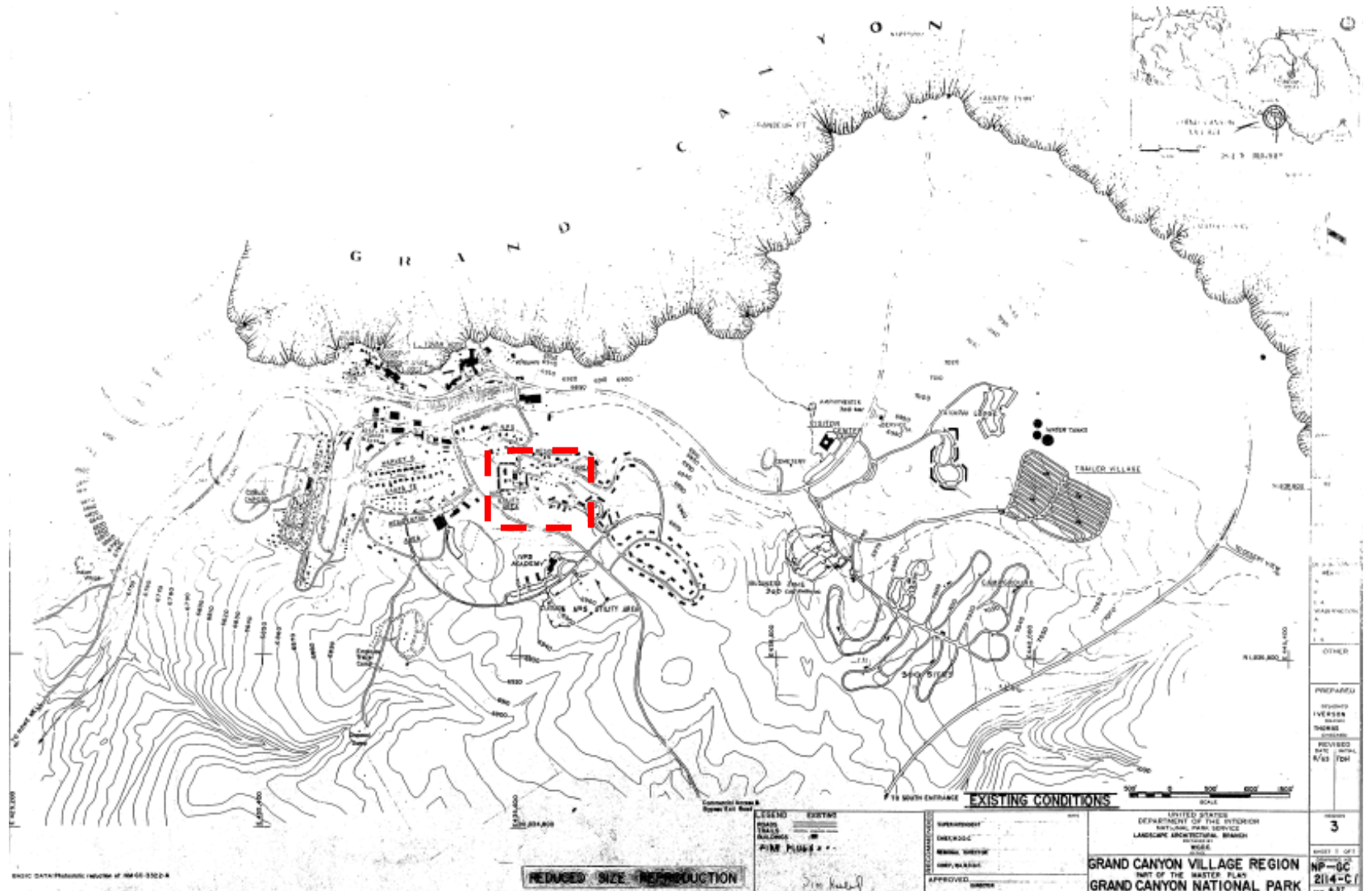
1941 MASTER PLAN SOUTH RIM VILLAGE AREA:
(NPS Technical Information Center #74826)
Maintenance Complex dashed in red

GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT

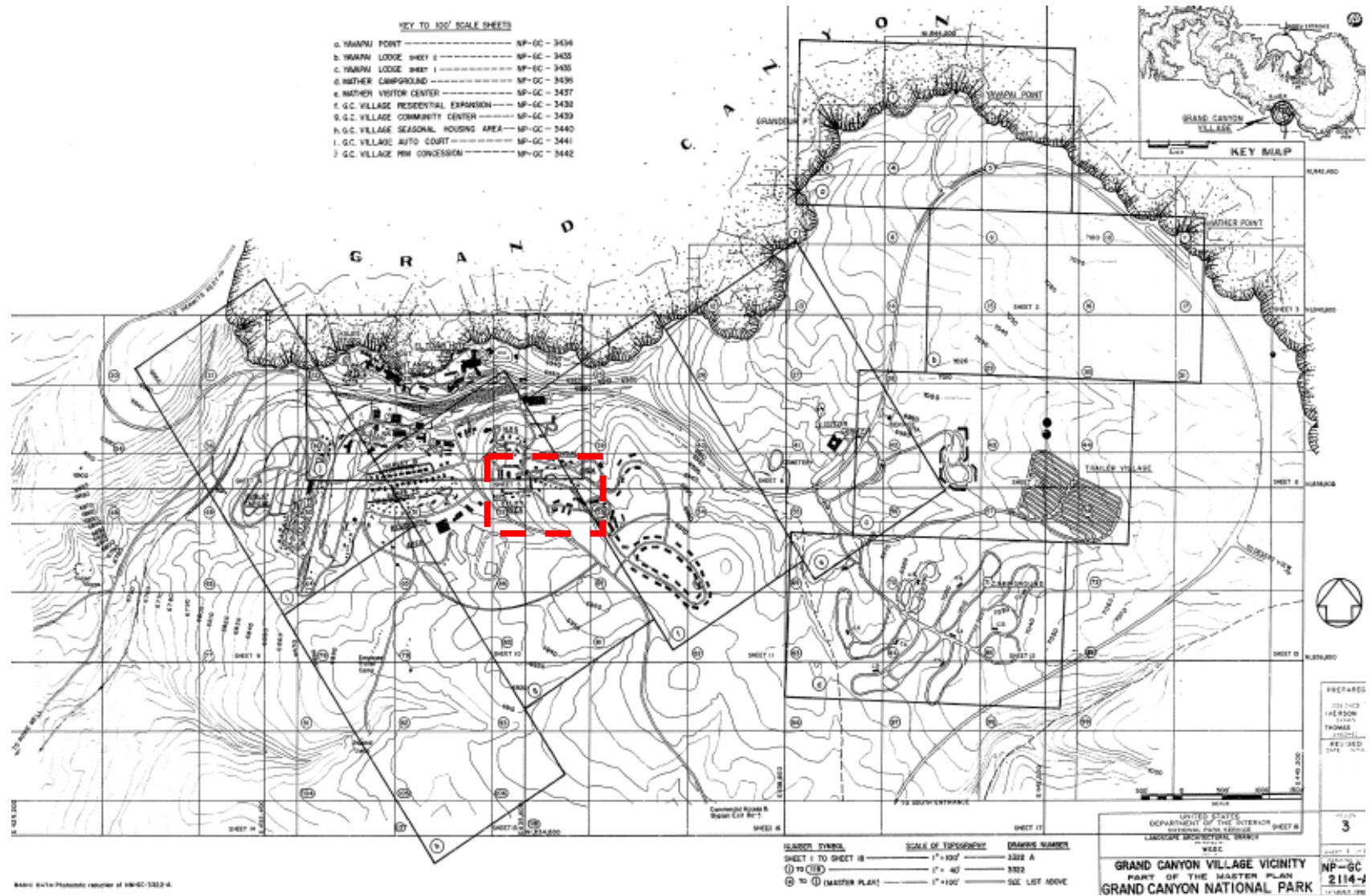


1954 MASTER PLAN - SOUTH RIM VILLAGE
(NPS Technical Information Center #113-2114)
Maintenance Complex dashed in red

GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT



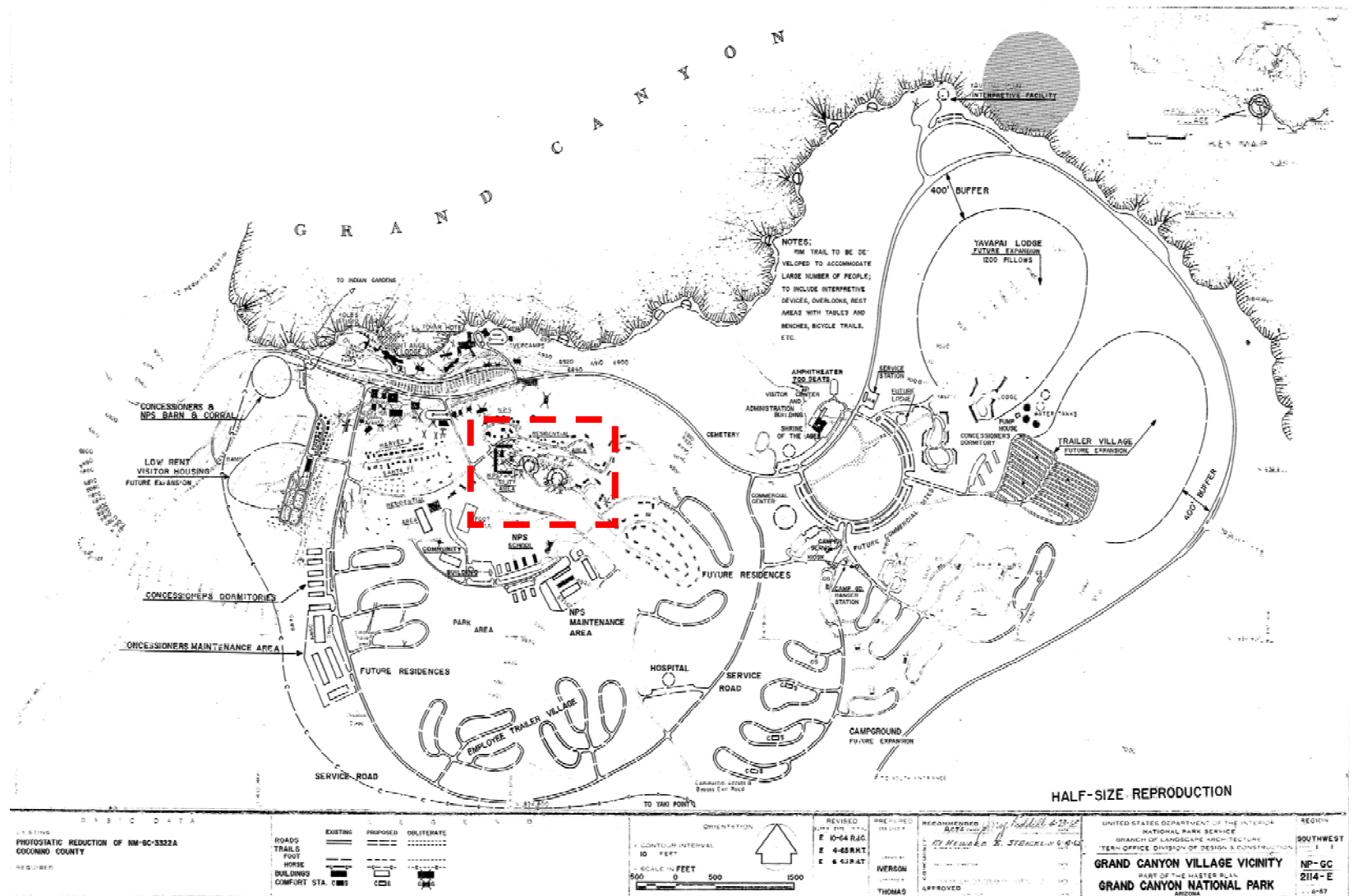
GRAND CANYON SOUTH RIM
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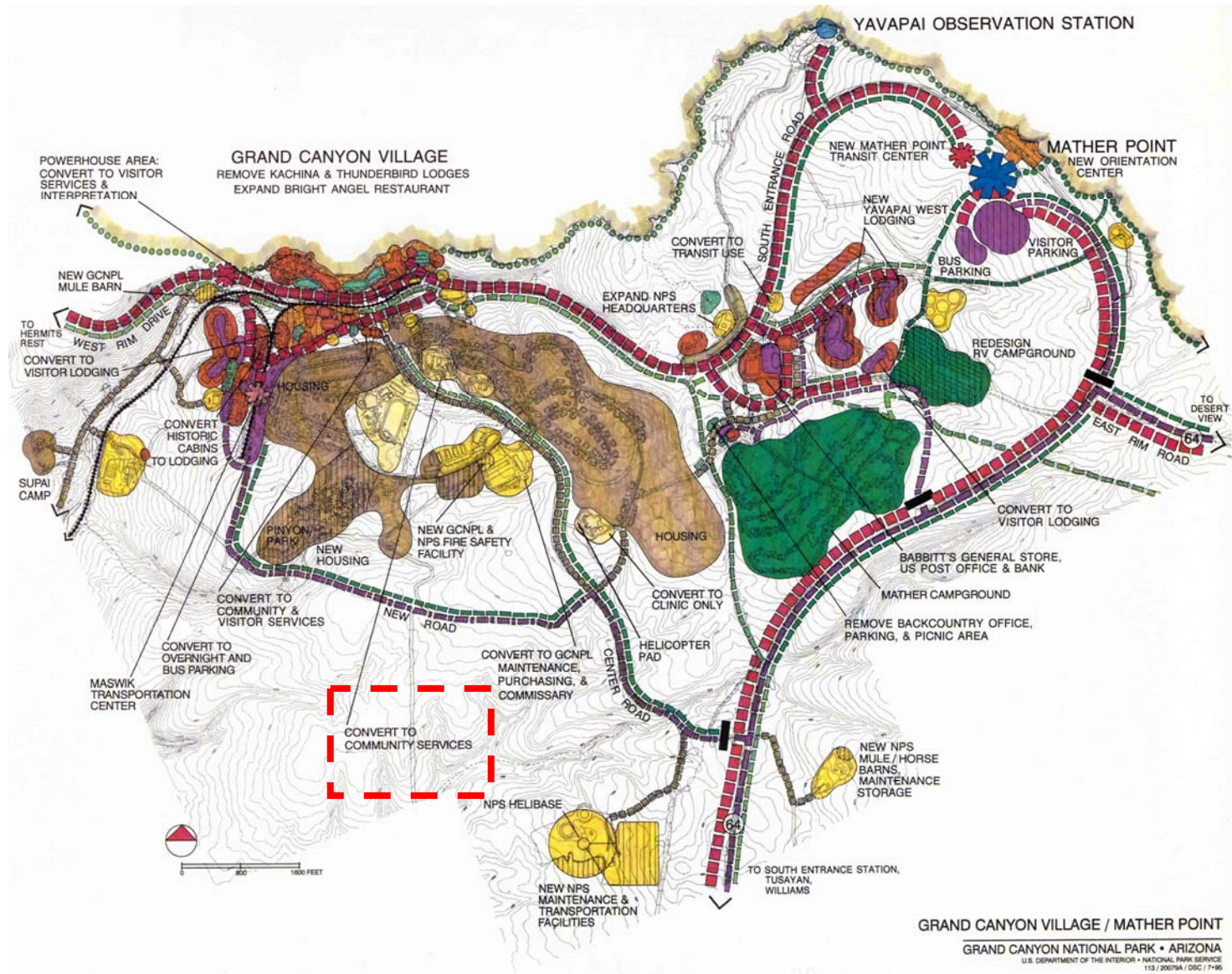
GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT



1961 (JANUARY) MASTER PLAN (ENLARGED):
(NPS Technical Information Center # 113-3439)
Maintenance Complex dashed in red



GRAND CANYON SOUTH RIM
HISTORIC MAINTENANCE AND WAREHOUSE COMPLEX
HISTORIC STRUCTURE REPORT



1995 GMP MASTER PLAN

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The Carpenter's Shop was originally constructed in 1924 (National Historic Landmark Nomination, 1997), and photographic evidence shows that in the early part of the century it had a four-bay storage shed attached to the west side of it. The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources estimates a construction cost for the project of \$1,300. The construction of this building reflects typical barn-like post and beam construction; with exposed rafters and board and batten siding.

A 1923 NPS construction drawing for the Grand Canyon Carpenter's Shop (Drawing 1136-AZ-2 Grand Canyon Museum Collection; also known as Drawing 6A) does not appear to be this building, although it has been associated with it in the past. The drawing has intentionally been excluded from this report.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

It cannot be determined if the building was altered significantly before 1936. The building that appears in the 1936 photos hardly resembles any construction drawings found in the Grand Canyon Museum Collection. A large storage shed wing appears to the west, the building is L-shaped, and the roof form is not simple.

The building was indeed remodeled in 1936 as Park Project #419, ECW Class 120 (Drawing 3167 Grand Canyon Museum Collection). Work was conducted by the ECW Company based at Camp NP4A. Historic photographs, taken in 1936, show the remodeling work in progress. It appears that windows were reconfigured and replaced, and the interior space was reconfigured – adding a tool room, with built-in casework for storage, and a small office. It is unknown when the west storage shed was removed, but it does not appear to have been removed during this remodel. A single rafter, or possibly a barge board, remains attached to the west side of the building – ghosting the location of the demolished shed. Historic remodel drawings indicate installation of maple flooring, although there is no evidence this was ever done.

Over time, the building has suffered from the elements. Its main façade faces south, experiencing the harshest temperature swings and deteriorating much of the wood. The southeast corner is sinking due to changes in grading near the building over time. Water now flows directly under the east wall from the nearby street. The building is in danger of irrevocable damage if water drainage is not corrected within a reasonable period of time.

OTHER DOCUMENTED WORK ON THE BUILDING

<u>Review Date</u>	<u>Work Described</u>	<u>Source of Information</u>
1936	Replaced/reconfigured windows, removed and added walls, altered floor finishes	NPS Photos
January 9, 1990	Scrape and Paint	Section 106 Review
January 11, 1994	Replaced modern slab door with a period-appropriate 5-panel door	Section 106 Review
February 24, 1994	Install propane heater to replace wood stove	Section 106 Review
January 24, 1996	Repair or replace double door	Section 106 Review

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NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
1936-1949	Removal of west storage shed
Unknown	Installed insulation and fiberboard at ceiling

1.3 PHYSICAL DESCRIPTION

The Carpenter's Shop is a post and beam wood structure with a modified shed roof with a hip to the east. The building features a corrugated sheet metal roof, vertical wood siding, and brick chimneys.

The interior lends itself well to its current use as a storage area, with a columned main floor space and two smaller storage rooms to the west. The casework is utilitarian, and wood trim members are plain.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof consists of a hipped shed roof with corrugated, galvanized sheet metal roofing. Roofing is attached to 1x4 sheathing boards @ 24" o.c. with neoprene gasketed screws. Historic photos indicate corrugated sheet metal roofing with potentially deeper corrugations. The underside of the roofing is painted brown (same as the structure and purlins). A round-shaped ridge cap covers the seam at the hip. There are no gutters or downspouts.

ARCHITECTURE - OVERHANGS & SOFFITS

Roof overhangs are 18-24" deep on all sides of the building, except for the west eave that overhangs 6-10". The overhangs consist of exposed rafter tails and exposed wood sheathing boards with the bottom of the sheet metal panels exposed. All wood elements are painted brown.

ARCHITECTURE - EXTERIOR WALL FINISHES

The exterior finish on all walls consists of vertical board and batten siding. The boards are 1x12 rough sawn wood and the battens are 1x4. On all walls except the west, the boards are full height with no joint. On the west side a consistent joint follows the slope of the roof approximately 32" below the overhang. This joint is formed with a sloping 1x4 batten, and appears to indicate the line of the roof of the building "addition" that was removed. There is a 2-3" asphalt shingle flashing strip at the top of the batten line. Many of the battens are jointed and do not extend full height in a single piece. All of the siding is painted brown.

ARCHITECTURE - MASONRY

Two 16"x16" brick chimneys extend 48" above the roof. The west chimney is flaunches to the 8x8 clay flue. The east chimney is flaunches up to a galvanized sheet metal flue (4" diameter) extending 24" above the brick. Both chimneys have step flashing at the roof. The step flashing is set into the mortar joints and tar has been applied to the flashing.

The foundation on the west side consists of a combination of a concrete footing and a mortared stone foundation. The foundation on the north and east has a mortared stone foundation and the foundation on the south could not be observed. All of the exposed foundations are painted brown.

ARCHITECTURE - WINDOWS

This building features paired and tripled assemblies of out-swinging wood casement style windows that appear to have originated from at least two different construction periods. Subtle differences in structural mullions and casings support the 1935 remodel photos (#09217, 09982) showing windows (1)-(3) being installed. It appears the remaining window assemblies were installed at a different time, possibly with windows (10)-(11) at still another period. All of the windows feature a 3 1/2" interior casing. Exterior window heads are typically protected by bent, sheet metal flashing (painted brown) that extends up under the battens only or, in some cases, under both the siding boards and the battens.

Windows (1)-(2)

A 5 3/8" structural mullion divides a pair of casements featuring 2" rails and stiles with many layers of dark brown paint. Two plain, 4-segment hinges, 2 1/2" long are located on each jamb edge 6" to the centerline from the top edge of the sash, and 8" to the centerline from the bottom edge. Muntins are 1" wide, but varying glazing putty applications make the muntins appear between 1"-1 1/2" wide.

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1.3 PHYSICAL DESCRIPTION

The frame is concealed within the wall. A 5 3/4" flat casing surrounds three sides of the exterior, with no apron beneath the sill. A 5" strip of metal flashing is attached to the top of the frame and under the battens. Both units on (1) remain in place but have been boarded up on the interior with dark stained plywood. On unit (2), one light of glazing (center, left on east unit) has been replaced with textured glass. (Photos 0069-115, 0069-116)

Window (3)

This pair of wood windows is similar to (1) and (2), except the units have been caulked shut, and there is no exterior casing. Below the west unit is a boarded up opening with a 2"x2" sill attached to the face of the siding - likely a result of the 1936 remodel. (Photos 0069-117)

Windows (4)-(9)

These wood casement window assemblies are similar to (1) & (2), except each features a 2" structural mullion and visible 3/4" partial frames exposed on the flanking vertical exterior edges, with no casings.

These units also have piston-style hardware on the interior, as an opening mechanism. The south unit at window (5) and both units at window (7) have been removed and infilled with painted plywood.

Windows (8) - (10) are triple assemblies with the same component dimensions; although (8) has been boarded up from the interior at the west unit with unfinished plywood, with the window itself still in its frame. All three units of window (9) have been completely removed and the openings infilled up with painted plywood. (Photos 0069-118 through 0069-123, 0069-205 through 0069-208)

Window (10)

Similar in construction to windows (1)-(2), this triple window assembly features, however, a 3 1/2" structural mullion and 3 1/2" exterior casing. The west unit of this triple assembly has been removed and infilled with painted plywood, while the remaining two units are still in their frames but are boarded up from the interior with unfinished plywood. (Photo 0069-124)

Window (11)

Similar to window (10), with 3 1/2" exterior casing, this pair of wood casement windows are both remaining, but have been boarded up from the interior with unfinished plywood. Additionally, the bottom 2/3 of the glass has been painted beige and then subsequently white on the interior side. Layered on that, and also on the interior side, is a red opaque film applied to the peeling painted surface. (Photo 0069-125)

ARCHITECTURE - EXTERIOR DOORS

Exterior Door (A)

This stile and rail wood door with 5 equal raised horizontal panels appears to date to a 1994 remodel according to records. The painted wood casing is 3 1/2" on all sides, and a brushed chrome contemporary lever is located 35" from the bottom. A 32" brushed chrome kick plate does not quite cover the width of the door. A 5" strip of flashing is attached on top of this frame and under the battens. (Photo 0069-126)

Exterior Door (B)

This is a heavily-painted, wood, outward-swinging pair of barn doors with (4) 2"x37" steel strap hinges and a center rail. The surface features battens to match the siding. A 3 1/2" casing is located vertically at each jamb and (2) at the center located on the door leafs. The interior has been sealed off with clear plastic. (Photo 0069-127, 0069-209).

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - INTERIOR DOORS

Interior Door (AA)

This is a stile and rail wood door (unfinished) with five horizontal panels. A bronze knob is located on the third rail up. 3 1/2" flat casing surrounds the door. A modern brushed chrome key lock has recently been installed. (Photo 0069-210, 0069-211)

Interior Door (BB)

This single recessed panel door has a medium-stained, varnished surface and brass hardware (ball-knob and deadbolt). This door also has a 3 1/2" wood casing. Two modern steel five-segment hinges are located 10 1/2" from the bottom and 8" from the top. (Photo 0069-212, 0069-231)

ARCHITECTURE - WALL/CEILING FINISHES

Painted 2' x 4' and 4' x sheets of fiberboard are the ceiling finish throughout this building, and are noted on historic drawings as 1/2" thick. Paper-faced batt insulation appears to be installed under the fiberboard.

Perimeter walls are painted, 1x5 tongue and groove boards oriented vertically. The current paint is a cream color but an underlying layer is light blue/green.

The wall dividing the main room and the rooms to the west is finished with a number of materials, including diagonally-oriented, 1x6 tongue and groove knotty pine with a clear finish, painted 1x5 (similar to that found elsewhere in the room) and 1x5 beadboard (with beads at 2 1/2" o.c.). Of these finishes, it appears the beadboard and 1x5 tongue and groove boards are the oldest, if not the original.

Beyond this wall are two rooms, both of which are finished. The ceilings and walls are finished in the 1 x 5 material, painted.

ARCHITECTURE - TRIM & MILLWORK

The room in the northeast corner has a bank of painted, wood cabinets that have pull hardware and latches. These cabinets are fully detailed in the 1936 remodel drawings for the building.

ARCHITECTURE - FLOOR

Painted plywood sheets constitute the flooring throughout the building. The 1936 remodel drawings call for maple flooring "over #15 building paper on present floor." Removal of the existing plywood flooring would be required to confirm the underlying flooring materials as none are readily visible.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. Loose gravel and dirt near the entry is not an accessible surface. The only entry door is approximately 9" above a 1 1/2" stoop. New lever hardware is on the door, but the door itself is 1/2" shy of providing the appropriate opening width. (Photo 0069-128)

Once inside, the main work area is accessible, but neither of the doors to the two rooms to the west, Rooms 102 and 103 provides adequate clearance or compliant hardware for accessibility. (Photos 0069-210 and 0069-212).

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1.3 PHYSICAL DESCRIPTION

STRUCTURAL - SIZES/SPANS/SUPPORT CONDITIONS

The roof consists of corrugated metal over 1x skip sheathing over 2" x 5-3/4" rafters at 24"+/-. The rafters span approximately 11 feet from the exterior wall to a 4x6 ridge beam.

The ridge beam is supported by 6x6 wood posts and typically spans about 10 feet.

The south wing of the building appears to be an addition as the ridge beam running north-south is spliced approximately in line with the presumably original south wall. No original construction documents exist, so this cannot be verified.

The exterior walls are of post and beam infill construction. There are a series of 4x4 posts at corners and at regular spacing along the walls supporting a 4x6 or double 2x header which then carries the rafters. Infill construction was not visible but is presumed to be 2x studs. The walls are sheathed with 1x tongue-and-groove on the interior and 1x vertical board and batten on the exterior. This sheathing acts as the lateral force resisting system for the building.

First floor sheathing consists of 1x straight sheathing in the eastern half of the building and 1x diagonal sheathing in the western half.

Where accessible, first floor framing was measured to be 2x8 joists spaced at about 24" over a shallow crawlspace. Spans vary between 9 and 11 feet. The joists are supported by flush or dropped wood girders. The girders were not accessible for measurement. The joists and girders are in direct contact with soil in several locations, particularly along the east side.

The interior girders are supported by a variety of stone footings, wood props and concrete spot footings.

The perimeter foundation system varies around the building. At the southeast and east sides of the building grade is at or above sill height and no foundation is visible. The north, west, and southwest sides consist of rubble stone set in concrete of varying quality.

MECHANICAL - PLUMBING ASSESSMENT

Building has what appears to be an abandoned waste pipe located on north side of building, and it is not capped (Photo 0069-140).

MECHANICAL - HVAC ASSESSMENT

Building contains no HVAC system. A brick flue remains in the building and looks to be original to the building (Photo 0069-218).

ELECTRICAL - SYSTEM DESCRIPTION

The building is provided with a 120/240 volt, single-phase, overhead electrical service that is served directly from the utility company from a pole-mounted transformer. The existing service disconnect on the exterior of the building consists of a 50-amp, 2-pole circuit breaker (Photo 0069-141).

From the service disconnect, a feeder is routed to a fused switch with 40-amp fuses and a copper bar used as overcurrent protection. From this fused switch, a feeder to a 30-amp fused panel with six fuses

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1.3 PHYSICAL DESCRIPTION

of varying ampacity provides branch circuit overcurrent protection to the branch circuits in the building (Photos 0069-219 and 0069-220).

The feeders in the building appear to be recently installed and are provided with RHW type insulation while the existing branch circuit insulation type is older style cloth insulation. The observed branch circuits did not contain any ground conductors.

There are no apparent original electrical fixtures.

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

The existing interior lighting consists of chain-hung fluorescent fixtures and surface-mounted acrylic lens fixtures with T-12, 40-watt lamps. The chain-hung fixtures are connected to existing ceiling-mounted junction boxes with "SO" cord to supply power to the light fixtures (Photos 0069-221 and 0069-222).

EXTERIOR LIGHTING

One of the existing exterior light fixtures consists of a single lamp holder with two PAR-type lamps located on the southwest side of the building. The conduit serving this lamp holder is installed surface-mounted on the exterior of the building (Photos 0069-142 and 0069-143).

A standard floodlight with a single socket is located under the eave on the west side of the south façade. Its housing has been painted brown.

TELECOMMUNICATIONS

The building is provided with a telecommunications box on the exterior of the building on the east side (Photo 0069-128).

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1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0069-105 through 0069-106)
- Overhangs – The simple roof extension overhangs reveal the underside of the roof structure with features such as exposed rafter tails. (See photo 0069-107)
- Vertical board and batten siding, typical of park style architecture. (See photo 0069-109 through 0069-111)
- Wood paneled and batten doors – This building has a variety of door styles that reflect its original function as a carpenter shop. (See photos 0069-126 through 0069-127)
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex. (See photo 0069-108)
- Brick chimneys – Three narrow brick chimneys extend through the metal roofing with no caps or adornment. (See photo 0069-112)
- Wood windows with clear glass – This building features a variety of window styles, but all are wood, with wood muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills. (See photos 0069-115 through 0069-125)
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining features of which are vertical beadboard, diagonal wood and tongue and groove wood wall finishes.

1.5 GENERAL CONDITION ASSESSMENT

In general the Carpenter's Shop is in poor condition on the exterior and fair condition on the interior with the exception of a few items. The windows, specifically the south facing windows are in poor condition, in which severe weathering has occurred and compromised the integrity of the window system. The masonry chimneys need re-pointing soon. The foundation is intact except where minor areas of mortar deterioration have occurred.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: **FAIR**

The roofing is in fair condition with several dents but no apparent breaks, missing pieces, or leaks. The flashing at the chimneys is in fair condition although there is evidence of past leaks because of the repairs with roofing tar and roofing cement. The flashing at the horizontal board joint is in poor condition; it is deteriorated and missing in many areas. This "flashing" appears to be a remnant of a roof over a building extension that was removed.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: **GOOD**

The overhangs are in good condition throughout with no evidence of deterioration or failure.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: **FAIR**

The board and batten siding is in fair to poor condition. Many of the joints have opened up, and some of the battens have pulled away from the wall. All of the pieces are still intact (or at least extant). Some of the boards are split or broken but not completely missing. The bottom of the boards and battens on the east wall are rotted away where they come in contact with grade.

ARCHITECTURE - MASONRY

CONDITION: **POOR**

The chimneys are in poor condition with several broken or spalled bricks and loose or missing mortar. The west chimney leans slightly to the north.

The foundations are in fair to poor condition with several missing stones and some areas where the mortar has deteriorated or is missing entirely. The site slopes toward the building on the east side allowing run-off to impact the foundation.

ARCHITECTURE - WINDOWS

CONDITION: **POOR**

The south facing windows have suffered severely from weather exposure and foundation settlement. Many layers of paint have obscured the character of the wood sash. Paint colors are inconsistent from one unit to another and appear to be a very high gloss, lending a plastic appearance to the windows. The flashing over the windows is in fair condition with many nail holes. Any flashing that does not extend up under the board and batten siding is ineffectual.

Window (1)

Frames are broken, deteriorated and missing. Structural integrity is severely compromised. Glazing is poorly applied, making the muntins appear inconsistent.

Window (2)

This unit has settled with the sinking building wall on the east end, causing the assembly to be out of square and difficult to operate. The wood is severely weathered, cracking and peeling with some ends missing from deterioration. Obscure glass light detracts from the historic character. Glazing is poorly applied, making the muntins appear inconsistent. This unit is re-buildable, but may need a new right stile on the west unit.

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1.5 CONDITION ASSESSMENT

Window (3)

This unit has settled with the sinking building wall on the east end, causing the assembly to be out of square and difficult to operate. The wood is severely weathered, cracking and peeling with some ends missing from deterioration. Glazing is poorly applied, making the muntins appear inconsistent. Infilled opening has also settled, and the sill has cracked from end to end, bound to fall off soon. This unit is re-buildable, but may need a new bottom rail and right stile on the east unit.

Window (8) - This is the north side and experiences little weathering. The wood is solid, sash is intact, and the unit is square. One surface patch has been applied to the left lower and upper corners of the east sash frame. Glazing is poorly applied, making the muntins appear inconsistent.

Window (9)

The muntins are solid, the sill is intact, but the window units are completely gone, lending a general appearance of neglect.

Window (10)

The wood is solid, sash are intact, and the unit is square. One glass light is broken, and the missing window sash detracts from the historic character of the building and lends a general appearance of neglect. Glazing is poorly applied, making the muntins appear inconsistent.

Window (11)

The west end of the building is settling, causing the window to be out of square. The wood is solid, and sash are intact. The glass is intact but paint and film adhesive mark the interior surface. Glazing is poorly applied, making the muntins appear inconsistent.

Window (4)

This window exhibits minor deterioration. Some cracking is evident at the sash joints and the left stile of the south sash. Glazing is poorly applied, making the muntins appear inconsistent.

Window (5)

This window exhibits minor deterioration. Some cracking is evident at the sash joints. Glazing is poorly applied, making the muntins appear inconsistent. The missing window sash detracts from the historic character of the building and lends a general appearance of neglect.

Window (6)

This window exhibits minor deterioration. Some cracking is evident at the sash joints. Glazing is poorly applied, making the muntins appear inconsistent. Slight settling to the south has made this assembly out of square.

Window (7)

This muntin and sill exhibit minor deterioration. The missing window units detract from the historic character of the building and lends a general appearance of neglect.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **POOR**

Exterior Door (A) -

This door is fairly new and in good condition. No work is necessary, although if a kick-plate is desired, one should be installed that fits the width of the door and should be painted to blend with the surface of the wood.

Exterior Door (B) -

This pair of doors faces south and exhibits severe weathering and deterioration. The bottom boards have broken away at grade and large cracks threaten the doors' structural integrity. The doors don't close completely - thus the plastic seal on the interior. Many layers of paint have obscured the character of the wood door. The paint appears to be a very high gloss, lending a plastic appearance to the door.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **GOOD**

Interior Door (AA) -

This door is solid, square, and in good condition.

Interior Door (BB) -

This door does not appear to be original to this building, although it is clearly older. It is solid, square, and in good condition.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **GOOD**

The ceiling is in poor condition. Many of the panels are badly warped, punctured, loose or detaching altogether.

All of the wall finishes appear to be in good condition, with the exception of some deteriorating paint near the entry door.

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **GOOD**

The cabinets are in good condition.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

The flooring is in good condition.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

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1.5 CONDITION ASSESSMENT

STRUCTURAL - SIZES/SPANS/SUPPORT CONDITIONS

CONDITION: **FAIR**

Roof framing generally appears to be in good condition. However, the spliced ridge beam over the eastern portion of the structure was noticeably deflected and deserves further investigation (Photo 0069-136). Rafters were generally not visible due to ceiling finishes, thus their condition is unknown. Water staining was noted around the interior chimney which may be causing deterioration of the roof framing (Photo 0069-216). Excepting this, no obvious signs of distress or damage were seen.

Wall framing is generally in good condition except at the base of the wall along the eastern half of the building. Here, as seen at most other buildings assessed, grade is at or above the sill plate. The wall sheathing has been severely deteriorated wherever soil is in direct contact.

Floor framing is generally in poor condition on the east half of the building due to contact with soil (Photo 0069-214 & 217).

The perimeter foundation is generally in good condition on the west half of the building (Photo 0069-139). The remainder of the perimeter either has no visible foundation or the foundation is deteriorated (Photo 0069-138). Interior foundations are in good condition where visible on the west half of the building. The remainder of the building appears to have no competent foundation or deteriorating wood footings (Photo 0069-215).

MECHANICAL - PLUMBING ASSESSMENT

CONDITION: **UNKNOWN**

Functionality of waste pipe cannot be known without further investigation.

MECHANICAL - HVAC ASSESSMENT

CONDITION: **UNKNOWN**

The functionality of the brick flue is not known without further investigation.

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **POOR**

The existing electrical service and associated branch circuiting should be replaced in their entirety due to age and code issues. Per the NEC, the electrical service to a building is required to be a minimum of 60-amps. The current panel is rated for 30-amps and is protected with 40-amp fuses, so it is not properly protected at present.

The existing branch circuiting is older and not provided with a ground conductor for personnel safety.

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1.5 CONDITION ASSESSMENT

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **FAIR**

The existing interior lighting appears to meet the building's intended usage, however the existing light fixture does not comply with "International Dark Sky Association Guidelines" for light cut off. The exterior fixture may be considered for replacement due to its proximity to the surrounding residential trailers, but the fixture is appropriate for a utility building of this type and does not detract from the historic character of the building.

The lamps and associated ballasts are older technology and more energy-efficient ballasts and lamps are currently available. The existing interior and exterior lighting does not provide any emergency-type egress lighting.

The telecommunications provisions to this building appear to be adequate for its present use.

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2.1 ULTIMATE TREATMENT AND USE

The building served as a carpenter shop for most of its life. It was converted to a boat shop by the 1990s and is currently used for secure storage by the Park Rangers. It is not often occupied. Since the building envelope is not secure, this is likely not the best use for the building. Rehabilitation is the recommended ultimate treatment for this building.

The following section is a discipline-by-discipline, component-by-component recommendation of treatment for the building.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **MODERATE**

No treatment of the roofing is necessary at this time.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY

No treatment is necessary at this time.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **MODERATE**

Battens that are warped, split or broken should be replaced with comparable materials. Grade around the base of the wall should be reworked to slope away from the wall and around the building leaving a 6" clearance from grade to wood finishes. Boards and battens on the east wall should be selectively replaced in kind. Subsequent studies should identify species, grade, texture, and grain of the existing wood so that appropriate replacements can be identified and utilized.

Flashing at the west wall should be removed and replaced with new sheet metal flashing. This will restore the waterproof condition without altering the overall structure.

The entire building should be scraped, sanded and repainted once all of the repairs are made.

ARCHITECTURE - MASONRY

PRIORITY **SEVERE**

Both chimneys need to be re-built reusing the existing good brick, new brick to replace spalled or broken bricks and mortar designed to match the original mortar strength and visual characteristics. Further testing should be done in subsequent phases to determine an appropriate mortar mix. The flashing at the top of the chimney should be re-installed on top of a waterproof membrane to prevent moisture from entering the top of the bricks. The flashing at the chimneys should be replaced with new step flashing let into the mortar joints.

The site should be excavated to expose the top of the foundation wall and provide minimum 6" clearance at all wood. Missing stones should be replaced and loose or shifted stones should be reset in new mortar beds. All joints should be re-pointed with mortar designed to match the original mortar mix and strength. Re-grade the site to slope away from the building a minimum of 3'-0" with a slope of at least 1:8 and insure that drainage is positive to each side and around the building. Expose 4-6" of foundation (minimum) and repaint the exposed foundation.

ARCHITECTURE - WINDOWS

PRIORITY **MODERATE**

If the building is weatherized for four-season use, the windows should be evaluated individually for tight fit and infiltration. The casement windows may require weather stripping if loose. Flashing over doors and windows that do not extend under the siding should be replaced with new.

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration.

SRB-0069 CARPENTER'S SHOP

1924

2.1 TREATMENT RECOMMENDATIONS

As needed, replace broken glass panes; however, do not attempt to match historic rippled glass, but rather allow the new glass to be identifiable at close range.

The south-facing units will need maintenance more frequently than the others, although care must be taken not to overpaint with many layers again. All of the window hardware should be cleaned and oiled where needed. Care should be taken when repainting windows not to paint the hardware again.

Window (11) should be addressed after structural deficiencies have been addressed, and the unit should be squared up before commencing rehabilitation.

All Windows (1)-(11) -

Missing casement sash should be reconstructed to match the existing construction. Rehabilitate all windows including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed.
3. Stabilize the sash joints and muntins to make the units structurally sound.
4. Repaint each unit with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Weatherstrip all openings.
6. Reglaze each unit using original glass, and replacing all inappropriate obscure glass. Do not attempt to match the historic rippled glass, but rather allow the new glass to be identifiable at close range.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY MODERATE

Exterior Door (A)

No work necessary.

Exterior Door (B)

Rehabilitate the pair of doors, including, but not limited to:

1. Remove the doors and strip loose layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. All of the door hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware again.
3. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed.

SRB-0069 CARPENTER'S SHOP

1924

2.1 TREATMENT RECOMMENDATIONS

4. Stabilize the construction to make the pair of doors structurally sound, replacing material in-kind when repair is impossible.
5. Repaint each door leaf with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
6. Weatherstrip all openings.
7. Reinstall the pair of doors to close tightly with a security bolt and remove the plastic seal from the interior.

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

No work necessary on interior doors at this time. If the building is adapted for an alternate use, these doors may not meet new occupant needs and should be re-assessed at that time.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **MODERATE**

The 1936 remodel drawings call for 1/2" insulating wallboard on the bottom of the rafters. However, given the presence of the modern batt insulation, above the fiberboard ceiling and the ceiling material's fragile nature (noting that the fiberboard would not have held up to removal and reinstallation during the batt insulation installation), the fiberboard is most likely of recent vintage. Ceiling replacement is recommended using Type X Gypsum Board of similar thickness. It should also be painted to match the current paint color.

Depending on its age, the paint may have lead content and if so, its peeling condition constitutes a health threat. The paint should be tested and subsequently scraped and repainted (using appropriate hazardous materials mitigation protocol, if warranted).

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **SEVERE**

This building is listed as a Tier 1 building, as determined by the Park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it has the potential to provide an office that could be staffed by a disabled individual.

Therefore, a strategy should be developed that would provide accessible parking adjacent to the

SRB-0069 CARPENTER'S SHOP

1924

2.1 TREATMENT RECOMMENDATIONS

building, an accessible route to the south side, near the entry and a ramp up to the entry. In order to fully comply with ABAAS, the entry door would need to be widened. Inside, Room 103 could be retrofitted with lever hardware if an office use is developed in this building. An accessible restroom would also be required.

STRUCTURAL - SIZES/SPANS/SUPPORT

PRIORITY **MODERATE**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

The spliced ridge beam over the eastern portion of the structure should be investigated for capacity to carry required gravity loads. Strengthening is likely required. The condition of the rafters deserves further investigation, particularly where water staining was noted around the interior chimney.

Floor framing will require substantial strengthening and selective replacement. Replacement with a slab-on-grade may be a better long term solution considering the lack of sufficient crawlspace depth.

The perimeter foundation requires replacement or repair around most of the building. Soil should be removed around the building such that no wood is within 6" of soil. Sill plates, anchor bolts, wall sheathing and wall framing should be repaired or replaced where deteriorated.

Interior foundations will likely require replacement or repair on the east half of the building.

MECHANICAL - PLUMBING ASSESSMENT

PRIORITY **LOW**

Verify that the pipe truly is a waste pipe.

If use of waste pipe is desired in the future, the pipe should be scoped with a video camera to assess the condition of the pipe below grade and verify that it is in good working order. This pipe should be capped to keep debris and animals out.

If waste pipe is not to be used then the pipe should be capped to prevent sewer gasses from escaping and small wildlife from entering.

MECHANICAL - HVAC ASSESSMENT

PRIORITY **UNKNOWN**

Further investigation is required to determine appropriate action based on future use.

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **SEVERE**

Replace entire electrical service and associated branch circuit wiring, and provide grounding of the electrical system to be code compliant and for increased user safety.

SRB-0069 CARPENTER'S SHOP

1924

2.1 TREATMENT RECOMMENDATIONS

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Provide emergency lighting in the building and at the exit discharge to meet current code requirements.

Replace exterior light fixture with a fixture that complies with the "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04).

SRB-0069 CARPENTER'S SHOP

1924

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance and Warehouse Complex overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building and the lack of historic documentation, the Carpenter's Shop will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Some elements may need *reconstruction*. And in general, the building requires *rehabilitation*, to address the existing code-deficient conditions (ABA access, electrical service, fire safety, etc.)

In cases where the original design created what is today a non-code-compliant situation (e.g. joists with improper clearance above grade) and where it is determined that the feature is not character defining, it is appropriate to replace the element or system with code compliant construction (e.g. slab-on-grade). Wherever possible, consideration should be given to salvaging and reusing historic material (e.g. if the original flooring is found to be in situ, it could be incorporated over wood sleepers over the new slab-on-grade).

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

This building is suffering from moderate structural issues, as the foundation appears to be compromised; so the most obvious effect of repairing this condition is a positive one - ensuring the continued existence of the building. Many of the recommendations in this report include rehabilitation of the building's elements in order to prevent further deterioration of material, also resulting in a positive effect.

The opposite effect may be encountered where building code compliance and ABAAS requirements create a challenge in an historic building such as this one. Sensitive adaptive solutions can be found that will not cause significant adverse effects. An accessible entrance need not alter the character of the building; however, if this were to become an office or other working facility, more adverse effects might be unavoidable, such as construction of a restroom, replacement of door hardware, and the addition of insulation and wall finishes.

SRB-0069 CARPENTER'S SHOP

1924



Bldg SRB-0069 - 1936 Remodel In Progress
National Park Service Grand Canyon Museum Collection (Photo # 09217)



Bldg SRB-0069 - 1936 Remodel In Progress
National Park Service Grand Canyon Museum Collection (Photo # 09982)



Bldg SRB-0069 – 1936. Carpenter's Shop in far background. Remodel In Progress
National Park Service Grand Canyon Museum Collection (Photo # 00143)



West Elevation Bldg 0069 – 2006



North Elevation Bldg 0069 – 2006



East Elevation Bldg 0069 – 2006



South Elevation Bldg SRB-0069 – 2006

SRB-0069 CARPENTER'S SHOP

1924



Hipped Shed Roof 0069 - 105



Sheet Metal Roof 0069 - 106

SRB-0069 CARPENTER'S SHOP

1924



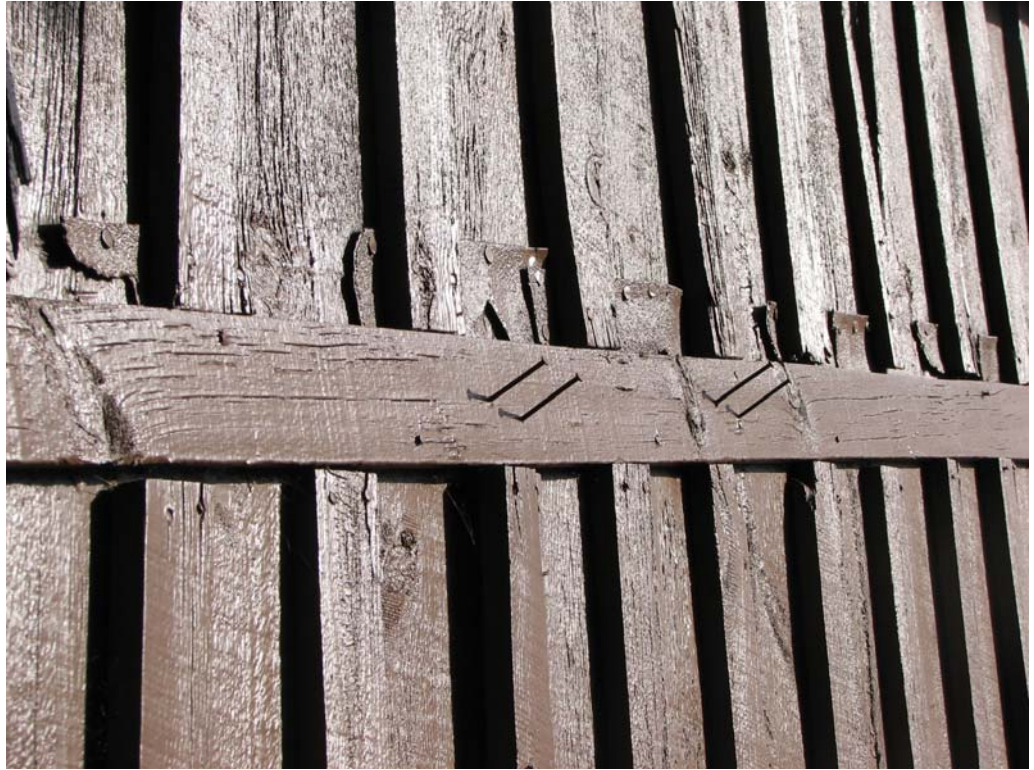
Roof Overhang at Sloped Roof

0069 - 107



Roof Overhang on East Side

0069 - 108



Board and Batten Siding on West Elevation 0069 - 109



Board and Batten Siding 0069 - 110

SRB-0069 CARPENTER'S SHOP

1924



Board and Batten Siding at East Elevation 0069 - 111



East Chimney 0069 - 112

SRB-0069 CARPENTER'S SHOP

1924



Painted Stone Foundations on North Side 0069-114



South Window – (1) 0069-115

SRB-0069 CARPENTER'S SHOP

1924



South Window – (2) 0069-116



South Window – (3) 0069-117



East Window (4) 0069-118



East Window (5) 0069-119



East Window (6) 0069-120



East Window (7) 0069-121

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North Window (8) 0069-122



North Window (9) 0069-123

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1924



North Window (10) 0069-124



North Window (11) 0069-125

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1924



Exterior Door (A) 0069-126



Exterior Door (B) 0069-127

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1924



Step and Stop at Exterior Door (A) 0069-128



Typical Rafters and Supporting Beam 0069-129

SRB-0069 CARPENTER'S SHOP

1924



East Wall: Note Lack of Foundation 0069-130



West Wall Concrete Footing and Rubble Stone Wall 0069-131

SRB-0069 CARPENTER'S SHOP

1924



Abandoned Waste Pipe 0069-132



Electrical Service Disconnect 0069-133

SRB-0069 **CARPENTER'S SHOP**

1924



Exterior Lamp Holder 0069-135

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1924



Typical Interior Ridge & Hip Beams 0069-201



Spliced Ridge Beam 0069-202



South Window Interior – (2) 0069-203



South Window Interior Sill – (2) 0069-204

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East Window Interior – (4) 0069-205



North Window Piston Hardware – (8) 0069-206

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1924



North Window Thumb Latch – (8) 0069-207



North Window Interior – (8) 0069-208

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1924



Plastic sheathing obscures interior face of Door B 0069-209



Interior Door (AA) 0069-210

SRB-0069 CARPENTER'S SHOP

1924



Hardware (AA) 0069-211



Interior Door (BB) 0069-212

SRB-0069 CARPENTER'S SHOP

1924



Hardware (BB) 0069-213



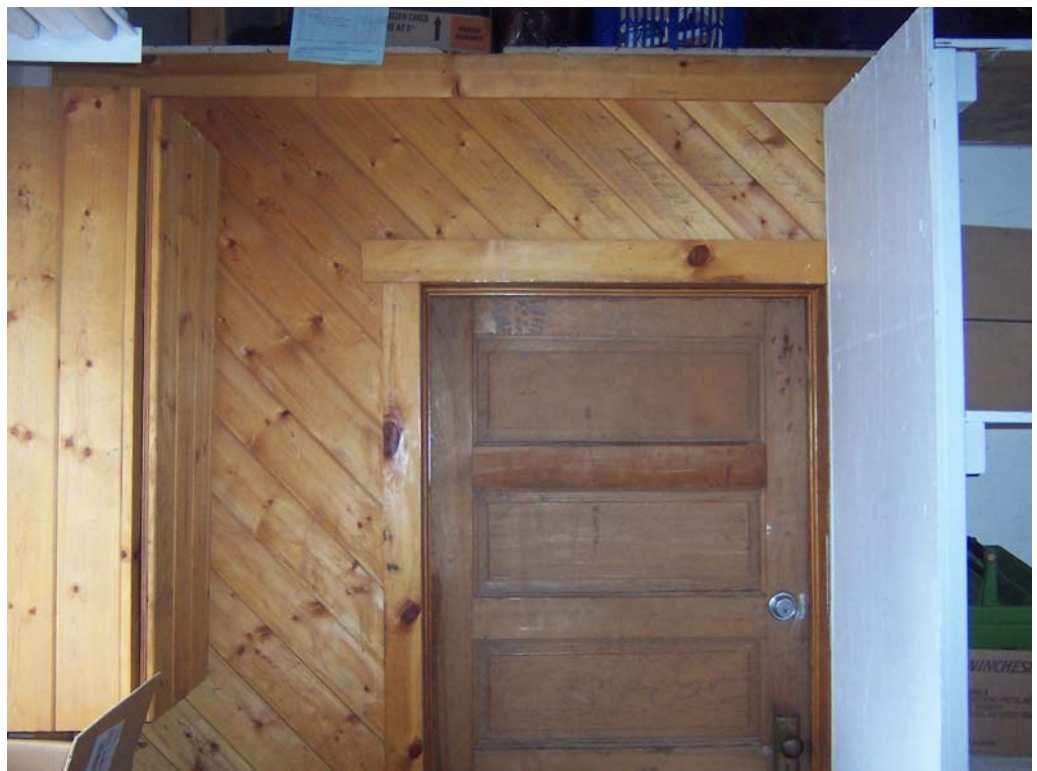
Painted Fiberboard 0069-214

SRB-0069 CARPENTER'S SHOP

1924



Tongue and Groove Boards 0069-215



Knotty Pine 0069-216

SRB-0069 CARPENTER'S SHOP

1924



Beadboard 0069-217



Wood Cabinets 0069-218

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1924



Plywood Flooring 0069-219



Floor Framing at West Half of Building 0069-220

SRB-0069 **CARPENTER'S SHOP**

1924



Deteriorated Wood Foundation Under East Side

0069-221



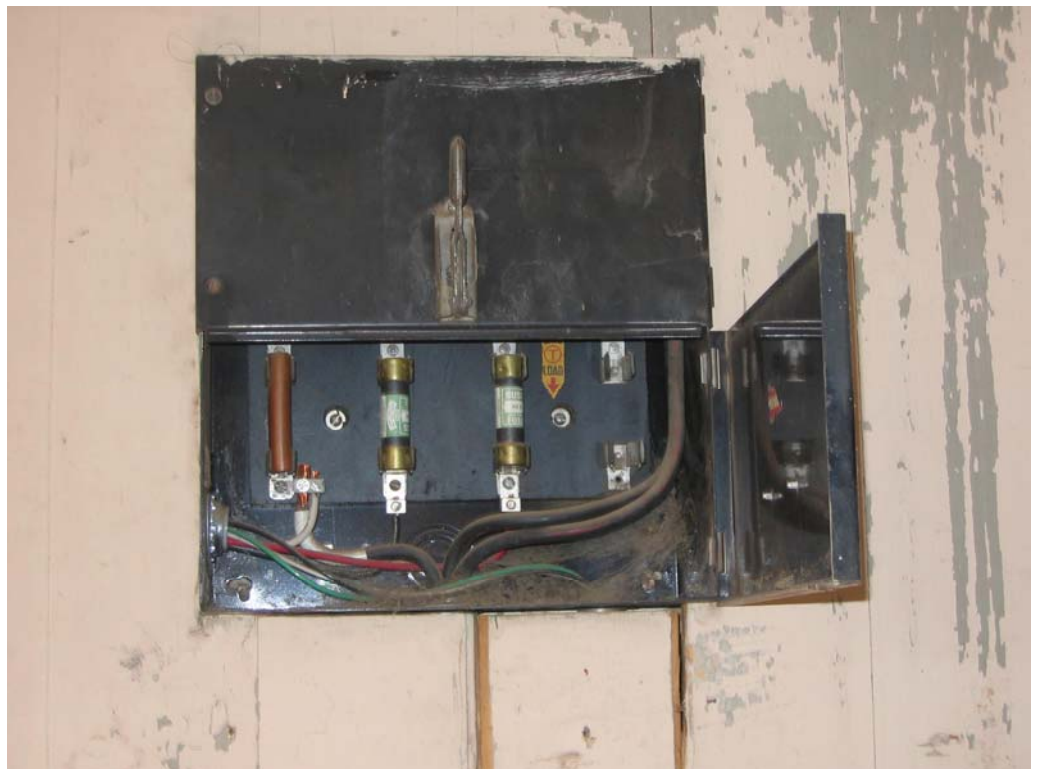
SRB-0069 CARPENTER'S SHOP

1924



Deteriorated Rim Joist at South Wall

0069-223



Interior Fused Switch

0069-225

SRB-0069 CARPENTER'S SHOP

1924



Fused Panel 0069-226



Chain-hung Fixture 0069-227

SRB-0069 CARPENTER'S SHOP

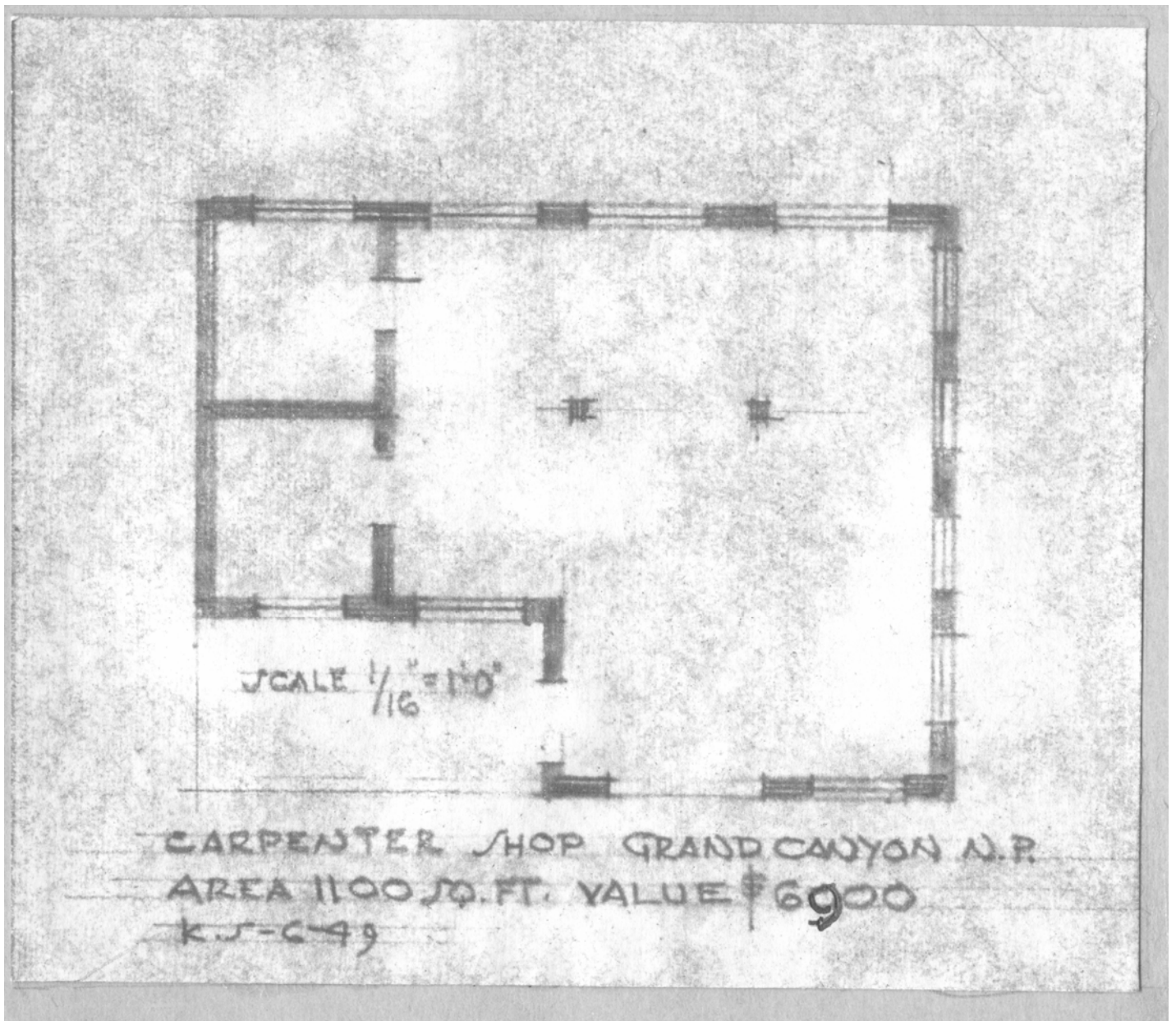
1924



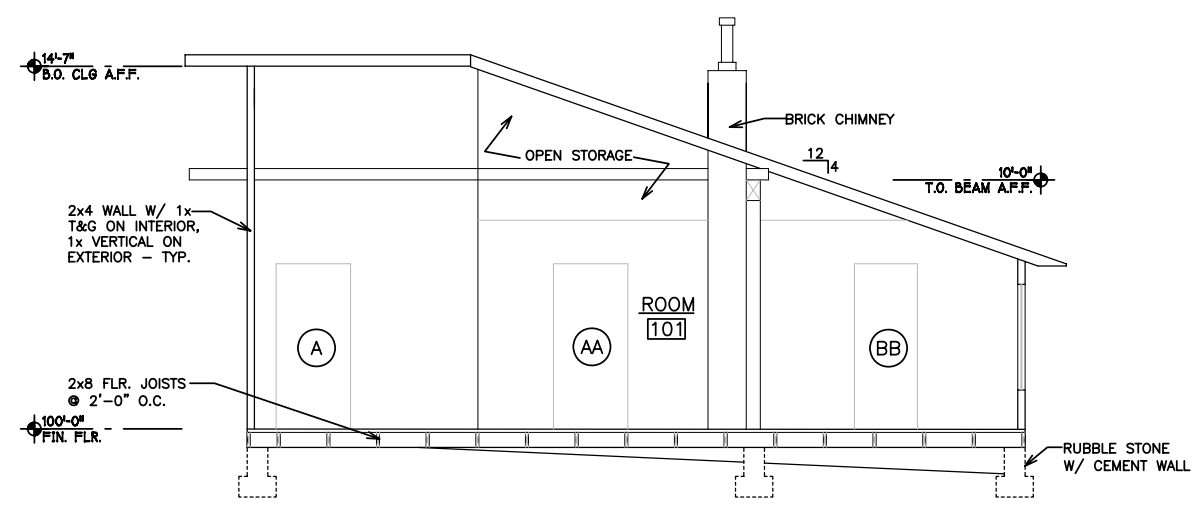
Pendant Fluorescents 0069-228

SRB-0069 CARPENTER'S SHOP

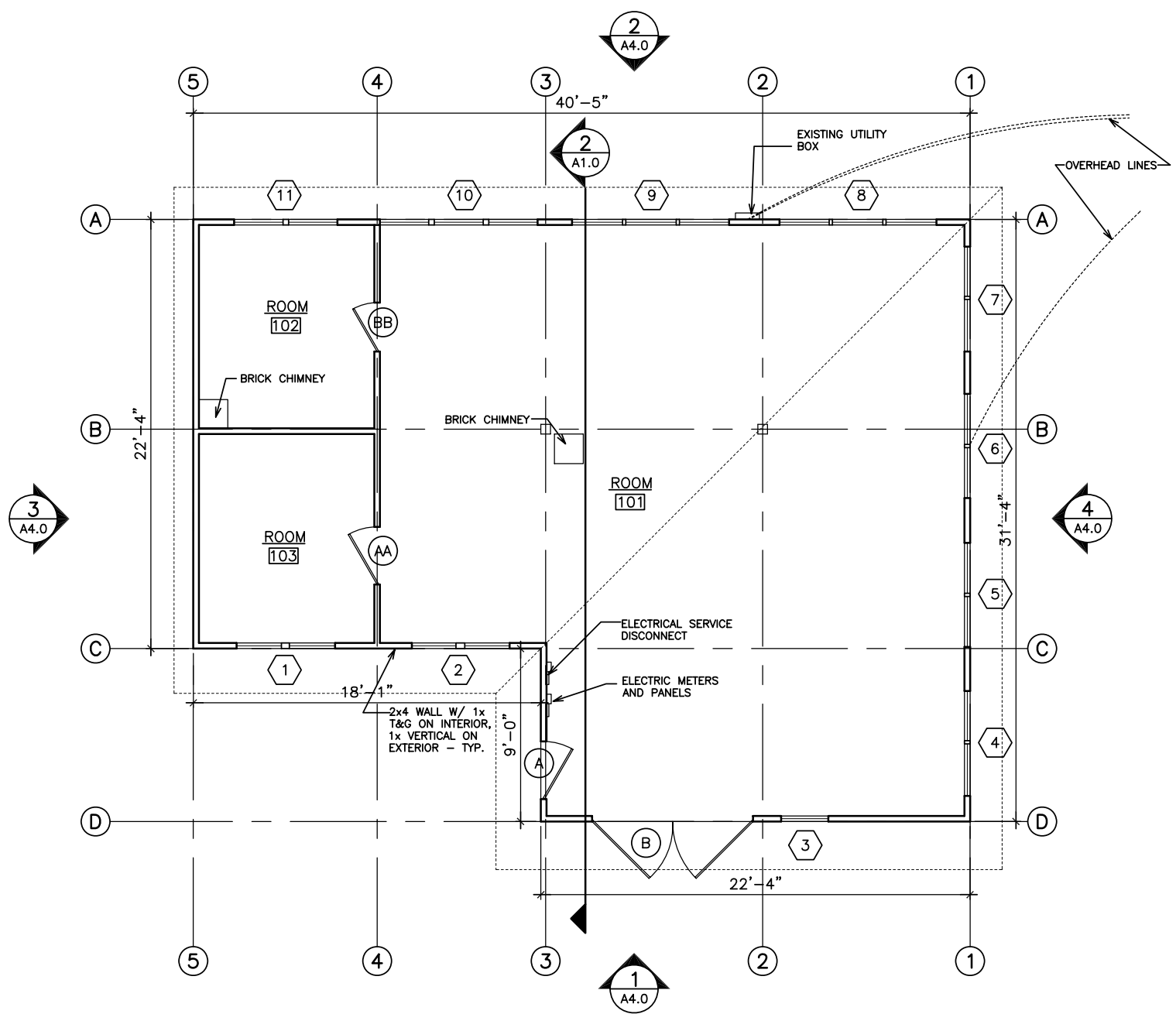
1924



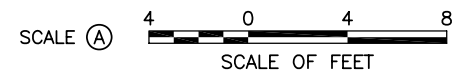
NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



2 SECTION



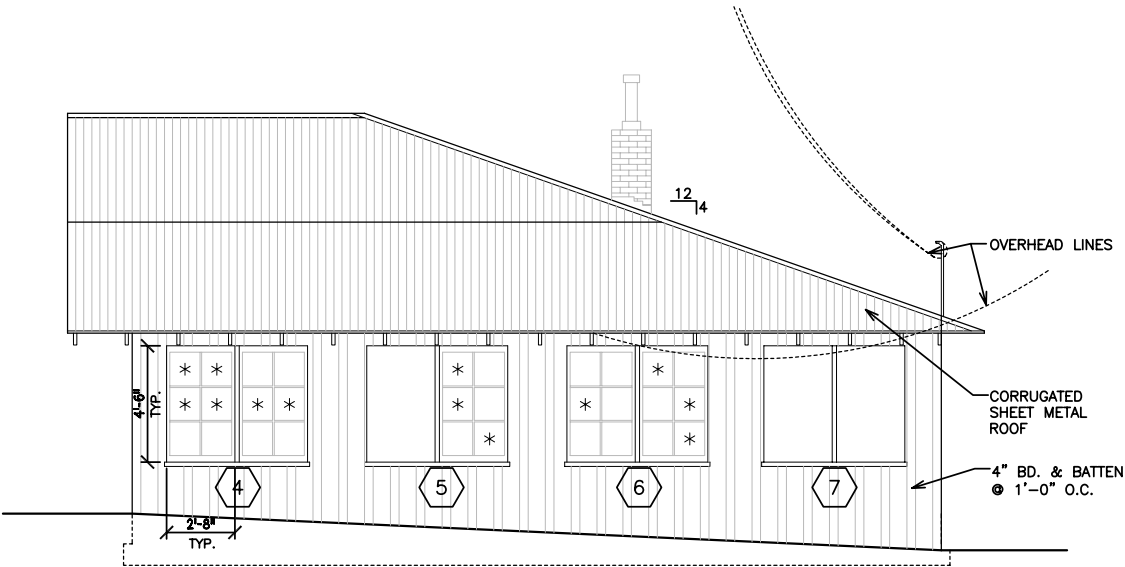
1 SECOND FLOOR PLAN



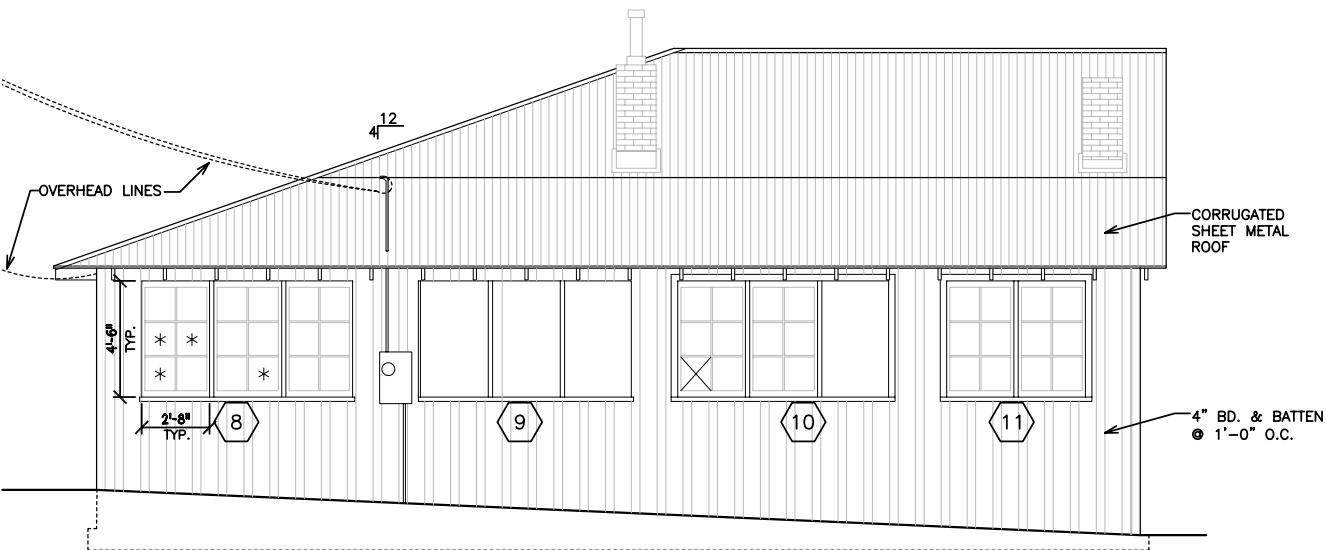
EXISTING CONDITIONS - 2006

DESIGNED: BBSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0069 Carpenter's Shop GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25014
TECH. REVIEW:	DATE: 04/13/07		PMIS/PKG NO. 084236
			SHEET 1 OF 2

NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION

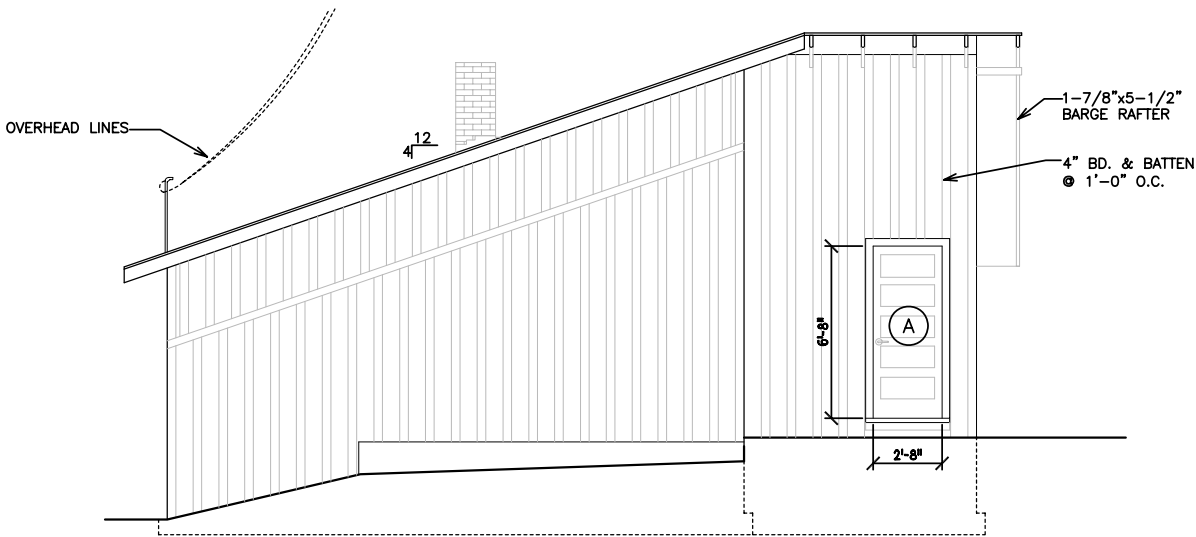


4 EAST ELEVATION
A4.0

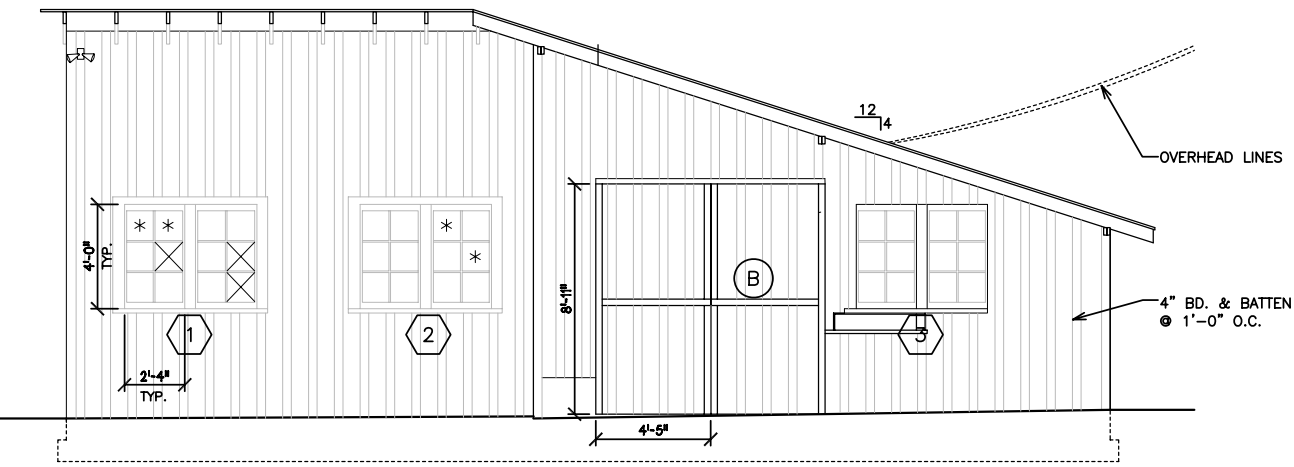


2 NORTH ELEVATION
A4.0

KEY NOTES:
* HISTORIC RIPPLE GLASS
X BROKEN OR MISSING GLASS



3 WEST ELEVATION
A4.0



1 SOUTH ELEVATION
A4.0

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: BBSH TECH. REVIEW: DATE: 04/13/07	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0069 Carpenter's Shop GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25014 PMIS/PKG NO. 084236 SHEET 2 OF 2
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EXISTING CONDITIONS — 2006

Boat Shop



Identification:

Preferred Boat Shop

Structure
Name:

Structure SRB0069
Number:

Other Other Structure Name(s)
Structure 1. Juniper Hill Boat Shop
Name(s): 2. Carpenter Shop

Park: Grand Canyon National Park

Historic Historic District
District: 1. Grand Canyon Village

Structure Arizona
State:

Structure Coconino
County:

Region: Intermountain

Cluster: Colorado Plateau

Administrative Grand Canyon National Park
Unit:

LCS ID: 055411

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Entered - Documented

Register

Status:

National 02/18/1997

Register Date:

National Yes
 Historic
 Landmark?:

National 02/18/1997
 Historic
 Landmark
 Date:

Significance Contributing
 Level:

Short 1 of first bldgs const in NPS utility area as a carpenter shop, following 1924 Plan prep by NPS Landscape
 Significance Eng Div. Example of rustic vernacular style used for utility bldgs. District meets NHL Criterion 1 & 4 for
 Description: American park movement & landscape arch. Period of sig 1897-1942.

Long The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of
 Significance park architecture in the national park system. The buildings of the historic district represent an entire
 Description: range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the
 canyon, the older resort architecture is typically more elaborate and eclectic than the official structures
 commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive
 Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on
 upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This
 consistent idiom connected all the official buildings in the parks, together projecting a strong sense of
 official responsibility and appropriate sensibility. In the residential subdivision of the village, an
 architectural distinction was made between the concessionaire residences and the Park Service
 residences. The simpler bungalows on the Park Service side were designed with front doors accessing
 semi-public pedestrian paths. The larger residences on the concessionaire side presented more
 decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association
 with the American park movement and Criterion 4 as an exceptionally valuable example of American
 landscape architecture, specifically as the most significant example with the greatest integrity of National
 Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National
 Register Criterion A for its association with the American park movement and Criterion C as an example
 of American landscape architecture, specifically as a unique and outstanding example of community
 planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded
 10/24/1995), significant under Criterion A for its important association with the development of Grand
 Canyon National Park, and under Criterion C as an example of community planning within a national park,
 and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and
 today, Grand Canyon Village represents the most historically significant park village plan, with the
 greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided
 the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park
 Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through
 roads, was developed; a central "plaza" had the village's major public buildings sited around it. The plan
 for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and
 helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1923	AD	1924	AD	NPS	Other
2.	Rehabilitated	1994	AD			NPS	Other

Function and Use:

Primary Function: Maintenance Facility

Current Use: Maintenance Facility

Structure Contains: No

Museum Collections?:

Other Functions or Uses:

	Other Function(s) or Use(s)	Historic or Current
1.	GENERAL STORAGE	Current

Physical Description:

Structure Type: Building

Volume: 2,000 - 20,000 cubic feet

Square Feet: 1078

Material(s):

	Structural Component(s)	Material(s)
1.	Roof	Metal
2.	Other	Brick
3.	Framing	Log
4.	Foundation	Stone
5.	Walls	Weatherboard
6.	Foundation	Concrete

Short Physical Description: 1 story wood frame, L-shaped utility structure 30'x40'. Intersecting shed roof with exposed rafters & rolled roofing. Board & batten siding with wood casement windows, 2 board & batten swing garage doors 8' wide. Concrete slab, stone foundation walls, brick chimney. Propane stove installed 1994.

Long Physical Description: 1 story wood frame, L-shaped utility structure 30'x40'. Intersecting shed roof with exposed rafters & rolled

Description: roofing. Board & batten siding with wood casement windows, 2 board & batten swing garage doors 8' wide. Concrete slab, stone foundation walls, brick chimney. Propane stove installed 1994.

Condition and Impacts:

Latest Condition: Fair

Condition:

Latest Year Assessed: 2006

Assessed:

Conditions:

	Condition	Year Assessed
1.	Fair	1996
2.	Fair	2006

Impact Level: Severe

Primary Impact: Structural Deterioration

Impact:

Other Impacts:

	Other Impact Type
1.	Inappropriate or Inadequate Preservation/Rehabilitation
2.	Weather
3.	Erosion

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Category:

Management Category Date: 08/08/2006

Category Date:

Management - Treatment:

Latest Est. 6000

Interim

Treatment

Cost:

Latest Ultimate Treatment: Rehabilitation

Treatment:

Interim

Treatment:

	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	1000	03/01/1996	
2.	National Park Service	6000	07/31/2006	

Ultimate

Treatment:

Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
-----------------------------------	-------------	------------------	-------------------	------------------	-------------------	--------------------

	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	116000	08/01/1995	

FMSS 33305
Number:

Long Management Text: Foundation on east elevation is slumping & is compromised at center of wall. Drainage along east elevation needs repair to direct water away from the foundation. (07/2006)

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 69		2
3.	Other Structure Number	CB50		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan,Robinson,Osman		5
6.	Other	1995 Mult Prop List,McClelland		6

Last Updated: 08/28/2006 10:51am

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0069, Boat Shop	08/2006	1
2.		SRB0069, Boat Shop	08/2006	2

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The Equipment Shed & Electric Shop was originally constructed as an equipment/vehicle storage shed in 1923 (National Historic Landmark Nomination, 1997). The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources estimates a construction cost for the project of \$1,500. The 1949 building inventory also indicated that at that time, the building was 110' in length, with the electrical shop and office on the south end and the open equipment /vehicle shed on the north half. Photographic evidence from 1935 (Photo 0906, Grand Canyon Museum Collection) shows that the 110' building was accompanied by another similar structure to the north. Building SRB-0074 was originally part of the 110' building and remained that way until at least the September 1959 date of an interim master plan (Drawing 2103-I) that called for obliteration of the 110' building. Subsequent to that date (and before April 1990 per NR survey photo) the northern 60' was removed.

The construction of this building reflects typical barn-like post and beam construction, with exposed rafters and board and batten siding. This has not changed significantly since 1923.

SIGNIFICANT ALTERATIONS/CURRENT CONDITION

This building has had an interesting evolution. No construction drawings were located for this building, so the original configuration is uncertain. The previously mentioned photo, taken in 1935, shows large out-swinging garage doors, so those were removed between 1935 and 1949 and replaced by a wall with two doors and two pairs of windows. Sometime after 1949, the north equipment shed (north sixty feet of structure) was demolished. Additionally, a low wall was constructed north/south from column to column to create horse stalls, the restroom fixtures were removed, a second door was installed between the Supply Room and the Electrical Shop, and the east windows were half boarded up and half removed - to be replaced with two stall openings.

Wear and tear from horses is the biggest contributor to damage on this building. Efforts have been made to minimize the damage, but it will continue to be a factor as long as it remains a horse barn (its current use). The building needs some roof maintenance, and a north foundation should be constructed.

OTHER DOCUMENTED WORK ON THE BUILDING

None found

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
1935-1949	Garage doors removed and replaced by an exterior wall with doors and windows
1935-1949	Construction of equipment shed connector
1949-1980	Removal of 7-bay equipment shed on north

<u>Date Range</u>	<u>Work Described</u>
Post-1949	Reconfiguration of east windows into horse stall openings
Post-1949	Horse stalls partitioned
Unknown	Removed restroom fixtures
Unknown	Second door added between Supply and Shop

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923

1.3 PHYSICAL DESCRIPTION

The Park Service Equipment Shed & Electric Shop is of post and beam construction, with a simple shed roof. The building features a corrugated sheet metal roof, vertical board and batten siding, brick chimneys and a stone foundation.

The spatial configuration is long and rectangular. The interior is divided into several areas of varying size, lending itself well to its current use as an equipment shed and horse barn. Interior elements such as hay and grain troughs, located in the center of the structure, continue to be utilized.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1923

1.3

PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof is a corrugated, galvanized sheet metal shed roof. The roofing is attached to 1x4 wood sheathing boards spaced at +/- 24" o.c. with neoprene gasketed roofing screws @ 6-10" o.c. There are no gutters, downspouts, nor lightning protection on the building. The only flashing is step flashing at the chimney. The underside of the roofing panels and the roof sheathing and rafters are all painted brown.

ARCHITECTURE - OVERHANGS & SOFFITS

Roof overhangs are approximately 24" on all sides with no fascia boards or soffits. Rafter tails and sheathing boards are exposed and all are painted brown. The eave on the south side is supported by three brackets consisting of 4x4 top members and 2x4 vertical and diagonal members. The diagonal member on the west bracket is missing. The three brackets on the north wall consist of double 2x6s. All members are painted brown.

ARCHITECTURE - EXTERIOR WALL FINISHES

The south, east, and west walls consist of a rough sawn, vertical board and batten siding, painted brown. The board and batten siding extends to the underside of the sheet metal roofing and runs full height on the south and west elevations. The siding on the east elevation is interrupted by a horizontal 2x2 trim piece at 9'-0" above grade. Two bands of 1/4" grid hardware cloth cover the bottom 7'-0" of the south elevation and are both painted brown.

The north elevation consists of vertically set, 1x6 tongue and groove siding in the triangular top of the wall above 6'-0". The top of the siding is nailed from the inside to an exposed 1x4. The 1x4 is attached to 4x6 posts at the sides (and in the middle). The bottom of the siding is nailed from the exterior to a horizontal 2x8 attached to the inside of the posts. Below the horizontal 2x8, the siding changes to horizontally run 2x12s on the east 2/3 of the wall with a combination of vertical 1x8s, vertical tongue and groove 1x6s, corrugated sheet metal, plywood and expanded metal lath on the west of the north elevation. All members are painted brown. A 1x12 trim board extends the width of the north elevation at the bottom of the roofing.

ARCHITECTURE - MASONRY

A single brick chimney extends above the middle of the roof. The chimney is 16"x16" and extends 48" above the roofing. The top of chimney is flaunching and an 8" clay flue extends 4" above the flaunching.

The foundation consists of stacked, rubble sandstone loosely mortared with a 2x4 exposed wood sill plate on top. The foundation is slightly outside the line of the siding at the south wall and the south end of the west wall and slightly inside the line of the siding at the north end of the east wall. The foundation does not extend along the north wall and appears to stop at the north end of the east wall. Framing at the north wall appears to be in the dirt. The foundation at the west wall is not visible as there is a

ARCHITECTURE - WINDOWS

The windows in this building have been altered significantly. Most of the extant windows are wood hopper style units, hinged at the top edge of the interior opening and swinging inward with no apparent means of closure.

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1.3 PHYSICAL DESCRIPTION

Window (1)-(2)

This window has been completely removed and infilled with painted plywood both on the interior and on the exterior. The 3 1/2" wood trim is extant on the exterior and includes a 1 1/2" wood sill. (Photos 0074-114, 0074-115)

Equally spaced on the west side of the building are eight square wood awning windows.

Windows (3), (4), (9), (10)

These four units have been boarded up with painted plywood on the exterior. The original windows are still mounted on the interior, although most of the glass is broken. These units feature 3/4" frames visible on all edges, with the bottom piece brought forward as a sill. Each wood unit features 4 lights (2/2) divided by 3/4" muntins and held in a 2" frame. (0074-116, 0074-117, 0074-122, 0074-123, 0074-202)

Windows (5), (6), (7), (8)

The remaining four units are still operable with 3/4" frames visible on all edges, also with the bottom piece brought forward as a sill. Each wood unit features 4 lights (2/2) divided by 3/4" muntins and held in a 2" frame. Window (8) is missing a muntin on the bottom half, creating a 2/1 muntin grid. (Photos 0074-118 through 0074-121, 0074-201)

Window (11)

This window was originally a triple assembly with a large window in the center and two flanking casements. The center unit and the east unit have been removed and infilled with plywood. The remaining unit on the west features a 2" top rail and stiles and a 3" bottom rail. 3 1/2" structural mullions separate the three units, and 3 1/2" trim surrounds them. This unit has a single glazed lite. A 2" sill spans the bottom. Steel screening has been tacked to the surface of the two infilled units. (Photo 0074-123)

Exterior Door (A)

This is a modern flush, painted, wood door with a steel handle and a padlock strap. There are two standard hinges. The door features a 5 1/2" wood casing on the exterior. (Photo 0074-125)

Exterior Door (B)

This is a modern double plywood barn door framed in 2x4s with diagonal bracing, featuring 10" wood casing on the exterior. Both leafs are supported by three utility hinges on each side. It is secured by a horizontal 2x4 in metal brackets. A park employee constructed this door in approximately 1990. (Photo 0074-126)

This building currently features a variety of interior door styles. From the limited information available, it cannot be determined if any of them are original, although most have been in place since 1949 according to survey drawings.

Interior Door (AA)

This is a five-panel (raised) stile and rail wood door with dark bronze knobs. A steel screen has been attached to the inside (west) for rodent-proofing (to no avail) the tack room. Both sides are painted.

There is a 19" high transom over this door with a screen on the east side which is discussed in this report as an interior window.

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1.3 PHYSICAL DESCRIPTION

There are two 5-segment historic hinges with decorative balls at each end. 1 1/2" casing surrounds the opening. (Photo 0074-203)

Interior Door (BB)

This is an interior wood door with two recessed panels and an octagonal white ceramic knob – likely salvaged from another structure. There are two hinges attached, but only the top one has a single screw in it; therefore, the door is inoperable. It is secured with a steel padlock strap. 1 1/2" casing surrounds the opening. (Photos 0074-204, 0074-205)

Interior Door (CC)

This is a narrow 5-panel (recessed) door with a bronze knob and skeleton keyhole. 1 1/2" casing surrounds the opening, except for the west side where it is missing. (Photos 0074-206)

Interior Door (DD)

Similar to BB but with glass in the top panel, which is boarded up with plywood on the stall side of the door. There is a dark bronze knob and a skeleton keyhole. This door has no casing. (Photo 0074-207)

Interior Door (EE)

Plywood barn door with diagonal bracket and dimensional lumber frame. It has no latch but does have a steel handle. Two two-segment hinges support the door, and a spring pulls it shut. This door has no casing. (Photo 0074-208).

The historic ceilings, in the center and south portion of this building, are painted fiberboard panels (4' x 6') with 1x2 battens at the joints. There is no ceiling finish in the room at the north end.

The same material, here unfinished, encloses a small room in the center of the building and extends to the south, without battens, along the west exterior wall. Painted, vertical 1x5s form the south wall of the central room and the west walls of the two rooms on the south. Unfinished 1x12s, oriented vertically, with 1x4 battens comprise the only wall finish (south wall) in the northernmost room.

There are two horse stalls on the east side of the central space, both of which have a mix of partially stained 1x and 2x boards (oriented horizontally) and plywood.

The 1x5 sheathed walls are framed with 2x material and held in place with continuous, 1" quarter round, all painted.

Hay and grain troughs, constructed of 2x material, are built into both stalls. The base of these troughs is plywood.

ARCHITECTURE - FLOOR

Starting from the north, the flooring is 2x8 on a wood joist system (based on the visible nailing pattern) that seems to have filled in with dirt. The stalls, at the center section, appear to have the same underlying structure, but here the flooring is overlaid with 1" rubber mats. To the west of the stalls is an area of slab on grade, which continues into the two rooms to the south, where it has a paint finish.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - INTERIOR WINDOWS

This wood window is a transom located over Interior Door (AA). See section on Interior Doors. (Photo 0074-216)

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The dirt grade of the horse paddocks near the entry is not an accessible surface. The building is entered through a number of doors and openings on the east side, only one of which is a man door which is too narrow to be considered accessible. The others are equine openings and barn doors. The man door accesses Room 101 but is itself, accessed through a paddock gate and horse enclosure, neither of which is ABAAS compliant. It also has a step at the threshold and non-compliant hardware. (Photo 0074-125)

Once inside, the door from Room 101 into the main work area, Room 103, does not meet ABA clearances. (Photo 0074-204)

STRUCTURAL - SIZES / SPANS / SUPPORT

The roof consists of corrugated metal over 1x skip sheathing over 2x6 rafters at 24"+/-. The rafters span approximately 12 feet from the exterior wall to a double 2x6 girder that runs along the center line of the building. The girder is supported on several 2x & 4x wood posts. Typical girder span is about 10 feet. (Photos 0074-217-219)

A small storage loft exists over the two horse stalls. Framing consists of plywood over 2x sleepers @ 24" over 2x8 joists spaced at 4'. The joists are supported by stud walls sheathed with 2x planking on either side of the stalls. (Photo 0074-218)

The exterior walls are conventional stud wall construction. Where visible, studs are 1-5/8"x3-5/8" at 24" with an untreated sill plate and a double 2x top plate. The walls are sheathed with 1x vertical board and batten on the interior and exterior. This sheathing acts as the lateral force resisting system for the building. The wall framing and sheathing on the north side of the building is a patchwork of tin and wood material.

First floor sheathing consists of wood planking over unknown floor joists at 24" in the north and part of the east half of the building. The joists and crawlspace were not accessible. The remainder of the floor is concrete slab-on-grade.

The foundation, where visible, is rubble stone set in concrete mortar. (Photo 0074-130)

MECHANICAL - HISTORIC MECH SYSTEMS

The building contains no HVAC system. A brick flue remains in the building and looks to be original to the building (Photo 0074-221).

MECHANICAL - PLUMBING ASSESSMENT

The building contains abandoned plumbing that is no longer relevant to building's current use as a horse barn. There are abandoned waste lines on the interior wall of the northernmost room. The pipes

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1.3 PHYSICAL DESCRIPTION

have been capped. There is also an abandoned washroom. The water closet is no longer present but the connections remain. The functionality of the connections is unknown. A wall-hung porcelain sink remains in the washroom but is no longer functional. Outside the building on the northeast corner of the building, is a functional water hydrant (Photos 0074-135, 0074-222 and 0074-223).

ELECTRICAL - SYSTEM DESCRIPTION

The building is provided with a 120/240 volt, single-phase electrical service from a tap off of the existing underground electrical distribution system. The electrical service disconnect consists of 60-amp fuses in a disconnect switch (Photo 0074-224).

From this fused disconnect switch, a feeder is routed to a 30-amp fused panel with six fuses of various ampacity to provide branch circuit overcurrent protection to the branch circuits in the building (Photo 0074-225).

The existing electrical service does not appear to be properly grounded or bonded as required for multiple buildings served by a common electrical service.

The feeders in the building are older type with cloth insulation, and the branch circuits are type NM.

The existing receptacles in the barn and office area are not GFI-protected, which would be advisable for use in this type of environment.

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

The existing interior lighting consists of surface-mounted fluorescent and incandescent fixtures. The fluorescent fixtures are lamped with T-12, 40-watt lamps (Photos 0074-226 and 0074-227).

EXTERIOR LIGHTING

The existing exterior light fixtures are installed on the front of the building and consist of a single mercury vapor type fixture in the middle of the building. This fixture appears to have been installed on a vintage fixture shepherd's hook. Two additional fixtures are installed on either end of the front of the building, and these are provided with two PAR lamp holders each (Photos 0074-136, 0074-137, 0074-138, 0074-139 and 0074-140).

A photoelectric cell is installed surface-mounted on the exterior of the building next to the mercury vapor light fixture for lighting control of the exterior fixtures (Photo 0074-139).

TELECOMMUNICATIONS

No telecommunications are provided at this building.

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1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance Area. The roofing panels are laid parallel to the slope, overlapping at each successive layer.
- Overhangs – The simple roof extension overhangs reveal the underside of the roof structure with features such as exposed rafter tails.
- Gable end brackets – Large, simple, triangular wood brackets support the gable end overhangs. (See photo 0074-108)
- Vertical board and batten siding is rough sawn and of regular design. (See photo 0074-110)
- Wood paneled and batten doors – This building has a variety of door styles that reflect its function as a blacksmith shop. Traditional paneled man doors and swinging barn doors appear throughout the Historic Maintenance Area.
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the Historic Maintenance and Warehouse Complex.
- Brick chimneys – Brick chimneys extend through the steel roofing with no caps or adornment. (See photos 0074-0105 through 0074-106)
- Wood windows with clear glass – This building features a variety of window styles, but all were wood, with wood muntins, and clear glass. Windows have concealed frames and generally no exterior casing. (See photo 0074-124)
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining features of which are wood plank flooring in the horse stalls, and vertical wood board and batten interior wall finishes.

1.5 GENERAL CONDITION ASSESSMENT

The Equipment Shed & Electric Shop is in fair condition with the exception of a few items. The exterior windows are in poor condition as a number of windows have been damaged from livestock. The masonry chimney has loose or missing mortar joints and needs tuckpointing.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: **GOOD**

The roofing is in good condition with no evidence of deterioration and very little damage except some missing screws. The step flashing at the chimneys has been repaired and patched more than once and is in poor condition. The flashing over the window is in fair condition with several nail holes, but it appears to be performing as intended.

Apparently, the roof is leaking at times, some of which may be the effect of the missing screws. There are also places where the joints between the roofing panels are loose or open wider than acceptable.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: **GOOD**

The overhangs are in good condition. The brackets are in fair condition with a missing 2x4 and a split 2x4.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: **FAIR**

The board and batten siding is in fair condition. Areas that are exposed and accessible to horses and mules have been chewed on and there are some boards and battens that are broken, split, or warped. Most boards are well attached to the framing. The hardware cloth is preventing further damage from livestock. The siding patchwork on the north elevation is in poor condition: there are significant indications of rotting, large holes and none of the materials appear to be historic. All wall finish repairs on the north wall have been with whatever materials are available with no regard to the original construction of the building.

ARCHITECTURE - MASONRY

CONDITION: **FAIR**

The chimney is in fair condition with some loose or missing mortar and a few spalled bricks. The flaunching is in fair condition with a loose section in the southwest corner. The interior chimney is in good condition. The foundation at the south and west walls is in fair condition with several areas that have missing or deteriorated mortar, but no missing stones and it appears to be level and plumb. The foundation at the east wall could not be directly observed but there is no evidence of deterioration. The north wall foundation is missing completely.

ARCHITECTURE - WINDOWS

CONDITION: **FAIR**

The windows in this building have suffered significant wear and alterations. A number of windows have been removed, and some have been damaged from livestock.

Windows (1) and (2)

These windows have been removed.

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1.5 CONDITION ASSESSMENT

Windows (3), (4), (9), (10)

Except for broken glass, these units appear to be largely intact beneath the plywood. Without removing the boards, we are unable to fully assess these units.

Windows (5), (6), (7), (8)

Minor weathering is evident. Frames are pulling away in isolated areas and should be re-attached. Window (7) is missing the bottom rail.

Window (8)

The missing muntin does not detract from the historic character, but rather adds to it - demonstrating the passage of time without actually damaging the building. It is important not to erase these types of character-defining flaws in search of a perfect restoration.

Window (11)

This south facing window assembly has suffered severely from weather exposure. Casing and window unit have blistered and peeling paint. Two units are missing, and trim is coming off the mullions. The original muntin pattern cannot be determined due to insufficient historical documentation on this building. Horses corralled adjacent to this façade are prone to chew on the wood, which is likely the cause of the missing windows. A steel fence has been erected approximately 3' from this wall to prevent the horses from chewing on the building.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **FAIR**

Door (A)

While inappropriate for the historic character of this building, the door does function fully and appears to be in good condition for its current use.

Door (B)

The horses and mules regularly chew on this door - accounting for large chunks of missing bracing and frequent replacement.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **FAIR**

Interior Doors (AA), (CC), (DD), (EE)

These doors are in good condition.

Interior Door (BB)

This door is in fair condition, although it is in-operable.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **POOR**

In general, the ceiling finish is in fair condition with punched holes and several sagging and warped sections (possibly caused by roof leaks).

The wall finishes are in fair to poor condition with punctures, several broken battens, and in the stall area - cribbing damage and kick holes.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **GOOD**

The trim is in good condition.

The troughs are in fair condition but are damaged from cribbing activities.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

The slab on grade is in good condition but the wood flooring is in poor condition. In both the north room and the stalls, it appears that the underlying wood structure has failed (probably rotted) allowing the 2 x 8 floor members to dip and warp irregularly, creating a very uneven surface.

ARCHITECTURE - INTERIOR WINDOWS

CONDITION: **GOOD**

This window appears intact.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **FAIR**

Roof framing generally appears to be in good condition. However, the barge rafters are both missing kickers. The west end of the north barge rafter is also damaged; apparently due to gnawing by livestock. (Photo 0074-133 & 134)

The slab-on-grade is generally in good condition. Areas with wood floor framing are in poor condition.

In the horse stalls, the planking is deteriorated and the underlying structure appears to be buried in soil. In the north third of the building, the floor structure has effectively collapsed onto the soil below and also appears to be buried in hay/soil. (Photo 0074-220)

Wall framing is generally in good condition except at the north wall (Photo 0074-132). The wall's patchwork of various materials poorly attached to the wall structure has significantly reduced the ability of this wall to resist lateral loads. The post supporting the mid-span girder is in contact with the soil and is damaged at the base; apparently due to gnawing by livestock.

The perimeter foundation is generally in good condition where visible. The foundation along the east

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1923

1.5 CONDITION ASSESSMENT

MECHANICAL - HISTORIC MECH SYSTEMS

CONDITION: **UNKNOWN**

A portion of the building's plumbing is in working order. The functionality of the brick flue is not known without further investigation.

MECHANICAL - PLUMBING ASSESSMENT

CONDITION: **FAIR**

The condition of all abandoned plumbing is unknown and would require further investigation to determine the functionality. The water hydrant outside is in working order and does not appear to be original or have historic relevance. The wall-hung sink in the abandoned washroom could possibly be original and may have historic relevance. The sink appears to be in fair condition despite the lack of operational plumbing.

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **POOR**

The existing electrical service, distribution and associated branch circuit wiring are out of date and have a number of code issues associated with their installation.

The building electrical service and associated devices are not properly grounded.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **FAIR**

The existing interior lighting appears to meet the building's intended usage however the existing light fixture does not comply with "International Dark Sky Association Guidelines" for light cut off.

The lamps and associated ballasts are older technology, and more energy efficient ballasts and lamps are currently available. The incandescent fixtures are well suited for this type of facility since they are not affected by cold temperatures.

The large exterior mercury glare fixture is out of scale and detracts from the historic character of the building.

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2.1 ULTIMATE TREATMENT AND USE

No documentation lists this building as operating as a blacksmith shop, so it is unclear why that name was applied, as referenced by the LCS; but in 1935, it was clearly a garage. A historic photograph of the maintenance area, taken after the adjacent buildings were completed in 1935 (Photo 0906, Grand Canyon Museum Collection), shows automobiles parked in front of large garage doors. By 1949, it had become an Electrical Shop.

The building now serves primarily as the stable of the "Grand Canyon Horse Patrol" (per the sign on the building). It is unknown how long it has functioned as a stable. Rehabilitation is the recommended ultimate treatment for this building.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1923

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY LOW

The roofing panels themselves are not in need of treatment. All missing screws should be replaced and the excess holes should be patched. Loose joints should be sealed and closed. The flashing at the chimney should be replaced in kind with galvanized sheet metal, step flashing set into the mortar joints with a minimum 8" coverage at all steps. This will provide a waterproof connection at the chimney while maintaining the original design and materials.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY LOW

The overhangs themselves do not require treatment at this time. The bracket on the southwest corner should be repaired by replacing the missing 2x4 diagonal brackets and installing a new 2x4 vertical member. Both pieces need to match the original 2x4 in material, species, shape, and profile. The exact make up of the pieces should be determined in subsequent studies. The bracket should be repainted to match the rest of the structure.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY MODERATE

Broken, split, or warped siding (either boards or battens) should be replaced with new material to match the original species, grade, texture, and size. The finishes on the north wall should be removed and replaced with new board and batten siding to match the rest of the building. (Note: the fencing enclosing the north corral should be relocated to eliminate the livestock's access to the siding.) New interior framing members should be installed to match the construction of adjacent walls and to provide support for the siding. The end result will be a water-tight building and an elevation consistent with the rest of the building.

The areas that have been lightly chewed up by livestock do not require further treatment and can be left as is. Material that has been chewed to the point of damage, destruction or structural deterioration should be replaced.

ARCHITECTURE - MASONRY

PRIORITY LOW

The chimney should be re-pointed and bricks that have spalled or missing faces should be replaced with new bricks matching the original. The top of the chimney needs to be re-flashed to slope away from the flue.

The foundation on the west and south sides should be excavated a minimum of 4-6" below existing grade and then re-pointed throughout. A new concrete foundation should be installed on the north wall of the building. This will provide a positive connection for the framing along that wall. Grade can then be re-established insuring that there is a positive drainage away from the building for at least 3'-0" on each side.

ARCHITECTURE - WINDOWS

PRIORITY LOW

If the building is weatherized for four-season use, the windows should be evaluated individually for tight fit and infiltration. The casement windows may require weather stripping if loose. We do not

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2.1 TREATMENT RECOMMENDATIONS

recommend replacement of these windows for any condition except complete un-repairable deterioration

Windows (1), (2)

Due to the fact that horses are put in these stalls, reconstructing glass windows makes little sense.

However, it may be beneficial to change the plywood infill into an operable swinging shutter that can be pened during fair weather - restoring the window function if not the actual window.

Windows (3), (4), (9), (10)

Remove plywood.

Windows (3)-(11)

Rehabilitate windows including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed.
3. Stabilize the sash joints and muntins to make the units structurally sound.
4. Repaint each unit with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Weatherstrip all openings.
6. Reglaze each unit using original glass, and replacing all inappropriate obscure glass. Do not attempt to match the historic rippled glass, but rather allow the new glass to be identifiable at close range.

Window (11)

If the fence is to remain, then reconstruction of this window assembly makes sense. The original muntin configuration is unknown, however, installing single lite units can restore the original window function, if not the actual historic units.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **LOW**

Door (A)

The original door style is unknown, however, retaining the existing door maintains the historic door function, if not the actual historic door. When feasible, replace this door with a wood door of a style more appropriate for the historic building.

Door (B)

Continue to maintain this door, likely also continuing to replace it due to wear and tear. If additional historic documentation for this building is ever discovered, model subsequent barn doors on the identified original.

Weatherstrip all door openings.

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1923

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

Interior Doors (AA) and (CC)

These doors need no immediate work.

Interior Door (BB)

Both hinges need to be re-attached and the door made operable.

Interior Door (DD)

This door needs no immediate work. Restoring the glass panel makes no sense given the vulnerable location and need for continued use of the stall.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **MODERATE**

Selective replacement of damaged surfaces with like materials is recommended - to eliminate rodent infiltration into wall and ceiling cavities and to mitigate potential hazards to horses and mules, in the stalls.

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - FLOOR

PRIORITY **MODERATE**

The wood flooring and structure should be removed (individual flooring pieces may be salvageable) and the dirt should be excavated to a level that will allow clearance for a new, treated wood floor structure to be installed. (Installing a layer of building paper before installing the flooring and designing a simple venting system for the floor structure would both control the infiltration of debris around the structure and improve the system's longevity.)

ARCHITECTURE - INTERIOR WINDOWS

PRIORITY **LOW**

No work recommended at this time.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **LOW**

This building is listed as a Tier 2 building, as determined by the Park for the purpose of establishing accessibility priorities for this Historic Structures Report, meaning that, the current use of the building does not require ABAAS compliance. If some future office or other adaptive use of the building requires accessibility, the building should be rehabilitated to comply with ABAAS at that time.

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1923

2.1 TREATMENT RECOMMENDATIONS

STRUCTURAL - SIZES / SPANS / SUPPORT

2.1 TREATMENT RECOMMENDATIONS

PRIORITY **MODERATE**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

Barge rafters will require repair where damaged. Kickers should be replaced where missing.

Floor framing will require substantial strengthening and selective replacement. Replacement with a slab-on-grade may be a better long term solution considering the lack of crawlspace depth and the use of the space. A treated wood system on a gravel sub base may also be a good long term alternative.

The north wall will likely require removal and replacement to restore its structural integrity. Any repair should consider mitigation of future damage from livestock.

MECHANICAL - HISTORIC MECH SYSTEMS

PRIORITY **UNKNOWN**

Further investigation is required to determine appropriate action.

MECHANICAL - PLUMBING ASSESSMENT

PRIORITY **MODERATE**

The existing plumbing in the building is adequate for the building's current use. The sink in the wash room may have the potential to be restored if desired. If the washroom is to remain unused there should be verification of appropriate termination of waste piping.

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **SEVERE**

The existing electrical service and associated branch circuiting should be replaced in their entirety due to age and code issues. The current panel is rated for 30-amps and is protected with 60-amp fuses, so it is not properly protected at present.

The existing branch circuiting should be replaced with a wiring method suitable for this type of environment.

Provide grounding of the electrical system to be code compliant and for increased user safety.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Replace the modern mercury vapor fixture on the historic shepherd's hook with an incandescent lamp and shade that would be more consistent with the building's historic character. We recommend a fixture similar to those on the gas station.

Replace exterior light fixture with a fixture that complies with the "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04).

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance Area overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building and the lack of historic documentation, the equipment shed & electric shop will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Some elements clearly need *reconstruction*, such as the porch posts that have been cut short and propped up on scrap lumber. And in general, the building requires *rehabilitation*, to address the existing code-deficient conditions (stairs, elevator, ABA access, electrical service, fire safety, etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building.

All of these changes, when contemplated, will require careful review by, and consultation with, the Park and SHPO.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

The recommended treatments for this building include the acknowledgement that this building is slated to remain a working barn, thereby significantly reducing the likelihood of needing wheelchair accessibility. Therefore, the effects of treatment for this building are generally reparative and are not adverse to the character-defining features. Building code requirements can be met with little or no change to the character defining features of the building.

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Bldg SRB-0074 – Date Unknown
National Park Service Grand Canyon Museum Collection (Photo # 01712)



Bldg SRB-0074 – 1935
National Park Service Grand Canyon Museum Collection (Photo # 0906)



West Façade Exterior Overview 0074 - 101



North Façade Exterior Overview 0074 - 102



East Façade Exterior Overview 0074 - 103

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



South Façade Exterior Overview 0074 - 104

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Shed Roof 0074-105



Sheet Metal Roof & Flashing at Chimney 0074-106

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Bracket in Southwest Corner showing Missing Brace 0074-107



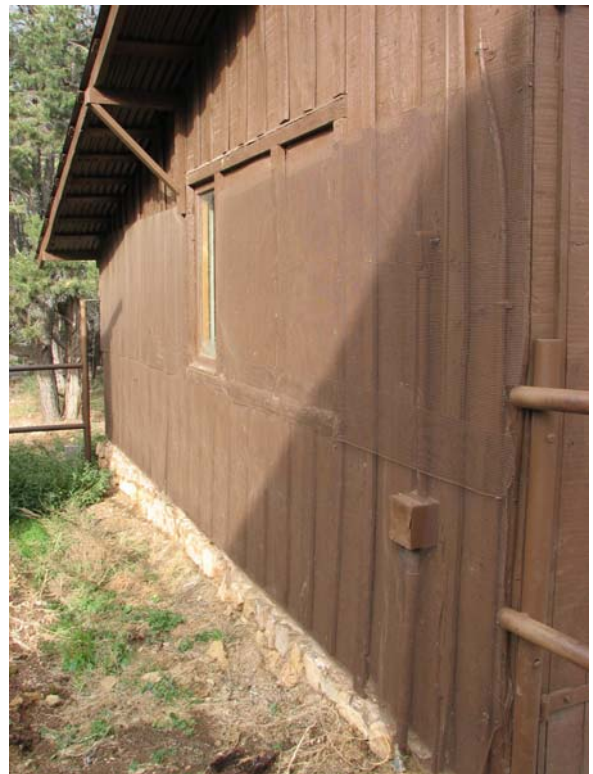
Roof Overhang 0074-108

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Mixed Rough Sawn Siding on North Elevation 0074-109



Board and Batten Siding 0074-110

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Board and Batten Siding with Hardware Cloth 0074-111



Brick Chimney 0074-112

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



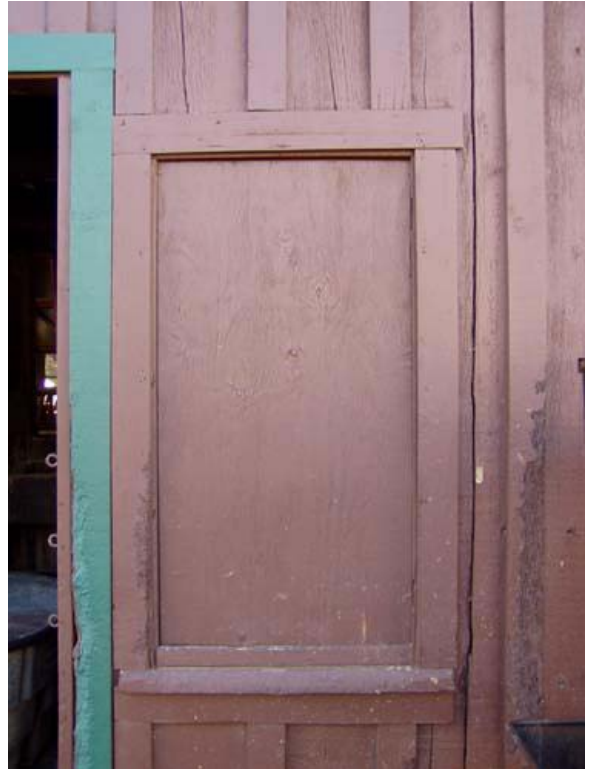
Stone Foundation at Southwest Corner 0074-113



East Window (1) 0074-114

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



East Window (2) 0074-115



West Window (3) 0074-116

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



West Window (4) 0074-117



West Window (5) 0074-118

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



West Window (6) 0074-119



West Window (7) 0074-120

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



West Window (8) 0074-121



West Window (9) 0074-122

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



West Window (10) 0074-123



South Window (11) 0074-124

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Exterior Door (A) 0074-125



Exterior Door (B) 0074-126

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Damaged Wood Flooring at Threshold 0074-127



Rubber Mat over Wood Flooring at Stalls 0074-128

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Enclosure at East Elevation 0074-129



Typical Stone Perimeter Foundation 0074-130

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Livestock Enclosure on North 0074-131



North Wall Damage 0074-132

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Livestock Damage to North Barge Rafter 0074-133



South Wall with Missing Kicker to Barge Rafter 0074-134

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Water Pump on East Side 0074-135



Exterior Lighting 0074-136

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Exterior Lighting 0074-137



Exterior Floodlights 0074-138

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Mercury Vapor Fixture 0074-139



Floodlight at Northeast Corner 0074-140

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Window Interior (6) (7) 0074-201



Window Interior (10) 0074-202

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Interior Door (AA) 0074-203



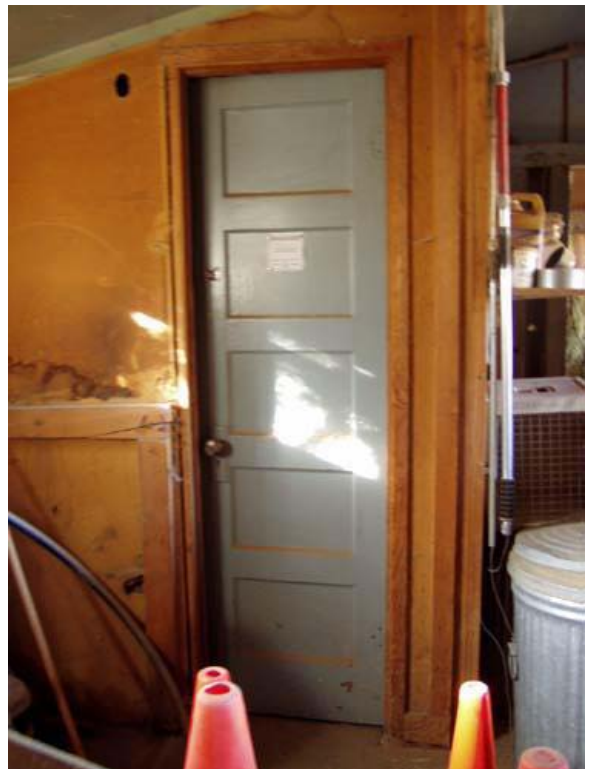
Interior Door (BB) 0074-204

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Interior Door (BB) – Reverse Side 0074-205



Interior Door (CC) 0074-206

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Interior Door (DD) 0074-207



Interior Door (EE) 0074-208

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Fiberboard with Battens 0074-209



Unfinished Fiberboard 0074-210

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



South Wall of Central Room 0074-211



Planks with Battens 0074-212

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Horse Stall 0074-213



Framing with Quarter Round Trim 0074-214

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Slab on Grade 0074-215



Interior Window at Door (AA) 0074-216

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Typical Roof Framing 0074-217



Typical Interior Girder and Storage Area Framing 0074-218

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Typical Rafter Bearing on Wall Top Plate 0074-219



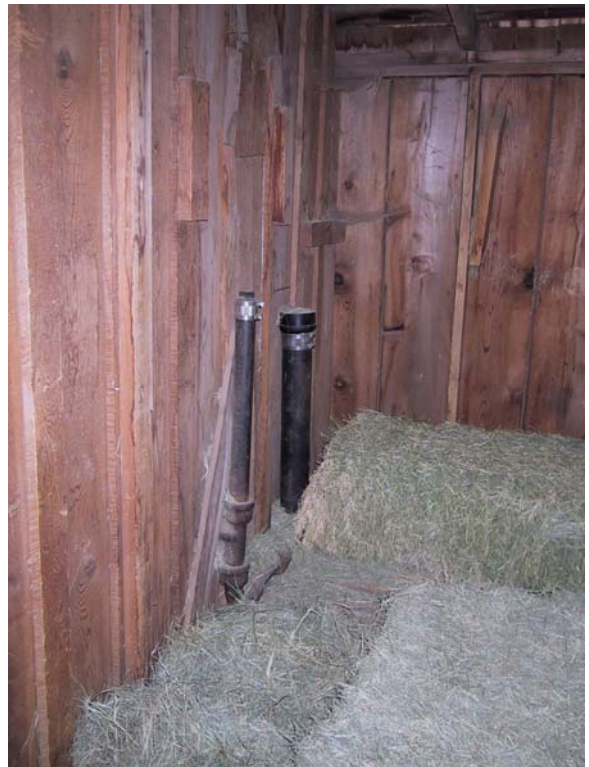
Deflected Floor in Hay Storage Area 0074-220

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Abandoned Historic Brick Flue 0074-221



Abandoned Waste and Vent Piping 0074-222

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Abandoned Wash Sink 0074-223



Electrical Service Disconnect 0074-224

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923



Panel 0074-225



Surface-mounted Fluorescent 0074-226

SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

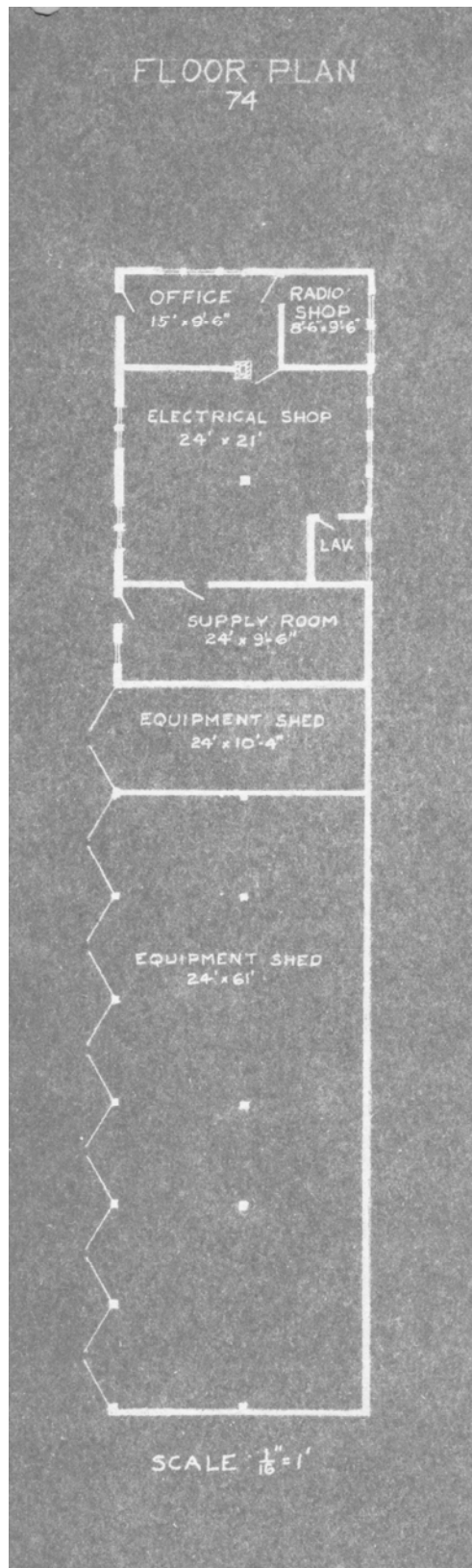
1923



Surface-mounted Fluorescent 0074-227

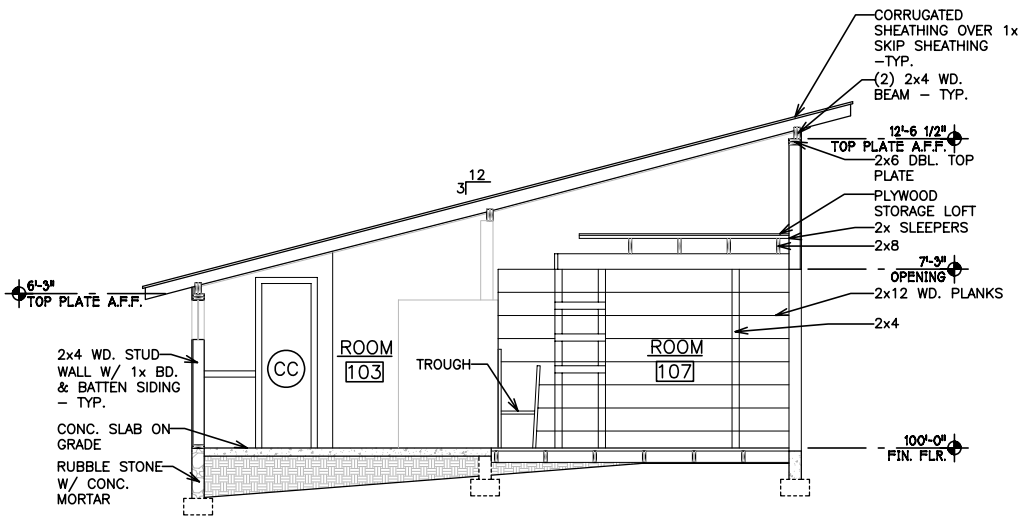
SRB-0074 EQUIPMENT SHED & ELECTRIC SHOP

1923

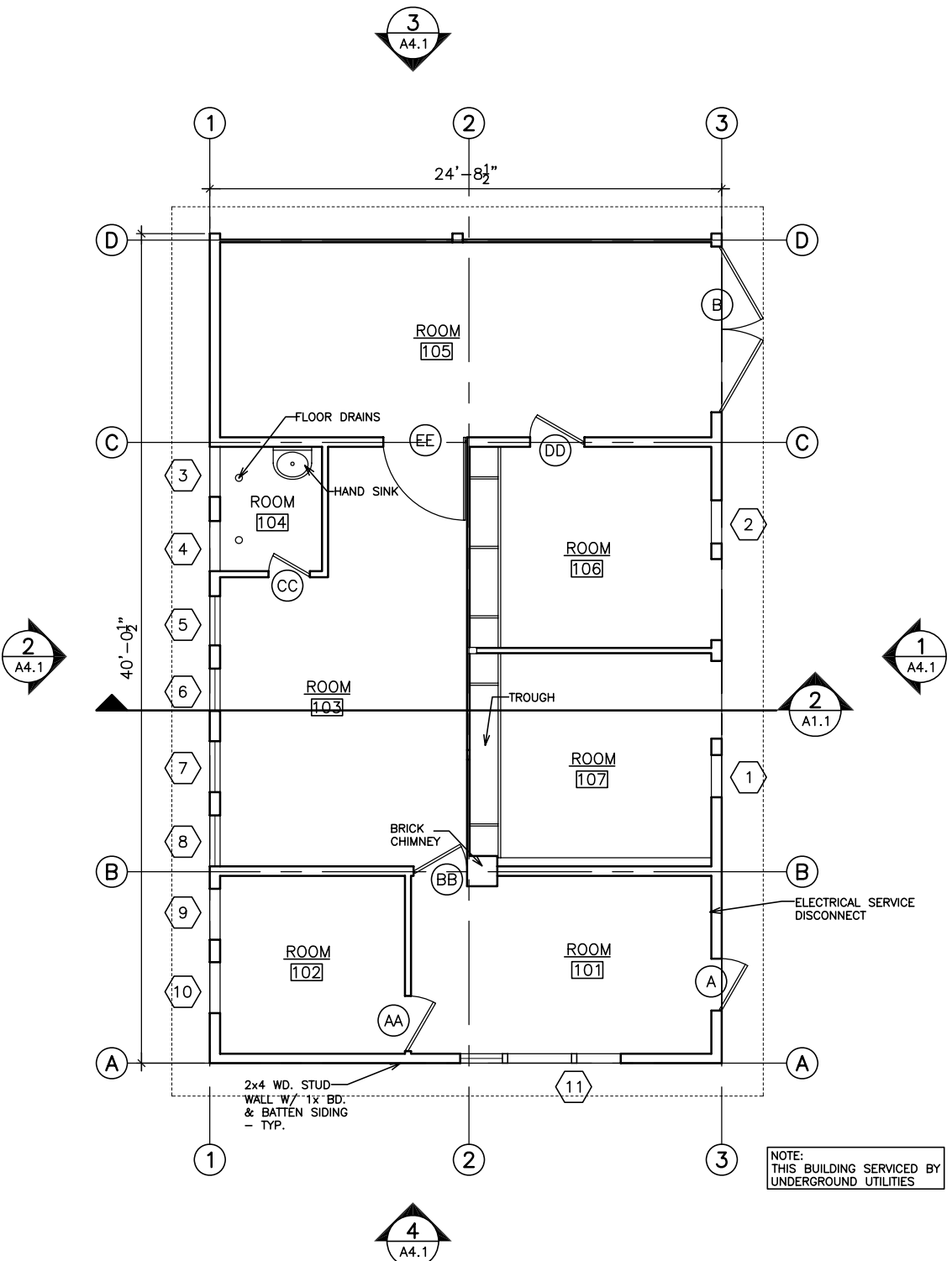


1949 Survey Plan – Building 74
Grand Canyon National Park Office of Cultural Resources

NOTE: FOUNDATION ILLUSTRATIONS
ARE NOT VERIFIED, BUT RATHER
BASED ON A COMBINATION OF
SURFACE OBSERVATIONS, HISTORIC
DRAWINGS, AND COMMON BUILDING
ASSEMBLY PRACTICES AT THE TIME OF
CONSTRUCTION



1 SECTION
A1.1



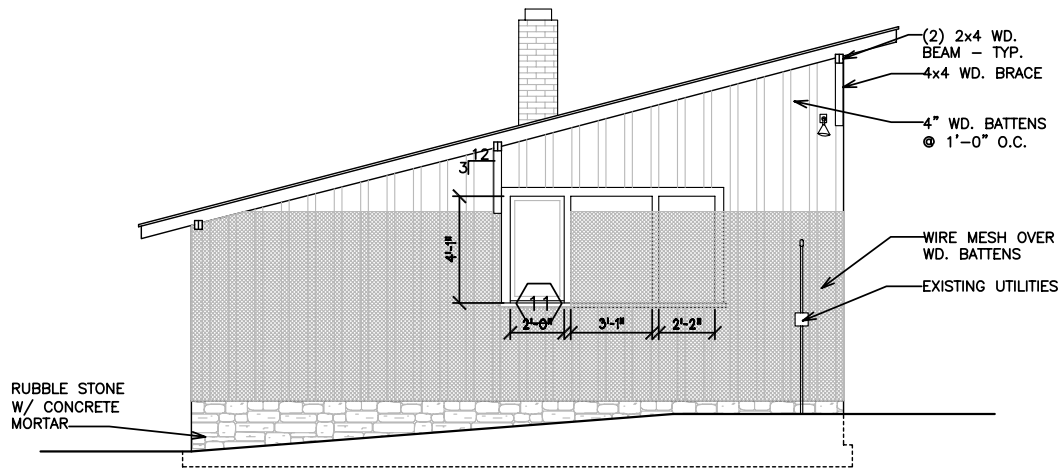
1 FLOOR PLAN
A1.1

SCALE (A) 4 0 4 8
SCALE OF FEET

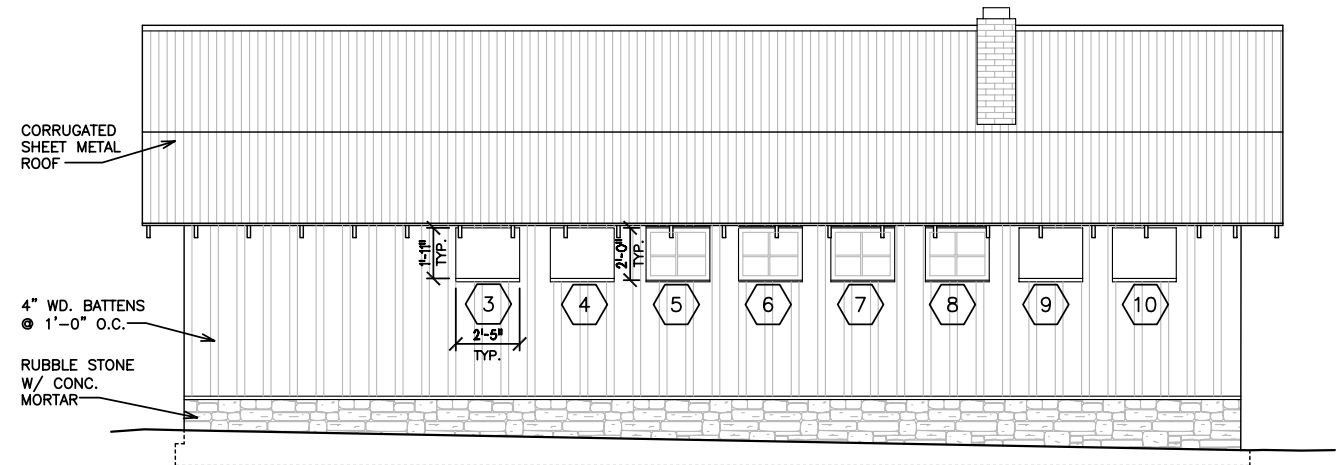


EXISTING CONDITIONS - 2006

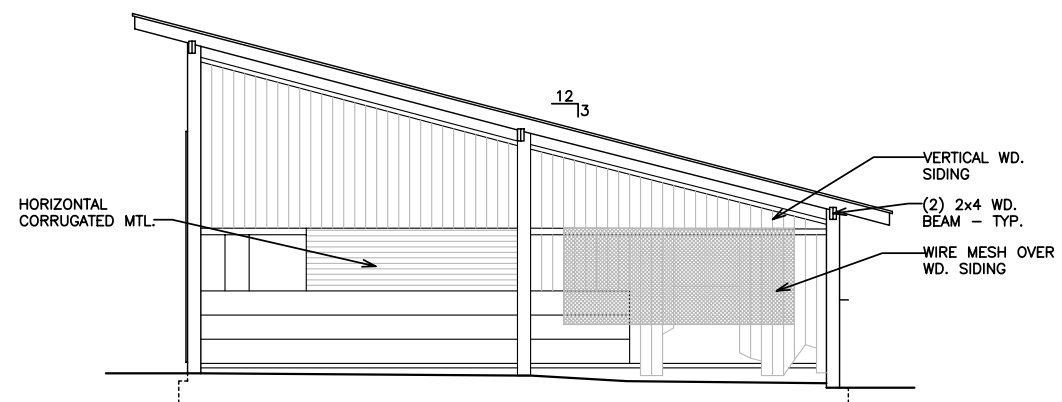
DESIGNED: GADD BSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0074 Equip. Shed/Elec. Shop GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25015 PMIS/PKG. NO. 084236 SHEET 1 OF 2
TECH. REVIEW:	DATE: 04/13/07		



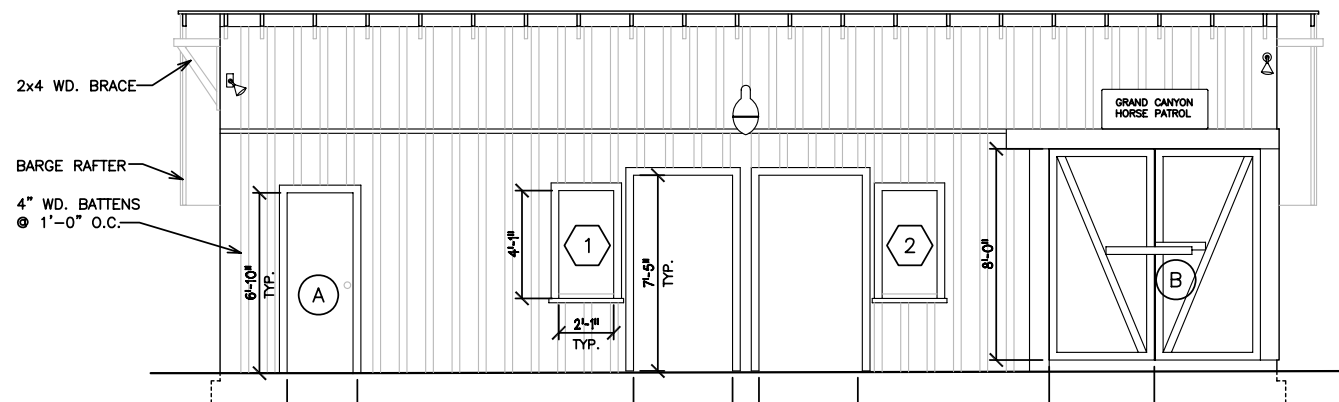
4 SOUTH ELEVATION
A4.1



2 WEST ELEVATION
A4.1



3 NORTH ELEVATION
A4.1



1 EAST ELEVATION
A4.1

SCALE (A) 4 0 4 8
SCALE OF FEET

EXISTING CONDITIONS - 2006

DESIGNED: BBS BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0074 Equip. Shed/Elec. Shop	DRAWING NO. 113 25015
TECH. REVIEW:		GRAND CANYON NATIONAL PARK ARIZONA	PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

Equipment Shed & Electrical Shop



Identification:

Preferred Structure Name: Equipment Shed & Electrical Shop

Name:

Structure Number: SRB0074

Other Structure Name(s):

Other Structure Name(s)
1. Sunset Drive Horse Barn
2. Blacksmith Shop/Garage
3. Horse Barn

Park: Grand Canyon National Park

Historic District:

Historic District
1. Grand Canyon Village

Structure State: Arizona

Structure County: Coconino

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

LCS ID: 055412

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Register Status: Entered - Documented

Status:

National Register Date:	02/18/1997
National Historic Landmark?:	Yes
National Historic Landmark Date:	02/18/1997
Significance Level:	Contributing
Short Significance Description:	1 of oldest buildings const in NPS utility area as electrical shop, following 1924 Plan prep by NPS Landscape Eng Div. Example of rustic vernacular style for utility bldgs. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.
Long Significance Description:	<p>The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larges residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.</p> <p>The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.</p> <p>Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.</p> <p>Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the villages major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and</p>

helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1923	AD	1924	AD	NPS	Other

Function and Use:

Primary Function: Maintenance Facility

Historic Function:

Primary Current Use:

Barn

Structure Contains Museum Collections?:

No

Other Functions or Uses:

	Other Function(s) or Use(s)	Historic or Current
1.	Equipment/Vehicle Storage	Historic

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

960

Material(s):

	Structural Component(s)	Material(s)
1.	Walls	Weatherboard
2.	Foundation	Stone
3.	Framing	Wood
4.	Roof	Metal

Short Physical Description:

1 story wood frame utility bldg 25'x40'. Shed roof with exposed rafters, lookouts & metal roofing. Board & batten siding. Garage bay with swing wood doors. 2, 4' openings without doors, street lamp. Metal corral. Stone foundation walls, partial concrete slab.

Long Physical Description:

1' story wood frame utility bldg 25'x40'. Shed roof with exposed rafters, lookouts & metal roofing. Board & batten siding. Garage bay with swing wood doors. 2, 4' openings without doors, street lamp. Metal corral. Stone foundation walls, partial concrete slab.

Condition and Impacts:

Latest Condition: Fair

Latest Year Assessed: 2006

Conditions:

	Condition	Year Assessed
1.	Fair	1996
2.	Fair	2006

Impact Level: Moderate

Primary Impact: Structural Deterioration

Other Impacts:

	Other Impact Type
1.	Weather
2.	Biological Degradation (Mold)
3.	Park Operations

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Management Category Date: 08/08/2006

Management - Treatment:

Latest Est. Interim Treatment Cost: 6000

Latest Ultimate Treatment: Rehabilitation

Interim

Treatment:

	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	6000	07/31/2006	

Ultimate

Treatment:

	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management Plan	08/21/1995	National Park Service	Yes	No	

	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	96000	08/01/1995	

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility:

National Park Service

FMSS Number:

33308

Management - Description:

Short Management Text: Orig structure 3X as long. GMP specs adaptive reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (Approx \$200/SF). Revise RMP to spec pres treatment. Foundation exposed on north elevation and needs repair (07/2006).

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 74		2
3.	Other Structure Number	CB51		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good




Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0074, Equipment Shed & Electrical Shop	08/2006	1

				
2.		SRB0074, Equipment Shed & Electrical Shop	08/2006	2
3.		SRB0074, Equipment Shed & Electrical Shop	08/2006	3

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0075 BLACKSMITH SHOP

1932

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The Park Service Blacksmith Shop was originally constructed between 1928 and 1932. The National Historic Landmark Nomination incorrectly identifies this building as a machine shop, however no evidence has been found to support this label. The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources estimates a construction cost for the project of \$1,000. All records indicate the building was a blacksmith shop, and has remained so to this day.

The construction of this building reflects typical barn-like post and beam construction, with exposed rafters and board and batten siding.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

A 1935 Park Service drawing for a new machine shop (Grand Canyon Museum Collection Drawing 3119, ECW Project #14, ECW Class 112) indicates a small addition was to be constructed on the south end of a large building in the center of the maintenance area. The illustrated location of this project suggests that the Blacksmith Shop may have been intended as part of that large building at one time; but a historic photograph, taken in 1935, shows the completed work, and the building stands alone. (Photo 9163 from the Grand Canyon Museum Collection) Construction work was conducted by the ECW Company based at Camp NP4A. At some point after 1949, a storage mezzanine was constructed over the welding stall, and a steep stair was built against the north wall to provide access to the mezzanine.

The use of the building has resulted in some impact damage, but it serves as a reminder of the blacksmiths' work over time, the many horses and mules that have passed through, and gives the building a well-earned patina. The building needs general maintenance.

OTHER DOCUMENTED WORK ON THE BUILDING

<u>REVIEW DATE</u>	<u>WORK DESCRIBED</u>	<u>SOURCE OF INFORMATION</u>
1983	New Roof	Building inventory file
January 8, 1990	Install butane tank and piping	Section 106 Review

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
Post-1949	Constructed storage mezzanine
Post 1949	Added man-door / Made two large doors inoperable
Unknown	Addition of cupola
Unknown	Stove removed at north chimney

SRB-0075 BLACKSMITH SHOP

1932

1.3 PHYSICAL DESCRIPTION

The Park Service Blacksmith Shop is a post and beam wood structure with a simple shed roof. The building features a corrugated sheet metal roof, vertical board and batten siding, brick chimneys and a stone foundation.

The building plan is rectangular in shape. The interior spatial configuration lends itself well to its current use as a blacksmith shop with a large open main floor space and one smaller room to the north for storage. A forge is central to the work area.

The following section is a discipline-by-discipline, component-by-component description of the building.

SRB-0075 BLACKSMITH SHOP

1932

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

Roofing consists of corrugated, galvanized sheet metal on 1x6 to 1x10 purlins at approximately 24" o.c. Roofing is attached with neoprene gasketed roofing screws. The ridge cap consists of preformed, rounded cap flashing. A wood framed, louvered cupola is centered on the top of the offset ridge and has sheet metal roofing similar to the rest of the roofing. There are no gutters or downspouts on the building. Flashing at the wood cupola is sheet metal bent loosely over the roofing panels. The cupola flashing at the sides and the chimney flashing all have coats of roofing tar and roofing cement.

ARCHITECTURE - OVERHANGS & SOFFITS

Roof overhangs are approximately 24" on all sides with no fascia boards or soffits. Rafter tails, purlins and the underside of the sheet metal roofing are exposed and painted brown. The rafter tails at the west side are cut off flat. The two outrigger rafters at the north and south ends of the building are "bird's mouthed" over the extended roof beams. Rafter tails at the east elevation and at the cupola are plumb cut. The overhang on the cupola is 12-15."

ARCHITECTURE - EXTERIOR WALL FINISHES

The exterior finish consists of board and batten siding on all four elevations. The board and batten extends from the top of the foundation to the underside of the roof panels and is made up of 1x10 to 1x12 rough sawn boards and rough sawn 1x4 battens. The cupola is similarly constructed on the end elevations. The east and west sides of the cupola consist of wood framed louver sections and 1x6 sloped wood blades 6" o.c. There is a layer of hardware cloth behind the louver blades.

ARCHITECTURE - MASONRY

Two chimneys extend 8' above the roofing. One chimney is 16"x16" and has an 8" clay flue liner. The other chimney is 24"x24" and has an open 12"x12" un-lined flue. Each chimney is flashed to the roofing with galvanized step flashing. There appears to be a thin, fine brick facing on the inside of the larger chimney, with flashing at the top. There is a sheet metal cricket behind both chimneys.

The foundation on the south, west and north sides is a stacked, rubble sandstone with loose mortar throughout. The north foundation is painted brown. The foundation extends beyond the siding on the west side, but the siding extends over the foundation on the south. The north side is flush with the siding and foundation. The east side does not have a visually accessible foundation as either asphalt or concrete is placed against the building at the level of the floor.

ARCHITECTURE - WINDOWS

This building features inward-swinging wood casement style windows in single, double, and triple assemblies.

Windows (1) & (7)

These triple wood casement style windows have a 2" wood frame, with a 2 3/4" bottom rail, and 6 lites in each unit. The windows swing inward with concealed hinges. 2" structural mullions divide the 3 units and are flush with the face of the window frames. A 2" wood sill is visible under the assembly, but no visible frame is revealed other than a 3/4" header spanning the whole assembly. The muntins are 3/4" with a 1/4" extension. The windows are not currently operable.

At window (7), two vertical boards (1 1/2" x 7 1/2") have been bolted to the exterior and two on the

SRB-0075 BLACKSMITH SHOP

1932

1.3 PHYSICAL DESCRIPTION

interior at the structural mullions, which span from grade to approximately 2'-0" above the window header. The east unit is missing the bottom muntin, creating one horizontal glass light between the two. (Photos 0075-116, 0075-123)

Windows (2) & (6)

These single wood casement style windows have a 2" wood frame, with a 2 3/4" bottom rail, and 6 lites. The window swings inward with concealed hinges. A 2" wood sill is visible under the assembly. The muntins are 3/4" with a 1/4" extension. The windows are not currently operable. Window (2) remains but has been boarded up on the interior with painted pegboard. (Photos 0075-117, 0075-122)

Windows (3), (4), (5)

These are triple units, out-swinging, wood casement style with 2 1/2" wood frame on each sash, concealed hinges, and 1 1/2" structural mullions trimmed on the exterior with a 3" flat trim board. 1" muntins with 3/8" extensions divide six lights per leaf. They are not currently operable. Hook and eye closures are on each end unit inside. The 3/4" frame is visible on the exterior.

On window (4), one light in the north-most unit has been boarded in with 3/4" plywood. Modern crank casement hardware has been installed on the north unit (approx. 15-20 years ago). The north unit has two exterior hinges, 7 1/2" from the bottom and 6" from the top.

The north unit of window (5) has been completely removed and infilled with plywood. The top half supports an exhaust fan installed in a wood cabinet. The remaining two units are extant but have been boarded up on the interior with unfinished pegboard. (Photos 0075-118 through 0075-121)

ARCHITECTURE - EXTERIOR DOORS

Exterior Door (A)

This is a wood barn door with a board and batten surface to blend with the siding. It features 4 large steel strap hinges (2"x26"). This is an operable door for cattle access to the blacksmith's workshop. The doors are cross-braced on the interior with a single diagonal 2x4 on each leaf, secured with a horizontal 2x4 in steel brackets. (Photos 0075-124, 0075-207)

Exterior Door (B)

This is a barn door with board and batten surface to blend with the siding. It has been fixed shut and boarded up with plywood on the interior surface of the wall. It features 4 large steel strap hinges (2"x26"). A 28"x70" man-door with a metal-edged sill stepped up 6" from grade is 5" thick and constructed of a sandwich of wood frame, plywood and battens. It is secured with a padlock. This is the main entrance to the building. (Photos 0075-125, 0075-208)

Exterior Door (C)

This is a barn door similar to door (B), without the man-door. It is also fixed shut and boarded up. (Photo 0075-126)

ARCHITECTURE - INTERIOR DOORS

Interior Door (AA)

One 35 1/2" x 76" wood beadboard door separates the original welding stall from the workshop area. It has been stained dark and is secured with a padlock. (Photo 0075-209)

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - STAIRS

There is a narrow, (1'-5") open, steel stairway at the north side of the building that leads up to the mezzanine. (12 risers @ +/- 7 1/2" and 11 treads @ +/- 8 1/2"). A 1 1/4" diameter handrail is on the open side of the stair. At the mezzanine, the handrail turns to provide a 2'-1" high "guardrail."

ARCHITECTURE - WALL/CEILING FINISHES

Painted plywood is the ceiling finish of this building. The same serves as the wall finish (where there is a wall finish - south, east and center dividing walls).

There is a section of 4' wide floor-to-ceiling sheet metal on the center wall, presumably where grinding activities used to take place (given the metal grinding/splatter pattern on the wall).

ARCHITECTURE - FLOOR

Full, unfinished, 2x12 planks reside over a shallow recess in the floor of the southernmost bay (accessed directly by the large, double doors). Elsewhere, the floor is concrete, slab-on-grade with an asphalt overlay in areas. Flooring at the mezzanine is unpainted, 1/2" plywood.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. Although there is an asphaltic surface immediately adjacent to the main entry to the building, the surface is too rough to meet ABAAS requirements. Only one of the doors to the building is a man-door, but it requires that the user step over a 6" threshold to gain entry. The door is also too narrow for ABA and does not have lever hardware. (Photo 0075-125)

Once inside, the unevenness of the floor renders it too rough for ABAAS compliance. (Photo 0075-205)

STRUCTURAL - SIZES / SPANS / SUPPORT

The roof consists of corrugated metal over 1x skip sheathing over 2x6 rafters at 24"+/-. Rafters were not visible due to ceiling finishes; however the maximum span probably does not exceed 11'. The rafters bear on the east and west exterior walls. Historic drawings, although not specific to this building, indicate that the aforementioned rafters are likely part of field built carpenter's trusses over the eastern two-thirds of the building. These rafters are visible in historic photo 09193.

An interior girder line appears to support the ceiling and roof. This girder is supported by three wood posts, two embedded in the north and south exterior walls and one at about the third point of the building length. The southern portion of the girder spans approximately 24'. A set of 5-2x joists are visible low with two older 4x12's above. It appears that a column supporting the girder at mid-span was removed, necessitating the built-up header visible below the presumably original 4x12's (Photo 0075-121). The northern third of the span, approximately 12', consists of a 4x6 with a 2x6 rough sawn kicker extending from the exterior post to approximately the third point of the span.

The east and west walls are of post and beam infill construction. There are a series of four 10" x 7-1/2" posts equally spaced along the east wall supporting headers over the three bays of doors. The framing is only partially visible, but the headers appear to consist of a 4x12 on the interior and a 4x16 on the exterior. A similar line of columns exists along the west wall. The western columns are 8"x8". These columns support a 4x6 girder at the top of the wall which cantilevers out to support the barge rafters.

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1.3 PHYSICAL DESCRIPTION

The walls are sheathed with 1x vertical board and batten on the exterior. This sheathing acts as the lateral force resisting system for the building. Let-in diagonal bracing may also exist, but wall framing is generally not visible due to interior finishes. North wall framing is exposed and consists of random 2x4 & 2x6 members spanning vertically & horizontally. Let-in diagonal bracing was not seen in this area.

The first floor is typically an irregular concrete slab or asphalt on grade. The floor in the southeast corner of the building consists of 3x12 planks over 4x girders buried in soil.

The perimeter foundation consists of rubble stone set in concrete. The foundation along the east side of the building is not visible.

MECHANICAL - PLUMBING ASSESSMENT

The plumbing in the building consists of one small hand sink. The hand sink is in working order, although not properly connected to services (Photos 0075-206 and 0075-212).

The sink is jerry-built over a steel barrel, and plumbed to a freestanding water line next to it. The sink's control handles are of a more recent vintage than the sink itself. While this sink may date to an early year in the history of the complex, it is unlikely that it has always resided here.

MECHANICAL - HVAC ASSESSMENT

The HVAC system consists of a modern forced air propane furnace, propane tank, and axial wall mounted exhaust fan with screen cover (Photos 0075-133 through 0075-136, 0075-213 and 0075-214). The forge is in use currently, but does not appear to be directly mechanically exhausted.

Furnace

make: Cleveland Dornback
model: DMP 125-4
gas input: 125,000btu/h

LPG Tank

make: The Lang Company
volume: 499gal
max pressure: 250psi @650 deg F
yr mfg: 1958

Exhaust Fan

unknown information

ELECTRICAL - SYSTEM DESCRIPTION

The building is provided with a 120/240 volt, three-phase, high leg delta electrical service from a tap off of the existing underground electrical distribution system. The electrical distribution panel is not provided with a main circuit breaker (Photos 0075-216 and 0075-215).

The feeders and branch circuit wiring insulation appears to be THHN or a new type of insulation material.

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1.3 PHYSICAL DESCRIPTION

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

Ceiling mounted and aluminum lamp holders for fluorescents comprise the majority of this building's lighting. There are, however, two fixtures that may be original to the building, or early additions. They are both pendant incandescent with painted or enameled, sheet metal shades. One is in the north side of the building and the other is in the south (Photos 0075-201, 0075-211, 0075-217, 0075-218 and 0075-219).

The surface-mounted fluorescent fixtures feature acrylic lenses. The fixtures are lamped with T-12, 40-watt lamps.

EXTERIOR LIGHTING

One exterior light fixture is installed on the north side of the building. This fixture is a single PAR lamp holder used to illuminate the stock yard on the north side of the building (Photo 0075-137).

TELECOMMUNICATIONS

No telecommunications are provided at this building.

1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0075-105)
- Overhangs – The simple roof extension overhangs reveal the underside of the roof structure with features such as exposed rafter tails. (See photo 0075-109)
- Gable end brackets – Large, simple, triangular wood brackets support the gable end overhangs.
- Vertical board and batten siding is roughly sawn. (See photo 0075-111)
- Wood paneled and batten doors – This building has a variety of door styles that reflect its function as a blacksmith shop. Traditional, paneled man-doors appear throughout the Historic Maintenance and Warehouse Complex. The large, wood batten doors support the livestock functions and are characteristic of a hard-working building. (See photos 0075-125 and 0075-126)
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the Historic Maintenance and Warehouse Complex. (See photo 0075-109)
- Brick chimneys – Three narrow brick chimneys extend through the steel roofing with no caps or adornment of any kind. (See photo 0075-113 and 0075-114)
- Wood windows with clear glass – This building features a variety of window styles, but all are wood, with wood muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills. (See photos 0075-116 through 0075-122)
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining features of which are wood plank flooring.

1.5 GENERAL CONDITION ASSESSMENT

The Park Service Blacksmith Shop is in poor condition. In general, the roof is in fair condition with minor deterioration such as missing purlins and some bent pieces of the metal roof. The masonry chimneys are in need of tuckpointing and some bricks are missing. The board and batten exterior siding are heavily weathered, specifically at the south side. The foundation is in fair condition with no major gaps in the stones.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: FAIR

The roofing is in fair condition although there are several areas of inadequate and missing attachment to the purlins. Most of the neoprene gasketing on the roofing screws is missing or dried and deteriorated. The flashing at the chimneys is in poor condition. Most of the individual pieces are bent or cracked and all pieces are rusted. All chimney flashing has been repaired several times with layers of tar and roofing cement. The flashing at the cupola is in fair condition, but the cupola itself shows evidence of deterioration and weathering. Some repairs have been made and pieces have been added to the two end flashings.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: GOOD

The overhangs themselves are in good condition with the exception of a broken rafter tail at the center of the east elevation. The beam extensions are in fair condition with evidence of deterioration and rot at the exposed end grain on two of the south beams.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: POOR

The siding is in fair to poor condition especially on the south side. Additional battens have been added apparently to cover cracks in the boards. The south side board and battens are heavily weathered under the coating of paint. Many of the battens are warped or pulling away from the boards. Some of the board and battens are rotted at the bottom along the west side, particularly near the center. The north side is in good to fair condition with very little deterioration and only a few signs of cracking or splitting.

The east side siding is in good condition as it is primarily under the eaves - the rest of the east side consisting of door openings. The wood cupola is in fair to poor condition - it is very weathered under several layers of paint and there is evidence of cracking and splitting of rafters, louvers, and siding members on all four sides.

ARCHITECTURE - MASONRY

CONDITION: POOR

The chimneys are in poor condition above the roof. Several bricks are broken and many faces have spalled off. The bricks around the roof flashing are deteriorated and some are loose. Mortar is missing or loose in several areas. The chimneys do remain plumb and solid, though. The top of the small chimney is not parged or water tight. The parging at the top of the large chimney appears to be in fair condition and does not appear to be loose.

The foundation is in fair condition. It remains plumb and relatively square. There are no major gaps in the stones. There are several small holes and the mortar is missing or deteriorated in some areas - particularly on the south wall and at the middle of the west wall.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - WINDOWS

CONDITION: **POOR**

Many layers of paint coat these units, obscuring the character of the wood sash. The paint appears to be a very high gloss, lending a plastic appearance to the windows. The south facing windows have suffered severely from weather exposure and horse kicks.

Window (1) & (3)

Glazing putty is missing in large quantities. The windows show signs of some weathering but have so many layers of paint that they have been sufficiently sealed from further moisture damage. There is a broken pane in the lower center (left). The south unit's bottom rail has deteriorated.

Window (2)

This window unit is intact. Only a small area of glazing putty has (recently) fallen out.

Window (4)

The north unit bottom rail is severely deteriorated. Additional modern hinges and arm handles detract from the historic character. Glass is missing from the lower north pane. Glazing putty is intact but poorly installed. Subsequent to 2006 inspection this window was reconstructed in 2007.

Window (5)

The center unit is fair, with the exception of deteriorating glazing putty and peeling paint. The south unit exhibits more severe weathering, and the north unit is gone. The placement of the fan detracts from the historic character of the window, although it does reflect the use of the building.

Window (6)

This unit exhibits serious deterioration due to weathering. Glazing putty is deteriorated, missing, and in the process of falling out. This sill is cracked end to end and shows massive deterioration.

Window (7)

This unit is also severely weathered with ends missing at the bottom rail and west stile of the west unit. Glazing putty has pulled away from the muntin extension in many areas, and the remaining putty is installed haphazardly. The sill shows signs of deterioration which can likely be slowed with immediate repair. The missing muntin does not detract from the historic character, but rather adds to it - demonstrating the passage of time without actually damaging the building. It is important not to erase these types of flaws in search of a perfect restoration.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **POOR**

Exterior Door (A)

Vertical boards have deteriorated at the bottom and large cracks have split off the edge of some boards. A large hole is visible at the top of the north leaf where it meets the south leaf. Poor site drainage has caused much of the damage at the bottom.

Exterior Door (B)

This door is in fair condition, although the vertical boards have deteriorated at the bottom and large cracks have split off the edge of some boards. The main door is intact and functional. The header is losing integrity at the north end. Asphalt has been poured at the base to improve drainage, but it also obscures part of the door, preventing a thorough inspection of the bottom of the door.

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1.5 CONDITION ASSESSMENT

Exterior Door (C)

Vertical boards have deteriorated at the bottom and large cracks have split off the edge of some boards. Asphalt has been poured at the base to improve drainage, but it also obscures part of the door, preventing a thorough inspection of the bottom of the door.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **GOOD**

Interior Door (AA)

This door reflects the historic character of the building and appears to operate sufficiently.

ARCHITECTURE - STAIRS

CONDITION: **FAIR**

None of the elements of this guardrail and stair (rise, run, handrail, adjacency to a window, width, etc.) comply with code requirements, but the stair and guardrails themselves are in good condition.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **FAIR**

The ceiling and wall finishes are in fair to good condition with the exception of the south wall which appears to have been kicked to the point of punching through.

ARCHITECTURE - FLOOR

CONDITION: **POOR**

Pitted, cracked and uneven, the concrete and asphalt floors are in fair to poor condition. In fair to good condition, with only normal wear and tear, are the 2x and plywood floors.

The building users have noted problems with the asphalt flooring and the concern of rodents burrowing under the asphalt, creating uneven surfaces.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **GOOD**

Roof framing was generally not accessible for assessment. No obvious signs of structural distress were observed from the exterior.

The exterior wall is generally in good condition. The north wall lacks a regularly spaced system of studs. Although no distress was observed, a clear load path for out of plane loads is not apparent.

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1.5 CONDITION ASSESSMENT

A persistent faucet leak is degrading the slab at the west side of the building. This water makes its way out of the building by passing below/through the stud wall and then down the side of the foundation. The stud wall and sill plate was not visible but is likely rotting due to exposure to this moisture. The foundation has also experienced stone and mortar loss as a result. (Photo 0075-131).

The perimeter foundation is in good condition with the exception of the small area affected by the leaking faucet.

MECHANICAL - PLUMBING ASSESSMENT

CONDITION: **POOR**

The hand sink works, however it is not properly connected to water or waste water services. The faucet on the sink is connected to the adjacent hose bibb. The waste water from the sink drains into a steel drum which drains through a hose to an exterior wall and empties onto the ground just outside the building. The hose bibb is wrapped with insulation and heat trace to prevent freezing. The hose bibb is in working order. A floor drain should be located near the hose bibb but is not. No floor drains or waste piping were observed in the building.

MECHANICAL - HVAC ASSESSMENT

CONDITION: **FAIR**

The forced air furnace in the building appeared to be approximately 10-15 yrs old. Furnace is in working order. The furnace flue is vented through one of the building's original brick flues.

LPG is supplied to the furnace from a LPG tank located on the west side of the building. The tank appeared to be in working order although a slight scent of sulfur was detected near the tank valve body suggesting a minor gas leak. Additionally, the shutoff valve is located beneath a pile of debris.

LPG piping was routed below-grade from the LPG tank to a shut-off valve located on the west side of the building foundation.

The exhaust fan is in working order. The fan is mounted in the wall and is an axial style fan. There is a wooden enclosure on the outside of the building to possibly protect the fan from weather and to prevent outdoor air from entering the building when the fan is not in use. The enclosure has hinged doors with a latch to keep the doors closed.

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **POOR**

The electrical panel is not provided with a disconnecting means and contains more than six overcurrent protection devices, so a main circuit breaker in the panel would be required by code. The "high leg" is terminated on the "C" phase of the panel, not the "B" phase as required by code. Insulation color of several of the grounded conductors are not white or green as required by code. A number of the circuit breakers have multiple branch circuits terminated under a single circuit breaker landing screw.

Proper clearance in front of the panel is not maintained and leaning over a workbench is required to

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1.5 CONDITION ASSESSMENT

access the panel and associated overcurrent protection devices. The building electrical service and associated devices are not properly grounded.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **GOOD**

The existing interior lighting appears to meet the building's intended usage. The lamps and associated ballasts are older technology, and more energy efficient ballasts and lamps are currently available. The incandescent task lights are suited for their application.

This exterior flood light is appropriate for a utility building and does not detract from its historic character, although glare is significant. However the existing light fixture do not comply with "International Dark Sky Association Guidelines" for light cut off.

The existing interior and exterior lighting does not provide any emergency-type egress lighting.

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2.1 ULTIMATE TREATMENT AND USE

A historic, interior photograph (Photo 9193 from the Grand Canyon Museum Collection) shows the building in use as a blacksmith shop. The 1949 building inventory indicated the building was still a blacksmith shop and remains so today. Given, the important role of this building in the care of the park's equine patrol, the importance of the patrol's function within the park and the building's proximity to the South Rim, where visitation is greatest, it is likely that this building will remain in its current function for a long period of time. Rehabilitation is thus the appropriate treatment for the building.

The following is a discipline-by-discipline, component-by-component recommendation of treatment for the building.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **MODERATE**

Re-attach roofing to the purlins, and replace neoprene gaskets with new.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

Repair the broken rafter tail by scabbing on existing or new material that matches the original species, profile, and grade. The new material should be glued on and mechanically attached from the underside after the original material is squared off to accept a flush joint.

Deteriorated end grains should be cleaned and scored and epoxy consolidated to prevent further deterioration. The entire cupola should be scraped, sanded and repainted once all of the repairs are made.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **MODERATE**

Battens that are warped, split or broken should be replaced with comparable materials. Grade around the base of the wall should be reworked to slope away from the wall and around the building. Boards and battens on the east wall should be selectively replaced in kind. Subsequent studies should identify species, grade, texture, and grain of the existing wood so that appropriate replacements can be identified and utilized.

The entire building should be scraped, sanded and repainted once all of the repairs are made.

ARCHITECTURE - MASONRY

PRIORITY **SEVERE**

Both chimneys need to be re-built reusing existing good brick, new brick to replace spalled, or broken bricks and mortar designed to match the original mortar strength and visual characteristics. Further testing should be done in subsequent phases to determine the exact mortar mix. The flashing at the top of the chimney should be re-installed on top of a waterproof membrane to prevent moisture from entering the top of the bricks. The flashing at the chimney should be replaced in kind with galvanized sheet metal, step flashing set into the mortar joints with a minimum 8" coverage at all steps.

The site should be excavated to expose the top of the masonry foundation wall.

ARCHITECTURE - WINDOWS

PRIORITY **MODERATE**

All Windows (1)-(7)

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration. Missing casement sash, sills, and casings should be reconstructed to match the existing construction using in-kind replacement material. All of the window hardware should be cleaned and oiled where needed. Care should be taken when repainting windows not to paint the hardware.

Rehabilitate all windows including, but not limited to:

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2.1 TREATMENT RECOMMENDATIONS

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant where needed, followed by an epoxy filler where material has decomposed.
3. Stabilize the sash joints and muntins to make the units structurally sound.
4. Repaint with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Install weatherstripping at all window openings to prevent rattling and improve weatherproofing.
6. Reglaze each unit using original glass. Do not attempt to match the historic rippled glass, but rather allow the new glass to be identifiable at close range.

Window (5)

The exhaust fan is necessary for the work being done in this building, although it could be effectively relocated in order to restore this window.

Window (7)

The vertical boards on this window are likely in place to protect this assembly from horse kicks during shoeing. They should remain in place as long as this is an active blacksmith shop.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **MODERATE**

Re-grade away from the foundation, as poor drainage has been a destructive force on these doors. All of the door hardware should also be cleaned and oiled where needed. Due to the loose construction of this building, installing weatherstripping would gain little insulative benefit, but because the building is heated, weatherstripping should be installed on doors.

Door (A)

Maintain and repair when needed to match original. This is a high-use door that must remain in use to keep the building viable.

Doors (B) (C)

No action needed at this time. When re-grading has been completed, assess the integrity of these doors and repair as necessary.

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

No immediate treatment is needed on Interior Door (AA) at this time.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - STAIRS

PRIORITY **MODERATE**

Unless use of the mezzanine is restricted, the stairs, at a minimum, should have another handrail on the window side of the stairs and signage to warn users of the dangers.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

The damaged wall panel should be replaced in kind with a thicker sheet of plywood. If roof leaks have been controlled, the ceiling could be brushed (where the nails have rusted and stained the wood) and repainted.

ARCHITECTURE - FLOOR

PRIORITY **MODERATE**

If an even, level work surface is desired, the asphalt and concrete flooring would have to be removed and replaced with new slab-on-grade - leaving a curb/border around the 2x flooring and resetting the three steel rings to the north side of the 2x floor.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **LOW**

This building is listed as a Tier 2 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structures Report, meaning that, the current use of the building does not require ABAAS compliance. If some future office or other adaptive use of the building requires accessibility, the building should be rehabilitated to comply with ABAAS at that time.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **UNKNOWN**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

A ceiling access should be installed so that roof and ceiling framing can be investigated.

The north wall will likely require some reframing to provide a load path for out of plane loads.

The slab, wall and foundation at the leaking faucet will require repair. Replacement of the sill plate and the lower portion of the studs in the area will likely be required.

The wood framed portion of the floor is rotting due to direct contact with the soil. While this does not pose an immediate hazard to life safety, it will eventually become a serviceability concern. Considering the use of the space, replacement with a slab-on-grade is likely the best long term solution.

MECHANICAL - PLUMBING ASSESSMENT

PRIORITY **MODERATE**

The hand sink does not meet code. If the use of the hand sink is to continue, the waste should be connected to the sanitary sewer utility according to the 2003 International Plumbing Code, Section 702.1. Otherwise, a floor drain should be located near the existing hose bib.

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2.1 TREATMENT RECOMMENDATIONS

MECHANICAL - HVAC ASSESSMENT

PRIORITY **MODERATE**

Check the LPG tank and valve assembly for leaks and repair any found leaks. Paint gas piping to prohibit rust. Remove debris from area of propane tank to restore access to the shutoff valve.

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **SEVERE**

Replace the electrical panel to provide service disconnect, and terminate the high leg on the proper phase bus. Correct the color coding of the grounding conductors.

Provide grounding of the electrical system to be code compliant and to increase user safety.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Provide emergency lighting in the shop area and at the exit discharge from the building to comply with current code.

Replace exterior light fixture with a fixture that complies with the "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04).

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2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance and Warehouse Complex overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building and the lack of historic documentation, the Machine Shop will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Some elements clearly need *reconstruction*, periodically, such as the double barn door which suffers abuse by the livestock. And in general, the building requires *rehabilitation*, to address the existing code-deficient conditions (electrical service, fire safety, mechanical/plumbing etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building. All of these changes, when completed, will require careful review by, and consultation with, Park Service specialists and the SHPO.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

Like other utility buildings in the Historic Maintenance and Warehouse Complex this will likely remain a working Blacksmith Shop where the occupants will, by necessity, be able-bodied. ABAAS modifications are improbable. However, building code compliance will result in a few minor alterations to the existing building in the form of significant new electrical wiring, mechanical ventilation, and adequate plumbing. None of these will actually cause an adverse effect on the character-defining features if installed with care.

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Bldg SRB-0075 – ca 1935
National Park Service Grand Canyon Museum Collection (Photo # 07403)



Bldg SRB-0075 – 1935
National Park Service Grand Canyon Museum Collection (Photo # 09163)

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Bldg SRB-0075 – date unknown
National Park Service Grand Canyon Museum Collection (Photo # 09193)



Looking South at Maintenance Area – Building SRB-0080 in distance
National Park Service Grand Canyon Museum Collection (Photo # 00906)

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West Façade Exterior Overview 0075 - 101

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North Façade Exterior Overview 0075 - 102

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East Façade Exterior Overview 0075 - 103

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South Façade Exterior Overview 0075 - 104

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Corrugated, Galvanized Sheet Metal Roofing 0075-105



Louvered Cupola on Corrugated Sheet Metal Roofing 0075-106

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Flashing at Chimneys with a Sheet Metal Cricket 0075-107



Wood Framed Louver Sections on Exterior of Cupola 0075-108

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Exposed Rafter Tails on East Elevation 0075-109



Louvered Cupola 0075-110

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Vertical Board and Batten Siding 0075-111



Board and Batten Siding on North Elevation 0075-112

SRB-0075 BLACKSMITH SHOP

1928



24"x24" Chimney with 12"x12" Un-lined Flue 0075-113



16"x16" Chimney with 8" Clay Flue Liner 0075-114

SRB-0075 BLACKSMITH SHOP

1928



Galvanized Sheet Metal Step Flashing 0075-115



North Window (1) 0075-116

SRB-0075 BLACKSMITH SHOP

1928



North Window (2) 0075-117



West Window (3) 0075-118

SRB-0075 BLACKSMITH SHOP

1928



West Window (4) 0075-119



West Window (5) 0075-120

SRB-0075 BLACKSMITH SHOP

1928



West Window (5) at Angle 0075-121



South Window (6) 0075-122

SRB-0075 BLACKSMITH SHOP

1928



South Window (7) 0075-123



Exterior Door (A) 0075-124

SRB-0075 BLACKSMITH SHOP

1928



Exterior Door (B) 0075-125



Exterior Door (C) 0075-126

SRB-0075 BLACKSMITH SHOP

1928



North wall: Typical Roof and Wall Framing 0075-130



West Wall: Perimeter Foundation. Note Water Damage 0075-131

SRB-0075 BLACKSMITH SHOP

1928



Hand Sink Drain on West 0075-132



Propane Tank on West 0075-133

SRB-0075 BLACKSMITH SHOP

1928



Propane Shut-off Valve 0075-134



Exhaust Fan Exterior 0075-135

SRB-0075 BLACKSMITH SHOP

1928



Exterior Fixture 0075-136



Floodlight 0075-137

SRB-0075 BLACKSMITH SHOP

1928



Steel Stair 0075-201



Plywood Ceiling 0075-202

SRB-0075 BLACKSMITH SHOP

1928



Plywood Wall Finish 0075-203



Sheet Metal Wall Protection 0075-204

SRB-0075 BLACKSMITH SHOP

1928



Asphalt Overlaying Conc. Floor; 2x12 Plank Floor 0075-205



Sink 0075-206

SRB-0075 BLACKSMITH SHOP

1928



Interior of Door (A) 0075-207



Interior of Door (B) 0075-208

SRB-0075 BLACKSMITH SHOP

1928



Interior Door (AA) 0075-209



Threshold at Entry Door 0075-210

SRB-0075 BLACKSMITH SHOP

1928



6" Step at Main Entry Door 0075-211



Asphalt Overlay at Concrete Slab Floor 0075-212

SRB-0075 BLACKSMITH SHOP

1928



Surface and Pendant Light Fixtures 0075-213



Cold Water Hand Sink 0075-214

SRB-0075 BLACKSMITH SHOP

1928



Propane Forced Air Furnace 0075-215



Exhaust Fan Interior 0075-216

SRB-0075 BLACKSMITH SHOP

1928



Panel 0075-217



Electrical Service Taps 0075-218

SRB-0075 BLACKSMITH SHOP

1928



Surface-mounted Fluorescents 0075-219



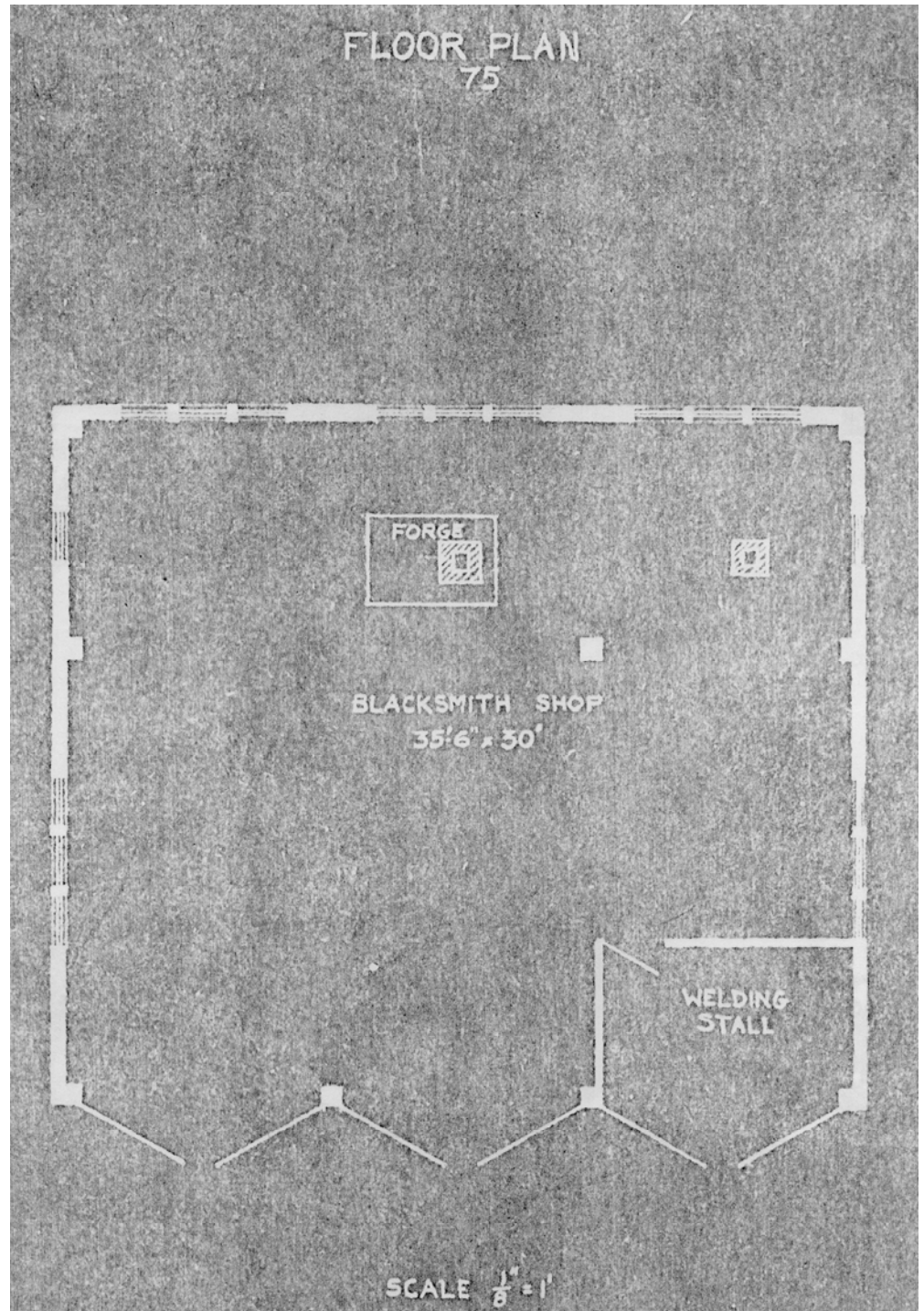
Surface-mounted Fluorescents 0075-220

SRB-0075 BLACKSMITH SHOP

1928

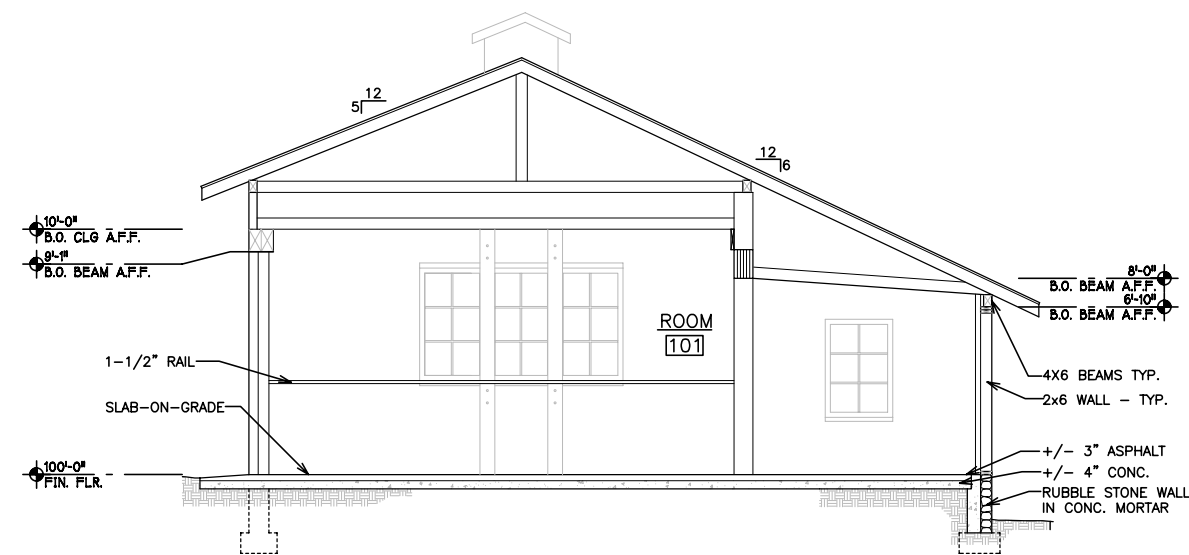


Pendant Fixture 0075-221

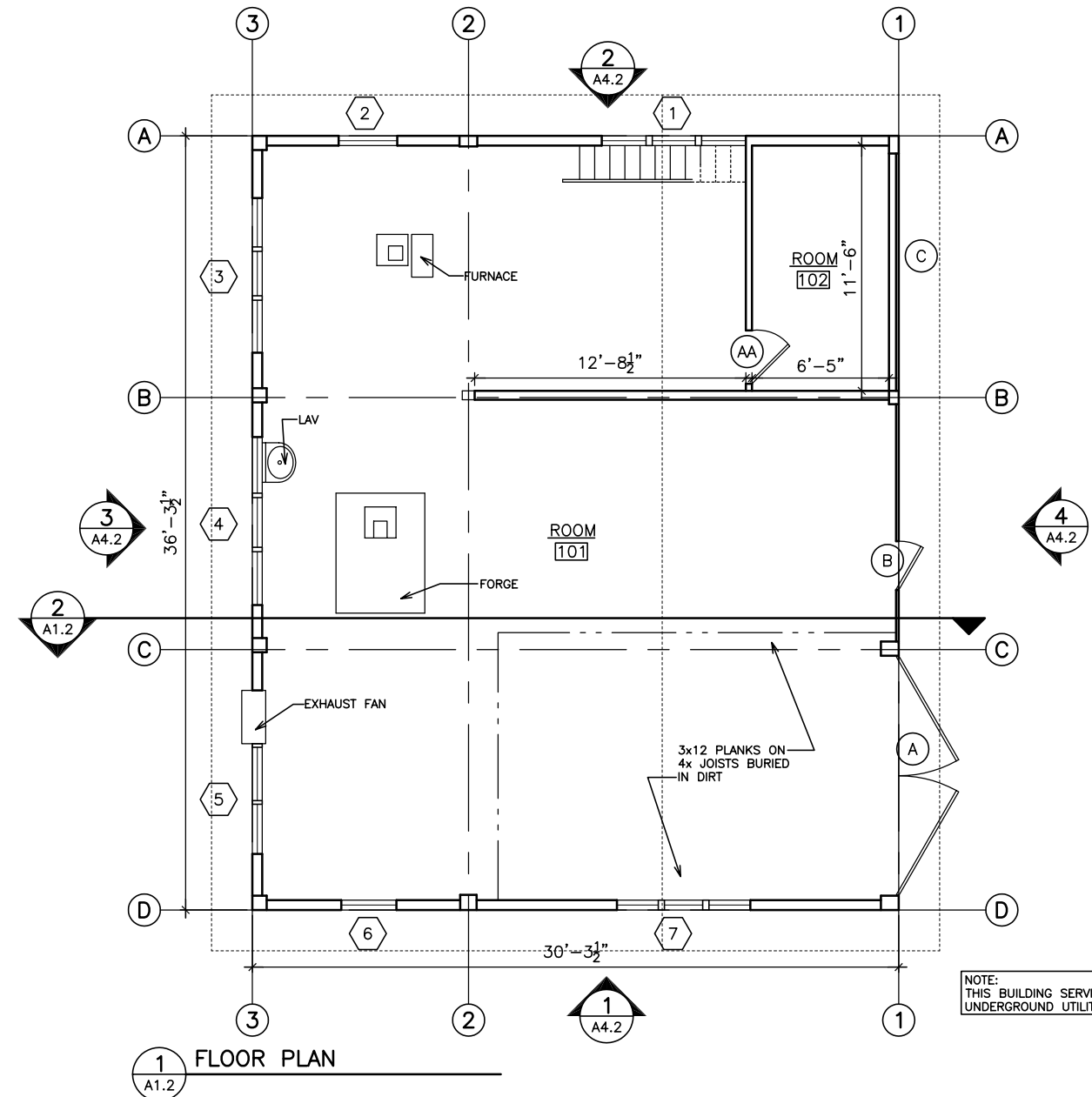


1949 Survey Plan – Building 75
Grand Canyon National Park Office of Cultural Resources

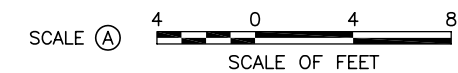
NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



2 SECTION
A1.2



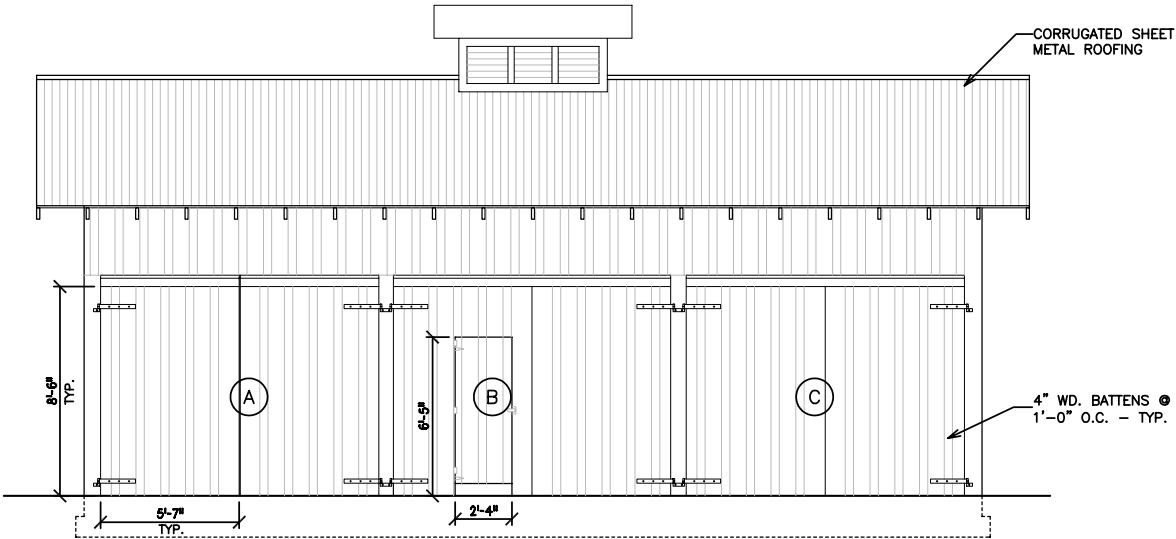
1 FLOOR PLAN
A1.2



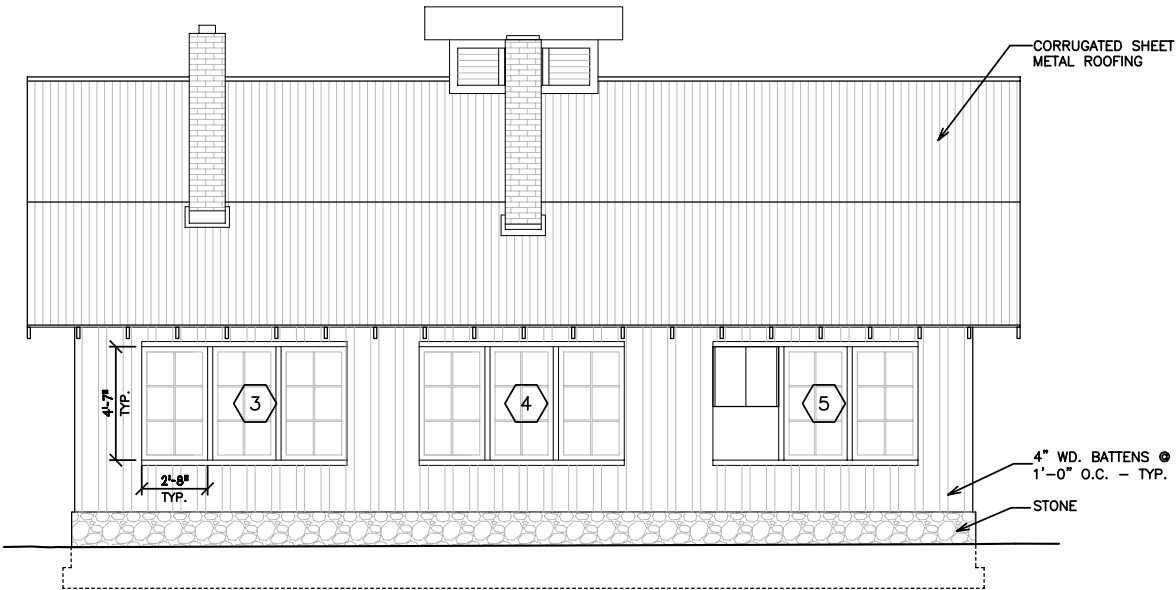
EXISTING CONDITIONS - 2006

DESIGNED: BAPD BSH TECH. REVIEW: DATE: 04/13/07	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0075 Blacksmith Shop GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25016 PMIS/PKG NO. 084236 SHEET 1 OF 2
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NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION

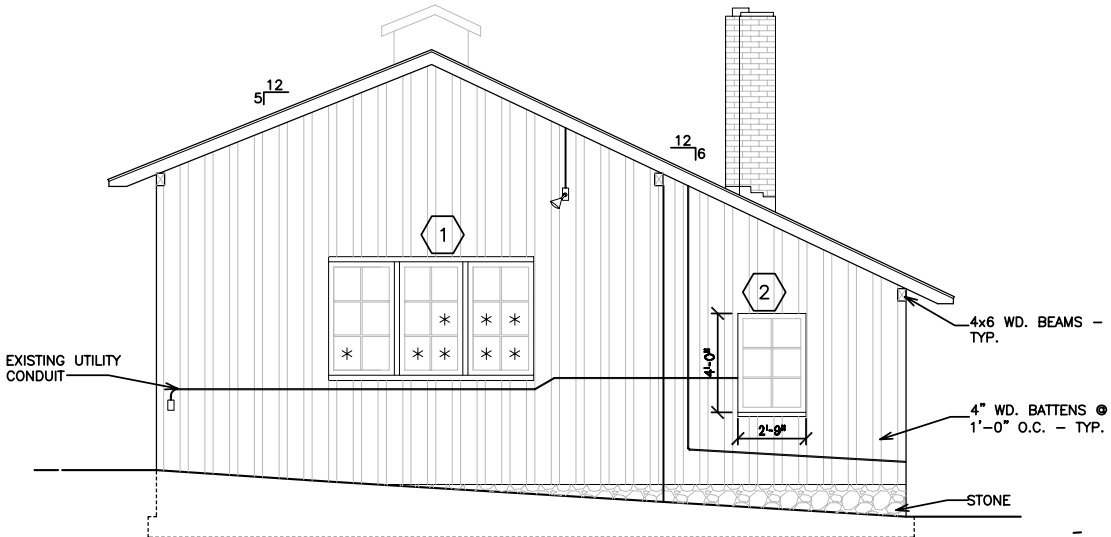


4 EAST ELEVATION
A4.2

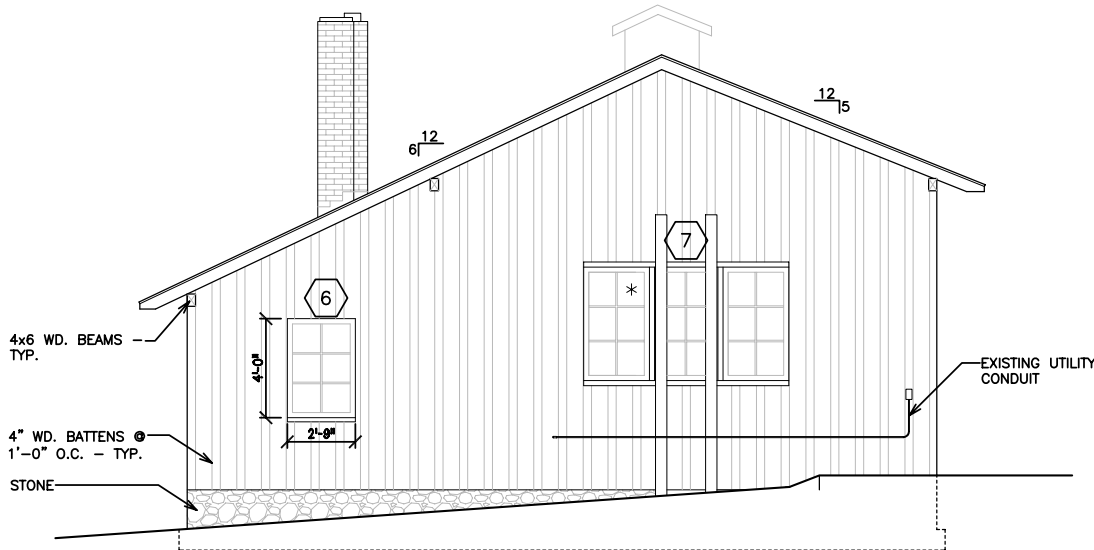


3 WEST ELEVATION
A4.2

KEY NOTES:
* HISTORIC RIPPLE GLASS
X BROKEN OR MISSING GLASS



2 NORTH ELEVATION
A4.2



1 SOUTH ELEVATION
A4.2

SCALE (A) 4 0 4 8
SCALE OF FEET

EXISTING CONDITIONS — 2006

DESIGNED: BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0075 Blacksmith Shop GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25016
TECH. REVIEW:			PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

Blacksmith Shop



Identification:

Preferred Blacksmith Shop

Structure

Name:

Structure SRB0075

Number:

Other

	Other Structure Name(s)
1.	Sunset Drive Blacksmith Shop
2.	NPS Machine Shop
3.	Park Service Machine Shop

Structure

Name(s):

Park: Grand Canyon National Park

Historic

District:

	Historic District
1.	Grand Canyon Village

Structure Arizona

State:

Structure Coconino

County:

Region: Intermountain

Cluster: Colorado Plateau

Administrative Grand Canyon National Park

Unit:

LCS ID: 055413

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Entered - Documented

Register

Status:

National Register Date: 02/18/1997

National Historic Landmark?: Yes

National Historic Landmark Date: 02/18/1997

Significance Level: Contributing

Short Significance Description: Orig forge & welding stall const by CCC in NPS utility area following 1924 Plan prep by NPS Landscape Eng Div. Example of NPS Rustic for utility bldg. Orig CCC sign present. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long Significance Description: The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the villages major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and

helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1928	AD	1928	AD	NPS	Other

Function and Use:

Primary Function: Maintenance Facility

Historic Function:

Primary Function:

Primary Function: Maintenance Facility

Current Use:

Structure Contains: No

Museum Collections?:

Other Functions or Uses:

Other Function(s) or Use(s)	Historic or Current
No records.	

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

1000

Material(s):

	Structural Component(s)	Material(s)
1.	Foundation	Stone
2.	Roof	Metal
3.	Walls	Weatherboard
4.	Framing	Wood
5.	Other	Brick

Short Physical Description:

1 story wood frame structure 25'x40'. Asymmetrical gable roof with exposed rafters, lookouts, corrugated sheet steel roofing. 3 pair 10'wide double doors on metal strap hinges. Board & batten siding, Wood casement windows. Cupola vent. Stone foundation walls, concrete slab, brick chimneys.

Long Physical Description:

1 story wood frame structure 25'x40'. Asymmetrical gable roof with exposed rafters, lookouts, corrugated sheet steel roofing. 3 pair 10'wide double doors on metal strap hinges. Board & batten siding, Wood casement windows. Cupola vent. Stone foundation walls, concrete slab, brick chimneys.

Condition and Impacts:

Latest Condition: Fair

Latest Year Assessed: 2006

Conditions:	Condition	Year Assessed
1.	Fair	1996
2.	Fair	2006

Impact Level: Moderate

Primary Impact: Weather

Other Impacts:	Other Impact Type
1.	Biological Degradation (Mold)
2.	Inappropriate or Inadequate Maintenance Techniques
3.	Structural Deterioration
4.	Park Operations

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Management Category Date: 08/08/2006

Management - Treatment:

Latest Est. 0

Interim Treatment Cost:

Latest Ultimate Treatment: Rehabilitation

Interim Treatment:	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General	08/21/1995	National Park	Yes	No	

		Management Plan		Service		
		UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	134000	08/01/1995		

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility: National Park Service

FMSS Number: 33312

Management - Description:

Short Management Text: GMP specified adaptive reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/SF). Revise RMP to spec pres treatment.

Long Management Text: Repair leaking pipe on W. elevation. Wood siding buried in asphalt on E. elevation; wood deteriorating. (07/2006)

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 75		2
3.	Other Structure Number	CB52		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good

Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

		Graphic	
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	Graphic	Caption	Date/Year	Sequence
1.		SRB0075, Blacksmith Shop	08/2006	1
2.		SRB0075, Blacksmith Shop	08/2006	2
3.		SRB0075, Blacksmith Shop	08/2006	3

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0078 PARK SERVICE WAREHOUSE

1926

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

The Park Service Warehouse was originally constructed as a general use warehouse in 1926 (National Historic Landmark Nomination, 1997). The 1949 building inventory on file at the Facility Management Offices of Cultural Resources estimates a construction cost for the project of \$7,500. The building featured loading docks on both long sides, and a single office in the southwest corner.

Very little archival information could be found related to this building. There are no construction drawings and few photos (only the 1949 survey drawings). Two historic photographs taken in the 1930s illustrate a building that looks much as it does today. (Photos 02017 and 07688 from the Grand Canyon Museum Collection. Photo 02017 was taken after the jail was completed in 1937. The vehicles in 07688 suggest the photo was taken before 1940.) However, on visual inspection, the east loading dock appears to have been enclosed sometime between 1926 and 1949. Stairs to the second floor were relocated after 1949.

OTHER DOCUMENTED WORK ON THE BUILDING

<u>DATE</u>	<u>WORK DESCRIBED</u>	<u>SOURCE OF INFORMATION</u>
1981	Freight elevator failed	Memo in files of Park Office of Cultural Resources' building inventory file

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
Unknown	Extended roof over east and west loading docks
Unknown	Various finishes added to the first floor walls and ceiling
Unknown	Fluorescent light fixtures installed at the first floor level
1926-1949	Enclosed east loading dock
Post-1949	Relocated stairs to second floor
Post-1949	Finishes/door at second floor central room removed
Post-1949	Office constructed in southeast corner of first floor

1.3 PHYSICAL DESCRIPTION

The Park Service Warehouse is a post and beam wood structure with a simple gable roof running north to south. The building features a corrugated sheet metal roof, vertical wood siding, and brick chimneys. A long covered loading dock is located along the entire west side of the building, and a partially enclosed covered loading dock is located along the east side of the building. Located on a gently sloping (east-to-west) site, the first floor is approximately 10" above grade on the east and approximately 3'-6" above grade on the west. Large, double, barn-type doors on the east and west elevations speak to the building's warehouse function.

The interior lends itself well to its current use as a boat shop, with a large columned main floor space, two smaller storage rooms to the south, and a large columned second floor space for storage. The basement has a considerably reduced footprint, and is also a single open space with two columns.

The interiors are generally finished in unpainted gypsum board (date unknown) on the first floor, and are unfinished on the second floor and basement. The casework is utilitarian, and wood trim members are plain.

The following section is a discipline-by-discipline, component-by-component description of the building.

SRB-0078 PARK SERVICE WAREHOUSE

1926

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roofing appears to be original and consists of silver painted, corrugated sheet metal roofing attached to solid 1x10 and 1x12 sheathing at all eaves. Inside, the roof sheathing is 1x12s at 24" o.c.

Roofing is attached with neoprene gasketed roofing screws. Roofing is also attached in places with roofing nails. There is no ridge cap at the ridge of the gable - rather, the east roofing panels are folded over the top and lap over the west panels by approximately 4". There are no gutters or downspouts. The only roof flashing consists of edge flashing and drip edge at a covered loading dock on the west side.

Flashing at the chimneys consists of stepped, painted sheet metal flashing set into the masonry joints. There is a series of steel brackets straddling the ridge at 6'-10' intervals standing 4-5" above the ridge and painted silver. (Photos 0078-105, 0078-106, 0078-107, 0078-108)

ARCHITECTURE - OVERHANGS & SOFFITS

Overhangs at the north and south ends of the building are approximately 24" deep with no soffit. A 1x4 trim board is applied to the top of the outside rafter. A series of brackets (made up of 4x6 top members and 2x6 vertical and diagonal members) support the outer rafters. A roof extension at the east and west sides of the building supported by a post and beam structure, covers the loading docks. This covered roof dock is a continuation of the roof, but is constructed of "scabbed on" 2x6 rafters sistered to the main roof rafters. The rafters are bird's-mouthed onto a beam made up of (2) stacked 4x6s. On the west side, at the main loading door where the roof is notched out, there is a 1x12 fascia attached to the face of the beam. (Photos 0078-109, 0078-111, 0078-112)

ARCHITECTURE - EXTERIOR WALL FINISHES

Exterior walls consist of board and batten siding at all walls below the gable ends of the roof. Boards are typically 1x12 with 1x4 battens at the vertical joints. The top of the boards are trimmed with a 1x12 fascia on the east and west sides that is notched around each rafter. The battens butt tightly against the underside of the fascia. All of the boards have 1 1/2" diameter holes (1-2 holes in each vertical board) that have been drilled to allow loose fiberglass insulation to be blown into the 2x4 wood stud cavity at the first floor. Many of those holes have been plugged with a 1 3/4" diameter plastic plug (solid grommet). The 2x4 frame wall cavities are filled (at least partially) with blown-in fiberglass insulation.

The gable ends at the north and south are covered with horizontal, rough sawn 1x8 to 1x10 wood lap siding. The bottom of the horizontal siding is a continuous, rough sawn 2x6. (Photos 0078-113, 0078-114, 0078-115).

ARCHITECTURE - MASONRY

There are (3) brick chimneys that extend above the roof. Two extend 4'-0" above the roof and the other only 2'-0". Each chimney is flashed with stepped sheet metal flashing. The shorter chimney on the east side of the roof does not appear in one of the historic photographs, indicating that it was added at a later date. The chimney is noted in the 1949 survey drawing.

The foundation on the south, west, and part of the north sides consists of a random, rubble sandstone with mortar, at least in the top courses. The foundation on the east half of the north side is formed concrete and what is visible of the east foundation is also formed concrete. The foundations on the north and south sides are painted brown. The rest of the foundation is un-painted. The west loading dock is supported by un-mortared concrete masonry units (cmu) (see "Arch - Loading Docks"). (Photos 0078-107, 0078-116, 0078-143).

SRB-0078 PARK SERVICE WAREHOUSE

1926

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - LOADING DOCKS

On the east and west sides of the building there are loading docks that extend the length of the building. The docks are constructed of 2x10 decking on 2x8 joists with a 2x12 trim board at the leading edge. The outside edge is supported by 4x12 "beam" laid flat and set loosely on top of loosely stacked 8x16 concrete masonry units at approximately 8'-0" o.c.. A full width set of wood framed steps leads down from the north and south ends of the west dock. The north steps are constructed of 2x12 treads supported by (2) notched 2x12 stringers. The south steps are made up of (2) 2x6 treads and (4) notched stringers. There is a single handrail consisting of a 1x4 rail nailed flat to the top of a 4x4 post, and attached to the end column on the dock. The roof over each dock is supported by a series of 4x6 columns attached at 12'-0" o.c. to the top of the dock decking. Approximately 2/3 of the east dock has been enclosed with board and batten walls to match the rest of the building.

A set of wood steps leads down from the north end of the east dock. These stairs consist of a single notched center stringer and a closed stringer on each side with treads made from a 2x4 and a 2x8. The railing on each side is a 2x4 nailed flat to the top of (2) 4x4 posts bolted to the face of the closed stringers.

Another deck at the southeast corner of the building is constructed of 2x6 to 2x8 decking nailed to 2x6 joists and supported off the wall by (2) 8x8 posts. A short set of steps leads down to grade, made up of (2) 2x6 treads on (3) notched stringers. (Photos 0078-117, 0078-118, 0078-119, 0078-142)

ARCHITECTURE - TRIM & MILLWORK

There is one piece of exterior millwork on this building, and it consists of a small, wall-mounted writing shelf with a pull-out drawer at the south end of the west loading dock. The drawer pull is a bent loop shape and is not original. A ghost of the original pull is still visible. The origin and purpose of the box is unknown. (Photo 0078-120)

ARCHITECTURE - WINDOWS

The majority of the windows on this building are double-hung style wood units, in pairs. There are also three fixed wood windows and three wood casement assemblies. All of the units feature wood muntins. See Existing Conditions drawings (113-25017) for window locations and designations. Flashing has been applied over the windows at the north and south ends of the building as well as at the top of the vertical board and batten siding on the south elevation. All flashing is painted brown. Flashing over the windows is applied over the boards and under the battens and does not extend over the header trim.

Window (1)

This is the only single window unit on the building, and it is a high outward swinging wood casement window with decorative, surface-mounted hinges and a turn latch. It features 4" top rail and stiles, with a 5" bottom rail. It is cased in battens from the siding. This unit remains, but has been boarded up on the interior with unfinished plywood. The purpose of its high installation and original use is an enigma. (Photo 0078-121)

Window (2)

This is a fixed wood transom with five units in a horizontal assembly. They feature 2" top and bottom rails and 3/8" vertical stiles (visible) with glazing putty making them appear 1/4" wider to each side with glass. Each unit is divided into two lites with a single vertical muntin. Between each unit is a 3" structural mullion. The 2" sill is mirrored in the header, creating a top and bottom frame. (Photos 0078-122, 0078-123, 0078-207)

SRB-0078 PARK SERVICE WAREHOUSE

1926

1.3 PHYSICAL DESCRIPTION

Window (3) - (4) - (6)

This unit is typical for the building - a double window assembly, featuring two double-hung wood units with ogee-shaped stile extensions on the upper sash. The frames are 1 3/4" with a 3" bottom rail and 1" meeting rail. A 1 1/4" x 2" sill has been attached to the face of the siding, and 4" flat wood trim surrounds the unit on four sides. A 5 1/2" structural mullion divides the two units. Painted metal flashing extends from under the battens over the top horizontal trim. (Photos 0078-124, 0078-208, 0078-209, 0078-125, 0078-210, 0078-211, 0078-127)

Window (5) - (11)

This is a second floor level double unit, with an inward-swinging, six-lite wood casement window on one half and wood louvers on the other half. A 2" wood frame edge is visible on the sides and top, with a metal flashing-covered sill on the bottom. There are ten equally-spaced slats in the louver assembly. (Photo 0078-126, 0078-132)

Window (7)

This window is identical to Window (2). One unit (south) remains exposed to the loading dock and the rest are in the added-on storage space. Thin frame aluminum storm windows are screwed to the interior. (Photos 0078-212, 0078-213)

Window (8)

A unique window for this building due to the fact that it is located on a loading dock enclosed after the building was originally constructed, this is a six-lite, fixed wood unit with 3" top rails and stiles and a 1 3/4" bottom rail. Siding covers the vertical stiles making them appear to have different widths. A 2" board has been attached to the top rail, and a 3/4" wood sill frames the bottom. (Photo 0078-129)

Window (9) - (12)

These units are identical to Window (3). A modern, double-hung, thin frame, single-glazed, aluminum storm window is screwed to the interior of each. (Photos 0078-130, 0078-214, 0078-131, 0078-215, 0078-133, 0078-216)

ARCHITECTURE - EXTERIOR DOORS

This building features a variety of exterior wood doors ranging in age from 80 years to approximately 15 years - generally painted dark brown. See Existing Conditions drawings (113-25017) for door locations.

Exterior Door (A)

This wood, outward-swinging door features a square window in the top panel, with 4 glass lites of equal size in rows of 2. Additionally, three raised horizontal panels are located under the window, with the historic dark bronze knob at the stile. It features a skeleton keyhole and a padlock strap. Two five-segment hinges with decorative balls at each end are located 6 1/2" from the top (at the centerline) and 11 1/2" from the bottom. A 2" wood sill frames the bottom and 4" flat battens serve as casing on the sides and the top. (Photos 0078-134, 0078-217)

Exterior Door (B)

These out-swinging double doors feature diagonal cross-braces on the exterior and are constructed as a 2 1/2" thick sandwich of wood boards and framing members. An historic photograph (07688) and 1949

SRB-0078 PARK SERVICE WAREHOUSE

1926

1.3 PHYSICAL DESCRIPTION

survey plans indicate this was a rolling double door originally and has been modified. Both leaves feature horizontal windows with 2 1/2" rails/stiles on the top 1/5 of the door with two glass lites. Three heavy steel three-segment hinges are located 7" from the bottom (to the centerline) and 3" and 26" from the top. The doors are fitted with brushed steel utility handles (modern) and padlock straps. (Photos 0078-135, 0078-218)

Exterior Door (C)

This single door is identical to the doors at (B), with the addition of a pneumatic closer on the exterior. Like Door (B), this was also a large rolling door originally. (Photo 0078-136)

Exterior Door (D)

This door is identical to (A). A previous exterior screen door is evident from remaining hinge marks. This door features a modern brushed chrome ball knob and deadbolt at the stile. (Photos 0078-137, 0078-220)

Exterior Door (E)

This is a flat hollow-core modern door with a padlock strap and a modern brushed chrome ball knob. It features 5" casing. Three modern five-segment hinges support the door. (Photos 0078-138, 0078-221)

Exterior Door (F)

This rolling, wood, double door is 2 3/4" thick, mounted on historic "barn door" rolling hardware labeled "Safety Door Hanger Co./Ashland, Ohio - World's Best." The doors both have diagonal cross braces and a horizontal window on the top fifth of the door, similar to Door (A). The doors are fully operable and secured with a cotter pin on the interior. (Photos 0078-139, 0078-156, 0078-157, 0078-158, 0078-222)

Exterior Door (G)

This is a single recessed panel wood door with a vent cut into the top. This unit appears to be an interior door adapted to an exterior application. An aluminum vent has been installed into a newly-cut opening. The door is secured with a padlock strap and is surrounded with a thin, flat masonite casing, 5 1/2" wide. (Photos 0078-140, 0078-223)

ARCHITECTURE - INTERIOR DOORS

There are only two interior doors in this building. One is a standard upright door, and the other is located in the floor on the north end of Room 101, as shown in Existing Conditions drawings (113-25017). A third door was originally an exterior door.

Interior Door (AA) -

This is a wood "Dutch" door fashioned from a previously intact single leaf door with five horizontal raised panels of equal size. The original bronze ball knob and skeleton keyhole are located on the bottom leaf. The raised panel that was bisected when the door was sawn in half is extant on the lower half and is gone on the top half. A slide bolt keeps the leaves together and secures the door. This unit has a wood threshold. (Photo 0078-224)

Interior Door (BB)

A wood trap door/hatch is located in the wood plank floor on the north side of the main space in the building. This door blends with the flooring and conceals the basement stairs. The door operates on two large triangular, metal strap hinges and opens with a metal pull on the plank surface. (Photos 0078-225, 0078-226, 0078-227)

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1.3 PHYSICAL DESCRIPTION

Interior Door (CC)

This door was originally an exterior loading dock door and is identical to Exterior Door (F).

ARCHITECTURE - STAIRS

Running north to south, a steep stairway accesses the second floor at the south end of the interior. It is constructed of unfinished 1x material with closed risers and round handrails that continue up to a point where the loft access door blocks their continuous run. (12 risers @ +/-9" and 11 treads @ +/-10"). The top riser is approximately 5". A "guardrail" at the top of the stairs is comprised of 2 x 4s supported at 5'-0" o.c. The 1949 survey drawings of this building indicate stairs to the second floor in a similar location, but oriented west to east. Ceiling finishes (possibly installed after the original construction) obscure original framing in this area, making it difficult to confirm a previous stairway location. (Photos 0078-228, 0078-229)

At the north end of the 1st floor there is a wood door/hatch that accesses the basement stairs. These stairs are constructed of 2x material (14 risers @ +/-9 1/4" and 13 treads @ +/-9 1/2") and have an open 2x railing on the open side. The top riser is approximately 6". The 1949 survey drawings indicate the presence of a chute, between the stairway and the basement's north foundation wall but no chute exists today and the stair is tucked up to the wall. (Photos 0078-200, 0078-201)

ARCHITECTURE - WALL/CEILING FINISHES

The wall and ceiling finishes in Room 201 are the interior side of the roofing, roof sheathing and stud walls discussed in the exterior materials section of this report. (Photo 0078-247)

Approximately 80% of the first floor ceiling is 1/2" gypsum board (unpainted, with a mustard-colored paper), 15% is painted hardboard and 5% (in the northwest corner) is painted 1x5. At one location, the ceiling material reads: "Sheetrock; The Fireproof; recessed edge; 1/2." (0078-231, 0078-232, 0078-244, 0078-246, 0078-248, 0078-249, 0078-250)

Wall finishes at the first floor are approximately 60% 1/2" gypsum board (unpainted and installed over heavy building paper at the perimeter), 5% painted, horizontally-oriented 1x5 (in the northwest corner), 5% painted hardboard, 15% taped and painted gypsum board, 5% modern wood paneling and 10% unfinished plywood. Of these finishes, it appears the 1x and gypsum board are the earliest vintage, with others installed as protective or "upgrade" finishes. (Photos 0078-230, 0078-232, 0078-233, 0078-234)

Basement walls are the concrete foundation walls that define the partial basement at the north end of the building. They are discussed under the structural section of this report. There is no basement ceiling. It is open floor joist with kraft-backed, batt insulation. (Photos 0078-200, 0078-201)

ARCHITECTURE - TRIM & MILLWORK

On the second floor, there is a central "room" demarked by open studs, an open 2x ceiling, two wood plywood shelves and a door frame that may have, at one time, provided locked or special storage in the building. The 1949 survey drawings of this building indicate this room with two doors - one on the north side and one on the south. Of these, only the north frame is extant. The south wall, which is ghosted on the floor, has been removed completely. (Photo 0078-251)

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1.3 PHYSICAL DESCRIPTION

There is also built-in shelving throughout the building, constructed of unfinished, dimensional lumber and wood planking. No shelving is indicated on the original drawings. (Photos 0078-232, 0078-244)

ARCHITECTURE - FLOOR

Flooring at the second floor level is constructed of unfinished 1x10 wood planks with 2" strips of sheet metal nailed continuously at the joints, at the north end. (Perhaps to provide an easier surface on which to slide stored material or to prevent edge splintering of the planks.) (Photos 0078-2523, 0078-255)

At the first floor, the flooring is 65% unfinished 1x10 wood planks, 5% - 2' wide sheet metal panels over plank flooring, (presumably to protect the floor from possible spark dangers from grinding wheel activities in this area), 5% unfinished 1x3 tongue and groove wood flooring, 10% resilient sheet flooring and 15% carpet. (Photos 0078-206, 0078-253, 0078-235, 0078-236, 0078-237)

Basement flooring is unfinished 1x12 wood plank. (Photos 0078-202, 0078-204)

ARCHITECTURE - INTERIOR WINDOWS

There is one large, interior fixed wood window (between Rooms 101 and 102) with 2" top rail and stiles and a 3 1/2" bottom rail. The wood framed opening is visible - creating a 2" frame around the unit on the north side. On the south side, the interior wall is more finished, and a 3 1/4" flat trim surrounds the unit. Both sides are painted. (Photo 0078-238)

ARCHITECTURE - ELEVATORS

A 5'x6' wood platform, freight elevator is in a collapsed state at the bottom of the 3-story wood-framed shaft that partially encloses it. The shaft is constructed of dimensional lumber and is partially sheathed, at all three levels, by 1x wood members, laid up horizontally. It is a simple traction elevator that rides on a steel rail. The hoist mechanisms, 240V motor and gears are all in situ at the second floor level. (Photos 0078-203, 0078-254, 0078-261)

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The ground surface immediately adjacent to the building on the east side (that which is closest to grade) is unconsolidated gravel. Entry doors are sliders (not accessible) and the route to them requires stepping up several inches from the gravel surface. (Photos 0078-103, 0078-161)

Once inside, the main area of the first floor is accessible but doors to the storage rooms at the south end are either too narrow or have thresholds that exceed ABAAS standards. (Photos 0078-236, 0078-

STRUCTURAL - SIZES / SPANS / SUPPORT

FIRST FLOOR FRAMING AND FOUNDATION

First floor framing was generally inaccessible due to floor finishes and lack of crawl space access.

Floor framing was visible in the full height basement at the north end of the building. The floor is sheathed with 1x straight boards. Floor joists are 2"x11-1/2" at 18"+/- . Floor joists are supported by the foundation at the perimeter wall and around the basement and by two interior girder lines similar to that

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1.3 PHYSICAL DESCRIPTION

seen at the second floor. The girders are 8"x8," span a maximum of 13', and rest on 8"x8" wood columns. (See Photo 0078-200)

Loading dock floors are framed with 2x decking over 2"x7-1/2" joists at 18". The joists at both loading docks are supported by a 2x4 ledger nailed through the siding into the original perimeter stud wall. At the east loading dock, the joists bear on a wood footing at the perimeter. At the west loading dock, the joists bear on a 3"x11-1/2" wood girder oriented in the flat direction. This girder is supported by 12" dry stacked concrete masonry unit piers at about 7'-6" on-center. These piers do not align with the loading dock columns above. (See Photo 0078-143 to 0078-145)

The basement floor consists of 1x straight boards over 2x joists. The joists appear to sit directly on the soil and were submerged in water in several locations. (See Photo 0078-204)

The perimeter foundation consists of rubble stone set in concrete. The foundation along the east side of the building is not visible. The foundation walls around the basement appear to be concrete. (See Photo 0078-143 and 0078-200)

Interior foundations were not accessible for assessment.

SECOND FLOOR FRAMING

Second floor framing was generally not visible due to floor and ceiling finishes.

Where observable, floor joists are 2"x9-1/2" at 18" spanning about 12' from exterior walls to two interior girder lines. Floor sheathing is 1x straight boards. Ceiling sheathing is gypsum board. (See Photo 0078-241)

Interior girders are a built up dropped girder composed of four 2"x7-1/2" joists. These girders span about 12' to 8"x8" wood columns which carry through the floor to support the roof. The girders are supported by an L6x4 seat angle bolted to the sides of the columns. (See Photo 0078-240)

At the exterior wall, the joists are side nailed to the studs which carry through to the roof. There also appears to be 2x flat blocking between studs directly below the joists.

Headers at wall openings were generally not visible. Where visible the header appeared to be a double 2"x9-1/2" beam.

EXTERIOR WALL CONSTRUCTION

Exterior walls are typically 2"x5-3/4" studs at 18" sheathed with 1x vertical board & battens on the exterior and gypsum board or 1x horizontal boards on the interior. This sheathing acts as the lateral force resisting system for the building. Studs are balloon framed past the second floor to bottom of rafter elevation. The wall is topped with a double 2x plate. The sill plate was not visible.

Exterior sheathing changes to 1x horizontal sheathing at gable ends. The interior is unsheathed. The sheathing is supported by studs of the same size and spacing as typical framing from the typical double top plate up to the bottom of roof. (See Photo 0078-255)

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1.3 PHYSICAL DESCRIPTION

Portions of the east loading dock have been enclosed with 1x vertical sheathing supported by 2x4s running horizontally between columns.

ROOF FRAMING

The gable roof consists of corrugated sheet metal over 1x12 skip sheathing. (See Photo 0078-256) Rafters are 2" x 5-3/4" at 18"+/-. Rafters are end butted at the roof peak and are tied together with a 1x gusset each side. (See Photo 0078-257) Rafters span about 6' from the ridge to an interior girder line each side of the ridge. (See Photo 0078-258) Rafters are spliced over the girders and continue down slope to bear on the exterior wall. (See Photo 0078-259) Span is about 12'. There is no ceiling in the second floor space. There are no ties across the ceiling to resist rafter thrusts except at column lines.

2x6 surfaced rafters are spliced to the ends of the rafters to form the loading dock roofs on the east and west side of the building. Spans are about 6'. Based on the splice detail and difference in finish of the wood, it appears that the loading docks were later additions to the building.

Interior girders are double 1-3/4"x5-1/2" spanning 12' between 8"x8" wood columns. 2x6 kickers extend from each column to the beam, effectively cutting the beam span down to less than 8'. These braces also help to transfer lateral forces from the roof to the interior columns. A 2x6 horizontal extends from column to column in the east-west direction. Additional 4x8 horizontals were added at the north end of the building to support the elevator hoist. (See Photo 0078-260 and 0078-261)

Loading dock rafters are supported by a single 2x6 over a 4x6 spanning about 12' to 4x6 wood posts.

The rake overhang is unusually long compared to other buildings assessed in this report. The rake is supported by two barge rafters which are in turn supported by haunches composed of a 4x6 horizontal and a 2x6 kicker.

MECHANICAL - HVAC ASSESSMENT

There are three existing brick flues (photos 0078-242, 0078-243 and 0078-244) remaining from previous heating systems.

There is one electric unit heater in Room 103 (photo 0078-245).

ELECTRICAL - SYSTEM DESCRIPTION

This building is provided with two 120/240 volt, single-phase electrical services from a tap off of the existing underground electrical distribution system (Photos 0078-146, 0078-147 and 0078-148).

One service is routed up the exterior of the building to a panel in the second floor (Photo 0078-247).

The second service is also from a tap off of the existing underground electrical distribution system and is landed upon an exterior disconnect switch with 60-amp fuses. An exterior panelboard is served from this service disconnect switch. This exterior panelboard then serves an additional panel inside the building (Photos 0078-149 and 0078-150).

The feeder and branch circuit insulation type to the electrical service and branch circuits on the first floor appear to be thermoplastic type insulation (Photo 0078-200).

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1.3 PHYSICAL DESCRIPTION

The feeder and branch circuit insulation type to the electrical panel on the second floor and in the basement is older type cloth insulation and appears to be original.

The electrical distribution panel is not provided with a main circuit breaker.

The feeders and branch circuiting wiring on the main level appear to be THHN or a new type of insulation material. The elevator motor and associated electrical connections are in the second floor. The power to the elevator appears to have been disconnected with a number of the electrical components removed (Photo 0078-203).

ELECTRICAL - ELEMENTS ASSESSMENT
INTERIOR LIGHTING

The interior lighting consists of surface-mounted fluorescent fixtures and incandescent keyless lamp holders (Photos 0078-248, 0078-249 and 0078-250).

Lighting at the second floor is bare incandescent in ceramic lamp holders. At the first floor, ceramic fixtures are interspersed among 1x4, surface-mounted fluorescents.

Lighting at the basement level is again, incandescent ceramic lamp holders.

EXTERIOR LIGHTING

The exterior lighting consists of surface-mounted PAR lamp holders on the west and south sides and an incandescent fixture on the east side of the building. The majority of the conduit serving these fixtures is surface-mounted on the exterior of the building (Photos 0078-151, 0078-152, 0078-153, 0078-154 and 0078-155).

Single floodlights are located over Exterior Doors (B) and (C). One has no lamp in it currently, and the housings are painted dark brown.

A double floodlight is located at the southwest corner of the building and is also painted dark brown.

Over both Doors (E) and (F) are the remains of gooseneck fixtures without the shield and housing.

TELECOMMUNICATIONS

The building is provided with an exterior telecommunication termination box on the exterior of the building and a telephone board in Room 102.

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1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The painted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0078-105 through 0078-108)
- Overhangs – The simple roof extension/overhangs reveal the underside of the roof structure with features such as exposed rafter tails. (See photo 0078-112)
- Gable end brackets – Large, simple, triangular wood brackets support the gable end eaves. (See photo 0078-111)
- Vertical board and batten siding at the first floor with roughly sawn, horizontal, wood lap siding at second floor level – The layered effect of the siding provides distinction between the first and second floor levels. This is one of the only decorative treatments on this building. (See photo 0078-114)
- Wood paneled and batten doors – This building has a variety of door styles that reflect its original function as a warehouse. Traditional paneled man doors with windows in the upper 1/3 appear throughout the complex. The large, wood batten sliding double doors support the loading dock functions and are characteristic of a warehouse type.
- Exposed rafter tails – The open rakes with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex. (See photo 0078-109)
- Brick chimneys – Three narrow blonde brick chimneys extend through the steel roofing with no caps or adornment of any kind. (See photo 0078-116)
- Wood windows with clear glass – This building features a variety of window styles, but all are wood, with wood muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills.
- Wood posts – Plain wood posts support the porch roofs from porch deck to roof beam, with no base or capital. Originally, these posts were supported beneath the porch deck by similar wood posts to grade.
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining features of which are wood plank flooring on the basement, first, and second floors, and painted, horizontal wood wall and ceiling finishes, in the northwest corner of the first floor. The raw underside of structural and exterior envelope members in the second floor and basement are also character-defining features.
- Freight elevator hoistway – A defunct, cable hoist/traction elevator hoistway communicates with all three levels of the building. The wooden lift platform lies at the bottom of the semi-enclosed wood shaft and the hoist mechanism resides at the top of the shaft in the second floor space.

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1.5 GENERAL CONDITION ASSESSMENT

This building is in fair condition with the exception of a few items. Heavy use has taken its toll on this building. Loading docks are in disrepair, and the sliding doors have become difficult to operate. **A large supporting beam in the basement has split and should be addressed immediately** (see structural assessment). The roofing also needs replacement soon. Aluminum storm windows, installed on the north side of the building at some time in the last 30 years, are not used, cleaned, or maintained, and compromise the character of the interior.

The following is a discipline-by-discipline, component-by-component assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: **POOR**

The roofing is in poor condition. There is damage to the leading edge of the roofing along the east and west eaves; considerable water staining on the interior sheathing, but no evidence of current leakage on the existing sheet metal roofing panels; paint on the roofing is sparse and rust is showing through in several places; all roofing panels are dented and several, particularly on the east side, have patched nail holes. The ridge line is dented and bent in several places. The flashing at the chimneys is in poor condition with several pieces missing and rust evident on all pieces. Drip edge flashing at the roof recess on the west side is in fair condition, but is loose and bent in places. The brackets at the top of the roof ridge are in fair to good condition but do not have an obvious present-day use.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: **FAIR**

The overhangs themselves appear to be in good to fair condition. There are minor areas where the rafter tail extensions are slightly damaged and some rafters have been sistered with new. There is also evidence of minor weathering on the ends of the rafter tails. A couple of pieces of the 1x12 fascia boards are warped and twisted. The brackets are in good condition. Several rafter tails have the bottom edge split off from the bird's-mouth to the end of the rafter. Some of the rafter tails are also twisted, but are otherwise in fair condition.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: **POOR**

The condition of the siding varies. On the south side the condition is poor as both the boards and the battens are heavily weathered, warped, cracked, and even broken. The condition of the siding on the west is fair with considerable weathering, but the loading dock overhang has protected it from severe damage. The north and east sides are in fair to good condition with significantly less damage.

The intrusive process of drilling holes in the exterior siding, blowing in insulation and filling in the holes with plastic plugs has significantly impacted the historic character of the building. It has also provided a means for birds and other animals to get inside the wall easily as the plastic plugs fall out and the birds build nests.

The horizontal siding on the south side is in poor condition with many boards warping and cupping and gaps to the interior opening up. On the north side these same boards are in good condition.

ARCHITECTURE - MASONRY

CONDITION: **POOR**

The chimneys are all in poor condition. Mortar is missing; bricks are broken, missing or dislodged, flashing is missing or loose and none of the chimneys have caps of any sort.

The foundations appear to be in fair to good condition. Mortar on the stone foundations has been smeared on in places and there is no obvious mortar in the lower parts of the stone walls, but they are intact, plumb and relatively straight. The visible portions of the concrete foundation are in good condition. There is no apparent crawl space ventilation.

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1.5 CONDITION ASSESSMENT

The concrete masonry unit supports for the west loading dock are in poor condition and could easily pose a danger if accidentally knocked by a truck or bumper. Historic photographs indicate that these were originally 8 x 8 wood posts.

ARCHITECTURE - LOADING DOCKS

CONDITION: POOR

The condition of the loading docks is fair to poor. The decking itself is in fair condition with some loose boards and at least one board missing on the east dock. Some 2x10 trim boards are missing from the edge of the dock on the west side and others are loose. The columns supporting the roof are in poor condition with spliced and repaired columns, columns that have been cut short and are sitting on plinth blocks and columns that do not actually attach to the decking. All of the columns are reinforced with 2x6 collar ties at the beam above. The stairs on the northwest corner are in poor condition with several generations of reinforcement repairs. The northeast and southwest are in good condition and well supported. The stair and deck on the southeast corner are in poor condition with support posts that are all but rotted out completely. In general, the loading dock stairs are in fair condition with stringers that are showing signs of distress (splitting) deteriorated treads and failing paint. The base of the stringers sit in dirt and bark chips, which may lead to accelerated deterioration (See also Structural). Subsequent to 2006, the loading docks were stabilized in 2007. Permanent repair is still required.

ARCHITECTURE - TRIM & MILLWORK

CONDITION: FAIR

The writing shelf and drawer are in fair to poor condition as they are heavily weathered and the top shelf is split and badly warped. The pull is not original and does not fit the style of the shelf.

ARCHITECTURE - WINDOWS

CONDITION: FAIR

The windows vary in condition depending on weather exposure resulting from location. The entire south façade exhibits severe weathering with many layers of high gloss paint, giving it a striking resemblance to plasticized melting chocolate and obscuring the character of the wood windows. The remaining facades have less severe exposure, and the windows are in better condition.

Window (1)

This unit is in good condition.

Window (2)

This unit is in good condition. It is covered by a loading dock roof and, as such, stays protected.

Window (3)

This unit is in poor condition. Both meeting rails are bowing downward, paint is blistered, and the bottom rails show advanced deterioration. The sill is split at both ends with the east end split to the middle. Trim boards have deteriorated and lost material at the bottom edges. Muntins have been over-painted onto the glass.

Window (4) - (6)

These units are in poor condition. Paint is blistered and the bottom rails show advanced deterioration.

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1.5 CONDITION ASSESSMENT

The sill is split at both ends. Trim boards have deteriorated and lost material at the bottom edges. Muntins have been over-painted onto the glass.

Window (5)

The window unit appears fair, but the frame is blistered and showing early signs of deterioration. The frame header appears to be split at each end.

Window (7)

This unit is in good condition. This assembly is completely protected by the eaves or interior spaces and exhibits no weathering.

Window (8)

This unit is in fair condition. Judging from ghosting at the sill, this unit appears to be missing a trim piece. The wood window is solid with no sign of deterioration. One window pane is broken.

Window (9)

This unit is in fair condition. Some early signs of minor sill deterioration are evident in blistered paint. The interior storm window, while not historically appropriate, does not detract from the exterior historic character. It should be noted that these storm windows appear to be left open - negating any benefit from reduction of air infiltration.

Window (10) - (12)

These units are in poor condition. Glazing putty is falling out and/or missing. Some early signs of minor sill deterioration are evident in blistered paint.

Window (11)

This unit is in good condition. No work needed.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **POOR**

Exterior Door (A)

This door shows effects of heavy use and weathering, even though protected. It has two cracked panels (bottom two), and broken edges on the north stile. Paint is blistered on the bottom third of the door where the sun hits directly.

Exterior Door (B)

Except for minor blistered paint, this door is fully functional and needs no attention at this time.

Exterior Door (C)

Except for minor blistered paint; this door is fully functional and needs no attention at this time.

Exterior Door (D)

The wood sill is severely deteriorated, and paint is blistered on both trim and door. The jamb stop is cracked at the bottom edge to approximately 10" up.

Exterior Door (E)

This door style is wholly inappropriate for this building, but remains functional and in fair condition. The door exhibits some weathering and both casing and door have blistered paint.

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1.5 CONDITION ASSESSMENT

Exterior Door (F)

The sliding doors appear to function well and are in use almost daily. One painted glass pane detracts from the historic character and limits natural light.

Exterior Door (G)

This door, while inappropriate in this installation, remains in solid condition. The aluminum vent permanently altered the historic character of the door adversely.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **GOOD**

Interior Door (AA)

This door needs no work.

Interior Door (BB)

This door, while difficult to operate, does still function as originally built. During this assessment, it was propped open at each visit.

Interior Door (CC)

This door is pushed open with stored items in front of it. It appears not to have been operated in many years.

ARCHITECTURE - STAIRS

CONDITION: **FAIR**

The stairway to the second floor is in good condition, but the discontinuity of the handrail and short top riser are hazards and code violations. (The steepness of the stair is also in violation of code). Likewise, the stair to the basement presents hazards, particularly in the change of riser height at the top riser and the absence of guardrails. It too is non-code-compliant.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **FAIR**

In general, the finishes are in fair condition with normal wear and tear for a building of this kind (storage use). Gouges, holes, missing panels, water stains (on the ceiling finishes) characterize the

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **FAIR**

The framed "enclosure" in the center of the second floor is in fair condition but is missing wall and ceiling members; therefore, it has lost its architectural integrity, and no longer contributes to the building's spatial organization.

Shelving is in good condition.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - FLOOR

CONDITION: **POOR**

The wood and metal flooring at the second and first floor is in good condition, showing normal wear and tear. The resilient flooring and carpeting is in fair condition, exhibiting tears, scratches, zippering, and staining.

Basement flooring is in very poor condition which is a result of the water damage to the underlying floor structure. Boards have broken, popped up and are missing. The floor is badly warped and irreparable.

ARCHITECTURE - INTERIOR WINDOWS

CONDITION: **GOOD**

This interior window is in good condition. It is intact and functional and needs no work.

ARCHITECTURE - ELEVATORS

CONDITION: **POOR**

The elevator is not functioning. Its basic construction (wood) does not comply with modern codes for fire resistive material and a fire rated shaft. Its enclosure is only protected by a single 2x "guardrail", 36" at the second and first floor levels.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **FAIR**

First floor framing is generally in good condition, although out of level. The girder supporting the floor has failed near the freight elevator. (Photo 0078-200 and 0078-205) *In our opinion, this girder presents an immediate threat to staff safety*. A NPS Park Ranger was informed of our concerns about this girder at the time of assessment. Note: Temporary shoring was installed by the park in the Summer of 2007.

Loading dock framing is in good condition at the west dock. However, the ledger supporting the joists is pulling away from the wall and appears to be undersized. (Photo 0078-144)

Loading dock framing is in poor condition at the east dock due to contact with soil and moisture intrusion from above. (Photo 0078-145) The ledger supporting the joists appears to be undersized.

Post bases at most of the loading dock columns are deteriorated. (Photo 0078-142)

The basement floor is deflected and buckled throughout due to contact with moisture. (Photo 0078-204) No evidence of foundation wall movement or force induced buckling of the floor was observed. Thus, the base of the walls are likely braced by the soil below the floor. Column bases in this area are also severely deteriorated due to contact with moisture.

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1.5 CONDITION ASSESSMENT

Foundations supporting the perimeter stud walls, where visible, appeared to be in good condition. Interior footings were not visible for assessment, but evidence that differential settlement has occurred can be seen in the out of level floors throughout the building. This does not appear to have compromised the building's structural integrity. The foundations supporting the posts which extend into the basement were not visible but have clearly experienced significant settlement. The deflection in the floors supported by these posts is the worst in the building.

The exterior wood foundation at the east loading dock is rotted and in direct contact with soil. Here, as seen at most other buildings assessed, grade is high on the east side of the building and in contact with the wood framing.

The exterior concrete masonry unit foundations at the west loading dock are displaced in some locations. The piers will not meet code due to lack of mortar and any tie to the structure. The piers also appear to sit directly on grade, violating frost depth requirements. (Photo 0078-142)

The second floor slopes to varying degrees throughout the building. This appears to be a result of the differential foundation movements observed which have led to displacement of the columns and girders supporting this floor. The floor framing itself did not appear to be compromised.

Exterior walls generally appear to be in good condition. The infill construction at the east loading dock appears to be performing adequately, but is unlikely to meet code requirements for out of plane loading.

Roof framing is generally in good condition. However, the lack of collar ties and the long spans of the rafters probably preclude the roof from meeting code requirements for gravity load capacity.

One rafter has failed in bending. (Photo 0078-262) Several rafters are heavily water stained around the north chimney due to water infiltration. (Photo 0078-263) No obvious deterioration or distress was observed at this location.

Loading dock roof framing is generally in good condition except at the south end of the east dock. The girder and rafters are severely deteriorated here. Additionally, the girder was spliced over the column. The splice is failing. (Photo 0078-159)

MECHANICAL - HVAC ASSESSMENT

CONDITION: FAIR

The flues do not appear to be in good working order in their present state. Gaps in the brick mortar do not preserve an airtight passage to the outdoors and could potentially allow flue gasses to escape into the occupied space.

The electric unit heater in Room 103 is in working order. The heater works but is slow to warm. Unit appears to be approximately 30 or more years old.

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1.5 CONDITION ASSESSMENT

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: POOR

The building is provided with two electrical services, which is not allowed by code for this size of building. One of the service disconnecting means is installed on the exterior of the building on the first floor while the other electrical service disconnecting means is installed on the second floor.

The second floor electrical panel has foreign matter inside which could cause a fire in this panel. This panel is also installed at an elevation on the wall above a height allowed by the NEC.

The wiring insulation type to the second floor electrical service and the branch circuits served by this electrical service are cloth type insulation (Photo 0078 - 246).

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: FAIR

The existing interior lighting has been modified to serve the building needs and usage. The fluorescent lighting was added to provide illumination in locations where additional illumination is/was needed.

The existing interior and exterior lighting does not provide any emergency type egress lighting.

The exterior lighting and associated conduit is poorly installed and supported. Floodlights are appropriate to this building, although glare poses a problem in this residential neighborhood and does not comply with "International Dark Sky Association Guidelines".

The gooseneck supports are most certainly historic and very appropriate for these buildings.

The existing telecommunication provisions to this building appear to be adequate for its intended use.

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2.1 ULTIMATE TREATMENT AND USE

The building has served as a warehouse for most of its life. By 2002, it was converted to a River Operations Boat Shop where inflatable boats are repaired and stored and equipment for River Operations is also stored. The GMP states that the boat shop will be moved to Lees Ferry; however, that is still being debated within the park. Rehabilitation is the recommended ultimate treatment for this building.

The following section is a discipline-by-discipline, component-by-component recommendation of treatment for the building.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY MODERATE

The roofing should be removed and replaced with new corrugated sheet metal roofing to match the original in gauge, corrugations and composition. The new roofing should extend beyond the sheathing at all edges to create a drip edge. All roof flashing should be replaced throughout with new flashing to match the original. Remove the brackets at the top of the ridge and provide a new ridge cap extending 8" minimum down each side of the ridge.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY LOW

The brackets do not require treatment at this time. Rafters that are severely twisted should be replaced over the loading dock area. Rafter tails that have bottom edges missing should be repaired with new material scabbed on that matches the original species, profile and grade - the new material should be glued and mechanically attached from the underside after the original material is squared off to accept a flush joint. Weathered end grain that shows signs of rot should be cleaned and scored and epoxy consolidated to prevent further deterioration. Loose 1x trim should be re-attached and twisted or warped trim should be replaced in kind. All repairs should be repainted to match other like members.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY MODERATE

The first step in treatment will be to remove any nesting animals and birds from the interior cavities of the walls. Once the animal life is removed, insulation should be re-installed in the void to fill it completely. In boards to be left in place, new wood plugs should be made for the holes and firmly held in place with glue or other fasteners. Plugs should be made from like material - preferably from similar boards removed to be replaced elsewhere on the building.

Battens that are warped, split, broken or missing should be replaced with comparable material. Grade around the base of the wall on the north and south ends and along the east wall should be re-worked to slope away from the wall and around the building. Boards and battens on the south wall should be selectively replaced in kind. Subsequent studies should identify species, grade, texture and grain of the existing wood so that appropriate replacements can be identified and utilized. Batt insulation should be installed in the wall cavities prior to replacement of the siding.

Horizontal siding in the south gable end should be selectively replaced where broken, split, warped or cupped.

The entire building should be scraped, sanded and repainted once the repairs are made.

ARCHITECTURE - MASONRY

PRIORITY MODERATE

All chimneys need to be re-built reusing existing good brick, new brick to replace spalled, or broken bricks and mortar designed to match the original mortar strength and visual characteristics. Further testing should be done in subsequent phases to determine the exact mortar mix. The flashing at the top of the chimney should be re-installed on top of a waterproof membrane to prevent moisture from entering the top of the bricks.

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2.1 TREATMENT RECOMMENDATIONS

Flashing at the chimney should be stepped and set into mortar joints on the masonry. Provide crickets behind chimneys to insure positive drainage around the sides. The site should be excavated to expose the top of the masonry foundation wall. All stone joints should be re-pointed. The concrete foundation does not require treatment at this time. Once repairs are made, the site should be re-graded to provide positive drainage away from the building.

ARCHITECTURE - LOADING DOCKS

PRIORITY **MODERATE**

Remove and replace all broken, spliced, or shortened columns with new columns to match the original material and size. Replace all missing or broken decking boards. Re-attach all loose trim boards on the west side.

The northeast stairs should be scraped, sanded, and repainted. The deck on the south side of the building needs to be rebuilt with new support posts on concrete footings along the south edge of the deck. The steps to the deck should be reinstalled and a new footing should be installed at the base of the steps. Both sets of loading dock stairs appear to be of a recent (non-historic) vintage. They should be replaced (some of the treads may be reusable) with wood stairs which are properly structured, hangered at the top, with new center strings and supported by a concrete pad at the base of the stringers. Given the nature of the loading dock (where guardrails are not code-required) a variance from a thoroughly-code compliant handrail/guardrail configuration would be in order. At a minimum, handrails (meeting structural loading requirements) on both sides of the stairways are recommended.

Replace the dry stack concrete masonry unit piers at the west loading dock with new 8 x 8 wood posts to match removed piers and align with columns above. New posts should be tied to the loading dock structure above and set in an appropriate stand off base to slow deterioration.

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

Remove the top shelf and replace with new wood shelf to match original material and shape. Glue and screw open joints. Scrape, sand, and re-paint. Replace the pull with a new metal pull to match the original per the shadow impression on the drawer face.

ARCHITECTURE - WINDOWS

PRIORITY **MODERATE**

If the building is weatherized for four-season use, the windows should be evaluated individually for tight fit and infiltration. The casement windows may require weatherstripping if loose. Flashing over windows needs to be re-installed to extend under the siding boards and over the top of the headers at each window.

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration.

As needed, replace broken glass panes; however, do not attempt to match historic rippled glass, but rather allow the new glass to be identifiable at close range.

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2.1 TREATMENT RECOMMENDATIONS

Windows (1) - (2) - (7)

No work needed. If additional interior daylighting is desired, remove the interior plywood panel.

Windows (3)-(6), (8)-(12)

Rehabilitate windows including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. All of the hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware again.
3. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed. Where material loss is profound, replace the wood member with wood to match existing.
4. Stabilize the sash joints and muntins to make the units structurally sound.
5. Repaint each unit with primer and two coats of exterior paint. We recommend conducting paint analysis to determine the color and sheen of the original paint.
6. Reglaze each unit using original glass, and replacing all inappropriate obscure glass. Do not attempt to match the historic rippled glass, but rather allow the new glass to be identifiable at close range.

Windows (8), (9), (10), (12)

Close the storm windows in colder weather to benefit from reduced air infiltration, or remove them if they are not needed.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **LOW**

Exterior Doors (A) and (D)

Recondition these doors including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed. Where material loss is profound, replace wood member with wood to match existing.
3. Stabilize joints and window muntins to make the units structurally sound.
4. Repaint each unit with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Reglaze each unit using existing glass.

Exterior Doors (B), (C), (F), (G)

Monitor these doors for additional weathering, but no work is needed at this time.

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2.1 TREATMENT RECOMMENDATIONS

Exterior Door (E)

While the door is in fair condition, it detracts from the historic character of the building, and should be replaced with a door to match (A) and (D). The original door style is unknown, but matching it to the remaining historic doors is more appropriate than what is there.

Weatherstrip all exterior doors.

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

No work needed on interior doors at this time.

ARCHITECTURE - STAIRS

PRIORITY **MODERATE**

Given the grade stamp on the plywood surround at the stairs to the second floor, it appears that this stairwell is not historic. The 1949 survey drawings likely reflect the original stair configuration. (Removal of ceiling finishes may verify the original stair opening location.) The basement stairs also do not appear to be historic, so replacement with a code-compliant stair is recommended, with no loss to historic integrity. A guardrail at the basement stair opening is code required.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

The discontinuities in the surfaces should be patched with the appropriate materials, but the unfinished character should be maintained.

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended at this time for the shelving. Removal of the remaining studs in Room 201 could be acceptable, due to loss of integrity, if greater flexibility in the adaptive use of the second floor is desired.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

No work is recommended at this time for the wood or metal flooring but the loose carpet strands should be clipped off to obviate tripping hazards. If water spills are an issue in the resilient flooring area, where water jugs are currently stored; the flooring should be replaced with new resilient sheet flooring, to provide a continuous, leak-resistant surface.

Currently, the basement is not being used. If this space is to be used in the future, then options for flooring at this level would include replacement of rotted members (once the standing water has been eliminated and the floor structure has been replaced, with proper clearances and proper venting) or replacement with a concrete slab on gravel.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - INTERIOR WINDOWS

PRIORITY **LOW**

No recommendation for the interior window.

ARCHITECTURE - ELEVATORS

PRIORITY **MODERATE**

Although a functioning elevator could be useful for the current boat operations, and possibly for future users, meeting code would require new elevator equipment, a rated shaft, proper clearances, venting, a machine room, etc. It is possible that all of this could be accomplished elsewhere in the building, so that the historic elevator could remain in situ.

To provide proper protection around the existing shaft, code-compliant barriers/guardrails should be added around the existing shaft at all levels of the building. Leave the elevator and its attendant mechanisms in situ.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **SEVERE**

This building is listed as a Tier 1 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it has the potential to provide an office that could be staffed by a disabled individual. Therefore, a strategy should be developed that would provide accessible parking adjacent to the building, a ramp on the east side or lift on the west side to the main floor level and an accessible door.

The door to either Room 102 or 103 should be made accessible and an ABAAS-compliant restroom should be added.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **SEVERE**

All framing and lateral load resisting systems should be checked for compliance with code required live and lateral loads. Further destructive investigation may be warranted if calculations indicate deficiencies in load capacity.

MECHANICAL - HVAC ASSESSMENT

PRIORITY **UNKNOWN**

If use of the existing brick flues is desired in the future, further investigation of their functionality should be performed.

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **SEVERE**

Replace the existing electrical services with a single service sized for the load served. Replace the non-code compliant and obsolete wiring type and insulation.

Provide grounding of the electrical system and branch circuits to be code compliant.

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2.1 TREATMENT RECOMMENDATIONS

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Provide emergency lighting in the building and at the exit discharge from the building to comply with current code.

Replace the exterior light fixture with a fixture that complies with the "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04) and support existing conduit as required to comply with NEC conduit supporting requirements.

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2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance Area overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building and the lack of historic documentation, the Warehouse will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Some elements clearly need *reconstruction*, such as the porch posts that have been cut short and propped up on scrap lumber. And in general, the building requires *rehabilitation*, to address the existing code-deficient conditions (stairs, elevator, ABAAS access, basement floor, electrical service, fire safety, etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

Meeting requirements for building codes and accessibility (ABAAS) would have the most significant impact on the building.

Code-compliant stairs to the basement and second floor will completely change the character of both, as the rise and run requirements will lengthen both stairways, and the handrail, guardrail, and access door requirements will require a reconfiguration of all three elements. A code-compliant elevator shaft would require complete enclosure (a rated shaft) with proper ventilation and fire safety provisions. None of the existing members (e.g. wooden lift structure, wood guardrails, hoist mechanisms) could be reused, but they could be retained while a new elevator and shaft are installed elsewhere.

Providing ABAAS-compliant access in and through the building will affect many character defining features of the building, and site, but limiting accessibility to areas most needed reduces that impact.

Additionally, new electrical systems have the potential to affect the historic character of the building. Concealing new wiring under the floor finishes or in wall cavities will reduce the impact.

The greatest impact to this building, and most of the others in the complex, is the risk of benign neglect through delayed maintenance if treatment is not undertaken. Unstable flooring on the east loading dock has already compromised the building's use, and the potential for damage as a result of the failing girder breaking completely is very real. The added risk to human safety should be considered as well. (Note: the girder was repaired in Summer 2007).

Generally, in-kind replacement of historic materials will be necessary in some areas, but if chosen sensitively, it should have no adverse effect on these buildings. If the building is rehabilitated and fitted with an HVAC system, ductwork and equipment should be installed that is sensitive to the Secretary of Interior's Standards. Additionally, the building envelope will likely make an adjustment from dramatically varying temperatures on each side of the wall.

All of these changes, when contemplated, will require careful review by, and consultation with, Park Service staff and the SHPO.

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Bldg SRB-0078 – date unknown
National Park Service Grand Canyon Museum Collection (Photo # 02017)



Bldg SRB-0078 – date unknown
National Park Service Grand Canyon Museum Collection (Photo # 07688)



West Façade Exterior Overview 0078 - 101



North Façade Exterior Overview 0078 - 102



East Façade Exterior Overview 0078 - 103



South Façade Exterior Overview 0078 - 104

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Steel Brackets at Ridge 0078-105



Corrugated Sheet Metal Roofing 0078-106

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Stepped, Painted, Sheet Metal Roofing 0078-107



Damaged Edge of Sheet Metal Roofing 0078-108



Roof Overhangs 0078-109



North and South Side Overhangs 0078-111

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Loading Dock Overhang at East and West Sides 0078-112



Vertical Board and Batten Siding 0078-113

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Change in Siding at Gable End 0078-114



Board and Batten Siding at South Elevation 0078-115

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Brick Chimney 0078-116



Steps at the Porch 0078-117



Porch Supported on Loosely Stacked 8x16" CMU 0078-118



4x6 Posts Supporting Roof Overhead 0078-119

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Wall-Mounted Writing Shelf 0078-120



West Window (1) 0078-121

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West Window (2) 0078-122



West Window (2) Detail 0078-123



South Window (3) 0078-124



South Window (4) 0078-125

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South Window (5) 0078-126



South Window (6) 0078-127



East Window (7) 0078-128



East Window (8) 0078-129

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North Window (9) 0078-130



North Window (10) 0078-131

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North Window (11) 0078-132



North Window (12) 0078-133

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Exterior Door (A) 0078-134



Exterior Door (B) 0078-135

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Exterior Door (C) 0078-136



Exterior Door (D) 0078-137

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Exterior Door (E) 0078-138



Exterior Door (F) 0078-139

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Exterior Door (G) 0078-140



Gravel Yard and Low Step 0078-141



West Porch. Note Failing CMU Pier, Damaged Post 0078-142



West Porch Ledger, Typical Perimeter Foundation 0078-143

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Failing Ledger at West Porch 0078-144



East Porch Missing Decking, Deteriorating Framing 0078-145



Exterior Panel and Service Disconnect 0078-146



Service Disconnect 0078-147

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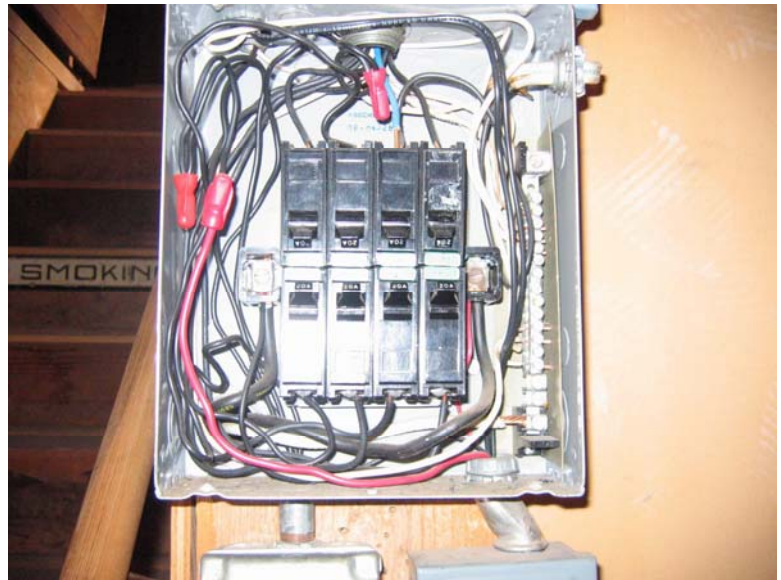
Exterior Panel and Service 0078-148



Exterior Panel 0078-149

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Interior Panel - Lower Level 0078-150



Floodlight on West Façade 0078-151



Floodlight on Southwest Corner 0078-152



Gooseneck Arm on South Façade 0078-153

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Floodlight on West Façade - No Lamp 0078-154



Gooseneck Arm at Loading Dock 0078-155

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Door (F) Hardware Detail 0078-156



Door (F) Floor Hardware Detail 0078-157

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Door (F) Detail 0078-158



Porch Framing. Deteriorated Edge Beam and Rafters 0078-159

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East Façade - View 1 (left to right from south) 0078-160



East Façade - View 2 (left to right from south) 0078-161

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East Façade - View 3 (left to right from south) 0078-162



East Façade - View 4 (left to right from south) 0078-163

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East Façade - View 5 (left to right from south) 0078-164



East Façade - View 6 (left to right from south) 0078-165

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West Façade - View 1 (left to right from north) 0078-166



West Façade - View 2 (left to right from north) 0078-167

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West Façade - View 3 (left to right from north) 0078-68



West Façade - View 4 (left to right from north) 0078-169

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West Façade - View 5 (left to right from north) 0078-170



West Façade - View 6 (left to right from north) 0078-171



Basement Interior Overview with Failed Girder 0078-200



Basement Stairway 0078-201

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1x12 Wood Plank Flooring 0078-202



Freight Elevator Mechanisms 0078-203

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Basement Floor Sheathing 0078-204



Failed First Floor Girder at Basement 0078-205

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First Floor Interior Overview 0078-206



Window (2) Interior 0078-207



Window (3) Interior 0078-208



Window (3) Detail 0078-209

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Window (4) Interior 0078-210



Window (4) Detail 0078-211

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Window (7) Interior 0078-212



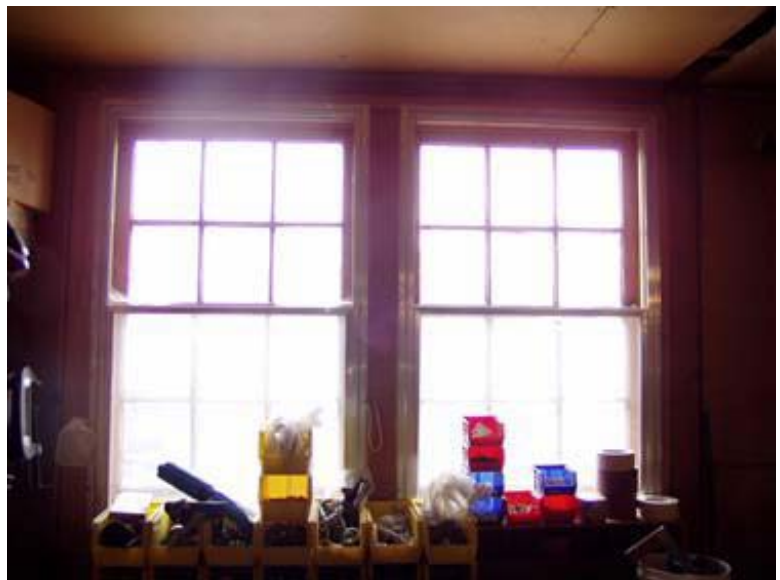
Window (7) Interior Detail 0078-213

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Window (9) Detail 0078-214



Window (10) Interior 0078-215

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Window (12) Detail 0078-216



Door (A) Interior 0078-217

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Door (B) Interior 0078-218



Door (D) Interior 0078-220

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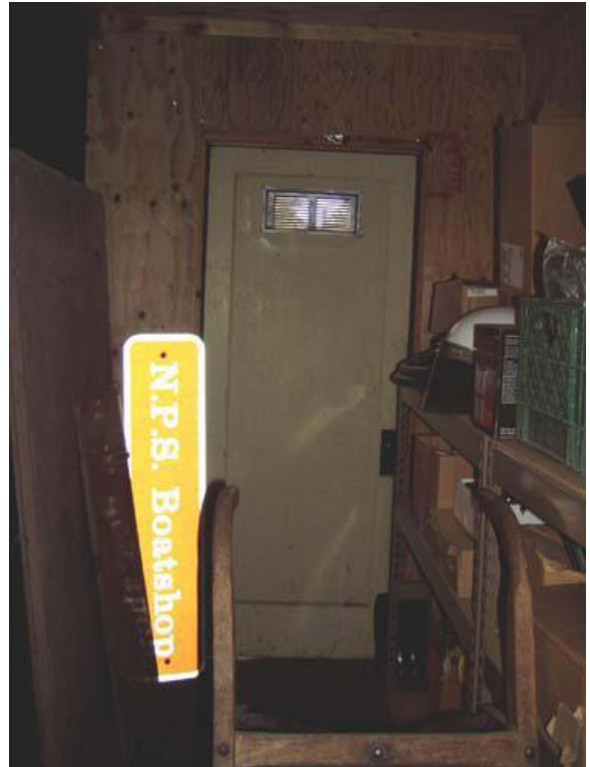
Door (E) Interior 0078-221



Door (F) Interior 0078-222

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Door G) Interior 0078-223



Interior Door (AA) 0078-224

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Interior Door (BB) 0078-225



Door (BB) Detail 0078-226

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Door (BB) Hardware 0078-227



Stairs to Second Floor 0078-228

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Guardrail at Second Floor Stairs 0078-229



Unfinished Gypsum Board at Wall and Ceiling 0078-230

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Painted Hardboard Ceiling 0078-231



Painted 1x5 Ceiling 0078-232

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Finished Gypsum Board Above Modern Wood Paneling 0078-233



Unfinished Plywood 0078-234

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1x3 Tongue and Groove Wood Flooring 0078-235



Resilient Sheet Flooring 0078-236

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Carpet 0078-237



Interior Window 0078-238

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Interior Girder Supporting Second Floor Joists 0078-240



Second Floor Joists 0078-241



Brick Flue (1 of 3) 0078-242



Brick Flue (2 of 3) 0078-243

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Brick Flue (3 of 3) 0078-244



Electric Unit Heater 0078-245



Interior Wiring Method 0078-246



Interior Panel - Second Floor 0078-247

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Incandescent Keyless Lamp Holder 0078-248



Surface-mounted Fluorescents 0078-249



Pendant-Mounted Fluorescents 0078-250



Second Floor Interior Overview 0078-251

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Plank Flooring with Metal Strips at Second Floor 0078-252



Wood Plank Flooring with Sheet Metal Overlay 0078-253

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Freight Elevator Frame 0078-254



Gable End Wall Framing 0078-255



Typical Roof Framing 0078-256



Rafter Tie at Ridge 0078-257



Rafter Bearing at Interior Girder Line 0078-258



Typical Rafter Bearing at Exterior Wall 0078-259



Interior Girder, Columns, Bracing 0078-260



Framing at Elevator Hoist 0078-261

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Cracked Rafter 0078-262



Water Damage Around North Chimney 0078-263



Elevator Hoist 0078-264



Elevator Hoist 0078-265

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Elevator Hoist 0078-266



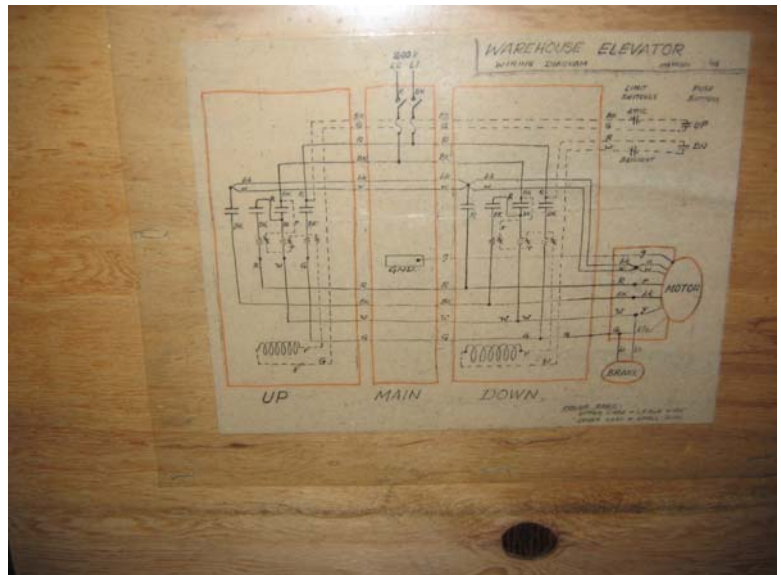
Elevator Hoist close up 0078-267

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Elevator Hoist motor 0078-268



Elevator Map 0078-269

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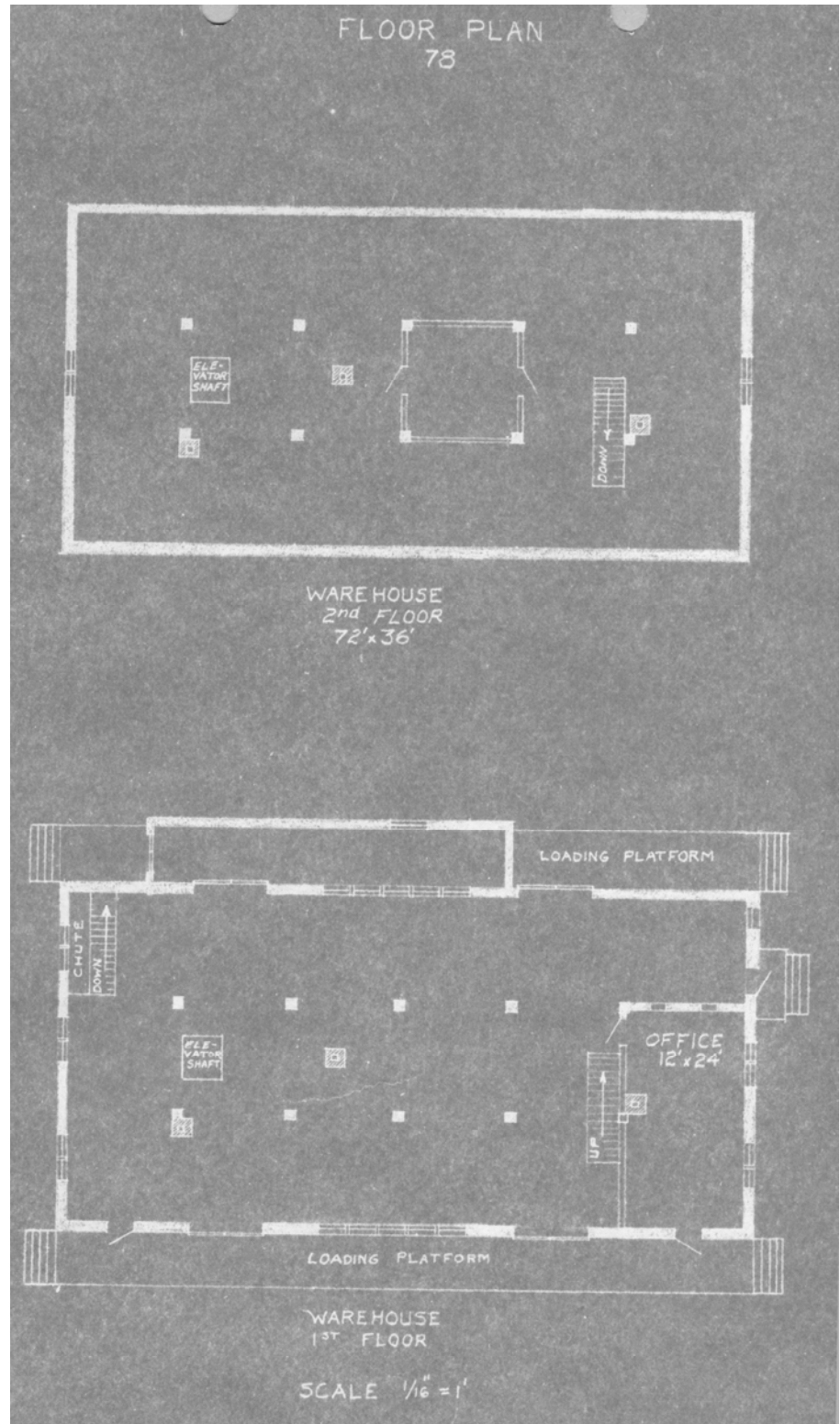


Elevator Power 0078-270

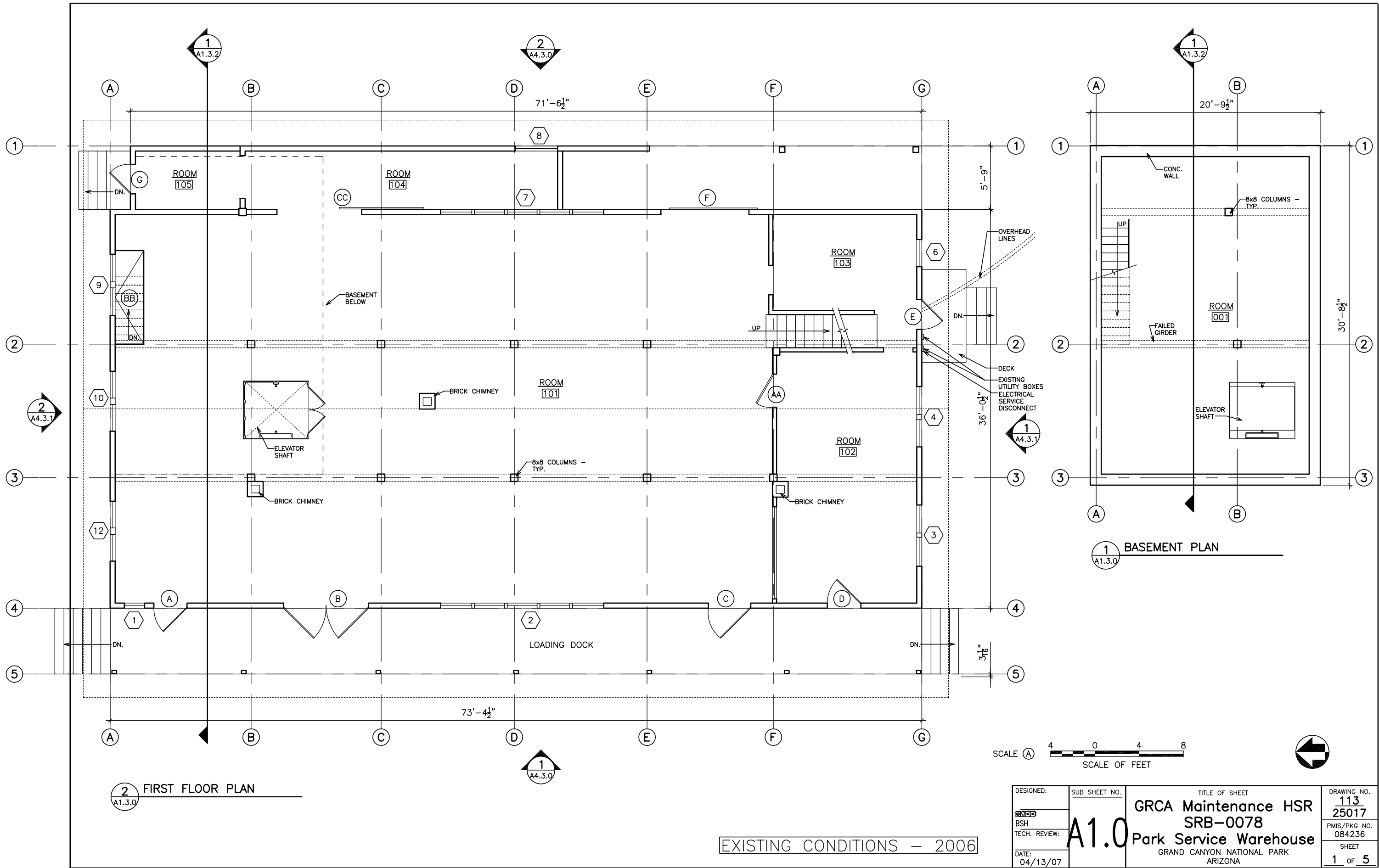
SRB-0078

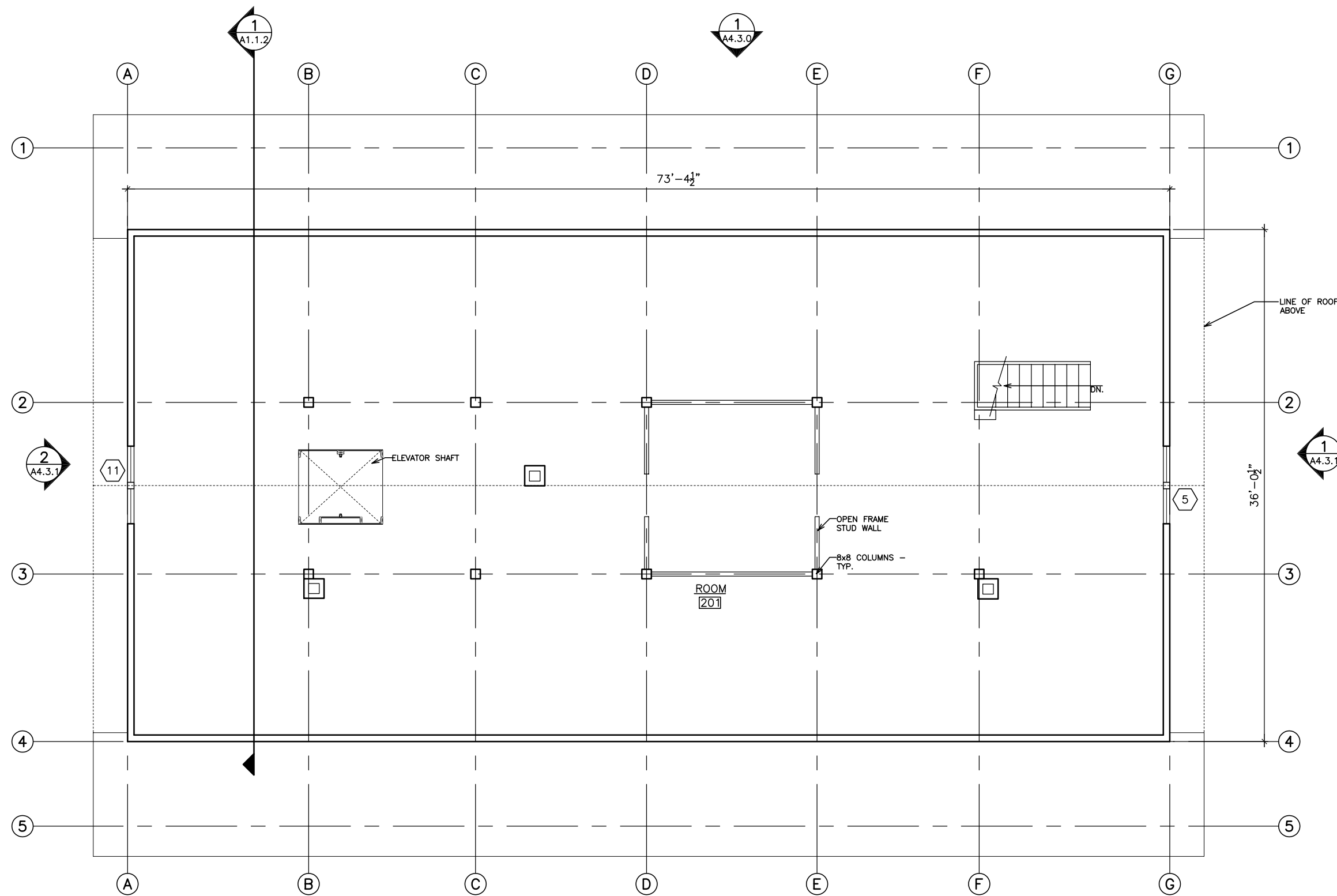
PARK SERVICE WAREHOUSE

1926



1949 Survey Plan – Building 78
Grand Canyon National Park Office of Cultural Resources



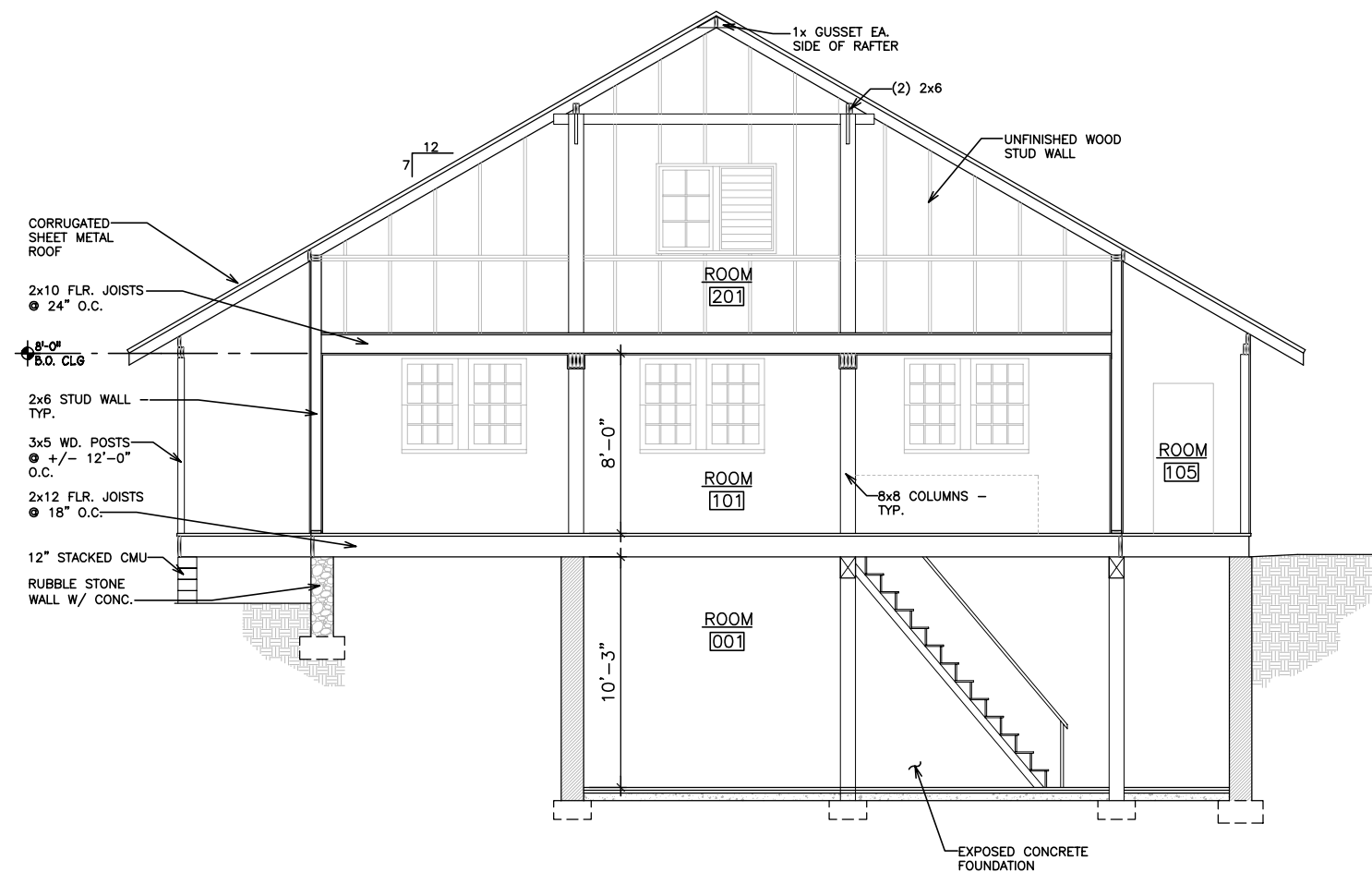


1 SECOND FLOOR PLAN
A1.3.1

EXISTING CONDITIONS - 2006

SCALE (A) 4 0 4 8
SCALE OF FEET

DESIGNED: BADD BSH TECH. REVIEW:	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0078 Park Service Warehouse GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25017 PMIS/PKG. NO. 084236 SHEET 2 OF 5
DATE: 04/13/07			

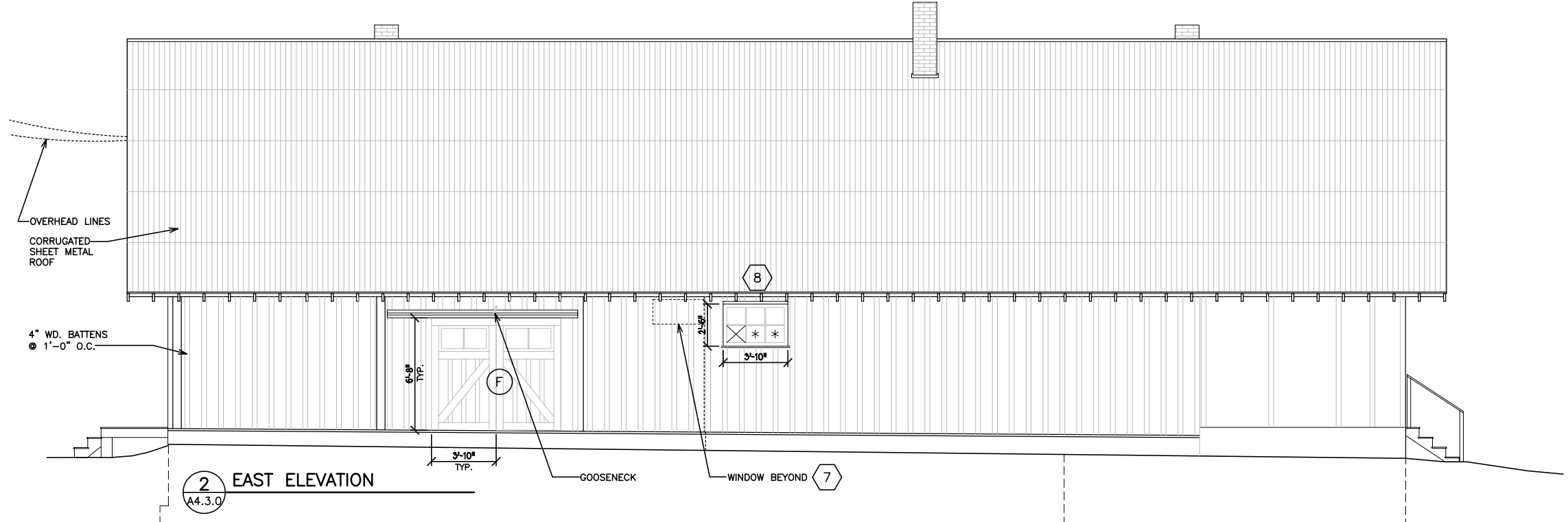


1 SECTION
A1.3.2



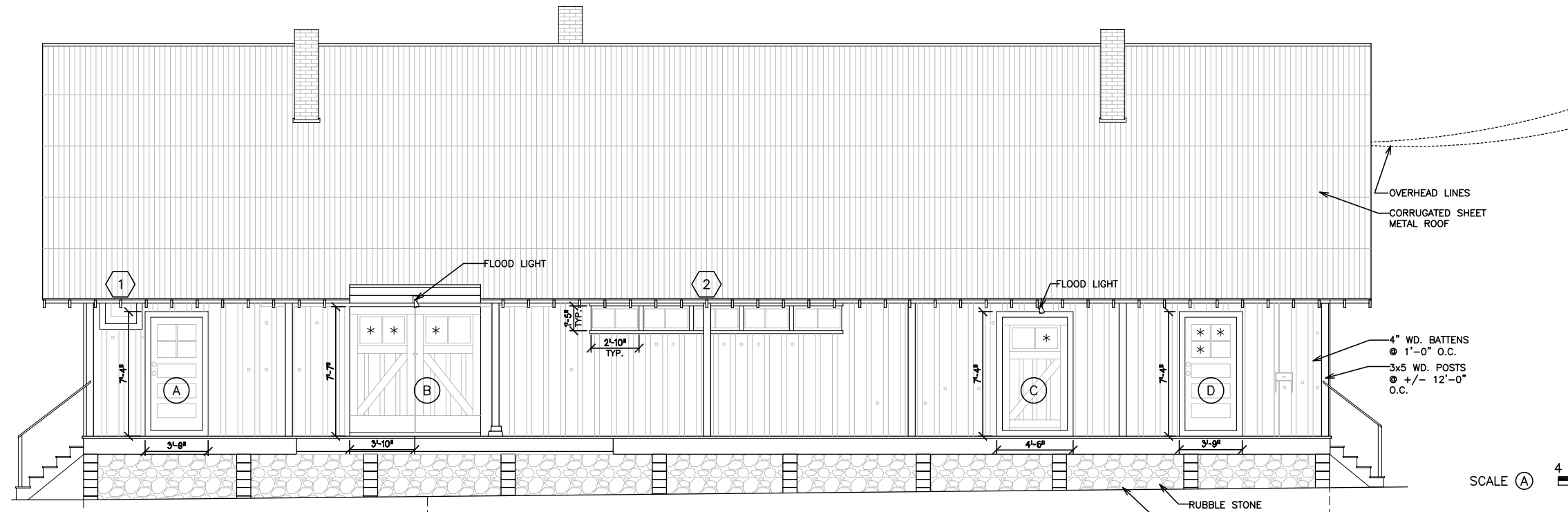
EXISTING CONDITIONS — 2006

DESIGNED: BBS BSH	SUB SHEET NO.	TITLE OF SHEET GRCA Maintenance HSR SRB-0078 Park Service Warehouse GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25017
TECH. REVIEW:			PMIS/PKG NO. 084236
DATE: 04/13/07	A1.2		SHEET 3 OF 5



2 EAST ELEVATION
A4.3.0

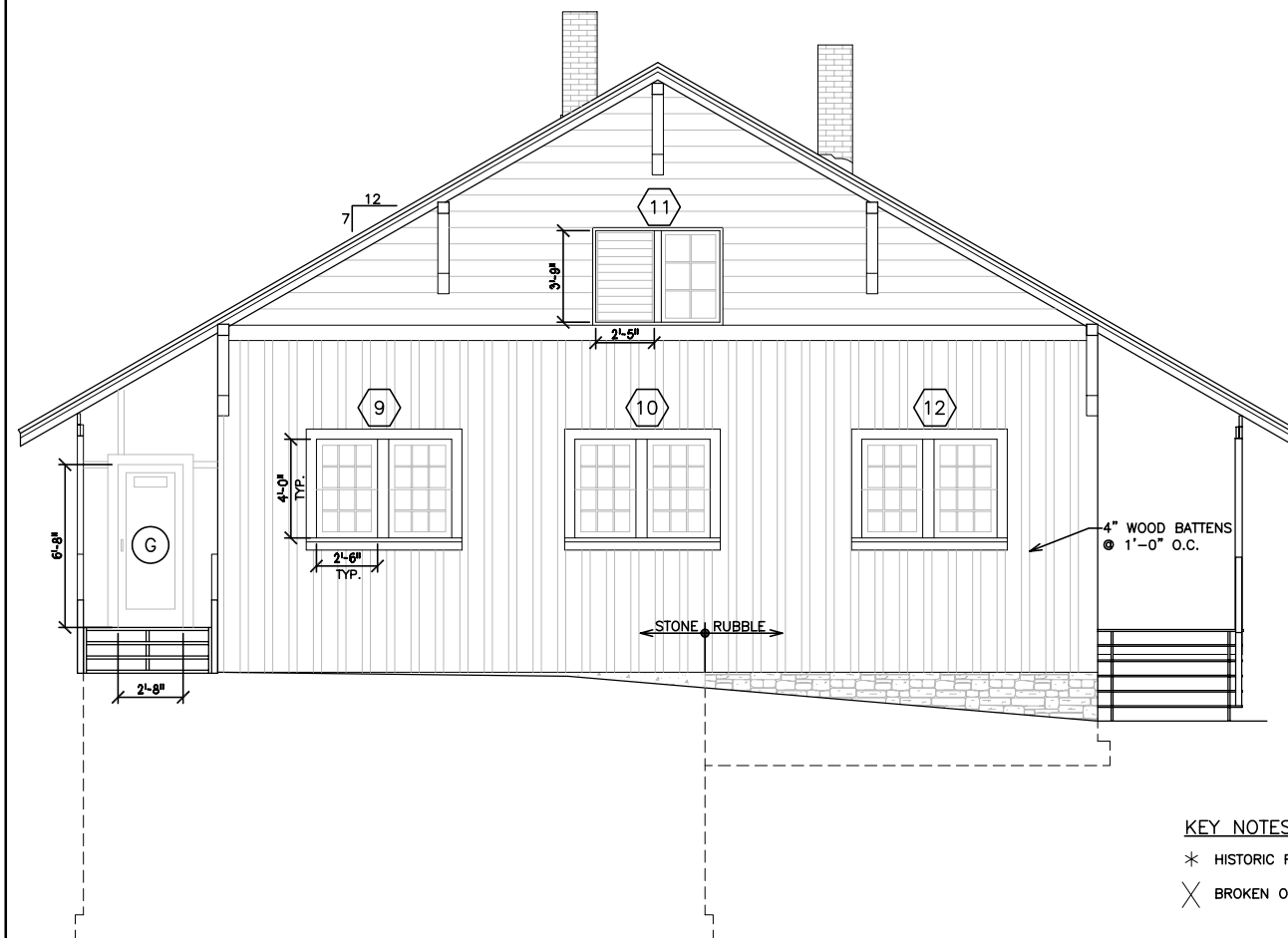
KEY NOTES:
 * HISTORIC RIPPLE GLASS
 X BROKEN OR MISSING GLASS



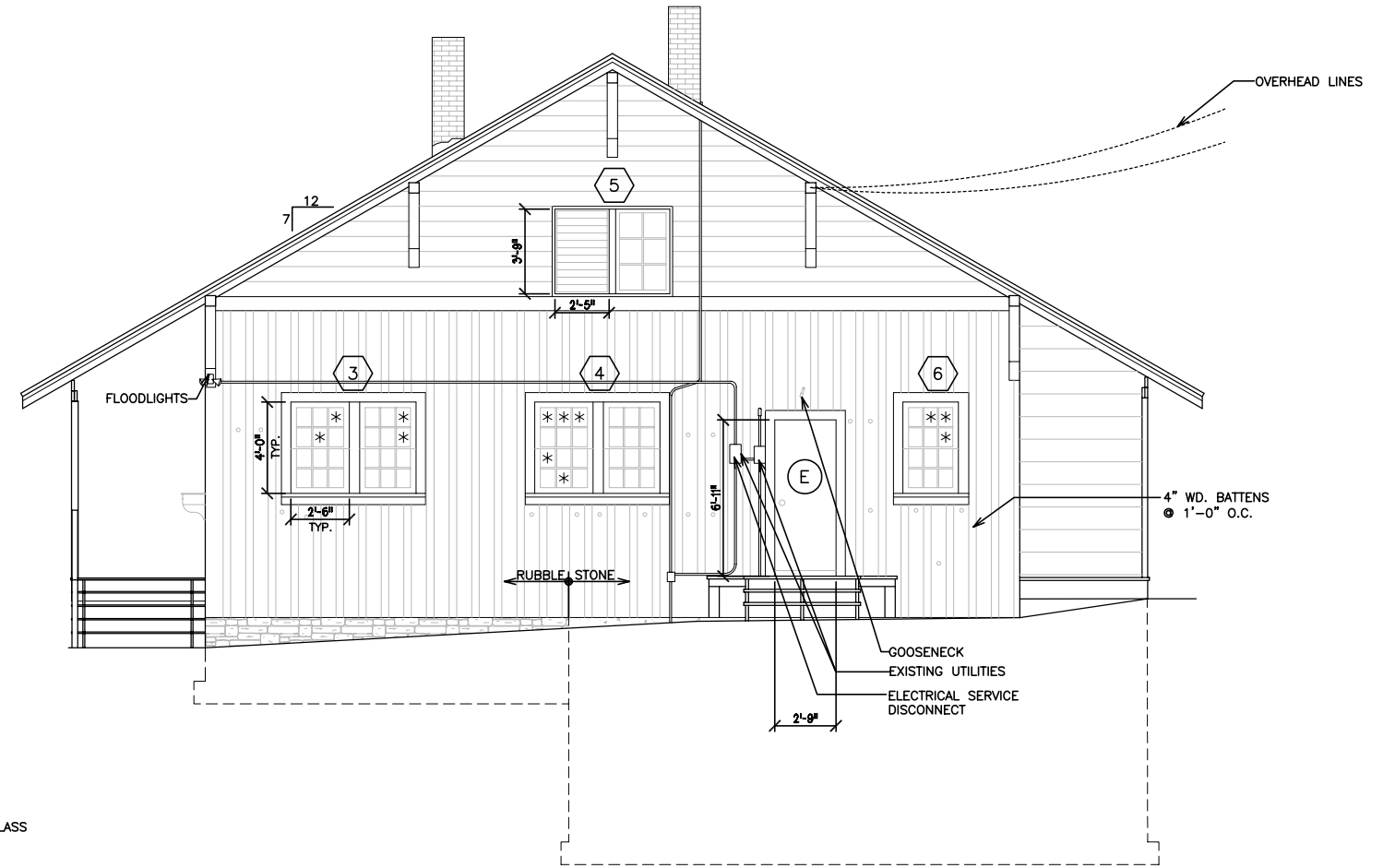
1 WEST ELEVATION
A4.3.0

EXISTING CONDITIONS - 2006

DESIGNED: GABD BSH	SUB SHEET NO. A1.3	TITLE OF SHEET GRCA Maintenance HSR SRB-0078 Park Service Warehouse	DRAWING NO. 113 25017
TECH. REVIEW:		GRAND CANYON NATIONAL PARK ARIZONA	PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 4 OF 5



2 NORTH ELEVATION



1 SOUTH ELEVATION

EXISTING CONDITIONS — 2006

DESIGNED: CADD BSH	SUB SHEET NO. A1.4	TITLE OF SHEET GRCA Maintenance HSR SRB-0078 Park Service Warehouse GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25017
TECH. REVIEW:			PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 5 OF 5

Park Service Warehouse



Identification:

Preferred Name: Park Service Warehouse

Structure Name:

Structure Number:

SRB0078

Other Structure Name(s):

	Other Structure Name(s)
1.	NPS Warehouse
2.	Sunset Drive Old Warehouse

Park: Grand Canyon National Park

Historic District:

	Historic District
1.	Grand Canyon Village

Structure State: Arizona

Structure County: Coconino

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

LCS ID: 055414

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Register Status: Entered - Documented

Status:

National Register Date: 02/18/1997

Register Date:

National Yes

Historic

Landmark?:

National 02/18/1997

Historic

Landmark

Date:

Significance
Level: Contributing

Short

Significance

Description:

1 of 28 bldgs const in NPS utility area by CCC during 1st 6 years of realization of 1924 Plan prep by NPS Landscape Eng Div. Example of rustic style. Orig CCC sign present. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long

Significance

Description:

The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the village's major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1926	AD			NPS	Other

Function and Use:

Primary Function: Warehouse (General Supply Storage)

Historic Function:

Current Use:

Primary Function: Warehouse (General Supply Storage)

Current Use:

Structure Contains Museum Collections?: No

Other Functions or Uses:

Other Function(s) or Use(s)	Historic or Current
No records.	

Physical Description:

Structure Type: Building

Volume:

2,000,000 or more cubic feet

Square Feet:

5106

Material(s):

	Structural Component(s)	Material(s)
1.	Roof	Metal
2.	Framing	Wood
3.	Other	Brick
4.	Foundation	Stone
5.	Walls	Weatherboard

Short Physical Description:

1.5 story wd frame 45'x70'. Gable roof with exposed rafters, lookouts on knee braces with corrugated metal roofing. Loading platform on 4x4 piers. Board & batten siding, large doors, wood double hung windows, wood horizontal lap siding & gable ends. Partial concrete basement, brick chimneys.

Long Physical Description:

1.5 story wd frame 45'x70'. Gable roof with exposed rafters, lookouts on knee braces with corrugated metal roofing. Loading platform on 4x4 piers. Board & batten siding, large doors, wood double hung windows, wood horizontal lap siding & gable ends. Partial concrete basement, brick chimneys.

Condition and Impacts:

Latest Condition: Fair

Latest Year Assessed: 2006

Conditions:	Condition	Year Assessed
1.	Fair	1996
2.	Fair	2006

Impact Level: Low

Primary Impact: Inappropriate or Inadequate Preservation/Rehabilitation

Other Impacts:	Other Impact Type
1.	Structural Deterioration
2.	Weather
3.	Park Operations

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Management Category Date: 08/08/2006

Management - Treatment:

Latest Est. Interim Treatment Cost: 0

Latest Ultimate Treatment: Rehabilitation

Interim Treatment:	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management	08/21/1995	National Park Service	Yes	No	

	Plan				
	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	500000	08/01/1995	

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility: National Park Service

FMSS Number: 33318

Management - Description:

Short Management Text: GMP specifies adap reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/SF). Maint fns to be relocated. Revise RMP to specify pres treatment.

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 78		2
3.	Other Structure Number	CB54		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good

Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0078 Park Service Warehouse	08/2006	1

				
2.		SRB0078 Park Service Warehouse	08/2006	2
3.		SRB0078 Park Service Warehouse	08/2006	3

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0079 PARK SERVICE GAS STATION

1930

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The original plans for the Park Service Gas Station were approved in 1930. (Drawing 309 Grand Canyon Museum Collection). A historic photograph, taken in 1932, shows the completed building (Photo 00143 from the Grand Canyon Museum Collection). The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources indicates a construction cost for the project of \$483.71.

Some effort was made to design the building in the style of park architecture, lending it a picturesque quality. The construction is traditional wood stud walls with dimensional lumber carpenter trusses. Two antique gas pumps, from different eras, are located outside the building. One features a stylish art deco lamp on the top.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

It cannot be confirmed if the machine lift was original to the building, although it likely was not. Visual evidence suggests that a window was removed and the machine lift installed sometime in the first half of the life of the building. The 1949 survey drawing shows a window where the shuttered opening is now.

The building is un-occupied, but suffers little from it. The roof was replaced in 2002, but requires re-roofing just five years later.

OTHER DOCUMENTED WORK ON THE BUILDING

<u>DATE</u>	<u>WORK DESCRIBED</u>	<u>SOURCE OF INFORMATION</u>
2002	New Roof	Photographs on file at Grand Canyon Museum Collection (# 20020805)

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
Post 1949	Installed machine lift and replaced window with shutters
Unknown	Gas pump island constructed
Unknown	Gas pumps installed

1.3 PHYSICAL DESCRIPTION

The Park Service Gas Station is a simple, gabled structure constructed of traditional wood stud walls with dimensional lumber trusses. It is rectangular in its configuration with a covered porte-cochere canopy extension attached to the structure at the west elevation. The building is currently is un-occupied.

The existence and/or location of underground storage tanks are unknown. No NPS records indicate there ever was underground storage for fuel, although absence of the information does not indicate absence of a fuel tank.

The following section is a discipline-by-discipline, component-by-component description of the building.

SRB-0079 PARK SERVICE GAS STATION

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roofing consists of granulated, asphalt rolled roofing on each side of an east-west running simple gable roof. The original roof is possibly corrugated metal (see photo 02017). Although photo 02017 is not conclusive, it does suggest a material other than roll roofing, possibly corrugated metal was installed. Conversely, other historic photos (00143 and 07815) indicate horizontally orientated roofing, much like the current roll roofing. Further detailed examination of the roof framing may provide additional evidence on original roofing material.

The roof decking is solid 1x12 rough sawn wood on rough sawn 2x4 rafters at 24" o.c. Between the roofing and the decking is a layer of an "Ice and Water Shield" product adhered to a 3/8" sheet of plywood sheathing. There are no gutters, downspouts, or flashings on the building.

ARCHITECTURE - OVERHANGS & SOFFITS

The eaves overhang the south, east and north sides by approximately 15" with exposed roof sheathing and exposed rafter tails. The gable ends have a 1x2 edge trim at the face of the roof sheathing. The west end has a substantial overhanging porte-cochere at the gas pumps. This roof section is supported by a pair of wood columns and cantilevered beams (see Arch-Porch). The overhangs on the west are the same construction as the east and extend approximately 42" beyond the columns.

ARCHITECTURE - EXTERIOR WALL FINISHES

The exterior siding on this building consists of 1x10 lap siding with an 8 1/2" exposure. All of the siding corners are mitered. The siding is painted brown. There is a trapezoidal screened vent in the topmost full-depth siding board at the top of the east and west gables. Boards are butt-jointed at staggered joints on the north and south sides.

ARCHITECTURE - MASONRY

The foundation for the main building consists of a formed concrete foundation poured integrally with the slab on grade floor. No foundation for the columns was observable.

ARCHITECTURE - PORCHES

The two main columns on the west facing porte-cochere are 10x10 wood columns. The tops of the columns support triple 2x6 beams that extend back to the main building as well a triple 2x6 beam between the columns and a double 2x6 beam that cantilevers out to the west approximately 42". Each of these beams is in turn also supported by a 2x6 knee brace diagonally between the column and the beams starting approximately 24" below the top of the column. The exposed wood rafter and truss system in the overhang consists of a 2x4 collar tie at the top of the beams on 2x4 rafters with 1x members between the collar tie and the rafters. There is no ridge beam. All members and exposed sheathing are painted brown. The gable end above the columns is closed in and sided with 1x10 lap siding matching the rest of the building.

ARCHITECTURE - WINDOWS

Window (1)

According to historic photos, this was originally a window similar to (2), but is now a shuttered opening. It has two wood plank (11 1/2") shutter leaves of equal width and no meeting stile/astragal. Each leaf is

SRB-0079 PARK SERVICE GAS STATION

1930

1.3 PHYSICAL DESCRIPTION

supported by three small five-segment hinges with decorative balls at each end. The opening is surrounded by a 3 1/2" smooth sawn flat trim piece and a 1 1/2" sill without apron. The shutters are secured by a throw bolt on the interior.

Windows (2)-(5)

This is a fixed wood window with four divided lites (2/2). The top rail and stile are 1 1/4" and bottom rail is 3 1/4". The muntins are 3/4". The flat rough sawn casing is 3 1/2" and the sill is 1 1/2", with no apron. The unit is flush to the sheathing.

ARCHITECTURE - EXTERIOR DOORS

Exterior Door (A)

This wood plank door is made of 1x9" vertical boards on the exterior and 1x3 1/2" diagonal boards on the interior. It is secured with a padlock strap and swings inward. 3 1/2" rough sawn flat wood trim surrounds the opening.

ARCHITECTURE - FLOOR

Slab on grade is the flooring in this building.

ARCHITECTURE - FURNISHINGS

The gas station retains an early Marvel pump and reservoir and a Bennett gas pump (model #788; serial # 9V17675) on the concrete island under the canopy. (Some early photos indicate no pump, while other different photos show pumps.) Bolted to a small concrete pad to the south side of the station is an Erie Meter Systems gas pump (patent nos. 104,489 & 2,089,681 and 2,089,705).

Inside the building is a machine hoist on a ceiling-hung rail (the rail continues through an access door and out under the exterior canopy). It appears this may have been used as a mechanism to bring car engine parts into the building to be serviced and repaired.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, but there is accessible parking adjacent to the building, under the canopy. The entry door has a 10" step at the threshold, from grade and the door's padlock hardware is not ABAAS compliant. (Photos 0079-112 and 0079-122)

Once inside, the one room space is accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

The gable roof consists of 1x12 straight sheathing over field built wood carpenter's trusses. The carpenter's trusses are constructed with 2x4 rough sawn top & bottom chords. The top chords extend out to form the eave. Carpenter's truss webs are 2x6 verticals and 1x diagonals. All elements of the carpenter's truss are well connected using nails and thru bolts (Photo 0079-123 & 124).

The carpenter's trusses bear on the exterior stud bearing walls on the enclosed portion of the building and on a triple 2x6 girder at the exterior. Carpenter's truss span is approximately 12'.

SRB-0079 PARK SERVICE GAS STATION

1930

1.3 PHYSICAL DESCRIPTION

The carpenter's trusses also support a hoistway for a small hoist (Photo 0079-203). The hoist appears to have been added after initial construction. Typically, the hoistway is hung from two bolts every 18" fastened through 2-2x6 set on top of the carpenter's truss bottom chord. The girders are supported by 10x10 wood posts at the west end of the canopy and by corner studs at the east end. Two of the 3-2x6's extend out to support the 2x4 barge rafter. A 4x6 outlooker is cantilevered out at the ridge to support the high end of the barge rafters.

The canopy is braced by 2x6 knee braces extending from the columns to a 4x6 tie beam spanning between the columns.

The exterior walls are rough sawn 2x4 at 24" sheathed with 1x horizontal sheathing. This sheathing acts as the lateral force resisting system for the building. The interior is unsheathed (Photo 0079-204).

The floor inside the building is concrete slab-on-grade. The foundation was not visible but it appears that the perimeter may be supported only by the thickened slab-on-grade (Photo 0079-125).

The exterior canopy column foundations are not visible. The top of a concrete footing was seen when several inches of soil were cleared from the side of the column. The extent and depth are unknown.

MECHANICAL

There is a manual engine lift and track system in place and attached to the structure. Pumps are in-operable and no underground storage tanks can be located from surface features.

A vent pipe extends to the roof of the canopy to an inaccessible location. Its purpose is unknown.

ELECTRICAL - SYSTEM DESCRIPTION

This building is provided with a 120-volt electrical service from a tap off of the existing underground electrical distribution system. This electrical service consists of a single 20-amp circuit breaker in a 125-amp enclosure. From this circuit breaker, an additional single 20-amp circuit breaker is installed near the floor level inside of the building (Photos 0079-127 and 0079-205).

The insulation type used in this building was not observed since no visible feeder or branch circuiting wiring was readily accessible. The conduit system in the building was GRC with a seal-off where the conduit entered into the panel from the underground branch circuit.

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

The interior lighting consists of a single stem-mounted incandescent fixture with a metal shade. This fixture appears to be an original fixture (Photo 0079-206).

EXTERIOR LIGHTING

There is a single stem- surface mounted incandescent fixture suspended under the canopy in the center. It appears to have a metal housing, painted green. The hood is missing (Photos 0079-128, 0079-129 and 0079-130).

SRB-0079 PARK SERVICE GAS STATION

1930

1.3 PHYSICAL DESCRIPTION

There is a single lamp gooseneck fixture with intact hood and wire basket. A glass globe is broken within the basket, and the broken remains of a light bulb remain screwed in place. The hood is green.

TELECOMMUNICATIONS

No telecommunications are provided at this building.

SRB-0079 PARK SERVICE GAS STATION

1930

1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Overhangs – The simple roof extension shelters gas pump activities, while revealing the underside of the roof structure with features such as exposed rafter tails. (See photo 0079-108)
- Gable end brackets – Large, simple, triangular wood brackets support the porte cochere roof. (See photos 0079-105, 0079-106)
- Rough sawn, horizontal, wood lap siding. This is one of the only decorative treatments on this building. (See photo 0079-110)
- Wood paneled door – This building has a simple plank door that is similar to others in the complex. (See photo 0079-121)
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex (See photo 0079-109)
- Wood windows with clear glass – This building features wood casement windows, with wood muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills. (See photos 0079-116 through 0079-120)
- Wood posts – Plain wood posts support the porte-cochere roof from ground to roof beam, with no base or capital, but with knee braces to support the structure. (See photos 0079-105, 0079-106, 0079-113)

1.5 GENERAL CONDITION ASSESSMENT

In general the Park Service Gas Station is in fair condition. The non-historic roof is in poor condition, specifically the south elevation where the rolled roofing material has peeled off. The windows are showing some early signs of deterioration. The foundation is intact and in good condition.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

SRB-0079 PARK SERVICE GAS STATION

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: POOR

The rolled roofing is in poor condition. Some of the roofing has peeled off on the south side of the roof. The roof decking itself appears to be in good condition. There are old roofing nails still existing in the edge of the roof sheathing. Rolled roofing is not a durable material.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: GOOD

The overhangs are in good condition with the exception of a broken rafter tail at the southwest corner of the porte cochere. (See Structural)

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: FAIR

The lap siding is in fair to good condition. Several boards on the south side appear to have been replaced recently. The edges of the mitered joints at the corners of the east and west ends are deteriorated and are pulling away from the corner joint - exposing the interior structure to weather. The screened vents are in good condition. There are also some cracked and split boards on the east and west ends. The siding above the columns is in good condition.

ARCHITECTURE - MASONRY

CONDITION: GOOD

The foundation is in good condition, although the site slopes from east to west and there is very little swale at the side of the building.

ARCHITECTURE - PORCHES

CONDITION: GOOD

The columns at the porte cochere are in fair to good condition with extensive nail holes, staples and general wear. The triple beam between the columns and between the column and the building are in good condition as are the rafters and truss configurations above. The double 2x6 cantilever beams and some of the knee braces, while in good condition, are inappropriate replacements for original material. All original structure appears to have been rough sawn and all the replacements are dressed lumber. Also, the double beams were originally extensions of the existing triple beams and the siding no longer fills that gap.

ARCHITECTURE - WINDOWS

CONDITION: FAIR

Window (1)

The hinges are not adequate to support the weight of the shutters and have become bent and pulled away. One board exhibits cracking along the grain.

Window (2)

Wood joints are pulling away. Two panes of glass are cracked, and glazing putty is missing.

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1.5 CONDITION ASSESSMENT

Window (3)

Located on the harsh south side of the building, severe weathering is evident in raised grain, blistered and peeling paint, missing glazing putty and cracked rails, stiles, and trim. One glass lite is missing. Joints are pulling away.

Window (4)

Some early signs of deterioration are evident in cracked paint on the bottom rail.

Window (5)

On the north side of the building, this window experiences less weathering and is in good condition.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **FAIR**

Exterior Door (A)

One center vertical plank has split off a knot hole on the top edge. The wood stop has broken off 30" from the bottom.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

Other than oil stains, the slab is in good condition.

ARCHITECTURE - FURNISHINGS

CONDITION: **GOOD**

None of the pumps are operational, but they retain most of their original gauges, hoses and mechanisms.

The hoist and rail are in good condition.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

The building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **GOOD**

The roof framing is generally in good condition. However, the canopy roof is deformed due to settlement of the southwest column. This has caused the carpenter's truss nearest the west wall to deform (Photo 0079-126) distorting the bottom chord of the truss.

Exterior walls are in good condition except along the east side of the building. Soil is at or above sill plate level and in direct contact with the wood framing.

SRB-0079 PARK SERVICE GAS STATION

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1.5 CONDITION ASSESSMENT

The foundation, where visible, appears to be in good condition. However the foundation supporting the southwest column has settled significantly.

MECHANICAL

CONDITION:

N/A

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **FAIR**

This electrical service and branch circuiting raceway appeared to be in good condition for their age and usage, overall.

No grounding of the electrical service or panel was observed.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **GOOD**

The existing interior lighting appears to be in good shape and is likely to be the original fixture used in this building. This light fixture meets the intended use of the building but additional lighting may be desired if detailed tasks are to be performed that would require additional illumination.

These exterior fixtures are some of the few remaining historic light fixtures in the area and should be restored. The fixture is missing the shade and globe but looks to be in good condition otherwise. This fixture would provide sufficient illumination for the intended task.

The existing interior and exterior lighting does not provide any emergency type egress lighting.

SRB-0079 PARK SERVICE GAS STATION

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2.1 ULTIMATE TREATMENT AND USE

The building is currently used as inactive storage. It provides an interesting, historic account of the various generations of gas supply, provided to park vehicles. The historic gas pumps tell this story and could be cleaned up – possibly restored. The small size of the building limits the range of its potential use. Stabilization is an appropriate treatment, until a future use is determined. Rehabilitation is the recommended ultimate treatment for this building.

The following is a discipline-by-discipline, component-by-component description of recommendations.

SRB-0079 PARK SERVICE GAS STATION

1930

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **MODERATE**

The rolled roofing on the building should be replaced with new granular asphaltic roofing to match the existing roofing. Corrugated metal is also acceptable. Both appear to be historic. The underlying sheathing does not require treatment at this time.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

Replace the broken double rafter at the southwest corner of the roof. The rest of the overhangs do not require treatment at this time.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **LOW**

The bottom 3-5 siding boards on the east and west ends (at the south side) should be replaced with new siding boards to match the original. Miter all joints and provide a tight connection at all corners. Repair deteriorated joints where siding boards are not replaced. Scrape, sand, and re-paint after repairs are made.

ARCHITECTURE - MASONRY

PRIORITY **LOW**

No treatment is required for the slab/foundation at this time. The site around the building should be regraded to provide positive drainage away from the building and to allow surface water to be channeled around the building.

ARCHITECTURE - PORCHES

PRIORITY **LOW**

See 'Structural' on the following pages.

ARCHITECTURE - WINDOWS

PRIORITY **LOW**

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration. All of the hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware.

Window (1)

Replace hinges with similar appropriate to shutter weight, and stabilize cracked shutter.

Window (2) & (3)

Rehabilitate windows including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.

SRB-0079 PARK SERVICE GAS STATION

1930

2.1 TREATMENT RECOMMENDATIONS

2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed.
3. Stabilize the sash joints and muntins to make the units structurally sound.
4. Repaint the unit with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Install weatherstripping at all openings.
6. Reglaze the unit using original glass, and replacing missing glass as needed. Do not attempt to match the historic rippled glass, but rather allow the new glass to be identifiable at close range.

Window (4)

Monitor this window unit for increased weathering.

Window (5)

No work needed at this time.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY LOW

Replace the missing wood stop on the strike edge, and plug the knot hole with a wood plug. Paint to match existing. The hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware. Install weatherstripping at the opening.

ARCHITECTURE - FLOOR

PRIORITY LOW

No work is required at this time.

ARCHITECTURE - FURNISHINGS

PRIORITY MODERATE

These pumps are currently out in the open where they are subject to damage from traffic activities. They should be protected with bollards, at a minimum.

No work on the hoist or rail is recommended at this time.

ARCHITECTURE - ACCESSIBILITY

PRIORITY LOW

This building is listed as a Tier 2 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that, the current use of the building does not require ABAAS compliance. If some future office or other adaptive use of the building requires accessibility, the building should be rehabilitated to comply with ABAAS at that time.

.

SRB-0079 PARK SERVICE GAS STATION

1930

2.1 TREATMENT RECOMMENDATIONS

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **LOW**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

The southwest column should be jacked back to a level condition. The base of the column could be shimmed or a new footing could be installed to make up the difference in elevation. This would relieve the distress observed in the roof structure.

Soil should be removed around the building such that no wood is within 6" of soil. Sill plates, anchor bolts, wall sheathing and wall framing should be repaired or replaced where deteriorated.

MECHANICAL

PRIORITY **LOW**

Further investigation should be done to determine if, and where, possible underground storage tanks might be located near the building.

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **MODERATE**

The panel inside the building should be raised for code and equipment reasons.

The branch circuiting would most likely consist of older cloth insulation type and should be replaced with a thermoplastic type of insulation for safety reasons.

The grounding and bonding of this electrical service and associated branch circuits should be upgraded for code and safety reasons.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Provide emergency lighting in the interior of the station and at the exit discharge from the building to comply with current code.

Restore these light fixtures. Locate hood, cage, and globe to match existing. Remove broken lamp and re-lamp both fixtures.

The existing exterior fixtures appear to be cut off and would comply with the "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04).

SRB-0079 PARK SERVICE GAS STATION

1930

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance and Warehouse Complex overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

The Park Service Gas Station will likely never be restored to any certain period in history, although, of all the buildings in this study, this one would be the best candidate. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. In general, the building requires *rehabilitation*, to address the existing code-deficient conditions (ABAAS access, electrical service, fire safety, etc.)

Given that historic photographs seem to indicate that the building may have had both corrugated sheet metal roofing and roll roofing historically, either may be acceptable replacement materials. (Note that the original drawing indicates horizontal roofing, e.g. roll roofing, but that may or may not have been what was installed originally.

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

This building needs little alteration, but it requires maintenance, which if carried out will provide a positive effect on the character defining features of the building. If this were to become an office or other working facility, alterations might be unavoidable, such as construction of an accessible entrance, replacement of door hardware, and the addition of insulation and wall finishes.

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 1932
National Park Service Grand Canyon Museum Collection (Photo # 00143)



Bldg SRB-0079 – date unknown
National Park Service Grand Canyon Museum Collection (Photo # 07815)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 in background – date unknown
National Park Service Grand Canyon Museum Collection (Photo # 02017)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01304)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01305)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01306)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01307)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01308)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01309)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01310)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01311)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01358)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01360)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01361)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01362)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01363)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01364)

SRB-0079 PARK SERVICE GAS STATION

1930



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01365)



Bldg SRB-0079 – 2002
National Park Service Grand Canyon Museum Collection (Photo # 01369)

SRB-0079 PARK SERVICE GAS STATION

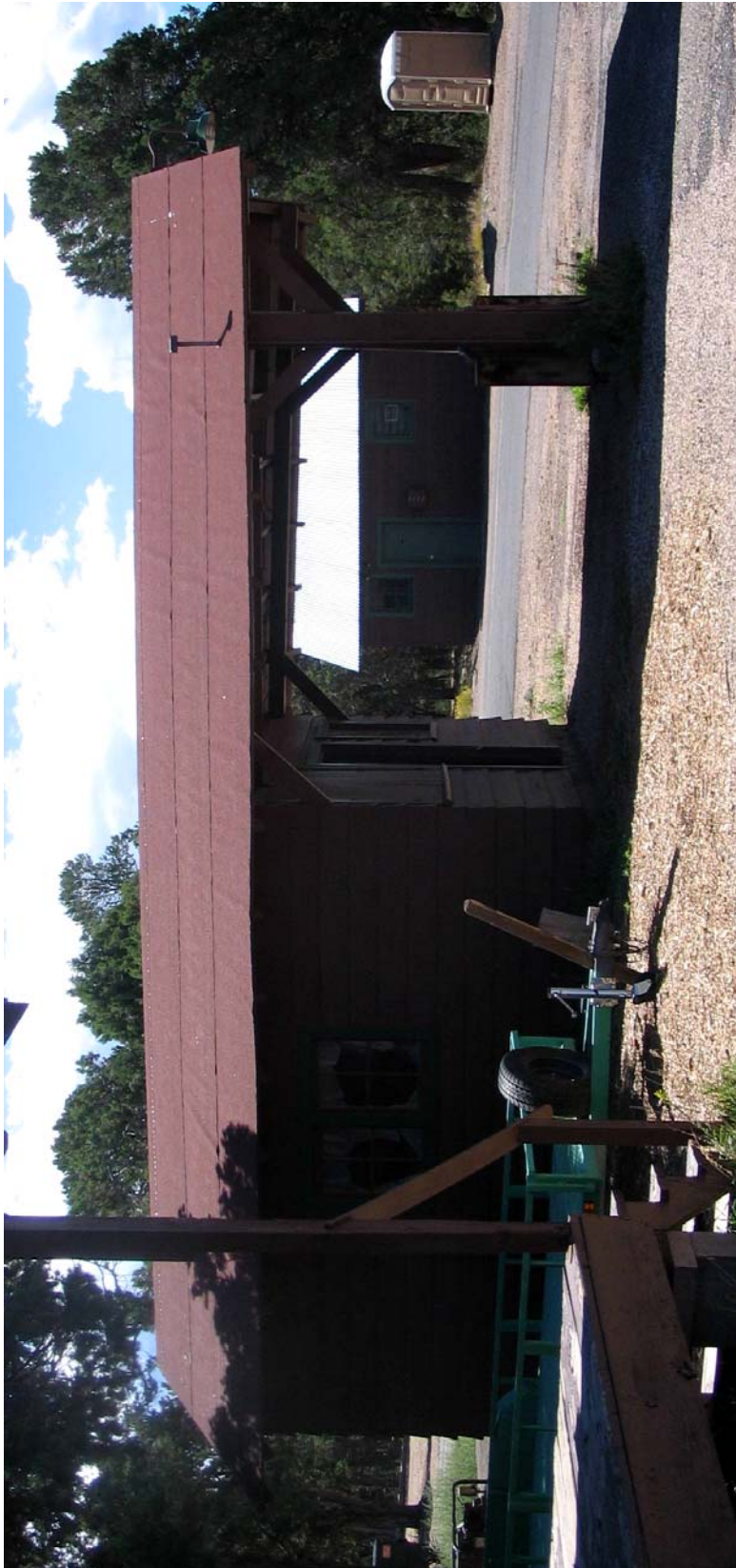
1930



West Elevation Bldg 0079 -- 2006

SRB-0079 PARK SERVICE GAS STATION

1930



North Elevation Bldg 0079 -- 2006



East Elevation Bldg 0079 – 2006



South Elevation Bldg 0079 – 2006

SRB-0079 PARK SERVICE GAS STATION

1930



South Side Roof with missing sections of roofing 0079-105



North Side Roof 0079-106

SRB-0079 PARK SERVICE GAS STATION

1930



Southwest Roof Overhang 0079-107



South Roof Overhang 0079-108

SRB-0079 PARK SERVICE GAS STATION

1930



Roof Overhang 0079-109



Lap Siding 0079-110

SRB-0079 PARK SERVICE GAS STATION

1930



Split Siding at Mitered Corners 0079-111



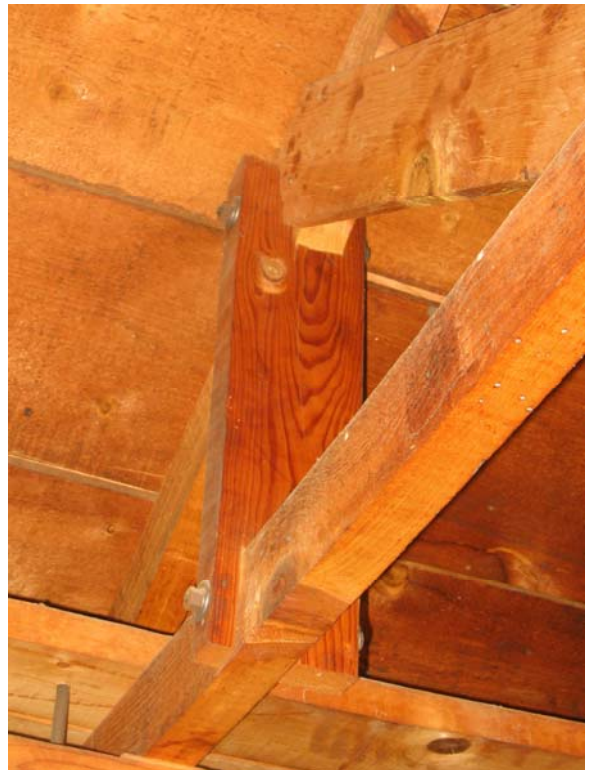
Concrete Foundation 0079-112

SRB-0079 PARK SERVICE GAS STATION

1930



Porte Cochere 0079-113



Porch Structure 0079-114

SRB-0079 PARK SERVICE GAS STATION

1930



Gas Pump at Porte Cochere 0079-115



West Window (1) 0079-116

SRB-0079 PARK SERVICE GAS STATION

1930



West Window (2) 0079-117



South Window (3) 0079-118

SRB-0079 PARK SERVICE GAS STATION

1930



East Window (4) 0079-119



North Window (5) 0079-120

SRB-0079 PARK SERVICE GAS STATION

1930



Exterior Door (A) 0079-121



Step at Threshold 0079-122

SRB-0079 PARK SERVICE GAS STATION

1930



Typical Roof Truss 0079-123



Exterior Girder Supporting Trusses 0079-124

SRB-0079 PARK SERVICE GAS STATION

1930



Perimeter Foundation 0079-125



Southwest Elevation. Note Deflected Roof at Canopy 0079-126

SRB-0079 PARK SERVICE GAS STATION

1930



Service Disconnect 0079-127



Stem-mounted Fixture 0079-128

SRB-0079 PARK SERVICE GAS STATION

1930



Exterior Gooseneck Fixture 0079-129



Exterior Fixture 0079-130

SRB-0079 PARK SERVICE GAS STATION

1930



Gas Pump 0079-131



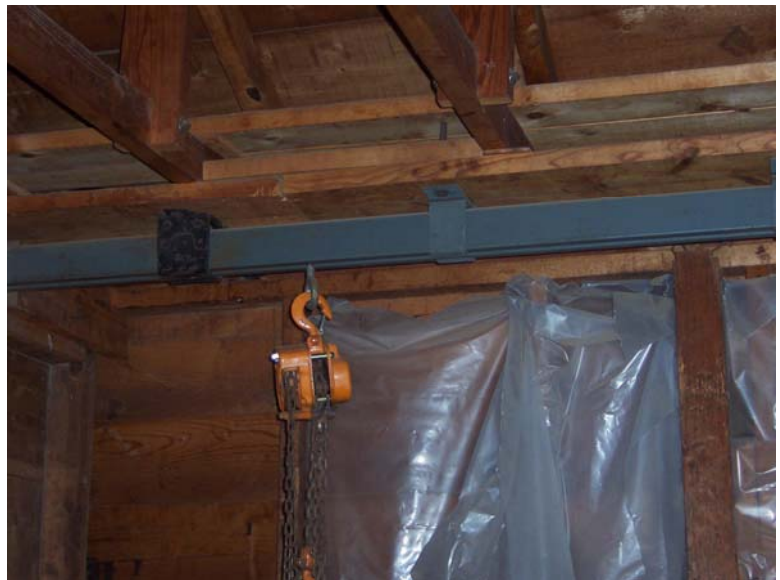
Gas Pump Detail 0079-132

SRB-0079 PARK SERVICE GAS STATION

1930



Concrete Slab Floor 0079-201



Machine Hoist on Track 0079-202

SRB-0079 PARK SERVICE GAS STATION

1930



Interior Roof Framing, Crane Support 0079-203



Northeast Corner, Interior Wall Construction 0079-204

SRB-0079 PARK SERVICE GAS STATION

1930



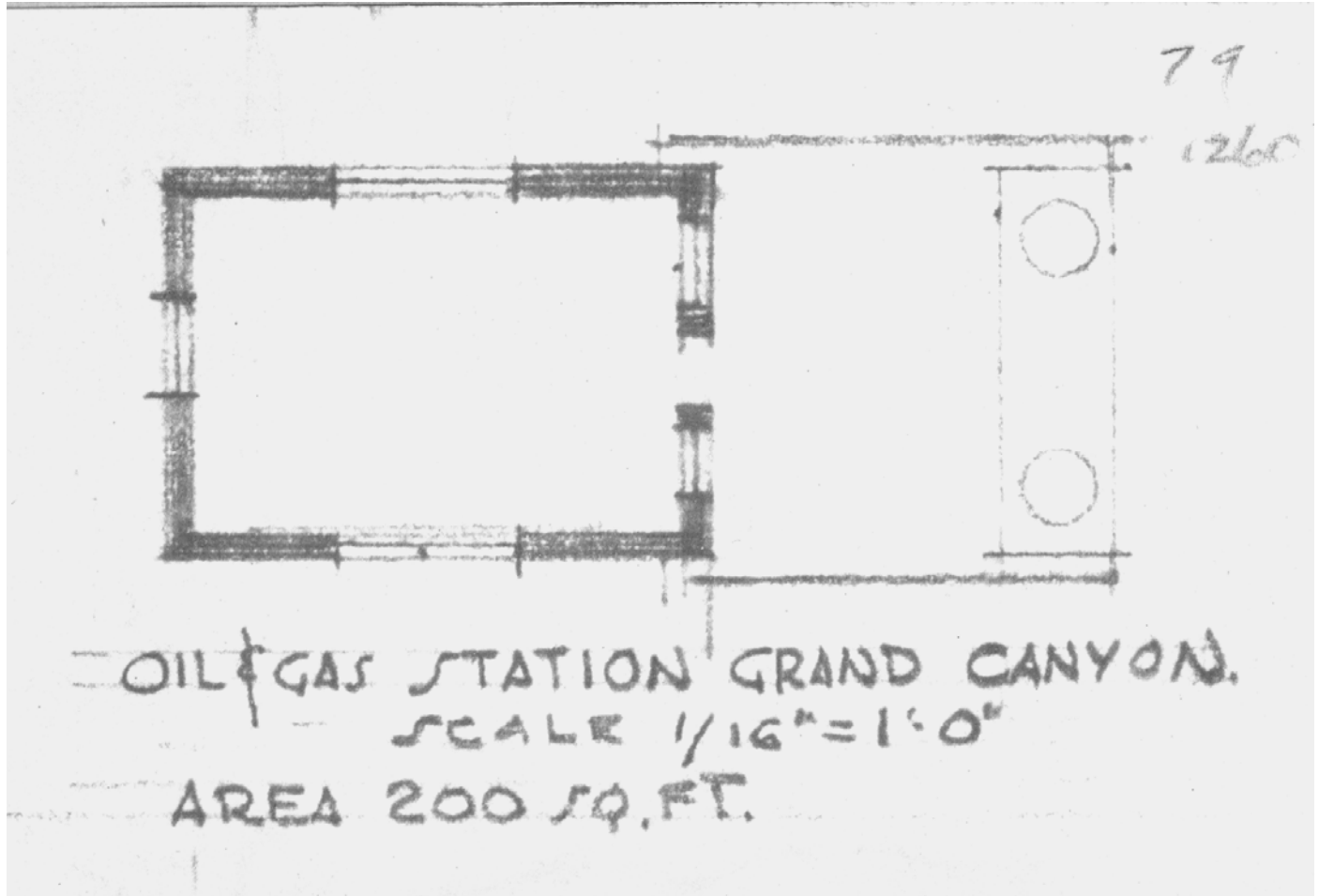
Interior Circuit Breaker 0079-205



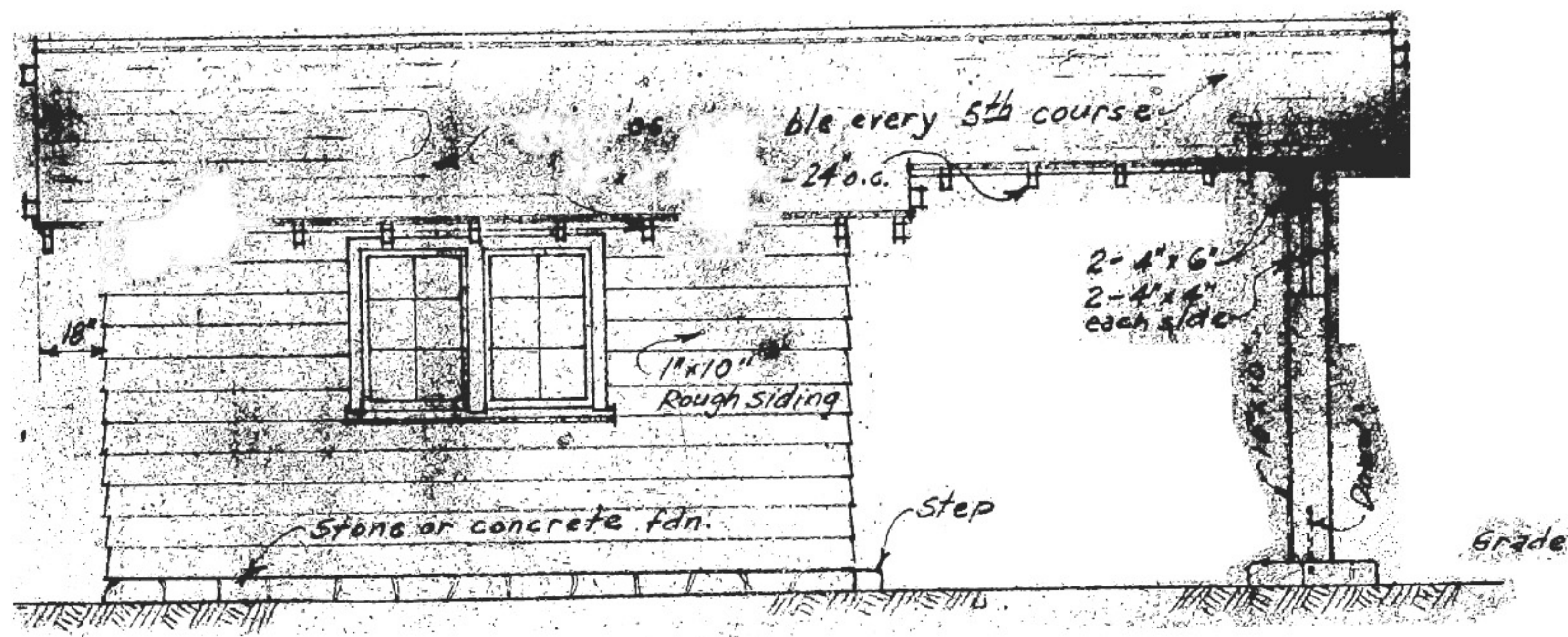
Stem-mounted Fixture 0079-207

SRB-0079 PARK SERVICE GAS STATION

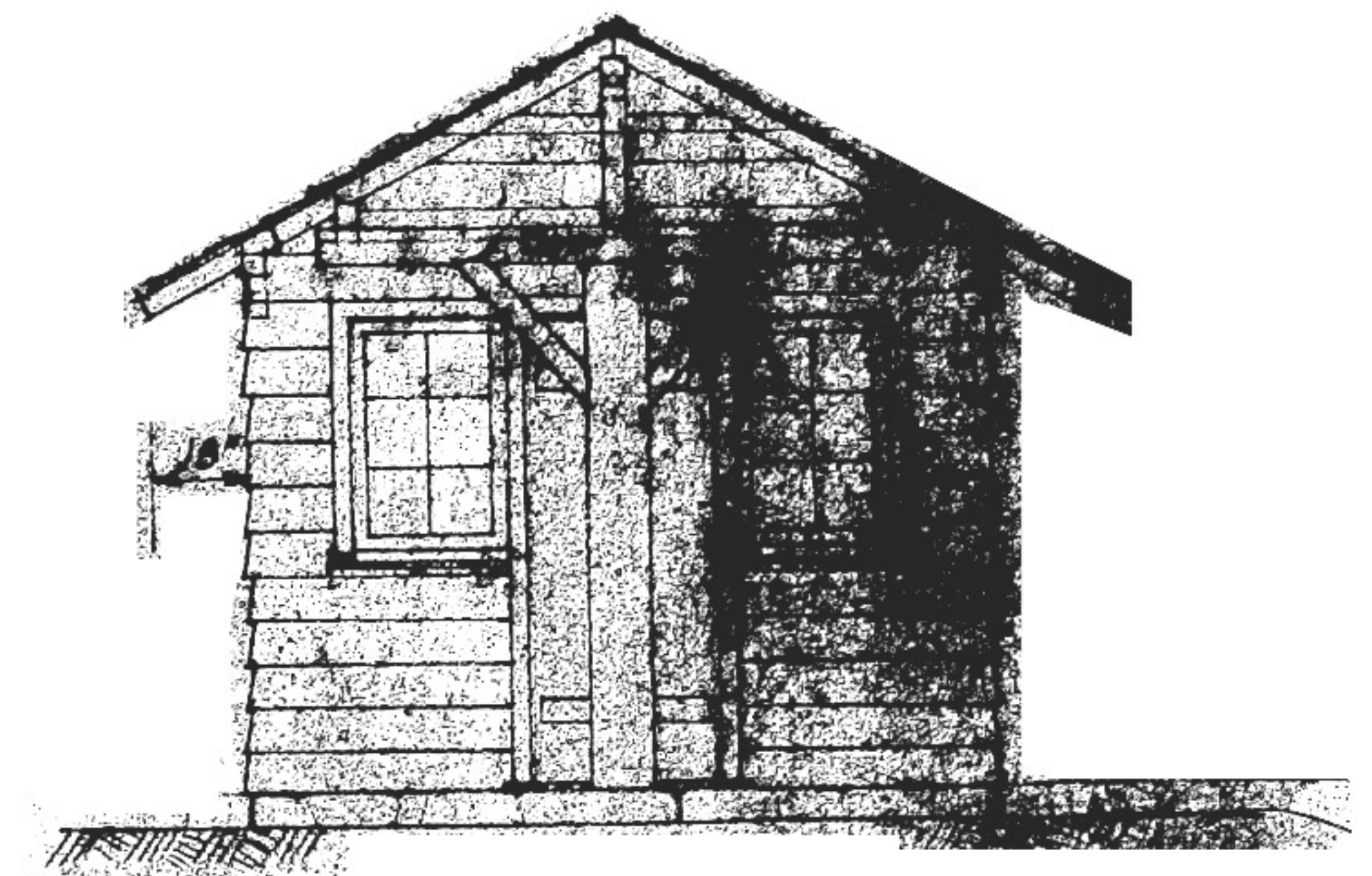
1930



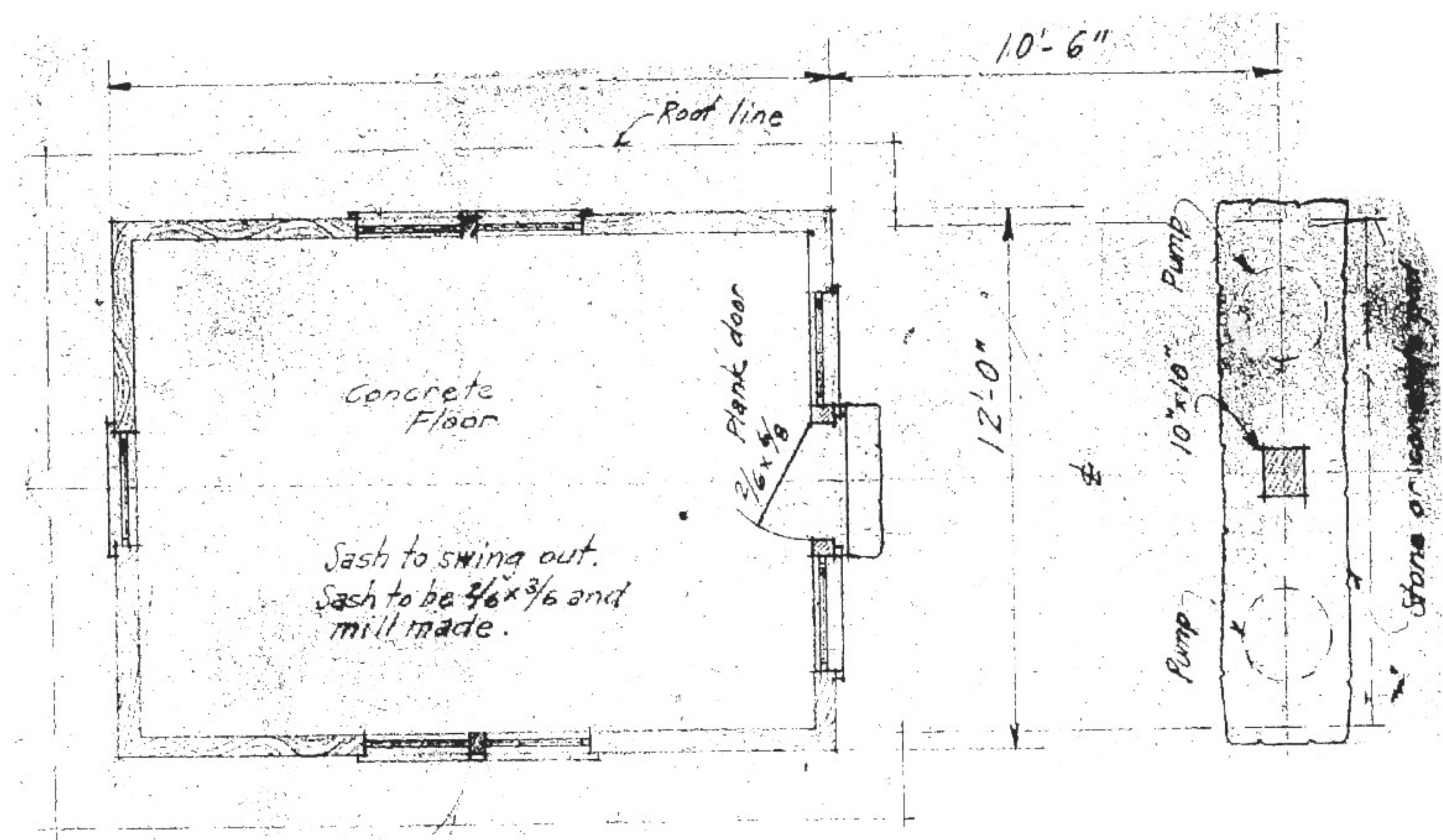
1949 Survey Plan – Building 79
Grand Canyon National Park Office of Cultural Resources



SIDES



FRONT

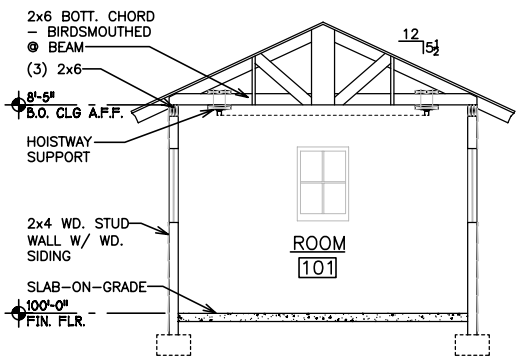


PLAN

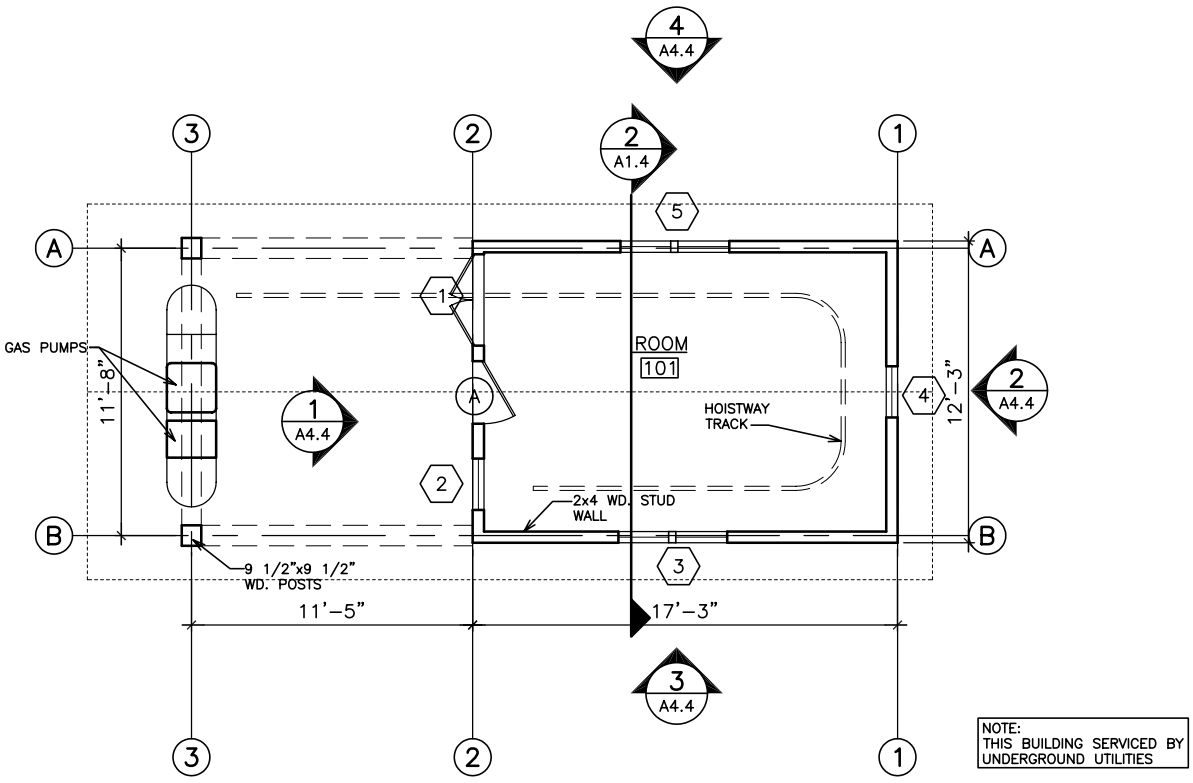
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Recommended to A
 Chief Lands
 Concur
 Superintendent
 Approved *C. Z. Vismay*
 Act. Director, N.P.S.
 Date *3/13/30*
 DEPT. OF INTERIOR - NATIONAL
 - GRAND CANYON NATIONAL PARK
 - OIL STATION - UTILITY GRO P
 Designed by Division of Landscape Arc

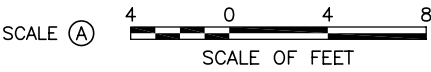
NOTE: FOUNDATION ILLUSTRATIONS
ARE NOT VERIFIED, BUT RATHER
BASED ON A COMBINATION OF
SURFACE OBSERVATIONS, HISTORIC
DRAWINGS, AND COMMON BUILDING
ASSEMBLY PRACTICES AT THE TIME OF
CONSTRUCTION



2 SECTION
A1.4



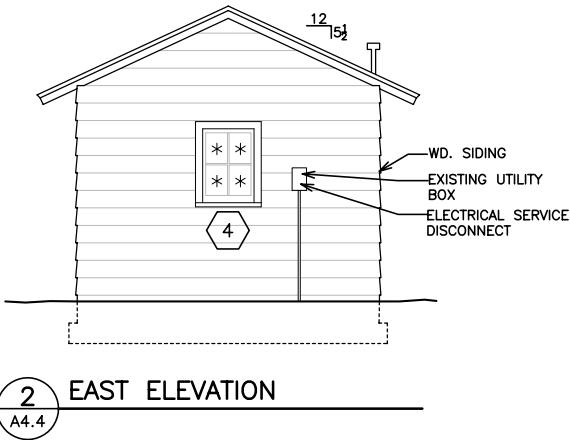
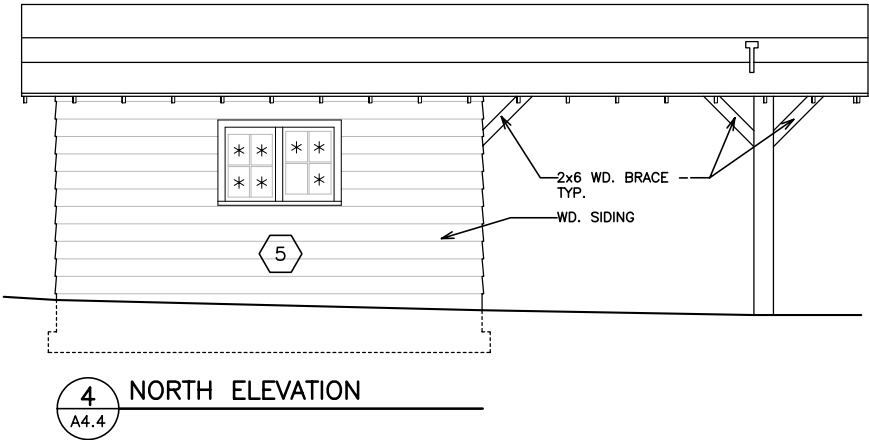
1 FLOOR PLAN
A1.4



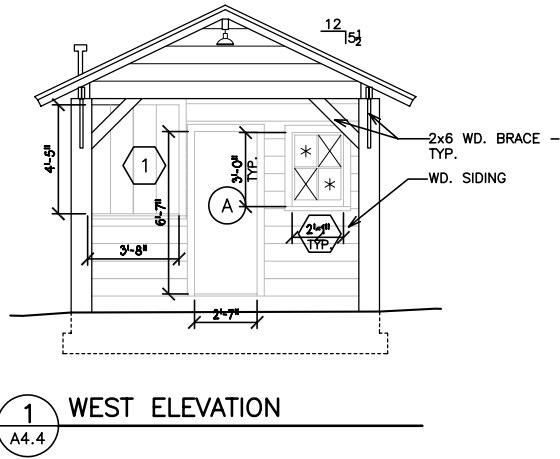
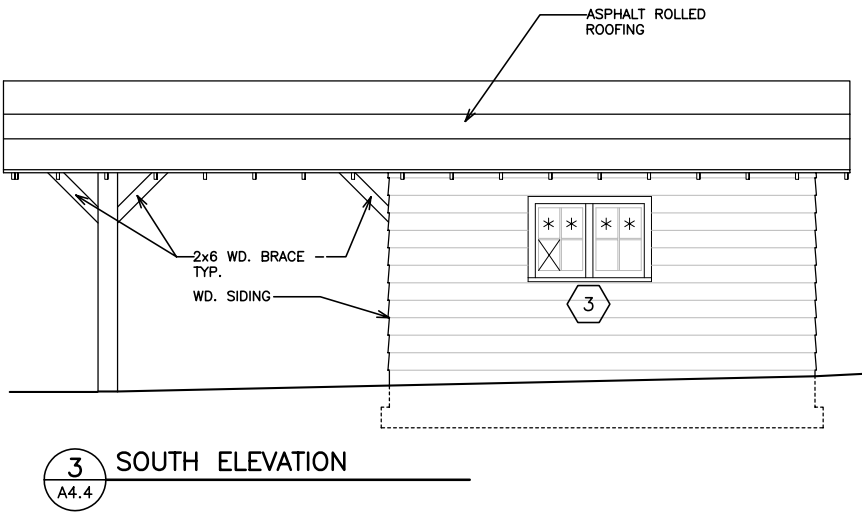
EXISTING CONDITIONS - 2006

DESIGNED: GAPD BSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0079 Park Service Gas Station	DRAWING NO. 113 25018
TECH. REVIEW:	DATE: 04/13/07	GRAND CANYON NATIONAL PARK ARIZONA	PMIS/PKG. NO. 084236
			SHEET 1 OF 2

NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



KEY NOTES:
* HISTORIC RIPPLE GLASS
X BROKEN OR MISSING GLASS



EXISTING CONDITIONS — 2006

DESIGNED: GADD BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0079 Park Service Gas Station GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25018 PMIS/PKG. NO. 084236 SHEET 2 OF 2
TECH. REVIEW:	DATE: 04/13/07		

Gas and Oil Station



Identification:

Preferred Name: Gas and Oil Station

Structure Name:

Name:

Structure Number: SRB0079

Number:

Other

Structure

Name(s):

	Other Structure Name(s)
1.	Sunset Drive Old Fuel Shed
2.	NPS Gas Station
3.	Park Service Gas Station

Park: Grand Canyon National Park

Historic

District:

	Historic District
1.	Grand Canyon Village

Structure State: Arizona

State:

Structure County: Coconino

County:

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

Unit:

LCS ID: 055415

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Register Status: Entered - Documented

Status:

National
Register Date: 02/18/1997

National
Historic
Landmark?: Yes

National
Historic
Landmark
Date: 02/18/1997

Significance
Level: Contributing

Short
Significance
Description: Orig const to supply govt vehicles w/gas & oil. 1 of 28 bldgs blt 1925-1931 following 1924 Plan by NPS Landscape Eng Div. Rustic style bldg w/orig CCC era "No Smoking" sign. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long
Significance
Description: The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the village's major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and

helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1930	AD			NPS	Other

Function and Use:

Primary Function: Fuel Distribution System

Historic Function:

Primary Function:

Primary Function: GENERAL STORAGE

Current Use:

Structure Contains: No

Museum Collections?:

Other Functions or Uses:

Other Functions or Uses	Other Function(s) or Use(s)	Historic or Current
	No records.	

Physical Description:

Structure Type: Building

Volume:

1 - 2,000 cubic feet

Square Feet:

200

Material(s):

	Structural Component(s)	Material(s)
1.	Walls	Weatherboard
2.	Foundation	Concrete
3.	Roof	Asphalt
4.	Framing	Wood

Short Physical Description: 1 story wood frame utility building 15'x28'. Gable roof with exposed rafters, lookouts, composition shingles extends over open bay covering old gas pump & concrete island. 1'x1' wood columns support open bay. Horizontal wood lap siding, Wood casement windows, wood plank door. Concrete slab.

Long Physical Description: 1 story wood frame utility building 15'x28'. Gable roof with exposed rafters, lookouts, composition shingles extends over open bay covering old gas pump & concrete island. 1'x1' wood columns support open bay. Horizontal wood lap siding, Wood casement windows, wood plank door. Concrete slab.

Condition and Impacts:

Latest Condition: Good

Condition:

Latest Year Assessed: 2006

Assessed:

Conditions:

	Condition	Year Assessed
1.	Fair	1996
2.	Good	2006

Impact Level: Low

Primary Impact: Tenants/Occupants

Impact:

Other Impacts:

	Other Impact Type
1.	Weather
2.	Park Operations

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Category:

Management Category Date: 08/08/2006

Category Date:

Management - Treatment:

Latest Est. 0

Interim Treatment:

Treatment:

Cost:

Latest Ultimate Treatment: Rehabilitation

Treatment:

Interim Treatment:

Treatment:

	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:

	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management Plan	08/21/1995	National Park Service	Yes	No	

	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	100000	08/01/1995	

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility: National Park Service

FMSS 33321

Number:

Management - Description:

Short Management Text: GMP specifies adap reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/sf). Maint facilities to be relocated. Revise RMP to spec pres trtmt. Broken window, south elevation should be replaced. (07/2006)

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 79		2
3.	Other Structure Number	CB55		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good



Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0079 Gas and Oil Station	08/2006	1

			
2.		SRB0079 Gas and Oil Station	08/2006 2

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The original plans for the Park Service Vehicle Paint Shop indicate this building was ECW Project 6(a) and was approved in 1934. A report to the Chief Architect, presented in February of 1936, notes that construction on the building would begin upon the anticipated approval of funding. (Drawings 3070a 3092, Document D578, Grand Canyon Museum Collection) The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources indicates a construction cost for the project of \$1,907.45.

The building is constructed of traditional wood stud walls and dimensional lumber trusses with board and batten siding. Historically, all of the large doors were operable to accommodate vehicle access. A historic photo (Photo #00906, Grand Canyon Museum Collection) shows a truck parked at the west garage door. The historic construction drawings indicate a pair of single windows on the west elevation, but evidence suggests the unit on the north was actually constructed as a triple assembly to match the triple on the east elevation. Additionally, the lower floor level on the west of the building appears to have been a product of topography, and not included in the historic drawings.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

Plans to install a new heating system inside the building were drawn in 1939 and are illustrated in drawing 3070B of the Grand Canyon Museum Collection. Painted, pressed steel lines the ceiling of the northwest office area, but no date can be assigned to this alteration – assuming the vehicle bay did not originally feature such an ornate finish. The 1949 survey drawing shows that space as an office, with the large door possibly permanently shut by that time. The restroom was remodeled sometime after 1949.

The building appears to be in good condition today. The roofing is fairly new. The corrugated siding appears to be original (or at least early, based on historic photos), but it is in poor condition.

OTHER DOCUMENTED WORK ON THE BUILDING

None.

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
1936-1949	West garage converted to office – large door fixed shut
Post-1949	Large east doors fixed shut / Man-door installed
Post-1949	Bathroom remodeled
Unknown	Pressed steel ceiling/walls installed (could be original due to specification for galvanized metal ceiling in this room)

1.3 PHYSICAL DESCRIPTION

The Park Service Vehicle Paint Shop is constructed of traditional wood stud walls and dimensional lumber trusses. It is rectangular in shape, with a simple gabled roof. The building features a corrugated sheet metal roof, painted galvanized sheet metal siding, a rough stone chimney and rubble stone foundation.

The interior spatial configuration lends itself well to its current use as a general multi-purpose building for the horse patrol and park maintenance workers with a large open main floor space, a storage area and restroom located to the west, one step down from the main area.

The following section is a discipline-by-discipline, component-by-component description of the building.

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roofing consists of corrugated, galvanized sheet metal on 2x6 purlins at 32" o.c. (An historic photo of the building indicates similar roofing, with a panel lap midway down the slope of the roof. This has obviously been replaced with panels that continue from the ridge to the eave.) The roofing has a formed, round over cap flashing and no gutter or downspouts. There are false rafter tails at the north and south overhangs. The roofing is attached with neoprene gasketed roofing screws at 8-10" o.c.

A variety of roof insulations are apparent. Insulation appears to have been blown down into the sloped ceiling cavities and within some sections of the roof. Loose batts of insulation are on top of the ceiling rafters - not installed. These batts range from 24" R-30+ to 16" R-19.

ARCHITECTURE - OVERHANGS & SOFFITS

Overhangs are approximately 8-10" on the gable ends (east and west) and 16" on the north and south sides. 2x6 rafters make up the overhang at the gable ends and the metal roofing cantilevers on the north and south sides. The underside of the roofing and all other elements are painted brown.

ARCHITECTURE - EXTERIOR WALL FINISHES

The exterior wall finish is vertically-installed corrugated, galvanized sheet metal attached to wood blocking in the wood frame walls. Similar siding appears in an historic photo of the building. The sheet metal is attached with roofing nails and extends to the underside of the roofing. The siding is cut to fit around purlins, rafters and door and window frames. Flashing is installed under the siding and over the window head at the east and west ends. The siding extends down to the top of the concrete ledge on the east side of the building, over the concrete foundation on the north and over the stone foundation on the west and south sides. All of the siding is painted brown. There is no evidence of insulation in the exterior walls.

ARCHITECTURE - MASONRY

The chimney above the roof is a 30"x30" rough stone chimney that extends 48" above the roofing. Its sheet metal flue extends 24" above the top of the chimney. The chimney is flashed with stepped flashing over the irregular face of the stone.

The foundation on the east side consists of a concrete ledge at the south end and appears to be cementitious parging over stone at the north end. There is a concrete foundation along the north wall. The east and south foundations are mortared rubble stone.

ARCHITECTURE - WINDOWS

This is the only building included in this report to feature steel windows. Fabricated of simple steel shapes, they give this building a unique character in the complex.

Windows (1)&(2)

This set of three fixed windows are inset 1", and made of 3/4" steel X's, single glazed from the interior side. The muntin extensions on the interior are 1" deep. The units are divided into four equal glass lites (2/2), except the east side of (1), which was constructed as the top half of a unit to accommodate a man-door beneath. (Photos 0080-114 through 0080-116)

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1.3 PHYSICAL DESCRIPTION

Windows (3) & (6)-(7),(8)

These sets of three pivot windows, hinged halfway up the interior side and inset 2 1/2", are constructed of steel. The frame is an assembly of 1" steel angles on the interior, 3/4" steel angles on the exterior, plus additional 3/4" steel X's holding the glass pane. This same 3/4" steel X shape also creates the muntins. The three units are separated by two 2 5/8" structural wood mullions. The wood framed opening is visible in the inset. The assembly is surrounded by a 2 1/2" flat wood casing and a 2" wood sill. The interior features 3/4" wood sill and 3 1/2" wood casing all around. All interior trim is painted. There is a hole on (7) through the siding and sill of the west unit. (Photos 0080-117, 0080-121, 0080-122, 0080-124, 0080-202, 0080-203, 0080-205)

Windows (4)&(5)

This pivot window unit is hinged halfway up the interior side, inset 2 1/2", and constructed of steel. The frame is an assembly of 1" steel angles on the interior, 3/4" steel angles on the exterior, plus additional 3/4" steel X's holding the glass pane. This same 3/4" steel X shape also serves as the muntin. The three units are separated by two 2 5/8" structural wood mullions. The wood framed opening is visible in the inset. The assembly is surrounded by a 2 1/2" flat wood casing and a 2" wood sill. The sill is the wood frame opening. The top trim board of (5) extends an additional 30" to the east. [It appears to have a boarded up doorway adjacent on the east, which shows in the 1949 survey drawing. The stoop is still there.] (Photos 0080-118, 0080-119)

ARCHITECTURE - EXTERIOR DOORS

Exterior Door (A)

Installed after the 1949 survey drawings were produced, this single, inward-swinging wood door features a 2/2 glazed lite in the upper two-thirds. A masonite plate has been screwed onto the bottom third on each side. A modern brushed chrome ball knob with keyhole is on the closing stile. The top rail and stiles are 5" wide. The 30 1/2" high masonite board obscures the bottom and center rail at this time. The 1 1/4" wood muntins in the window divide four glass lites into equal sizes (2/2). Three five-segment utility hinges support the door and are located 13 1/2" and 42" off the floor, and 9" from the top edge. This door features 3 1/2" flat wood casing on the exterior, and on the interior the structural frame gives the appearance of trim. (Photos 0080-127, 0080-128)

Exterior Door (B)

This outward swinging pair of wood plank doors features 2/2 square glazed lites inset within the top 1/2. The lites have (4) equal glass units with 3/4" wood muntins and 1 1/4" rails and stiles. A single 2" flat trim board spans the header, with a 3/4" drip edge attached beneath it. (4) large steel strap hinges support the doors on the exterior and are currently fastened over the corrugated metal siding. The hinges are 2"x27" with the ends split and flared out another 3" in length. A steel bar and bracket secure the door with a padlock loop on one end. The sill is concrete inside and out. Inside is a steel strap handle and a slide bolt. Interior trim is a 3 1/2" flat masonite trim board on sides and top, attached over pressed tin wall panels. Two horseshoes are currently nailed to the interior. (Photo 0080-129)

ARCHITECTURE - INTERIOR DOORS

Interior Door (AA)

This is a modern, hollow core, painted masonite door with a brushed chrome ball knob and passage lock. It features standard utility five-segment hinges at the jamb. The door location is not original, as historic drawings show the door on the north side of the restroom. (Photo 0080-204)

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - STAIRS

There is an approximate 11" change (drop) in level from the main floor of this building to the two rooms on the west. Two concrete risers/treads make this transition to the northwest room. One tall step is the step down into the southwest room.

ARCHITECTURE - WALL/CEILING FINISHES

Recently-painted 1/2" gypsum board with 1x2 battens at the sheet joints is the ceiling finish in the main room of this building. In the room at the northwest corner there appears to be an historic, painted pressed steel ceiling - in 2' x 8' sheets with a mirrored swag pattern stamped into the surface (the pressed steel maybe what is referred to on the 1934 construction drawings as "28 galvanized metal"). The ceiling in the southwest corner room is painted 1x5s.

Wall finishes in the main room are a variety of 1x boards, oriented horizontally and painted. In the northwest corner room is the same pressed steel found on the ceiling. Painted 1x5, oriented vertically, is the wall finish in the southwest room with painted gypsum board enclosing the restroom in this area. (An historic drawing of this building indicates a smaller restroom in this location, with an entry door on the north - versus the current east - wall. Modern finishes are consistent with the restroom's re-orientation and enlargement.)

ARCHITECTURE - TRIM & MILLWORK

The only trim in this building, other than that which is around the windows, is painted 1x3 trim - at the openings to the rooms on the west and as a base trim to the gypsum board walls in the bathroom. None of this appears to be original.

ARCHITECTURE - FLOOR

A painted, concrete floor extends throughout this building.

ARCHITECTURE - PLUMBING FIXTURES

There is a modern water closet in the restroom and a plastic tub sink in the southwest corner room.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The gravel surface and 1 ½ concrete curb immediately in front of the main door renders the building inaccessible. With the exception of the knob handle, the main entry door is accessible. (Photo 0080-127)

Once inside, the main floor area is accessible but the two rooms and restroom to the west are not. Both Rooms 102 and 103 have tall steps that lead down into them. (Photos 0080-205 and 0080-212)

STRUCTURAL - SIZES / SPANS / SUPPORT

Three sets of historic drawings were reviewed during the assessment. One, clearly dated November 2, 1934, does not match the as-built roof framing. A second similar set, whose date and sheet numbers are illegible, appears to accurately represent the roof framing. The overall plan and foundation layout

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1.3 PHYSICAL DESCRIPTION

appears to be reliable except for the construction of the exterior footings and the lack of the step in the building which occurs in the western third of the building. The third set, dated June 6, 1939 shows mechanical alterations to the building and is illustrative of the general structure but does not provide any detailed information.

ROOF FRAMING:

The gable roof is constructed with corrugated metal sheathing over purlins at 3' on-center. The purlins are 2x6 with a 1x6 sistered to each side, spanning a maximum of 12'.

The purlins are supported by the exterior gable end walls and two field built carpenter's trusses. The carpenter's trusses are somewhat unusual; the northern 2/3 of the span is of typical flat bottom gable carpenter's truss configuration spanning from the north wall to an interior set of columns (Photos 0080-216-220). The top chord is then extended to the south to form a sloping ceiling & extension of the gable. A diagonal and horizontal wood member extend below the ceiling to resolve the carpenter's truss forces into the interior columns and exterior wall.

The carpenter's truss top chord measures 1-3/4" x 7-1/2". The top chords extend out to the eave to support the last purlin. Carpenter's truss diagonals are 1x7 members on both sides of the carpenter's truss chords. A 2x6 on each side of the carpenter's truss chords forms the vertical at the ridge. The diagonals & verticals are typically connected to the carpenter's truss chords forms the vertical at the ridge. The diagonals & verticals are typically connected to the chords using 4 or 5 nails at each end. The top chord is attached to the bottom chord at both intersections using a 1x gusset on each side of the chord.

The carpenter's trusses bear on the exterior stud bearing walls on the south and on 8"x8" wood columns embedded in the north wall. 10"x10" wood columns support the carpenter's trusses at the interior. The carpenter's trusses are tied to these posts with a steel column cap through bolted through the column and carpenter's truss. Carpenter's truss span is approximately 18' between these columns. The south end of the carpenter's truss bears on the exterior stud wall.

2x6 ceiling joists spaced at 24" span from the north wall to a transverse carpenter's truss at the ridge line in the eastern two-thirds of the building. The southern bay of ceiling joists then span from the transverse carpenter's truss to a double 2x6 beam spanning from wood column to wood column to exterior wall. A stamp indicates that the beam is douglas-fir No.1. Joist spans are a maximum of 10'. Sheathing is typically gypsum board.

The transverse carpenter's truss consists of 2x6 diagonals descending from each end to a 2x6 vertical in the center. The top and bottom chord of the carpenter's truss is 1-1/2" x 7". The bottom chord measures 2"x7-3/4" in the two eastern bays. The top & bottom chords run through or over the primary carpenter's trusses. Thus, the ceiling joist load is transferred to the main carpenter's trusses and exterior walls (Photo 0080-222).

2x8 ceiling joists running east-west are spaced at 16" in the western one-third of the building. They span about 12' from the west exterior wall to an interior stud bearing wall directly below the west carpenter's truss. Sheathing is typically pressed tin over 1x6 straight boards (Photo 0080-221).

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1.3 PHYSICAL DESCRIPTION

EXTERIOR WALLS:

Exterior walls are typically 2x6 studs at 24" with direct applied corrugated metal siding on the exterior and 1x straight sheathing on the interior. This sheathing acts as the lateral force resisting system for the building. The top plate was not visible but is shown as a double 2x6 in historic drawings.

The north wall is penetrated by three large door openings between carpenter's trusses. Construction over these doors was not visible, but historic drawings indicate a triple 2x10 header. 6x8 knee braces are shown for lateral bracing at the eastern openings.

STRUCTURAL - ELEMENTS

FIRST FLOOR FRAMING AND FOUNDATION:

The first floor is a concrete slab-on grade. Historic drawings indicate the slab was to be 4" thick with 6x6 welded wire fabric reinforcing. The first floor steps down at the western one-third of the building. Historic drawings do not show this step.

The perimeter foundation consists of a concrete stem wall faced with ashlar stone on the exterior. A taper is visible on the interior where the stem wall projects above the slab-on-grade. The stem wall supports the exterior stud wall. A 2x6 sill plate is visible in one location and is anchored to the foundation using anchor bolts of unknown size & spacing. An 18"x10" pilaster is visible at the wood columns embedded in the north wall. Footings are not visible. Historic drawings indicate that the stem wall widens below the slab to provide a 1'-2" strip footing. However, the historic drawings do not show the ashlar stone on the exterior, thus the reliability of the drawings is in question (Photo 0080-225&226).

Interior foundations occur at the two interior 10"x10" columns. An 18"x10" concrete pilaster is visible. A metal angle on each side of the column connects the post to the pilaster (Photo 0080-223). Footings are not visible, but historic drawings indicate a 1'-6" square footing.

An interior stem wall occurs along the north south running partition wall. The west side of the stem wall is vertical while the east side tapers (gets thicker). Footings are not visible and are not described on the

MECHANICAL - PLUMBING ASSESSMENT

PIPING

The plumbing in this building provides domestic hot/cold water and sanitary sewer. Portions of the domestic cold water appear to be original to the building, however the piping has been significantly modified since. The piping is a mixture of sizes and materials. All waste piping appears to be in working order. Material of piping below the slab is unknown. Waste piping above the building slab is a mixture of PVC, copper, and steel (Photos 0080-237 and 0080-133).

PLUMBING APPLIANCES

A Rheem electric water heater of unknown size and capacity provides domestic hot water to the wash sink and industrial clothes washer. The water heater is in working order but looks to be approximately 20 yrs old and undersized to adequately provide hot water to the adjacent industrial clothes washer (Photo 0080-227).

The industrial washing machine appears to be very new and in working order (Photo 0080-228).

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1.3 PHYSICAL DESCRIPTION

A modern ice making machine is also connected to the domestic water in the building (Photo 0080-229). The ice maker is in working order.

FIXTURES

The building has a water closet, wash sink, and two hose bibs (outside).

The water closet is porcelain and in working order. It does not appear to be original to the building (Photo 0080-212).

The wash sink is a modern plastic sink with chrome faucet and is in working order (Photos 0080-213 and 0080-214).

On the exterior of the building are two hose bibbs - one on the north facing wall of the building on the west end and another on the west facing wall on the south end. Both hose bibbs are in working order and appear to be freeze-proof models with vacuum breakers (Photos 0080-131 and 0080-132).

MECHANICAL - HVAC ASSESSMENT

FURNACE

The furnace in this building is a modern propane forced air model. Unit is in working order. The flue from the furnace is routed through the building's original brick flue. The supply air is ducted through a diffuser in the main meeting room (Photos 0080-232, 0080-233 and 0080-235).

Make: Cleveland Dornback
model: CDHS90D-IP
gas input: 90,000 btu/h
yr mfg: 1989

LPG TANK

The propane tank is located approximately 35 ft east of the building and the LPG piping is routed below grade to the west side of the building where it enters the building (Photo 0080-236). A stack of tires lies in front of the shut off valve.

Make: American Welding & Tank Co.
Capacity: 500gal
max pressure: 250 psi @ 650 deg F
yr mfg: 1992

MISC. EQUIPMENT

A few pieces of mechanical equipment have been abandoned in the attic space. The equipment appears to have been a part of the previous steam system used to heat the building. An abandoned tank in the attic appears to be a pressure vessel or possibly a heat exchanger (Photo 0080-234). In addition, some abandoned piping, likely associated with the abandoned tank, also remains in the attic. The equipment is insulated with a rigid type insulation, potentially asbestos.

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1.3 PHYSICAL DESCRIPTION

ELECTRICAL - SYSTEM DESCRIPTION

The building is provided with a 120/240 volt, single-phase electrical service from a tap off of the existing underground electrical distribution system. The electrical distribution panel is not provided with a main circuit breaker and contains six overcurrent protection devices (Photos 0080-135 and 0080-238).

The feeders and branch circuiting wiring insulation appears to be provided with thermoplastic or a new type of insulation material. There is no visible nameplate located on the panel, so ampacity cannot be determined without instrumentation.

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

The interior lighting consists of surface-mounted, lensed fluorescent fixtures with two T-8 lamps. The bathroom is provided with a wall-mounted lensed fixture (Photo 0080-240).

EXTERIOR LIGHTING

No exterior lighting is installed on this building.

TELECOMMUNICATIONS

No telecommunications are provided at this building.

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1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. Historically, the roofing panels were laid parallel to the slope, overlapping at each successive layer. The current roof panels run the full length of the roof. (See photos 0080-105, 0080-106)
- Vertical steel siding. Unique in this area, the steel siding is particularly character defining for this building. (See photo 0080-108)
- Wood paneled and batten doors – This building has a variety of door styles that reflect its original function as a paint shop. Traditional paneled man doors with windows in the upper 1/3 appear as well as large wood batten sliding double doors, characteristic of a hard-working building. (See photo 0080-127, 0080-128)
- Rubble stone chimney – One narrow rubble stone chimney extends through the steel roofing with no caps or adornment of any kind. (See photo 0080-111)
- Steel windows with clear glass – This building features fixed and pivot windows all are steel, with steel muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills.
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining features of which are the stamped steel covered walls and ceiling.

1.5 GENERAL CONDITION ASSESSMENT

The Park Service Vehicle Paint Shop is in fair condition with the exception of a few items. The exterior metal siding is in bent and dented. The windows have some minor deterioration specifically at glazing putty.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: **GOOD**

The roofing appears to be fairly new and is in good condition. The insulation is in poor condition. There are several areas where there is no insulation at all. The batt insulation is not installed, just stored. The flashing over the openings is in good condition.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: **GOOD**

The overhangs are in good condition.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: **POOR**

The sheet metal siding is in poor condition. Every sheet is heavily dented and bent. The bottom three feet are particularly damaged and appear to have been kicked and beaten by horses and mules. Occasional vehicular damage is also evident. There are large nail (spike) holes in many locations where things have been attached to the building and then removed at a later date. Some spikes are still in evidence. The bottom edge of the sheet metal on the east wall is rusted and deteriorated - the paint stops 6-10" above the concrete curb. Many seams in the sheet metal have opened up. There is dirt underneath the panels at the bottom on the east wall. None of the pipe penetrations through the wall are sealed.

ARCHITECTURE - MASONRY

CONDITION: **FAIR**

The stone chimney appears to be in fair to good condition. The mortar is for the most part intact and the chimney appears plumb. The joints around the flashing are slightly deteriorated and appear to be loose.

The concrete foundation is in good condition. The stone foundation is in good to fair condition with

ARCHITECTURE - WINDOWS

CONDITION: **FAIR**

Windows (1)-(8)

Glazing putty is slightly dry and beginning to deteriorate. There is no sign of rusting. Paint is peeling on the interior surfaces, but the exteriors have been painted recently.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **FAIR**

Exterior Door (A)

The bottom edges of the door have deteriorated due to poor grading near the building, and the closing stile is cracked at the door knob. The glazing is loose, and the hinge segments are separating.

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1.5 CONDITION ASSESSMENT

Exterior Door (B)

The doors are currently locked shut, and appear to have been so for a long time, so they don't get much wear and tear. The units are in good condition, and historic glazing is intact.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **GOOD**

Interior Door (AA)

This is a fairly new door and in good condition.

ARCHITECTURE - STAIRS

CONDITION: **FAIR**

Although the concrete itself is in good condition, both stairs represent considerable safety hazards. Unprotected by railings and with a 3/4" "curb" at the top, they create tripping and safety hazards.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **GOOD**

The ceilings and walls are in good condition.

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **GOOD**

The trim is in good condition.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

Other than minor spalling and chipping, the slab is in good condition.

ARCHITECTURE - PLUMBING FIXTURES

CONDITION:

See mechanical for an assessment and recommendations.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **GOOD**

Roof framing is generally in good condition with no visible signs of distress or deterioration.

Wall framing is generally in good condition, where visible except at the base of the wall. See foundation assessment.

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1.5 CONDITION ASSESSMENT

STRUCTURAL - ELEMENTS

CONDITION: **FAIR**

As is typical on nearly every building assessed, grade along the east side of the building is at or above the sill plate. The sill plate and anchor bolts are deteriorated as a result. The metal siding is also deteriorated along the base of the entire east wall (Photo 0080-224).

Foundations otherwise appear to be performing well with no significant deterioration or distress observed.

MECHANICAL - PLUMBING ASSESSMENT

CONDITION: **FAIR**

All plumbing fixtures in the building are in working condition and do not appear to need any immediate repair. Propane tank location is NFPA compliant.

The domestic water piping in the building is in working order, however it is a mixture of materials, some of which may not be approved by the International Mechanical Code for such use.

The water heater in the building is in working condition but appears to be undersized for its current function of providing hot water to an industrial washing machine.

MECHANICAL - HVAC ASSESSMENT

CONDITION: **GOOD**

Furnace, LPG tank, and all associated hardware appear to be in working order and require no immediate repair. A stack of tires blocks clear access to the shutoff valve.

The equipment in the attic is no longer in use and its original function and current condition can only be speculated without further investigation.

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **POOR**

The existing electrical service and associated panel should be replaced with a panel that contains a main circuit breaker and additional circuit breakers. The purpose of replacement is so that each branch circuit can be terminated onto a dedicated circuit breaker, since some of the circuit breakers have more than one branch circuit terminated upon them. The panel is also a Federal Pacific panel. This manufacturer of panels has been attributed to a large number of fires in the past due to its construction of the overcurrent protection devices.

Existing abandoned service conductors are exposed above the panel and should be removed for safety reasons (Photo 0080-239).

Several of the branch circuits use a white conductor color for use as a phase conductor. This color can only be used as a grounded conductor.

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1.5 CONDITION ASSESSMENT

Several of the branch circuits' insulation type is cloth type.

The building's electrical service and associated devices are not properly grounded.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **GOOD**

The existing lighting in this building serves the needs and usage of the building. No emergency-type egress lighting exists.

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2.1 ULTIMATE TREATMENT AND USE

The 1949 building inventory referred to the structure as a plumbing building. It currently serves as administration and operations for the adjacent Grand Canyon Horse Patrol. It appears to suit this purpose well. Like Building 78, this could be adapted to other uses if the complex were to be integrated into the residential use of the neighborhood, as noted in the GMP.

Rehabilitation is the recommended ultimate treatment for this building.

The following is a discipline-by-discipline, component-by-component description of the building.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **LOW**

The roofing does not require treatment at this time.

The existing loose-fill and batt insulation should be removed throughout the ceiling. New loose-fill insulation should be installed throughout the ceiling to the depth of the ceiling joists. Rigid insulation should be installed on the top side of the ceiling hatch to insure a tight fit.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

No treatment is necessary at this time.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **MODERATE**

The bottom panel of sheet metal siding on the east, south, and west sides of the building should be removed and replaced with new corrugated sheet metal to match the original corrugation, gauge, and material. When the siding is removed, the framing cavities should be cleaned out and the framing members should be evaluated to determine their condition. Wall cavities should be insulated prior to installation of new sheet metal siding. All remaining sheet metal siding should be repaired by sealing all joints and filling holes from removed nails, abandoned pipe, and conduit. All existing penetrations for electrical and plumbing should be sealed with gaskets, escutcheons, or sealant to prevent water or vermin from getting into the wall cavities. Scrape, prep and paint after all repairs have been made.

ARCHITECTURE - MASONRY

PRIORITY **LOW**

Loose joints on the chimney should be scraped and re-pointed with mortar matching the original strength, color, and composition. Reconstruct the flaunching at the top of the chimney. Flashing at the chimney should be removed and replaced with new flashing to match the original. The flashing should be let into the mortar joints at the chimney. A cricket should be installed on the up slope side of the chimney. All joints should be mechanically attached and sealed.

No treatment is necessary for the concrete foundation. Loose joints on the stone foundation should be scraped to remove loose mortar. The joints should then be re-pointed to seal all holes and loose sections should be re-pointed.

ARCHITECTURE - WINDOWS

PRIORITY **LOW**

If the building is weatherized for four-season use, the windows should be evaluated individually for tight fit and infiltration. The casement windows may require weatherstripping if loose.

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration.

As needed, replace broken glass panes; however, do not attempt to match historic rippled glass, but rather allow the new glass to be identifiable at close range.

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2.1 TREATMENT RECOMMENDATIONS

All Windows (1)-(8)

1. All of the hardware should be cleaned and oiled where needed.
2. Evaluate the windows individually for tight fit and infiltration. They may require wool felt weatherstripping if loose.
3. Monitor glazing deterioration and re-glaze when needed using existing glass.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **LOW**

Exterior Door (A)

Remove asphalt and re-grade to slope away from foundation of this building. Remove the masonite board and recondition the door to include, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed. Repair cracked stile.
3. Stabilize the joints and muntins to make the door structurally sound.
4. Repaint door with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Install weatherstripping at all openings.
6. Reglaze the door using original glass.

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

No work is needed on Interior Door (AA) at this time.

ARCHITECTURE - STAIRS

PRIORITY **SEVERE**

The 3/4" curb should be ground off to a level condition. A wood riser should be added to the south stair and both should be retrofit with at least one handrail.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

No work is recommended at this time.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - PLUMBING FIXTURES

PRIORITY

No work is recommended at this time.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **SEVERE**

This building is listed as a Tier 1 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it has the potential to provide an office that could be staffed by a disabled individual. Therefore, a strategy should be developed that would provide accessible parking adjacent to the building, an accessible route to the north entry and lever hardware on the entry door.

Providing an accessible route to either Room 102 or 103 is more problematic and would probably require a lift. Likewise, the restroom, in the southwest corner of Room 103 would have to be enlarged significantly to provide ABAAS clearances.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **LOW**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

STRUCTURAL - ELEMENTS

PRIORITY **MODERATE**

Soil should be removed around the building such that no wood is within 6" of soil. Sill plates, anchor bolts, wall sheathing and wall framing should be repaired or replaced where deteriorated.

The east wall should be investigated further for extent of structural damage. Replacement of the siding, sill plate, anchor bolts, and sistering of the studs should be anticipated.

MECHANICAL - PLUMBING ASSESSMENT

PRIORITY **MODERATE**

The water heater, although it appears to be undersized for its current function, is in working order and does not necessarily need to be replaced. Should the water heater fail, a calculation should be performed to confirm that the replacement water heater is appropriately sized to provide the volume and temperature of water required by the washing machine.

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936

2.1 TREATMENT RECOMMENDATIONS

The domestic water piping materials in the building should be verified as being safe for use in such applications. Any materials found to be otherwise should be replaced with one of the approved materials listed in Table 605.4 of the 2003 IPC.

MECHANICAL - HVAC ASSESSMENT

PRIORITY **LOW**

Remove tires from in front of the shutoff valve on the LPG tank to allow clear access.

The abandoned equipment in the attic could potentially have some historic relevance to the building. However, due to the possibility of asbestos, caution should be taken if and when the equipment is further examined.

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **SEVERE**

Replace the existing electrical service panel with a panel with a main circuit breaker and with enough circuit breakers to terminate each branch circuit with a dedicated circuit breaker. Replace the obsolete wiring insulation type and correct the branch circuit color indication for the current conductors.

Provide grounding of the electrical system and branch circuits to be code compliant.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Provide emergency lighting inside the building and at the exit discharge from the building to comply with current code.

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance and Warehouse Complex overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building, the Park Service Vehicle Paint Shop will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. In general, the building requires *rehabilitation*, to address the existing code-deficient conditions (ABAAS access, electrical service, fire safety, etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

The Paint Shop is currently an actively used building and has experienced a number of alterations over the years. The bi-level floor is a significant obstacle to accessibility in the building, with no available room for ramps. Raising the lower floor would not particularly change a character-defining feature of this building, but it would alter how a character defining feature operates – namely the large pair of doors on the west side of the front façade.

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Bldg SRB-0080 – date unknown
National Park Service Grand Canyon Museum Collection (Photo # 00937)

SRB-0080

PARK SERVICE VEHICLE PAINT SHOP

1936



West Elevation Bldg 0080 -- 2006

SRB-0080

PARK SERVICE VEHICLE PAINT SHOP

1936



North Elevation Bldg 0080 -- 2006

SRB-0080

PARK SERVICE VEHICLE PAINT SHOP

1936



East Elevation Bldg 0080 -- 2006

SRB-0080

PARK SERVICE VEHICLE PAINT SHOP

1936



South Elevation Bldg 0080 – 2006

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Roof @ Northeast Corner 0080-105



Corrugated, Galvanized Steel Sheet Metal Roofing 0080-106

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Shallow Roof Overhang 0080-107



Corrugated, Galvanized Sheet Metal Siding 0080-108

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



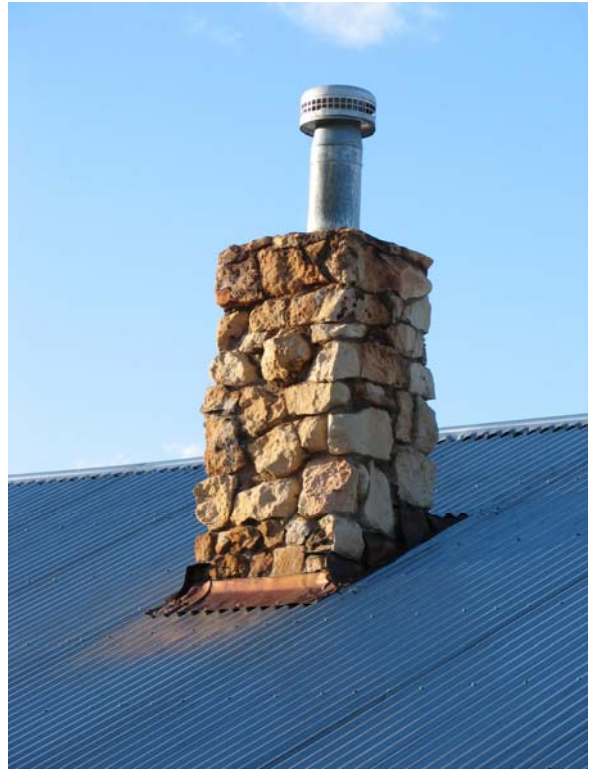
Siding Extends Over Stone Foundation 0080-109



Siding Extends to the Top of the Concrete Ledge 0080-110

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Rough Stone Chimney 0080-111



Foundation 0080-112

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Rubble Stone Foundation 0080-113



North Window (1) 0080-114

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



North Window (2) 0080-115



Window (2) Detail 0080-116

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



West Window (3) 0080-117



West Window (4) 0080-118

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Window (4) Detail 0080-119



South Window (5) 0080-120

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



South Window (6) 0080-121



South Window (7) 0080-122

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



East Window (8) 0080-124



Window (8) Exterior Detail 0080-125

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Exterior Door (A) 0080-127



Door (A) Detail 0080-128

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



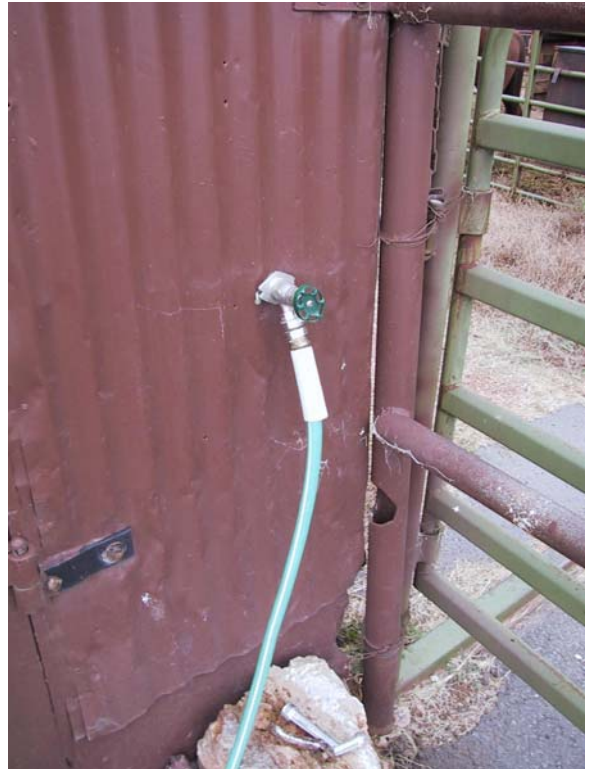
Exterior Door (B) 0080-129



Hose Bibb (1 of 2) 0080-131

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Hose Bibb (2 of 2) 0080-132



Typical Domestic Water Plumbing 0080-133

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Propane Gas Regulator 0080-134



Electrical Service Tap 0080-135

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Window (7) Interior Detail 0080-202



Window (8) Interior Detail 0080-203

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Interior Door (AA) 0080-204



Step and Curb at Entry to Southwest Room 0080-205

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Gypsum Board with Battens 0080-206



Stamped Tin at Walls and Ceiling 0080-207

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Swag Pattern in Tin 0080-208



Boards at Wall 0080-209

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Door Trim 0080-210



Painted Concrete Floor 0080-211

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Water Closet 0080-212



Plastic Utility Sink 0080-213

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



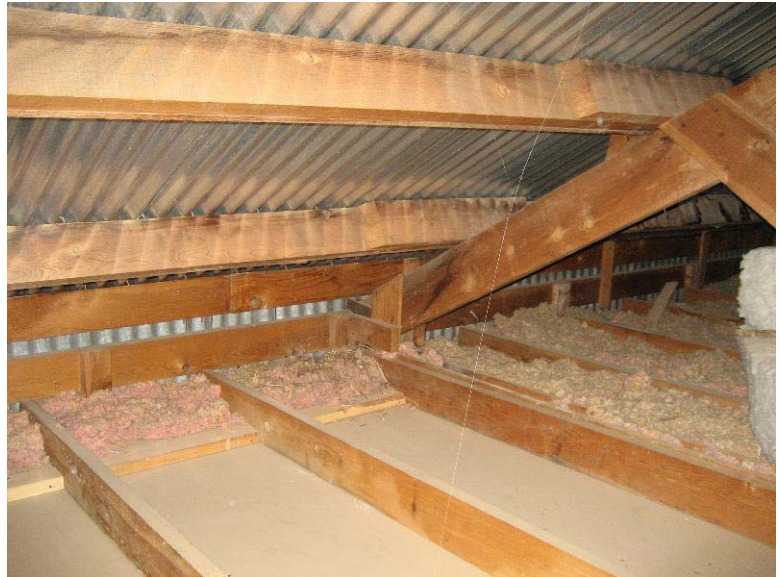
Plastic Utility Sink 0080-214



Floor Level Drop 0080-215

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Typical Truss: North Bearing 0080-216



Typical Truss: North Side of Ridge 0080-217

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Typical Truss: at Ridge 0080-218



Typical Truss: South End Above Ceiling 0080-219

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Typical Truss: South End Below Ceiling 0080-220



Transverse Truss and Ceiling at West Bay 0080-221

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Transverse Truss at East Bay 0080-222



Interior Column Base 0080-223

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



East Wall: Deteriorated Sill and Stud 0080-224



Northeast Foundation 0080-225

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



West Wall: Typical Perimeter Foundation 0080-226



Electric Water Heater 0080-227

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Industrial Clothes Washer 0080-228



Ice Maker 0080-229

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Water Closet 0080-230



Wash Sink 0080-231

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Propane Forced Air Furnace 0080-232



Furnace Flue 0080-233

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Abandoned Tank in Attic 0080-234



Furnace Supply Grille 0080-235

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Propane Storage Tank 0080-236



Abandoned Steam Piping in Attic 0080-237

SRB-0080 PARK SERVICE VEHICLE PAINT SHOP

1936



Panel 0080-238

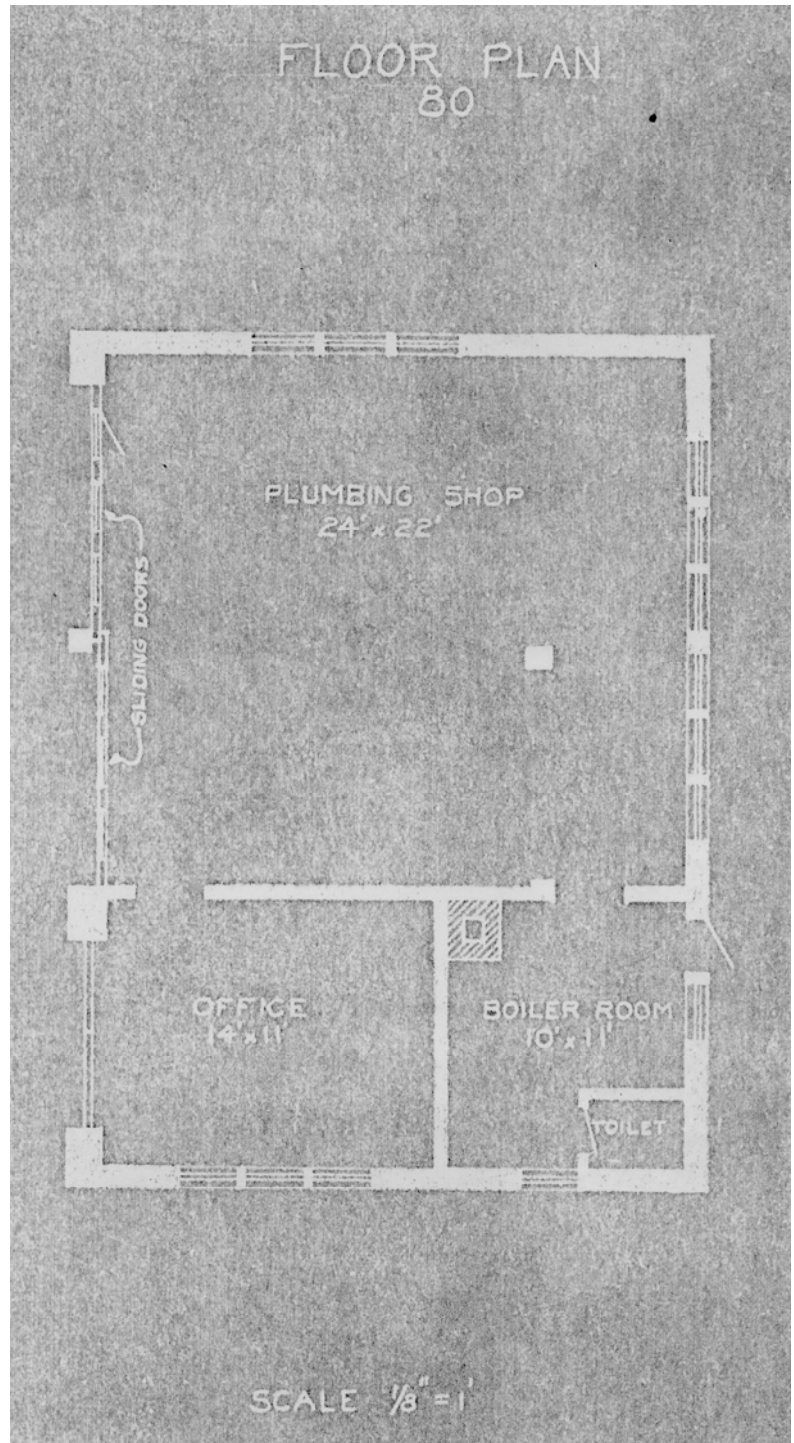


Abandoned Electrical Service 0080-239

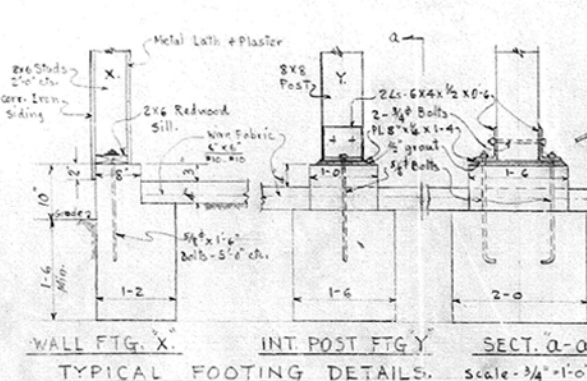
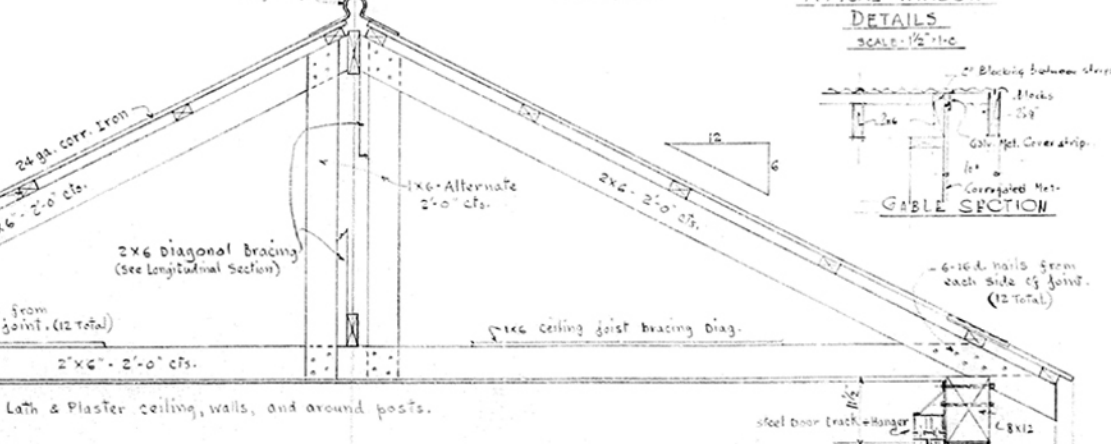
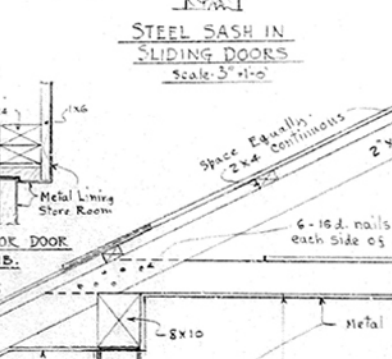
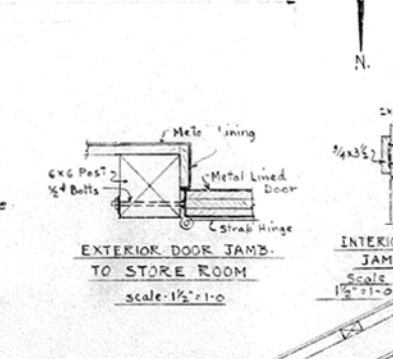
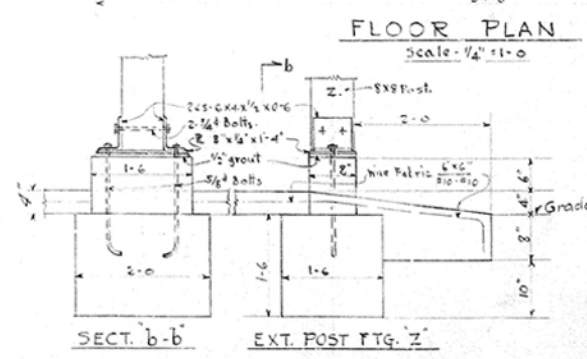
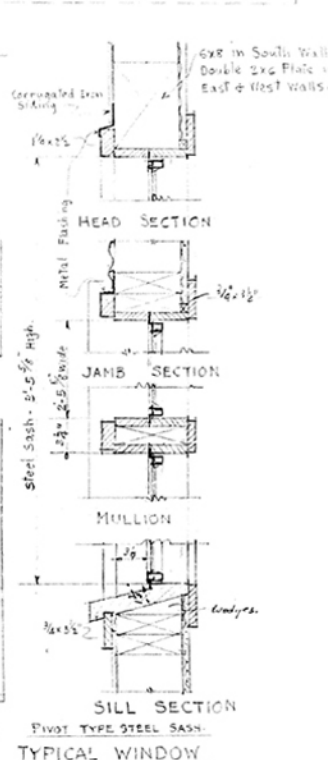
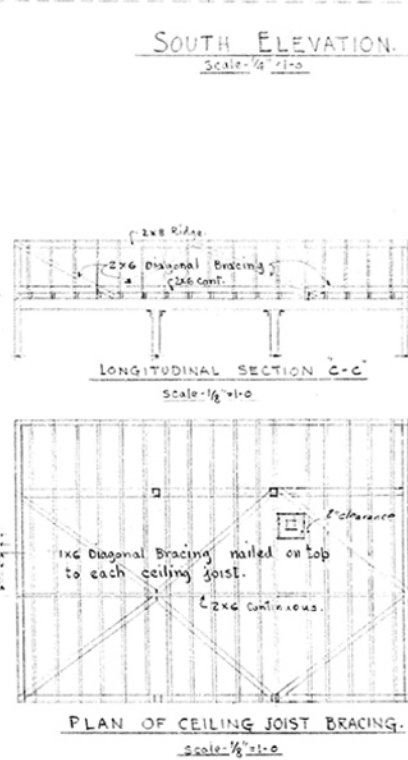
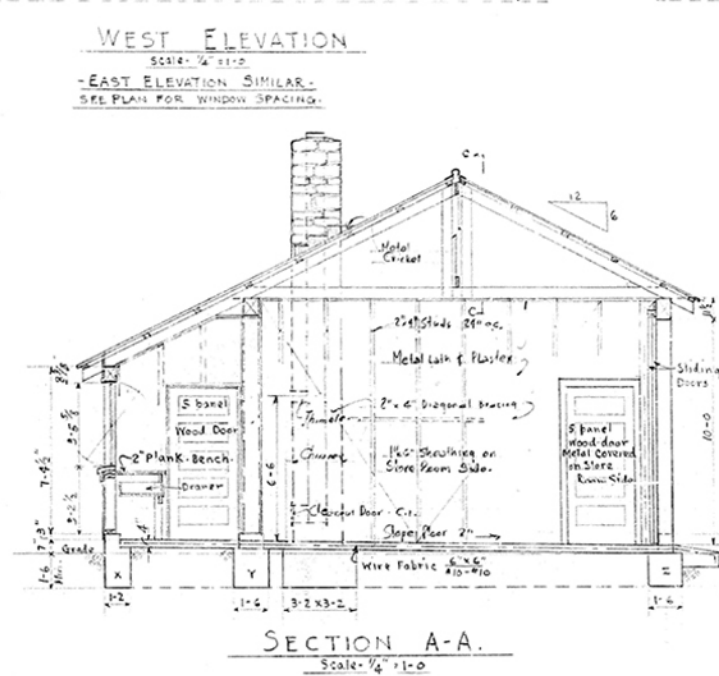
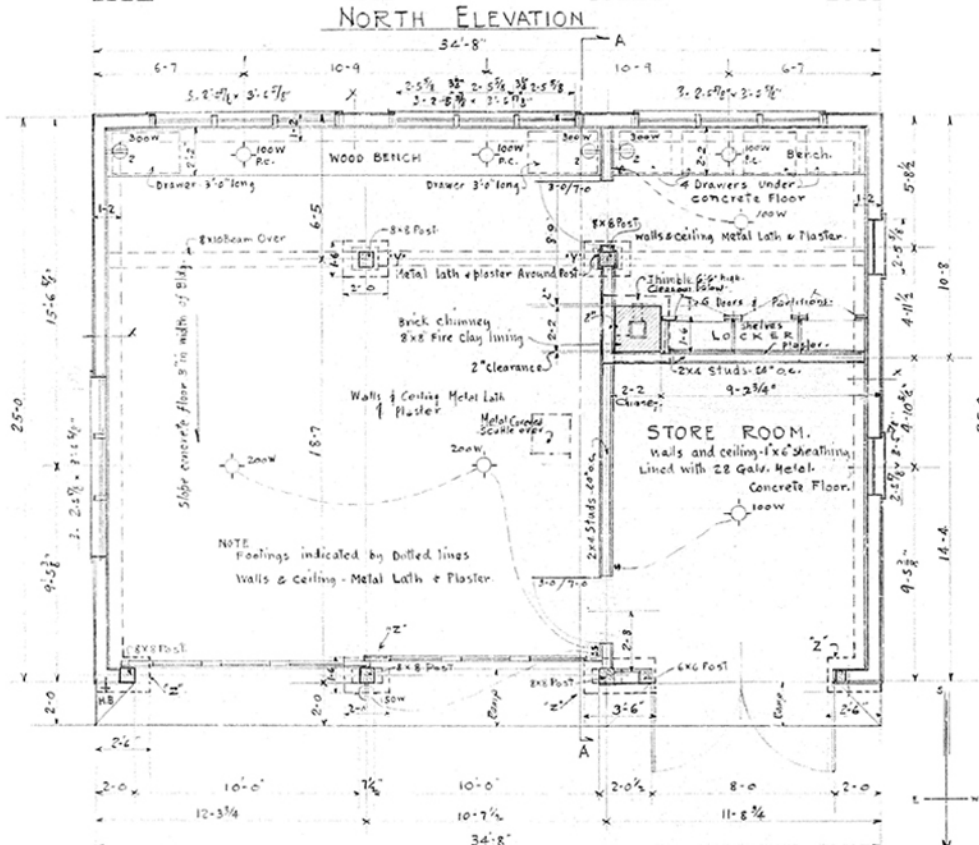
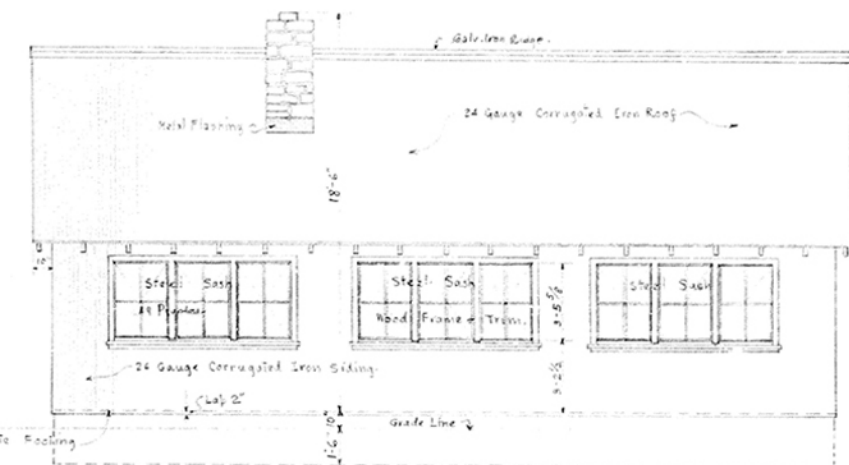
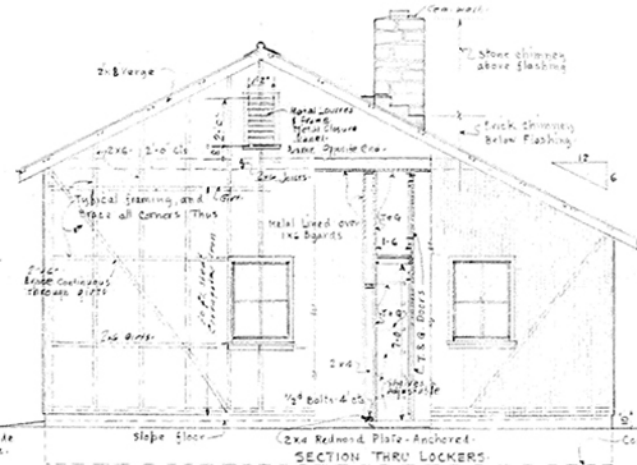
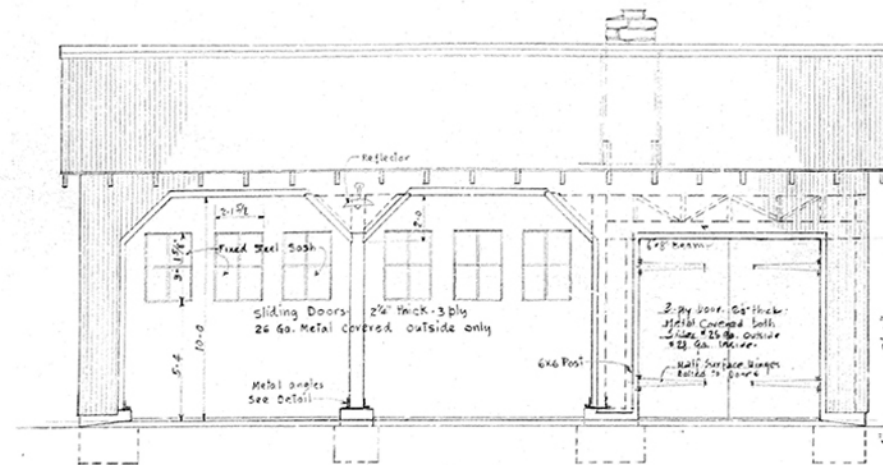


Surface-mounted Lensed Fixture

0080-240

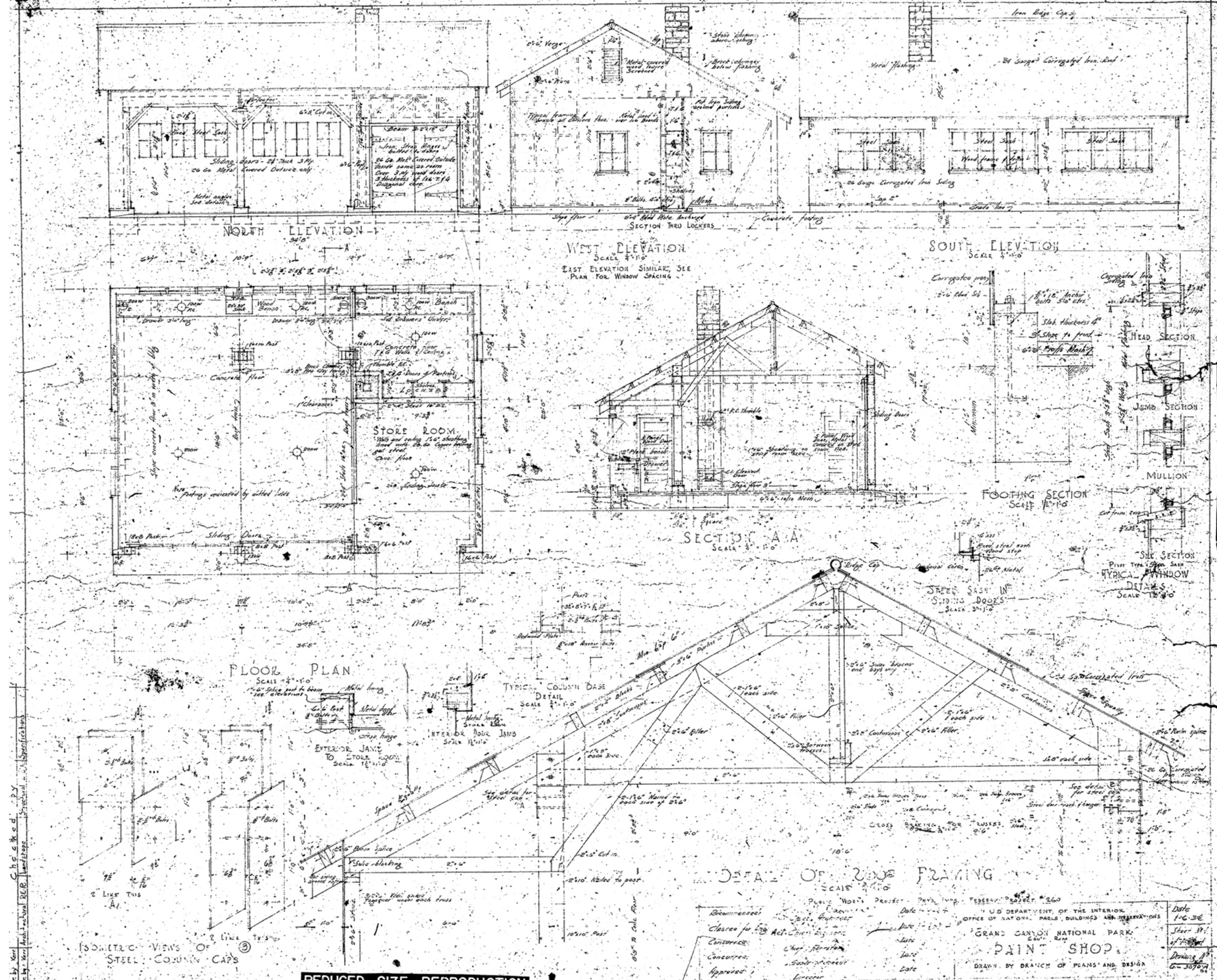


1949 Survey Plan – Building 80
Grand Canyon National Park Office of Cultural Resources



HALF-SIZE REPRODUCTION

Recommended by Checked by Designed by Concurred by Approved by	<p><i>Eugene C. Mohr</i> Architect</p> <p><i>John C. Mohr</i> Act. Chief Engineer</p> <p><i>John C. Mohr</i> Chief Forester</p> <p><i>John C. Mohr</i> Superintendent</p> <p><i>John C. Mohr</i> Director</p>	<p>Date 11-2-34</p> <p>Date 11-6-34</p> <p>Date 11-13-34</p> <p>Date 11-21-34</p>	<p>U.S. DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE GRAND CANYON NATIONAL PARK SOUTH RIM</p> <p>PAINT SHOP</p> <p>DRAWN BY BRANCH OF PLANS AND DESIGN.</p>	<p>DATE NOV. 2, 34</p> <p>ONE SHEET ONLY</p> <p>DRAWING NO. N.P. G.C. 3092</p>
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Project No.	260	Date	1-6-36
Client	U.S. DEPARTMENT OF THE INTERIOR	Drawn by	Branch of Plans and Design
Location	GRAND CANYON NATIONAL PARK	Checked by	Chief Architect
Contract No.		Approved by	Director
Construction	Paint Shop	Scale	1/4" = 1'-0"

DESIGNED BY: *ALBERT H. GARDNER* DATE: *3-27-39*

PLANS AND DESIGN: *ALBERT H. GARDNER*

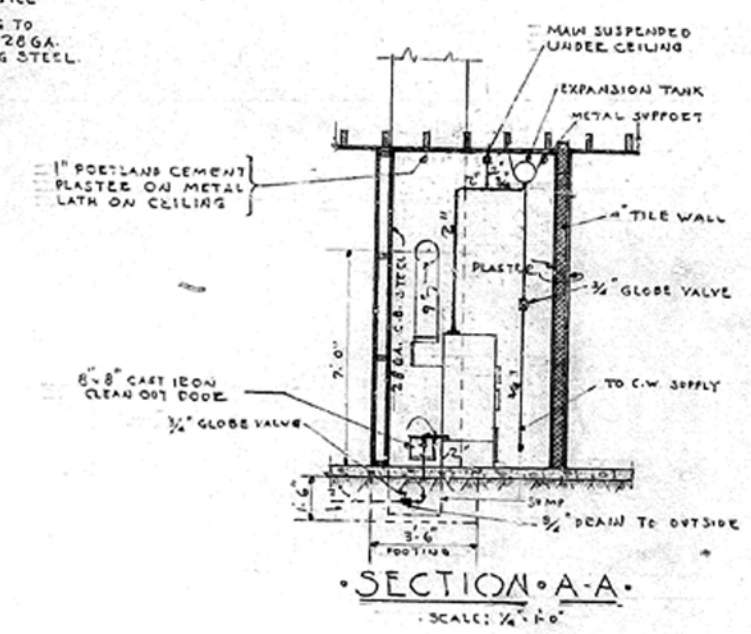
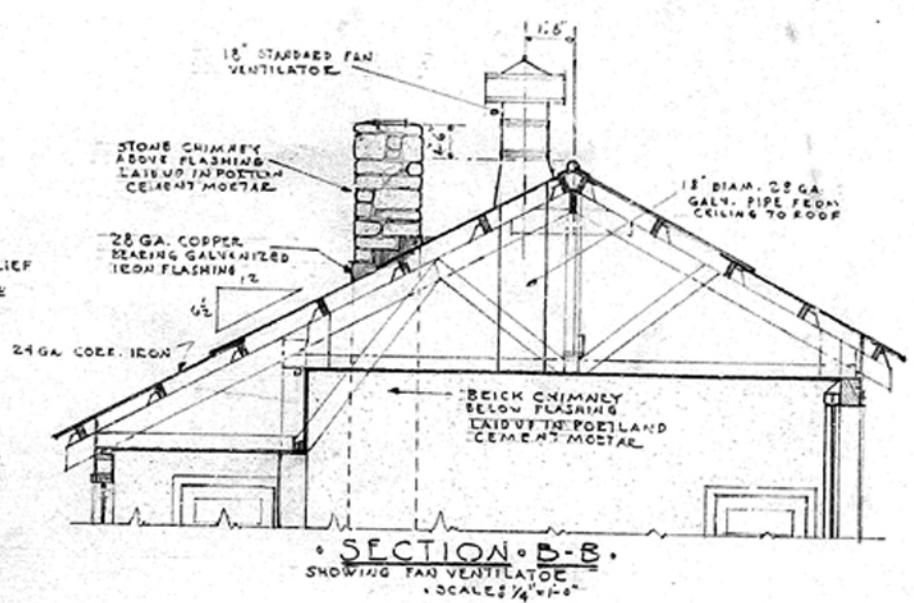
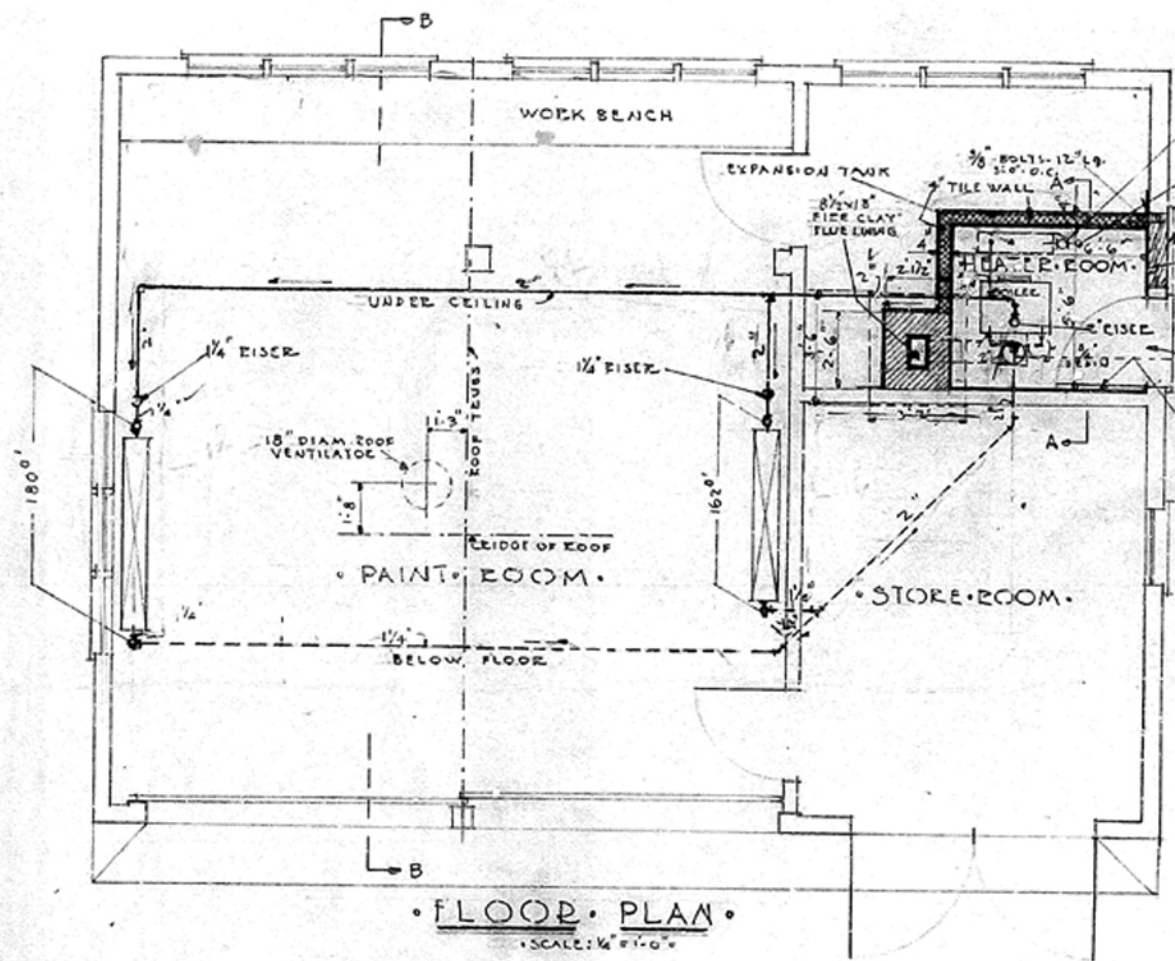
CONSTRUCTED BY: *JOHN D. BROWN*

REVIEWED: *RESEARCH AND EDUCATION*

RECREATIONAL PLANNING AND STATE COOPERATION: *W. K. RAY*

CLEARED: *Henry Q. Sullivan* DATE: *4/2/39*

REGIONAL OFFICE: *ALBERT H. GARDNER*



NOTE: THE FOLLOWING LIST IS BASED ON CRANE CO. EQUIPMENT. ANY OTHER MEETING THE SAME REQUIREMENTS IS ACCEPTABLE.

BOILER: 1-1/2" I-S-WO-UNJACKETED OIL BURNING HOT WATER BOILER, COMPLETE WITH COMBINATION ALTITUDE GAUGE AND THERMOMETER AND FLUE SCRAPER.

RADIATION: 1-CAST IRON RADIATOR-27 SEC.-6 TUBE-30 INCHES HIGH.
1-CAST IRON RADIATOR-30 SEC. 6 TUBE-38 INCHES HIGH. EACH RADIATOR TO BE FITTED WITH ONE 1/4" BEASS HOT WATER RADIATOR GLOBE VALVE WITH UNION AND ONE 1/8" HOT WATER RADIATOR AIR VALVE.

EXPANSION TANK: CRANE CO. SYSTEM NO. 518, SELF-FILLING-AIR CUSHIONED TANK EQUIPMENT COMPLETE WITH COMBINATION RELIEF AND PRESSURE REDUCING VALVE-D&T NO. 500-500 SQ. FT. RADIATION CAPACITY.

PIPING: STANDARD WEIGHT WROUGHT STEEL PIPE AND FITTINGS. MAIN-2 INCH SUSPENDED ABOVE CEILING IN ATTIC SPACE-RISERS TO RADIATORS AND SPRING PIECES-1/4". USE 1 1/2" x 2 INCH RETURN MAIN UNDER FLOOR. PROVIDE BUMP IN HEATER ROOM FOR DEAIRING OF THE SYSTEM.

METAL LATH AND PLASTER, IN PAINT ROOM, AS SHOWN ON DRAWING NO. N.P.G.C-3070-A, TO BE INCLUDED IN THIS PROJECT.

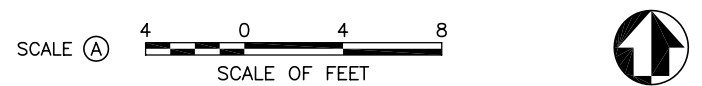
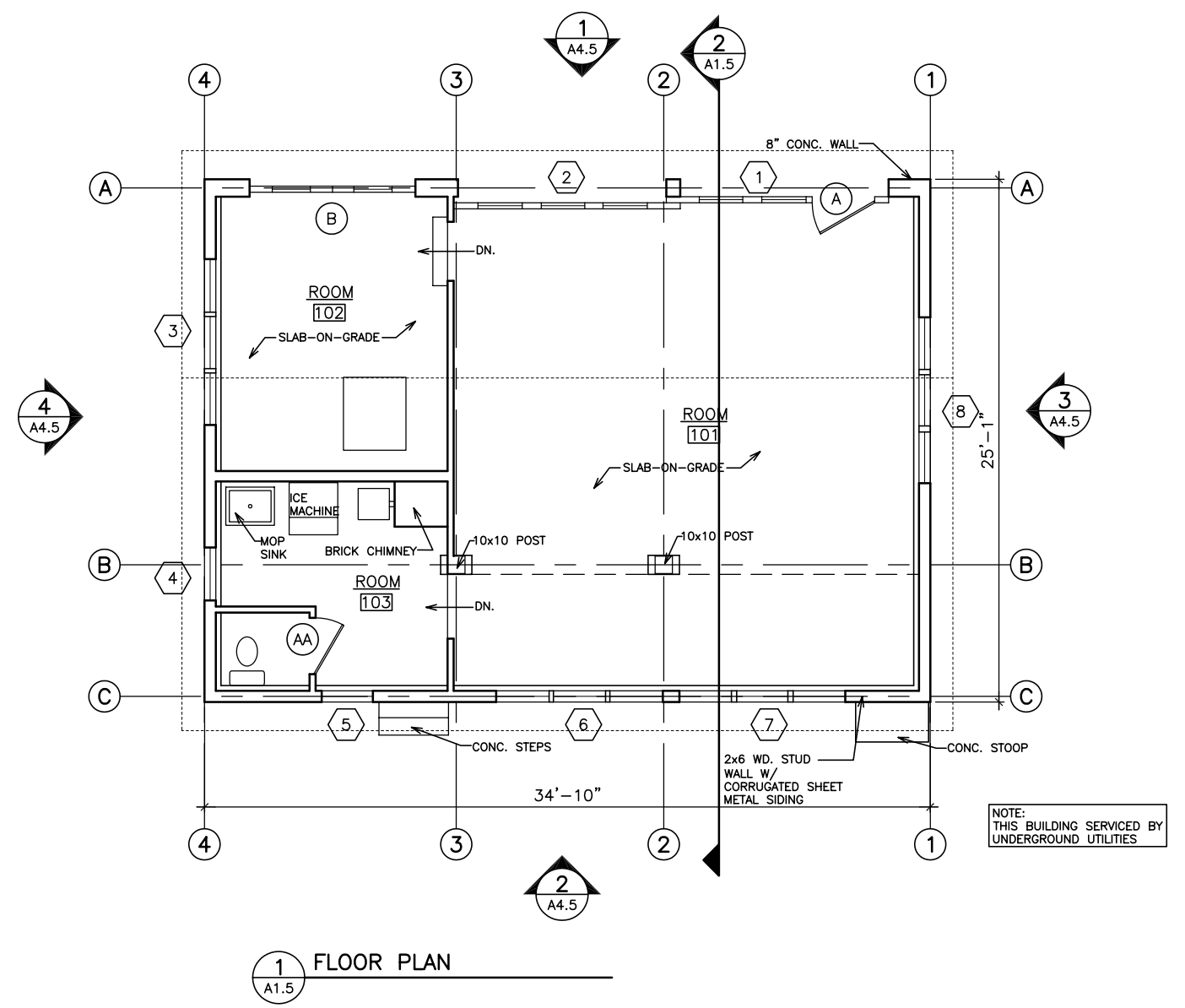
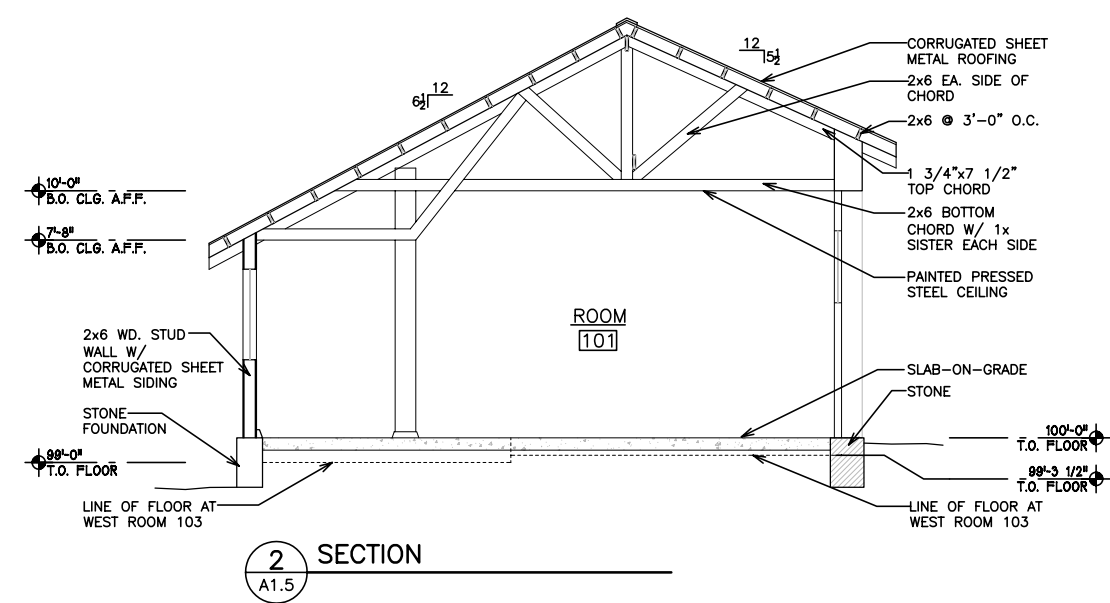
FIELD CHANGE: RETURN LINE RUN ON WALL ABOVE FLOOR INSTEAD OF UNDER FLOOR AS INDICATED

HALF-SIZE REPRODUCTION

1939 - 113 - 3070B

RECOMMENDED: <i>S. L. L...</i> DATE: <i>6/2/39</i>	UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE BRANCH OF PLANS & DESIGN PREPARED BY: REGIONAL OFFICE NAME OF JOB: SOUTH RIM VILLAGE GRAND CANYON NATIONAL PARK NAME OF PARK OR MONUMENT:	REGION III
CONCURRED: <i>H. C. Bryant</i> DATE: <i>4/1/39</i>		SHEET 1 OF 1
APPROVED: <i>A. E. Sullivan</i> DATE: <i>6-6-39</i>		DRAWING NO. N.P. G.C. 3070-B

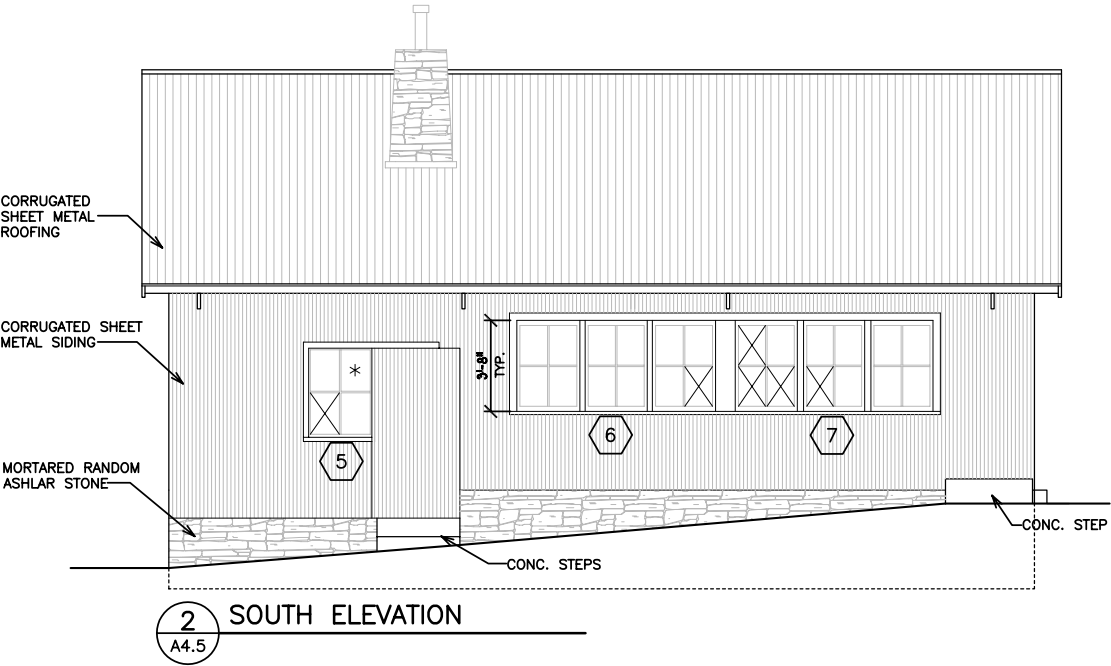
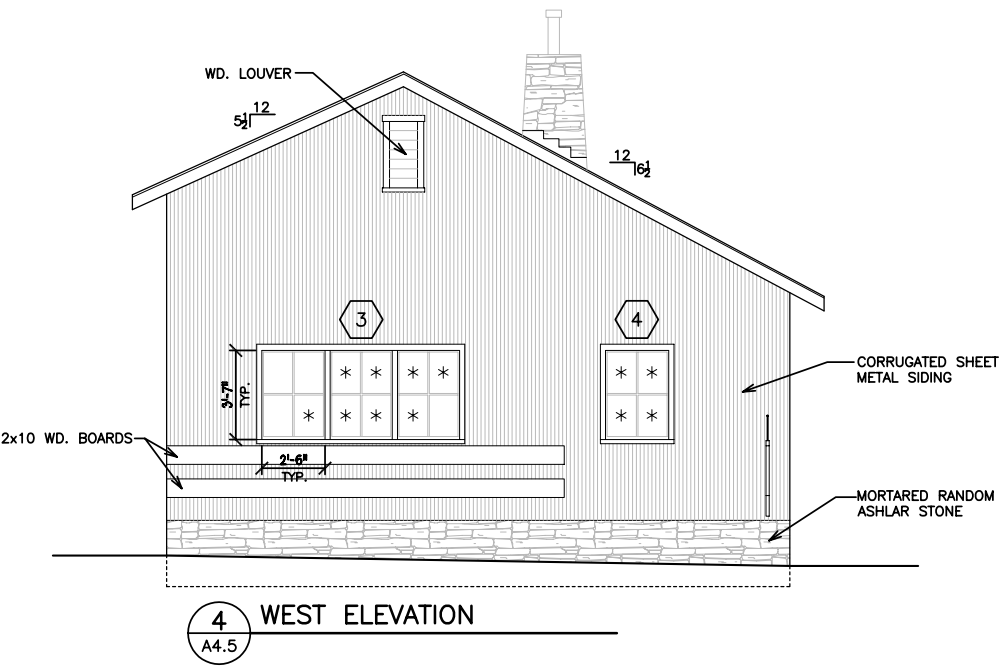
NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



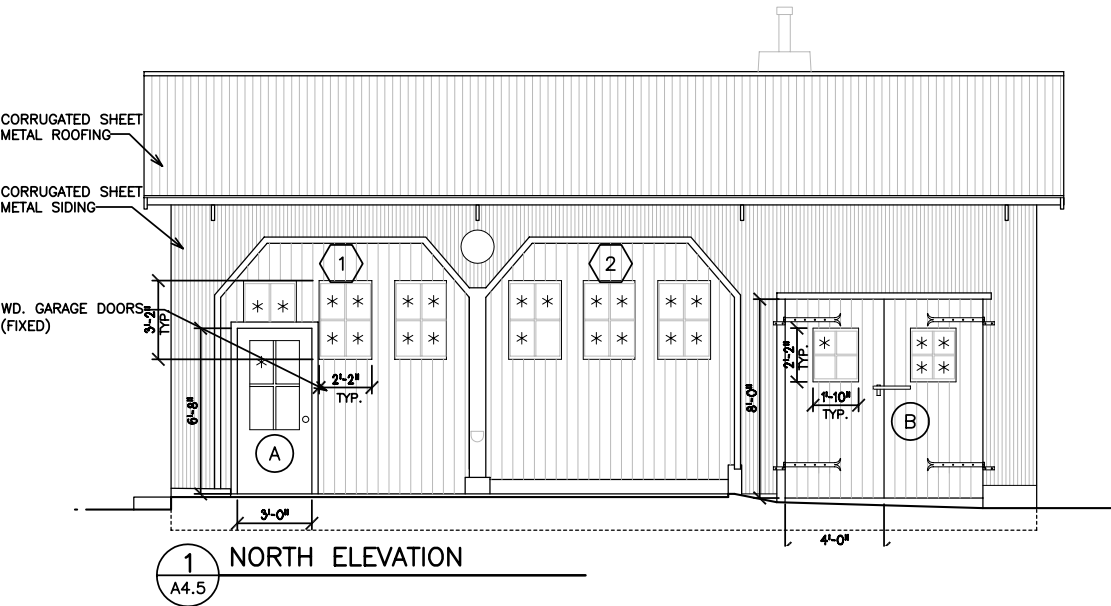
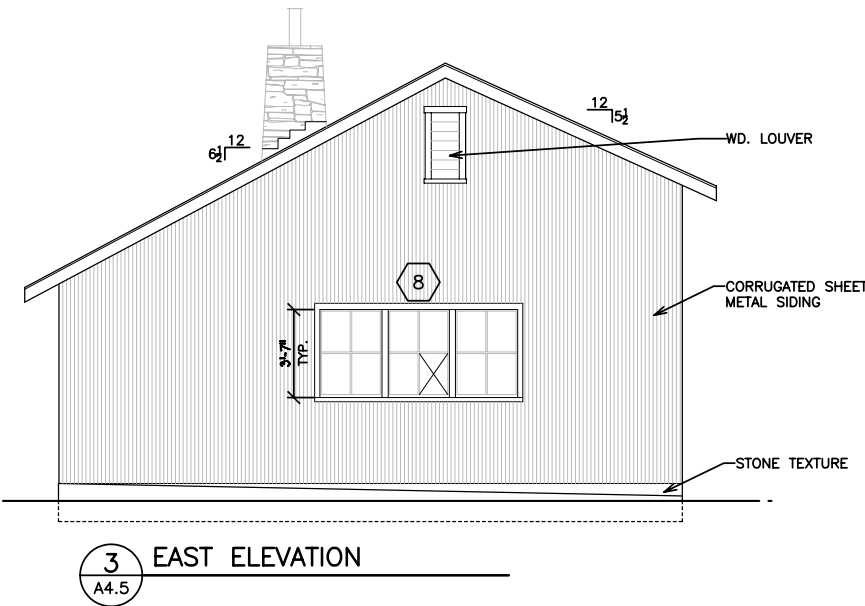
EXISTING CONDITIONS - 2006

DESIGNED: GADD BSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0080 Park Service Vehicle Paint Shop GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25019 PMIS/PKG. NO. 084236 SHEET 1 OF 2
TECH. REVIEW:	DATE: 04/13/07		

NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



KEY NOTES:
* HISTORIC RIPPLE GLASS
X BROKEN OR MISSING GLASS



EXISTING CONDITIONS – 2006

DESIGNED: BMD BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0080 Park Service Vehicle Paint Shop	DRAWING NO. 113 25019
TECH. REVIEW:	DATE: 04/13/07	GRAND CANYON NATIONAL PARK ARIZONA	PMIS/PKG NO. 084236
			SHEET 2 OF 2

Plumbing Shop



Identification:

Preferred Plumbing Shop

Structure

Name:

Structure SRB0080

Number:

Other

Structure

Name(s):

	Other Structure Name(s)
1.	Sunset Drive Paint Shop
2.	NPS Vehicle Paint Shop
3.	Park Service Vehicle Paint Shop

Park: Grand Canyon National Park

Historic

District:

	Historic District
1.	Grand Canyon Village

Structure Arizona

State:

Structure Coconino

County:

Region: Intermountain

Cluster: Colorado Plateau

Administrative Grand Canyon National Park

Unit:

LCS ID: 055416

UTM:

	Zone	Easting	Northing	Source	Datum
No records.					

Historical Significance:

National Entered - Documented

Register

Status:

National Register Date: 02/18/1997

National Historic Landmark?: Yes

National Historic Landmark Date: 02/18/1997

Significance Level: Contributing

Short Significance Description: 1 of 28 bldgs const in NPS utility area by CCC following 1924 Plan prep by NPS Landscape Eng Div. Illustrates bldg const materials & techniques typical of CCC utility bldgs. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long Significance Description: The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the villages major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and

helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1934	AD	1936	AD	NPS/CCC	Other

Function and Use:

Primary Function: Maintenance Facility

Historic Function:

Primary Current Use:

Primary Current Use: Maintenance Facility

Structure Contains:

Structure Contains: No

Museum Collections?:

Other Functions or Uses:

Other Functions or Uses:

Other Function(s) or Use(s)	Historic or Current
No records.	

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

816

Material(s):

	Structural Component(s)	Material(s)
1.	Foundation	Stone
2.	Framing	Wood
3.	Roof	Metal
4.	Walls	Metal

Short Physical Description:

1 story wood frame utility shed 25'x35'. Asymmetrical gable roof with exposed rafters. Corrugated metal roofing and siding. 2 large garage bays with sliding doors, 1 pair swinging doors with strap hinges. Metal frame awning window, fixed. Wood louvered gable vent. Concrete & stone foundation.

Long Physical Description:

1 story wood frame utility shed 25'x35'. Asymmetrical gable roof with exposed rafters. Corrugated metal roofing and siding. 2 large garage bays with sliding doors, 1 pair swinging doors with strap hinges. Metal frame awning window, fixed. Wood louvered gable vent. Concrete & stone foundation.

Condition and Impacts:

Latest Condition: Good

Latest Year Assessed: 2006

Conditions:

	Condition	Year Assessed
1.	Fair	1996
2.	Good	2006

Impact Level: Low

Primary Impact: Structural Deterioration

Other Impacts:

	Other Impact Type
1.	Weather
2.	Park Operations

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Management Category Date: 08/08/2006

Management - Treatment:

Latest Est. Interim Treatment Cost: 0

Latest Ultimate Treatment: Rehabilitation

Interim Treatment:

	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:

	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management Plan	08/21/1995	National Park Service	Yes	No	

	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	160000	08/01/1995	

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility: National Park Service

FMSS Number: 33323

Management - Description:

Short Management Text: GMP specifies adap reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/SF). Maint fns to be relocated. Revise RMP to spec pres trmt.

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 80		2
3.	Other Structure Number	CB56		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good

Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0080 Plumbing Shop	08/2006	1

				
2.		SRB0080 Plumbing Shop	08/2006	2

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

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1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The original plans for the Park Service Jail indicate the building was ECW Project 48 and was approved in 1935. Camp NP4A was assigned to do the work. A report to the Chief Architect, presented in February of 1936, notes optimistically that construction on the building was three-fourths complete, lacking only the concrete floor and the roof (Drawing 3090 Document 113-D578, Grand Canyon Museum Collection). The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources indicates a construction cost for the project of \$1,000.

The jail was constructed of concrete, for security, and disguised with wood siding on the exterior to blend in with the rustic park architecture.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

A small, wood-framed, low-sloping shed-roofed office addition was added to the rear of the building in 1980. This was confirmed by an NPS employee who participated in the project the first year of his NPS tenure, which would have been 1980.

The building is in fair condition. In use daily, it is well-maintained. The 1980 addition detracts from the historic character of the building, with its low-quality construction and stylistically inappropriate window and door. It is however, on the back side of the building.

OTHER DOCUMENTED WORK ON THE BUILDING

<u>Review Date</u>	<u>Work Described</u>	<u>Source of Information</u>
1980	South addition	Interview, NPS Employee

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
Unknown	Replaced historic 5-panel front door with flush wood door
Unknown	Second holding cell constructed at southeast corner of original jail.

1.3 PHYSICAL DESCRIPTION

The Park Service Jail is constructed with concrete walls and exterior wood siding. The building originally was square in configuration with a simple gabled roof. The 1980 addition, constructed on the south side of the main structure has a shed roof. The building features a corrugated sheet metal roof, horizontal shiplap siding, and a brick chimney.

The interior configuration lends itself well to its current and historical use as a jail, separating detention facilities in the north part of the building from administrative and evidence storage at the south addition.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof is a two part roof with a gable roof on the original structure and a low slope shed roof on the south addition. The gable roof consists of corrugated, galvanized sheet metal roofing over a layer of rolled roofing. The deck consists of a layer of 3/8" plywood sheathing on top of solid 1x6 rough sawn sheathing on 2x6 rafters at 24" o.c. The corrugated roofing is closed by a 1" foam gasket at the low end. The roof over the south addition is corrugated sheet metal over "Ice and Water Shield" on plywood sheathing. The sheathing is attached to 2x10 rafters at 24" o.c. Sheet metal panels lap a minimum of 8" on the low slope roofing and only 1 corrugation (+/- 1 1/2") on the steeper gables. The slope on the addition roof is less than 1:12. Historic photos indicate a panel joint, mid-distance up the slope, and metal ridge flashing.

The ridge is capped with a round over style ridge cap that appears to be much older than the sheet metal roofing and is not formed to the corrugations. There are two gasketed roof jacks at the plumbing vents. An open gutter slopes across the east side of the roof over the addition and has no end caps or downspouts.

All of the roofing is attached with neoprene gasketed roofing screws. There is an edge flashing on three sides of the roof over the addition with a drip edge at the bottom.

There is a sheet metal flashing cap over all windows and openings on the original building.

ARCHITECTURE - OVERHANGS & SOFFITS

The gable roof overhangs the building by +/-20" on all sides. The sheathing and rafters are exposed and the gable end eave rafters are supported by 6x6 outriggers at the walls and out at the ridge. The rafters are bird's mouthed over the outriggers. A 1x2 trim board is attached to the face of the gable end rafters covering the sheathing ends.

The addition roof has a 10" overhang on all three sides. The plywood sheathing and rafters are exposed and there is a 2x10 "fascia" board at the ends of the rafter tails on the south side. A 1x2 trim board is attached to the rafters and "fascia" covering the edge of the sheathing.

ARCHITECTURE - EXTERIOR WALL FINISHES

The exterior siding on the original portion of the building is a lapped, 1x12, rough sawn wood siding with a 9" exposure. The corners are mitered. The siding extends to grade at the north, east, and southeast and stops above grade on the west and southwest. The siding continues to the underside of the roof sheathing on all sides. There is a 1x6 trim piece between the rafter tails on the north and south sides.

All is painted brown. There is an insulated plywood panel on the southwest corner covering plumbing for the jail cell.

The siding on the addition to the south is 5/8" rough sawn, exterior plywood. 1x2 wood trim boards cover the corner seams. Butt joints on the south and east walls are exposed. Joints on the west wall are covered by a 1x2 trim board. A coped 1x3 covers the joint between the addition and the original building - this has also been sealed with caulking. A tapered 1x6 trim board covers the top of the siding on the east and west at the roof sheathing. 2x10 blocking between the rafter tails covers the top of the plywood on the south wall.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - MASONRY

A brick chimney extends 24" above the ridge line of the roof. The chimney is 16"x16" and has a sheet metal flue extension at the top. There is stepped flashing at the chimney. The step flashing is set into mortar joints and the joints have been sealed with caulking. There are two wood wedges driven into the mortar joints above the step flashing on the west side of the chimney. The flue has been capped.

The foundation for the building is concrete. On the original building the foundation is exposed on the west side and there is a gap on the southeast corner where the foundation can not be verified. The foundation on the addition appears to be a slab on grade with no actual "foundation" under it. There are holes under the slab on all three sides that appear to have been made by burrowing animals.

ARCHITECTURE - WINDOWS

This building features mostly wood casement windows adapted for secure holding of prisoners. Simple steel reinforcing bars were used to create security bars on the windows. Of all the original window locations only Window (2) does not resemble the original construction drawings.

Window (1), (4), & (5)

These are single wood casement units with 1" rails and stiles, 6 lites, and steel reinforced bar installed in a grid pattern on the exterior and fixed into the sill, header, and jambs. A well-sloped 2" sill frames the bottom and 3 5/8" flat trim frames the opening. An expanded metal mesh in a steel angle frame is attached, for additional security, to the interior frame of the unit. Window (4) has two steel bars that appear to have been replaced since the window was originally installed. These windows comport with historic drawing #8225. The original design, per historic drawing #3090-C, calls for multi-lite steel sash with bars at the openings. Drawing #8225 changed the design to a wood sash with bars at the interior of the windows.

Window (2)

This is a single wood operable casement window with 6 lites, although a heavy wire screen has been installed on the interior of 5 horizontal 1 1/4" steel bars so access to window hardware is impossible. The unit shows many layers of green paint and two 3 1/2" exterior, 5-segment hinges 6" to the centerline from the bottom and 5" from the top. The rails and stiles are 1 1/2", except for the bottom rail which is 2". Muntins are 3/4" with 1/4" extensions. This unit is surrounded by 3 5/8" flat trim boards and a 2" sill. A 3/8" frame is barely visible on top and sides with an additional 2" header beneath. Original construction drawings show this window differently from actual construction.

Window (3)

This is a non-historic, un-finished aluminum sliding window, very small. There is a screen on the west half. 2 3/4" flat trim surrounds the unit with both horizontal pieces cut at an angle to create points.

ARCHITECTURE - EXTERIOR DOORS

Exterior Doors (A) & (B)

Historic photos show that the original front door (A) was a five-panel rail and stile door, similar to others in the complex. However, these are non-historic (likely insulated) flat panel flush doors. A modern brushed chrome ball knob with key lock is located right hand from the interior. A large view window is located in the top half.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - INTERIOR DOORS

Door (AA)

This steel framed, heavy woven, wire mesh door secures the west cell. Two heavy three-segment steel hinges (1 1/2" x 3") are located 13" from the top and bottom edges to the centerline. An 11" x 6" pass-thru door of steel is hinged on the bottom and located 53 1/2" off the floor level for food access. The door is secured with a padlock.

Door (BB)

This steel sliding door has a steel frame and a diamond pattern steel mesh infill. It is marked "Indiana Wire Products/Greensboro, Ind." on the lockset. This door also features a padlock. Two open panels, one horizontal and one vertical, allow food access for pass-thru.

Door (CC)

These three closet doors are made of painted plywood and are identical. They are secured with padlocks and hinged with light duty hinges. They are non-historic, built in 1980 with the south addition.

ARCHITECTURE - WALL/CEILING FINISHES

The walls and ceilings throughout the north portion of the building are original, painted, board-formed concrete. A 1" chamfer demarks the wall/ceiling intersection.

The room at the back (south) of the building has painted gypsum board on the ceiling and two walls, with a circular texture. Painted paneling finishes the north wall and painted plywood encloses the storage closet at the west.

ARCHITECTURE - TRIM & MILLWORK

Casework consists of a modern, 40" high plastic laminate counter with backsplash and plastic laminate-faced lower cabinets.

ARCHITECTURE - FLOOR

The floor in the original cell block building is painted slab on grade. The room to the south is also slab on grade with modern, resilient sheet flooring.

ARCHITECTURE - INTERIOR WINDOWS

A window is located in the cell on the south wall. It is an original secure window which appears to be the remains of a double-hung unit with glass in the lower sash and plywood in the top. On the exterior of this window is plywood. This was blocked when the office addition was added to the south in 1980.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The stoop at the entry to the cell blocks has a 2" step. The door itself is too narrow to meet ABAAS requirements. The door to the addition on the south of the building is accessible except for the height of its threshold and the knob hardware. (Photos 0087-124 and 0087-127)

Once inside the cell block portion of the building, both cell doors are too narrow for ABAAS. Likewise,

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1.3 PHYSICAL DESCRIPTION

the evidence counter is too high for ABAAS compliance. (Photos 0087-206, 00872121 and 0087-214)

STRUCTURAL - SIZES / SPANS / SUPPORT

The Park Service Jail is a single story cast-in-place concrete structure with a wood framed addition to the south side of the building.

Historic drawings dated August 20, 1935 were reviewed during the assessment. These drawings appear to be an accurate representation of the as-built construction for the original building. No drawings were available for the addition at the time of assessment.

The north half of this structure is the original jail building. The jail is essentially a concrete box with wood siding and an overbuilt roof giving it the appearance of a wood framed structure.

Historic drawings are referenced for most of the structural information on the building. Where possible, structure was verified, but access for confirmation was limited at the roof and foundation.

The walls, flat ceiling, and slab on grade are all 6" thick cast-in-place concrete. The drawings indicate 1/2" diameter rebar at 10" spacing in a single mat in both directions in all walls. Additional reinforcing around openings and over the interior partition wall are called for.

The walls are shown as thickened below grade to provide a 12" wide footing that also provides a ledge for the exterior siding and the slab-on-grade. Foundations were not visible for verification.

The gable roof is constructed with corrugated metal sheathing over 1x straight sheathing over 2x6 rafters at 24" spacing. The rafters bear on a 6x6 "beam" atop the north and south walls and are supported by a 6x6 ridge beam. Rafters span 7'-6". The ridge beam is shown as supported by the east and west walls and by a 6x6 post over the interior wall. This would lead to a maximum span of about 12'. The attic was not accessible.

The addition on the south side of the building is of more modern conventional wood framing.

Roof framing is 2x10 at 24" bearing on the north and south walls. The addition wall is comprised of 2x4s an unknown spacing, sheathed with plywood on the exterior. The floor is a slab-on-grade of unknown thickness. Foundations were not visible. It appears that the addition is founded directly on the slab-on-grade.

MECHANICAL - PLUMBING ASSESSMENT

This building contains a water closet and a lavatory, both of which are located in the jail cell. Both fixtures appeared to be original to the building and are in working order. The water closet is a floor-mounted porcelain unit. The lavatory is a wall-hung porcelain unit with integrated faucet. Both units have push-button valve operation. The water piping to each fixture is a mixture of copper and steel. The piping is accessible through access panels located behind each fixture on the exterior of the building.

The building does not have a water heater, so no domestic hot water is available in this building (Photos 0087-212, 0087-215, 0087-216, 0087-217, and 0087-218).

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1.3 PHYSICAL DESCRIPTION

MECHANICAL - HVAC ASSESSMENT

The building has two electric unit heaters, one in the front portion of the building and one in the short-term evidence portion of the building (Photos 0087-219 and 0087-220). The south addition heater is recessed into the south wall.

The unit heater in the front portion of the building was hung from the ceiling and was in working order. Unit appeared to be new.

Make: A'mark
model: MUH 0321
208/240 Volts
2.2/3 kW
1 phase

The unit heater in the short term evidence room is not in working order. Unit appeared to be approximately 15-20 years old.

Make: Intertherm
model: N/A
voltage: N/A
wattage: N/A

An original flue exists in the building but is not used. The penetrations into the flue have been capped.

ELECTRICAL - SYSTEM DESCRIPTION

The building is provided with a 120/240 volt, single-phase electrical service from a tap off of the existing underground electrical distribution system (Photo 0087-126).

The electrical interior panel is provided with a 100-amp main circuit breaker. This panel serves the load terminated onto the panel and the panel on the exterior of the building (Photos 0087-221 and 0087-118).

The feeders and branch circuiting wiring insulation appears to be provided with thermoplastic or a new type of insulation material.

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

Lighting inside the cell area is modern track, over the counter, and recessed fixture with a metal grate/cover in the cell (Photos 0087-222 and 0087-223).

Two ceiling-mounted incandescent lights with round, frosted glass covers provide lighting to the south room.

EXTERIOR LIGHTING

Standard PAR type floodlights are located on the north façade of the building (Photo 0087-128).

A modern exterior incandescent scone is mounted near the rear door on the east façade of the building (Photos 0087-127 and 0087-129).

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1.3 PHYSICAL DESCRIPTION

TELECOMMUNICATIONS

A telecommunications termination box was provided on the east side of the building near the exterior electrical panel (Photo 0087-118).

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1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0087-110)
- Overhangs – The simple roof extension overhangs reveal the underside of the roof structure with features such as exposed rafter tails. (See photo 0087-105)
- Gable end beams – Large, wood beams support the gable end overhangs.
- Horizontal lap siding, typical of park style architecture. (See photo 0087-106, 0087-107)
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex. (See photo 0087-105)
- Brick chimneys – A brick chimney extends through the steel roofing with no caps or adornment. (See photo 0087-110)
- Wood windows with clear glass – This building features wood casement windows, with wood muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out.
- Barred windows – This building's identity as a jail is reinforced by steel bars in the windows.

1.5 GENERAL CONDITION ASSESSMENT

The Park Service Jail is in fair condition with the exception of a few items. The masonry chimney is in poor condition in which several brick faces are spalling and mortar joints have deteriorated. Some deterioration is evident at the east and west elevations with regard to the wood lap siding. The foundation is in good condition.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: GOOD

The roofing is in good condition throughout although corrugated sheet metal is not recommended for slopes shallower than 2:12 and the roof on the addition appears to be closer to 1/4:12, which is not appropriate for this building. The ridge cap flashing is in fair condition and although it does not appear to be designed for use with a corrugated roofing system - there are gaps at every corrugation which could allow driving rain to get in under the roofing (there is no evidence that this is happening at this time). The gutter over the east facing exterior door is in good condition, although its effectiveness is unknown as it is parallel to the corrugations of the roofing above. The joint between the steep and low pitched roofs is not flashed and may leak over time - it has been sealed with caulking.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: FAIR

The overhangs are generally in fair condition and there are specific locations of damage - particularly the northeast and northwest corners of the gable overhangs. (The 1x2 trim is deteriorated and the rafter tails have been damaged). The south "fascia" board on the addition is warped and starting to weather - it is pulling away from the rafter tails at the southeast corner.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: FAIR

The wood lap siding is in fair to good condition. The northeast and west walls show little deterioration, although there is evidence of weathering under the painting. The south walls, both east and west of the addition, are more heavily weathered with particular damage in the southwest corner, where a couple of short pieces have split or broken. Mitered corners are in good condition on the north side and fair to poor condition on the south where joints have opened considerably and been filled more than once with caulking. The plywood covering insulation in the southwest corner is in fair condition but insulation is visible through the open joints.

The siding on the addition is in fair condition with the majority of the weathering on the south wall. There are some holes and areas where the plywood has delaminated or is peeling away. The joints are opening up slightly and a woodpecker has begun to attack the upper southeast corner.

ARCHITECTURE - MASONRY

CONDITION: POOR

The masonry portion of the chimney is in poor condition. Several brick faces have spalled off (some of these are still lying on the new roofing). The mortar is deteriorating in some joints. The flaunching at the top of the brick is in fair condition and is essentially intact. The sheet metal flue and cap are in good condition and are beneficial to the operation of the chimney.

The foundation itself is in good condition. The site under and around the foundation is being compromised by the intrusion of wildlife. Also, the soil under the southeast corner of the addition slab is washing away as water run-off works around the site.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - WINDOWS

CONDITION: **FAIR**

Window (1)

This window exhibits little weathering. Many layers of paint have been applied over the years, with muntins ending up over-painted onto glass. Two butterfly clips on the trim suggest a storm window or screen may be missing.

Window (2)

This unit shows some weathering at the bottom rail, but is repairable. One pane has recently been replaced, leaving unpainted glazing putty in one lite.

Window (3)

This unit, while inappropriate for this historic building, appears to be intact and functional.

Window (4)

This window features a poor reglazing job, and a deteriorating bottom rail from severe weathering. Two security bars do not match the original, but it's not a detriment.

Window (5)

This unit shows mild weathering at the sill. One bar is bent but does not pose a security problem.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **GOOD**

Both doors are in good condition though wholly inappropriate for this historic building. Door (A) is the primary door for this building, and this modern door particularly detracts from the historic character.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **GOOD**

Doors (AA) & (CC)

These doors are fully functional and in good condition.

Door (BB)

This door is difficult to operate, but is in good condition.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **FAIR**

In general, the cell finishes are in good condition in the cell block and fair in the room to the south. The gypsum board ceiling has been stained by water, opening up the tape joints and carrying down the walls to delaminate the gypsum board finish.

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **GOOD**

The casework is in good condition.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - FLOOR

CONDITION: **FAIR**

The cell block floor is in good condition. A tear and several stains have marred the resilient flooring in the room to the south.

ARCHITECTURE - INTERIOR WINDOWS

CONDITION: **GOOD**

This unit reflects the original layout of the building and appears in original construction documents. While the missing glass is obvious, it also would serve no purpose to re-install it.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **GOOD**

This building is generally in good condition with no visible signs of distress or deterioration.

Grade along the east and north sides of the building is near or above the lowest wood siding. The siding is rotting as a result. It is unlikely that the concrete wall behind the siding has experienced any damage.

MECHANICAL - PLUMBING ASSESSMENT

CONDITION: **GOOD**

Both fixtures appeared to be in working order and in no need of immediate repair. A portion of the piping on the outside of the building is insulated and heat-traced to protect against freezing.

MECHANICAL - HVAC ASSESSMENT

CONDITION: **FAIR**

The unit heater in the holding/processing area appears to be new and is in working order.

The unit heater in short term evidence is not in working order and is in need of immediate repair if space heating is required.

The existing brick flue in the building looks to be in good condition but the functionality of the flue is unknown and would require further investigation.

ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **POOR**

The existing electrical panel should be replaced with a panel that contains additional circuit breakers. The purpose of this is so that each branch circuit can be terminated onto a dedicated circuit breaker, since some of the circuit breakers have more than one branch circuit terminated upon them.

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1.5 CONDITION ASSESSMENT

Several of the branch circuits use a white conductor color for use as a phase conductor. This color can only be used as a grounded conductor.

The building's electrical service and associated devices are not properly grounded. This building also appears to have experienced a problem with the existing service's neutral conductor, and modifications to rectify this problem were performed and do not appear to comply with code.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **GOOD**

In general, the lighting fixtures are in good to fair condition. The finish on the recessed reflector on the cell fixture is slightly damaged.

While functional, the exterior floodlights are mounted in a position that calls attention to them, detracting from the historic character of the building.

The modern exterior sconce is located on a recent addition, not visible from the main path of travel. While not in keeping with the architecture, it's acceptable.

The existing interior or exterior lighting does not provide any emergency type egress lighting or comply with "International Dark Sky Association Guidelines" for light cut off.

The telecommunications provisions to this building appear to be adequate for its present use.

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2.1 ULTIMATE TREATMENT AND USE

The building has always been used as a jail and office. The cell is actually used for prisoner holding. Rehabilitation is the most likely, long-term treatment for this building.

The following is a discipline-by-discipline, component-by-component description of the building.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **LOW**

The corrugated sheet metal roofing on the low slope roof over the south addition should be removed and new built-up or single ply roofing should be installed in this location. New sheet metal flashing should be installed that extends up under the steep roofing a minimum of 12" and at edges. Gravel stop flashing should be installed on the east and west eaves of the low roof and a gutter on the south side with a downspout to extend the runoff away from the foundation.

Modification to the low sloped shed roof on the addition to a gabled roof should be considered in order to better compliment the historic building.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

The 1x2 trim that is deteriorated, rotten, or broken should be removed and replaced with new wood trim to match the original material. Re-attach all loose trim and fascia boards. Scrape, sand, and repaint all woodwork.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **MODERATE**

Several short, broken, or split lap siding pieces in the southwest corner of the original jail should be replaced with new to match the original material and shape. All miter joints should have the caulking and sealant removed completely. Joints should be mechanically closed if possible and then re-sealed with paintable sealant recessed into the joint. Insulated plywood panel should be trimmed out to better blend with the existing siding.

Remove the existing plywood covering around the southwest corner and replace the batt insulation with new rigid insulation. Re-attach the plywood and seal the joints to cover the insulation completely. Install new vertical 1x4 wood battens at the plywood joints on the south wall of the addition. Repair and fill all holes in the plywood. Scrape and re-paint.

ARCHITECTURE - MASONRY

PRIORITY **MODERATE**

The chimney should be rebuilt above the roof using existing good brick, new brick to replace spalled or broken bricks, and mortar designed to match the original mortar strength. Further testing should be done in subsequent phases to determine the exact mortar mix. The flaunching at the top of the chimney should be replaced and new flaunching installed over a waterproof membrane to prevent moisture from entering the top of the bricks. Step flashing should be reinstalled in the mortar joints as the chimney is rebuilt.

Holes and voids under the foundation slab should be filled with new structural fill and the site should be regraded to provide positive slope away from and around the building on all sides.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - WINDOWS

PRIORITY **LOW**

The windows should be evaluated individually for tight fit and infiltration. The casement windows may require weatherstripping.

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration.

As needed, replace broken glass panes; however, do not attempt to match historic rippled glass, but rather allow the new glass to be identifiable at close range.

All of the hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware.

Window (1)

No work needed on this window at this time, however if a screen is desired existing butterfly clips can be re-used to install a reconstructed wood frame screen.

Window (2), (4), & (5)

1. Arrest wood deterioration on the sill with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed.

2. Prime and repaint.

Window (3)

Replace with a window that more closely fits the character of this building.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **LOW**

Replace Door (A) with a new door to match the original historic door found on historic photos included with this report. Ensure the door is installed with a tight fit, minimizing air infiltration. Add weatherstripping as needed.

Check Door (B) to ensure a tight fit. Add weatherstripping as needed.

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

Door (AA) & (CC)

These doors need no work.

Door (BB)

Repair and rebalance this door to facilitate smoother operation.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

No work is recommended for the cell block at this time. The gypsum board at the room to the south should be repaired and repainted once the roof leak has been repaired.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

No work is recommended for the cell block at this time. The flooring in the room to the south should be replaced in kind, or the flooring could be removed and the floor left in its unfinished, concrete slab state.

ARCHITECTURE - INTERIOR WINDOWS

PRIORITY **LOW**

Retain this window as it is an original, character defining feature so that the building can be restored someday if desired.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **SEVERE**

This building is listed as a Tier 1 building, as determined by the park for the purpose of establishing accessibility priorities for the Historic Structure Report, meaning that it has the potential to provide an office that could be staffed by a disabled individual. Therefore, a strategy should be developed that would provide accessible parking adjacent to the building, an accessible route to either the north or east entries and lever hardware on the entry door. The north entry door would require widening to meet ABAAS.

Inside, a section of the counter would need to be lowered for accessibility and an accessible door would need to be added to one or the other cell. Finally, an accessible restroom would need to be added to one or the other cell. Finally, an accessible restroom would need to be provided.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **LOW**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

Soil should be removed around the building such that no wood is within 6" of soil. Structure should be repaired or replaced where deteriorated.

MECHANICAL - PLUMBING ASSESSMENT

PRIORITY **LOW**

The plumbing is in working order and does not appear to require immediate repair.

MECHANICAL - HVAC ASSESSMENT

PRIORITY **LOW**

If space heating is required in short-term evidence, the unit heater will require repair. The cause of the unit heater failure is unknown and requires further investigation.

SRB-0087 PARK SERVICE JAIL

1936

2.1 TREATMENT RECOMMENDATIONS

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **SEVERE**

Replace the existing electrical service panel with a panel with enough circuit breakers to terminate each branch circuit with a dedicated circuit breaker. Correct the branch circuit color indication for the current carrying conductors.

Provide grounding of the electrical system and branch circuits to be code compliant.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Replace the exterior floodlights with a more stylistically appropriate fixture for this building and that comply with "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04). Original drawings may indicate historic lighting locations and style.

Provide emergency lighting inside the building and at the exit discharge from the building to comply with current code.

SRB-0087 PARK SERVICE JAIL

1936

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance Area overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building, the Park Service Jail will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Some elements may need *reconstruction*, such as the chimney. In general, the building requires *rehabilitation*, to address the existing code-deficient conditions (ABAAS access, electrical service, fire safety, etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

The Jail is currently an actively used building and has experienced a number of alterations over the years. The recommendations contained in this report do not represent significant adverse effect on the character-defining features of this building. Recommendation to re-structure the roof of the addition would make that element more compatible with the historic portion of the building.

SRB-0087 PARK SERVICE JAIL

1936



Bldg SRB-0087 – date unknown (post-1980)
National Park Service Grand Canyon Museum Collection (Photo # 00924)

SRB-0087 PARK SERVICE JAIL

1936



Bldg SRB-0087 – date unknown (post-1980)
National Park Service Grand Canyon Museum Collection (Photo # 18919)



Bldg SRB-0087 – date unknown (post-1980)
National Park Service Grand Canyon Museum Collection (Photo # 18920)

SRB-0087

PARK SERVICE JAIL

1936



West Elevation Bldg 0087 – 2006

SRB-0087

PARK SERVICE JAIL

1936



North Elevation Bldg 0087 – 2006

SRB-0087

PARK SERVICE JAIL

1936



East Elevation Bldg 0087 – 2006

SRB-0087

PARK SERVICE JAIL

1936



South Elevation Bldg 0087 – 2006

SRB-0087 PARK SERVICE JAIL

1936



Roof Overhangs 0087-105



Rough Sawn Wood Siding 0087-106

SRB-0087 PARK SERVICE JAIL

1936



Lapped Wood Siding 0087-107



Insulated Plywood Panel on the Southwest Corner 0087-108

SRB-0087 PARK SERVICE JAIL

1936



Plywood Siding on South Elevation 0087-109



16"x16" Brick Chimney 0087-110

SRB-0087 PARK SERVICE JAIL

1936



Exposed Foundation on the West Side 0087-111



Foundation at Southeast Corner of Jail Cell 0087-112

SRB-0087 PARK SERVICE JAIL

1936



North Window (1) 0087-113



North Window (2) 0087-114

SRB-0087 PARK SERVICE JAIL

1936



South Window (3) 0087-115



South Window (4) 0087-116

SRB-0087 PARK SERVICE JAIL

1936



East Window (5) 0087-117



Exterior Panel 0087-118

SRB-0087 PARK SERVICE JAIL

1936



Exterior Door (A) 0087-121



Exterior Door (B) 0087-122

SRB-0087 PARK SERVICE JAIL

1936



West Elevation 0087-123



North Elevation: Note Height of Soil on East 0087-124

SRB-0087 PARK SERVICE JAIL

1936



South Elevation 0087-125

SRB-0087 PARK SERVICE JAIL

1936



Exterior Conduits 0087-127



Floodlights on North 0087-128

SRB-0087 PARK SERVICE JAIL

1936



Exterior Sconce on East 0087-129



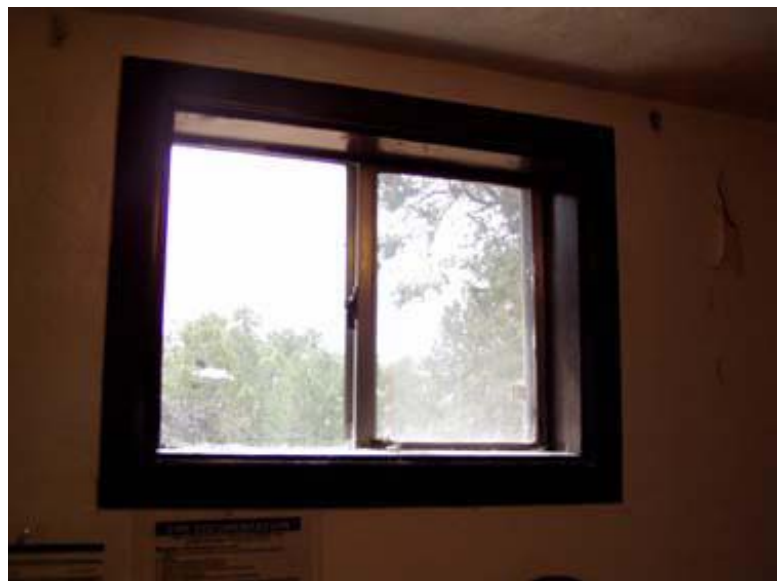
Window (1) Interior 0087-201

SRB-0087 PARK SERVICE JAIL

1936



Window (2) Interior 0087-202



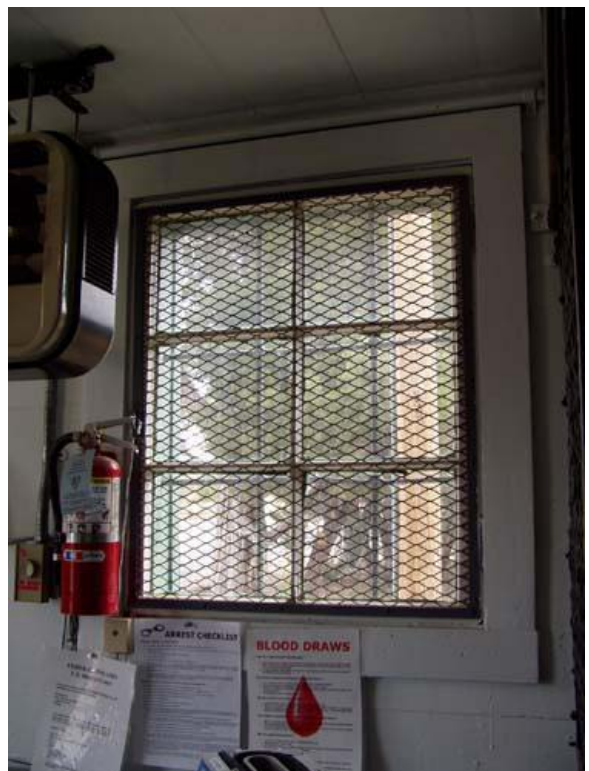
Window (3) Interior 0087-203

SRB-0087 PARK SERVICE JAIL

1936



Window (4) Interior 0087-204



Window (5) Interior 0087-205

SRB-0087 PARK SERVICE JAIL

1936



Interior Door (AA) 0087-206



Interior Door (BB) 0087-207

SRB-0087 PARK SERVICE JAIL

1936



Interior Door (CC) 0087-208



Textured Gypsum Board Ceiling and Wall 0087-209

SRB-0087 PARK SERVICE JAIL

1936



Resilient Sheet Flooring 0087-210



Board-Formed Concrete Ceiling 0087-211

SRB-0087 PARK SERVICE JAIL

1936



Modern Cabinets 0087-212



Painted Concrete Floor 0087-213

SRB-0087 PARK SERVICE JAIL

1936



Cell Fixtures 0087-214



Interior Window 0087-215

SRB-0087 PARK SERVICE JAIL

1936



Cell Door 0087-216



Water Closet 0087-217

SRB-0087 PARK SERVICE JAIL

1936



Wall-hung Lavatory 0087-217



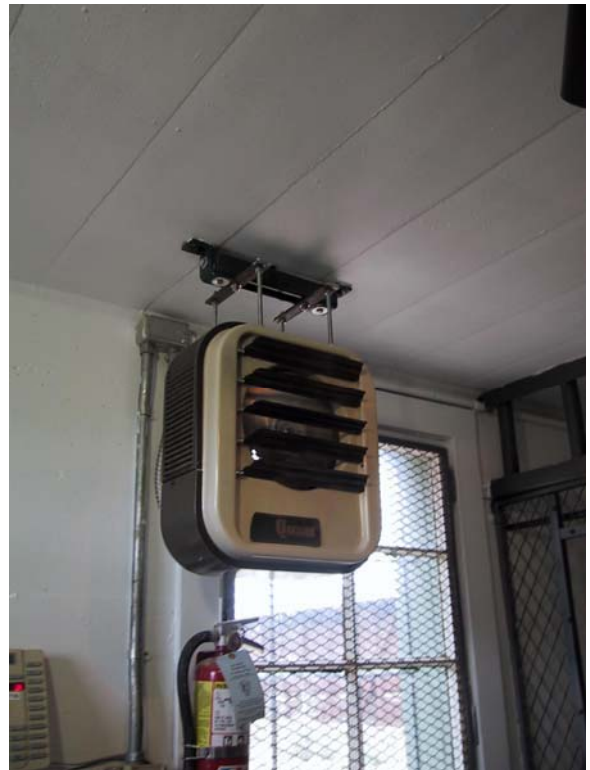
Water Connection to Water Closet 0087-219

SRB-0087 PARK SERVICE JAIL

1936



Water Connection to Lavatory 0087-220



Unit Heater in Jail 0087-221

SRB-0087 PARK SERVICE JAIL

1936



Unit Heater in South Addition 0087-222



Interior Panel 0087-223

SRB-0087 PARK SERVICE JAIL

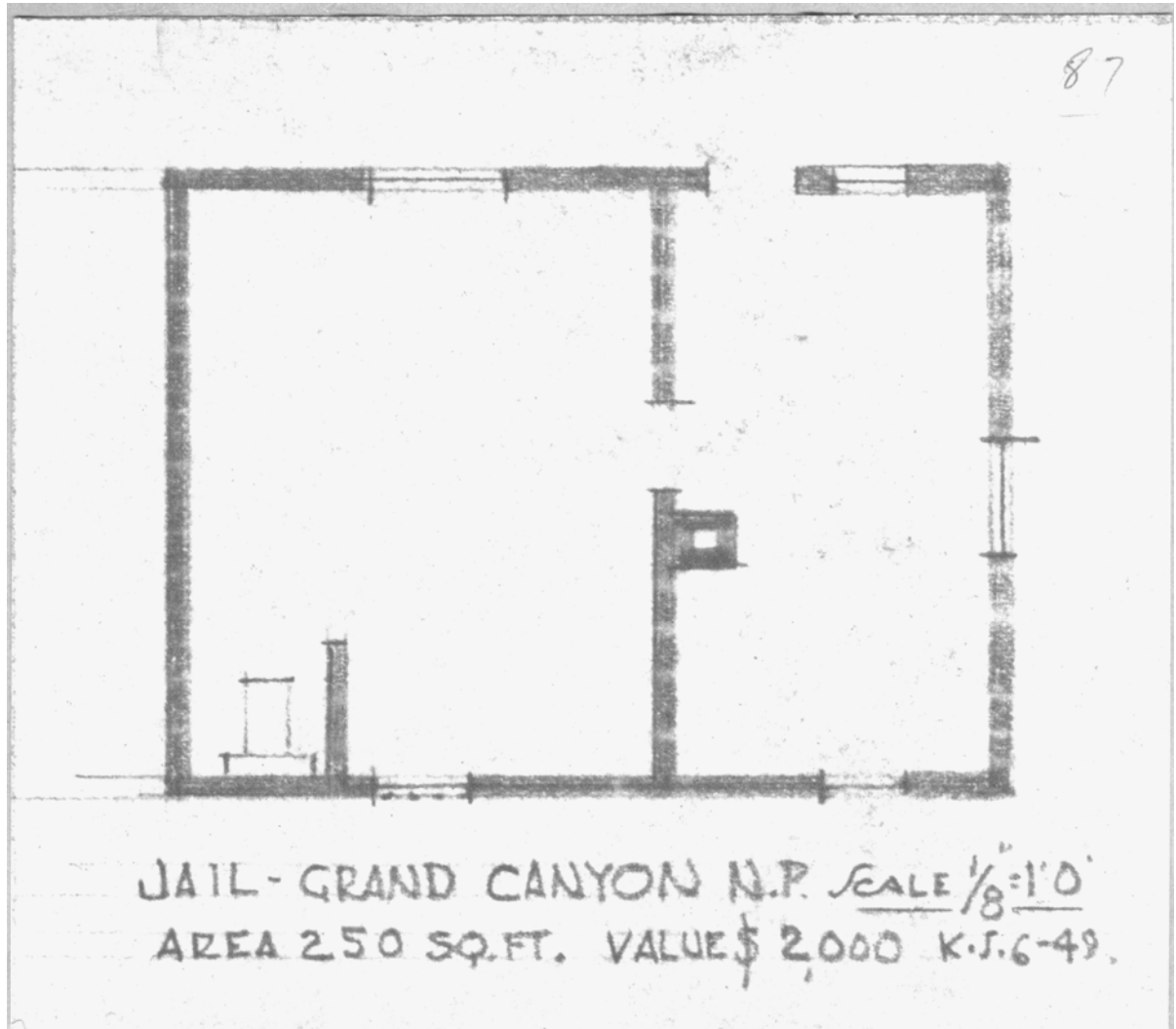
1936

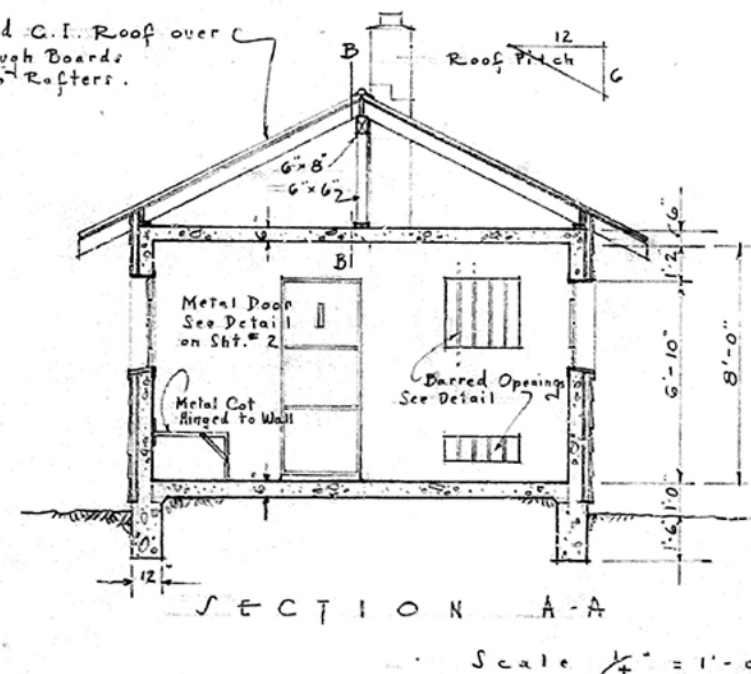
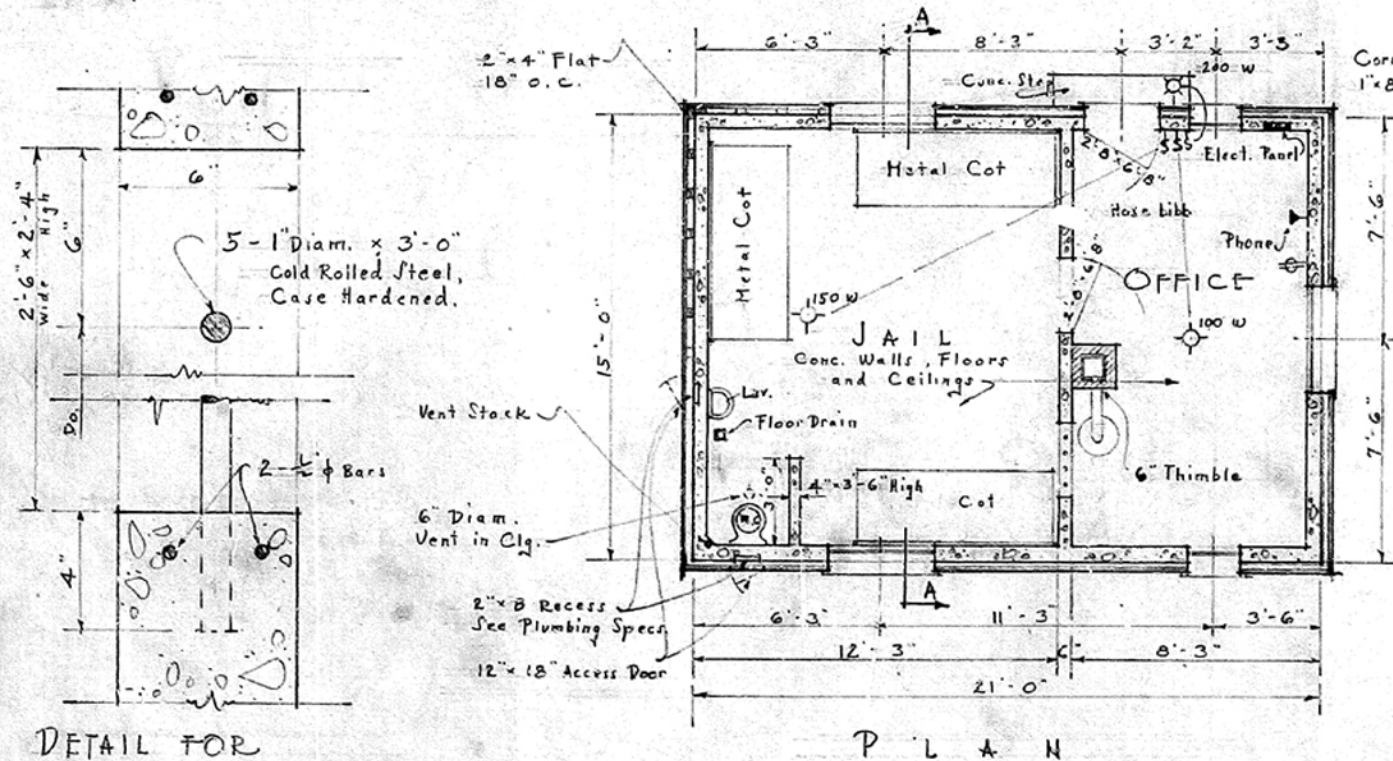
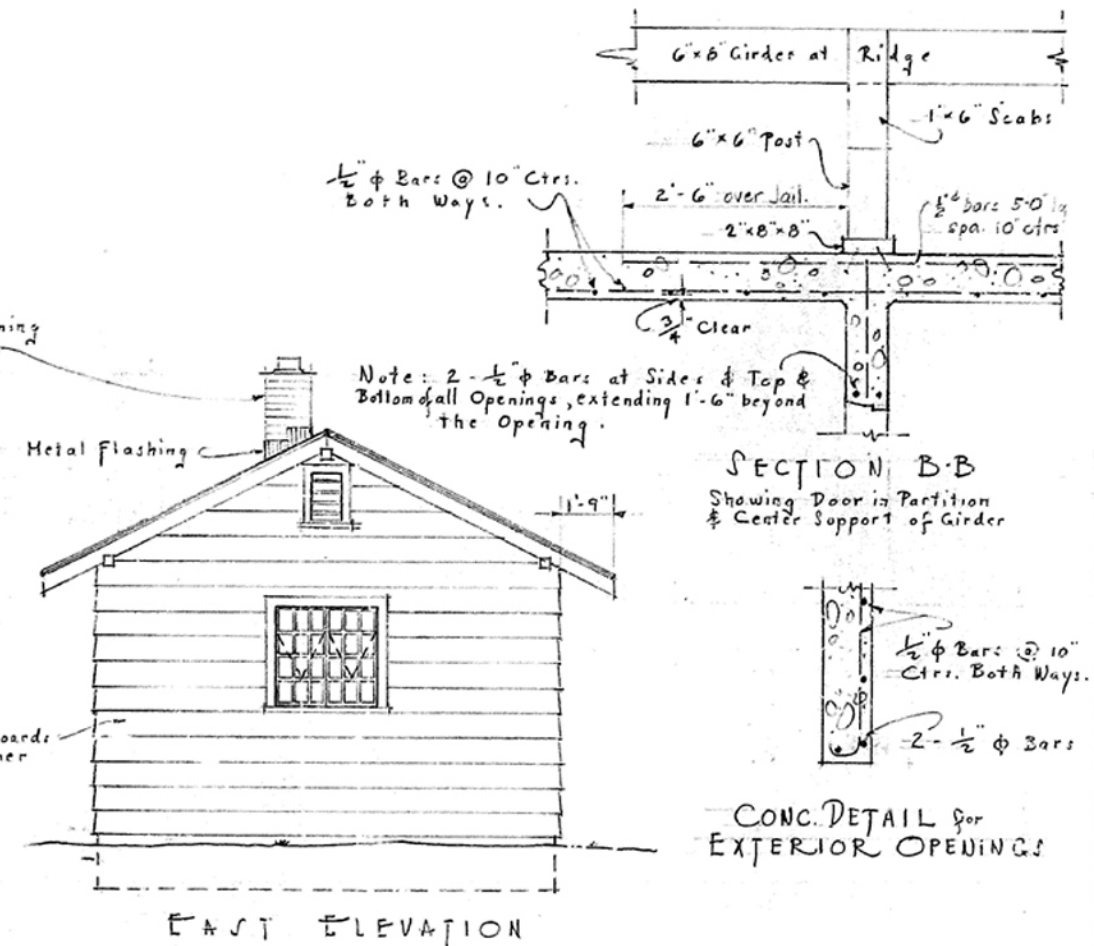
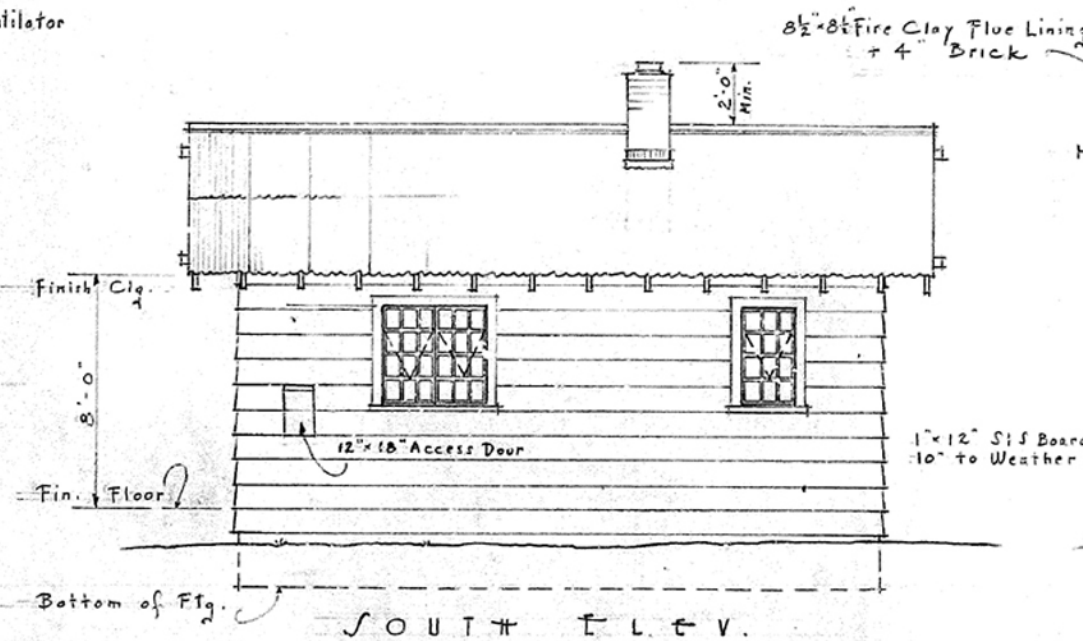
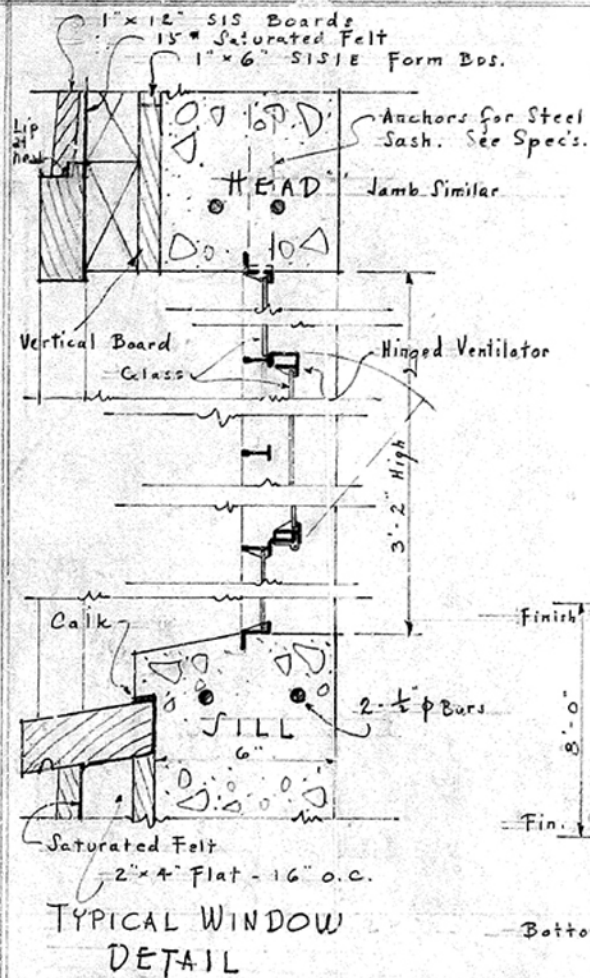


Surface-mounted Track Lighting 0087-224



Incandescent Fixture with Grate 0087-225





DETAIL FOR
BARRED OPENING
Between Office & Jail.

Single Windows 1'-10" x 3'-2"
Double Windows - Two Units 1'-10" x 3'-2"

Recommended *W. V. Parnes*
Deputy Chief Architect
Checked for Engineering *J. D. Coffman*
Chief Engineer
Concurred *J. D. Coffman* by *F. A. A.*
Chief Forester
Concurred *W. V. Parnes*
Superintendent
Approved *W. V. Parnes*
Director

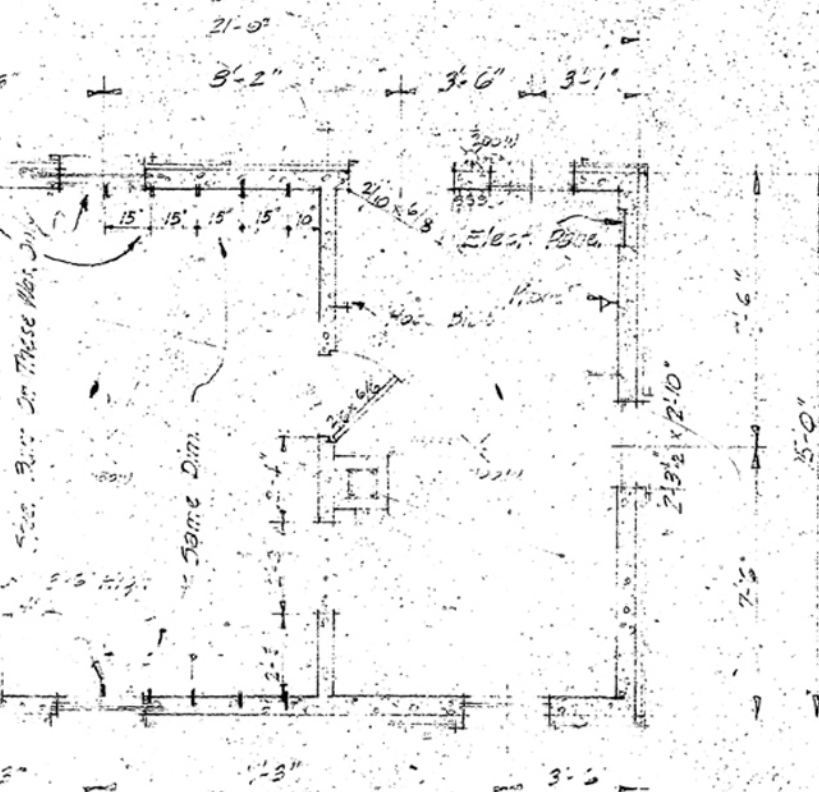
Date 9-19-35
Date 9-20-35
Date 10-3-35
Date 9/27/35
Date 10-5-35

RCN PROJ. 48. CLASS. 120 CAMP HP 4-A 5TH PILES-

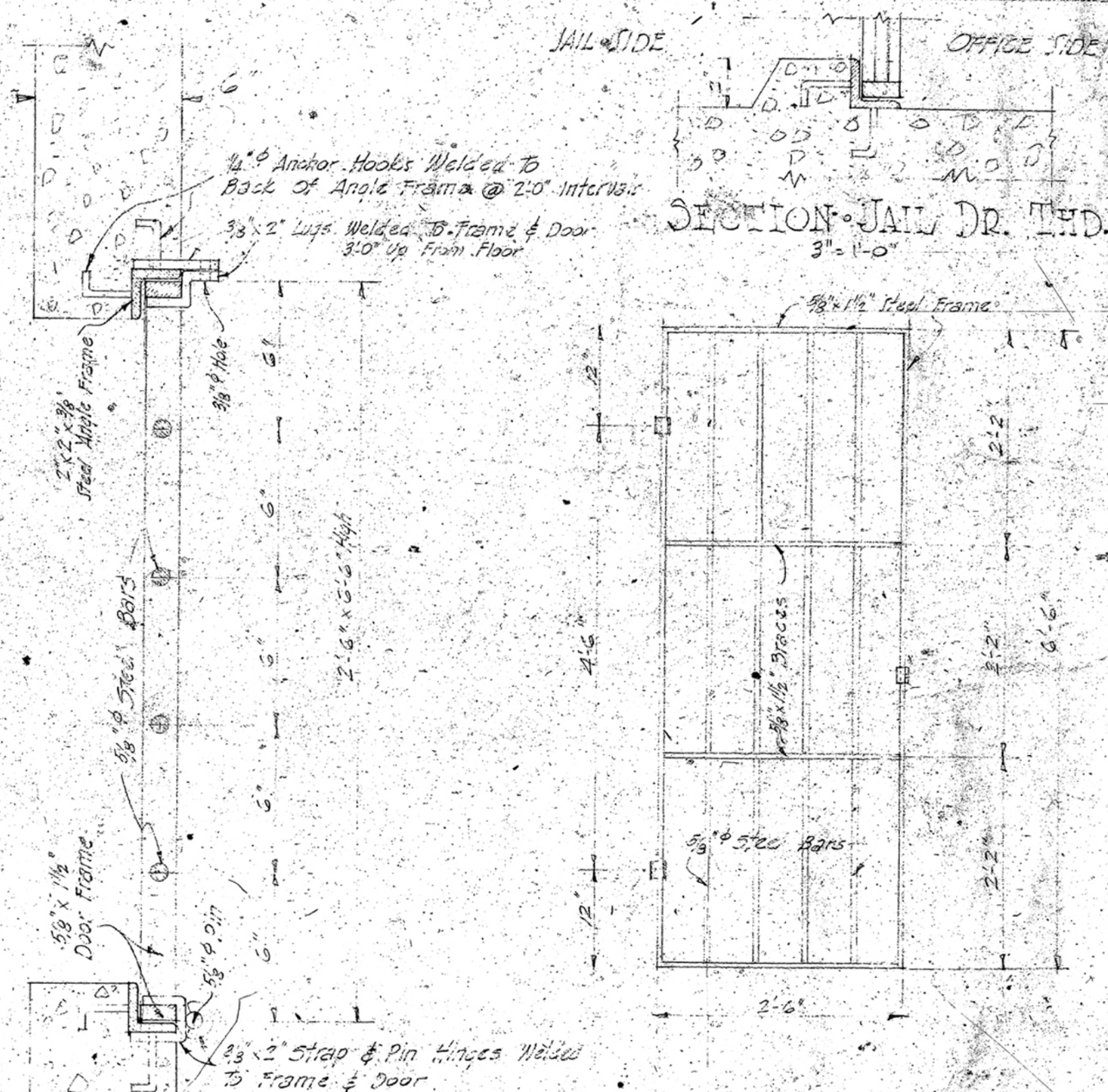
U. S. DEPARTMENT OF INTERIOR
NATIONAL PARK SERVICE
GRAND CANYON NATL. PARK
JAIL & NIGHT WATCHMAN'S OFFICE
DRAWN BY BRANCH OF PLANS AND DESIGN

Date
8-20-35
Sheet No.
1
of 2 Sheets
Drawing No.
N.P.
GC 3090C

1935 113 - 3090C



WINDOW
1-0 DETAIL



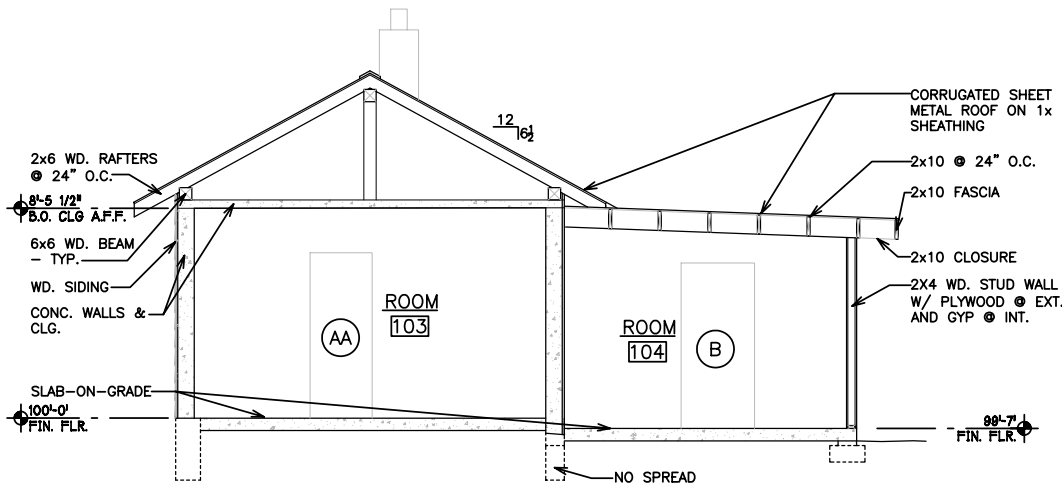
PLAN of JAIL DOOR
3' 11" 0'

REVISED DETAILS FOR JAIL
(FOR OTHER DETAILS SEE DRUG 3090-C)

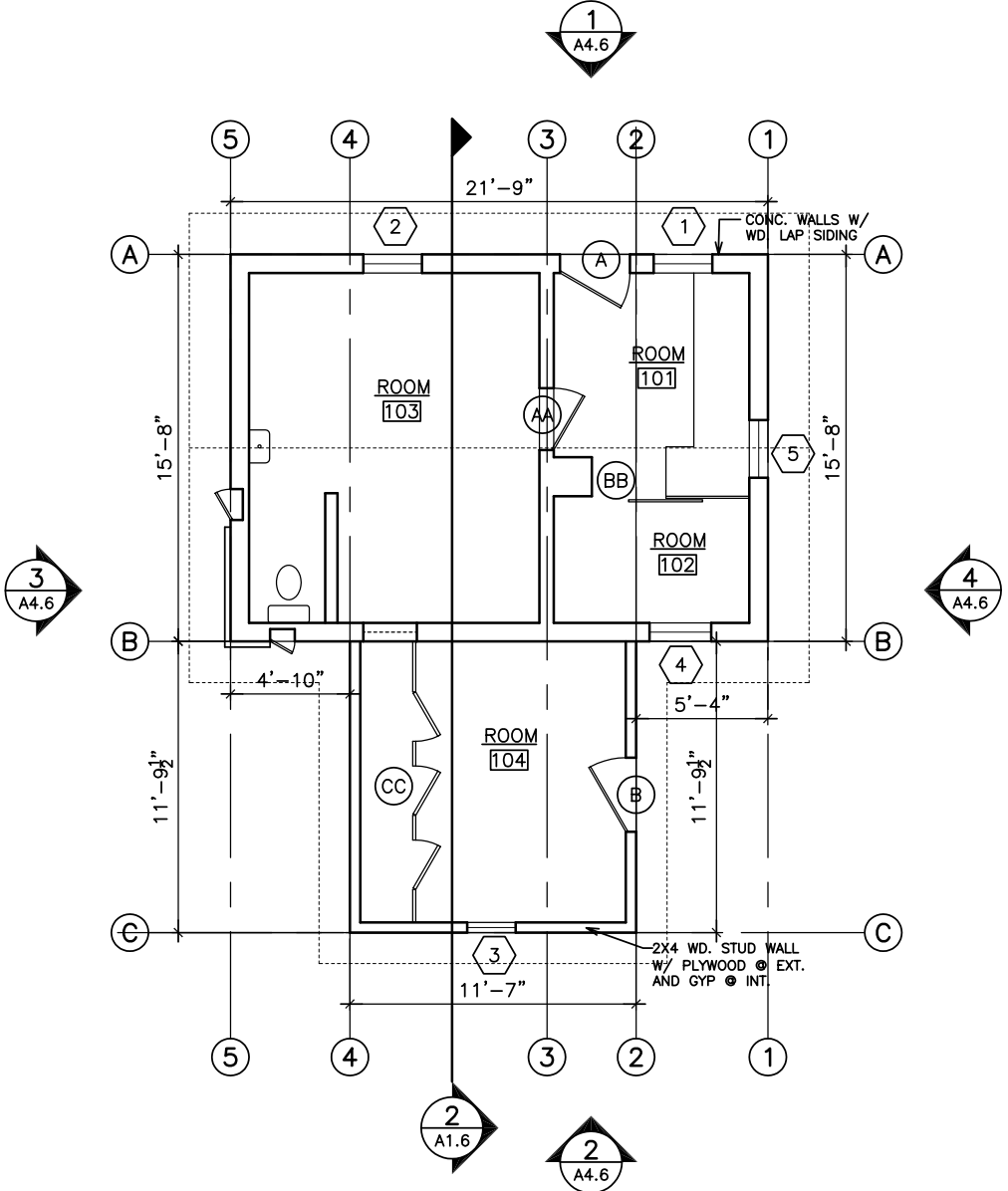
Approved: _____, Date: 1/20/20

DRING N° G.C. 812

NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



2 SECTION
A1.6



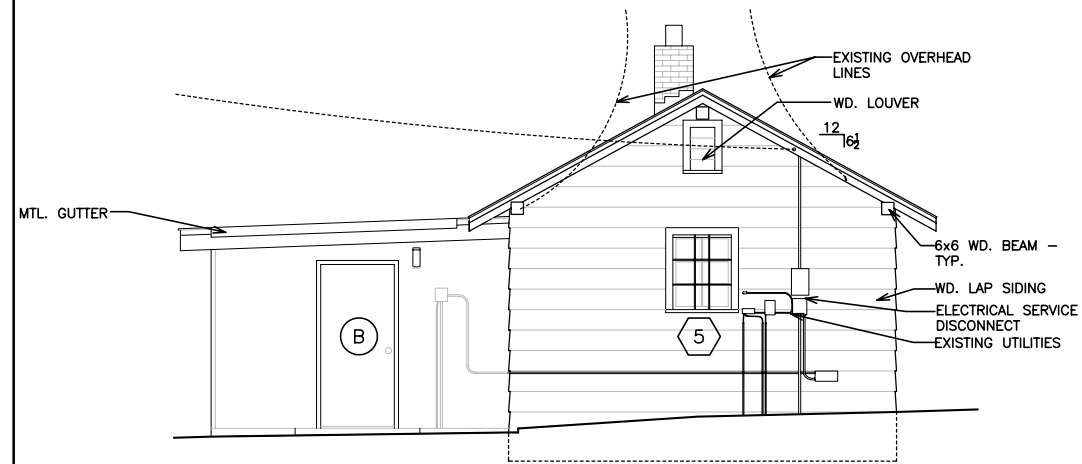
1 FLOOR PLAN
A1.6



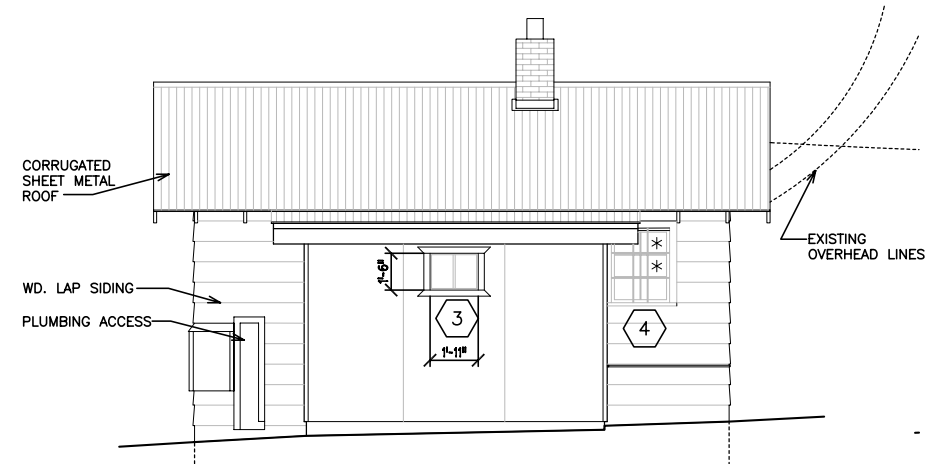
EXISTING CONDITIONS - 2006

DESIGNED: BBSH TECH. REVIEW: DATE: 04/13/07	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0087 Park Service Jail GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25020 PMIS/PKG NO. 084236 SHEET 1 OF 2
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NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



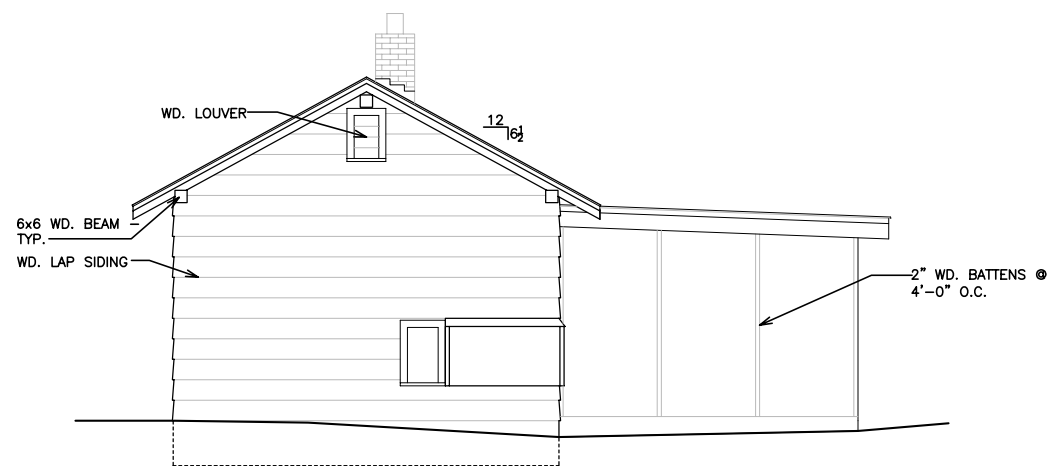
4 EAST ELEVATION
A4.6



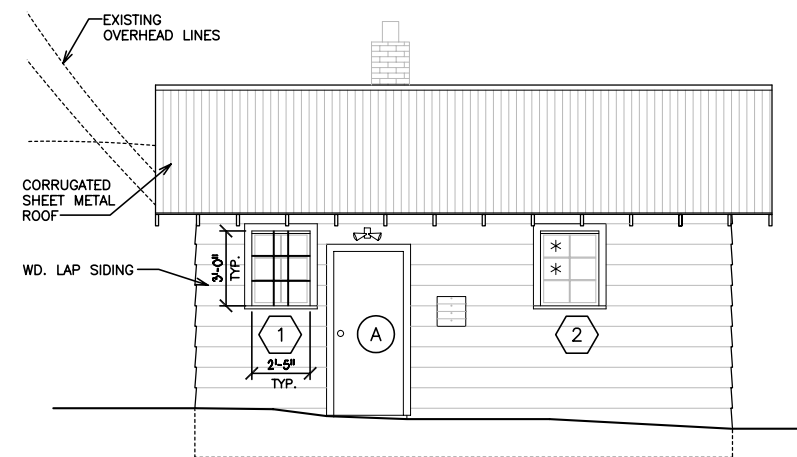
2 SOUTH ELEVATION
A4.6

KEY NOTES:

- * HISTORIC RIPPLE GLASS
- X BROKEN OR MISSING GLASS



3 WEST ELEVATION
A4.6



1 NORTH ELEVATION
A4.6

SCALE (A) SCALE OF FEET

EXISTING CONDITIONS — 2006

DESIGNED: GABD BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0087 Park Service Jail	DRAWING NO. 113 25020
TECH. REVIEW:		GRAND CANYON NATIONAL PARK ARIZONA	PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

Jail and Watchman's Office



Identification:

Preferred Name: Jail and Watchman's Office

Structure Name:

Structure Number: SRB0087

Other Structure Name(s):

	Other Structure Name(s)
1.	Sunset Drive Jail
2.	Jail
3.	Park Service Jail

Park: Grand Canyon National Park

Historic District:

	Historic District
1.	Grand Canyon Village

Structure State: Arizona

Structure County: Coconino

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

LCS ID: 055417

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Register Status: Entered - Documented

Status:

National Register Date: 02/18/1997

National Historic Landmark?: Yes

National Historic Landmark Date: 02/18/1997

Significance Level: Contributing

Short Significance Description: Orig const by CCC in NPS utility area, former location of CCC camp. Used as a jail since then. Illustrates 1930s CCC bldg activity & rapid growth of park. Rustic style bldg. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long Significance Description: The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the villages major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and

helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1935	AD	1936	AD	NPS/CCC	Other
2.	Altered	1960	AD	1990	AD	NPS	Other

Function and Use:

Primary Function: Correctional Facility (Jail)

Historic Function:

Current Use:

Primary Function: Correctional Facility (Jail)

Current Use:

Structure Contains:

Museum Collections?:

Other Functions or Uses:

Other Function(s) or Use(s)	Historic or Current
No records.	

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

250

Material(s):

	Structural Component(s)	Material(s)
1.	Walls	Plywood/Particle Board
2.	Framing	Wood
3.	Other	Brick
4.	Roof	Metal
5.	Walls	Weatherboard
6.	Foundation	Concrete

Short Physical Description: 1 story wood frame utility structure 18'x20'. Gable roof with exposed rafters, lookouts, corrugated sheet steel roofing. Plywood shed addition with metal siding roof. Horizontal wood lap siding with wood casement windows. Concrete slab, brick chimney.

Long Physical Description: 1 story wood frame utility structure 18'x20'. Gable roof with exposed rafters, lookouts, corrugated sheet steel roofing. Plywood shed addition with metal siding roof. Horizontal wood lap siding with wood casement windows. Concrete slab, brick chimney.

Condition and Impacts:

Latest Condition: Good

Condition:

Latest Year Assessed: 2006

Assessed:

Conditions:	Condition	Year Assessed
1.	Fair	1996
2.	Good	2006

Impact Level: Low

Primary Impact: Tenants/Occupants

Impact:

Other Impacts:	Other Impact Type
1.	Weather
2.	Animal/Pest Infestation

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Category:

Management Category Date: 08/08/2006

Category Date:

Management - Treatment:

Latest Est. 0

Interim

Treatment

Cost:

Latest Ultimate Treatment: Rehabilitation

Treatment:

Interim Treatment:	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date

	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	50000	08/01/1995	

FMSS 33413
Number:

Long Pest exclusion needed. Burrows under foundation present on south, east, & west elevations. Utility door
Management on west elevation off jambs; needs repair. (07/2006)
Text:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 87		2
3.	Other Structure Number	CB57		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan,Robinson,Osman		5
6.	Other	1995 Mult Prop List,McClelland		6

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0087 Jail and Watchman's Office	08/2006	1
2.		SRB0087 Jail and Watchman's Office	08/2006	2
3.		SRB0087 Jail and Watchman's Office	08/2006	3

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0088 PARK SERVICE COAL SHED

1932

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The original plans for the Park Service Coal Shed were approved in 1932. Camp NP4A was to do the work. A photograph, taken in 1933, shows the completed building (Drawing 3007A, Photograph # 00927, Grand Canyon Museum Collection). The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources indicates a construction cost for the project of \$850. The original drawing indicates that coal would be delivered on the north side by dump truck through chutes and outgoing coal through the south side. Drawings also indicate a raised grade at the north side to accommodate truck offloading of coal through the chutes and into the building. The plans depict a dual-directional entry stair on the south; however, the photo taken within one year after construction shows a ground-level loading slot (interior to the building) with rubble curbs to each side.

The building is constructed of external frame walls and dimensional lumber trusses with horizontal boards on the interior and no exterior siding. Visual inspection suggests the grade around this building has changed since its construction, as the lower area of the wood structure is currently sub-grade. The remains of a stone wall lay nearby to the north, although the origin of those remains has not been identified.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

The bi-directional stairs appear in the original construction plans, but were apparently not built at that time. However, the stairs appear again in the 1949 survey drawing. At some point, it appears that the stairs were built as originally designed. The current grade does not require stairs, and the floor level is now accessed via a single-step platform.

Small changes have also occurred over time. The top and bottom boards were removed to allow for more ventilation. Likely this allowed animals to access the building, so chicken wire was added at that time or shortly after. It appears that a piece of sheet metal was attached to the floor recently, as if to protect stored items as they are slid across the floor. A metal plate is noted in the construction drawings, although the sheet there now appears newer. No explanation was found for this.

The building is in fair condition. The roof has recently been replaced, but foundation drainage should be addressed.

OTHER DOCUMENTED WORK ON THE BUILDING

<u>DATE REVIEWED</u>	<u>WORK DESCRIBED</u>	<u>SOURCE OF INFORMATION</u>
January 12, 1993	Remove 2 non-historic interior partitions, install drywall and electric heaters (no drywall or heaters currently in 2007)	Section 106 Review
2002	New roof	Photos on file at the Grand Canyon Museum Collection (Photograph # 20020809)

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
1933-1949	Recessed loading floor in-filled / Wood plank floor constructed / Stairs constructed
Unknown	Top and bottom planks removed for ventilation
Unknown	Stairs removed / Platform constructed on south
Unknown	Sheet metal installed on floor at center

SRB-0088 PARK SERVICE COAL SHED

1932

1.3 PHYSICAL DESCRIPTION

The Park Service Coal Shed is constructed of exposed traditional wood stud walls and dimensional lumber trusses. It is rectangle in configuration with a simple gabled roof. The building features a corrugated sheet metal roof, and open structure with horizontal wood planking at the interior only.

The interior lends itself well to its current use as a storage shed, with an open, unobstructed floor plan.

The following section is a discipline-by-discipline, component-by-component description of the building.

SRB-0088 PARK SERVICE COAL SHED

1932

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof is a simple gable running east-west. The roofing is corrugated, galvanized sheet metal. Historic photos show a panel lap in the top 1/4th of the roof slope, but the current roof has no joint. Roof decking consists of 1x10 planks at 24" o.c. over 2x6 trusses at 36" o.c. On top of the planks, 3/8" A-C plywood has been installed but just over the area inside the walls. A layer of black plastic visqueen has been installed between the corrugated sheet metal and the sheathing. There is a round-over ridge cap at the ridge line of the roof that appears to pre-date the newer roofing. The roofing and cap flashing are attached with neoprene gasketed roofing screws.

ARCHITECTURE - OVERHANGS & SOFFITS

Roof overhangs are 12-16" in depth and consist of exposed rafter tails, eave rafters at the gable ends and exposed roofing and plank sheathing. All are painted brown except for the outside face of the gable rafters which are painted green. There is not any trim and the ends of the plank purlins are exposed above the end rafters.

ARCHITECTURE - EXTERIOR WALL FINISHES

The building is an exposed structure storage shed with 4x4 posts at 36" o.c., cross-braced 4x4s at the corners and tripled-up 4x4 corners. The wall finish consists of (5) 2x12 planks nailed horizontally to the inside of the 4x4s with a 12" gap at both the top and bottom of the wall. The gaps are currently covered with chicken wire but do not appear at all in historic photos. This suggests that the boards have been removed for ventilation. The bottom gap is also covered on the inside with 1/2" plywood over the west half of the building. There is no evidence of the originally designed coal chute doors on the north elevation.

The gable ends on both the east and west are infilled with board and batten siding on the outside of 2x4 framing within the structure. The boards are 1x10s and the battens are 1x3s. A 1x3 horizontal trim board is installed at the bottom of the battens. The top of the siding extends to the bottom of the roof sheathing. There is a 5 blade open louver in the center of each gable end.

All exterior wall finishes are painted brown (including the chicken wire).

ARCHITECTURE - MASONRY

There is no chimney on this building. The building is built on a random "rubble" stone foundation that extends 2-3" outside the face of the wood structure. The stone is set in un-struck mortar with anchor bolts extending through the exposed base plate every 3-6'. The foundation is evident only on the west half of the structure. The east end of the structure is at or below grade - although one can see exposed anchor bolts between the exposed joist tails on the southeast and northeast sides of the building. There is moss growing on the north side foundation. The historic photo indicates that the foundation was discontinuous at the main door and is flanked by 6" of concrete curbs running perpendicular to the building where it turned north at both sides of the door to create an interior loading area at grade. No evidence of the originally designed concrete foundation was found.

ARCHITECTURE - EXTERIOR DOORS

Exterior Door (A)

One large sliding wood plank door comprises a fifth of the south façade. It has 11" horizontal wood

SRB-0088 PARK SERVICE COAL SHED

1932

1.3 PHYSICAL DESCRIPTION

planks sandwiched between two frames of 3/4" x 5" sawn lumber with bracing forming an "x" on each side. A large steel handle is located on the closing jamb, and the door is secured with a chain and padlock around the door frame to a structural post. The rolling track bracket is marked "RW".

Both the original drawings and the 1949 inventory drawing indicate steps to a full-width landing at this door. Historic photos indicate, however, that these steps and landing have been removed.

ARCHITECTURE - WALL/CEILING FINISHES

There are no ceiling or wall finishes in this building (wall and roof sheathing is exposed to the interior), with the exception of the chicken wire that bridges a 12" gap (not present in the historic photo or the original drawing) between the top of the wall sheathing and the underside of the roof. There is also chicken wire at the bottom 12" of the wall, but this former gap has been infilled with plywood. Presumably, the chicken wire enabled venting of the building while protecting access to some degree.

ARCHITECTURE - FLOOR

Unfinished 2x12 flooring runs throughout this structure. At the full width and full depth of the door bay, it is overlaid with 3' wide sections of sheet metal (apparently to protect the flooring as supplies are slid in the door). The sheet metal covers the area of flooring that was installed when the drive-in loading area was infilled and the concrete curbs flanking the door, were removed.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The gravel and dirt surface around the building and in front of the access door renders the building inaccessible. The large, slider, main access door does not provide an accessible entry. (Photo 0088-118)

Once inside, the plank flooring and single, open room both comply with ABAAS. (Photo 0088-202)

STRUCTURAL - SIZES / SPANS / SUPPORT

Historic drawings dated April 5, 1932 were reviewed during the assessment. These drawings accurately represent most of the as-built construction. The original drawings did not show skip sheathing but called for 2x6 blocking between the carpenter's trusses. The 1935 photograph indicates that skip sheathing was ultimately used.

ROOF FRAMING:

The gable roof is constructed with corrugated metal sheathing over 3/8 plywood over 1x skip sheathing. The plywood is presumed to have been added recently while the 1x skip sheathing was likely the original subsurface for the roofing. It also appears that one piece of 1x sheathing has been added at some point in the past (Photo 0088-204). The historic drawings called for 2x blocking rather than the 1x sheathing actually installed.

The roof is framed with field-built wood trusses at about 36" on-center spanning approximately 18' (Photos 0088-203 & 204).

SRB-0088 PARK SERVICE COAL SHED

1932

1.3 PHYSICAL DESCRIPTION

The carpenter's trusses are constructed with 2x6 top and bottom chords.

Two different trusses are used in the building (in opposition to the historical drawings). At locations in line with the door opening on the south side of the building, the bottom chord is raised above the plate height, apparently to allow additional head height for bringing items in. This carpenter's truss has a set of three 1x6 verticals, at about equal spacing across the bottom chord. A diagonal 1x6 either side of the ridge connects the verticals.

The trusses away from the door opening have a bottom chord flush with the top plate of the wall. A 1x6 horizontal tie occurs at about mid height of the carpenter's truss. 1x6 diagonals descend from each end of the tie to the midpoint of the bottom chord. Webs are fastened to each other with 5 or 6 nails. Chords are fastened to each other with 3 nails.

The trusses align with and bear over 3-5/8" x 4" posts that form the wall framing around the entire building. A double 2x4 top plate runs over the top of the posts around the building.

WALLS / FLOOR:

The exterior walls are sheathed with 2x12 horizontal planks from the sill up to about 1' from the top plate. Wall framing consists of 3-5/8" x 4" posts @ 34" o.c. with a triple stud in each corner. The walls are braced against lateral forces with 4x4 diagonal braces at each corner (Photo 0088-120).

The floor is framed with 2x straight sheathing over 1-1/2" x 11" joists at 12" spacing. An interior girder line probably carries the joists at midspan as indicated on the historic drawings. The crawlspace was not accessible to confirm this. Therefore, the joists either span the whole width of the building, 19', or, more likely, half the width, or 9.5'. The joists project outside of the building. 2x blocking occurs between them.

The floor has been infilled at the entry with modern 2x10 surfaced lumber (Photo 0088-205).

The floor joists rest on a 2x sill plate on a perimeter foundation of rubble stone set in concrete. Anchor bolts are visible at some locations tying the sill plate to the foundation. Footings are not visible.

The historic drawings appear to be a fairly accurate representation of the as-built construction. The major departures are in the roof carpenter's trusses and the foundation. Carpenter's trusses at the entry are not indicated to be different and the foundation is indicated to be a cast-in-place concrete system. No drawings were available at the time of assessment showing the in-filled floor at the entry.

ELECTRICAL - ELEMENTS ASSESSMENT

There are several, ceramic lamp holders in this structure with no lamps (Photo 0088-000).

TELECOMMUNICATIONS

No telecommunications are provided at this building.

SRB-0088 PARK SERVICE COAL SHED

1932

1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. Historically, the roofing panels were laid parallel to the slope, overlapping at each successive layer. The current roof panels run the full length of the roof. (See photos 0088-106, 0088-107)
- Horizontal wood planking and vertical board and batten siding at the gabled ends. This is one of the only decorative treatments on this building. (See photo 0088-110)
- Wood batten door – The large, cross-braced, wood plank sliding door supports the loading dock function and is characteristic of a hard-working building.
- Exposed structure – The open building with exposed structure is indicative of the simple construction methods used in most of the structures in the complex. (See photo 0088-108)

1.5 GENERAL CONDITION ASSESSMENT

In general the Park Service Coal Shed is in fair condition with the exception of a few items. The structural framing is showing deterioration, especially at the low end of the 4x4 braces.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

SRB-0088 PARK SERVICE COAL SHED

1932

1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: **GOOD**

The roofing is in good condition. The cap flashing is in fair condition, with several openings and gaps between the roofing and flashing that could potentially allow a driven rain to penetrate.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: **GOOD**

The overhangs are in good condition with the exception of the rafter tail at the southeast corner that is significantly weathered and showing signs of rotting under the paint.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: **GOOD**

The exposed structure itself is in good condition. The exposed floor structure at the east end of the building is in poor condition as it is exposed to or under grade and has rotted away in several instances. All structure and wood blocking exposed to the dirt is rotting and decomposing or simply non-existent. The horizontal wood planking is in good condition with acceptable gaps between the planks and very few holes.

The board and batten siding in the gable ends is in good to fair condition. Some of the battens and a few of the boards are split or cracked but nothing is broken or missing. There is evidence of some woodpecker activity on the west end.

ARCHITECTURE - MASONRY

CONDITION: **FAIR**

The existing, exposed stone foundation is in good to fair condition. Most of the visible foundation is intact and the mortar, although weathered, is solid. There are a couple of fairly significant holes in the foundation which appears to be burrows for some unidentified animal.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **POOR**

Exterior Door (A)

Large pieces are missing from the third plank up from the bottom - both ends. Paint has completely weathered off the bottom 24", and the wood grain is separating on many exterior pieces. Additionally, the door is very difficult to operate.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **POOR**

The chicken wire at the top of the wall is in good condition. At the bottom of the wall, it is torn and bent.

SRB-0088 PARK SERVICE COAL SHED

1932

1.5 CONDITION ASSESSMENT

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

With the exception of a few crimps in the edge of the sheet metal overlay, the flooring is in good condition.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **POOR**

Roof framing is generally in good condition with no obvious signs of distress or deterioration.

Wall framing is generally in good condition except at the base of the wall along the eastern half of the building. Here, as seen at most other buildings assessed, grade is at or above the sill plate. The sill plate, anchor bolts, floor joists, wall posts, and blocking between floor joists has been severely deteriorated wherever soil is in direct contact (Photo 0088-121 & 122).

The low end of all of the 4x4 braces is typically severely deteriorated. Soil and water have settled on top of the braces over time leading to this deterioration (Photo 0088-124).

Floor framing was generally not visible, but is severely deteriorated where it projects outside the building. It is assumed that this deterioration extends into the building where soil is at or above the sill plate.

The perimeter foundation, where visible, appeared to be in good condition.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **FAIR**

These fixtures appear to be in fair condition. It is unknown if this building currently has electrical service.

SRB-0088 PARK SERVICE COAL SHED

1932

2.1 ULTIMATE TREATMENT AND USE

The previously-listed interior work in 1993 was part of a planned effort to convert the building from household appliance storage to a plumbing and sheet metal shop. The drywall and electric heaters are not present now, so it is not clear if this change in use actually occurred. Currently, the building is used for storage and will likely remain as so. Rehabilitation is the recommended ultimate treatment for this building.

The following is a discipline-by-discipline, component-by-component description of the building.

SRB-0088 PARK SERVICE COAL SHED

1932

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **LOW**

Re-attach the cap flashing where substantial gaps occur - note attachment should be made at the peaks of the corrugations. The roofing itself requires no treatment at this time.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

Remove existing paint and loose material from the end of the rafter tail in the southeast corner and apply an epoxy consolidant repair to match the original profile. Scrape and repaint the full rafter.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **MODERATE**

Excavate the east end of the building to expose the foundation. Rotten or deteriorated wood framing members on both the wall and floor should be replaced with new material to match the original. The sill plate on the east end of the north and south walls, as well as the east wall itself, all need to be replaced with pressure treated lumber. The east-most floor joist should also be replaced. 4x4 posts and bottom diagonal braces need to be replaced on the east wall as well as at the east end of the north and south walls.

Fill the holes and cracks in the battens. Scrape and repaint.

ARCHITECTURE - MASONRY

PRIORITY **LOW**

Excavate the east end of the building to expose the foundation. Once the foundation is exposed, the condition of the foundation should be evaluated to determine the condition and any treatment necessary. Loose mortar should be removed from the exposed stone foundation. Missing stones should be replaced and holes and voids filled. Mortar joints should be re-pointed throughout.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **LOW**

Replace boards where large portions are missing, and paint to match existing. Rebalance the door to facilitate smooth operation. The hardware should be cleaned and oiled. Care should be taken when repainting not to paint the hardware again.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

No work is recommended for the chicken wire. The lower chicken wire no longer serves a purpose, and could be abandoned in situ or removed.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

No work is recommended at this time.

SRB-0088 PARK SERVICE COAL SHED

1932

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ACCESSIBILITY

PRIORITY **LOW**

This building is listed as a Tier 3 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it is, by its nature, a storage building which can not reasonably be adapted to other uses. Hence, ABAAS alterations should not be anticipated.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **MODERATE**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

Soil should be removed around the building such that no wood is within 6" of soil. Floor joists, sill plates, anchor bolts, blocking, and wall framing should be repaired or replaced where deteriorated.

Replacement is likely the only solution for most of the elements due to the extent of deterioration.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

No recommendation at this time.

SRB-0088 PARK SERVICE COAL SHED

1932

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance Area overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building, the Park Service Coal Shed will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as the door, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Rehabilitation, to address possible code deficiencies in the structural and electrical systems, will also be appropriate.

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

This building is currently open to the elements on the sides and is used solely for storage. Recommendations for the structure are minimal, and very little alteration is needed. Therefore, there are no anticipated effects from the treatments outlined in this report for the Coal Storage Building.

SRB-0088 PARK SERVICE COAL STORAGE

1932



Bldg SRB-0088 – 1933
National Park Service Grand Canyon Museum Collection (Photo # 00927)

SRB-0088 PARK SERVICE COAL STORAGE

1932



Bldg SRB-0088 – 2002
National Park Service Grand Canyon Museum Collection (Photo #01372)



Bldg SRB-0088 – 2002
National Park Service Grand Canyon Museum Collection (Photo #01374)

SRB-0088 PARK SERVICE COAL STORAGE

1932



Bldg SRB-0088 – 2002
National Park Service Grand Canyon Museum Collection (Photo #01375)



Bldg SRB-0088 – 2002
National Park Service Grand Canyon Museum Collection (Photo #01381)

SRB-0088

PARK SERVICE COAL STORAGE

1932



West Elevation Bldg 0088 – 2006



North Elevation Bldg 0088 -- 2006

SRB-0088

PARK SERVICE COAL STORAGE

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East Elevation Bldg 0088 – 2006



South Elevation Bldg 0088 -- 2006

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Incandescent Ceramic Fixture 0088-000



Gable Roof 0088-105

SRB-0088 PARK SERVICE COAL SHED

1932



Corrugated, Galvanized Sheet Metal Roof 0088-106



Round-Over Ridge Cap at the Ridge Line 0088-107

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1932



Exposed Rafter Tails at Roof Overhangs 0088-108



Roof Overhang on West End 0088-109

SRB-0088 PARK SERVICE COAL SHED

1932



Vertical Board and Batten Gable Ends 0088-110



Exposed Structure 0088-111

SRB-0088 PARK SERVICE COAL SHED

1932



Cross-Braced 4x4s at the Tripled-Up 4x4 Corners 0088-112



Plywood Over Chicken Wire at the Base of the Wall 0088-113

SRB-0088 PARK SERVICE COAL SHED

1932



Random "Rubble" Stone Foundation 0088-114



6" Concrete Curbs at the Corner 0088-115

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1932



Structure Below Grade on the East End 0088-116



Exterior Door (A) 0088-117

SRB-0088 PARK SERVICE COAL SHED

1932



Step Up 0088-118



Step at the Main Entry Door 0088-119



South Wall: Typical Wall Construction 0088-120



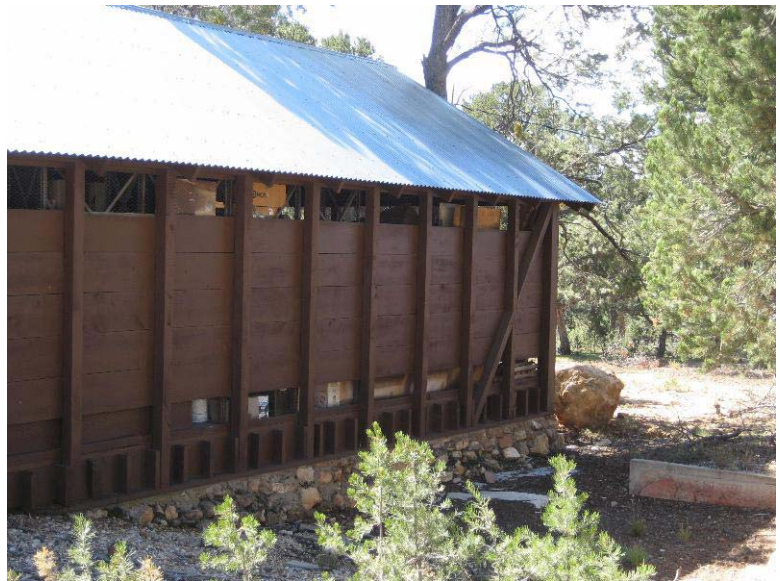
Southeast Corner: Framing Rotted by Soil Contact 0088-121

SRB-0088 PARK SERVICE COAL SHED

1932



East Wall: Framing Rotted by Soil Contact 0088-122



North Wall: Typical Wall and Perimeter Foundation 0088-123

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North wall: Brace and Post Rotted 0088-124



Unfinished Interior 0088-201



2x12 Flooring with Sheet Metal Overlay 0088-202



Typical Roof Trusses 0088-203

SRB-0088 PARK SERVICE COAL SHED

1932



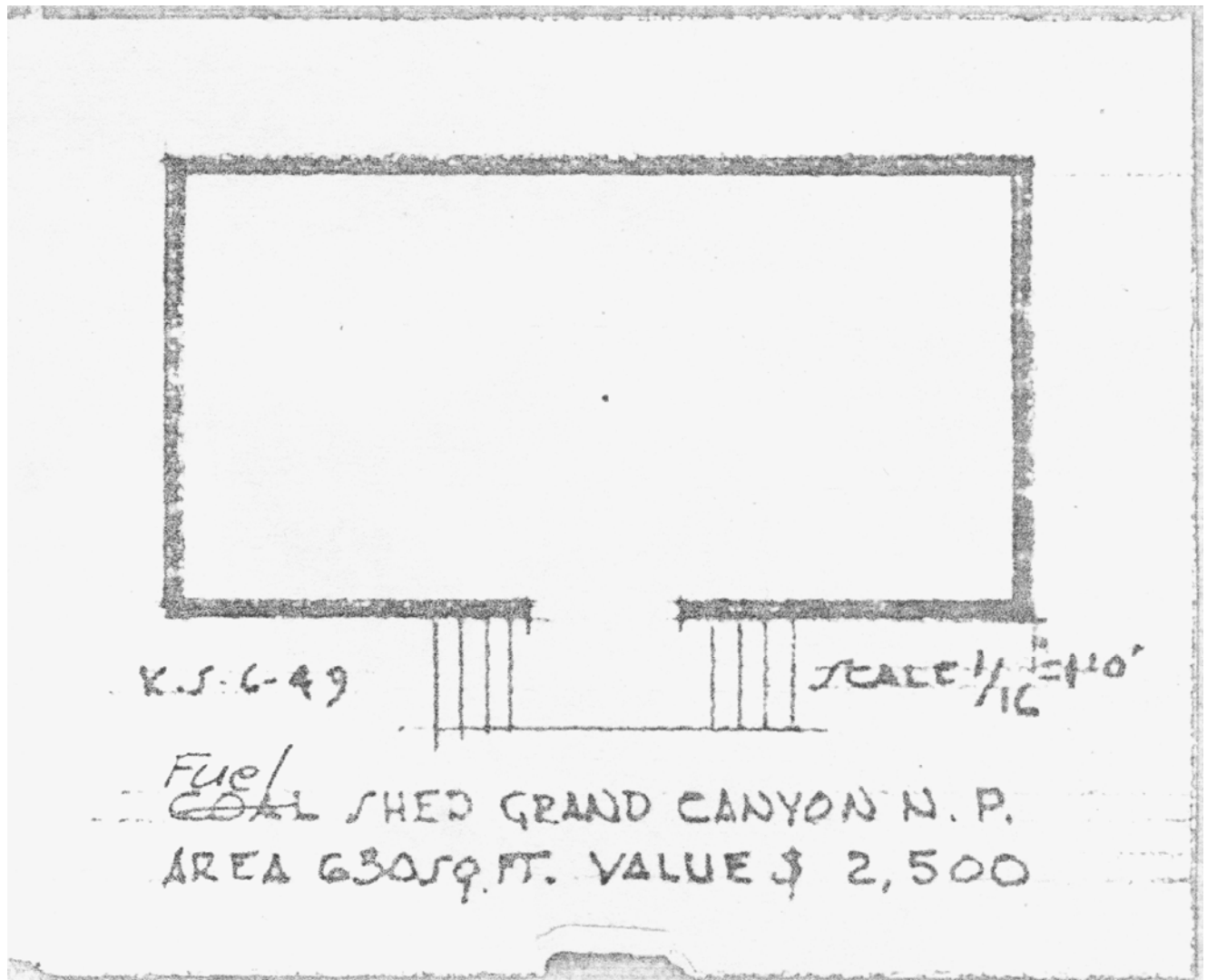
Typical Truss Bearing at Exterior Wall 0088-204

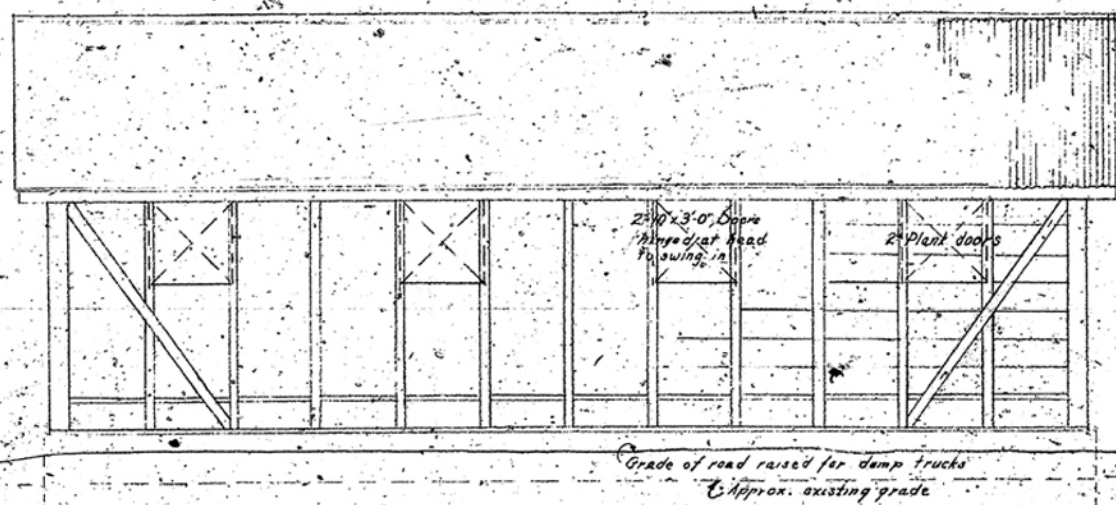


Modern Floor Joists at Entry 0088-205

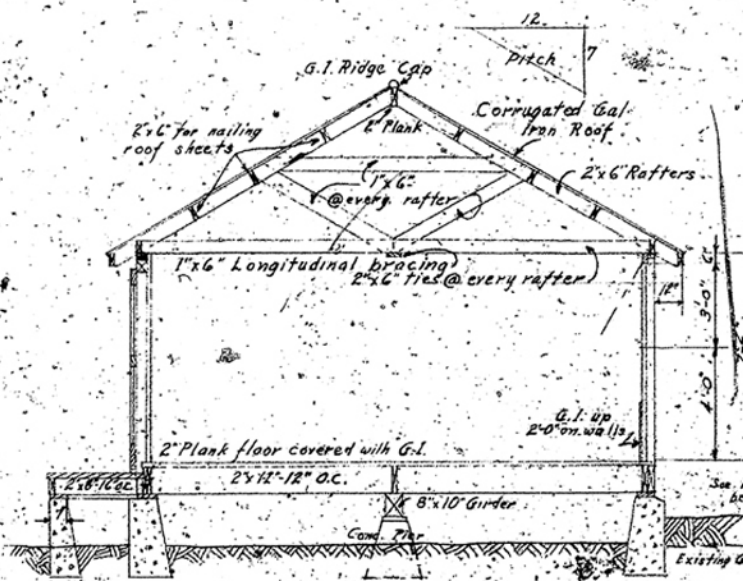
SRB-0088 PARK SERVICE COAL SHED

1932

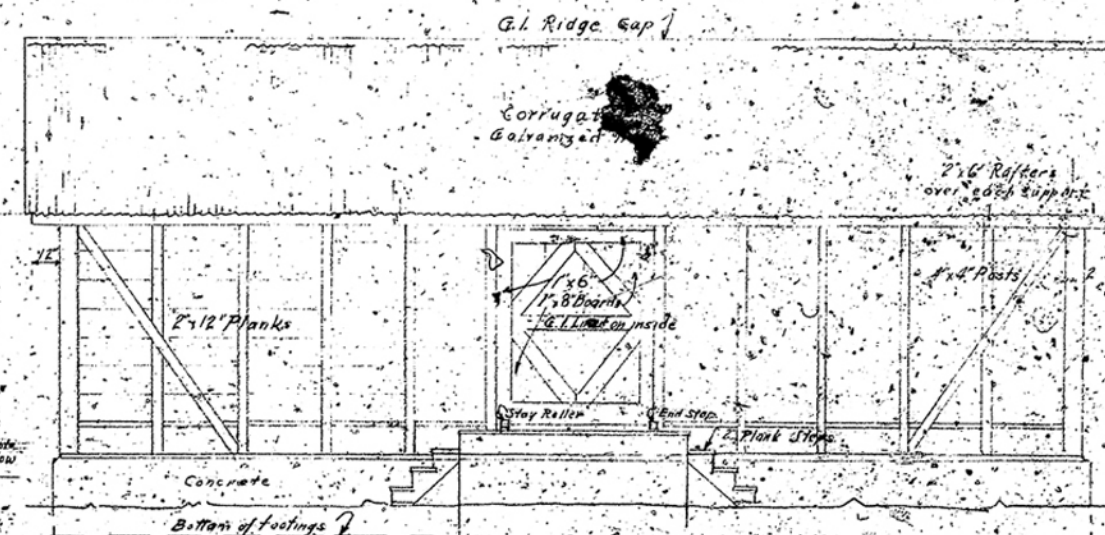




REAR ELEVATION
Scale 1/4"=1'-0"



SECTION X-X (See Plan)
Scale 1/4"=1'-0"



FRONT ELEVATION
Scale 1/4"=1'-0"

SPECIFICATIONS

Foundation

Concrete of sizes as shown.
Mix - 1 part Portland cement, 2 parts fine aggregate, and 4 parts coarse aggregate.

Framing Lumber

Framing lumber and rough carpentry shall be best quality, kiln dried Oregon Pine of sizes as shown. Plots to be anchored to foundation every 5'-0" by 1/2" x 12" bolts with nuts and washers.

Roofing & Sheet Metal

Sheet metal for flashing, floor, base of walls and inside of door shall be 24 gage galvanized iron. Roof shall be 24 gage 2 1/2 corrugated galvanized iron. Ridge cap shall be 24 gage galvanized iron.

Sliding Door

Build-up of 1 x 8 boards, with 1" board, braced frame, and lined on inside with galvanized iron.

Hardware

Complete set of Richards-Wilcox or equal hardware for single straight sliding door, including hanger and track with brackets, end stops, stay roller, pull and hinged stop. One pair of strap hinges, 2 hooks and 4 eyes for each hinged door.

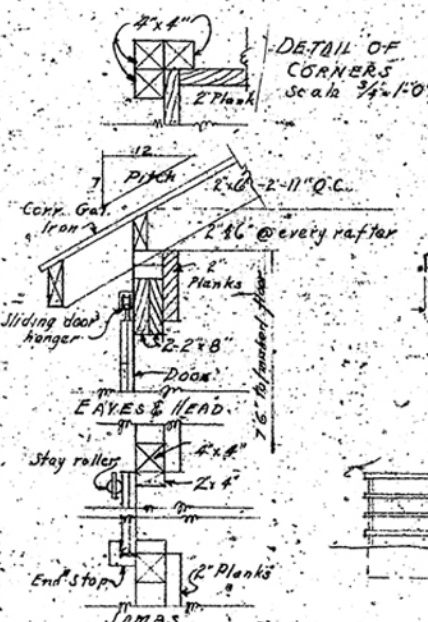
Vents

Vents where shown shall be 8 x 16 metal grills with bronze wire screen behind.

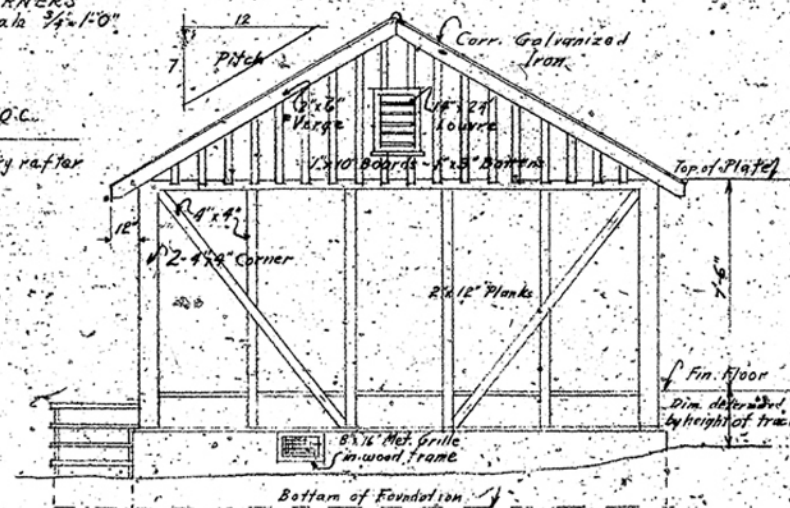
Painting

All exposed parts of galvanized iron shall be swabbed with acetic acid (vinegar) and immediately washed thoroughly with water before being painted. When thoroughly dry and clean, the galvanized iron shall be given a priming coat of an approved galvanized iron primer and a finish coat color to be selected by the Superintendent.

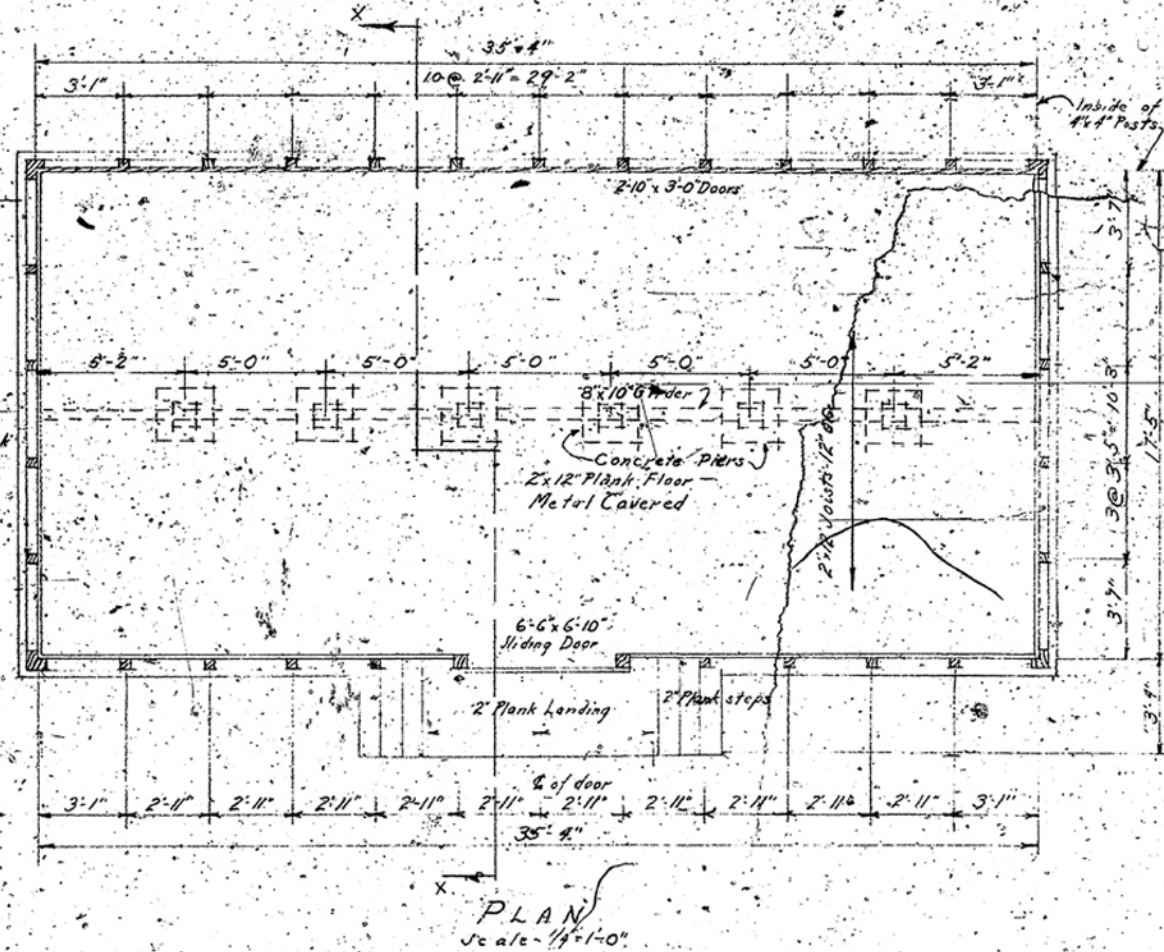
All exposed woodwork and trim shall receive one coat creosote stain, color as selected by the Superintendent.



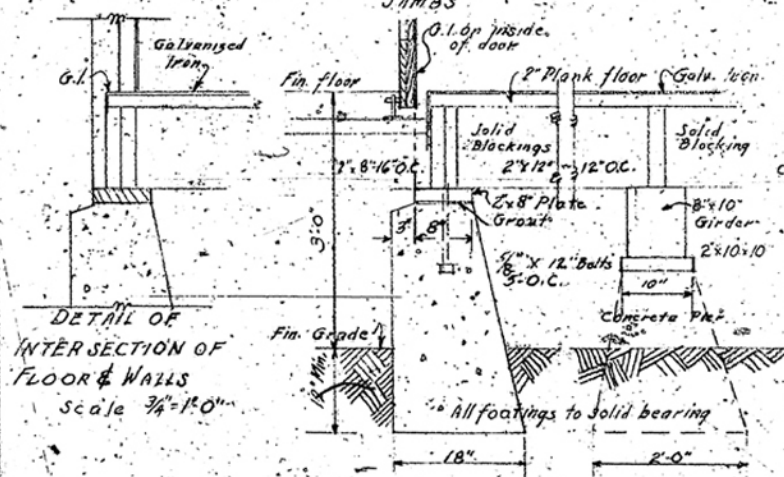
DETAIL OF CORNERS
Scale 3/4"=1'-0"



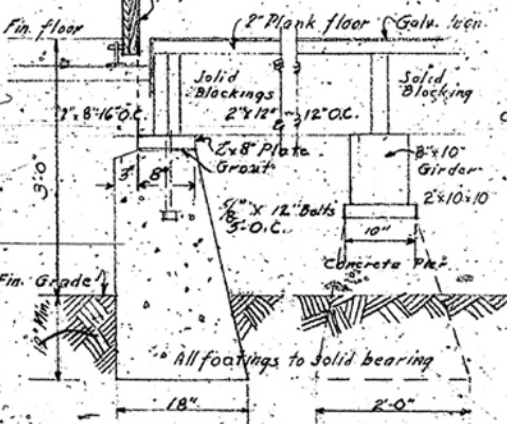
END ELEVATION
Scale 1/4"=1'-0"



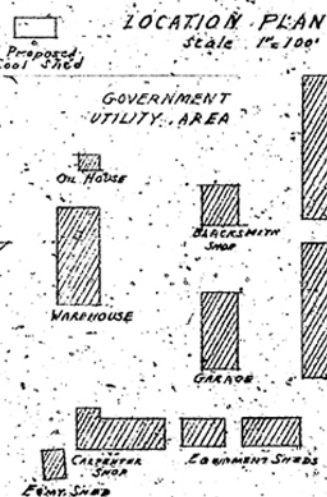
PLAN
Scale 1/4"=1'-0"



DETAIL OF INTERSECTION OF FLOOR & WALLS
Scale 3/4"=1'-0"



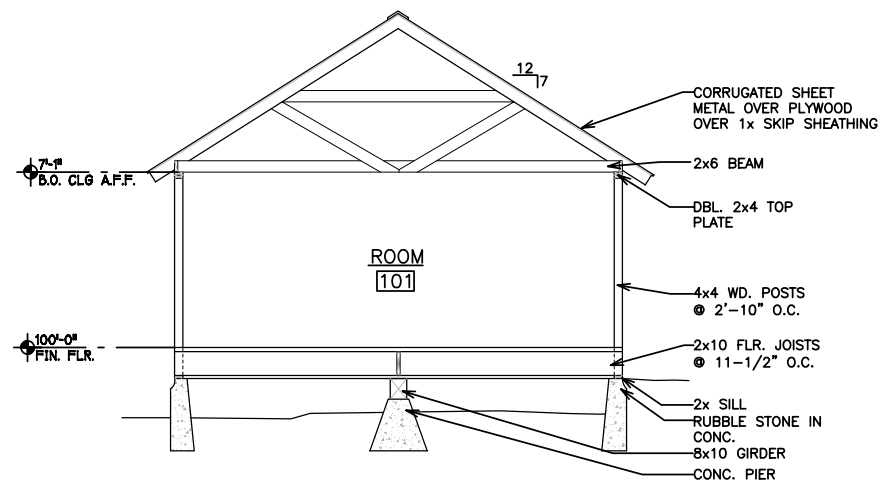
TYPICAL WALL SECTION & SLIDING DOOR
Scale 3/4"=1'-0"



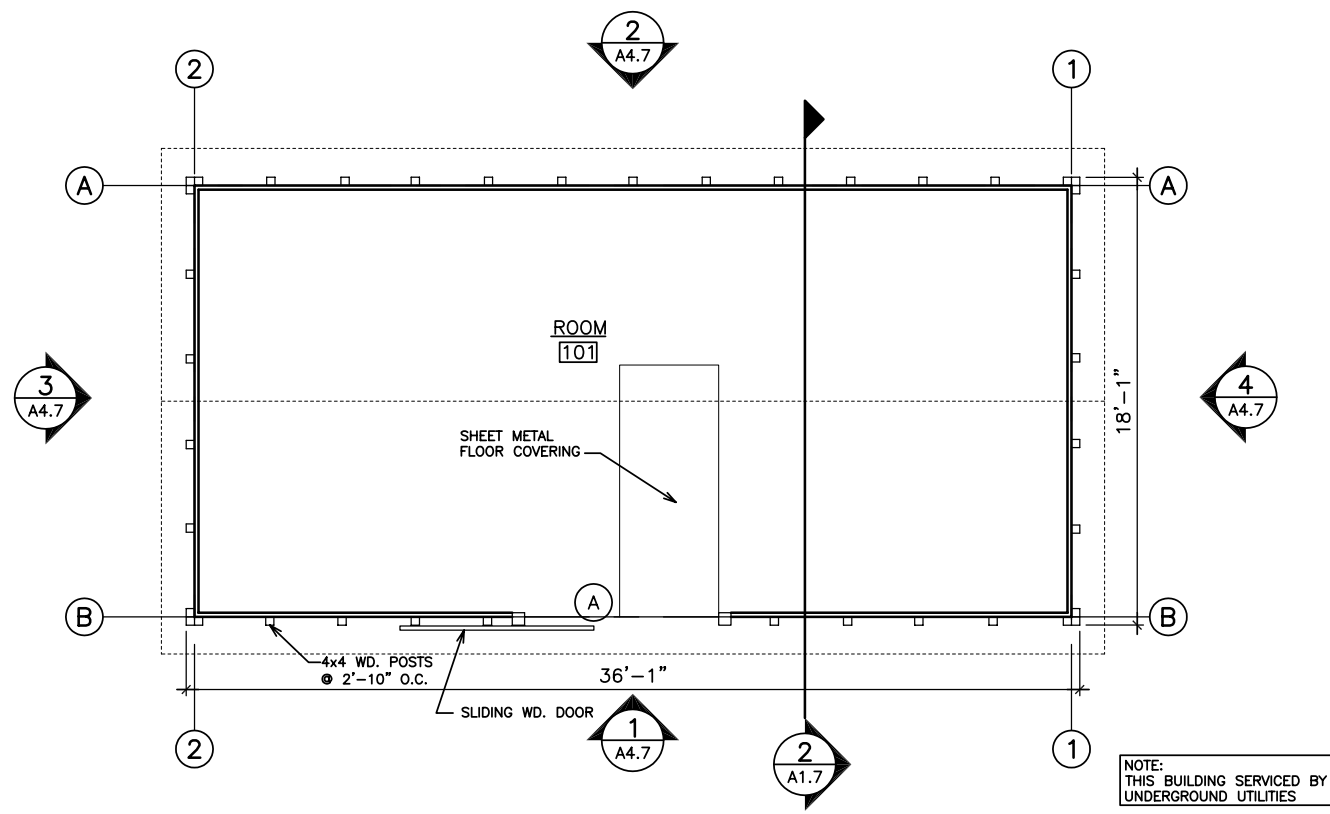
LOCATION PLAN
Scale 1"=100'

Dr. by G.W.M.	Recommended by E. C. Carpenter, Chief Landscape Architect.	Date 4/1/32	U.S. DEPARTMENT OF INTERIOR-NATIONAL PARK SERVICE	Date 4/1/32
Tr. by W.G.C.	Cleared for Eng. A. W. Cunningham, Actg. Chief Engineer.	Date 4-5-32	GRAND CANYON NATIONAL PARK	One Sheet
Ch. by H.C.	Approved Superintendent	Date	COAL SHED-SOUTH RIM	Jas. No.
	Approved Director - National Park Service	Date	DESIGNED BY LANDSCAPE DIVISION	GC-207A

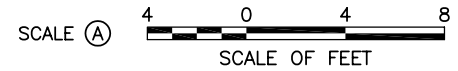
NOTE: FOUNDATION ILLUSTRATIONS
ARE NOT VERIFIED, BUT RATHER
BASED ON A COMBINATION OF
SURFACE OBSERVATIONS, HISTORIC
DRAWINGS, AND COMMON BUILDING
ASSEMBLY PRACTICES AT THE TIME OF
CONSTRUCTION



2 SECTION
A1.7



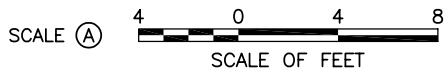
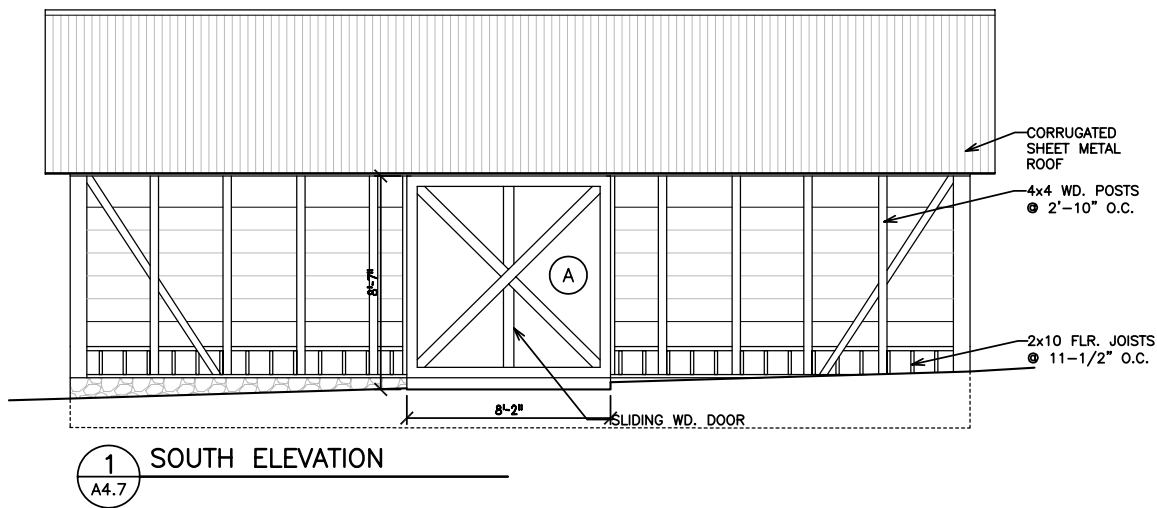
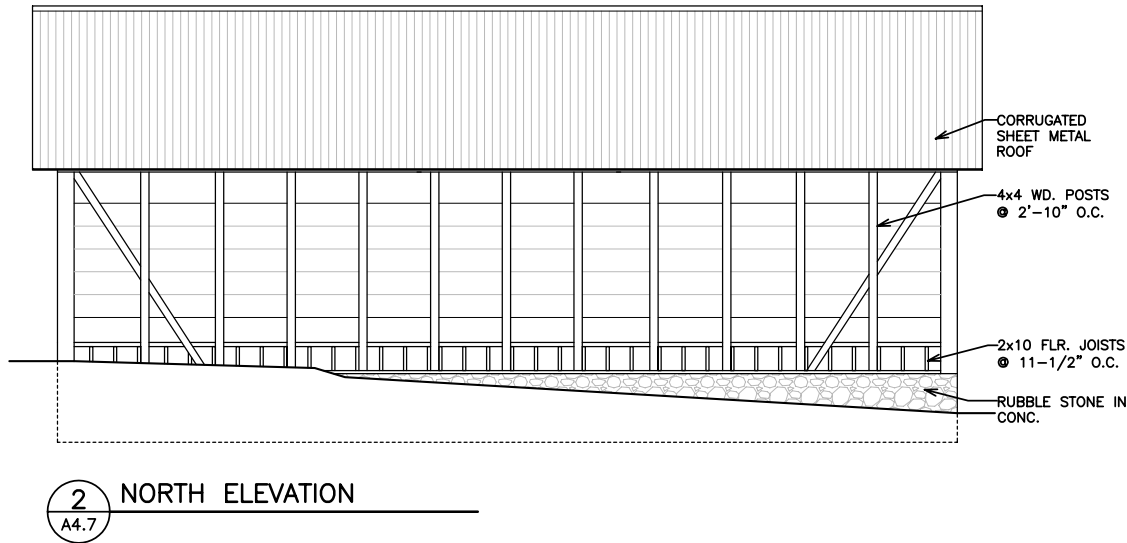
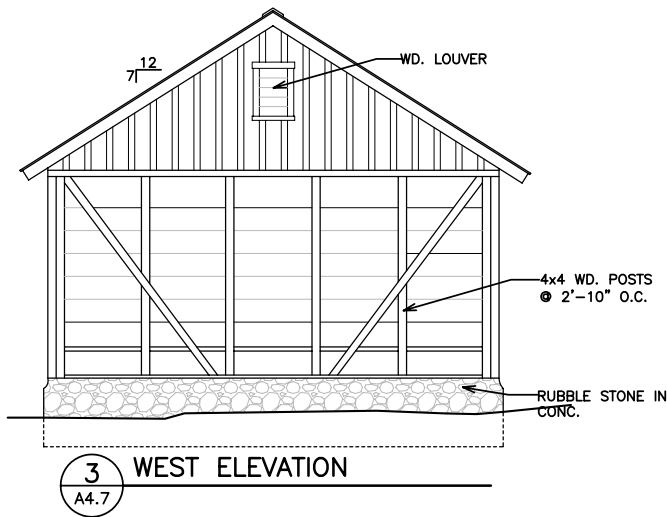
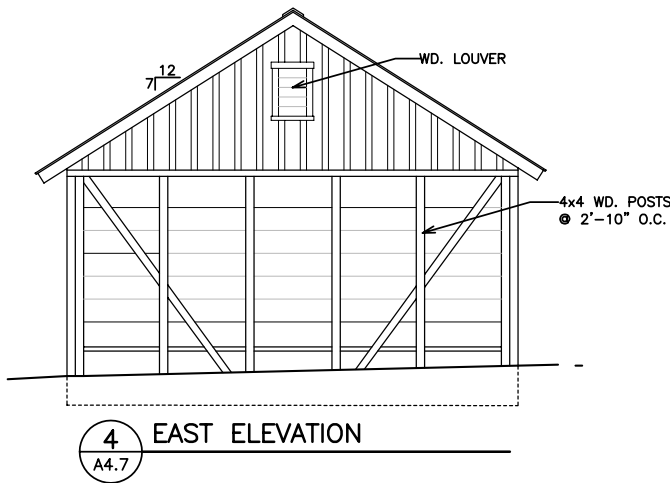
1 FLOOR PLAN
A1.7



EXISTING CONDITIONS - 2006

DESIGNED: BADD BSH TECH. REVIEW: DATE: 04/13/07	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0088 Park Service Coal Shed GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25021 PMIS/PKG NO. 084236 SHEET 1 OF 2
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NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION



EXISTING CONDITIONS — 2006

DESIGNED: BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0088 Park Service Coal Shed GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25021
TECH. REVIEW:			PMIS/PKG. NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

Coal Shed



Identification:

Preferred Structure Name: Coal Shed

Name:

Structure Number: SRB0088

Other

Structure

Name(s):

	Other Structure Name(s)
1.	Sunset Drive Old Coal Shed
2.	NPS Coal Storage Building

Park: Grand Canyon National Park

Historic

District:

	Historic District
1.	Grand Canyon Village

Structure State: Arizona

State:

Structure County: Coconino

County:

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

Unit:

LCS ID: 055418

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Register Status: Entered - Documented

Status:

National 02/18/1997

Register Date:

National Yes

Historic

Landmark?:

National 02/18/1997

Historic

Landmark

Date:

Significance Contributing

Level:

Short

Significance

Description:

Used to store coal, 1 of multi bldgs const by CCC in former CCC camp & NPS utility area following 1924 Plan prep by NPS Landscape Eng Div. Vernacular rustic utility structure. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long

Significance

Description:

The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the village's major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1936	AD	1936	AD	NPS/CCC	Other

Function and Use:

Primary Function: Fuel Storage Site

Historic Function:

Function:

Primary Current Use: GENERAL STORAGE

Current Use:

Structure Contains: No

Museum Collections?:

Other Functions or Uses:

Other Functions or Uses:	Other Function(s) or Use(s)	Historic or Current
	No records.	

Physical Description:

Structure Type: Building

Type:

Volume: 2,000 - 20,000 cubic feet

Square Feet: 480

Material(s):

	Structural Component(s)	Material(s)
1.	Walls	Weatherboard
2.	Roof	Metal
3.	Framing	Wood
4.	Foundation	Stone

Short Physical Description: 1 story exterior wood frame utility shed 16'x30'. corrugated metal gable roof with exposed rafters. Horizontal wood plank siding, board & batten at gable ends with louvered vents. Large sliding door on S. elevation. Stone foundation walls, concrete slab. Stone foundation wall 1'H, 30'L N elevation.

Long Physical Description: 1 story exterior wood frame utility shed 16'x30'. corrugated metal gable roof with exposed rafters. Horizontal wood plank siding, board & batten at gable ends with louvered vents. Large sliding door on S. elevation. Stone foundation walls, concrete slab. Stone foundation wall 1'H, 30'L N elevation.

Condition and Impacts:

Latest Condition: Fair

Latest Year Assessed: 2006

Conditions:	Condition	Year Assessed
1.	Fair	1996
2.	Fair	2006

Impact Level: Moderate

Primary Impact: Structural Deterioration

Other Impacts:	Other Impact Type
1.	Weather
2.	Park Operations

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Management Category Date: 08/08/2006

Management - Treatment:

Latest Est. 0

Interim

Treatment

Cost:

Latest Ultimate Rehabilitation

Treatment:

Interim Treatment:	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management Plan	08/21/1995	National Park Service	Yes	No	

			UT Cost	UT Cost Estimate	UT Cost
--	--	--	---------	------------------	---------

	UT Estimate Level	UT Estimator	Estimate	Date	Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	126000	08/01/1995	

Routine National Park Service

Maintenance

Responsibility:

Cyclic National Park Service

Maintenance

Responsibility:

FMSS 33414

Number:

Management - Description:

Short Management Text: GMP specifies adap reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/SF). Maint fns to be reloc. Revise RMP to spec pres trtmt.

Long Management Text: E. elev. deteriorating wood framing at top of stone foundation. Repair framing and move soil away from foundaiton to create positive drainage away from wood framing. (07/2006)

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 88		2
3.	Other Structure Number	CB58		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good

Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0088, Coal Shed	08/2006	1



2.

SRB0088, Coal
Shed

08/2006

2

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

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1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The Emergency Conservation Work Warehouse was originally constructed as a warehouse in 1935 (National Historic Landmark Nomination, 1997). A historic photograph, taken in July 1935, shows the completed building (Photograph 00925 Grand Canyon Museum Collection).

The building is constructed of traditional wood stud walls and dimensional lumber trusses with wood siding.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

Very little documentation exists on this building, so we have no information on the original interior layout. The exterior of the building appears substantially unaltered from the original construction photo; but, since the survey drawings produced in 1949, the interior has undergone rehabilitation to accommodate modern use as a food preparation area for River Operations. Photo #00925 does not show two man doors on the south side, however it may simply be the angle of the photo: we have no evidence to suggest otherwise.

The building is currently well-used, and structurally stable, but it needs considerable work. The commercial kitchen does not meet today's health codes and should be rehabilitated if this use continues. The roof will need replacement within a few years, and the exterior wood siding needs to be rehabilitated. Masonry needs re-building.

OTHER DOCUMENTED WORK ON THE BUILDING

None found.

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
Post-1949	South ante-room removed
Post-1949	Construction of a commercial kitchen, restroom renovation, and additional office
Post-1949	Reconstructed north stairs / Constructed deck at north loading door

1.3 PHYSICAL DESCRIPTION

The Park Service ECW Warehouse is constructed of traditional wood stud walls and dimensional lumber trusses. It is rectangle in plan with a simple gable roof. The building features a corrugated sheet metal roof, horizontal lap siding and vertical board and batten siding at the gable ends. A porch, supported by wood posts is located at the south elevation.

The interior configuration lends itself well to its current use as the River/Boat Operations kitchen with an open floor plan for the food prep operations, and a small office and restroom to the west.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof is a simple gable running east-west. The roofing is corrugated, galvanized sheet metal on top of 2x4 sheathing boards at 16" o.c. The 2x4s are on top of 2x6 rafters. There are no gutters or downspouts but there is flashing at the window and door headers. There is a round over cap flashing along the length of the ridge. A sheet metal boot jack flashing is installed at the 4" vent stack. The roofing and roof flashing are attached with neoprene gasketed roofing screws.

ARCHITECTURE - OVERHANGS & SOFFITS

The overhangs on all sides (including beyond the porch on the south side) are +/- 15" and consist of exposed structure and the underside of the roofing. All is painted brown. The eave rafters at the gable ends are supported by the 6x6 outriggers that cantilever beyond the face of the building. A 1x3 trim piece covers the ends of the sheathing boards and attaches to the top of the gable rafters.

The porch on the south side has a flat soffit that is attached to the bottoms of the truss extensions. The soffit is finished with 1x3, tongue and groove boards running length-wise for the entire porch. It is all painted brown.

ARCHITECTURE - EXTERIOR WALL FINISHES

The siding (up to the start of the gable and including skirt boards above the foundation) consists of 1x10 lap siding with an 8" exposure. All the corners are mitered. There is a flat 2x "water table" at the level of the interior floor, the top of which is sloped to provide drainage.

The siding in the gable ends is a vertical board and batten. The boards are 1x10s and the battens are 1x3. There is a 5 blade louver in the center of both the east and west gables. The siding goes up to the bottom of the roofing. The bottom of the board and batten siding rests on a 2x sloped trim board at the level of the porch beams. All of the siding is painted brown.

ARCHITECTURE - MASONRY

A 16"x16" brick chimney extends 32" above the roof on the northwest side of the roof near the ridge. The top of the chimney is flanchied, sloping away from an 8" clay flue. The chimney is flashed at the roof with sheet metal flashing set into the mortar joints.

The foundation is concrete and is exposed on the west and part of the north wall. The foundation is painted brown.

ARCHITECTURE - PORCHES

The south porch runs the full length of the building. The deck is tongue and groove 2x6 wood decking with a 3x10 wood bumper attached at the face along the entire deck. Below the bumper, the face of the porch is covered with 1x10 lap siding (8" exposure). There is a stair built into the west end of the porch. The porch skirt siding returns around the end to create the outside edge of the stair. The stair is built from 2x12 treads and 2x6 risers on a pair of notched stringers. A stainless steel grab bar has been attached to the building to serve as a handrail.

There are two decks and steps on the north side of the building. The west end deck consists of 2x decking and treads on 2x8 framing supported on 4x4 posts. A handrail on each side of the deck

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1.3 PHYSICAL DESCRIPTION

and steps consists of 4x4 posts and a 2x4 guard and handrail. The deck at the east side consists of 2x decking and treads on 2x8 framing supported on 4x4 posts. There is no handrail.

ARCHITECTURE - WINDOWS

This building features all wood windows, mostly casement style, in a variety of muntin patterns.

Window (1)

This wood unit is an outward swinging awning with a piano hinge at the top edge. The window is flush with sheathing, but 2" thick trim mould gives an appearance of inset. The top rail and stiles are 3", and the bottom rail is 5". The window is divided with 3/4" wood horizontal muntins to create three glass lites. The surrounding rough sawn wood trim is 3 1/2" wide on the exterior with a 1 1/2" wood sill and 2" apron. (Photo 0090-118)

Window (2)

This is a single wood casement unit. The sash is supported with two five-segment hinges with decorative balls at each end. It also appears inset, but actually is not. This unit has a 2 3/4" top rail and jamb stiles, with a 5" bottom rail. This unit is also surrounded by 3 1/2" rough sawn flat trim, a 1 1/2" sill and a 2" apron. The sash features three stacked divided lights and 3/4" muntins. (Photo 0090-119)

Windows (3) & (7)

These are wood clerestory assemblies with a 6" structural mullion dividing the units, a 2" wood sill, and 3 1/2" rough sawn flat trim with metal flashing along the header trim top. Window (3) is a triple unit, and Window (7) is a double unit. Each wood sash features four divided square lites in a horizontal repeat. The window is inset 3" from face of sheathing with 2 3/4" top rail and stiles and a 5" bottom rail. There is a 1 1/2" sill with a 2" wood apron along the entire length of the assembly. (Photo 0090-120, 0090-121, 0090-125)

Window (4)-(6) & (9)

These windows are similar to Window (2) with the exception that each sash features four stacked divided lights separated by 3/4" muntins. (Photo 0090-122 through 0090-124, & 0090-127)

Window (8)

This is a wood casement window with six divided lites, 3 1/2" rough sawn trim, a 1 1/2" sill and a 2" apron - similar to (2). The window is supported with two five-segment hinges with decorative balls at each end. (Photo 0090-126)

ARCHITECTURE - EXTERIOR DOORS

Exterior Door (A)

This inward-swinging wood door features three recessed panels and a window on the top 2/5 with four divided lights. It has a weathered brass ball knob and back plate with a modern brushed chrome dead bolt added above. The bottom rail measures 8" and the remaining rails and stiles are 4". Scars from a screen door are evident on the jamb side of the 3 1/2" rough sawn wood trim. An aluminum threshold has been installed at the floor, and a metal strip at the bottom of the door leaf is all that remains of a weatherstrip. Three five-segment hinges with decorative balls support the door. (Photo 0090-128)

Exterior Door (B)

This outward-swinging wood door features three recessed panels and a window on the top 2/5 with four divided lights. It has a weathered brass ball knob and back plate with a padlock strap. The bottom

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1.3 PHYSICAL DESCRIPTION

rail measures 8" and the remaining rails and stiles are 4". Scars from a screen door are evident on the jamb side of the 3 1/2" rough sawn wood trim. Three five-segment hinges with decorative balls support the door. (Photo 0090-129)

Exterior Door (C)

These large wood double doors hang from steel rollers and slide past each other on tracks. Each leaf has four vertical recessed panels on the bottom 3/5 and eight divided lites on the top 2/5 (4/4). The doors are mounted on the inside of the wall. The top and side stiles are 5", the bottom rail is 9", and the intermediate stiles are 2 1/2". The east leaf is secured with a floor bolt, and the west leaf is secured with a padlock strap - both on the interior. The windows have 1/2" muntins and the glass is set with 1/2" wood moldings instead of glazing putty. Both are painted inside and out. (Photos 0090-130, 0090-201, 0090-202)

Exterior Door (D)

This outward-swinging pair of large wood doors is very similar to door (C), but have been mounted on large three-segment triangular strap hinges, (three hinges on each leaf). The glass has been painted over. A modern brushed chrome utility handle has been screwed into each one, and the doors are secured by a 2x4 in wood brackets on the interior. They are held open, against the building by hook and eye loops. (Photo 0090-131)

Exterior Door (E)

This inward-swinging wood door features three recessed panels and a window on the top 2/5 with four divided lights. It has a weathered bronze/brass ball knob and lockset. The bottom rail measures 8" and the remaining rails and stiles are 4". Scars from a screen door are evident on the jamb side of the 3 1/2" rough sawn wood trim. Three five-segment hinges with decorative balls support the door. (Photo 0090-132)

Exterior Door (F)

This is a crawl space access door made of 5" vertical wood planks and attached with surface mounted triangular hinges. It features a steel utility handle and is currently nailed shut. It has 3 1/2" rough sawn trim and a 2" sill. (Photo 0090-133)

Exterior Door (G)

This is a crawl space access door similar in construction to door (F). It is, however, operable and secured with a small piece of wood that rotates into a locked position. This unit has no handle. (Photo 0090-134)

ARCHITECTURE - INTERIOR DOORS

Interior Door (AA)

This inward-swinging wood door features three recessed panels and a single lite on the top 2/5. The glass has been removed and replaced with 1/4" masonite. There are no handles/knobs. The bottom rail measures 8" and the remaining rails and stiles are 4".

Three five-segment hinges with decorative balls support the door. A 2 3/4" flat casing surrounds the door. (Photo 0090-203)

Interior Door (BB)

This is a modern, flush, hollow core masonite door with a brushed chrome ball knob and lockset. A 3" flat casing surrounds the door. (Photo 0090-204)

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1.3 PHYSICAL DESCRIPTION

Interior Door (CC)

This is a modern hollow core, flush, wood veneer door with a single lite in the top 1/2. A 2 3/4" flat casing surrounds the door. (Photo 0090-205)

ARCHITECTURE - WALL/CEILING FINISHES

The main room of this building is finished in gypsum board with a painted, heavy orange peel texture, except for the north and east walls of the small room on the north side, where the finish is smooth. Inside that same space, the finish returns to the heavy, orange peel. The 1949 inventory drawing (plan) of this building indicates a smaller restroom on the west side of the building and no separate room on the north side of the building. Both of these rooms are clearly recent additions. Conversely, the 1949 drawing indicates a small room (off one of the south entry doors) that is not extant.

Inside the room at the southwest corner, the wall and ceiling finish is painted 1x3 tongue and groove boards, oriented vertically at the walls.

The restroom in the northwest corner is painted, gypsum board with a heavy orange peel texture.

Batt insulation appears in the ceiling space and given the appearance that all gypsum board was installed at the same time, it is reasonable to assume the wall cavities are also insulated.

ARCHITECTURE - TRIM & MILLWORK

Base trim throughout the main room is painted 1x3 - with a smoother finish than the rough sawn trim at the original window and door openings.

The small room at the north side has coved, 4" resilient base.

There is no base trim in the room at the southwest corner but there is a 1x1 trim piece at the wall/ceiling intersection. The restroom has painted 1x4 base.

There is a base cabinet with the bathroom lavatory that is new.

ARCHITECTURE - FLOOR

Flooring throughout the main room and small room at the north side is painted plywood, in full sheets.

The southwest corner room is carpeted over what appears to be original 1x5 wood flooring.

ARCHITECTURE - PLUMBING FIXTURES

All of the plumbing fixtures in this building are new and are in good condition.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The surface of the adjacent drive is gravel, which is not a compliant surface and there is a step at the southeast corner from grade, up to the main entry deck. One of the three doors along the deck is wide enough to provide ABAAS-compliant clearance, but the hardware does not comply with ABAAS. (Photo 0090-111 and 0090-129)

Once inside, the main room is fully accessible, but all doorways to rooms off this space (one of which is the restroom) are too narrow to meet ABAAS. Clearances and accessories in the restroom do not comply with ABAAS. (Photos 0090-212 and 0090-215)

STRUCTURAL - SIZES / SPANS / SUPPORT

ROOF FRAMING:

The gable roof is a propped rafter system with upper ceiling joists acting as collar ties at about mid-height of the roof (Photos 0090-217-220).

The roof is constructed with corrugated metal sheathing over 2x4 skip sheathing at about 48". 1x diagonal bracing is attached to the bottom of the rafters in plane of the roof to provide in-plane diaphragm. Rafters are 1-7/8" x 6" spaced at 24"+/-. Rafters run from a 2x6 ridge board down to an interior girder line and thence to an exterior bearing wall on the north. On the south, the rafters are supported by the south wall and a girder line over the porch. Maximum rafter span is approximately 9'.

The north girder line is a 5-1/2" x 11-3/4" wood beam spanning about 13' to 6x6 wood columns and the east and west exterior walls. The girder extends out to support the barge rafters at each end of the building.

1-7/8" x 6" ceiling joists spaced at 24" span from this girder to 1x4 hangers hung from the ridge and then to the south exterior wall. Maximum span is approximately 9'.

The rafters are bird's mouth cut over the interior girder and south wall.

At the north, the rafters extend from the girder to the exterior wall and then out to form the eave. 1-7/8" x 6" ceiling joists at 24" span from the north wall back to an unknown beam in line with the interior girder.

At the south, the rafters extend from the south wall to the exterior girder line over the porch and then out to form the eave (Photos 0090-137).

The south girder line is a 5-3/4" x 9" wood beam spanning about 13' to 6x6 wood columns. The girder extends out to support the barge rafters at each end of the building.

The attic space above the porch was not accessible, therefore the ceiling construction is unknown.

Where visible, ceiling joists are tied to rafters with 4 nails. Rafters are attached to the ridge board with 1 nail. 1x4 hangers at the ridge are attached to rafters with 4 nails.

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1.3 PHYSICAL DESCRIPTION

WALL FRAMING:

Exterior walls are 1-7/8" x 6" studs at 24" with 1x horizontal lap sheathing on the exterior and gypsum board on the interior. This sheathing acts as the lateral force resisting system for the building.

At gable ends, above the typical top plate height, studs are framed from the top plate to the eave.

Sheathing is 1x vertical boards on the exterior and there is no sheathing on the interior.

FIRST FLOOR FRAMING:

The floor is framed with 1x straight sheathing over 1-7/8" x 9-1/2" joists at 24" spacing in the interior two bays and 2" x 5-1/2" joists at 24" at the south and north bays (Photos 0090-221-226).

The northernmost joists span about 6' from a 1x4 ledger let into the north exterior studs to a 5-7/8" x 13-1/2" dropped interior girder line. The joist ends are blocked over the girder.

These joists are side nailed to the next bay of joists which span about 8'-9" to another dropped girder line and thence to a 2x10 ledger attached to the south exterior wall studs. The girder line is identical to the girder to the north.

The porch joists span about 6' from the south exterior wall to a girder line at the south side of the porch.

The girder line is dropped and measures 6" x 7-3/4". The girder spans about 13' to a triple stud, side-nailed to the porch columns.

FOUNDATION:

A cast-in-place concrete perimeter foundation occurs below the exterior stud walls. A 2x8 sill plate with 1/2" diameter anchor bolts at about 6' spacing rests on an 8" wide stem wall. The exterior face of the stem wall is vertical, while the interior tapers. No footing was visible but it is likely that the stem wall tapers out to form a thicker base, as opposed to having a separate footing.

Interior girder lines are supported by tapered cast-in-place concrete piers topped with a 2x wood plate and wood shims. No footing was visible but it is likely that the pier tapers out to form a thicker base, as opposed to having a separate footing.

The foundation under the perimeter of the porch appears to be cast-in-place tapered concrete spot footings at each column with a wood footing in between the piers (Photos 0090-227).

MECHANICAL - PLUMBING ASSESSMENT

WATER HEATER

The water heater is a newer electric model in working condition. The unit is installed on a shelf above the 3-basin sink. The pressure relief valve and drain pan are piped to drain into the sink below. Domestic water piping to/from the heater is pex piping. The water heater is secured to the wall with a steel strap (Photo 0090-230).

make: American Water Heater Co
model: 608H

1.3 PHYSICAL DESCRIPTION

capacity: 38gal
upper heating element: 3,380W
lower heating element: 3,380W
unit voltage/phase: 208V/1phase

LPG RANGE/STOVE

A propane gas range/stove located along the middle of the south wall of the ECW Warehouse appears new and in working order. LPG iron piping is routed down the outside wall from the ceiling above and appears new and in working order (Photo 0090-231).

3-BASIN SINK

A 3-basin sink is located on the west end of the building outside the washroom. The sink is constructed of stainless steel and appears to be new. The waste piping from the sinks are collected together below the sink and drain into a floor sink via an indirect connection. The domestic water connection from the copper pipe in the wall to the faucet is through braided stainless steel hoses (Photo 0090-232).

ICE MAKER

A modern ice maker is located on the north wall of the building near the west door. The icemaker appeared to be working. The condensate and water drains from the unit are indirectly connected to a floor drain. All piping to/from the icemaker is copper and appeared to be in working order (Photo 0090-234).

HOSE BIBB

A hose bibb is located below the landing of the west door in the north wall. The hose bibb does not appear to have freeze protection or a vacuum breaker. Piping to the hose bibb is copper and in working order (Photo 0090-143).

LAVATORY, SHOWER, WATER CLOSET

A 3/4 bath at the northwest corner of the building uses modern plumbing fixtures. The lavatory is a one-piece cast countertop and sink with a new faucet and drain. Braided stainless steel hoses connect the faucet to the copper stubs in the wall. PVC pipe connects the waste line to the sanitary sewer. The shower is modern. The walls and floor of the shower are constructed of moulded fiberglass/plastic inserts. The shower has glass walls/door enclosing the shower. The water closet appears to be new as well and is connected to the copper domestic water stub by a braided stainless steel hose (Photos 0090-215 and 0090-235).

WASTE PIPING

The waste piping in the crawl space collects the waste from all the above fixtures and connects them to the sanitary sewer service. Most waste piping appears new and is constructed of ABS (Acrylonitrile-Butadiene-Styrene). A few pieces are constructed of cast iron but do not appear to be original to the building. A new waste cleanout is located to the west of the building, indicating that the new waste piping extends beyond the building perimeter (Photos 0090-236 and 0090-237).

DOMESTIC WATER PIPING

The visible domestic water piping all appears new. It is a combination of copper and pex. However, most of the domestic water piping is routed through interior walls and is not visible, so the condition and construction has not been verified. Judging by the condition of the building and the visible piping, one could speculate that the majority of the piping is new and also a mixture of copper and pex.

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1.3 PHYSICAL DESCRIPTION

MECHANICAL - HVAC ASSESSMENT

The majority of the building is heated by a forced air LPG unit heater hanging from the ceiling towards the east end of the building. The unit appears new and is in working order. The flue is routed through a new flue that extends up through the building roof (Photos 0090-238, 0090-239 and 0090-242).

Make: Modine
model: PD150AE0185
gas input: 150,000btu/h
120V/2.6A/1phase

The washroom at the west end of the building has a new wall-mounted electric heating unit that is a Dayton make. The model and electrical requirements are unknown (Photo 0090-240).

The office at the west end of the building is equipped with electric baseboard heating. The baseboard heater is approximately 6 ft long and in working order. The unit looks to be approximately 15 - 20 yrs old (Photo 0090-241).

The LPG tank is located approximately 15 ft west of the building and is in working order (Photo 0090-138).

Make: Eveready
model: A320H
capacity: 320gal
max pressure: 250psi @125 deg F
yr mfg: 1981

The LPG piping is routed from the propane tank below grade to the exterior of the west wall of the building where the shut-off valve is located. The piping runs up the side of the wall and enters the building through a louver near the ridge of the roof (Photos 0090-139 and 0090-140).

A brick flue remains in the building but is not currently being used. The flue looks to be original to the building.

ELECTRICAL - SYSTEM DESCRIPTION

The building is provided with a 120/240 volt, single-phase electrical service from a tap off of the existing underground electrical distribution system. The electrical panel is a 125-amp panelboard with a 70-amp main circuit breaker (Photos 0090-243 and 0090-244).

The feeders and branch circuiting wiring insulation appears to be provided with thermoplastic or a new type of insulation material.

ELECTRICAL - ELEMENTS ASSESSMENT

INTERIOR LIGHTING

The interior lighting consists of surface-mounted, lensed fluorescent fixtures with T-12, 40-watt lamps. The open kitchen area and the office are also provided with a ceiling-mounted fan on a metal stem (Photos 0090-245, 0090-246 and 0090-247).

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1.3 PHYSICAL DESCRIPTION

EXTERIOR LIGHTING

There are two single lamp fixtures on the ceiling of the south covered porch. They feature a newer wire "whisk" basket to protect the lamps. The housings are painted dark brown (Photo 0090-141).

A small "jelly jar style" wall sconce is also mounted at the southwest corner. It has a black finish, and the glass globe has raised ridges along its length (Photo 0090-142).

TELECOMMUNICATIONS

A telecommunication termination box is located on the west side of the building.

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1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0090-105, 0090-106)
- Overhangs – The overhangs shelter loading dock activities, provide much-needed shade and reflect elementary historic sustainable design.
- Horizontal lap siding and vertical board and batten siding at the gable ends. This is one of the only decorative treatments on this building. (See photo 0090-111 through 0090-113)
- Wood paneled and batten doors – This building has a variety of door styles that reflect its original function as a warehouse. Traditional paneled man doors with windows in the upper 1/3 appear throughout the complex. The large wood batten sliding double doors support the loading dock function.
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex. (See photo 0090-110)
- Brick chimneys – One brick chimney extends through the steel roofing with no caps or adornment of any kind. (See photo 0090-114, 0090-115)
- Wood windows with clear glass – This building features a variety of window styles, but all are wood, with wood muntins, and clear glass. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills.
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining features of which are wood tongue and groove ceiling and wall finishes.
- Wood posts – Plain wood posts support the porch roofs from porch deck to roof beam, with no base or capital.
- Historic lighting – "Jelly Jar" light fixtures on the porch are some of the few historic fixtures left in the Historic Maintenance and Warehouse Complex.

1.5 GENERAL CONDITION ASSESSMENT

The Park Service ECW Warehouse is in fair condition with the exception of a few items. The horizontal lap siding is in poor condition with cracked and split boards. The vertical board and batten siding is in poor condition also with missing battens and cracked and weathered boards.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: FAIR

The roofing is in fair condition with several dents and some open horizontal seams. Some of the panels are starting to rust although none are showing signs of rust fatigue. The leading edge of most of the panels at the eaves is dented and bent. The ridge cap is not shaped at the sides for corrugated roofing. There is a significant dent in the middle of the ridge cap that will eventually start to rust and

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: GOOD

The overhangs are in good condition with the exception of the tail ends of the east side gable trim pieces which are deteriorated at the ends. The trim boards are in fair condition with signs of deterioration and weathering.

The porch soffit is in good condition with the exception of a small amount of peeling paint.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: FAIR

The lap siding is in fair to poor condition. There are many cracked and split boards. Many boards have split where they have been nailed to the structure. The south side has +/- 50% of the boards split or cracked. Miter joints are open at many corner joints. The bottom boards on the east end are rotting where in contact with the ground.

The board and batten siding is in fair to poor condition with many split, cracked, and weathered boards and split, weathered and warped battens. Two battens are missing. There are loose or missing nails throughout (typical).

ARCHITECTURE - MASONRY

CONDITION: POOR

The chimney is in poor condition. Many brick faces have spalled off. Some of the mortar has deteriorated, is loose or is completely missing. The flaunching at the top is in fair condition and appears to be intact - even where the bricks below are broken or missing. The chimney is in good condition on the interior below the roof sheathing.

The flashing at the chimney is in poor condition. The lapped joints are open, there is no lapping along the slope of the roof and all of the flashing appears to be loose on the sides.

The foundation appears to be in good condition.

ARCHITECTURE - PORCHES

CONDITION: FAIR

The decking is in fair condition with the exception of the outermost boards. These are heavily worn and missing in some locations. The bumper is in fair to poor condition with heavily weathered and worn faces and some splits and cracks. The siding skirt is in poor condition. Many pieces are missing, the

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1.5 CONDITION ASSESSMENT

rest are warped, split and cracked as well as being heavily weathered and rotted where in contact with grade.

The steps are in good to fair condition and, although worn and weathered, are solid and secure. The grab bar is inappropriate as a handrail - it also does not follow the angle of the steps.

The decks and steps on the north side of the building are in good condition.

ARCHITECTURE - WINDOWS

CONDITION: **FAIR**

Window (1) & (2)

These units are well protected by the covered porch and exhibits very little weathering. Some areas of over painting cover edges of the glass.

Window (3)

This assembly is weathered, which is exhibited in warping trim boards and blistering paint. Glazing putty is beginning to fail.

Window (4)-(7)

On the less weathered north side, these windows are in good condition.

Window (8)

This window exhibits signs of severe weathering. The bottom rail is deteriorating. Glazing putty has fallen out or been replaced poorly. Trim is splitting from the bottom edge on the north side, and the sill has formed a crack in the center.

Window (9)

Glazing putty is failing and the bottom rail shows early signs of deterioration.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **GOOD**

Exterior Door (A)

The door is used often and maintained well. The weatherstripping is incomplete and has become ineffective.

Exterior Door (B)

The door is used often and maintained well. Weatherstripping is lacking.

Exterior Door (C)

The lower portion of the doors show some weathering in cracked stiles and paint beginning to peel. A 1/2" deep scar runs the width of the west leaf - left over from an earlier piece of hardware that was mounted on the interior of the east leaf. Weatherstripping is lacking. The threshold is non-extant.

Exterior Door (D)

No work is needed, but the painted glass detracts from its historic character and blocks much needed natural light from the work space. Weatherstripping is lacking. The threshold is non-extant.

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1.5 CONDITION ASSESSMENT

Exterior Door (E)

This door is used often and maintained well. Weatherstripping is lacking.

Exterior Door (F)

The door should be made operable. Weatherstripping is lacking.

Exterior Door (G)

Some paint is peeling at the lower end, and it is difficult to open without a handle. Weatherstripping is lacking.

ARCHITECTURE - INTERIOR DOORS

CONDITION: **GOOD**

Interior Door (AA)

The door is missing lockset/handle hardware. The missing glass detracts from the historic doors character, although privacy might be desirable in the office.

Interior Door (BB)

This door is out of character with the historic nature of the building, but is functional and well-maintained. This door serves no historic function and need not appear historic.

Interior Door (CC)

This door is out of character with the historic nature of the building, but is functional and well-maintained. This door serves no historic function and need not appear historic.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **GOOD**

In general, the wall and ceiling finishes are in good condition with some very minor damage to the finish only, in the area of the three compartment sink.

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **GOOD**

All of the trim is in good condition.

The bathroom cabinet is also in good condition.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

In general, the flooring is in good condition. The leading edge of the carpet is loose and could present a tripping hazard.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - PLUMBING FIXTURES

CONDITION: **GOOD**

All of the plumbing fixtures in this building are new and are in good condition.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **FAIR**

Roof framing is generally in good condition with no obvious signs of distress or deterioration.

Wall framing is generally in good condition except at the base of the wall along the southern side of the building. This wall is severely deteriorated in some locations due to exposure to soil and moisture infiltration from the porch (Photos 0090-227). This wall has little ability to resist lateral forces. This problem is compounded by the fact that the southern exterior wall of the building is not sheathed between the first floor and the foundation (Photos 0090-226). Thus, this wall has no resistance to lateral forces.

As seen at most other buildings assessed, grade is at or above the sill plate along the east side of the building. The wall sheathing has been severely deteriorated wherever soil is in direct contact.

CONDITION: **FAIR**

Floor framing is generally in good condition with no obvious signs of distress or deterioration except at the porch. Porch joists are being exposed to moisture penetrating the decking and are rotting as a result. This damage is most severe at the west end of the porch (Photos 0090-229). The stairs and their stringers at the south end of the porch are also in an advanced state of deterioration where they rest on the soil (Photos 0090-228)..

Foundations are generally in good condition. The wood foundation between porch columns is deteriorated and is a poor long term solution for supporting the infill wall sheathing.

MECHANICAL - PLUMBING ASSESSMENT

CONDITION: **GOOD**

All piping and plumbing fixtures appear to be in good condition and in working order. None appear to be original to the building.

MECHANICAL - HVAC ASSESSMENT

CONDITION: **GOOD**

All heaters are in good condition and in working order. The propane tank is also in good condition and in working order. All propane piping appeared to be working with no noticeable leaks. The brick flue in the building appears to be original to the building. The functionality of the flue can not be determined without further investigation.

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1.5 CONDITION ASSESSMENT

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ELECTRICAL - SYSTEM DESCRIPTION

CONDITION: **FAIR**

The existing electrical panel appears to be in good condition. The number of overcurrent protection devices in the panel is less than the number of branch circuits terminated in the panel, so several of the branch circuits are double tapped onto the overcurrent protection devices.

The grounding of this panel appears to be code compliant.

Some of the circuit breakers protect two branch circuits and should be replaced with a panel that contains a main circuit breaker and additional circuit breakers. The purpose of replacement is so that each branch circuit can be terminated onto a dedicated circuit breaker, since some of the circuit breakers have more than one branch circuit terminated upon them.

ELECTRICAL - ELEMENTS ASSESSMENT

CONDITION: **GOOD**

The existing interior lighting in this building serves the needs and usage of this building.

The exterior porch ceiling fixtures provide no clue as to original design, and the "whisks" are an obvious new feature that does not match the historic character; however, they do protect the fixtures from impacts.

The "jelly jar" fixture, while unknown if it is historic, appears to fit the character of the building and has been maintained well.

The existing interior and exterior lighting does not provide any emergency-type egress lighting or comply with "International Dark Sky Association Guidelines" for light cut off.

The telecommunications provisions to this building appear to be adequate for its present use.

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2.1 ULTIMATE TREATMENT AND USE

The building has historically served as storage with an office. Currently, it serves as a food preparation facility for River Operations. If this operation were to be re-located, the building could be integrated into the residential use of the neighborhood in any number of ways. Rehabilitation is the recommended ultimate treatment for this building.

The following is a discipline-by-discipline, component-by-component description of the building.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY MODERATE

The roofing should be removed and replaced with new corrugated sheet metal roofing to match the original in gauge, corrugations and composition. The new roofing should extend beyond the sheathing at all edges and an edge flashing should be installed at the sheathing. All roof flashing should be replaced throughout with new flashing to match the original.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY LOW

No treatment is necessary beyond the reattachment of loose trim boards.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY MODERATE

Cracked, rotten, split, or broken horizontal siding boards should be removed and replaced with similar siding boards to match the original material, grade, species, and profile. Miter all corner joints. Insulation should be installed in open framing cavities when the cavities are exposed.

Split, cracked, warped, and missing boards and battens should be removed and replaced with matching material, grade, species, and profile. All loose boards should be reattached and holes filled. The siding should be scraped and repainted.

ARCHITECTURE - MASONRY

PRIORITY MODERATE

The chimney above the roof should be rebuilt using existing good bricks, new bricks to replace spalled or broken bricks, and mortar designed to match the original mortar strength and visual characteristics. Further testing should be done in subsequent phases to determine the exact mortar mix. The flaunching at the top of the chimney should be replaced with new flaunching installed over a waterproof membrane to prevent moisture from entering the top of the bricks. Step flashing should be reinstalled in mortar joints as the chimney is rebuilt.

The foundation does not require treatment at this time.

ARCHITECTURE - PORCHES

PRIORITY LOW

Remove and replace the outermost two tongue and groove 2x6 decking boards and the 3x10 wood bumper at the face of the porch. Treatment for the siding at the porch is included under the treatment section in "ARCH-EXTERIOR WALL FINISHES." The steps do not require treatment at this time, but should be scraped and repainted along with the rest of the decking. The handrail should be removed and replaced with a wood handrail that meets code and matches adjacent materials and forms. The handrail should be reset to match the slope of the stairs.

The decks on the north side of the building do not require treatment at this time beyond being scraped and repainted.

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2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - WINDOWS

PRIORITY LOW

The windows should be evaluated individually for tight fit and infiltration. The casement windows may require weatherstripping.

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration.

As needed, replace broken glass panes; however, do not attempt to match historic rippled glass, but rather allow the new glass to be identifiable at close range.

All of the hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware.

Windows (1)-(2) & (4)-(7)

No work needed on these windows at this time.

Windows (3), (8), & (9)

Recondition the windows including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed. Where material loss is profound, reconstruct wood member with wood to match existing.
3. Stabilize the sash joints and muntins to make the units structurally sound.
4. Repaint each unit with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. Install wool weatherstripping at all openings.
6. Reglaze each unit using original glass, and replacing all inappropriate obscure glass.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY LOW

All of the door hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware. Install weatherstripping at all openings. This building is in constant use and requires a weather tight enclosure.

Exterior Doors (A), (B), (E)

Remove existing weather-strips and install new.

Exterior Door (C)

Lightly sand off loose paint on the bottom quarter of the door and repaint with one coat of paint to match existing. Continue to monitor weathering, and when it becomes necessary, strip the door, prime and repaint. Install new threshold.

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2.1 TREATMENT RECOMMENDATIONS

Exterior Door (D)

Remove paint from glass. Install new threshold.

Exterior Door (F)

Make this door operable. Remove screws, and install a hook and eye for closure.

Exterior Door (G)

Install a handle similar to Door (F).

Weatherstrip all exterior doors.

ARCHITECTURE - INTERIOR DOORS

PRIORITY **LOW**

Interior Door (AA)

Install new lockset and knob appropriate in style to the door.

Interior Doors (BB) and (CC)

No work needed.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

The carpet edge should be finished with an edge strip. Otherwise, no work is recommended.

ARCHITECTURE - PLUMBING FIXTURES

PRIORITY

No work is recommended at this time.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **SEVERE**

This building is listed as a Tier 1 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it has the potential to provide an office that could be staffed by a disabled individual. Therefore, a strategy should be developed that would provide accessible parking adjacent to the building, an accessible route to the south deck, via a walkway and ramp and lever hardware on the entry door.

Inside, one of the office spaces should be made accessible as should the restroom.

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2.1 TREATMENT RECOMMENDATIONS

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **MODERATE**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

The south wall below the porch should be rebuilt on a properly constructed foundation. The south exterior wall should be sheathed or otherwise braced below the first floor.

Soil should be removed around the building such that no wood is within 6" of soil. Floor joists, sill plates, anchor bolts, blocking, and wall framing should be repaired or replaced where deteriorated.

PRIORITY **MODERATE**

Porch joists, decking and stairs should be replaced or repaired where deteriorated.

A concrete strip footing should be installed along the south side of the porch to support properly framed and sheathed infill walls.

MECHANICAL - PLUMBING ASSESSMENT

PRIORITY **LOW**

No immediate repairs are required to the plumbing system.

MECHANICAL - HVAC ASSESSMENT

PRIORITY **LOW**

ELECTRICAL - SYSTEM DESCRIPTION

PRIORITY **MODERATE**

The existing panel appears to be in good condition. The existing panel should be modified so that the number of overcurrent protection devices exceed the number of terminated branch circuits so that circuit breakers are not double tapped and future branch circuits could be added to the panel.

ELECTRICAL - ELEMENTS ASSESSMENT

PRIORITY **LOW**

Provide emergency lighting inside the building and at the exit discharge from the building to comply with current code.

Replace exterior light fixture with a fixture that complies with the "Grand Canyon National Park Night Sky Protection and Exterior Lighting Policy" (01/04).

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2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance and Warehouse Complex overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building, the ECW Warehouse will likely never be restored to any certain period in history. However, some elements may benefit from *restoration*, such as windows, siding, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. In general, the building requires significant *rehabilitation*, to address the existing code-deficient conditions (health codes, ABAAS access, electrical service, fire safety, etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

This building requires significant alterations to meet the requirements of health codes, building codes, and ABAAS. Care should be taken to proceed with sensitivity, but change can be effected with minimal impact to character-defining features. Placement of wheelchair ramps and installation of commercial kitchen equipment and ventilation will certainly alter the building, but will be largely reversible.

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Bldg SRB-0090 – 1935
National Park Service Grand Canyon Museum Collection (Photo # 00925)

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ECW WAREHOUSE

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West Elevation Bldg 0090 – 2006

SRB-0090

ECW WAREHOUSE

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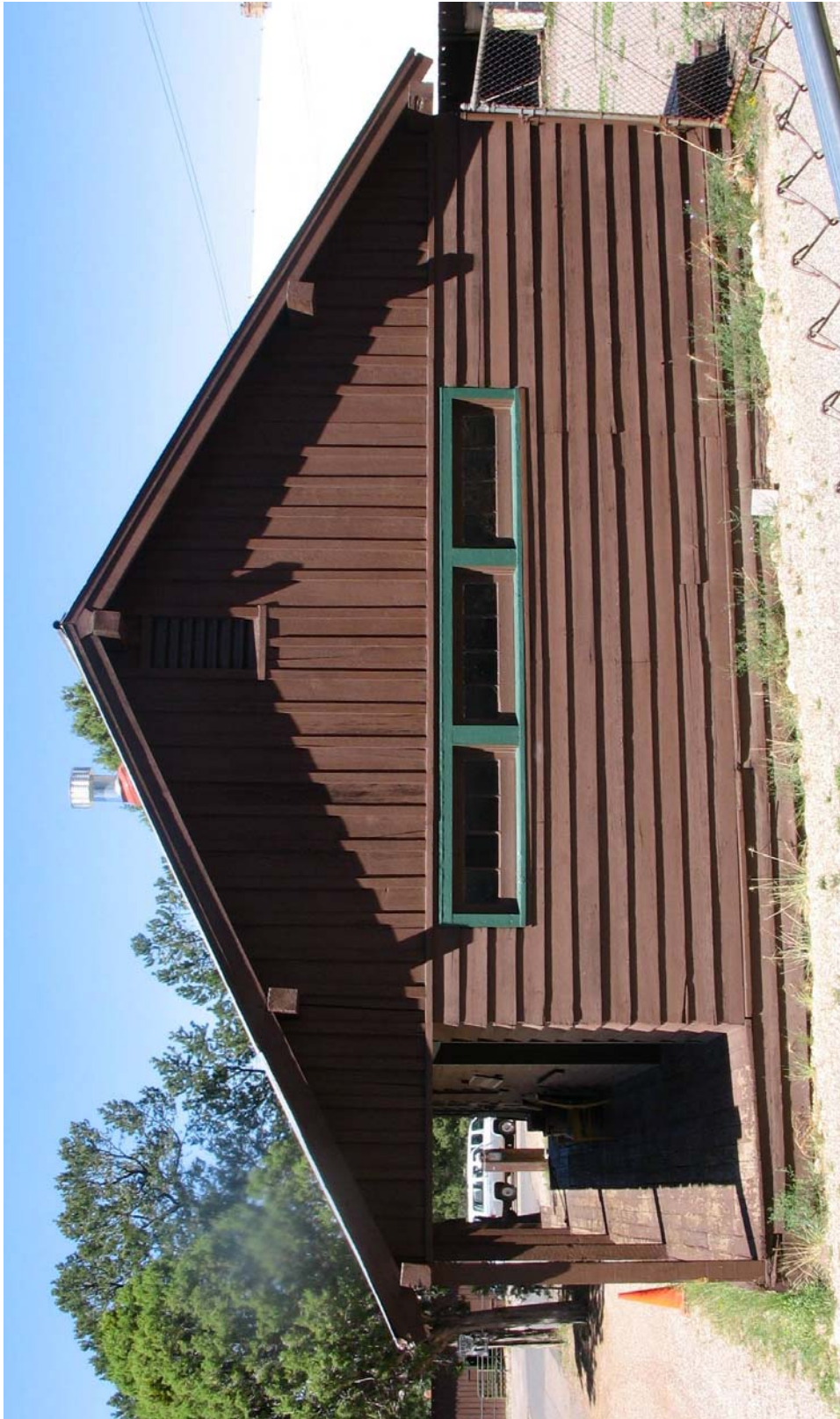


North Elevation Bldg 0090 – 2006

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East Elevation Bldg 0090 – 2006

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South Elevation Bldg 0090 – 2006

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Corrugated, Galvanized Sheet Metal Roof 0090 - 105



Sheet Metal Roof 0090 - 106

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Round-Over Cap Flashing Along Ridge 0090 - 107



Flat Soffit on South Side of Porch 0090 - 109

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Roof Overhang 0090 - 110



Exterior Wall Finishes 0090 - 111

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1x10 Lap Siding with Mitered Corners 0090 - 112



Vertical Board and Batten Siding 0090 - 113

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Brick Chimney 0090 - 114



16"x16" Brick Chimney 0090 - 115

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Built-In Stair on the West End 0090 - 116



Built-In Stair on the West End 0090 - 117

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South Window (1) 0090 - 118



South Window (2) 0090 - 119

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East Window (3) 0090 - 120



Window (3) Detail 0090 - 121

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North Window (4) 0090 - 122



North Window (5) 0090 - 123

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North Window (6)) 0090 - 124



North Window (7) 0090 - 125

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West Window (8) 0090 - 126



West Window (9) 0090 - 127

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Exterior Door (A) 0090 - 128



Exterior Door (B) 0090 - 129

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Exterior Door (C) 0090 - 130



Exterior Door (D) 0090 - 131

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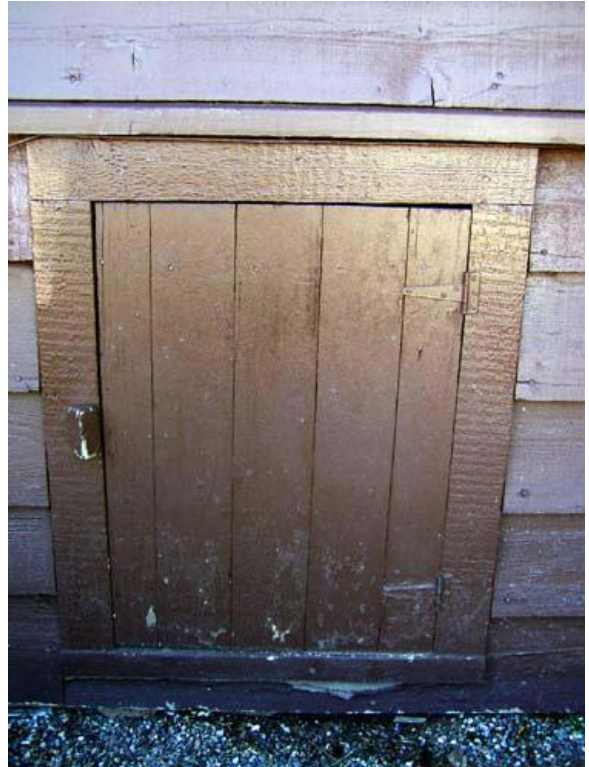
Exterior Door (E) 0090 - 132



Exterior Door (F) 0090 - 133

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Exterior Door (G) 0090 - 134



Raised Entrance 0090 - 135

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Exterior Girder at South Porch 0090 - 137



Propane Storage Tank to West 0090 - 138

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Exterior Propane Gas Piping 0090 - 139



Propane Gas Piping Entering Building 0090 - 140

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South Porch Ceiling Fixture 0090 - 141



"Jelly Jar" Sconce 0090 - 142

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Hose Bibb 0090 - 143



Door (C) Interior Detail 0090 - 201

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Door (C) Interior 0090 - 202



Interior Door (AA) 0090 - 203

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Interior Door (BB) 0090 - 204



Interior Door (CC) 0090 - 205

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Textured Gypsum Board Walls and Ceiling 0090 - 206



Tongue and Groove Walls and Ceiling 0090 - 207

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Painted Gypsum Board Walls 0090 - 208



Base Trim 0090 - 209

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Resilient Base 0090 - 210



Base Cabinet and Lavatory 0090 - 211

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Painted Plywood Flooring and Carpet 0090 - 212



Resilient Sheet Flooring 0090 - 213

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Carpet Over Wood Flooring 0090 - 214



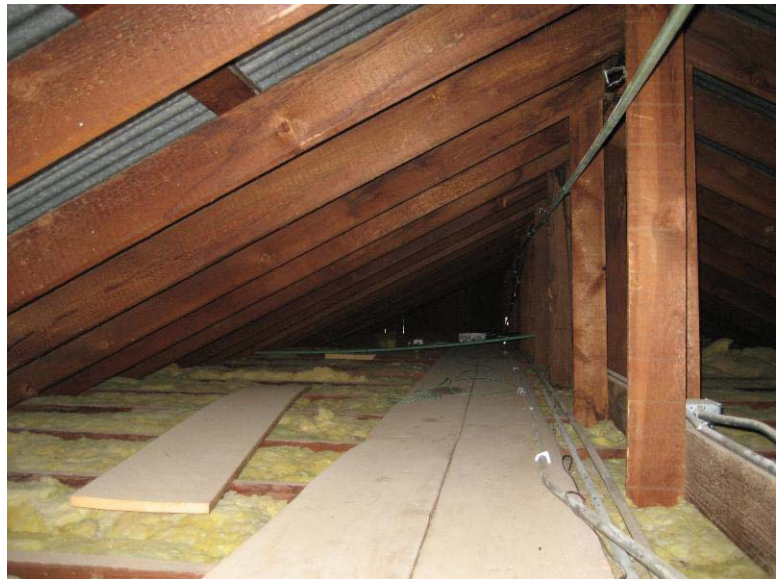
Restroom Fixtures 0090 - 215

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Restroom Door - too Narrow 0090 - 216



Typical Roof Framing 0090 - 217

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Typical Roof Framing at Ridge 0090 - 218



Typical Rafter and Ceiling at South Wall 0090 - 219

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Roof Framing Between North Wall and Girder 0090 - 220



North Wall: Typical Framing Below First Floor 0090 - 221

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Wall Framing Below First Floor at South Exterior 0090 - 222



Wall Framing Below South Porch 0090 - 223

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North Wall: Floor Framing and Foundation 0090 - 224



Interior Girder Lines & Floor Joists 0090 - 225

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Interior Foundation Under South Wall 0090 - 226



South Wall Under Porch 0090 - 227

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Rotting Stair Stringer at West End of Porch 0090 - 228



Rotting Porch Joist 0090 - 229

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Electric Water Heater 0090 - 230



Propane-fired Range 0090 - 231

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Three-basin Sink 0090 - 232



Ice Maker 0090 - 234

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Bathroom Group 0090 - 235



Waste Pipe at Ice Maker 0090 - 236

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Waste Pipes at Restroom 0090 - 237



Forced Air Propane Unit Heater 0090 - 238

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Unit Heater Flue and Gas Connections

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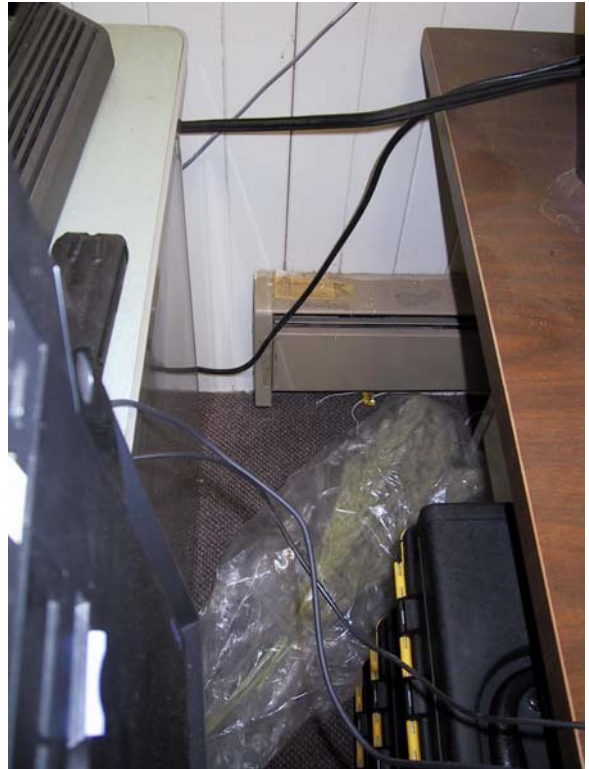


Restroom Ventilator

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Electric Baseboard Heater in Office 0090 - 241



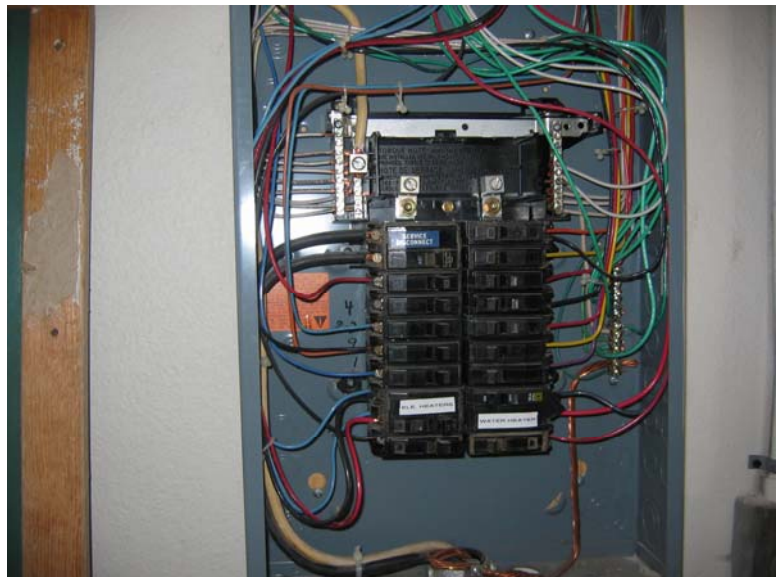
Original Brick Flue - North Wall Room 104 0090 - 242

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Electrical Service Tap 0090 - 243



Electric Panel 0090 - 244

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Ceiling Fixtures and Fan 0090 - 245



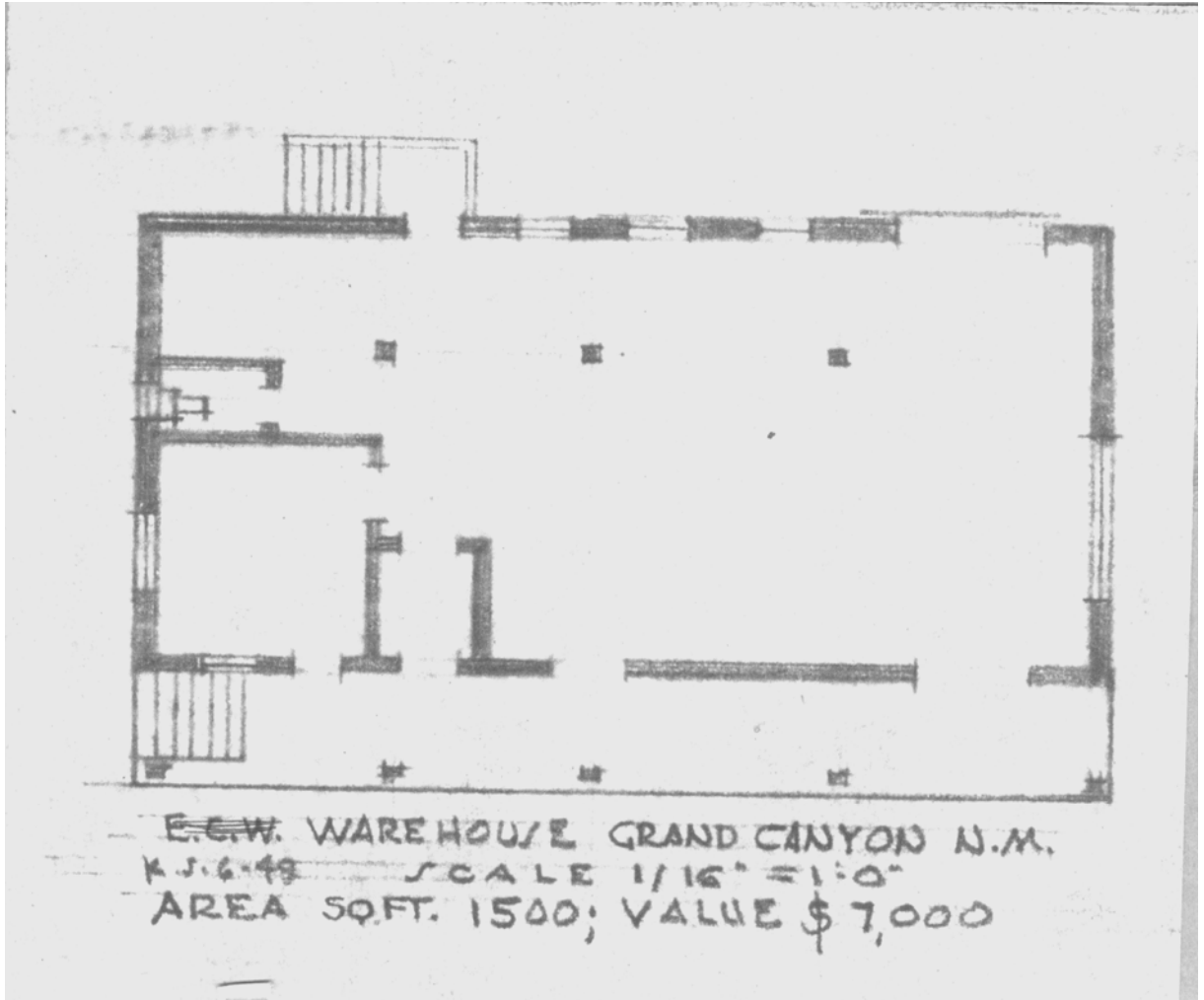
Surface-mounted Lens 0090 - 246

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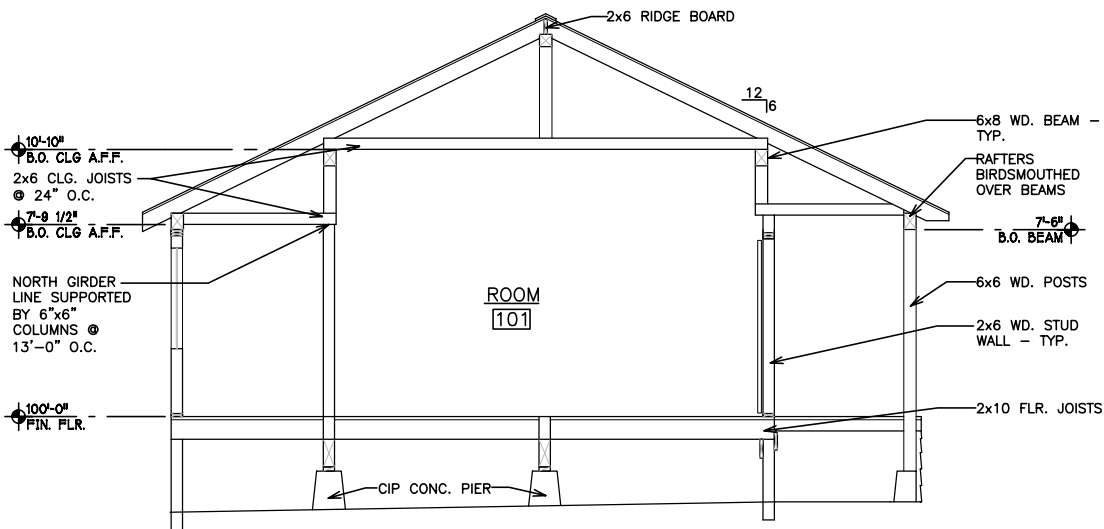
1935



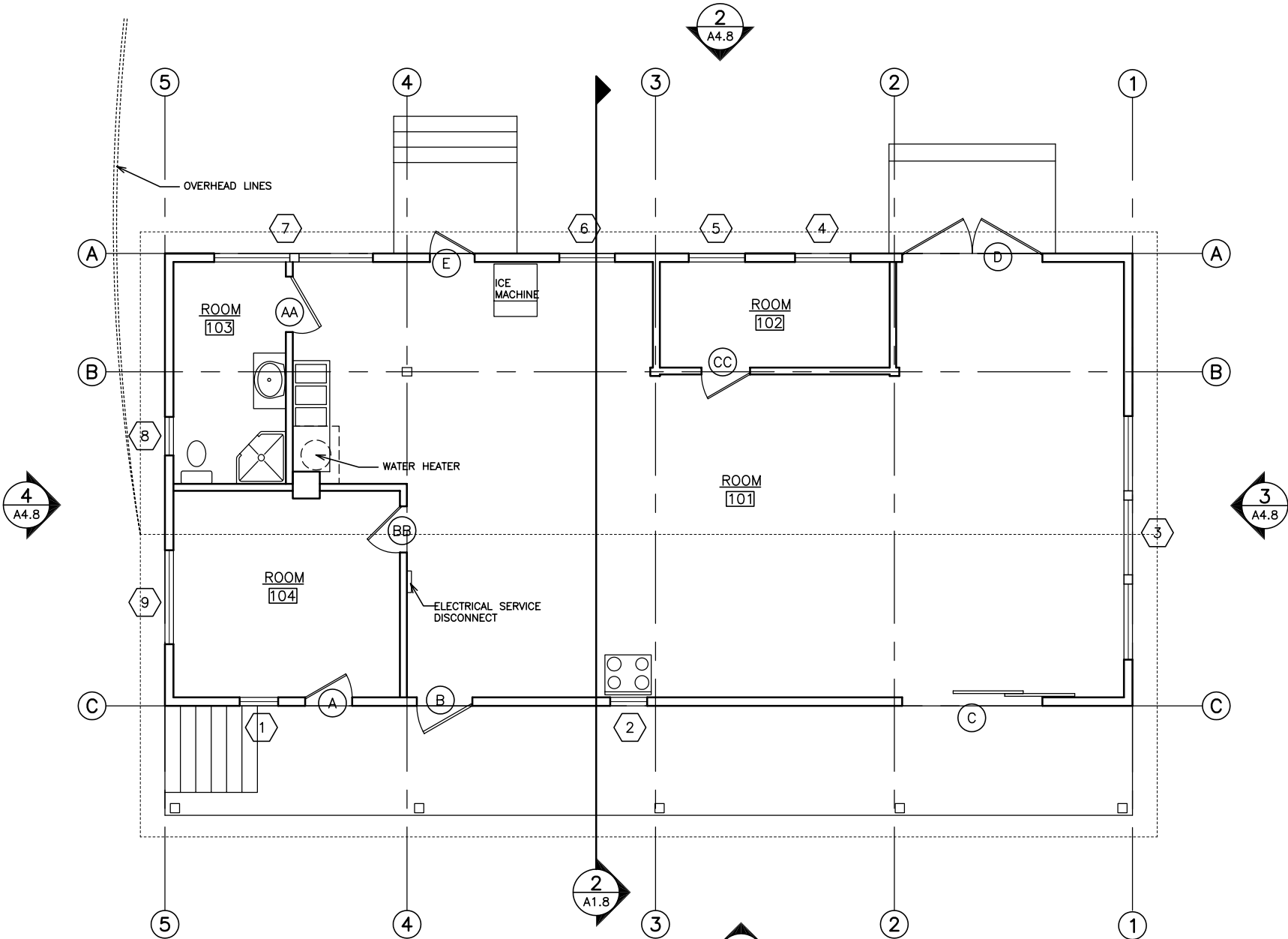
Surface-mounted Lensed Fluorescent Fixture 0090 - 247



NOTE: FOUNDATION ILLUSTRATIONS
ARE NOT VERIFIED, BUT RATHER
BASED ON A COMBINATION OF
SURFACE OBSERVATIONS, HISTORIC
DRAWINGS, AND COMMON BUILDING
ASSEMBLY PRACTICES AT THE TIME OF
CONSTRUCTION



2 SECTION



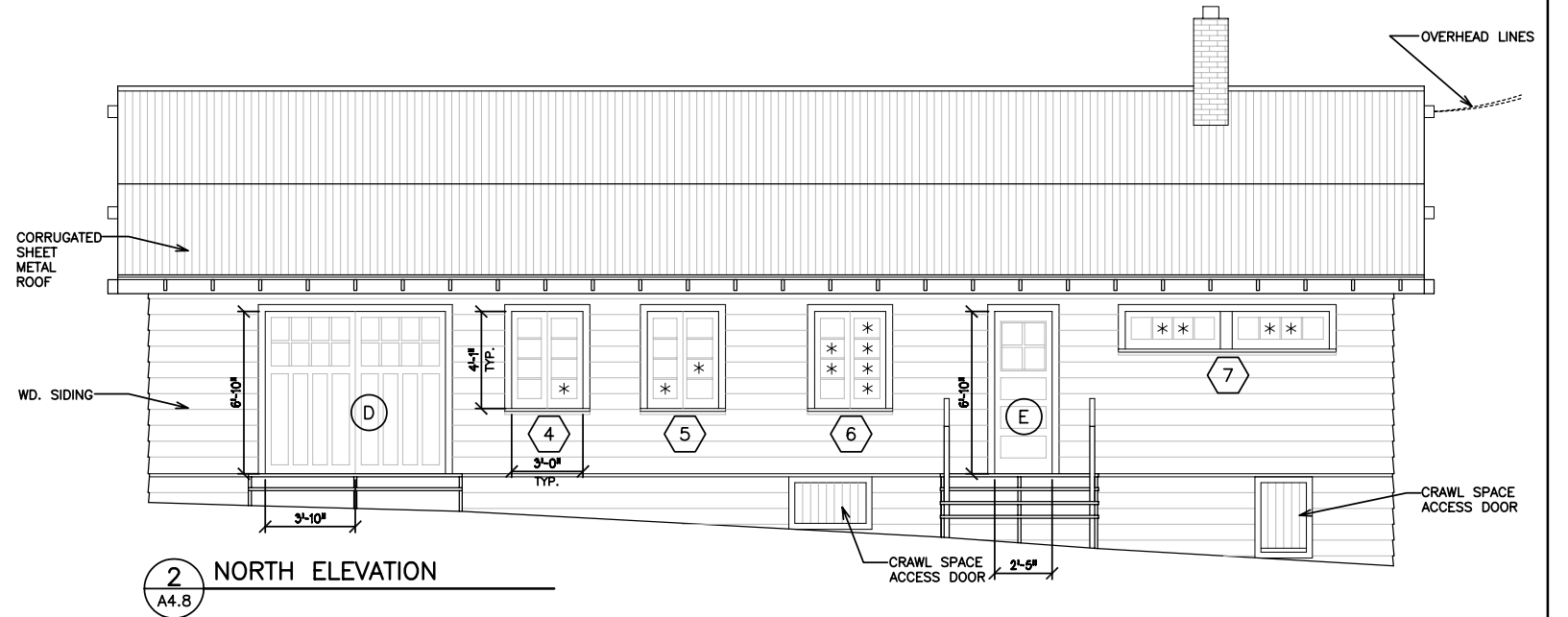
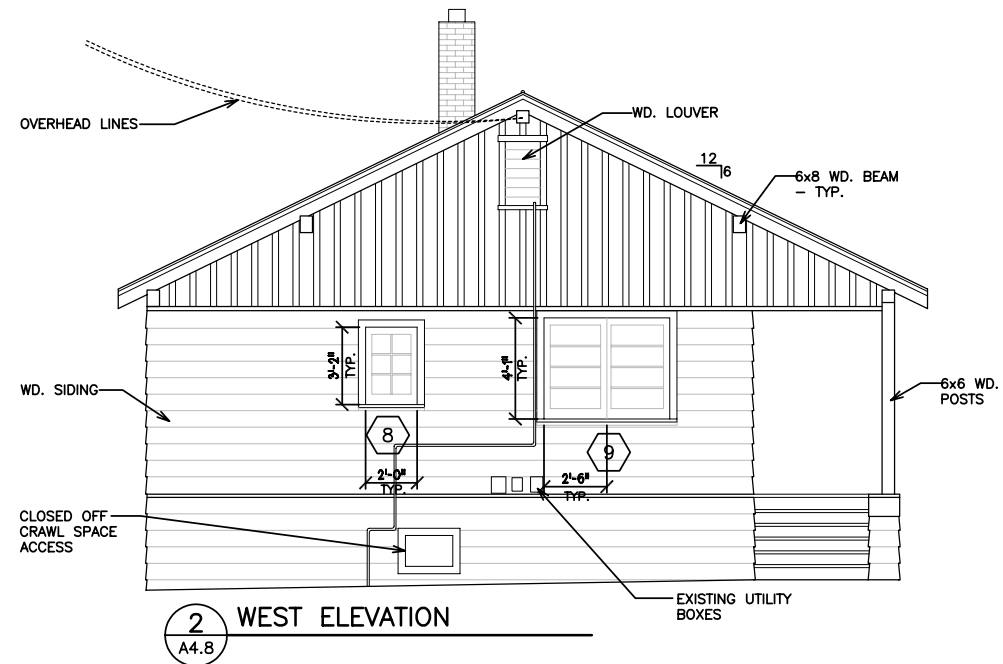
1 FLOOR PLAN

SCALE (A) 4 0 4 8
SCALE OF FEET

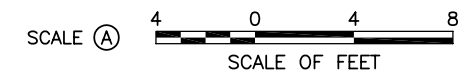
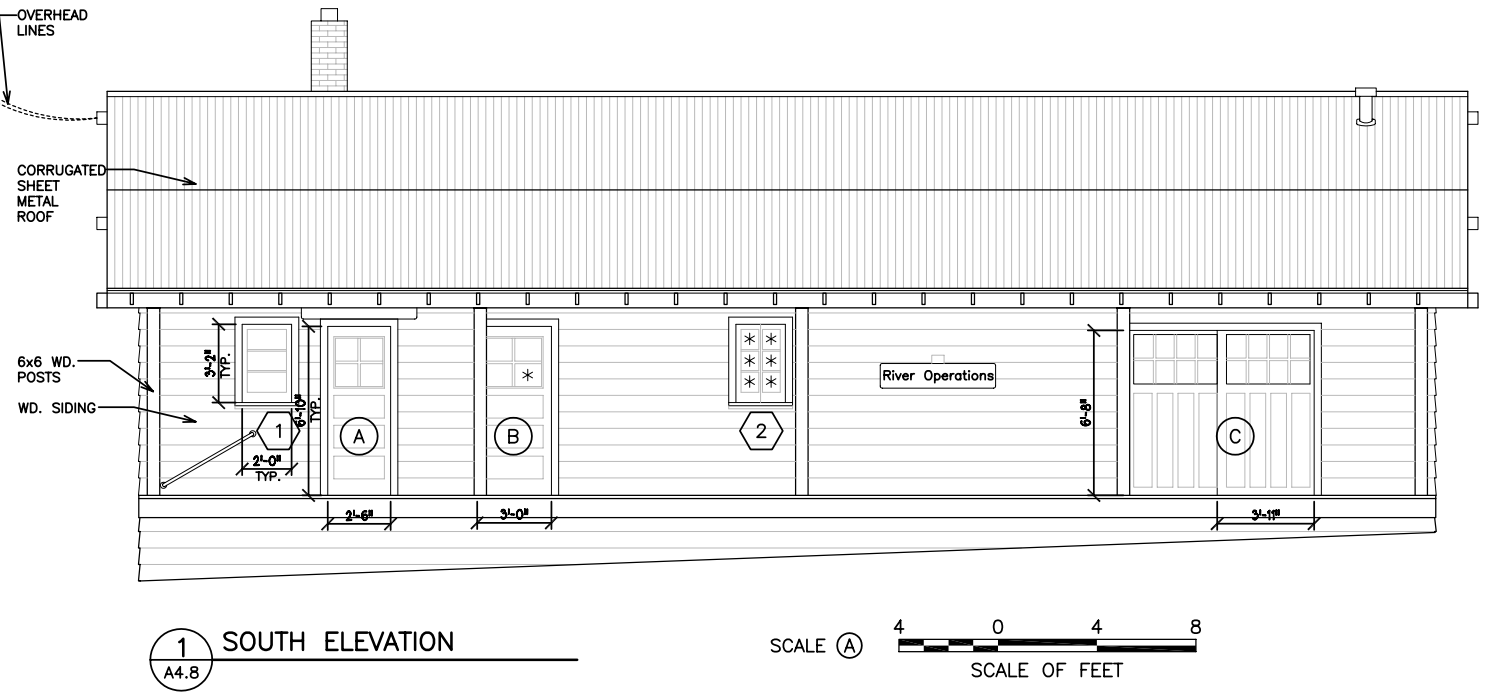
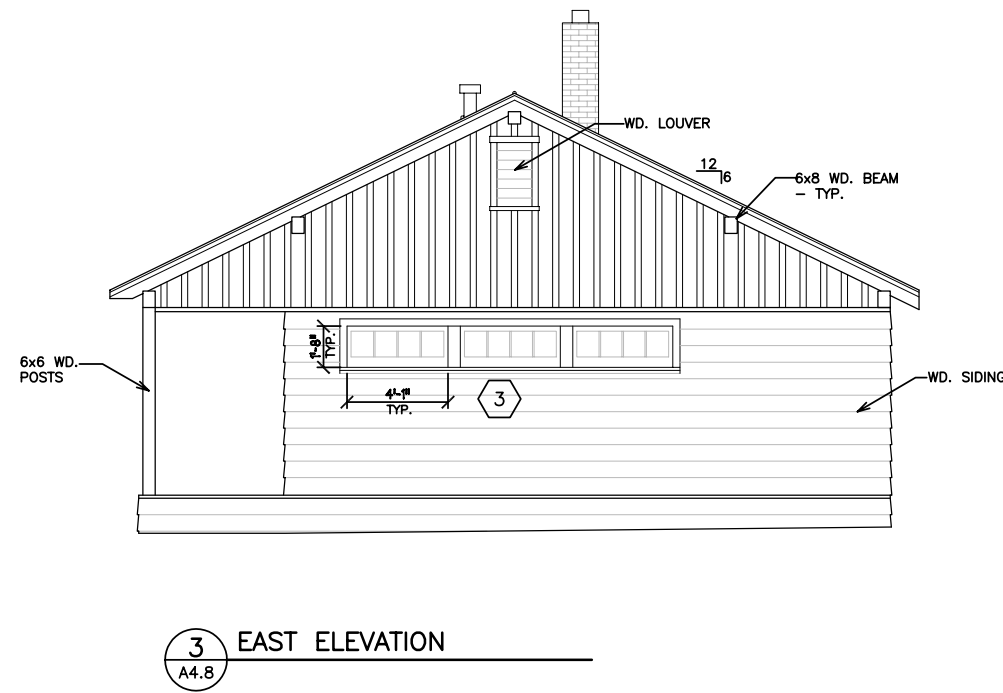


EXISTING CONDITIONS - 2006

DESIGNED: GADD BSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0090 ECW Warehouse GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25022 PMIS/PKG. NO. 084236 SHEET 1 OF 2
TECH. REVIEW:	DATE: 04/13/07		



KEY NOTES:
 * HISTORIC RIPPLE GLASS
 X BROKEN OR MISSING GLASS



EXISTING CONDITIONS — 2006

DESIGNED: GADD BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0090 ECW Warehouse GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25022
TECH. REVIEW:			PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

ECW Warehouse



Identification:

Preferred Structure Name: ECW Warehouse

Name:

Structure Number: SRB0090

Other Structure Name(s):

	Other Structure Name(s)
1.	Sunset Drive Appliance Shed
2.	Plumbing and Sheet Metal Shop

Park: Grand Canyon National Park

Historic District:

	Historic District
1.	Grand Canyon Village

Structure State: Arizona

Structure County: Coconino

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

Unit:

LCS ID: 055419

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Register Status: Entered - Documented

Status:

National Register Date: 02/18/1997

Register Date:

National Yes

Historic

Landmark?:

National 02/18/1997

Historic

Landmark

Date:

Significance Contributing

Level:

Short

Significance

Description:

Utility bldg since erected by CCC in 1930s. Located in old CCC camp area designated NPS utility area in 1924 Plan prep by NPS Landscape Eng Div. Example of rustic utility bldg. District meets NHL Criterion 1& 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long

Significance

Description:

The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the village's major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1935	AD	1936	AD	NPS/CCC	Other
2.	Rehabilitated	1994	AD			NPS	Other

Function and Use:

Primary Function: Warehouse (General Supply Storage)

Historic Function:

Current Use:

Primary Current Use: Government Office

Structure Contains Museum Collections?:

No

Other Functions or Uses:

Other Function(s) or Use(s)	Historic or Current
No records.	

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

1173

Material(s):

	Structural Component(s)	Material(s)
1.	Roof	Metal
2.	Walls	Weatherboard
3.	Framing	Wood
4.	Foundation	Concrete
5.	Other	Brick

Short Physical Description: 1 story wood frame utility structure 24'x60'. Gable roof with exposed rafter ends, lookouts, corrugated sheet metal roofing. Load dock on wood columns. Horizontal wood lap siding, board & batten at gable ends with louvered vents. Wood casement windows. Concrete foundation, brick chimney.

Long Physical Description: 1 story wood frame utility structure 24'x60'. Gable roof with exposed rafter ends, lookouts, corrugated sheet metal roofing. Load dock on wood columns. Horizontal wood lap siding, board & batten at gable ends with louvered vents. Wood casement windows. Concrete foundation, brick chimney.

Condition and Impacts:

Latest Fair

Condition:

Latest Year 2006

Assessed:

Conditions:

	Condition	Year Assessed
1.	Fair	1996
2.	Fair	2006

Impact Level: Low

Primary Tenants/Occupants

Impact:

Other Impacts:

	Other Impact Type
1.	Weather
2.	Park Operations
3.	Structural Deterioration

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Must Be Preserved and Maintained

Category:

Management 08/08/2006

Category Date:

Management - Treatment:

Latest Est. 0

Interim

Treatment

Cost:

Latest Ultimate Rehabilitation

Treatment:

Interim
Treatment:

	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate
Treatment:

	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management	08/21/1995	National Park Service	Yes	No	

		Plan			
	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	300000	08/01/1995	

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility: National Park Service

FMSS Number: 33416

Management - Description:

Short Management Text: GMP specifies adap reuse of NPS utility are bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/SF). Maint fns to be reloc. Revise RMP to spec pres trmt.

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 90		2
3.	Other Structure Number	CB59		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	XXX Form 1517 (2/1/94)		5
6.	Other	1995 Mult Prop List, McClelland		6
7.	Other	1993 Rehab Plan, Robinson, Osman		7

Documentation Level: Good




Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0090, ECW Warehouse	08/2006	1

				
2.		SRB0090, ECW Warehouse	08/2006	2
3.		SRB0090, ECW Warehouse	08/2006	3

Certified By:

Latest Certified 2006
Year:

Latest Certified August
Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0094 STORAGE BUILDING

1936

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The original plans for this Storage Building were approved in 1936. The building was ECW Project #416, and work was conducted by the ECW company based at Camp NP4A (Drawing 3164 Grand Canyon Museum Collection). The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources estimates a construction cost for the project of \$2,000.

Construction is largely wood post and beam with dimensional lumber trusses. Park Service construction drawings, dated March 13, 1936, show the original storage building with only five bays, suggesting the remaining three bays on the south end were added later. Physical evidence supports this.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

Three bays were added, set into the hillside, on the south end of the building.

The building generally is in need of maintenance. Roof connection issues should be addressed, and the large swinging doors have weathered badly and should be repaired.

OTHER DOCUMENTED WORK ON THE BUILDING

None.

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
1936-1949	Addition of 3 south bays

1.3 PHYSICAL DESCRIPTION

The Park Service Storage Building is a wood post and beam storage structure with a simple gabled roof. It is long and rectangular in its configuration, and features a corrugated sheet metal roof, horizontal lap siding with large vertical board doors.

The interior configuration lends itself well to its current use as general storage with a columned main floor space partitioned at intervals for material separation.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof is an offset gable running north-south with the short side on the west. The roofing consists of a light gauge corrugated, galvanized sheet metal on 1x12 planks at 24" o.c. The planks are set on 2x6 trusses at 24" o.c. The sheet metal is attached with neoprene gasketed roofing screws at every other plank (48" o.c.) with screws at 4-8" horizontally. The ridge cap flashing is a round-over type with corrugated sides. The top of the north window is flashed, but there is no other flashing. The roofing extends up the sides of the stone wall on the south end and is attached to the face.

ARCHITECTURE - OVERHANGS & SOFFITS

The roof overhangs by 24" on the east, north and west sides. The overhang consists of exposed rafter tails, sheathing and the underside of the roofing. Everything is painted brown. The rafter tails are cut off level to taper down to 2" at the ends. The east overhang is only 18" above grade at the south end. The eave rafters on the north gable end are supported by 6x6 outriggers that cantilever beyond the building wall. A 1x2 trim piece covers the end of the sheathing at the north end and is attached to the top of the rafters.

ARCHITECTURE - EXTERIOR WALL FINISHES

The exterior siding on the east and north walls (above grade) and on parts of the west wall consist of 1x12 lap siding with a 10" exposure. The south end of the building is built against a random ashlar, red sandstone retaining wall.

ARCHITECTURE - MASONRY

The south wall and south end of the east wall is a random ashlar, red sandstone retaining wall.

The foundation on the east and north walls is a stepped concrete retaining and foundation wall. The concrete is board formed and steps +/- 9" every 12-14' along the east. Interior walls and posts sit on splayed (canted, sloped) concrete foundations. The posts on the west side sit on splayed 8x8 concrete pads.

ARCHITECTURE - WINDOWS

Windows (1-5)

These "windows" are single units with wire screen for ventilation. The top rail and stiles are 1 1/2" and the bottom rail is 3". Evidence of glazing putty still exists in the opening. The 3 1/2" flat wood trim surrounds the openings and a 1 1/2" sill spans each unit. These units are unfinished on the interior. (Photos 0094-116, 0094-117)

Window (6)

This is a wood three unit assembly with 3 1/2" structural wood mullions. The window units have been removed and replaced with painted plywood infill. 3 1/2" flat wood casing surrounds the openings. (Photo 0094-118)

ARCHITECTURE - EXTERIOR DOORS

All of the doors on this building are mounted directly to building posts with headers above that create a visual frame at all doors.

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1.3 PHYSICAL DESCRIPTION

Exterior Doors (A-H)

These double-leaf "barn doors" are constructed of 1/2" x 7" tongue and groove planks. Each leaf is supported by two large 2" x 24" two-segment strap hinges with adjacent hinges made to fit together - back to back. Each pair of doors is secured with a triangular steel padlock strap. These leaves do not have meeting rails/astragals but rather secure to each other. The hinges are bolted to structural posts. These doors all swing outward.

Exterior Door (G)

This is a narrower double leaf door assembly similar to (A-H). Each leaf is supported by three triangular hinges. The top and bottom hinges are 4"x10" steel, and the middle ones at 1 1/2" x 4" steel mounted on the exterior posts.

ARCHITECTURE - WALL/CEILING FINISHES

There are no ceiling wall finishes in this shed structure, with the exception of two walls toward the north end that are sheathed in unfinished, horizontally-oriented 1x8 wood planks. All of the other assemblies represent the inside surfaces of the exterior walls and roof structure.

ARCHITECTURE - TRIM & MILLWORK

A rough-sawn, heavy timber (4x4 post and beam) structure supports two (plus) levels of wood planks or plywood shelving throughout this building. Only the center section has no shelving (other than some recent, 2x4-supported plywood on the north side).

ARCHITECTURE - FLOOR

The building is divided into seven and a half bays as defined by the double doors on the west elevation. Starting at the north, the first bay's flooring is unfinished 2x6; the next three bays have pea gravel; the fifth has unfinished 2x6 tongue and groove flooring; and the last two and a half have pea gravel.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The gravel yard in front of the building and the large, barn-type doors render the building inaccessible. (Photos 0094-119 and 0094-120)

Once inside, the floor is either an extension of the gravel yard or a step up to a plank floor/storage bin, neither of which condition complies with ABAAS. (Photo 0094-136)

STRUCTURAL - SIZES / SPANS / SUPPORT

FLOOR FRAMING:

The southern addition has a gravel floor. The original building has two different floor systems.

In the northern and southern bay the floor is 2x planking over 2"x5-1/2" joists spaced at 16". The joists bear on a ledge in the side of the concrete foundation walls running east/west at each side of these bays.

SRB-0094 STORAGE BUILDING

1936

1.3 PHYSICAL DESCRIPTION

In the other three bays, 1x planking spans up to 5' to 2-1/2" x 5-1/2" girders. Girders are side-bolted to wood columns spaced at 4' in the north/south direction and from 3' to 5' in the east/west direction (photos 0094-136 & 137)

FOUNDATION:

The perimeter foundation is typically a 12" thick cast-in-place concrete stem wall which steps up to the south to match rising grade (Photo 0094-133). No footing was visible, but the historic drawings indicate that the wall is thickened to the inside to yield a 1'-4" wall below grade. A separate footing is not shown.

At the southern addition the foundation appears to be a continuation of the 16" thick stone wall seen above grade. No footing was visible.

The foundation at the west wall is a series of cast-in-place concrete piers under each column (Photo 0094-127).

According to the historic drawings, these piers taper to provide a 1'-4" square base below grade.

No reinforcing is indicated for any of the foundation elements.

The interior foundations supporting the numerous wood columns are also tapered cast-in-place concrete piers (Photo 0094-137). Size varies from 12" square to 16" square at the base.

The original building also contains two east/west running strip footings at the first and fifth bays from the north wall. The historic drawings indicated that these were to be 8" wide at the top and taper to form a thicker base below grade.

Historic drawings dated April 4, 1936 were reviewed during the assessment. These drawings appear to be a fairly accurate representation of the original portion of the building. No drawings showing the south addition were available at the time of assessment.

ROOF FRAMING:

The offset gable roof is a propped rafter system with collar ties matching the rafter bearing elevation at the west side of the building (Photos 0094-134 & 135).

The roof is constructed with corrugated metal sheathing over 1x skip sheathing.

Rafters are 2" x 5-1/2" spaced at 24"+/-. The western portion of the gable is the shorter side of the gable. Rafters here run from a 2x6 ridge board down to 6x6 headers and then cantilever out to form the eave (Photo 0094-129).

The span is about 7'. 6x6 headers span about 8' over seven sets of double doors. Girders are supported at each door jamb by 6x6 wood columns.

The eastern rafters run from the 2x6 ridge board down to a 6x8 interior girder line and then to the east exterior stud wall. They then cantilever out to form the eave (Photo 0094-128). The span is about 7'. At the southern addition, the stud wall transitions to the stone retaining wall which eventually rises above the roof due to the height of the grade behind the building. The first seven rafters from the south wall are not supported by the wall (Photos 0094-131 & 132). A flat 2x4 beam about 2' from the stone wall

SRB-0094 STORAGE BUILDING

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1.3 PHYSICAL DESCRIPTION

supports 5 of these rafters. The 2x4 spans about 4' between 4x4 wood columns. The two rafters nearest the south wall are unsupported at the east end.

The 6x8 interior girder spans about 9' between 6x6 wood columns (Photo 0094-133). In one location, a grade stamp is visible indicating the wood species is Douglas-fir, No.1 grade. In the southern addition, the interior girder is a 6x6 spanning 4' between 4x4 or 6x6 wood columns.

Collar ties are 2x4 or 2x6 horizontal members spaced to match, and side nailed to each rafter. In the northern part of the building a 1x4 vertical sag board extends from the rafters down to the collar tie at the ridge. There is no such board in the southern addition.

A 1x board typically ties the rafters together just below the ridge.

In nearly every bay there are various wood posts and other framing for shelving which is tied to the roof members. These elements are likely carrying unintended roof loads.

WALL FRAMING:

Exterior walls are 2x4 studs at 24" with 1x horizontal lap sheathing on the exterior and no finish on the Interior (Photo 0094-133). This sheathing acts as the lateral force resisting system for the building. The wall has a double 2x4 top plate. The sill plate is 2x6 with 3/8" diameter anchor bolts at unknown spacing. The wall gets progressively shorter to the south as the foundation wall steps up to match rising grade. The walls transition from studs to a 16" thick ashlar stone wall set in concrete at the east and south walls of the south addition.

MECHANICAL

No mechanical system in this building.

ELECTRICAL

No electrical system in this building.

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1936

1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0094-105, 0094-106)
- Overhangs – The simple roof extension overhangs reveal the underside of the roof structure with features such as exposed rafter tails. (See photo 0094-108)
- Gable end beams – Large, simple wood beams support the gable end overhangs.
- Horizontal lap siding, typical of park style architecture. (See photo 0094-110 through 0094-112)
- Wood batten doors – These doors reflect its original function as a lumber shed. Batten doors appear throughout the complex. The large wood double doors are characteristic of a storage building.
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex.
- Wood windows with clear glass – This building features two window styles, both are wood, with clear glass or wire screen panels. There are no exterior storm windows. Windows have flat casings inside and out, and thick, 2" sills.

1.5 GENERAL CONDITION ASSESSMENT

The Park Service Storage Building is in fair condition with the exception of a few items. The windows are showing weathering at the sills with peeling paint. The exterior doors are in poor condition with severe deterioration due to weathering.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

SRB-0094 STORAGE BUILDING

1936

1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: FAIR

The roofing is in fair condition. It is attached in only half the necessary locations and is of relatively light gauge. The gutter/roof situation at the southeast corner does not allow proper drainage and the build up of needles and other plant debris inhibits drainage off the roof. The turned-up roofing at the retaining wall is not properly attached or sealed and leaks. The ridge cap is not well secured and will allow water to penetrate in a driving rain.

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: GOOD

The overhangs are in good condition. There is a small piece of 1x2 trim missing at the east end of the north gable.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: GOOD

The siding on the east and north sides is in good condition with very little splitting. The small sections of siding on the west side are in poor condition with some pieces missing, others split, cracked or broken and all heavily weathered.

ARCHITECTURE - MASONRY

CONDITION: GOOD

All of the concrete foundations and pads are in good condition. The sandstone retaining wall is in good to fair condition with some loose and missing mortar. All of the stone itself is intact. There is evidence of efflorescence on the inside of the south wall.

ARCHITECTURE - WINDOWS

CONDITION: FAIR

Windows (1-5)

Paint is peeling on the sills and the frames are weathering at the openings. Wood appears intact however. These units should remain without glass as they serve as critical ventilation for the storage area.

Window (6)

Paint is peeling from the sill. The window sash are missing, detracting from the historic character. This is a storage building, however, and the glass may have been vulnerable to breakage, so restoring the unit may be impractical.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: POOR

Exterior Doors (A-G)

All of these doors have experienced severe weathering. Boards are cupped, paint has peeled off of the bottom 18-24". Some boards have cracked and lost material, and six hinges need repair.

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1.5 CONDITION ASSESSMENT

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **GOOD**

The wood planks are in good condition.

ARCHITECTURE - TRIM & MILLWORK

CONDITION: **GOOD**

In general, much of the shelving structure and some of the shelving appears to be original or of early construction and is in good condition.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

The flooring is in good condition with the exception of one of the tongue and groove board floor which has splintered on its leading edge, creating a tripping hazard.

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **GOOD**

Floor framing and foundations are generally in good condition with no obvious signs of distress or deterioration.

CONDITION: **GOOD**

Roof framing is generally in good condition with no obvious signs of distress or deterioration excepting the two unsupported rafters at the south end of the building. There is also evidence of water infiltration and damage to the roof sheathing and joists at this location (Photo 0094-132).

MECHANICAL

CONDITION:

N/A

ELECTRICAL

CONDITION:

N/A

SRB-0094 STORAGE BUILDING

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2.1 ULTIMATE TREATMENT AND USE

The building has always been a storage facility, and is not suited for much else. Rehabilitation is the recommended ultimate treatment for this building.

The following section is a discipline-by-discipline, component-by-component description of the building.

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1936

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **MODERATE**

The trees overhanging the south end of the roof should be trimmed back or removed completely. New sheet metal flashing should be installed at the south and east retaining walls and should be stepped along the wall at appropriate intervals with a minimum 8" coverage on the wall.

Reattach all of the roofing with fasteners at 6-8" o.c. and vertically at 2'-0" o.c. along the slope of the roof. Reattach the cap flashing at 6-8" o.c. All fasteners should be installed through the high points of the corrugations.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

Install a new 1x2 trim piece to replace the missing trim. Scrape and repaint.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **LOW**

The split, missing, or broken siding pieces between the doors on the west wall should be replaced with new material to match the species, grade, pattern, and profile of the existing wood siding. Scrape and repaint all siding.

Keep vegetation trimmed back from exterior of building.

ARCHITECTURE - MASONRY

PRIORITY **LOW**

No treatment is necessary on the concrete foundation and pads. The stone retaining walls should have loose mortar removed and should be re-pointed with new mortar designed to match the strength and visual characteristics of the original mortar. Vegetation adjoining the retaining walls should be removed to prevent future damage to the masonry wall. Soil behind the wall should be dug out and the back of the stones should be waterproofed before backfilling again. Efflorescence should be cleaned off the interior surface of the wall.

ARCHITECTURE - WINDOWS

PRIORITY **LOW**

We do not recommend replacement of these windows for any condition except complete un-repairable deterioration.

All Windows (1-6)

Recondition these units including, but not limited to:

1. Strip all layers of paint from wood using gentlest means possible. Some experimentation will be required.
2. Arrest wood deterioration with an epoxy wood consolidant, followed by an epoxy filler where material has decomposed.

SRB-0094 STORAGE BUILDING

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2.1 TREATMENT RECOMMENDATIONS

3. All of the hardware should be cleaned and oiled where needed. Care should be taken when repainting not to paint the hardware again.
4. Repaint each unit with primer and two coats of exterior paint. We recommend conducting a paint analysis to determine the color and sheen of the original paint.
5. For Windows (1)-(5), Re-screen each unit. At Window (6), Reglaze each unit using impact-resistant clear glazing. Install weathstripping at all windows.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **MODERATE**

Reconstruct all of these doors using as much original material as possible. Replacement material should match the original as closely as possible. Repair steel hinges and re-attach all of the doors. All of the hardware should be cleaned and oiled. Care should be taken when repainting not to paint the hardware again.
Install weatherstripping at all exterior doors.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - TRIM & MILLWORK

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

Removing, reversing the splintered tongue and groove board and reinstalling it would mitigate the tripping hazard. No other work is recommended.

ARCHITECTURE - ACCESSIBILITY

PRIORITY **LOW**

This building is listed as a Tier 3 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it is, by its nature, a storage building which can not reasonably be adapted to other uses. Hence, ABAAS alterations should not be anticipated.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **LOW**

No work is recommended at this time.

SRB-0094 STORAGE BUILDING

1936

2.1 TREATMENT RECOMMENDATIONS

PRIORITY **LOW**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements.

The rafters and sheathing at the south end of the building should be supported and replaced as necessary. The rafters could be re-supported by adding on to the existing beam to the north with a new post at the south end.

MECHANICAL

PRIORITY

N/A

ELECTRICAL

PRIORITY

N/A

SRB-0094 STORAGE BUILDING

1936

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance Area overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building the Storage Building will likely never be restored. However, some elements may benefit from *restoration*, such as windows, doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. Some elements may need *reconstruction*, such as the post. Still other issues will require *rehabilitation*, to address the existing code-deficient conditions (possible structural issues, fire safety, etc.) and useful building life.

If a new use is established for this building that requires conditioned air, security, or technology, the park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

This building is currently used solely for storage. Recommendations for the structure are minimal and reparative, with very little alteration needed. Therefore, there are no significant effects from the treatments outlined in this report for the Storage Building.

SRB-0094

STORAGE BUILDING

1936



West Elevation Bldg 0094 – 2006



North Elevation Bldg 0094 – 2006

SRB-0094

STORAGE BUILDING

1936



East Elevation Bldg 0094 – 2006



South Elevation Bldg 0094 – 2006

SRB-0094 STORAGE BUILDING

1936



Offset Gable Roof 0094 - 105



Light Gauge Corrugated, Galvanized Sheet Metal 0094 - 106

SRB-0094 STORAGE BUILDING

1936



Roofing Attached to Stone Wall 0094 - 107



Roof Overhang - All Painted Brown 0094 - 108

SRB-0094 STORAGE BUILDING

1936



6x6 Beam End Cantilevering 0094 - 109



Exterior Wall Finishes 0094 - 110

SRB-0094 STORAGE BUILDING

1936



1x12 Lap Siding 0094 - 111



1x12 Lap Siding 0094 - 112

SRB-0094 STORAGE BUILDING

1936



Random Ashlar, Red Sandstone Retaining Wall 0094 - 113



Sandstone Retaining Wall 0094 - 114

SRB-0094 STORAGE BUILDING

1936



Sandstone Retaining Wall 0094 - 115



Windows (1-5) 0094 - 116

SRB-0094 STORAGE BUILDING

1936



Typical Window (1-5) 0094 - 117



Window (6) 0094 - 118

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Exterior Door (A) 0094 - 119



Exterior Door (B) 0094 - 120

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Exterior Door (C) 0094 - 121



Exterior Door (D) 0094 - 122

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Exterior Door (E) 0094 - 123



Exterior Door (F) 0094 - 124

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Exterior Door (G) 0094 - 125



Exterior Door (H) 0094 - 126

SRB-0094 STORAGE BUILDING

1936



Southwest Elevation Stone and Spot Footings 0094 - 127



Rafter Tails at East Eave 0094 - 128

SRB-0094 STORAGE BUILDING

1936



Rafter Tails at West Eave 0094 - 129



South Elevation of Stone Wall 0094 - 130

SRB-0094 STORAGE BUILDING

1936



Roof and Stone Wall at Southeast Corner 0094 - 131



Unsupported Rafters at Southeast Corner 0094 - 132

SRB-0094 STORAGE BUILDING

1936



Typical East Perimeter Wall and Interior Wall 0094 - 133



Typical Roof Framing 0094 - 134



Typical Roof Framing 0094 - 135



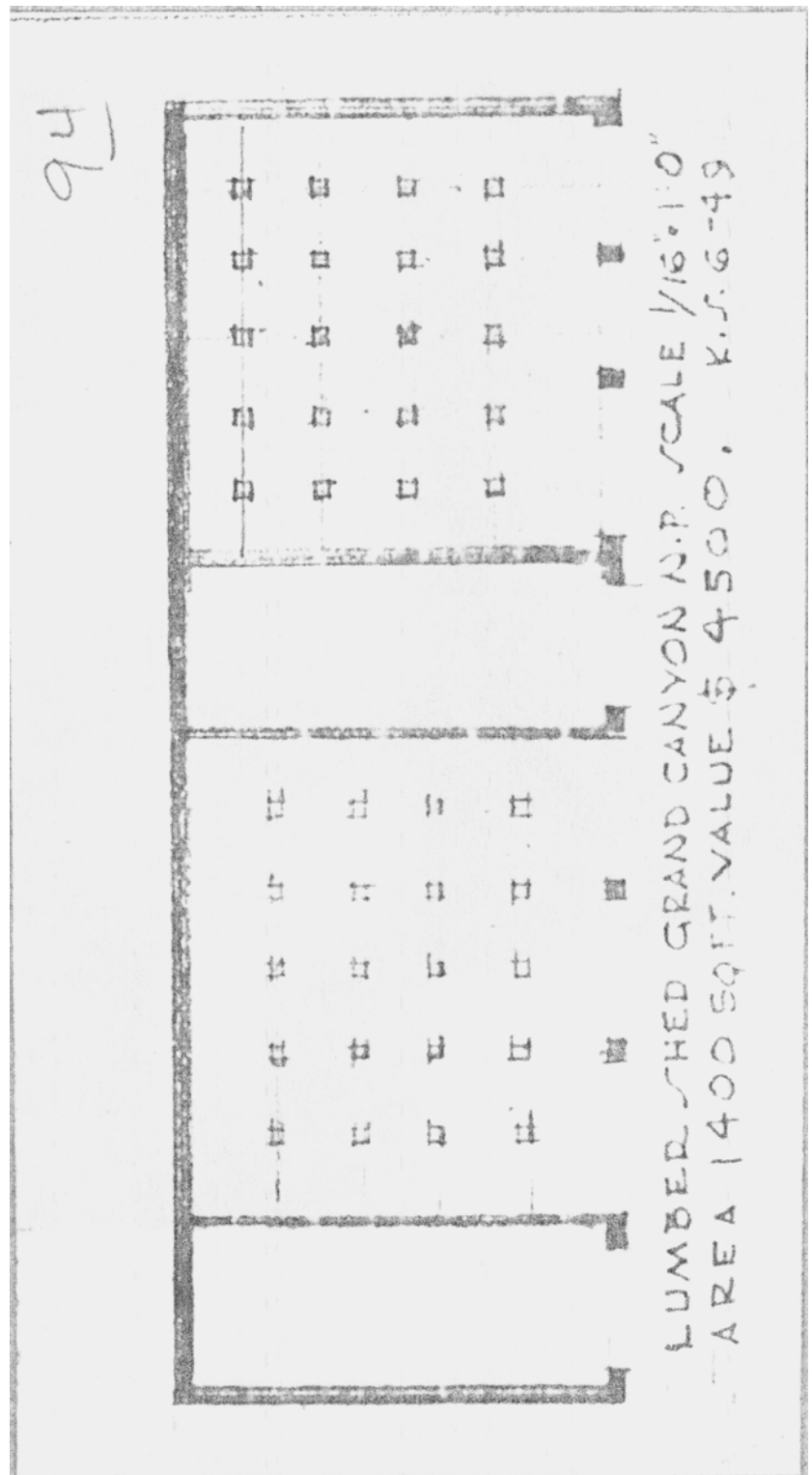
Typical Floor Framing at North Bays 0094 - 136



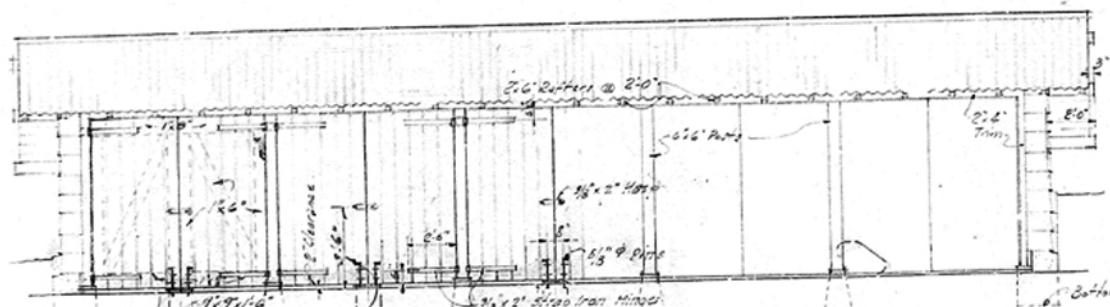
Typical Interior Floor Girders and Foundations 0094 - 137

SRB-0094 STORAGE BUILDING

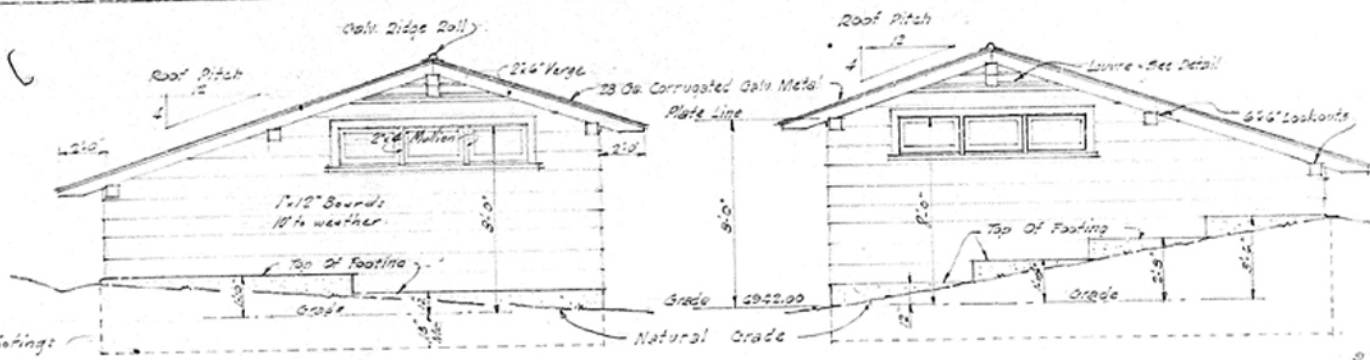
1936



1949 Survey Plan – Building 94
Grand Canyon National Park Office of Cultural Resources

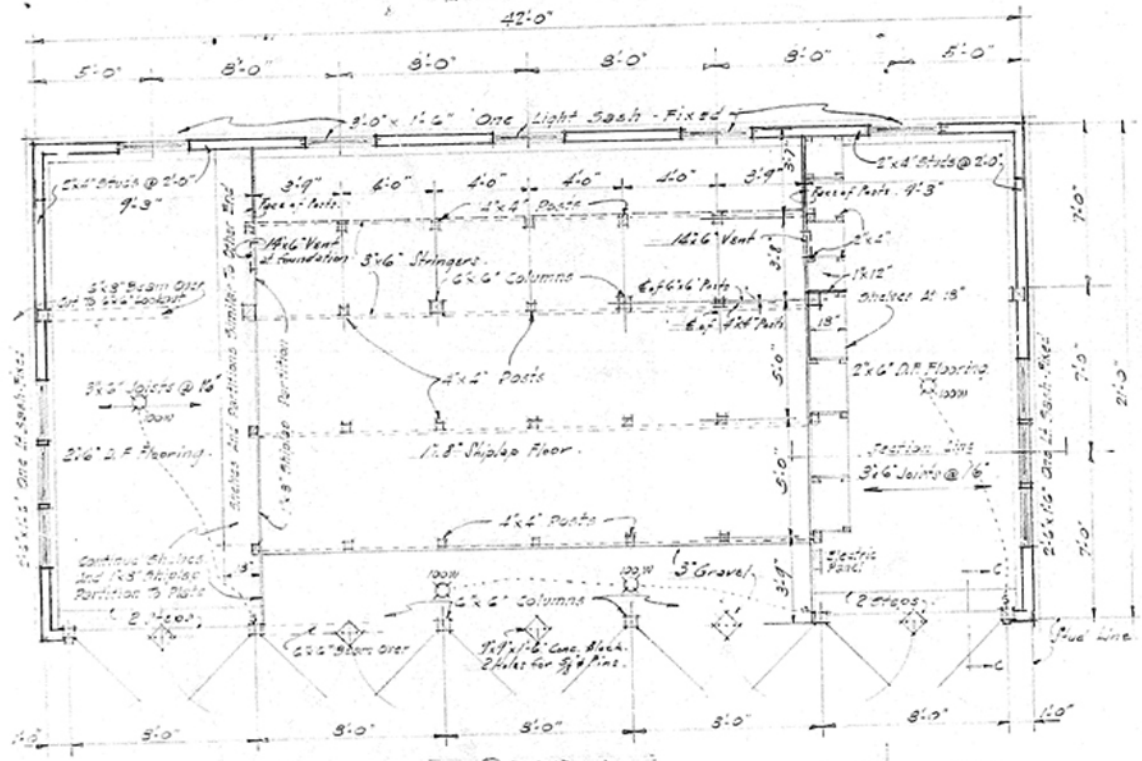


FRONT ELEVATION

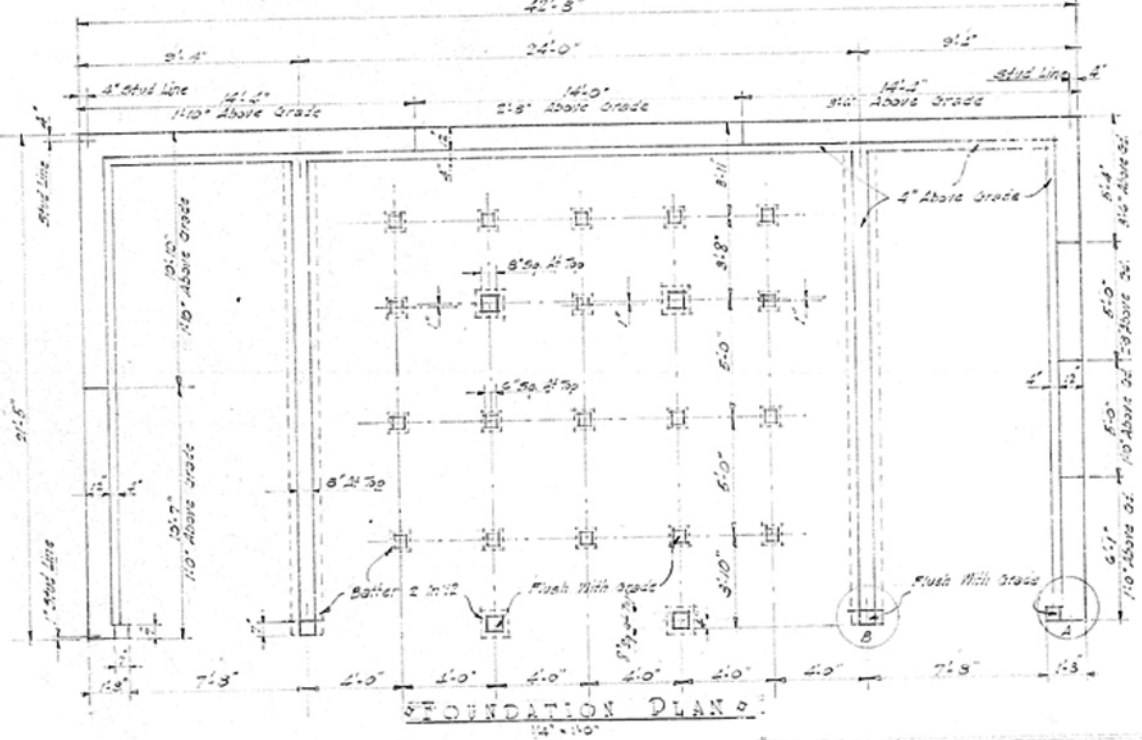


NORTH ELEVATION

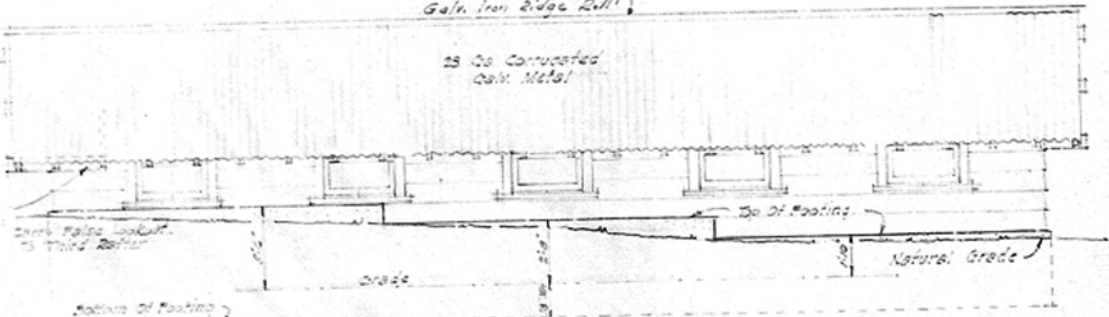
SOUTH ELEVATION



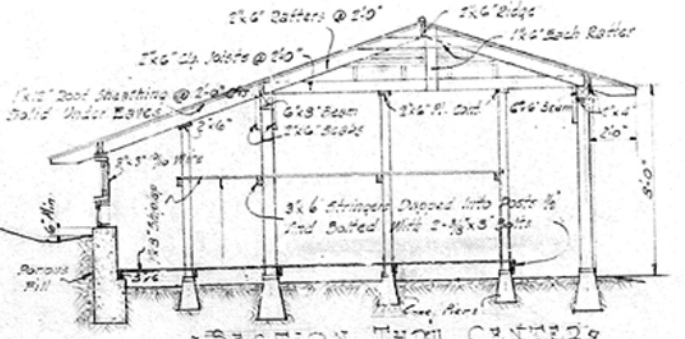
FLOOR PLAN



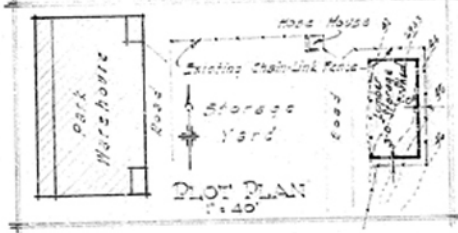
FOUNDATION PLAN



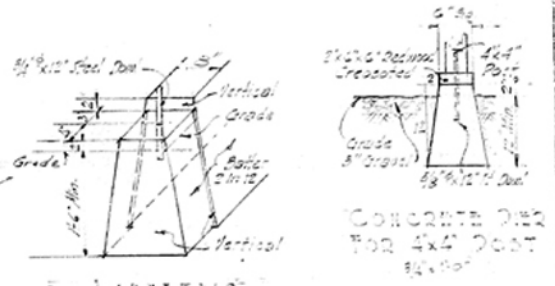
REAR ELEVATION



SECTION THRU CENTER

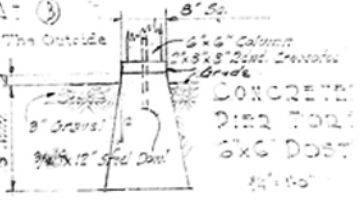


PLOT PLAN



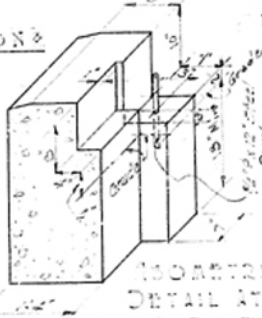
1/8" = 1'-0" DETAIL AT 1

Looking From The Outside

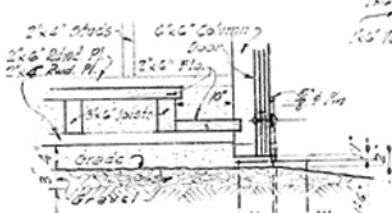


1/8" = 1'-0" DETAIL AT 2

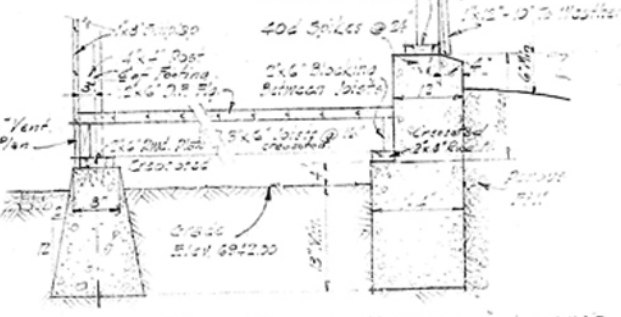
Looking From The Inside



1/8" = 1'-0" DETAIL AT 3



1/8" = 1'-0" DETAIL AT 4

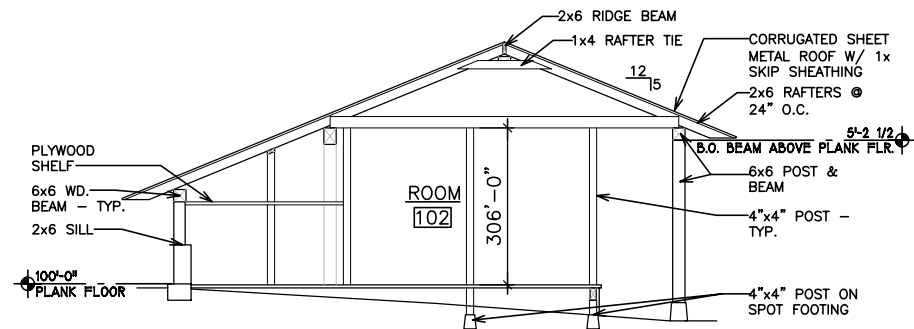


SECTION THRU FLOOR, WINDOW & LOUVERS

Drawn by E.C.M. # 111	Recommended Cleared For Eng. Cleared For L.C.W.	W. S. Carner County Chief Architect J. H. Gurney J. H. Gurney	Date 3-21-36 Date 3-21-36 Date 4/1/36	REPRESENTATIVE OF THE INTERIOR NATIONAL FIRE INSURANCE CO.
77 Placed A.D. 4-A	Concurred Concurred Approved	W. S. Carner J. H. Gurney J. H. Gurney	Date 4-1-36 Date 4-1-36 Date 4/1/36	GRAND CANYON NATIONAL PARK ONE OF THE NATIONAL MONUMENTS
				LUMBER STORAGE SHED

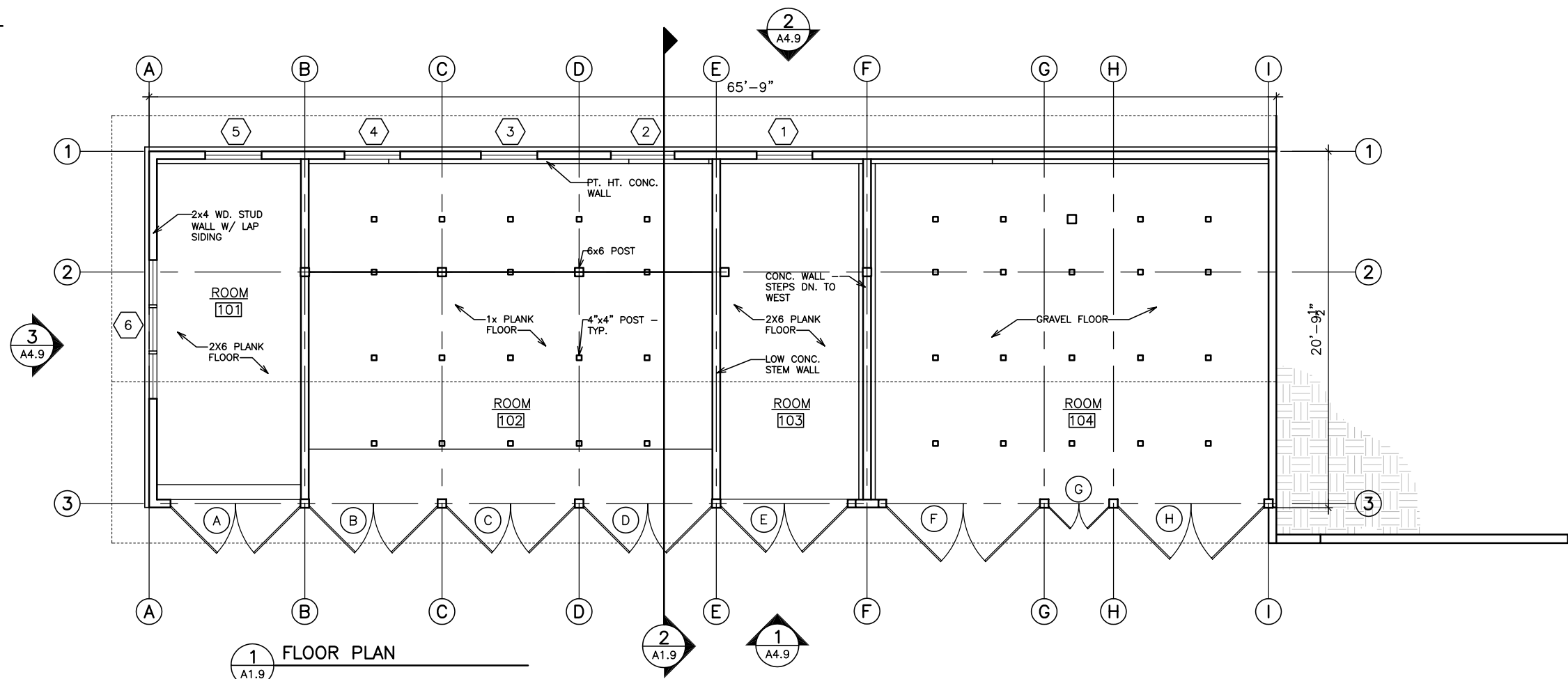
HALF-SIZE REPRODUCTION

1936 - 113 - 3164



NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION

2 SECTION
A1.9



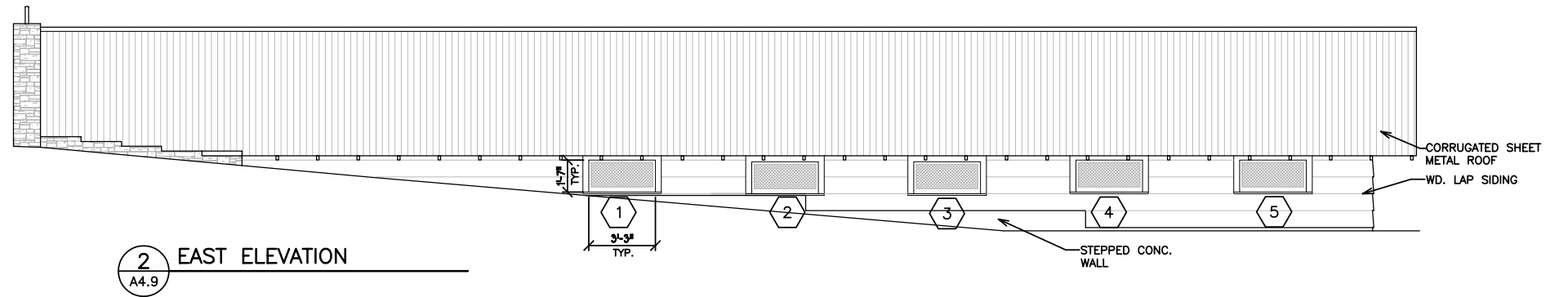
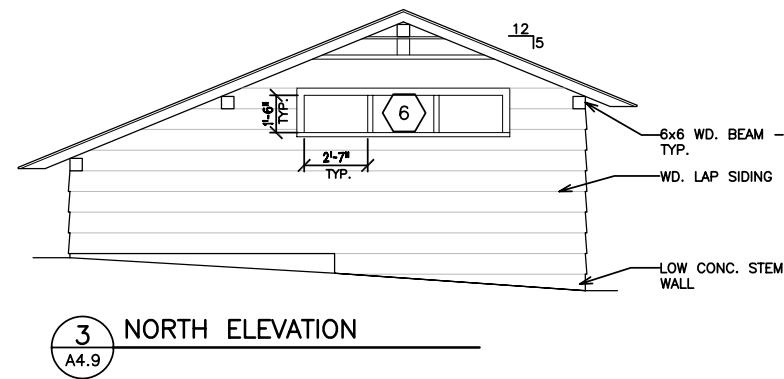
1 FLOOR PLAN
A1.9

SCALE (A) 4 0 4 8
SCALE OF FEET

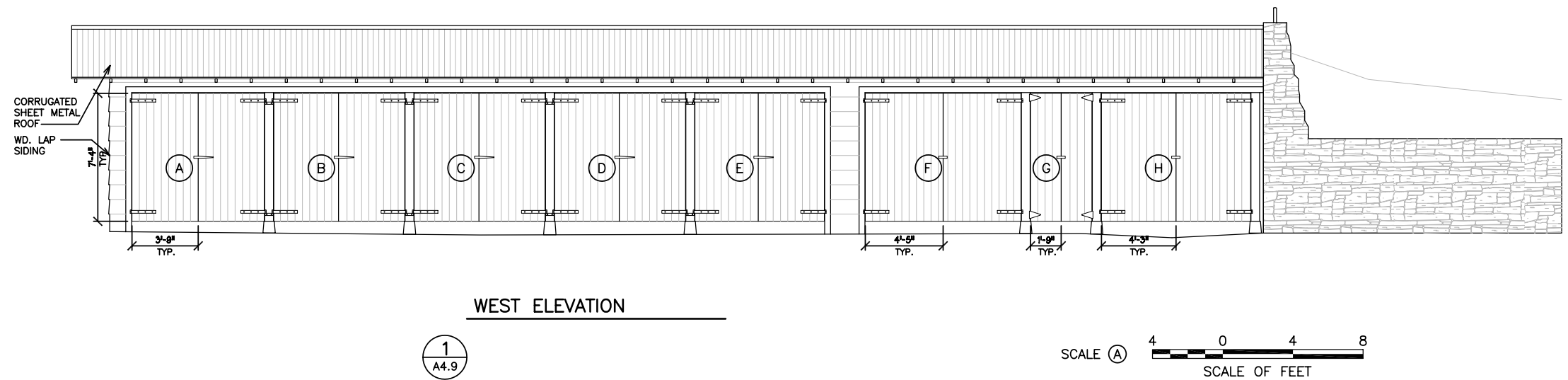


EXISTING CONDITIONS - 2006

DESIGNED: BBSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0094 Storage Building	DRAWING NO. 113 25023
TECH. REVIEW:		GRAND CANYON NATIONAL PARK ARIZONA	PMIS/PKG. NO. 084236
DATE: 04/13/07			SHEET 1 OF 2



KEY NOTES:
 * HISTORIC RIPPLE GLASS
 X BROKEN OR MISSING GLASS



EXISTING CONDITIONS — 2006

DESIGNED: BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0094 Storage Building GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25023
TECH. REVIEW:			PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

Lumber Shed



Identification:

Preferred Lumber Shed

Structure

Name:

Structure SRB0094

Number:

Other

Structure

Name(s):

Other Structure Name(s)	
1.	Sunset Drive Old Warehouse Shed
2.	Storage Building

Park: Grand Canyon National Park

Historic

District:

Historic District	
1.	Grand Canyon Village

Structure Arizona

State:

Structure Coconino

County:

Region: Intermountain

Cluster: Colorado Plateau

Administrative Grand Canyon National Park

Unit:

LCS ID: 055421

UTM:

Zone	Easting	Northing	Source	Datum
No records.				

Historical Significance:

National Entered - Documented

Register

Status:

National 02/18/1997

Register Date:

National Yes
 Historic
 Landmark?:

National 02/18/1997
 Historic
 Landmark
 Date:

Significance Contributing
 Level:

Short 1 of multi 1930s utility bldgs blt in former CCC camp following 1924 Plan prep by NPS Landscape Eng
 Significance Div. Vernacular rustic utility bldg in continuous use, retains orig CCC sign. District meets NHL Criterion
 Description: 1&4 for American park movement & landscape arch. Period of sig 1897-1942.

Long The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of
 Significance park architecture in the national park system. The buildings of the historic district represent an entire
 Description: range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the
 canyon, the older resort architecture is typically more elaborate and eclectic than the official structures
 commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive
 Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on
 upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This
 consistent idiom connected all the official buildings in the parks, together projecting a strong sense of
 official responsibility and appropriate sensibility. In the residential subdivision of the village, an
 architectural distinction was made between the concessionaire residences and the Park Service
 residences. The simpler bungalows on the Park Service side were designed with front doors accessing
 semi-public pedestrian paths. The larges residences on the concessionaire side presented more
 decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association
 with the American park movement and Criterion 4 as an exceptionally valuable example of American
 landscape architecture, specifically as the most significant example with the greatest integrity of National
 Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National
 Register Criterion A for its association with the American park movement and Criterion C as an example
 of American landscape architecture, specifically as a unique and outstanding example of community
 planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded
 10/24/1995), significant under Criterion A for its important association with the development of Grand
 Canyon National Park, and under Criterion C as an example of community planning within a national park,
 and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and
 today, Grand Canyon Village represents the most historically significant park village plan, with the
 greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided
 the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park
 Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through
 roads, was developed; a central "plaza" had the villages major public buildings sited around it. The plan
 for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and
 helped put National Park Service planning on the course it would follow at least until World War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1935	AD	1937	AD	NPS/CCC	Other

Function and Use:

Primary Function: Warehouse (General Supply Storage)

Historic Function:

Current Use:

Primary Function: Warehouse (General Supply Storage)

Current Use:

Structure Contains: No

Museum Collections?:

Other Functions or Uses:

Other Functions or Uses:	Other Function(s) or Use(s)	Historic or Current
	No records.	

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

1400

Material(s):

	Structural Component(s)	Material(s)
1.	Walls	Weatherboard
2.	Foundation	Concrete
3.	Roof	Metal
4.	Foundation	Stone
5.	Framing	Wood

Short Physical Description: 1 story wood frame utility structure 24'x60'. Asymmetrical gable roof with exposed rafters, corrugated metal roofing. Horizontal wood lap siding with wood casement windows, garage doors. Concrete & stone foundation. 12' L-shaped stone retaining wall of coursed ashlar masonry at S (former sand bins).

Long Physical Description: 1 story wood frame utility structure 24'x60'. Asymmetrical gable roof with exposed rafters, corrugated metal roofing. Horizontal wood lap siding with wood casement windows, garage doors. Concrete & stone foundation. 12' L-shaped stone retaining wall of coursed ashlar masonry at S (former sand bins).

Condition and Impacts:

Latest Condition: Good

Condition:

Latest Year Assessed: 2006

Assessed:

Conditions:	Condition	Year Assessed
1.	Fair	1996
2.	Good	2006

Impact Level: Low

Primary Impact: Park Operations

Impact:

Other Impacts:	Other Impact Type
1.	Vegetation
2.	Weather
3.	Structural Deterioration

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Category:

Management Category Date: 08/08/2006

Category Date:

Management - Treatment:

Latest Est. 0

Interim

Treatment

Cost:

Latest Ultimate Treatment: Rehabilitation

Treatment:

Interim Treatment:	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Rehabilitation	General Management	08/21/1995	National Park Service	Yes	No	

	Plan				
	UT Estimate Level	UT Estimator	UT Cost Estimate	UT Cost Estimate Date	UT Cost Actual
1.	Preliminary Plans/HSR-CLR	Denver Service Center	300000	08/01/1995	

Routine Maintenance Responsibility: National Park Service

Cyclic Maintenance Responsibility: National Park Service

FMSS Number: 33423

Management - Description:

Short Management Text: GMP specifies adap reuse of NPS utility area bldgs for exercise, recreation, meeting & work space at total cost of \$2,508,400 for 13,678 SF (approx \$200/SF). Maintenance functions to be relocated. Revise RMP to specify preservation treatment.

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 97		2
3.	Other Structure Number	CB60		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5.
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good

Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0094, Lumber Shed	08/2006	1



2.

SRB0094, Lumber
Shed

08/2006

2

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.2 CHRONOLOGY OF DEVELOPMENT AND USE

ORIGINAL CONSTRUCTION

The Vehicle Storage Building is one of four identical storage buildings (SRB0099 and SRB00183-SRB00185) constructed by the ECW along Sunset Drive in 1935. This building differs slightly from the other three in that it is on the opposite side of the road and it is sited on a slope, requiring the building to be stepped down the hill. An original plan for the four buildings is located in the Grand Canyon Museum Collection (Drawing 3094). It is not known if this plan was replicated for each building or if this one plan was used for all. Although this design may have been used for other buildings, this particular drawing was specifically used for the Vehicle Storage Building, as evidenced by the plot plan. The approval date on the plan is December 16, 1934. The drawing specified this as Park Project #1 with work to be conducted by the ECW company based at Camp NP2A. The 1949 building inventory on file at the Grand Canyon National Park Office of Cultural Resources estimates a construction cost for the project of \$1,500.

The construction of this building reflects typical barn-like post and beam construction, with exposed rafters and horizontal siding.

SIGNIFICANT ALTERATIONS / CURRENT CONDITION

No significant alterations are noted.

The building is currently in fair condition, but is in need of maintenance. Some of the doors may be difficult to operate and are deteriorating from the extremes of southern exposure.

OTHER DOCUMENTED WORK ON THE BUILDING

None.

NOTABLE ACTIONS WITH UNKNOWN DATES

<u>Date Range</u>	<u>Work Described</u>
Post-1949	Doors added to each bay

1.3 PHYSICAL DESCRIPTION

The Park Service Vehicle Storage Building is a post and beam wood structure with a simple low slope shed roof. The building features a corrugated sheet metal roof and horizontal lap siding.

The building is long and rectangular in configuration. The interior lends itself well to its current use as the Trails Maintenance Storage with deep bays of room for storing trail maintenance items and vehicles.

The following section is a discipline-by-discipline, component-by-component description of the building.

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - ROOF

The roof consists of a three tiered, shed roof, stepping down in one foot increments from east to west. The roofing itself is corrugated, galvanized sheet metal attached to 1x6 purlins at 24" o.c. on top of rough sawn 2x8 rafters at 24" o.c. The roofing is attached with neoprene gasketed screws 4-8" o.c. The edge of the roofing folds up 4-6" at each step in the roof to create a side flashing. There are no gutters, downspouts or flashing on the building.

ARCHITECTURE - OVERHANGS & SOFFITS

The roof overhangs 2'-0" at the north and south with exposed rafter tails and purlins. The entire overhang is painted brown, including the underside of the roofing. The east and west overhangs (and the overhangs at the steps in the roof) are +/- 16". The outermost rafters are supported by cantilevered 3x6 beam extensions (with diagonal 3x6 braces back to the walls) at each end and in the center. The outside face of the end rafters is painted green, everything else is painted brown.

ARCHITECTURE - EXTERIOR WALL FINISHES

The siding consists of 1x10 rough sawn lap siding with +/-4" exposure. The siding extends up to the bottom side of the roofing. All corner joints are mitered. All end-to-end joints are butt joints. The siding is nailed to 2x4 framing within the 6x6 post and beam structure. The south side of the building only has siding above the 8 double doors and at the very ends. Siding at the east end starts at (or below) grade. Siding at the east end of the north side is at or below grade and at the west end of the north side the siding starts above an exposed concrete foundation.

ARCHITECTURE - MASONRY

As depicted in the historic construction drawings, there is a canted (sloped) concrete foundation at the west and north walls - and potentially, below grade at the east wall, although it was not visible. The foundation is painted brown. There are also canted foundation blocks at the posts along the south wall.

ARCHITECTURE - EXTERIOR DOORS

Exterior Doors (A-H)

All doors are similar. These are large double-leaf sandwiched layer wood plank doors constructed of 3/4" x 5" tongue and groove vertical planks on the exterior, a 1x5 wood frame with diagonal bracing in the middle, and 3/4" x 5" x 8' vertical planks on the interior. Each leaf is supported by three large steel strap single-segment hinges 2"x24". The hinges are attached directly to structural posts. A padlock strap secures the doors in the center. Over each door is a metal sign plate with a door number on it. Each leaf also has two steel loops at the bottom 12" of the door at the center of the opening. The door frames consist of structural columns and headers. (Photos 0099-111 through 0099-118)

ARCHITECTURE - WALL/CEILING FINISHES

Throughout the majority of this building, there are no interior wall or ceiling finishes at the perimeter walls. Plywood (unfinished and painted) does sheath the interior walls of the first, second, fourth, fifth, and seventh bays and there is a section of 1x8 planking, oriented vertically, in bay #5 (counting bays from the west). Original drawings do not indicate any interior finishes.

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.3 PHYSICAL DESCRIPTION

ARCHITECTURE - FLOOR

Pea gravel is the flooring throughout this building.

ARCHITECTURE - ACCESSIBILITY

This building is not accessible from grade, nor is there accessible parking adjacent to the building. The gravel surface around the building and in front of the access doors renders the building inaccessible. The large, barn-type doors to each bay do not provide accessible entries. (Photo 0099-115)

Once inside, pea gravel flooring predominates, which is also non-ABA compliant. (Photo 0099-120)

STRUCTURAL - SIZES / SPANS / SUPPORT

Historic drawings dated December 6, 1934 were reviewed during the assessment. These drawings appear to be accurately representing the roof framing. The foundation indicated is generally accurate in overall form and location but not in dimensions and details of construction.

The shed roof is constructed with corrugated metal sheathing over 1x skip sheathing. The roof steps up twice as the grade rises to the east.

Rafters are 2x8 spaced at 24"+/-. Rafters bear on the stud wall at the north, an interior girder line at midspan and headers over doors on the south (Photo-0099-203). Span is about 12'. The rafters cantilever out to support eaves at the east and west sides of the building.

Triple 2x10 headers span about 12' over eight sets of double doors. Girders are supported at each door jamb by 6x8 wood columns (Photo-0099-204).

The interior girder is a triple 2x10 spanning approximately 12' to 6x6 wood columns.

Exterior walls are 2x4 studs at 24" with 1x horizontal lap sheathing on the exterior. The interior is typically unfinished but plywood has been added in some locations. The walls are braced by 2x4 diagonal bracing. The wall has a double 2x4 top plate. Sill plate is 2x4 with 1/2" diameter anchor bolts at 5' centers (Photo-0099-208).

Interior column lines are typically braced by a pair of 2x6 knee braces in both directions (Photo-0099-205).

The perimeter foundation is typically a 7" thick cast-in-place concrete stem wall tapering out on the exterior to an unknown width below grade. No footing was visible, and the historic drawings indicate a thicker stem wall than that seen. Therefore, any footing which might exist cannot be assumed to be shown accurately on the drawings. No visible attachment between column and footings was observed.

The foundation at the south wall is a series of cast-in-place concrete piers under each column (Photo-0099-207). The pier measures 10" x 8" at the top. It tapers on the inside to an unknown width below grade. Again, the historic drawings do not agree with the as-found condition. There is no visible connection from the piers to the wood columns they support. The historic drawings indicate a blind dowel was to be installed from the pier to the column.

No reinforcing is indicated for any of the foundation elements on the historic drawings.

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.3 PHYSICAL DESCRIPTION

The interior foundations supporting the wood columns are not visible.

MECHANICAL

No mechanical system in this building.

ELECTRICAL

No electrical system in this building.

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.4 CHARACTER DEFINING FEATURES

- Simple forms – The building reflects the simple form of a utilitarian building. Lines are clean; decoration is non-existent.
- Corrugated sheet metal roof – The unpainted metal roof reflects a utilitarian vernacular style that is typical throughout the Historic Maintenance and Warehouse Complex. The roofing panels are laid parallel to the slope, overlapping at each successive layer. (See photos 0099-105)
- Horizontal exterior lap siding. (See photos 0099-108, 0099-109)
- Batten doors – These doors reflect its original function as a warehouse. Plank, double doors appear throughout the complex. (See photos 00-99-111 through 0099-118)
- Exposed rafter tails – The open eaves with exposed rafter tails are indicative of the simple construction methods used in most of the structures in the complex. (See photo 0099-106)
- Interior finishes – The interior is characterized by simple durable finishes, the only character-defining feature of which is the exposed roofing structure. The raw inside of the exterior envelope members is also a character-defining feature.

1.5 GENERAL CONDITION ASSESSMENT

In general the Vehicle Storage Building is in fair condition. The exterior wood doors are showing signs of deterioration but the foundation is intact.

The following section is a discipline-by-discipline, component-by-component condition assessment of the building.

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.5 CONDITION ASSESSMENT

ARCHITECTURE - ROOF

CONDITION: **FAIR**

The roofing is in fair condition. There are no evident holes or cracks in the roofing and most of the seams appear intact. The only exceptions are in the northwest corner and on the west roof. Some of the "horizontal" lapped seams are open as much as 3/8"-1/2" and there are several dents in the roofing. The northwest corner of the roofing is damaged at the edge where a tree appears to have fallen on it. There are open seams at the joint between the roofing and the wall on two of the steps

ARCHITECTURE - OVERHANGS & SOFFITS

CONDITION: **GOOD**

The condition of the overhangs is good with minor exceptions. There are a couple of split rafter tails on the south side and all of the square cut ends of the rafter tails are weathered, but nothing extreme. The support brackets are in good condition.

ARCHITECTURE - EXTERIOR WALL FINISHES

CONDITION: **FAIR**

The siding is generally in fair condition with the exception of siding at the southeast and southwest corners which is in poor condition. All of the siding beside doors on the south sides is cracked, warped, split and broken. There is significant deterioration in an area at the south end of the east wall. The boards at the bottom of the east wall and the east end of the north wall are rotten as they are in contact with grade. 50% of the rest of the siding throughout the exterior is split or cracked.

ARCHITECTURE - MASONRY

CONDITION: **GOOD**

The foundations are in good condition with little or no evidence of deterioration.

ARCHITECTURE - EXTERIOR DOORS

CONDITION: **POOR**

Exterior Doors (A)-(H)

Signs of deterioration are evident in separating wood grain. The bottom edges are chipped away from deterioration and impact against stone/gravel surface. Planks are broken at edges, and some are missing.

ARCHITECTURE - WALL/CEILING FINISHES

CONDITION: **GOOD**

The plywood and planking is in good condition.

ARCHITECTURE - FLOOR

CONDITION: **GOOD**

The gravel is dry and in good condition.

SRB-0099 VEHICLE STORAGE BUILDING

1934

1.5 CONDITION ASSESSMENT

ARCHITECTURE - ACCESSIBILITY

CONDITION: **POOR**

This building is not accessible.

STRUCTURAL - SIZES / SPANS / SUPPORT

CONDITION: **GOOD**

Roof framing is generally in good condition with no obvious signs of distress or deterioration excepting the broken rafter tail on the south side of the building (Photo-0099-206).

Wall framing is generally in good condition except at the base of the wall along the eastern side of the building. Here, as seen at most other buildings assessed, grade is at or above the sill plate. The wall sheathing has been severely deteriorated wherever soil is in direct contact (Photo-0099-122).

The wood columns along the south side of the building are damaged due to impact or deteriorated due to moisture in several locations (Photo-0099-209).

Foundations are generally in good condition with no obvious signs of distress or deterioration.

MECHANICAL

CONDITION:

N/A

ELECTRICAL

CONDITION:

SRB-0099 VEHICLE STORAGE BUILDING

1934

2.1 ULTIMATE TREATMENT AND USE

The building has always been a storage facility, and is not suited for much else. Rehabilitation is the recommended ultimate treatment for this building.

The following is a discipline-by-discipline, component-by-component description of the building.

SRB-0099 VEHICLE STORAGE BUILDING

1934

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ROOF

PRIORITY **MODERATE**

Re-attach all seams and panels throughout to eliminate all gaps between sheets. Re-attach all loose panels at the walls. Replace damaged panels in northeast corner of roof with new panels to match existing.

ARCHITECTURE - OVERHANGS & SOFFITS

PRIORITY **LOW**

No treatment is required at this time.

ARCHITECTURE - EXTERIOR WALL FINISHES

PRIORITY **MODERATE**

Re-grade the site adjacent to the east and north walls to insure positive drainage away from the building to a point at least five feet from the building and create a swale along the east side to divert runoff around the building. Soil should be removed to a minimum of 4" below the bottom of the siding.

Siding on the south side of this building should be replaced with new siding to match the original. Siding that is rotten at the bottom of the walls should be replaced as well as any split, cracked, warped, or broken boards. All of the siding should be scraped and repainted.

ARCHITECTURE - MASONRY

PRIORITY **LOW**

All of the existing foundation that is visible does not require treatment at this time. During replacement of the siding and re-grading to expose foundation at the north and east sides of the building, the newly exposed foundation should be evaluated and any necessary treatment can be determined at this time. Paint newly exposed foundation to match the rest of the exposed foundations.

ARCHITECTURE - EXTERIOR DOORS

PRIORITY **MODERATE**

Reconstruct all of these doors using as much original material as possible. Replacement material should match the original as closely as possible. All of the hardware should be cleaned and oiled. Care should be taken when repainting not to paint the hardware again. Re-attach all of the doors to facilitate smooth operation. Install weatherstripping at all exterior doors.

ARCHITECTURE - WALL/CEILING FINISHES

PRIORITY **LOW**

No work is recommended at this time.

ARCHITECTURE - FLOOR

PRIORITY **LOW**

No work is recommended at this time.

SRB-0099 VEHICLE STORAGE BUILDING

1934

2.1 TREATMENT RECOMMENDATIONS

ARCHITECTURE - ACCESSIBILITY

PRIORITY **LOW**

This building is listed as a Tier 3 building, as determined by the park for the purpose of establishing accessibility priorities for this Historic Structure Report, meaning that it is, by its nature, a storage building which can not reasonably be adapted to other uses. Hence, ABAAS alterations should not be anticipated.

STRUCTURAL - SIZES / SPANS / SUPPORT

PRIORITY **LOW**

All framing and lateral load resisting systems should be checked for compliance with the IEBC and NPS requirements. The broken rafter tail at the south side of the building should be repaired.

Soil should be removed around the building such that no wood is within 6" of soil. Sill plates, anchor bolts, wall sheathing and wall framing should be repaired or replaced where deteriorated.

Interior columns should be inspected for deterioration where they are in contact with gravel/soil. The gravel appeared to be dry and no signs of deterioration were seen in the columns, but a more thorough examination may reveal damage.

Damaged and deteriorated wood columns at the south wall should be repaired. Epoxy consolidation and replacement in more severe cases will likely be required.

MECHANICAL

PRIORITY

N/A

ELECTRICAL

PRIORITY

N/A

SRB-0099 VEHICLE STORAGE BUILDING

1934

2.2 REQUIREMENTS FOR TREATMENT

Compliance requirements for treatment currently include laws, regulations, and standards as outlined by the NPS, and listed in Section 2.2 of the Historic Maintenance and Warehouse Complex overview in this report.

2.3 ALTERNATIVES FOR TREATMENT

Because of the desire for continued utilitarian use of this building, the Vehicle Storage building will likely never be restored to a specific period. However, some elements may benefit from *restoration*, such as doors, and other character-defining elements that are difficult to replace without compromising the integrity of the building. *Rehabilitation* may also be appropriate to address the existing code-deficient conditions (possible structural issues, fire safety, etc.)

If a new use is established for this building that requires conditioned air, security, or technology, the Park should retain all possible historic elements while upgrading the building.

2.4 ASSESSMENT OF EFFECTS FOR RECOMMENDED TREATMENTS

This building is currently used solely for storage. Recommendations for the structure are reparative, and very little alteration is needed. Therefore, there are no anticipated impacts from the treatments outlined in this report for the Vehicle Storage Building.



West Elevation Bldg 0099 – 2006



North Elevation Bldg 0099 – 2006



East Elevation Bldg SRB-0099 – 2006 HSR Photo Survey
Andrews & Anderson Architects, PC



South Elevation Bldg 0099 – 2006

SRB-0099 VEHICLE STORAGE BUILDING

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Three-Tiered, Shed Roof 0099 - 105



3x6 Beam Extensions and Braces 0099 - 106

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Outside Face of the End Rafters - Painted Green 0099 - 107



Exterior Wall Finishes 0099 - 108

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1934



1x10 Rough Sawn Lap Siding 0099 - 109



Canted Concrete Foundation 0099 - 110

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Exterior Door (A) 0099 - 111



Exterior Door (B) 0099 - 112

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Exterior Door (C) 0099 - 113



Exterior Door (D) 0099 - 114

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Exterior Door (E) 0099 - 115



Exterior Door (F) 0099 - 116

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Exterior Door (G) 0099 - 117



Exterior Door (H) 0099 - 118

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Plywood Interior Sheathing 0099 - 119



Pea Gravel Floor Material 0099 - 120

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1934



Building Access 0099 - 121



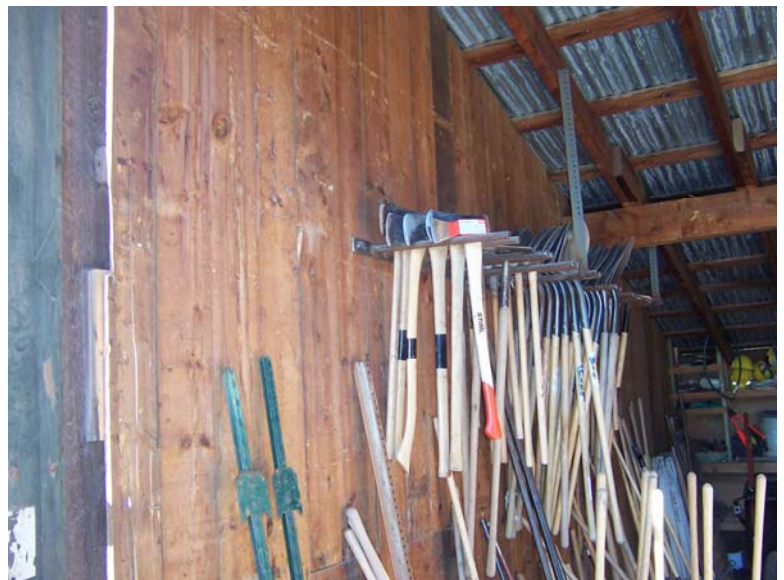
Deteriorated Wall Sheathing at East Wall 0099 - 122

SRB-0099 VEHICLE STORAGE BUILDING

1934



Underside of Exposed Roofing 0099 - 201



Interior Plank Wall 0099 - 202



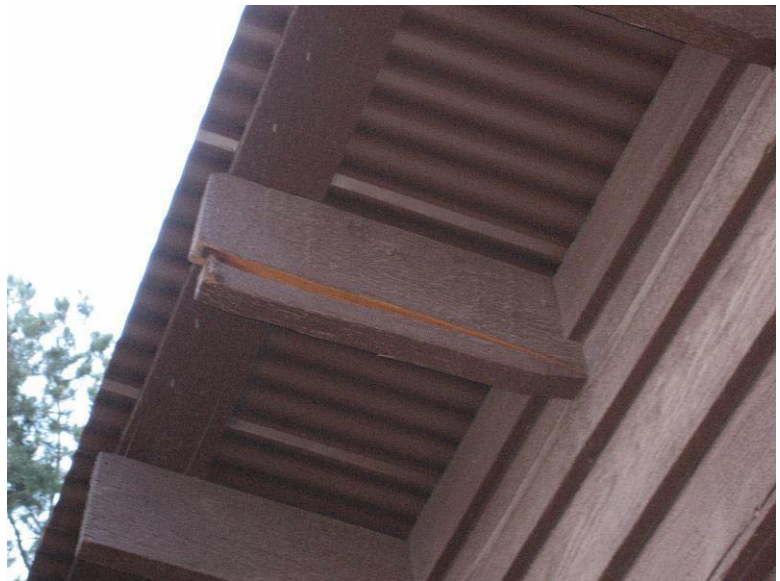
Roof Framing at Interior Girder and North Wall 0099 - 203



Roof Framing at South Wall 0099 - 204



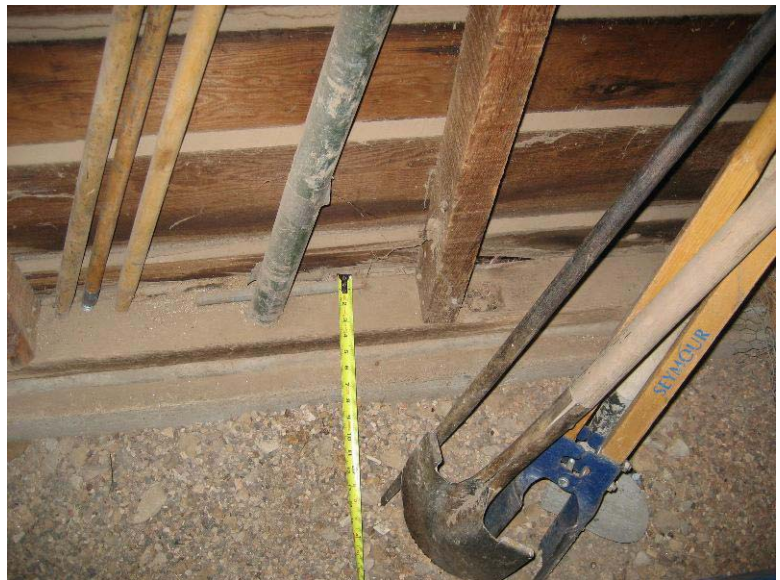
Bracing at Door Jamb Lines and Girder 0099 - 205



Broken Rafter Tail at South Wall 0099 - 206



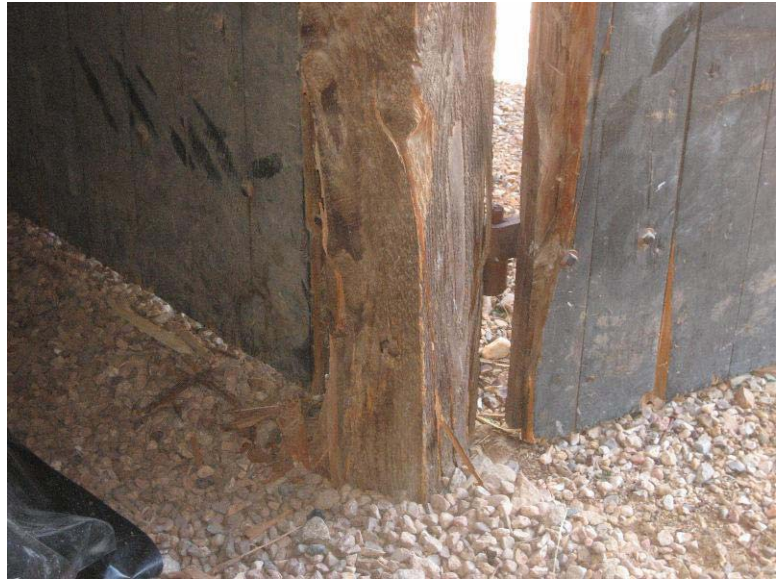
Typical Pier at South Wall Columns 0099 - 207



Typical Perimeter Foundation and Wall 0099 - 208

SRB-0099 VEHICLE STORAGE BUILDING

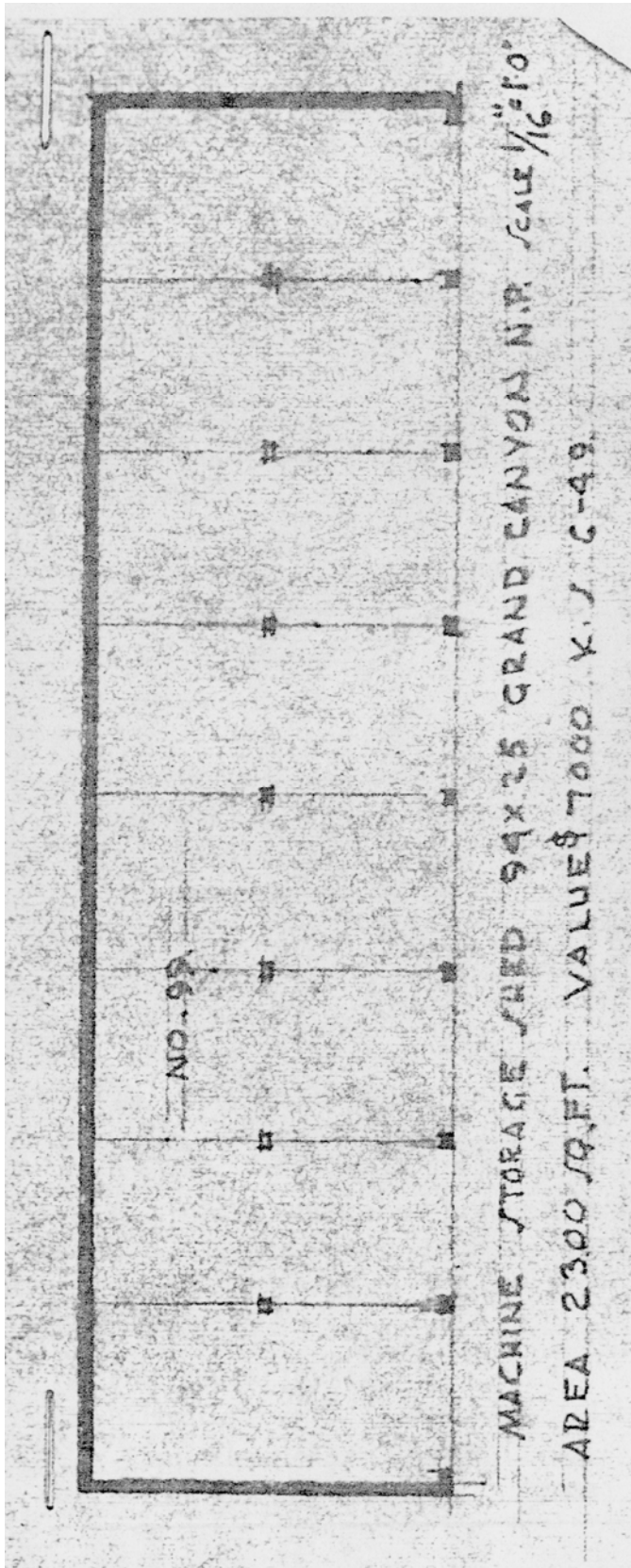
1934



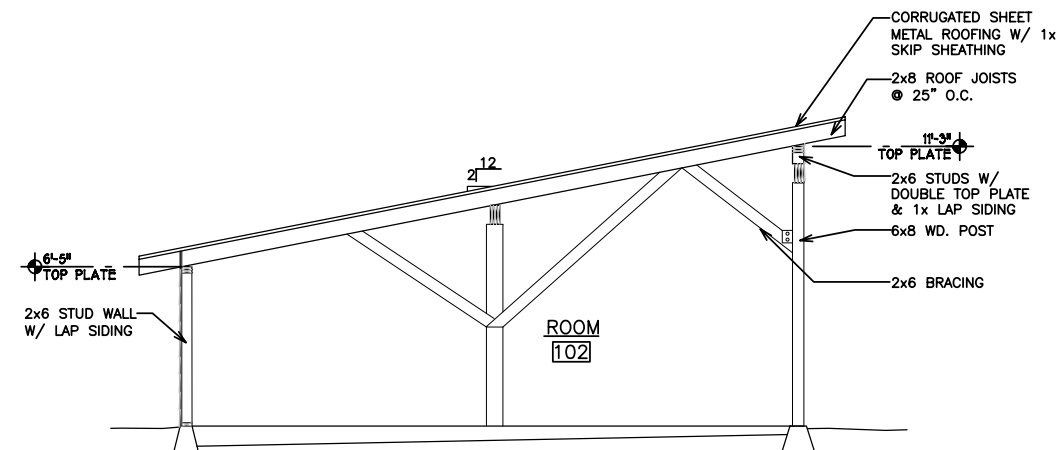
Damaged Post at South Wall 0099 - 209

SRB-0099 VEHICLE STORAGE BUILDING

1934

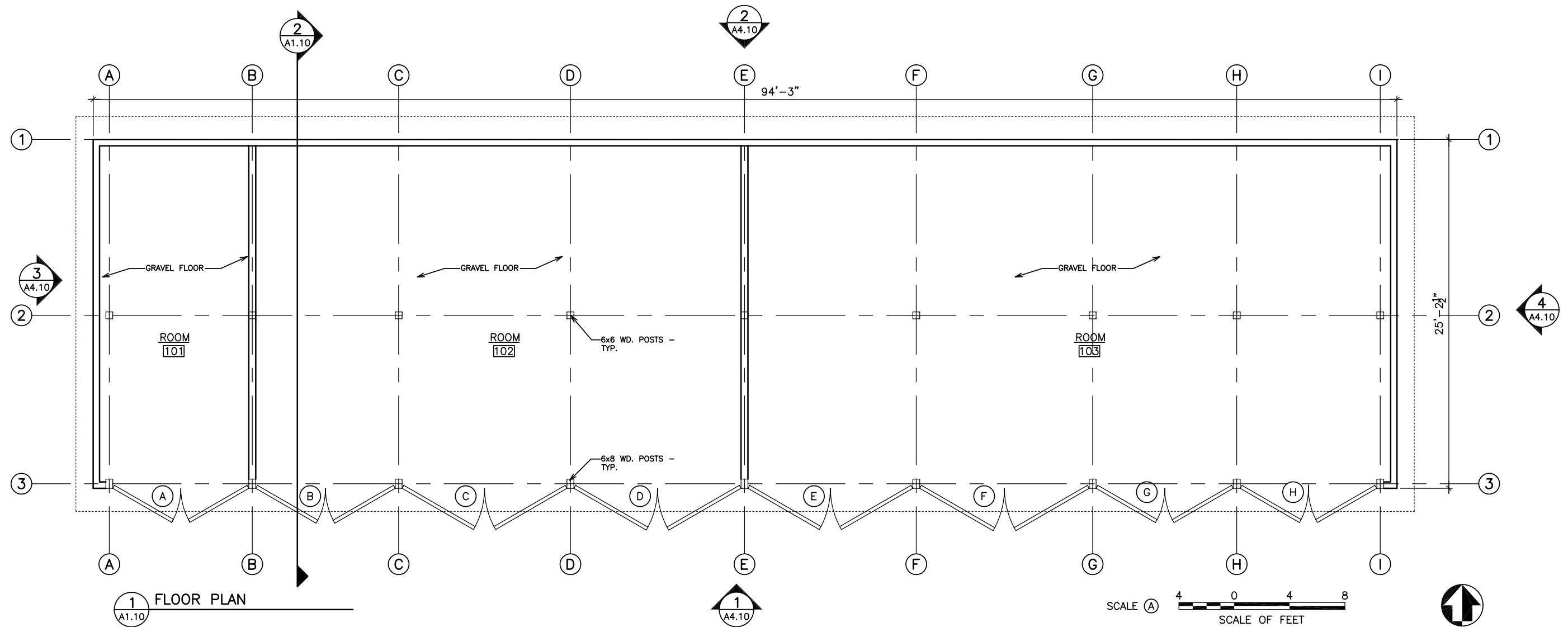


1949 Survey Plan – Building 99
Grand Canyon National Park Office of Cultural Resources



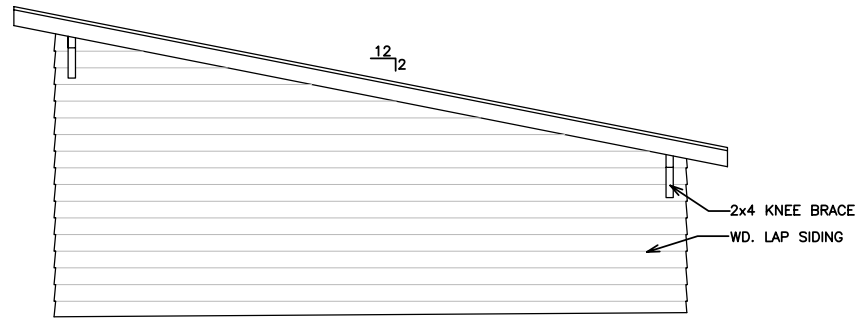
2 SECTION
A1.10

NOTE: FOUNDATION ILLUSTRATIONS ARE NOT VERIFIED, BUT RATHER BASED ON A COMBINATION OF SURFACE OBSERVATIONS, HISTORIC DRAWINGS, AND COMMON BUILDING ASSEMBLY PRACTICES AT THE TIME OF CONSTRUCTION

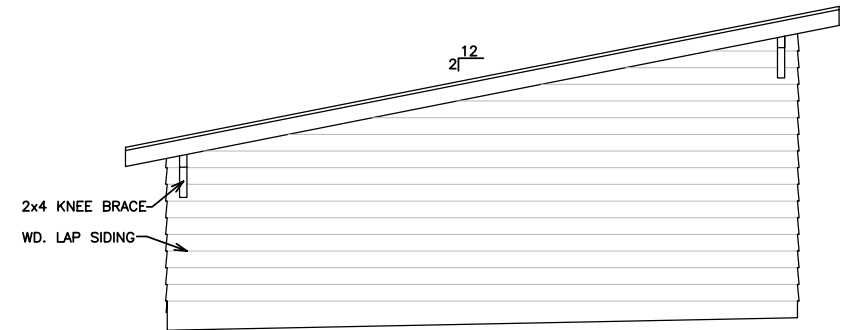


EXISTING CONDITIONS - 2006

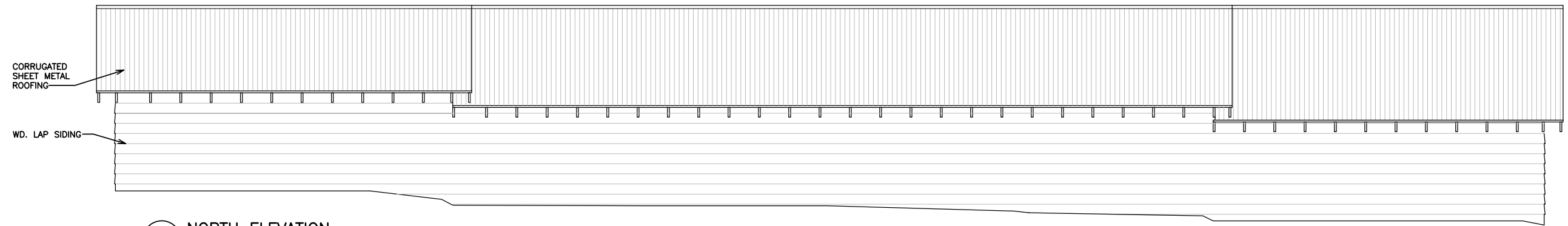
DESIGNED: BADD BSH	SUB SHEET NO. A1.0	TITLE OF SHEET GRCA Maintenance HSR SRB-0099 Vehicle Storage Building GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25024
TECH. REVIEW:	DATE: 04/13/07		PMIS/PKG NO. 084236
			SHEET 1 OF 2



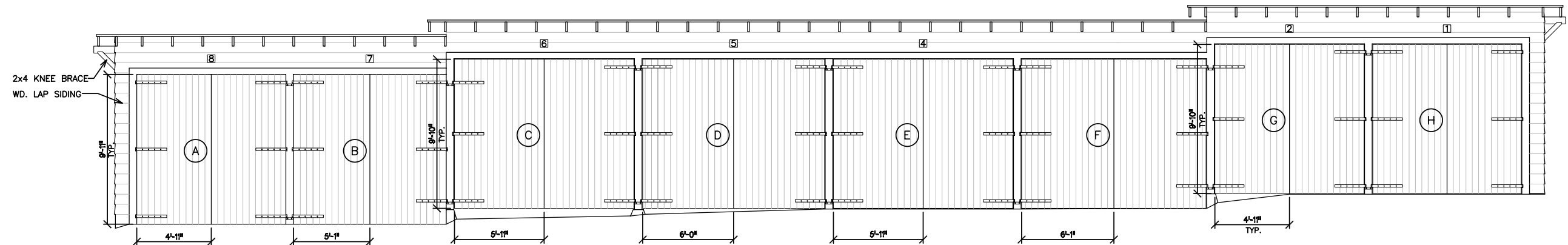
4 EAST ELEVATION
A4.10



3 WEST ELEVATION
A4.10



2 NORTH ELEVATION
A4.10



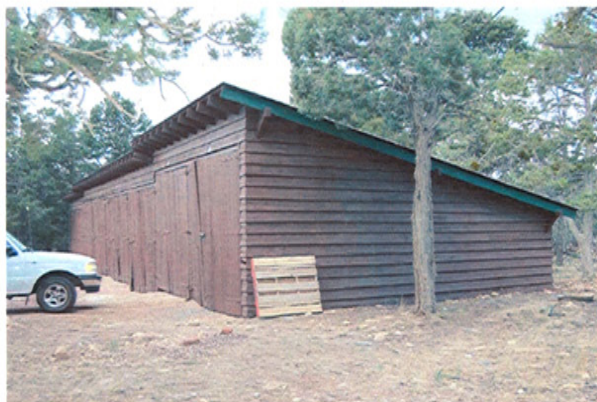
1 SOUTH ELEVATION
A4.10

SCALE (A) 4 0 4 8
SCALE OF FEET

EXISTING CONDITIONS - 2006

DESIGNED: BSH	SUB SHEET NO. A1.1	TITLE OF SHEET GRCA Maintenance HSR SRB-0099 Vehicle Storage Building GRAND CANYON NATIONAL PARK ARIZONA	DRAWING NO. 113 25024
TECH. REVIEW:			PMIS/PKG NO. 084236
DATE: 04/13/07			SHEET 2 OF 2

Vehicle Storage Building



Identification:

Preferred Structure Name: Vehicle Storage Building

Structure Number: SRB0099

Other Structure Name(s):	Other Structure Name(s)
1.	Sunset Drive Storage Shed
2.	Equipment Shed

Park: Grand Canyon National Park

Historic District:	Historic District
1.	Grand Canyon Village

Structure State: Arizona

Structure County: Coconino

Region: Intermountain

Cluster: Colorado Plateau

Administrative Unit: Grand Canyon National Park

LCS ID: 055424

UTM:	Zone	Easting	Northing	Source	Datum
	No records.				

Historical Significance:

National Register Status: Entered - Documented

National: 02/18/1997

Register Date:

National Yes

Historic

Landmark?:

National 02/18/1997

Historic

Landmark

Date:

Significance Contributing

Level:

Short

Significance

Description:

1 of 5 vehicle garages built by CCC @ former CCC camp in NPS utility area, shown in 1924 Plan prep by NPS Landscape Engr Div. Vernacular rustic style applied to utility bldg. District meets NHL Criterion 1 & 4 for American park movement & landscape arch. Period of sig 1897-1942.

Long

Significance

Description:

The buildings of the Grand Canyon Village NHL district are the largest and most diverse assemblage of park architecture in the national park system. The buildings of the historic district represent an entire range of park architecture. Together there are 247 buildings in the historic district. Along the rim of the canyon, the older resort architecture is typically more elaborate and eclectic than the official structures commissioned by the Park Service. In the civic zone of the village, the public architecture uses massive Kaibab sandstone veneers over concrete foundations and piers, as well as dark log or wood siding on upper stories to create a powerful and controlled imagery, now known as Park Service Rustic. This consistent idiom connected all the official buildings in the parks, together projecting a strong sense of official responsibility and appropriate sensibility. In the residential subdivision of the village, an architectural distinction was made between the concessionaire residences and the Park Service residences. The simpler bungalows on the Park Service side were designed with front doors accessing semi-public pedestrian paths. The larger residences on the concessionaire side presented more decorative elevations with stone foundations, fronting the street side of each lot.

The Grand Canyon Village NHL District meets National Historic Landmark Criterion 1 for its association with the American park movement and Criterion 4 as an exceptionally valuable example of American landscape architecture, specifically as the most significant example with the greatest integrity of National Park Service town planning. Similarly, Grand Canyon Village NHL District is significant under National Register Criterion A for its association with the American park movement and Criterion C as an example of American landscape architecture, specifically as a unique and outstanding example of community planning and development.

Grand Canyon Village Historic District was first listed on the National Register on 11/20/1975 (expanded 10/24/1995), significant under Criterion A for its important association with the development of Grand Canyon National Park, and under Criterion C as an example of community planning within a national park, and as a comprehensive illustration of National Park Service rustic architecture.

Daniel Hull finalized the major features of the plan for the south rim of the Grand Canyon in 1924, and today, Grand Canyon Village represents the most historically significant park village plan, with the greatest degree of integrity, ever designed by the Park Service. The town plan for Grand Canyon divided the village into discrete residential, commercial, and civic areas; a consistent architectural idiom (Park Service Rustic) was employed throughout; a hierarchy of street sections, from pedestrian paths to through roads, was developed; a central "plaza" had the village's major public buildings sited around it. The plan for Grand Canyon Village expounded the civic ideals of a certain generation of American planners and helped put National Park Service planning on the course it would follow at least until World

War II.

The period of significance for the district begins in the 1890s, specifically with the construction of the Bucky O'Neill Lodge in 1897, the oldest standing structure built on the rim. The period of significance ends in 1942, when the CCC was discontinued, by which time the village was largely complete.

Construction Period:

Construction Period: Historic

Chronology:

	Physical Event	Begin Year	Begin Year AD/BC	End Year	End Year AD/BC	Designer	Designer Occupation
1.	Built	1935	AD			NPS/CCC	Other

Function and Use:

Primary Function: Equipment/Vehicle Storage

Historic Function:

Current Use:

Primary Current Use: GENERAL STORAGE

Structure Contains:

No

Museum Collections?:

Other Functions or Uses:

Other Functions or Uses:	Other Function(s) or Use(s)	Historic or Current
	No records.	

Physical Description:

Structure Type: Building

Volume:

2,000 - 20,000 cubic feet

Square Feet:

2450

Material(s):

	Structural Component(s)	Material(s)
1.	Roof	Metal
2.	Framing	Wood
3.	Walls	Weatherboard
4.	Foundation	Concrete

Short Physical Description: 1 story wood frame 8-bay garage 25'x80'. Shed roof with exposed rafters, metal roofing. 8 pair batten doors with metal strap hinges. Horizontal wood lap siding. Concrete foundation.

Long Physical Description: 1 story wood frame 8-bay garage 25'x80'. Shed roof with exposed rafters, metal roofing. 8 pair batten doors with metal strap hinges. Horizontal wood lap siding. Concrete foundation.

Condition and Impacts:

Latest Condition: Good

Latest Year Assessed: 2006

Conditions:	Condition	Year Assessed
1.	Fair	1996
2.	Good	2006

Impact Level: Low

Primary Impact: Park Operations

Other Impacts:	Other Impact Type
1.	Structural Deterioration
2.	Weather

Management - Legal:

Legal Interest: Fee Simple

Management - Category:

Management Category: Must Be Preserved and Maintained

Management Category Date: 08/08/2006

Management - Treatment:

Latest Est. 0

Interim

Treatment

Cost:

Latest Ultimate Treatment: Preservation

Interim Treatment:	Interim Treatment Responsibility	Interim Treatment Cost Estimate	Interim Treatment Cost Estimate Date	Was Interim Treatment Completed?
1.	National Park Service	0	03/01/1996	
2.	National Park Service	0	07/31/2006	

Ultimate Treatment:	Structure Ultimate Treatment (UT)	UT Document	UT Document Date	UT Responsibility	Was UT Approved?	Was UT Completed?	UT Completion Date
1.	Preservation	General Management Plan	08/21/1995	National Park Service	Yes	No	

UT Estimate	UT	UT Cost	UT Cost Estimate	UT Cost
-------------	----	---------	------------------	---------

	Level	Estimator	Estimate	Date	Actual
1.					

Routine Maintenance
Responsibility: National Park Service

Cyclic Maintenance
Responsibility: National Park Service

FMSS Number: 33427

Management - Description:

Short Management Text: Orig corrugated mtl roof. Retains integrity of design, materials, setting & workmanship. GMP unclear about treatment, other maintenance bldgs to be adaptively reused. Revise RMP to specify preservation treatment.

Documentation:

References:

	Source	Reference Number	Other Information	Sequence
1.	National Register Information System	95001226		1
2.	Other Structure Number	NR# 99		2
3.	Other Structure Number	CB63		3
4.	National Register Information System	75000343	Village HD NRIS	4
5.	Other	1993 Rehab Plan, Robinson, Osman		5
6.	Other	1995 Mult Prop List, McClelland		6

Documentation Level: Good

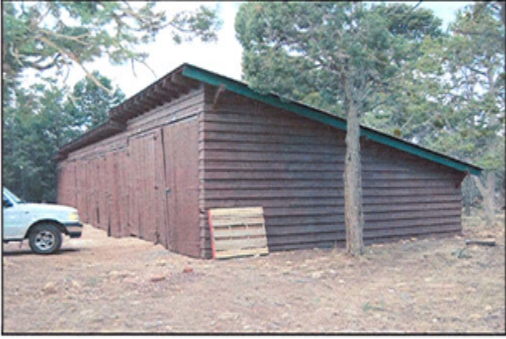

Last Updated By: Burwell, Theresa

Last Updated: 08/28/2006 10:51am

Graphics:

Graphics:

	Graphic	Caption	Graphic Date/Year	Sequence
1.		SRB0099, Vehicle Storage Building	08/2006	1

			
2.		SRB0099, Vehicle Storage Building	08/2006 2

Certified By:

Latest Certified 2006

Year:

Latest Certified August

Month:

Certified By:

	Month	Year
1.	August	2006