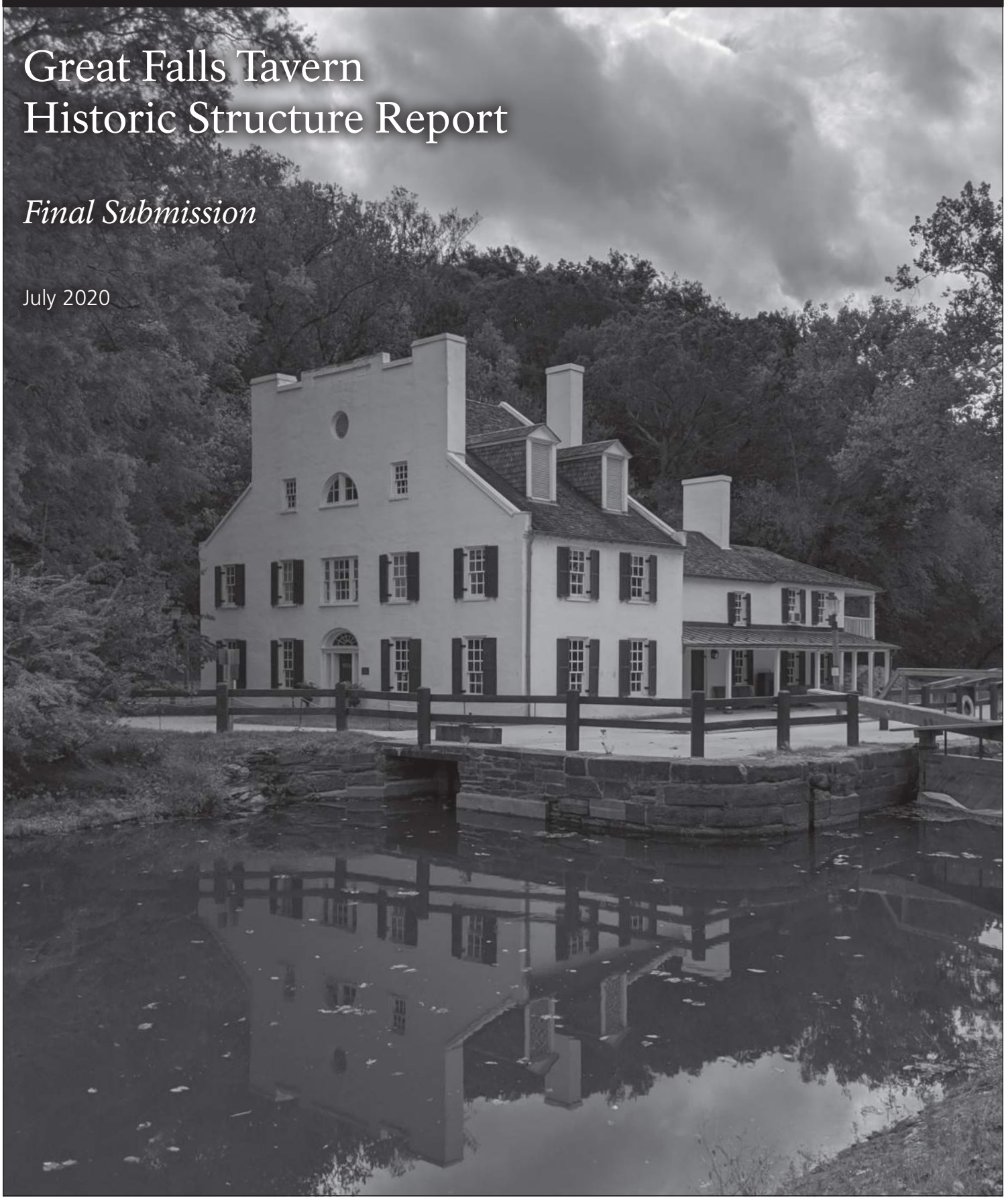
National Park Service
US Department of the Interior

Chesapeake & Ohio Canal National Historical Park
Potomac, MD

Great Falls Tavern Historic Structure Report

Final Submission

July 2020



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Cover: Great Falls Tavern, West Elevation (Beyer Blinder Belle [BBB] 2019)

Great Falls Tavern
Historic Structure Report - Final Submission

Chesapeake & Ohio Canal National Historical Park
Potomac, MD

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National Park Service
CHOH NHP
July 2020

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Executive Summary

Introduction

The purpose of the Historic Structure Report (HSR) for the Great Falls Tavern (The Tavern) is to expand upon the draft HSR prepared from 1999 to 2000 by Robert J. Kapsch of the National Park Service (NPS). This report provides additional documentary, graphic, and physical information about the building's history and existing conditions. The HSR serves as a guide and planning tool to determine the appropriate methods of treatment for the repair, restoration, and continued maintenance of the historic building.

Great Falls Tavern is one of the most iconic structures of the Chesapeake & Ohio Canal National Historical Park (CHOH NHP) and is integral to the historic landscape of the Great Falls area. Today, under NPS stewardship, the tavern serves as a park visitor center, museum, and administrative offices for CHOH interpretive staff.

The Tavern was initially constructed in 1828 as a lock keeper's house on the east side of the Chesapeake and Ohio Canal (C&O Canal), which also began construction that year. Immediately after construction was complete in July of 1830, the canal company authorized additions to create a hotel and tavern at the lock house, which were completed in 1831. The Tavern served various purposes as a lock keeper's house, hotel, tavern, grocery, private club, and restaurant until 1938 when it was purchased by NPS. The period of significance of the Tavern is 1828 to 1948.

Existing Conditions

The Tavern is in fair to good condition, with varying stages of deterioration; however, many original or historic features have been removed and replaced. Historically, flooding has caused significant damage at the site and today, water ingress from site flooding poses the most immediate threat to the building. Assessment of site flooding is outside the scope of this report. The Tavern is currently used as a museum and administrative offices, and there are no proposed changes to these uses.

Scope and Objectives

The HSR for the Tavern includes the following elements:

- Context, Chronology, and Physical Description – A brief historical background, architectural description, chronology of development, and identification of character-defining features
- Condition Assessment – Architectural, structural, MEP, and accessibility survey and assessment, summary of conditions ratings
- Recommended Treatments – Recommendations for treatment to meet the stated goals for repair and ongoing preservation of the Tavern
- Documentation – Existing conditions drawings based on CAD provided by NPS

This report was completed by a project team that included architects and architectural historians (Beyer Blinder Belle Architects & Planners), structural engineers (Robert Silman Associates), MEP engineers (James Posey Associates), and cost estimators (CCS International). The team documented, surveyed, and assessed the existing conditions of the Tavern during field visits. The character-defining features of the buildings were determined through the field surveys and referencing the NPS Preservation Brief #17, *Architectural Character: Identifying the Visual Aspects of Historic Character as an Aid to Preserving Their Character.*

Methodology

An established building feature master list was used as a guide for conducting the inspection and assessment, and for preparing treatment recommendations. This list is derived from the ASTM Uniformat II as developed and widely adopted by the federal government for use in the asset management process.

The Condition Assessment is part of a larger administrative process known throughout the Federal government as the Asset Management Process. The NPS and other Federal agencies apply this process to their historic property portfolio in an effort to determine the condition of certain structures, guide the management process, and maintain the structures in good condition.

Once identified, the building features are assessed using Qualitative Condition Ratings to determine if they are in good, fair, or poor condition. They are also assigned a Maintenance Deficiency Rating of minor, serious, or critical. This allows for the development of immediate, short-, and long-term treatment strategies. The HSR uses these industry-wide standards for the assessment criteria.

Development of the treatment recommendations is based on the condition and deficiency ratings of the features and the selected treatment approach. All recommended treatments meet *The Secretary of the Interior's Standards for the Treatment of Historic Properties* and the NPS-28, the National Park Service Cultural Resource Management Guidelines as they pertain to historic buildings. All treatments are intended for general execution by trained historic preservation professionals.

The project team conducted desktop research and field survey and documentation to assess existing conditions and provide appropriate recommendations for treatment. The following list is a detailed description of the steps involved in the development of the treatment recommendations provided for implementation.

Research

Many secondary reference documents provided by NPS—including National Register nomination forms, Cultural Landscape Inventories, Historic American Buildings Surveys (HABS), and Historic Resource Studies—were reviewed. These materials provided background on the history and development of the Chesapeake and Ohio Canal National Historic Park and provided information about the construction and chronology of the Tavern. The documentation was reviewed for accuracy and validated. Additional research was conducted at the C&O Canal NHP headquarters library to identify further documentation to supplement the secondary reference documents, and a building chronology was established.

Condition Assessment

The project team made two site visits to record and photograph existing conditions. The entire team visited the site on October 7, 2019. Representatives from BBB also visited the site on November 20, 2019 and February 2, 2020. The team closely examined the building, noting conditions of all architectural, structural, and MEP systems. The team also looked for clues that informed the building chronology and indicated changes over time. Survey was limited to what is visible without destructive investigation or the use of ladders or lifts.

Recommendations

Results of the research, identification of character-defining features, and the condition assessment are used to provide treatment recommendations, which will guide the maintenance, repair, and rehabilitation of the Tavern.

The extent of the repair and replacement recommendations of certain building elements or features were related to the condition and deficiency ratings. Those elements that are in poor condition and have critical deficiencies that require immediate attention typically require some level of replacement or reconstruction. All recommendations for the rehabilitation of the Tavern are recorded in Part 1, Chapter 5 (Condition Assessment).

As the use for the building will not change, a preservation treatment has not been selected. This report provides recommendations on the maintenance and preservation of individual building elements and systems.

Project Participants

National Park Service, National Capital Region

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CHOH NHP, National Park Service

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CCS International

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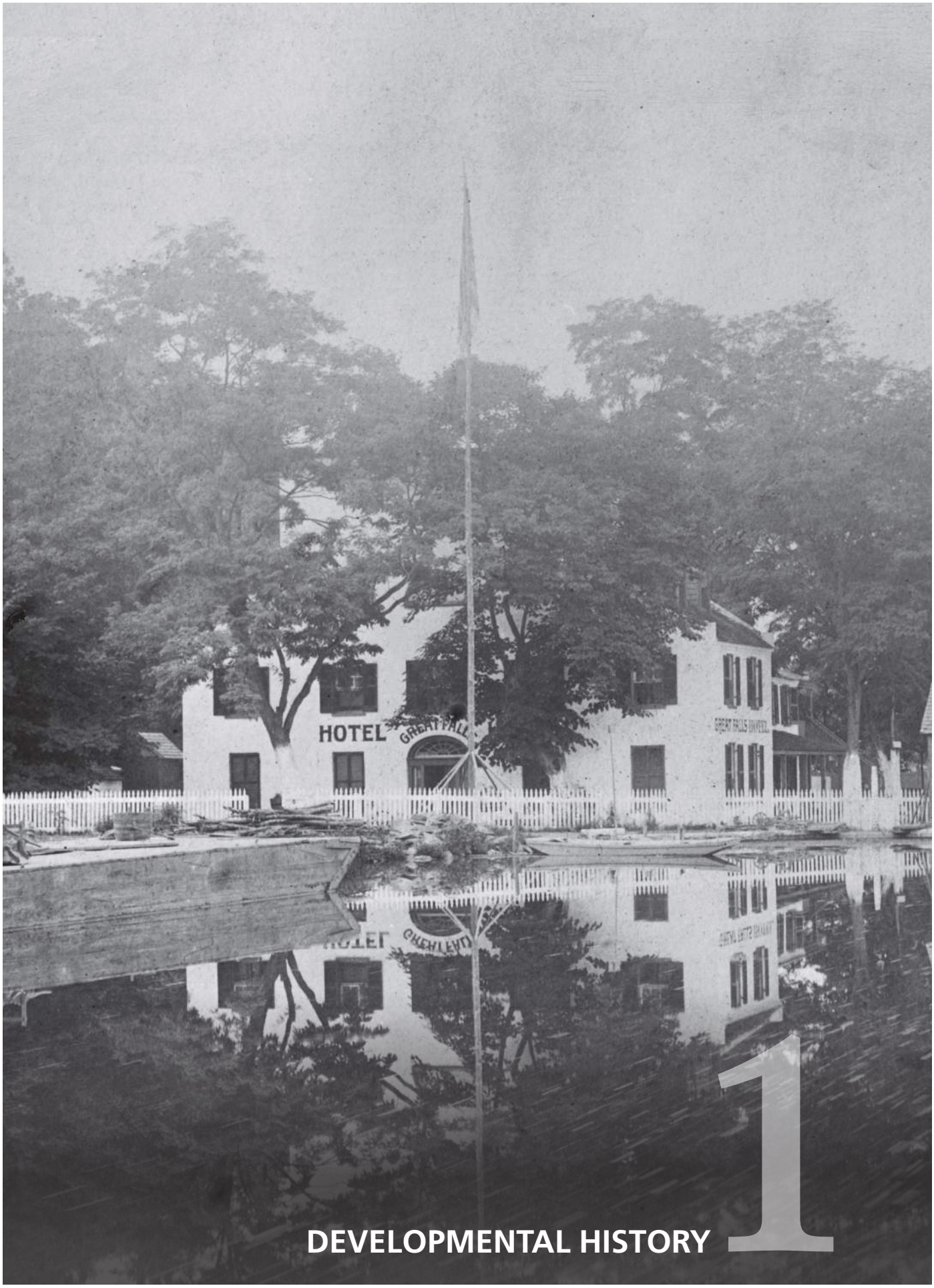
Administrative Data

Preferred Structure Name:	Great Falls Tavern
Other Structure Name:	Great Falls Visitor Center, Crommelin House, Lockhouse 20, Lockhouse 12
Address:	11710 MacArthur Boulevard, Potomac, MD 20854
Park:	Chesapeake & Ohio Canal National Historical Park
NPS Region:	Region 1 - National Capital Area
Administrative Unit:	Chesapeake & Ohio Canal National Historical Park
Management Unit:	Palisades
LCS Number:	00148
FMSS Number:	7412
Structure State:	Maryland
Date of Construction:	1828-1831
Current Use:	Visitor Center, Museum, and Administrative Offices
Status:	Contributing structure within the National Register-listed Chesapeake & Ohio Canal National Historical Park, listed 1966.
National Historic Landmark:	No
Significance:	Representative of the development of the Chesapeake & Ohio Canal and its associated commercial activity. Period of Significance spans from initial construction in 1828 through 1938 when it was purchased by NPS.



1 DEVELOPMENTAL HISTORY

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Chapter 1: Historical Background and Context

Introduction

This chapter supplements the 1999-2000 Draft HSR by Robert Kapsch and draws on previous comprehensive documentation of the Tavern including, in chronological order: "A Preliminary Historical Study on the Area Along the Maryland Shore of the Potomac at Great Falls During the Heyday of the Chesapeake and Ohio Canal, 1858-1880" (Young and Jett 1939), "Historic Structure Report, The Lockhouses, Historical Data" (Unrau 1978), "A Preliminary Historical Study of the Great Falls, Maryland Community 1830-1889" (Corless 1981), "Great Falls Tavern Cultural Landscapes Inventory" (NPS 2004), "Historic Integrity Investigation" (O'Bright 2006), and "Historic Furnishings Report" (Grassick 2008).

Great Falls Tavern is located at 11710 Macarthur Boulevard in Potomac, Maryland, within CHOH NHP (Figure 1). It sits directly east of the C&O Canal at Lock 20, between mile 14 and mile 15 of the canal. The C&O Canal spans 184.5 miles from Georgetown in Washington, DC to Cumberland, Maryland. Although it was operable for over a century, its role as a critical transportation waterway ceased in 1924. Today, the canal and towpath are important recreational, cultural, and natural resources.

Figure 1: Map of C&O Canal from Georgetown (at bottom) to Great Falls (at top). Tavern indicated by black star. (NPS)

Patowmack Canal, Precursor to the C&O: 1785-1828

After the Revolutionary War, George Washington was the first to pursue a water connection from the east coast to the Ohio River Valley. Washington believed that the Potomac River, the shortest route between the tidewater and the headwaters of the Ohio River, was the best way to connect to the Ohio River Valley, and in 1785 he chartered the Patowmack (Potomac) Company to clear a river channel and build skirting canals around the

turbulent sections of the river. The Patowmack Canal was constructed from 1785 to 1801 and fully opened to traffic in 1802. After struggling for years, the company went bankrupt in 1828 and transferred its charter to the C&O Canal Company, chartered three years before.

Construction of the C&O Canal: 1828-1850

By 1820, people were contemplating viable routes west and the Patowmack Company works were surveyed to assess the viability of a canal. Thus, the C&O Canal Company was chartered in 1825. The topography of the area was a primary obstacle to the construction of the waterway. Engineers quickly realized that considerable engineering expertise and funds were required to bypass the Great Falls. In addition, the flood cycle of the Potomac River necessitated the construction of massive retaining walls, which also increased the cost and difficulty of the endeavor.

The river drops about 76 feet between the north end of Conn's Island and Sherwin Island, below Mather Gorge.[1] Engineers determined that six locks (numbered 15 through 20) were necessary in order to raise the canal over this steep drop. This section of the canal (known as Six Locks) was conceived of, constructed, operated, and navigated as a whole. It represented the state-of-the-art canal-building technology being implemented during the early nineteenth century.

While the canal typically incorporated a retaining wall facing the river and a berm on the inland side, in the Great Falls section of the canal, the berm bank often gave way to a sheer rock face; therefore, the retaining walls along the Six Locks were very substantial, such as Mary's Wall. An abandoned riverbed known as Widewater, located slightly below Great Falls, became a bypass route for the canal. This area is located south of the Tavern and includes Locks 15 and 16, and a stop gate. The Widewater area was (and remains) especially prone to flood damage, creating implications for the Tavern nearby.

Once the retaining walls prevented the river from entering the canal, a navigable waterway was created for transport. The canal bed or "prism" varied in width from section to section. The top was generally supposed to be 60 feet wide at the surface and the bottom widths ranged from about 42 to 48 feet. The average depth was six feet. Feeder dams and waste weirs were built to control the water level in the canal, while culverts were constructed to allow streams to pass underneath the prism. Once the prism, towpath, and locks were completed, a series of intake dams along its length filled the canal with water from the Potomac River.[2]

The building of the canal created a new industrial landscape. A sawmill operation was established across the river from Great Falls on the Virginia side to provide the timber necessary for the lock gates. Some timber may have been culled from wooded areas on the Maryland side of the river for use as building material.[3] Stone and gravel appear to have been locally quarried, specifically from a number of accessible rock faces below Locks 19 and 18. Quarrying also may have occurred along the lane east of the Tavern between Locks 20 and 19. Seneca sandstone was also used in the construction of the locks. This distinctive red sandstone was rafted nine miles down river from the Seneca Quarry in Maryland and unloaded just above the falls near Lock 20 (Figure 2). The area near the Tavern was probably visible from the river at this time as a somewhat open space with a small cluster of structures supporting the construction of the canal. In addition, early visitors to the canal noted the spectacular views of the Potomac River, the Virginia shoreline, and of the Great Falls above Locks 19, 18, and 17.[4]

Construction of the Great Falls Tavern began in 1828. Located on the berm side of Lock 20, the central stone portion of the building was built as a lockkeeper's house according to the Canal Company's specifications.[5] Almost immediately, the structure was expanded. Two brick wings north and south of the stone core were

1 Maryland Geological Society 2000.
2 NPS, *A Guide to Chesapeake and Ohio Canal National Historical Park: Handbook 142* (1991) 36-37.
3 NPS 1991, 21.
4 James P. Corless, "A Preliminary Historical Study of the Great Falls, Maryland Community: 1830-1889," (February 1981) 21.
5 Robert J. Kapsch "Great Falls Tavern Historic Structures Report, C&O Canal NHP, Maryland," Draft (National Park Service: 2000) 3, 11.

Figure 2: C&O Canal and Lock 20, Great Falls Tavern beyond. (CHOH NHP)

added to accommodate a hotel and tavern frequented by tourists and canal workers. By 1831, the building was completed. The lockkeeper lived on the premises and kept "an excellent hotel."[6]

Other structures built by the Canal Company included the lockhouse at Lock 18 and a carpenter and repair shop. The shop was constructed of heavy pine timbers and located about one thousand feet north of the Tavern on the berm side. A wooden pivot bridge was added at Lock 20 providing access to the towpath from the berm side of the canal. All of these structures were in place by 1835. It is also likely that various small outbuildings (i.e. privies) were constructed.[7] In addition to the construction of buildings, the Canal Company opened a narrow access lane that ran east of the Tavern and towards the berm bank of Lock 19, which remains on site.[8] Just south of the carpenter and repair shop, where the canal widened, was a common overnight mooring spot for canal boats because navigation of the Six Locks after dark was dangerous. The edge of the towpath on the river side dropped steeply to the Potomac at the Six Locks, so daylight was vital to safe navigation.[9]

Between 1828 and 1830, 23 miles of the canal, from Georgetown to Seneca, Maryland, were constructed, and the section opened in October 1830. The entire canal, spanning 184.5 miles from Georgetown to Cumberland, Maryland, was constructed, watered and in operation by 1850.[10]

6 Kapsch 13.
7 Rogers W. Young and T. Sutton Jett, "A Preliminary Historical Study on the Area Along the Maryland Shore of the Potomac at Great Falls During the Heyday of the Chesapeake and Ohio Canal: 1858-1880," (NPS: 1939, 2014 Electronic Edition), 19, 25, 43.
8 Young and Jett 29.
9 Corless 12.
10 NPS 1991, 22.

Both the initial construction and the ongoing maintenance of the canal brought workers to the area. In the early 1850s, the Canal Company built several structures to accommodate temporary and permanent residents. These included the so-called Collier house located just north of the Tavern and a frame structure located about one quarter of a mile northeast of the Tavern.[11] All these buildings, except the Tavern, are no longer extant. A small graveyard, established by the 1850s, remains on the north side of Carroll Branch a few hundred feet east of the junction of the stream and the canal. It is unknown whether canal and/or aqueduct workers are buried there. The one legible gravestone belongs to an English-born stone cutter who died in 1855.[12]

As soon as the canal was navigable, the Canal Company promoted tourism by running packet boats from the Georgetown waterfront to Great Falls.[13] The Six Locks section of the canal was especially impressive from both a scenic and a technological standpoint. The area provided access to one of the great natural wonders of the mid-Atlantic, the Great Falls of the Potomac. The engineering feat that allowed the canal to bypass the falls was also a great attraction. Along the southern portion

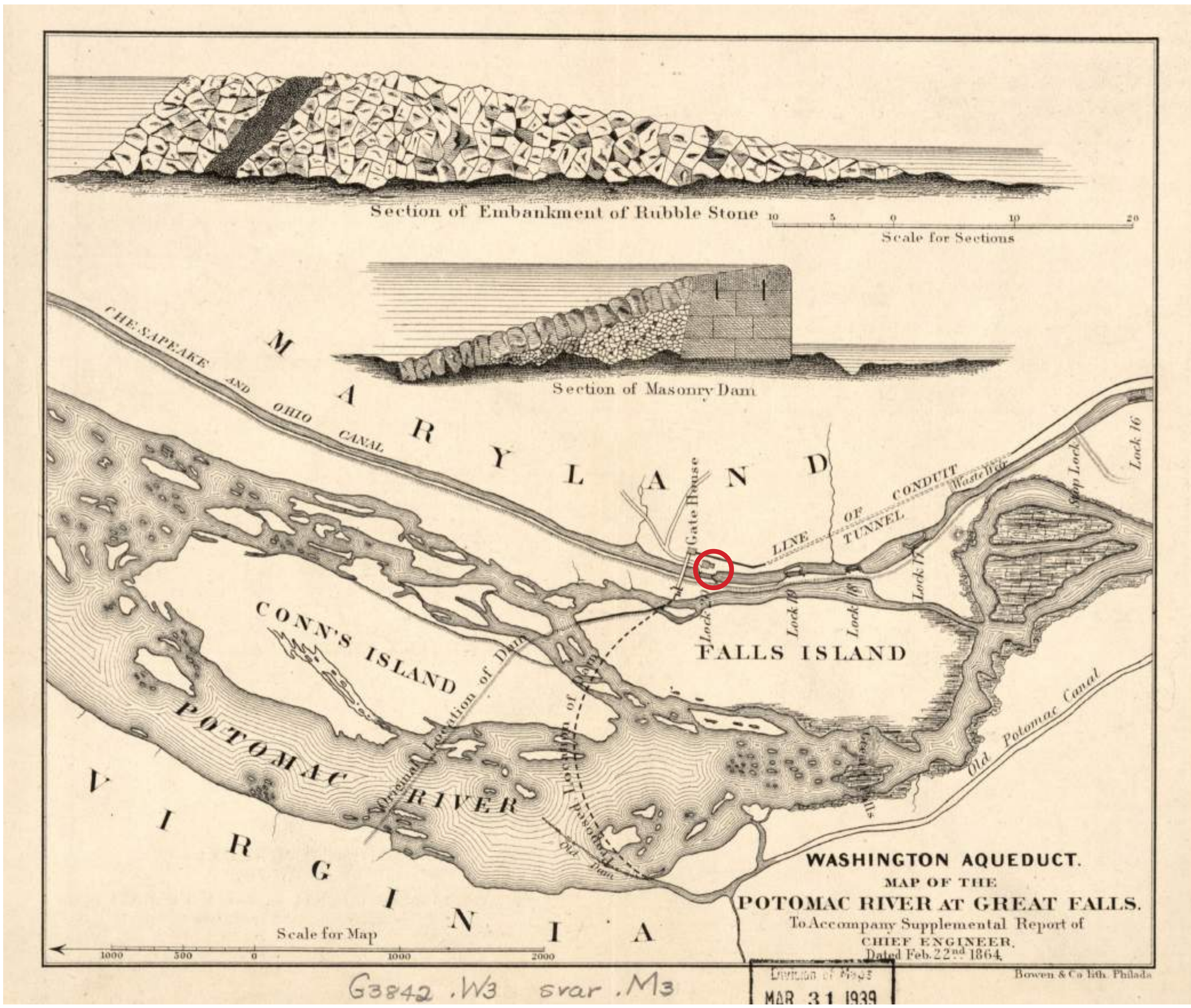

Figure 3: 1864 Map of the Washington Aqueduct, the Tavern is circled in red and the gatehouse appears adjacent. (Library of Congress)

11 Young and Jett 26.
12 Field Notes 2000.
13 Corless 12.

of this section, the canal hugged the steep cliffs along the Maryland side of the Potomac and provided impressive views of the river from just south of the Tavern between Locks 16 and 17.

Construction of the Washington Aqueduct: 1853-1867

As the construction of the canal to its terminus in Cumberland, Maryland was completed, a new major engineering project began at Great Falls. The springs and wells that supplied water to Washington, D.C. had become inadequate, and the Army Corps of Engineers viewed the Potomac River as a self-renewing source of water for the city. The need for capture and conveyance of water from the river to the city drove the design of the Washington Aqueduct. The solid rock cliffs on the Maryland shore at Great Falls and the proximity to a fast-moving, deep channel made an ideal site to locate an intake dam.

Congress requested a report on the water needs of the city, authorizing funding for surveys in 1850 and 1852. Led by Lieutenant Montgomery C. Meigs, the United States Army Corps of Engineers submitted a plan for a water supply system in 1853. The plan called for the construction of a dam and intake building (or gatehouse) at Great Falls and a brick or stone conduit between Great Falls and Georgetown.[14] The intake dam, constructed from 1855 to 1867, was located south of Conn's Island, almost directly opposite Lock 20 and the Tavern, and extended to Falls Island (now called Olmsted Island; Figure 3). It initially extended to the middle of the Potomac River and was later expanded the full length of the river. The sheer rock face of the Maryland shore provided housing for the conduit via a 1,432-foot long tunnel blasted through the hillside east of the Tavern. The conduit tunnel came out of the hill at Angler's Inn and made its way through the Palisades to Georgetown and then to central Washington, DC, via a cut-and-cover tunnel.

Construction of the Washington Aqueduct changed the landscape of the Great Falls area dramatically. The

Figure 4: 1975 photograph of the Aqueduct gatehouse. (Washington Aqueduct National Register Nomination)

Figure 5: 1858 photograph taken during the construction of the intake dam, the Tavern appears in the background. (Library of Congress)

Corps built many new structures between 1853 and 1874. These included a barracks for 300-400 aqueduct workers, as well as a tool house, cement (storage) house, and a substantial stone and brick dwelling for the gatekeeper.[15] The largest structure was the aqueduct intake building, or gatehouse, constructed of Seneca sandstone Figure 4).

The spatial arrangement and building cluster of the area near Lock 20 was significantly altered by the completion of the aqueduct buildings. Before their construction, the orientation of the site was towards the canal and in a linear pattern. The aqueduct construction created a new orientation towards the "Old Rockville Road." After

14 US Army Corps of Engineers, *History of the Washington Aqueduct: 1852-1952* (1953) 8.
15 Young and Jett 30-34.

passing through the farmland north of Carroll Branch, the road ran through a small cluster of canal-related structures, barracks for aqueduct employees, and the large stone gatehouse before reaching the Tavern at Lock 20. Whereas before, the Tavern would have been the primary structure in the Great Falls area, now, it sat at the end of a row of buildings loosely arranged to face one another. The location and orientation of the aqueduct buildings, clustered along the "Old Rockville Road," may have been derived in part from the road's proximity to a spring located on the Carroll Branch, just north east of the Tavern (Figure 6). This spring was the only source of potable water available at the site until the late 1870s.[16] Within this primarily utilitarian small-scale building cluster sat the new aqueduct gatehouse.

The construction of the Washington Aqueduct also changed the circulation patterns surrounding the Tavern. Initially, building materials for the aqueduct construction arrived via the canal from Georgetown to the south and the Seneca Quarry to the north. By 1861, a dirt maintenance road was constructed on top of the conduit tunnel from Georgetown to where the tunnel entered the hillside at Anglers Inn. The Corps of Engineers extended the Conduit Road to Great Falls in 1875, which led to the abandonment of a portion of the "Old Rockville Road."[17] The remaining portion of the Old Rockville Road ended at its intersection with the Conduit Road extension. By the late nineteenth century, the Rockville Road became known as Falls Road (Figure 7). The 1875 extension of the Conduit Road now serves as the park entry road, called the Entrance Road.

During the construction of the aqueduct, the hillside east of the Tavern was largely cleared of vegetation, as were the flat areas near the river and canal. In addition, the Tavern suffered considerable destabilization during this period because of its proximity to the blasting used in the construction of the conduit tunnel. The damage required over $1,000 in repairs (the equivalent of roughly $24,000 in 2020).[18]

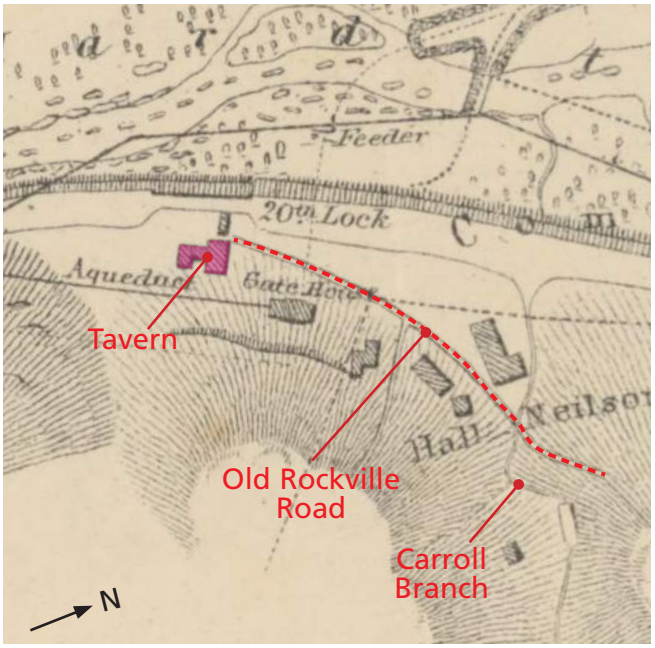

Figure 6: 1858 map showing the Old Rockville Road leading to the Tavern. "Map of the Potomac River about the Great Falls shewing *[sic]* the works of the Washington Aqueduct." (University of Michigan, 1858)

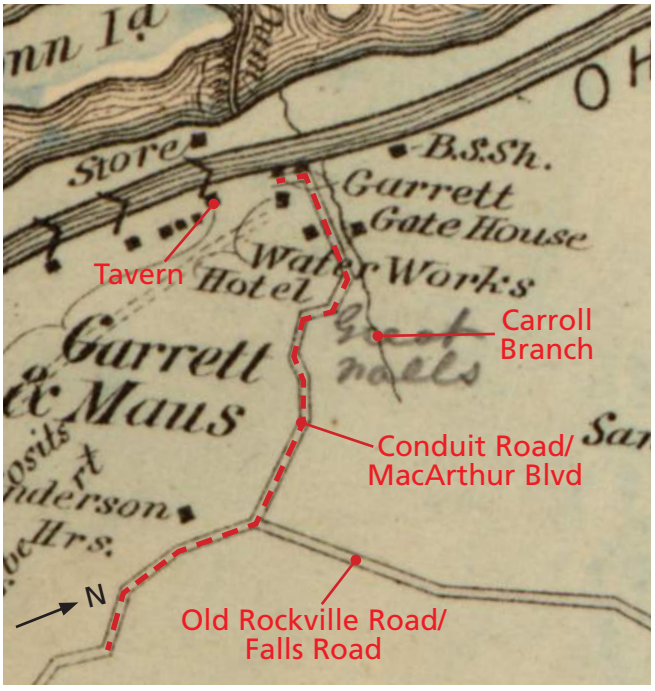

Figure 7: 1879 map showing the Conduit Road extension. Not to scale. (G.M. Hopkins, Atlas of Fifteen Miles Around Washington, 1879.)

16 Young and Jett 18.
17 Young and Jett 27-28.
18 Corless 24.

Figure 8: 1928 aerial photograph of the Great Falls Tavern and Washington Aqueduct structures in the foreground. The dam extends across the river. (Cultural Landscape Inventory, 2004)

Gold Mining at Great Falls

Another activity that affected the landscape at Great Falls was gold mining. A Civil War soldier stationed in the area discovered gold in 1861. The identity of the soldier has been disputed in various accounts, but John C. Reed, Jr. and John C. Reed write in the U.S. Geological Survey Bulletin entitled "Gold Veins Near Great Falls, Maryland" that Private Alexander McCleary and/or Private John Carey, both of the 71st Pennsylvania regiment, made the discovery. McCleary and/or Carey later organized a group that bought the farm near the intersection of Falls Road and Conduit Road on which the original discovery was made, and in 1867 sank a one hundred-foot mine shaft. This mine (later known as the Maryland Mine) was worked successfully into the twentieth century. There were a total of three shafts ultimately associated with the Maryland Mine.

Another mine opened in 1880 and may have remained in operation through the early twentieth century. Known as the Ford Mine, the main works were located northeast of the upper parking lot. Several trenches from the Ford Mine operation are still visible east of the Tavern maintenance yard.[19]

The Heyday and Decline of the Canal: 1858-1889

Between 1858 and 1880, the C&O Canal reached the height of its use and prosperity. The number of boats operating on the canal increased during these years. Coal was transported from the mines west of Cumberland and the coal trade increased rapidly until its peak in 1871.

During this time, Great Falls became a popular tourist destination. The 1875 extension of the Conduit Road enabled the influx of visitors (Figure 9). To take advantage of the burgeoning tourist trade, the Canal Company and "private interests" constructed a wooden footbridge to Falls Island in the 1880s, located directly across from the Tavern.[20]

19 John C. Reed and John C. Reed Jr., "Gold Veins Near Great Falls, Maryland," USGS Bulletin No. 1286.
20 Corless 58.

Figure 9: Late 19th century photograph of tourists enjoying a boat ride on the C&O Canal. (NPS)

Canal trade began declining in the late 1870s when many coal operators began shipping by train—the B&O Railroad was the canal's greatest competitor. In 1889, a flood severely damaged the canal, and the Canal Company did not have the funds to make the repairs necessary to restore functionality. The C&O Canal went into receivership by order of the Washington County Circuit Court. Current research indicates that control of the canal was ultimately given to trustees for the holders of the 1844 and 1878 bonds that mortgaged the canal, rendering the receivers irrelevant. The B&O Railroad held the majority of the 1878 repair bonds; however, the Railroad never took ownership of the canal. The trustees authorized repairs, which were completed by 1891.

Great Falls in the Early 20th Century

In the early 20th century, travel by steam packet boat from Georgetown to Great Falls was a popular activity. Visitors also arrived by stage line, canal boat, and ferry. From 1913 to 1921, the Washington and Great Falls Railway and Power Company operated a 10.2-mile trolley line from Bradley Boulevard at Wisconsin Avenue in Bethesda, Maryland to the hillside above the Tavern, offering a new mode of transport to visitors. The Lock Tavern Club, an elite private club, operated at the Tavern from 1913 to 1924.

Another flood in 1924 drastically damaged the canal and commercial navigation ceased. Yet again, a disastrous flood occurred in 1936 and the owners could not afford the necessary repairs. The US Government purchased the entire 184.5-mile canal and towpath in 1938.

Making a Park: 1939-1970s

1939-1942

After purchasing the canal in 1938, NPS began assessment and planning for recreational use at Great Falls in 1939. The section of the canal closest to Washington was the most accessible and was chosen for a restoration project. The restoration work on the canal was carried out by the Civilian Conservation Corps (CCC), established by President Franklin Delano Roosevelt in 1938. Water was re-introduced to the canal in 1940, and the area was designated the Chesapeake & Ohio Canal Recreational Waterway. The boiler house, pump house, and comfort station were all constructed from 1941-1942. Another flood in 1942 damaged much of the CCC's work, and the canal was closed due to flood damage and wartime restrictions.

1946-1970

After the war, the towpath was repaired in 1946. Large-scale improvements were implemented, including the Tavern rehabilitation, water supply and sewer system, and parking and roads. A long linear parking lot accommodating 600 cars was constructed at this time but remained unpaved until 1963 (Figure 10). The lawn to the south of the Tavern was transformed into a picnic area (Figure 12). The concession stand and picnic area were constructed in the early 1950s as well (Figure 11).

In 1948, a fire damaged the Tavern and was the likely catalyst for renovations from 1950 to 1951. The Tavern reopened in 1951, housing a museum dedicated to the history of the C & O Canal in the north wing first floor, and a cafe-like concession stand located in the south wing first floor. The Tavern has continued to house a museum since 1951, continuing to present day. Interpretive signage relating to the natural history of the area was also installed along the canal. In 1961, President Eisenhower declared the canal a National Monument and in 1969, five steel footbridges leading to an overlook on Olmsted Island were constructed. Due to these numerous improvements, visitorship burgeoned during this period.

Figure 10: Unpaved Parking Lot Looking SW, ca. 1950s. (NPS)

Figure 11: Concession Stand Looking SW, 1953. (NPS)

Figure 12: Picnic Area South of Tavern Looking North, ca. 1949. (NPS)

Figure 13: Photograph of 1996 flooding. (CHOH)

1970s-1990s

The C&O Canal was declared a National Historical Park on January 8, 1971. The designation spurred extensive research and documentation. Harlan D. Unrau, an NPS employee, produced a highly detailed, multi-volume, handwritten study of the engineering, operation, maintenance, and general history of the canal. This document was only available internally until it was transcribed and published in 2007 as the "Historic Resource Study: Chesapeake & Ohio Canal." In 1978, Unrau produced a Historic Structure Report on the lockhouses of the CHOH NHP.

During this period, the park continued to experience significant weather events, including a flood caused by Hurricane Agnes in June 1972. This event washed away the Olmsted Island bridges constructed in 1969 and sections of the towpath. Extensive reconstruction and restoration work followed, but "Projects to preserve the canal's historic features and restore the towpath for public use had priority, and there was some sentiment that the crowded Great Falls area might be better off without the added attraction of the falls overlook. (A picnic area at Great Falls was removed in 1973 in an effort to reduce crowding there.)"[21]

A portion of the canal was re-watered in 1976. The canal freight boat replica Canal Clipper III was put into service in 1979 to demonstrate canal transportation, providing mule-driven rides to visitors.

Despite the flood damage to the Great Falls area, visitation to the Tavern and surrounding area remained strong at 750,000 visitors per year, as of 1976.[22]

Hurricane Juan caused a notable flood on November 7, 1985. In 1996 two floods occurred; one resulting from sudden warming and rainfall in the aftermath of a three-foot snowfall, and another resulting from Hurricane Fran (Figure 13).

In each case, residents, corporations, and associations banded together to assist the NPS in restoring the canal and towpath. The Friends of Great Falls Tavern (the Friends), "a nonprofit organization created to provide volunteer assistance to NPS in the operation and improvement of the area in the immediate vicinity of the Great Falls Tavern," was organized in 1973 in the aftermath of the damage incurred in 1972.[23] The Friends obtained a matching grant of $16,000 from the National Geographic Society for the landscaping project undertaken in 1975.[24]

Great Falls Today: 1999-2020

The period from 1999 to 2010 was one of documentation and modernization for the Great Falls area. From 1999 to 2000, NPS prepared a draft Historic Structures Report for the Tavern. In 2004, a Cultural Landscapes Inventory for the Great Falls area was prepared and an Environmental Assessment was conducted to evaluate the proposed rehabilitation of the Great Falls Entrance Road, Upper and Lower Parking Lots, and Tavern Yard Area. A Cultural Landscape Report for the Tavern area was prepared in 2006. A Historic Integrity Investigation for the Tavern was undertaken in 2006 and a Historic Furnishings Report for the Tavern was prepared in

21 Barry Mackintosh, *C & O Canal: The Making of a Park* (Washington, DC: US Department of the Interior, 1991) 167.
22 John G. Parsons, "General Plan: Chesapeake & Ohio Canal National Historical Park District of Columbia/Maryland," National Park Service (January 30, 1976) 8.
23 NPS National Capital Parks, "Preliminary Case Report: Proposed Landscape Development, Great Falls Tavern, Maryland, Chesapeake and Ohio Canal National Historical Park," July 1975, CHOH Maintenance File: Great Falls Tavern Landscape Plan Environmental Analysis, 1.
24 NPS National Capital Parks 1.

2008. Lastly, a boundary increase and additional documentation for the CHOH NHP Historic District (Additional Documentation and Boundary Increase) was prepared in 2015.

The rehabilitation of the Great Falls Entrance Road, Upper and Lower Parking Lots, and Tavern Yard Area for which the Environmental Assessment had been prepared was undertaken in 2007. This project included an extensive renovation of the Tavern building as well. See Chapter 2, Chronology for more details.

Significance

The Great Falls Tavern is listed as a contributing resource to the National Register-listed CHOH NHP for its role in the operation of a 184.5-mile long man-made waterway from Georgetown in Washington, DC to Cumberland in Western Maryland.

The C&O Canal was listed in the National Register of Historic Places (NRHP) in 1966. After the CHOH NHP was established in 1971, NPS documented the Park and many of its contributing features, submitting supplemental information in 1979. Finally, the CHOH NHP Historic District (Additional Documentation and Boundary Increase) was accepted in 2015.

The draft HSR prepared by NPS in 1999-2000 did not include a period of significance but, based on research for this HSR, the Tavern building's period of significance spans from the start of its original construction in 1828 to the end of its use as a hotel, restaurant, and tavern in 1938 when it was acquired by NPS.

While the stewardship under NPS is important to understanding the history and evolution of the building, its historical significance is tied closely to its association with the canal and its function as a lockkeeper's residence, hotel, bar, and restaurant. The cessation of those functions in 1938 marked the end of the architectural period of significance.

Much of the original masonry structure remains at the taverns; however, other historic fabric has largely been destroyed either by flooding, fire, or removal. Additionally, the museum that opened in 1951 focused on historical interpretation of the Potomac River, C&O Canal, and local flora and fauna rather than the history of the building itself.

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Chapter 2: Chronology of Development and Use

This chapter details the physical construction, modification, and use of the structure since 1828. It is based on historical documentation corroborated by first-hand observation. A summary timeline is provided, followed by a narrative description that will be enhanced in subsequent submissions.

Timeline	
1825	Chesapeake and Ohio Canal chartered following the first C&O Canal Convention (1823). Rights to the Potomac River originally granted to the Patowmack Company transferred to the C&O Canal Company.
1828	Construction began on the C&O Canal at Little Falls and Lockhouse 12 (Great Falls Tavern).
1830	W.W. Fenlon appointed lock keeper and tavern operator. Full second story added to original stone lockhouse; north and south wings plus porches constructed. Tavern began operating.
1831	Canal Company designated the area at Lock 20 "Crommelin," in recognition of their Dutch financiers. Tavern became known as Crommelin House.
1832	Exterior window shutters added.
1848	Canal Company Board prohibited use of liquor at Crommelin House.
1849	Board ordered Crommelin House to close by January 1850 and revert to lock house only.
1851	Canal Company authorized "ballroom" at Tavern to be rented for use as a grocery.
1858	Henry Busey, lock keeper for Locks 19 and 20, reestablished hotel.
1861	Confederate troops stationed in Virginia fired shells across the river on October 4, 1861, passing through the Tavern and striking the lock-gate. Construction of the Washington Aqueduct conduit (begun in 1853) damaged the Tavern (specific type of damage unknown) so that by 1861 it was "in a very dilapidated condition" and would require the expenditure of $1,200 to "put the building in as good condition as it was before the injuries [were] sustained."[21]
1876	Tavern leased to Howard Garrett, who built a wood frame kitchen to the east side of the south wing.
1878	J. Walter Carroll leased hotel.

21 Proceedings of the President and Directors, Chesapeake and Ohio Canal Company, 1858–1866, pp. 234, 240 in Young and Jett 6.

1889	Flood caused extensive damage to the Tavern.
1896-1899	Lock shanty at north end of Lock 20 built on berm side.
1900	J. Walter Carroll left Great Falls; house no longer used as a hotel, only grocery store.
1913	Grocery store closed; Truxton Beale remodeled building and reopened as Lock Tavern Club.
1924	William H. Case opened the public restaurant Old Lock Tavern.
1926	Case rebuilt east kitchen addition dating to 1876.
1929	North porch constructed.
1936	Historic American Buildings Survey (HABS) photographed building.
1938	NPS acquired C&O Canal, including Tavern. HABS measured drawings prepared.
1940	Tavern declared structurally unsound and closed.
1941	South wing of building leased out as refreshment stand (unknown if structural repairs took place before space was leased); Civilian Conservation Corps (CCC) constructed boiler house and power house.
1948	Fire from an unknown source severely damaged the Tavern; NPS considered demolishing the building.
1949-1950	Repairs made to the Tavern to reopen the building as a visitors center and museum: repair and repointing of brick walls, chimneys, parapets and cornices; placing stucco throughout; rebuilding the three dormers in the north wing; rebuilding the center section and south wing roofs; rebuilding the masonry openings, including the installation of steel lintels; replacing most window sashes; installing flashing at the chimneys, parapets and roof/wall intersections; and inserting steel beams to reinforce the floor structure in the north wing.
1950	NPS and Montgomery County Historical Society opened museum in the Tavern.
1954	Fire (possibly electrical) damaged the south wing of the building.
1968	Three rooms and hallway on the second floor renovated.
1972	First and second floors of south wing renovated; Dormer windows replaced with louvered vents by this date. Hurricane Agnes damaged the building exterior and first floor.
1973	New gutters and downspouts most likely installed; Tavern whitewashed.[22]

22 June 19, 1973, "Specifications: Exterior Painting, Great Falls Tavern, C & O Canal National Historical Park, Great Falls, Maryland," (NPS) via Kapsch 19.

1975 Landscape plan implemented.

1977 Previous precast concrete shingles (likely installed in 1948-1950) replaced with red cedar shingle roof.

1979 Exterior whitewashed.[23]

1981 Two new hot water boilers installed to replace single hot water heater.

1982 Interior repairs made to the museum, including patching and painting the ceiling, regluing formica on exhibit cases, and repairing light fixtures and mantel supports.

1983 Security system installed.

1985 Exterior whitewashed.[24]

1994 Exterior whitewashed.[25]

1995 Exterior cleaned; Most of the work from the 1994 Strategic Work Plan completed, including: gutters/downspouts cleaned and repaired, underground drainage system cleaned, deteriorated window sills patched, interior inspected for insects and none found, some flammable and hazardous material removed from upper floors, loose and peeling wallpaper repaired.

1996 South porch reconstructed; exterior whitewashed.[26]

2000 Shutters replaced.

2002 All windows, except fanlight at north entrance, and roof coverings replaced; exterior cleaned of all whitewash and painted with latex-based paint.

2005 South porch supports installed.

2007 Tavern closed for most of the year and major renovation took place. HVAC systems replaced, south and east porches reconstructed.

2013 New hot water heater installed.

2015 North parapet repaired.

2016 Exterior painted.

23 Kapsch 20.
24 April 4, 1985 (handwritten date), "Special Provisions," (for painting of the exterior of the Great Falls Tavern); and, August 12, 1985 (date of solicitation No. IFB-3-5-112, "Paint Great Falls Tavern Exterior," 59 pages via Kapsch 21; FAX, From: Steve Kline, Historic Architect, C & O Canal NHP; To: Nancy Brown (301-413-0984), and Larry (Umberger?)(301) 413-0984; Subject: Whitewash/Painting Tavern; May 16, 1996, five pages: Specifications for 1980's painting/whitewashing attached via Kapsch 42.
25 Interview, August 24, 1999, w/Ms. Nancy Brown, NPS via Kapsch 23.
26 Interview, August 24, 1999, w/Ms. Nancy Brown, NPS via Kapsch 26.

Original Construction: 1828-1831

In October 1828, the board of directors of the Chesapeake and Ohio Canal Company approved specifications for construction of lockhouses on the lower portion of the canal. These four-room lockhouses were to be of uniform stone construction, measuring 30 feet by 18 feet and rising one and one-half stories capped by a side gable roof. Lockhouse 12, as the Tavern was initially known, was constructed to these specifications. The first floor essentially consisted of what now is Room 102 of the present structure. Although specifications for keepers' houses along the canal called for a central chimney to divide the floor space into two rooms, there is no evidence of a central chimney at the Tavern. Instead, gable end chimney stacks serving fireplaces were built.[21] The original 1830 building may have resembled the house at Lock 22 (see image in Figure 14 and floor plan in Figure 15). This lockhouse had end gable chimneys on both short walls and the spaces were divided into two rooms on the first and second floors by a perpendicular staircase. The earliest known drawings for the Tavern are the 1939 HABS drawings, which document wooden partitions that divided the space into two rooms with a hallway.[22] These drawings are shown in Figure 18 through Figure 20. Several modifications and additions had taken place by the time the Tavern was documented by HABS.

General specifications for the lockhouses called for the interior to include 1¼-inch by a maximum of 6-inch wide heart pine floors. Doors were to be of 1½-inch heart pine battened and fastened with wrought nails. The parlor door was to have a seven-inch "nob" lock and all others to have thumb latches. The principal story was to be divided into two rooms divided by a stud partition. The two rooms in the third floor story were to be separated by a 1½-inch plank partition. Ceilings and stud partitions were to be lathed and, together with

Figure 14: Lock House at Lock 22 (Pennyfield Lock), ca. 1910. (Canal Trust)

21 Kapsch 3.
22 Historic American Building Survey (HABS), "Chesapeake and Ohio Canal Lock Tenders' Houses, D.C. Up to Seneca - Montgomery County, Maryland," (U.S. Department of the Interior, 1938-1939), Sheet 29 of 44.

Drawings

By

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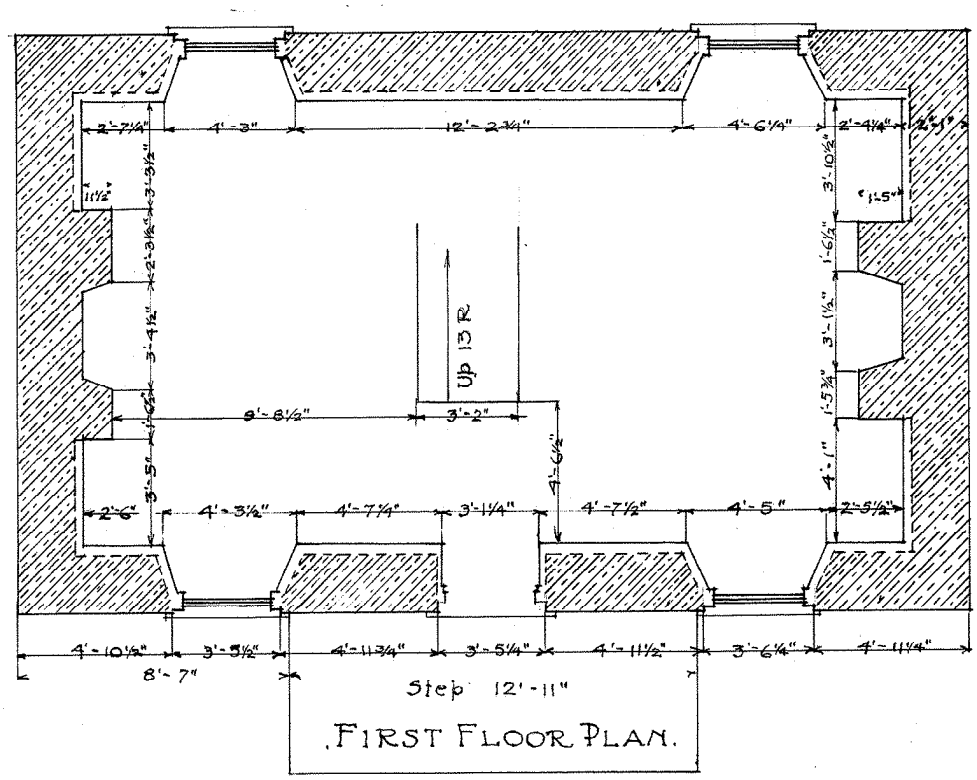

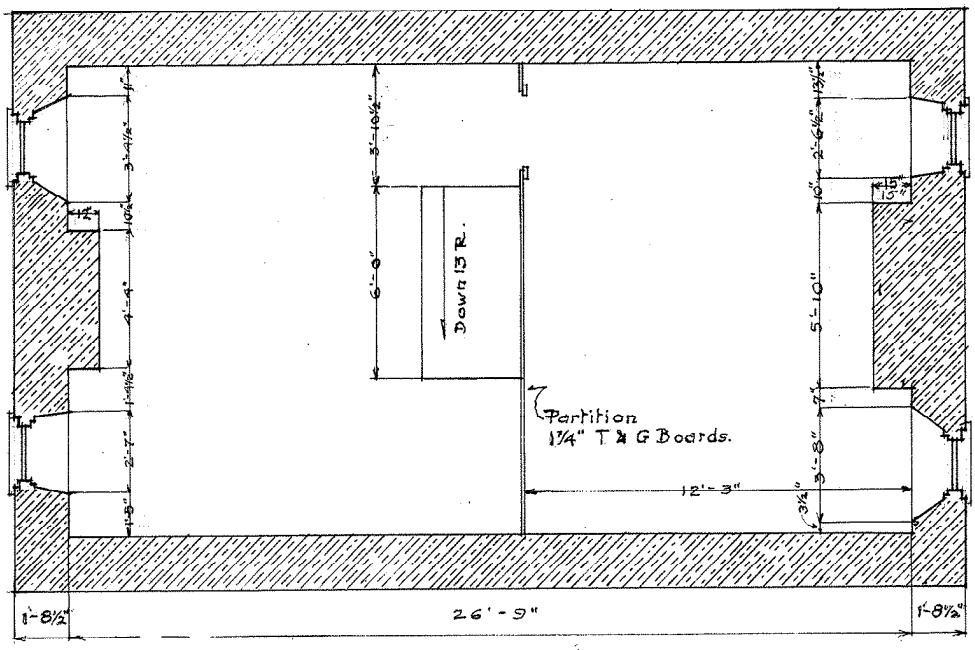

Figure 15: HABS Floor Plans of House at Lock 22, "Pennyfield Lock," 1939.

the walls, finished with three coats of lime mortar made with glue and clear sand.[23] Interior carpentry specifications called out: "The inside doors to have plain jamb casings; the washboards and surface to be plain, only single beaded; the mantel pieces to have plain pilasters and mouldings to support the shelf…"[24] Construction costs for each lock keeper's house were estimated at $828.46.[25]

Soon after completion of the building in July of 1830, it was expanded to include a tavern and hotel. By August of 1830, the Canal Company began constructing the two-story northern wing (ballroom and hotel rooms), southern wing (lock keeper's quarters), and a full second story above the original lock keeper's house.[26] From its completion in 1831 and throughout the nineteenth century, few physical modifications beyond porch construction and a kitchen addition were recorded.[27]

Figure 16: Earliest Known Photograph of Tavern Showing North and West Elevations, 1858. (CHOH NHP)

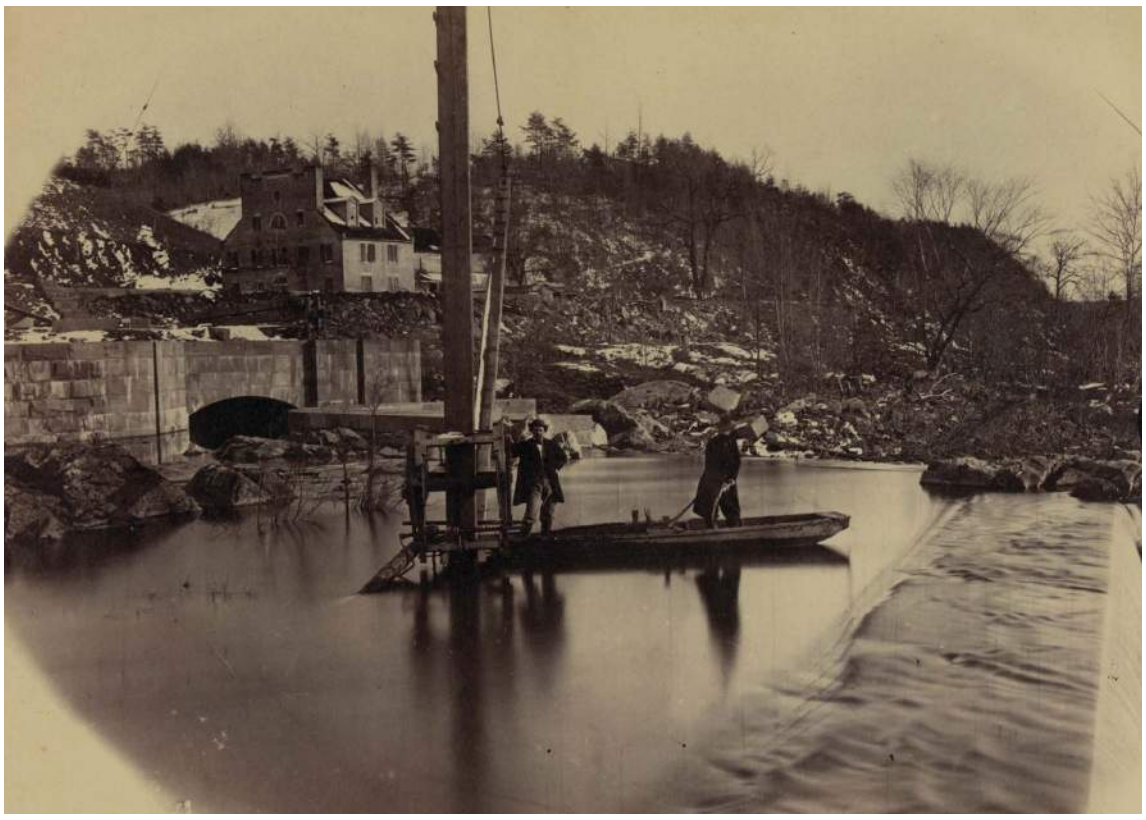

Figure 17: Washington Water Works With Tavern Beyond, 1861-1865. (Library of Congress)

23 Harlan D. Unrau, "The Story of Life Along the Chesapeake and Ohio Canal: A Study of the Lives of the Lock Keepers and the Boatmen, Chesapeake and Ohio Canal NHP Historic Resource Study" (n.p.: Chesapeake and Ohio Canal National Historic Park, March 1977), Chapter XVI, Appendix A, "Specification of a lock keepers house" (hereafter cited as Unrau, HRS, 1977).
24 Unrau 1977, Appendix A.
25 Unrau 1977, Appendix B.
26 Kapsch 4.
27 Kapsch 9-10.

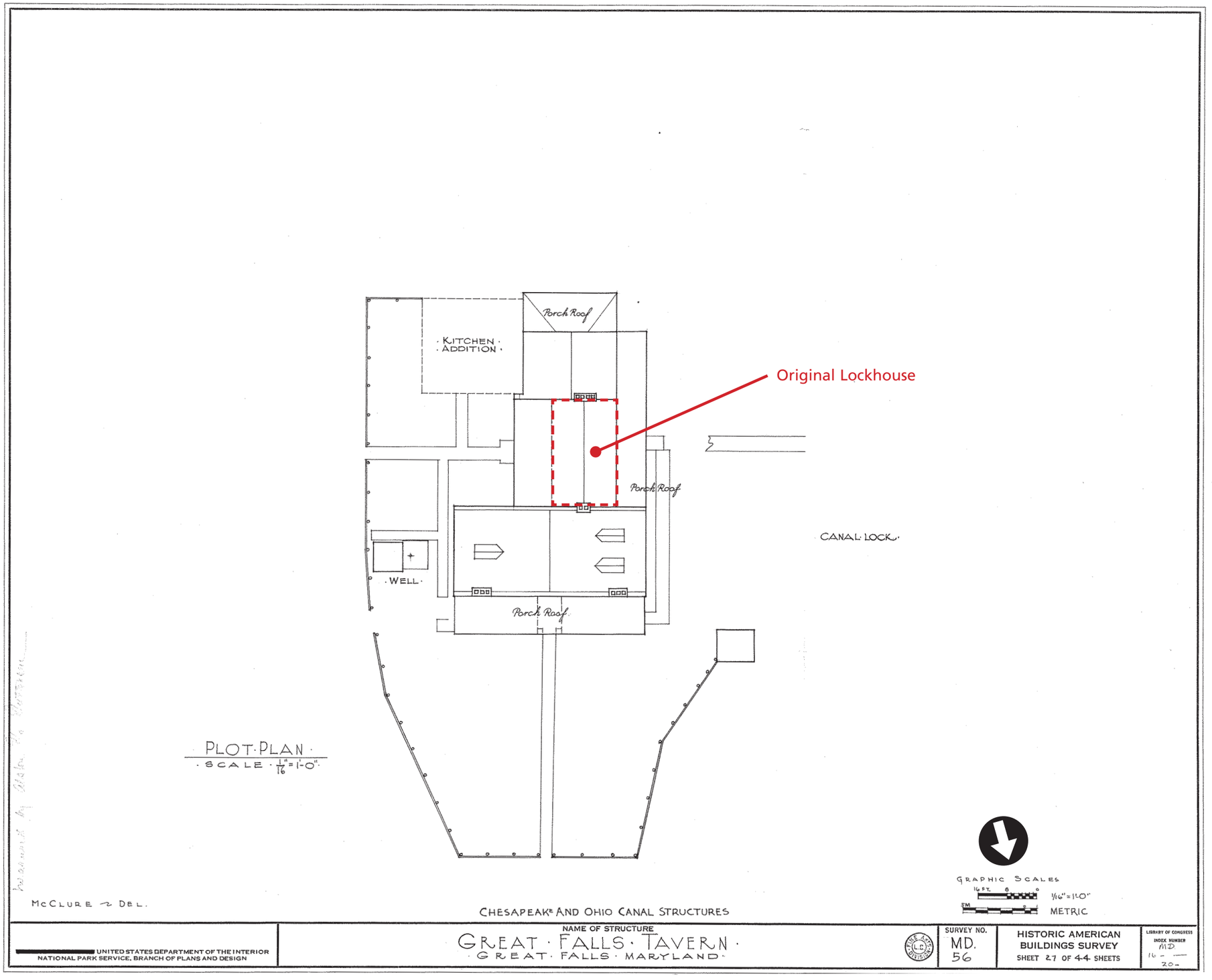

Figure 18: HABS, Site Plan, 1939 (NPS)

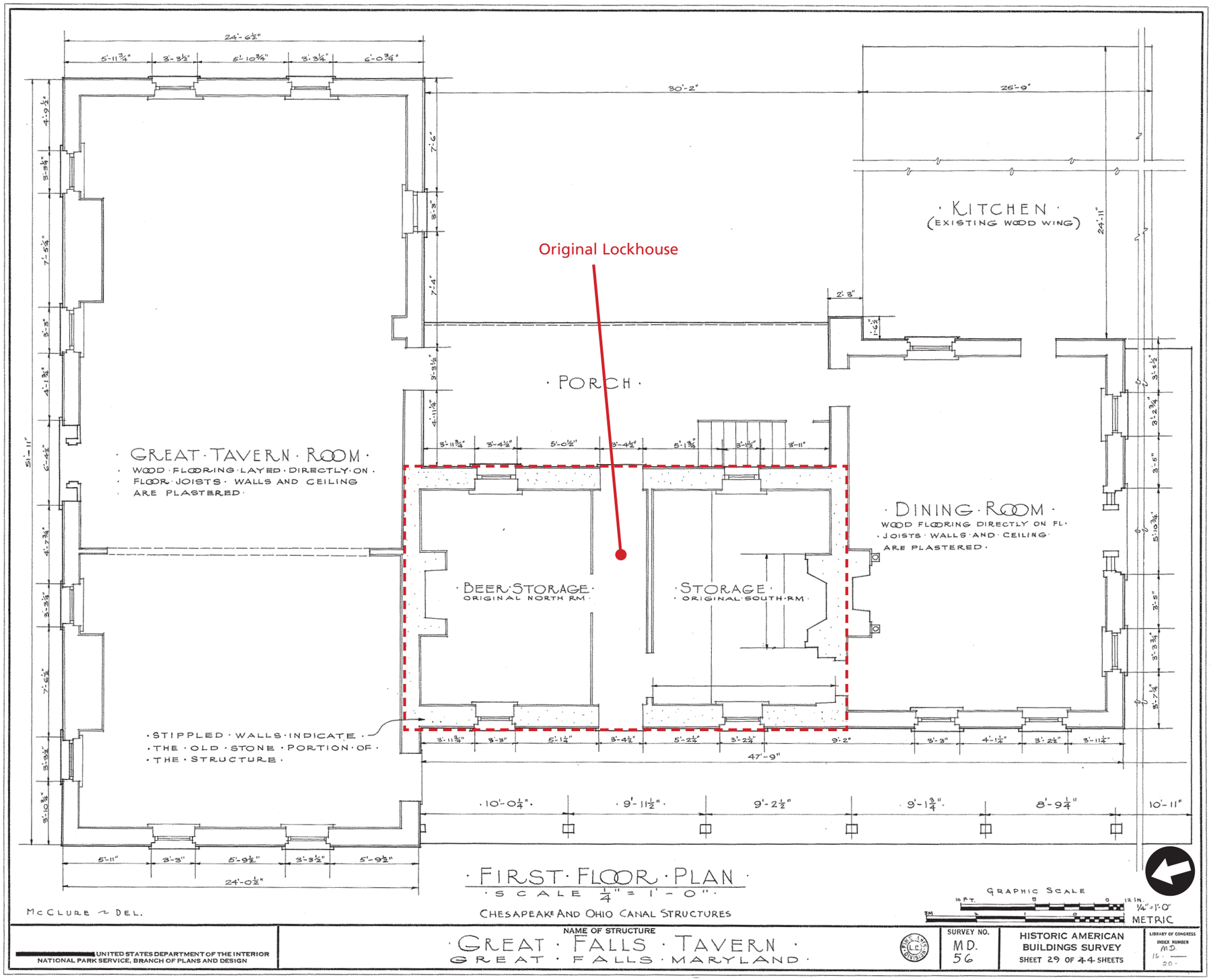

Figure 19: HABS, First Floor Plan, 1939 (NPS)

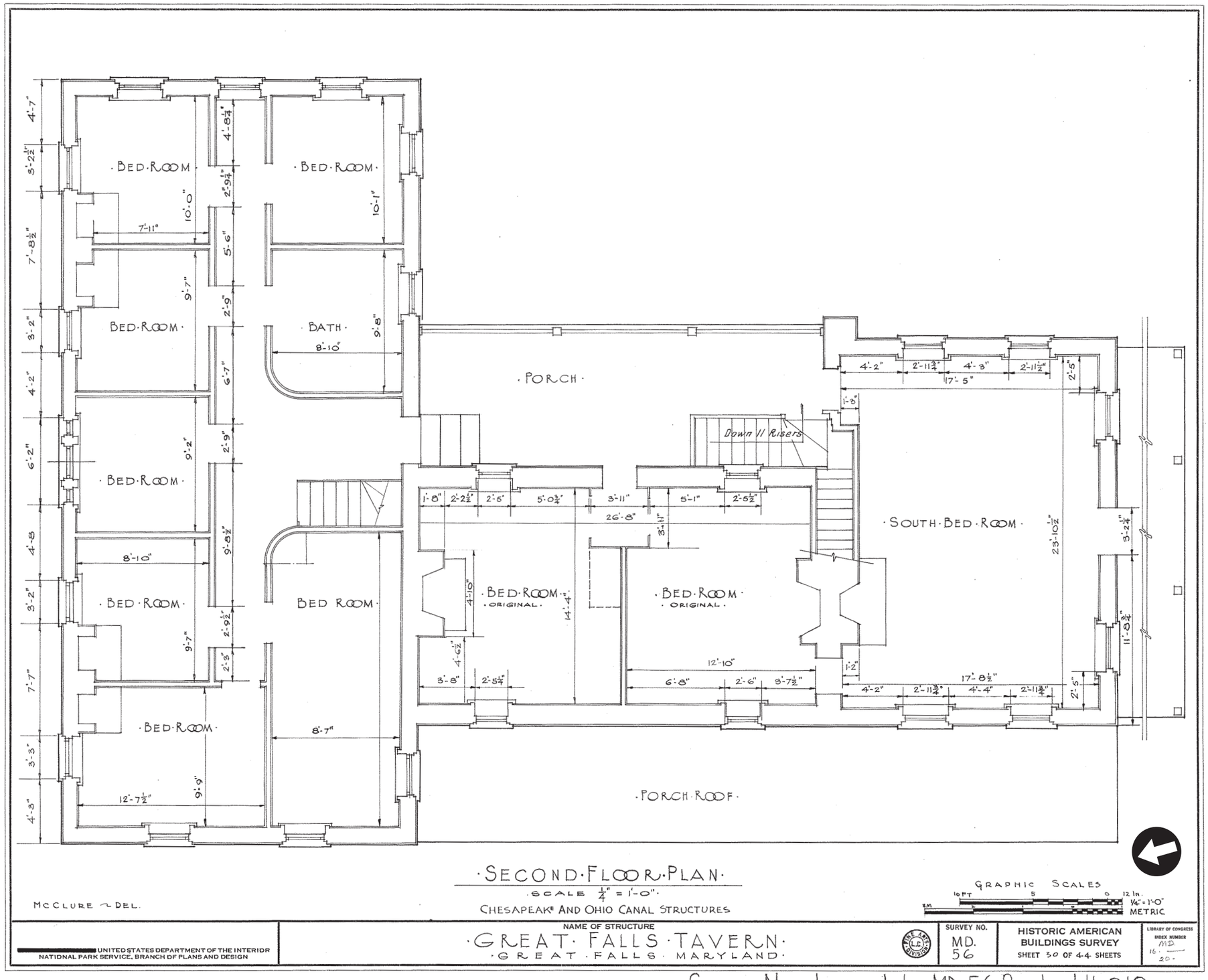

Figure 20: HABS, Second Floor Plan, 1939 (NPS)

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Figure 21: West Elevation with West Porch, 1889. Note change in floor level of porch identified in red. (Montgomery County Historical Society [MCHS])

Early Modifications 1831-1913

The area around Great Falls was christened Crommelin in June 1831 in honor of the Dutch family, the Crommelins, who provided funding for the canal construction.[28] The Tavern became known as the Crommelin House or Crommelin Hotel and provided accommodations and meals for canal travelers, visitors, and workers, while also continuing to serve as a lock keeper's residence. This multi-purpose arrangement lasted until 1848.

A porch was built on the west elevation some time after June 1831, when the president of the canal company was "empowered . . . to erect a porch in front of the Stone center of the house [at Great Falls]."[29] The southern half of this porch was not added until after 1889.[30] The full porch with a hipped wood shingle roof is visible in Figure 21 and Figure 24. Note the change in floor level of the porch indicated in red.

In 1848, the canal company prohibited the sale of alcohol at the Tavern, and in 1850, they prohibited renting of the building for commercial activity, reverting the building solely to a lock keeper's residence. In June 1851, however, the canal company allowed the "Ball Room" at the Tavern to be rented for use as a grocery store. The specific room to which this refers is unknown, but it was likely the first floor of the north wing. All floors, including the north wing first floor, were originally wood plank; the brick flooring that currently exists was installed in 1950-1951.

Henry Busey was appointed lockkeeper of Locks 19 and 20 in April 1858. The following month, 16 residents of the Great Falls area petitioned the canal's board and directors to offer "Mr. Henry Busey to keep an ordinary" (hotel) at Crommelin. They argued:

28 Rogers W. Young, "The Chesapeake and Ohio Canal and the Antebellum Commerce of Old Georgetown"
29 Proceedings, 1830–1832, 382–384
30 Statement of William H. Case, Cabin John, Maryland, made in the spring of 1939. Mr. Case was born in the Great Falls tavern in 1859, while his father, George Washington Case, was lock-keeper there. Mr. William Case spent his boyhood at Great Falls and for many years leased and ran the tavern; Chesapeake and Ohio Canal files, Branch of Historic Sites, NPS in Young and Jett 1939 (2014 ed.), 7.

Figure 22: South Elevation of Tavern at Right, Garret's Store Opposite, ca. 1889; possibly following flood of 1889. (CHOH NHP)

> *There is a large and commodious building which was originally intended for a Hotel and which has been used as such for many years . . . that is a place of great resort particularly in the summer season, large parties coming from a considerable distance to visit the falls, enjoy the scenery &c [sic], and that such parties as well as the people of the neighbourhood suffer great inconvenience for want of accommodations.*[31]

The board soon assented and Busey reopened the tavern that year. Busey only operated the Crommelin House for a relatively short time, as it appears that George Washington Case was appointed lockkeeper in late 1858 or 1859. Case was politically active and by 1860 fairly wealthy. He owned real estate worth $2,400, and the 1860 census lists his occupation as "farmer/hotel keeper," indicating that he farmed his own land away from the canal. He lived at the Tavern with his wife and three small sons.[32] The youngest, William, would return to operate the Crommelin in the 1920s.

A porch on the original rear, or east, elevation likely dates to before the 1860s, as the Superintendent of the Georgetown Division of the canal reported in January 1868 that the "carpenter work at Crommelin Hotel is almost done except the eastern portico I have not done anything to that . . ."[33] This statement indicates that the east porch existed in 1868 and was in need of repair. A sketch by Robert Latou Dickinson, dated 1919, is the first visual evidence of the east porch.

George Washington Case successfully operated the hotel in the midst of the Civil War, even remodeling the ballroom before the 1862 summer season.

The Crommelin remained open during the war and, according to the *Montgomery Sentinel*, was struck by a

31 James Y. Hening, et al., to Board and Directors, [June 1858], Letters Received by the President and Directors, RG 79 in Grassick, 2008, 48.
32 Montgomery County, Maryland 1860 Census, 194 in Grassick 49.
33 I. R. Maus, Georgetown, DC, to the President and Directors of the Chesapeake and Ohio Canal Company, Jan. 22, 1868, (Ms., C & O Records, The National Archives) in Young and Jett, 7.

Figure 23: Men and Federal Soldiers on Maryland Side Overlooking Great Falls, 1864. (Library of Congress)

Confederate shell fired across the Potomac. The paper reported:

> *A gentleman who was at the Great Falls, on Monday morning, on business, informs us that a Confederate force, whilst passing up the Potomac on the other side, fired a number of shells across the river, the first of which passed through the tavern at Crommelin, in which he was at the time. The second shell struck the lock-gate, near the house, killing four Federal troops, who were sitting on it. The troops scattered and ran all about the neighborhood. The officer in command ordered them to their guns, but they could not well get to them on account of the firing. Not a gun was fired from this side. We learn that eleven of the Federals were killed . . . And this is the truth about that battle.*[34]

Although the *Montgomery Sentinel* refers to the Crommelin as a "tavern" in 1861, George Case was not officially authorized to keep a tavern there (but not to sell alcohol) until September 1863.[35]

In June of 1862, the *Montgomery Sentinel* published an article entitled "The Great Falls of the Potomac," writing:

> *Numerous fishing parties of our pleasure-going citizens are taking advantage of the present fine weather to visit the above popular place of resort. The fine hotel at Cromelin [sic], kept by our friend, Geo. W. Case, is well supplied with everything necessary for the comfort of man or beast—its spacious ballroom having been newly fitted up and handsomely decorated, which added to the very accommodating qualities of "our host," will, we have no doubt, enhance, very materially, the pleasures of a trip, to all who choose to avail themselves of an opportunity to "trip the light fantastic [too]."*[36]

This interior decoration may have been undertaken in conjunction with the repairs made as a result of the Washington Aqueduct construction, which left the Crommelin "in a very dilapidated condition."[37]

The canal company had carpentry work done on the canal during the winter of 1867–68, and Isaac Maus, canal superintendent, pointed out to the company that Case and his family had no place to cook except "the room . . . occupied for the parlor." He suggested that "with little expense" the cellar could be outfitted as a kitchen.[38] The company authorized Maus to spend $500 on remodeling and the following year allotted additional funding to install a fence around the building.[39] George W. Case operated the Tavern until his death in 1872, at which time his widow, Elizabeth Thrift Case, assumed the lockkeeper position.[40]

In his 1981 draft report, James Corless concludes that after George Case's death in 1872, the house was not used as a hotel; the canal company wanted to operate it only as a tavern, not a lockkeeper's residence or hotel. In 1874, the board of the canal company authorized their president to rent out the Tavern, "provided the use of the house was dispensed with" and the lockkeepre re-

34 *Montgomery Sentinel,* October 4, 1861.
35 September 24, 1863, vol. K, p. 352, Proceedings of the President and Directors, RG 79, NARA.
36 *Montgomery Sentinel,* June 20, 1862.
37 Unrau 24.
38 I. R. Maus to Board of Directors, January 22, 1868, Letters Received by the Office of the President and Directors, RG 79, NARA in Young and Jett, 14
39 January 23, 1868 and October 12, 1869, vol. L, p. 92, 206, Proceedings of the President and Directors, RG 79, NARA in Grassick 50.
40 August 14, 1872, vol. M, p. 49, Proceedings of the President and Directors, RG 79, NARA in Grassick 50.

located.[41] Howard A. Garrett took over the building in 1874, requesting that a carpenter be sent immediately to do "some really necessary repairs to [the] Hotel."[42] Garrett added a kitchen on the east side of the south wing of the Tavern in 1876. He also dug a well on the east side of the Tavern. It does not appear that Garrett took on any lock-tending duties when he was operating the hotel, as the day after he took over the canal company president and directors appointed Samuel Mansfield lockkeeper of Locks 19 and 20. Mansfield lived nearby.[43]

The Tavern operated as a hotel, bar, and restaurant off and on under various managers from the 1870s to 1913. John Walter Carroll leased the Tavern from 1878 to at least 1893. Upon his arrival at the Crommelin, the *Montgomery Sentinel* reported:

> *Mr. J. Walter Carroll has leased the Cromelin* [sic] *hotel at the Great Falls which will be opened to guests on the first of May. He is having it thoroughly renovated, and will offer to the public's patronage a first class house in every particular. As he fills a need long felt we wish much success, and hope to enjoy his "good cheer" before the fishing season is over.*[44]

The May 1st opening was probably typical, as the hotel was likely open seasonally. Images of the Tavern in use as a hotel are included here.

The south porch was constructed by 1896, although it may have been concurrent with the east porch. The south porch is visible in Figure 22, as are exterior stairs to the second level of the south porch partially obscured by trees. All porches originally had wood floors.

Figure 24: Group on West Elevation, ca. 1880-1889. (DC Public Library Washingtoniana Division [Washingtoniana])

41 March 17, 1874, vol. M, p. 153, Proceedings of the President and Directors, RG 79, NARA in Grassick 51.
42 Howard A. Garrett to A. P. Gorman, March 31, 1874, Letters Received by the President and Directors, RG 79, NARA in Grassick 51.
43 I. R. Maus to A. P. Gorman, May 13, 1874, Letters Received by the President and Directors, RG 79, NA in Grassick 52.
44 *Montgomery Sentinel*, May 3, 1878, in Grassick 53.

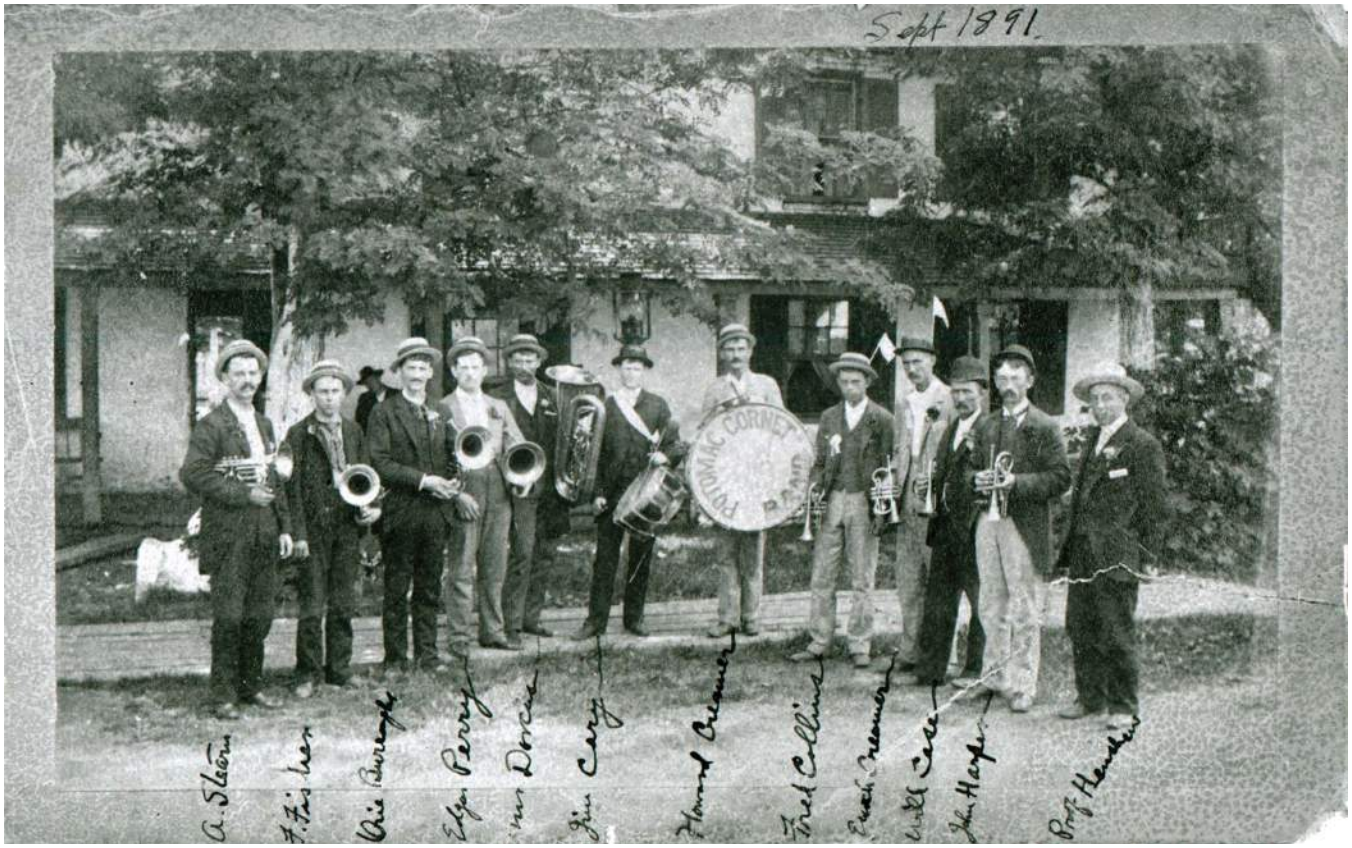

Figure 25: Potomac Coronet Band at West Elevation, 1891. (MCHS)

Figure 26: Group at Lock 20 in Front of West Elevation, ca. 1900. (Canal Trust)

Figure 27: Washington Light Infantry Corps Basketball Team at North Elevation, 1898. (Historical Society of Washington [HSW]) NOTE: non-watermarked copy will be included in 90% Submission

Figure 28: North Elevation, Possibly with Tavernkeeper's Family, ca. 1902. (CHOH NHP)

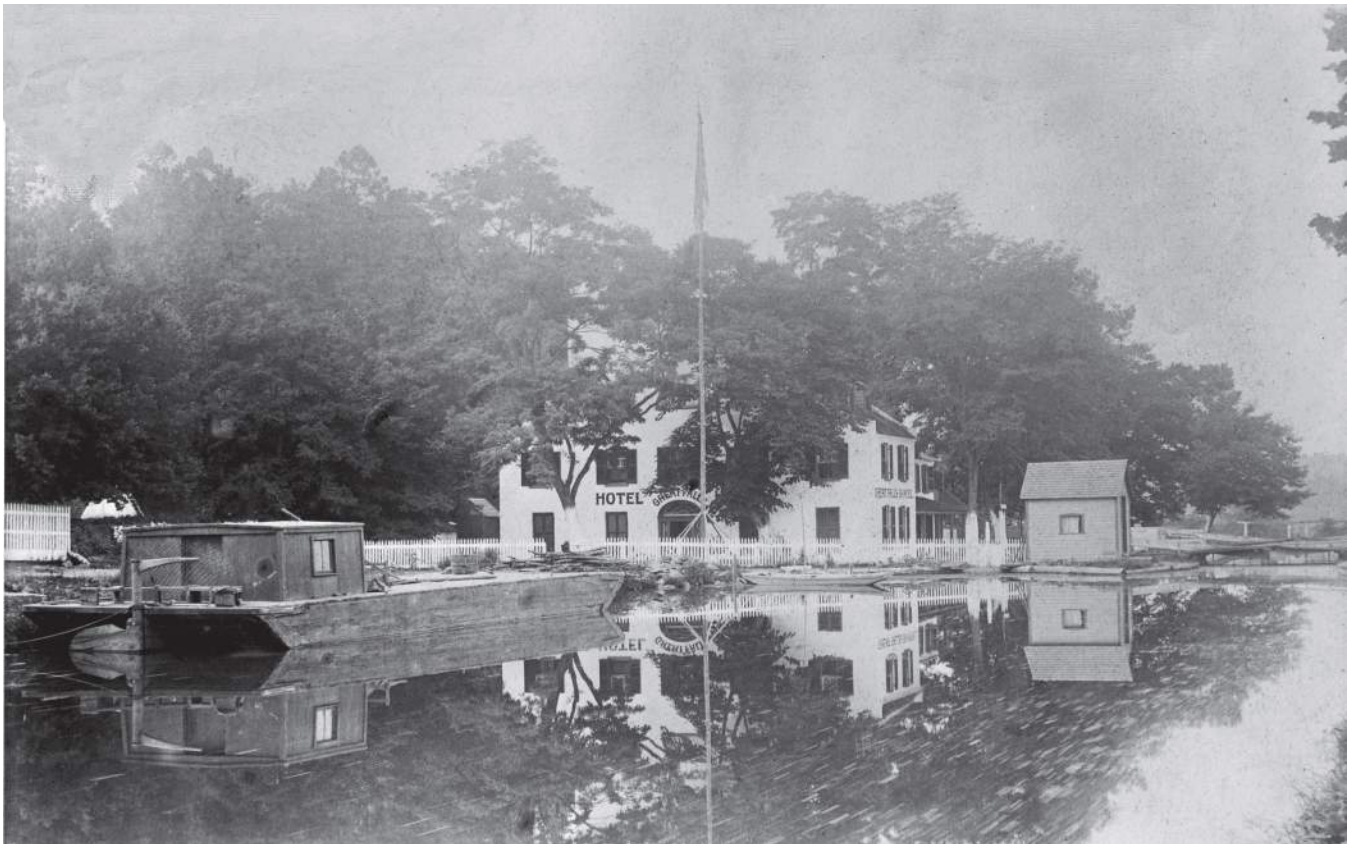

Figure 29: North and West Elevations with Scow on Canal, Looking Southeast, ca. 1900. (CHOH NHP)

While Great Falls was a popular attraction in the mid-nineteenth century, construction of a footbridge from the canal to the east side of the falls in 1880 drew even more visitors. The semi-suspension wood bridge was very popular, but only existed for about nine years before it was destroyed by the same severe weather system that caused the Johnstown Flood of 1889 (Figure 30 to Figure 32).

Private Club and Public Restaurant: 1913-1938

Truxton Beale signed a lease for the Tavern on April 10, 1913 and extensively renovated the building. In June 1913, the Washington Post reported that a committee of the Board of Trade had "their regular monthly dinner at the Old Lock Tavern, which has just been renovated." The 35 members of the committee met in their rooms in the city at 12:30, drove in their automobiles to the Maryland side of the Great Falls, and sat down to dinner at 1:30. After dinner they played games and returned to Washington at sundown.[45]

Figure 30: Family Crossing Bridge to Great Falls, Looking East with Tavern Behind, 1880-1889. (Washingtoniana)

45 *Washington Post*, June 15, 1913.

Figure 31: Georgetown University Students on Swinging Bridge Over Potomac; Garrett's Store and Tavern at Far Right, 1880-1889. (CHOH NHP)

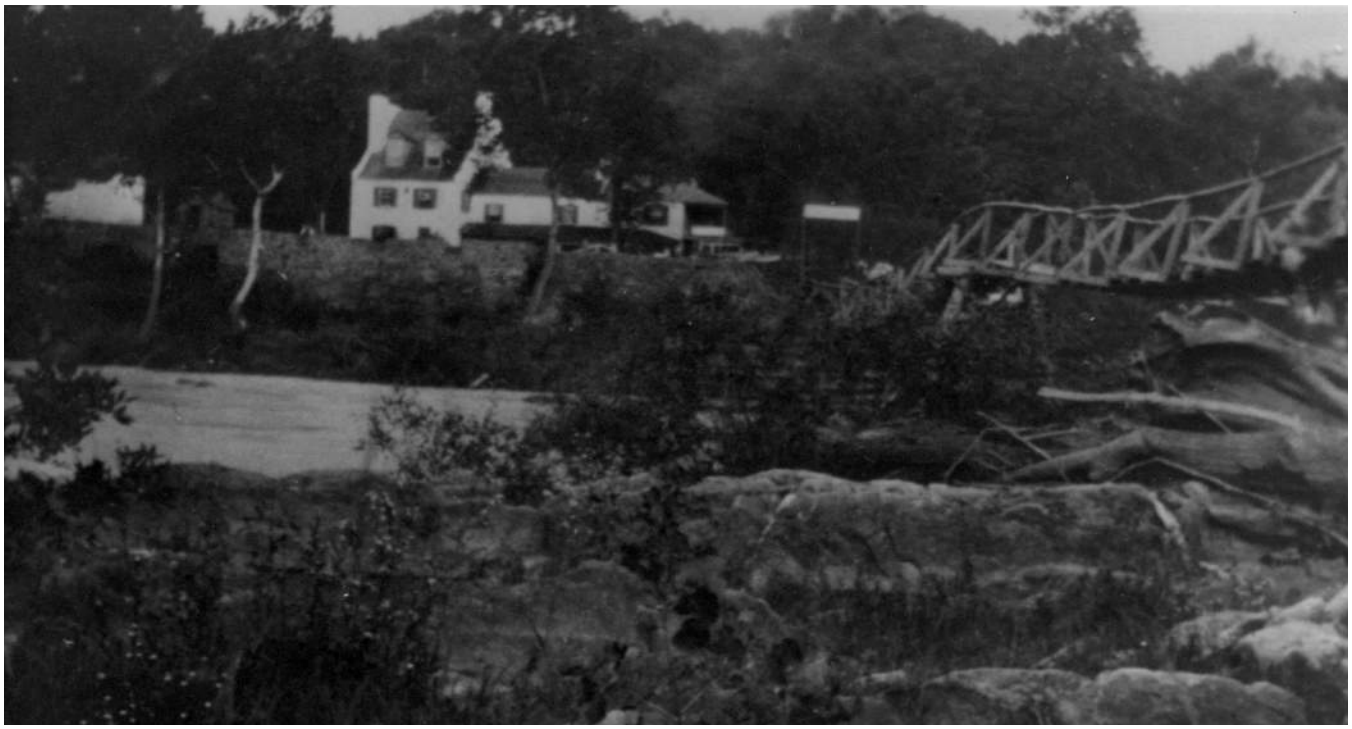

Figure 32: West Elevation and Wooden Suspension Bridge Seen from Potomac River Island, Looking East, 1880-1889. (CHOH NHP)

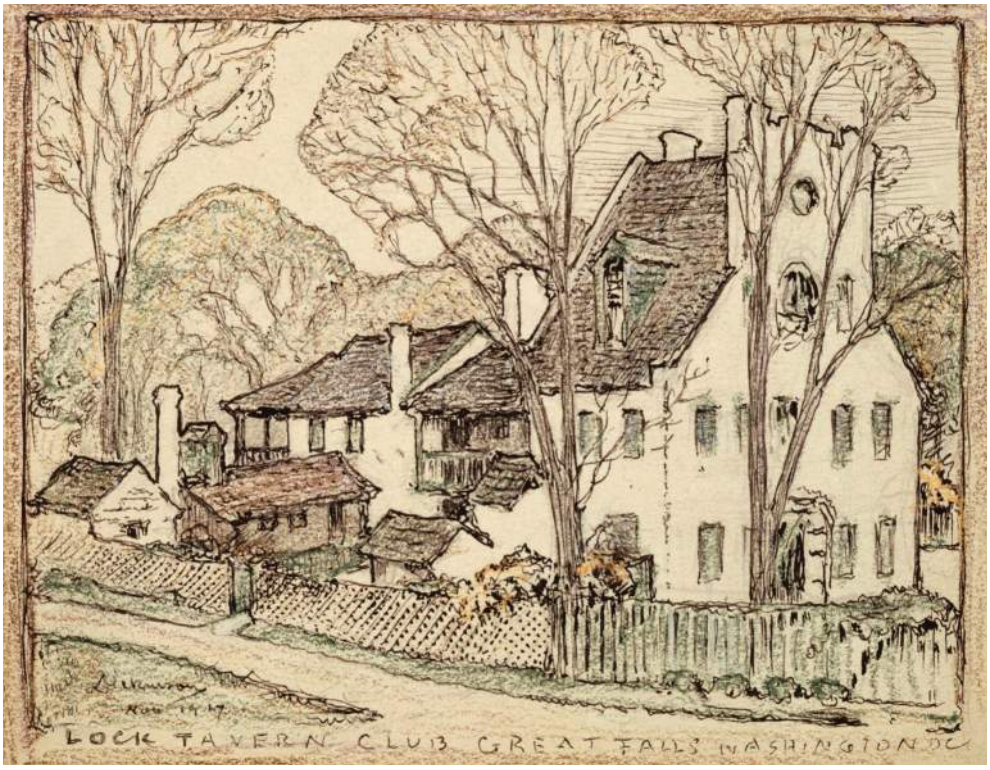

Figure 33: Drawing of Lock Tavern Club, North and East Elevation Looking Southwest, 1917. (Library of Congress)

A July 1913 *Washington Post* article promoting a new electric rail line from Washington to Great Falls hailed Beale's remodeling and described the newly opened public hotel:

> *Seven bedrooms have been remodeled and two baths added. The living room, dining room, and kitchen have been made modern in every way. The grounds and exterior of the building are undergoing repair.*[46]

This renovation included the replacement of the west porch that previously had a step from the north to the south portion and was covered by a shingled hipped roof. The new west porch had an even floor and a standing-seam metal shed roof.

By spring 1914, the Old Lock Tavern was slated to become the centerpiece of the new "Lock Tavern Club." The building would become the clubhouse for "Washington's newest country club . . . now being formed by prominent members of leading clubs of the city." The clubhouse was to "occupy the historic old inn, leased by Mr. Truxtun [sic] Beale, located on the Potomac about 14–1/2 miles from Washington, at a point just above Great Falls, in a section noted for its scenic beauty."[47]

Membership was drawn from existing members of the Metropolitan, Cosmos, University, Patuxent, Army and Navy, Country, and Chevy Chase clubs, and was limited to 200 men, although wives of members were eligible. Annual dues were $15, plus a $10 initiation fee. In addition to creating another Washington-area club, the founders were "guided by a desire to preserve the stately old house which is linked with so many cherished traditions." The *Washington Post* article reporting on the club claimed that one of those traditions was the patronage of George and Martha Washington; this was clearly not possible, as Washington died in 1799.[48]

The *Post* went on to describe the many amenities of the location, not least of which was the tavern itself:

46 *Washington Post*, July 13, 1913.
47 *Washington Post*, April 9, 1914.
48 *Washington Post*, April 9, 1914.

Figure 35: Lock Tavern Club, West Elevation, ca. 1913-1917. (CHOH NHP)

Figure 34: Lock Tavern Club, Canal Towage Co. No. 55 Going Through the Lock, ca. 1913-1917. (CHOH NHP)

The house is located in the center of a picturesque estate, and is splendidly furnished. Colonial touches are observed in the appointments of each of the twelve spacious bedrooms. There is a small library . . . The lessee, at considerable expense, recently made many improvements on the property, and in its present condition it is said to be excellently adapted to the purposes of the new club.

In April 1918, officers of the Lock Tavern Club signed a two-year lease with trustees of the canal company, renting "'the hotel property' located on the berm bank of the Chesapeake and Ohio Canal, opposite Lock 20, at the Great Falls of the Potomac River." The club paid a total of $2,400 in rent with payments due quarterly, and had an option for a five-year extension under the same terms.[49]

The canal company continued to hire and oversee lockkeepers during this period. Otho Swain recalled his father Jess Swain tending the locks at Great Falls before World War I, although he did not stay there long, and a lockkeeper named Elliott lived in a log house near the tavern during the period from 1918 through 1923.[50]

It is unclear how long the Lock Tavern Club remained in operation, although fire insurance policies issued in 1922 and 1923 refer to the tavern as the "Club House," which suggests that the Lock Tavern Club was still in existence at that time.[51] Coverage of club activities in the Washington Post stops after early 1916, but perhaps the club's popularity simply waned. A serious flood in 1924 probably affected the tavern building and the surrounding grounds. The canal company trustees signed a new lease with Will and Augusta Case on June 1, 1925, indicating that the club was defunct at that point.[52]

Figure 36: West Elevation, Looking Northeast from Lock 20, ca. 1913. (CHOH NHP)

49 Tavern Club Lease, 1918, Leases and Other Records, 1890–1938, RG 79, NARA.
50 Elizabeth Kytle, Home on the Canal (Baltimore: The Johns Hopkins University Press, 1983), p. 138; Samuel L. Davis to Thomas Hahn, January 1979, in Thomas F. S. Hahn, The Chesapeake and Ohio Canal Lock- Houses and Lock-Keepers (Morgantown, WV: Institute for the History of Technology and Industrial Archaeology at West Virginia University, 1996), p. 79.
51 Insurance Policies, 1922, 1923, Leases and Other Records, 1890–1938, RG 79, NARA.
52 Lease, 1925, Historic Resource Files, CHOHA-Acc.106, C&O Canal NHP, Hagerstown, MD.

NPS Acquisition: 1938-1948

The NPS acquired the Great Falls Tavern property in 1938. The intention was to lease the Tavern to a food operator: "Continued operation of the old tavern at Great Falls is contemplated under lease or concession on a basis somewhat more like its original use," the Park Service announced upon its acquisition.[53] A press release continued: "In recent years the old tavern has continued to provide chicken dinners as of old, but in some respects it has assumed more the atmosphere of a 'hot dog' and refreshment stand on the outside."

The building was documented by the HABS in 1938-39. By 1936, a one-story porch had been added to the north elevation. NPS issued a set of drawings calling for extensive rehabilitation and renovation in 1939 (see Figure 45 through Figure 47); however, the work was not initiated at that time.

A 1939 report stated: "Until the best use for this building that has provided food and shelter on the Canal for the greater part of a century is determined, only the most sorely needed repairs to save the building from further dilapidation are to be made."[54]

Figure 37: North and East Elevations Looking Southwest, 1936. (HABS)

Figure 38: North and West Elevation, Looking Southeast, 1939. (CHOH NHP)

53 Interior Department press release dated Sept. 26, 1938 , C & O Canal file 650.03, National Capital Parks, National Park Service, Record Group 79, National Archives, Washington, D.C.

54 Dallas D. L. McGrew, "Outline Report of Architectural Work on the Restoration of the Chesapeake and Ohio Canal for Recreational Use (Georgetown, D.C., to Seneca, MD)," NPS Branch of Plans and Design, 1939, 40.

Figure 39: East Elevation with Frame Kitchen Addition, 1939. (CHOH NHP)

Figure 40: South and West Elevation, Looking Northeast, 1939. (CHOH NHP)

Figure 41: West Elevation, Looking East, 1939. (CHOH NHP)

When an architect and engineer inspected the tavern in late 1940, they found it unsafe for occupancy. The joists, sills, and flooring were rotted and near collapse, the rear upstairs porch was severely decayed, the plaster throughout was loose and falling, and the wiring constituted a fire hazard. They recommended that the contents be removed, the electricity be disconnected, and the building be closed pending its complete rehabilitation.[55] Photographs of the Tavern from 1936 to 1939 are included as Figure 37 through Figure 41. These photos show concrete shingle roofs on the main building and north porch, and corrugated metal roofing on the west porch.

In 1948, a fire damaged the building, as seen in photographs in Figure 42 through Figure 44. NPS considered demolition but instead opted to restore it.

55 Memorandum, NCP Superintendent C. Marshall Finnan to Arthur E. Demaray, Feb. 10, 1939; memorandum, Dick Sutton to Francis F. Gillen, Dec. 10, 1940. Both memos C&O file 650.03, RG 79 in Barry Mackintosh, *C & O Canal: The Making of a Park*, 1991.

Figure 42: North and West Elevation, Looking Southeast, 1949. (CHOH NHP)

Figure 43: North Wing First Floor After Fire in 1948, looking NE. (NPS)

Figure 44: South Wing First Floor After Fire in 1948, looking SW. (NPS)

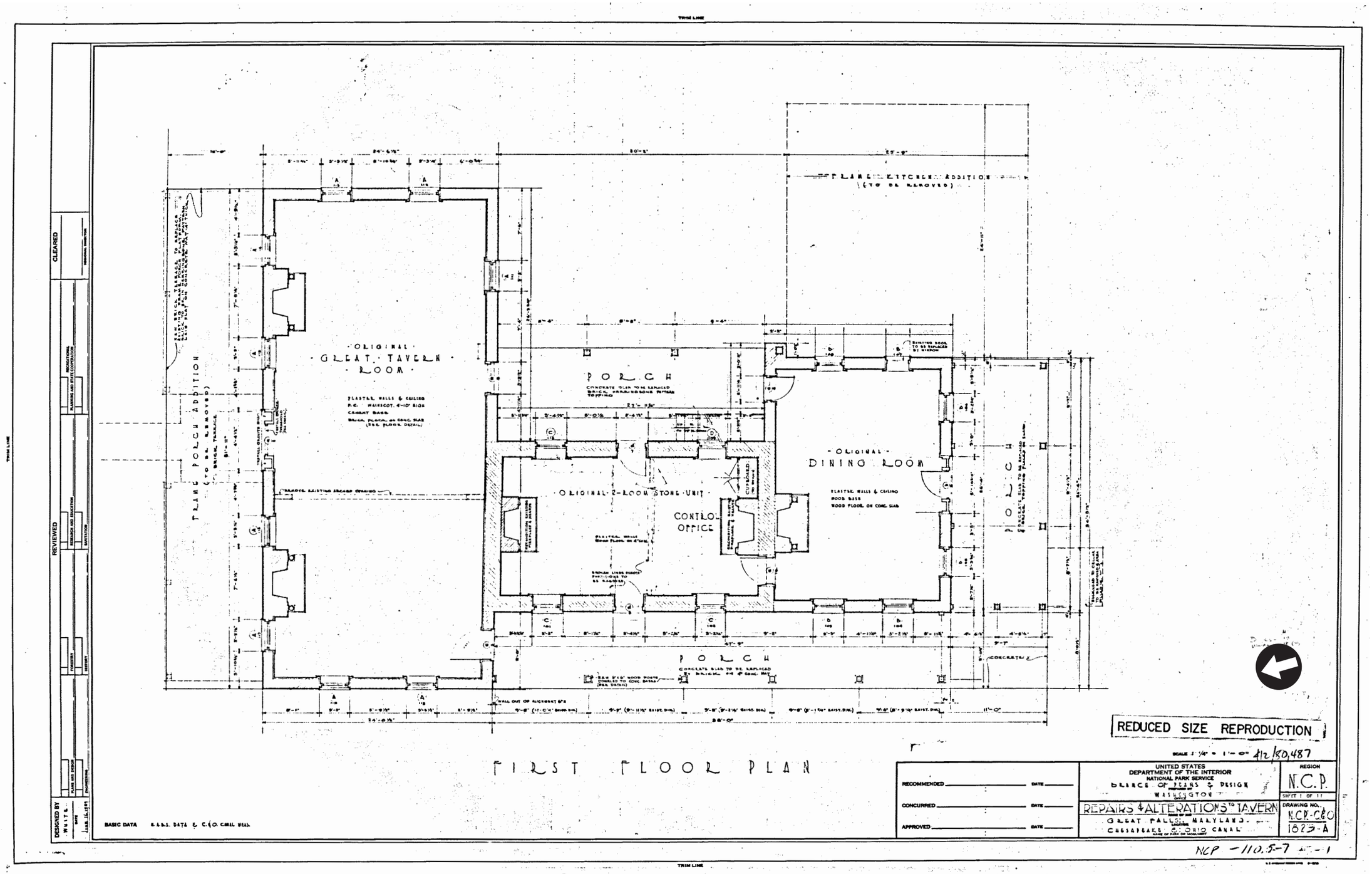

Figure 45: Unexecuted Repairs and Alterations to Tavern, First Floor Plan, 1939. (NPS)

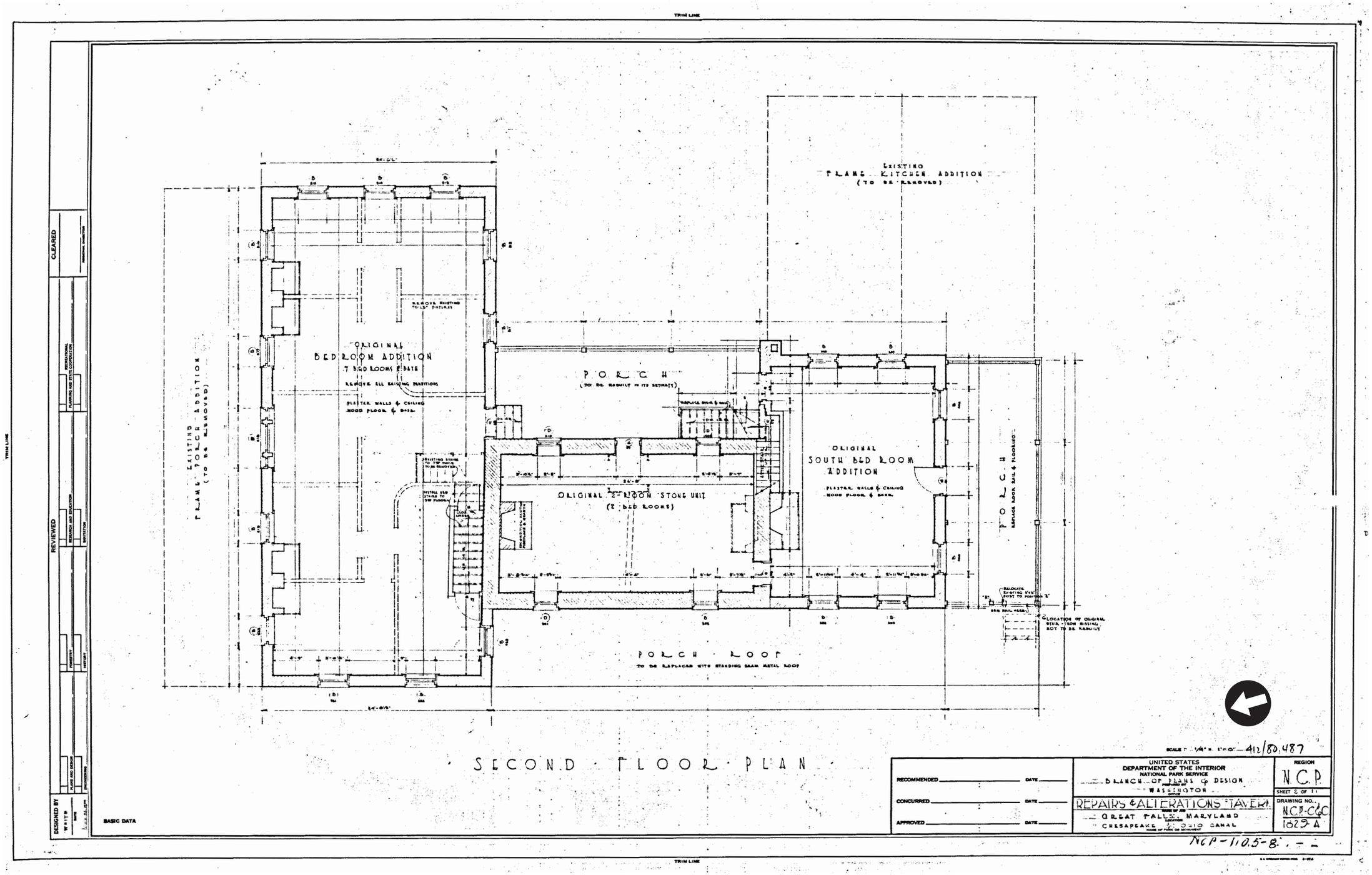

Figure 46: Unexecuted Repairs and Alterations to Tavern, Second Floor Plan, 1939. (NPS)

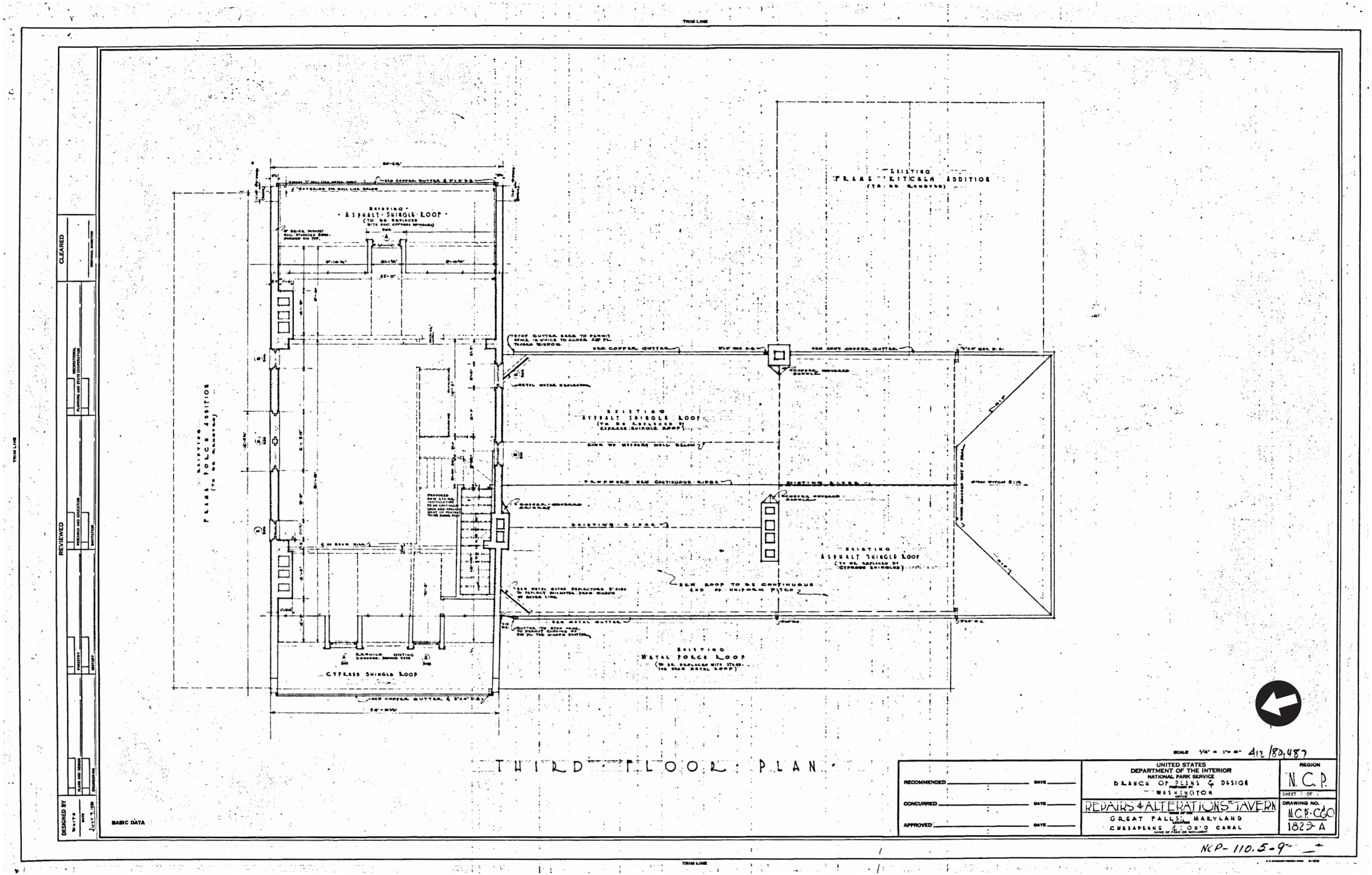

Figure 47: Unexecuted Repairs and Alterations to Tavern, Third Floor Plan, 1939. (NPS)

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Initial Renovation: 1950-1951

Repairs to the Tavern building took place between 1950 and 1951. The work was based on a set of drawings dating to 1949 that were revised from the 1939 drawings. Physical evidence suggests that the early 1950s renovation included removal of most of the historic material from the building interior. The numerous flood events throughout the history of the building, previous rehabilitation work, and two fires lead to the conclusion that many interior elements may have been too damaged to retain, or perhaps too expensive to repair.

The 1950-1951 work went well beyond cosmetic changes and included replacement of wood framing in the center and southern sections of the building, and plaster finishes throughout most of the structure. Construction drawings prepared in 1949 indicate the entire first floor was rehabilitated. The north wing first floor wood framing was removed and replaced with a concrete slab. Instead of covering the slab with wood planks as before, the slab was covered with brick. This was likely due to the frequent flooding of the room.

The overall work included repair and repointing of brick walls, chimneys, parapets and cornices; applying stucco throughout; rebuilding the three dormers in the north wing; rebuilding the central and south section roofs; rebuilding the masonry openings, including the installation of steel lintels; replacing most window sashes; installing flashing at the chimneys, parapets and roof/wall intersections; and inserting steel beams to reinforce the structure in the north section. Only minor fireplace work and radiator installation appear to have taken place at the north wing second floor.

The 1951 set of construction drawings also called for installing copper gutters and downspouts. However, a job order request was approved in 1973 for copper gutters and downspouts. It is unlikely these would be replacements for 1950s copper gutters and downspouts, so they were probably not installed until 1973. The current gutters and downspouts date from 2002.

The new C & O Canal Museum formally opened on Wednesday, July 11, 1951. According to an article in the *Washington Evening Star*, "Assistant Director Hillory A. Tollson of the National Park Service and Superintendent Edward J. Kelly of National Capital Parks formally opened it in the presence of a small invited group of park officials and residents who had helped in assembling the initial nucleus of exhibits." Photos of what may be this opening are presented in Figure 48 and Figure 49.

Among the small group were "90-year-old Mrs. Lucy C. Stone, founder and honorary president of the Montgomery County Historical Society, Mrs. Jesse C. Nicholson, president, and Jack Bentley, chairman of the museum committee of the society." This may be the group pictured in Figure 49.

Even before the formal opening, over 1,000 people "without benefit of a single advance publicity notice" visited the museum the preceding Sunday.[56]

The interior of the north wing first floor was fully renovated and turned into a museum, shown in Figure 50 through Figure 55. The center attraction was a "30-foot dugout hewn from a single log believed to have been used on the Potomac River in the late 18th century," seen in Figure 51, Figure 53, and Figure 54.[57]

56 "Canal Museum at Great Falls to Pay Off in Pleasure Dividends," *Washington Evening Star*, July 12, 1951.
57 "Canal Museum," *Washington Evening Star*, July 12, 1951.

Figure 48: Undated, untitled photograph; Possibly museum opening, July 1951. (NPS)

Figure 49: Undated, untitled photograph; Possibly museum opening, July 1951. (NPS)

Figure 50: North Wing, First Floor After Renovation, West Fireplace on North Wall Looking Northeast, ca. 1951. (CHOH NHP)

Figure 51: North Wing, First Floor After Renovation, Looking Northeast to North and East Walls, ca. 1951. (CHOH NHP)

Figure 52: North Wing, First Floor After Renovation, East Wall Looking East, ca. 1951. (CHOH NHP)

Figure 53: North Wing, First Floor After Renovation, West Wall Looking Southwest, ca. 1951. (CHOH NHP)

Figure 54: North Wing, First Floor After Renovation, looking Southeast ca. 1951. (National Capital Parks: A History)

Figure 55: North Wing, First Floor, Looking Southeast to Opening Perpendicular to South Wall, ca. 1951. (CHOH NHP)

Minimal repairs appear to have been made to the center section during this time. Repairs to the interior of the south wing undertaken at this time are unknown, but the upper floors of the north wing definitely remained untouched until the late 1960s. The circa 1950s conditions of the center section and upper floors of the north wing are shown in the undated photographs in Figure 56 to Figure 68.

Figure 56: North Wing, Second Floor Before Renovation, Door in South Wall Looking South, ca. 1950s. (CHOH NHP)

Figure 57: North Wing, Second Floor Before Renovation, Main Hallway Looking East, ca. 1950s. (CHOH NHP)

Figure 58: North Wing, Second Floor Before Renovation, Likely Fireplace in Room 206 Looking Northwest, ca. 1950s. (CHOH NHP)

Figure 59: Likely North Wing, Second Floor Before Renovation, Unknown Room, ca. 1950s. (CHOH NHP)

Figure 60: North Wing, Second Floor Before Renovation, Fireplace in Room 207 or 210 Looking Northeast, ca. 1950s. (CHOH NHP)

Figure 61: North Wing, Second Floor Before Renovation, Likely Fireplace in Room 209 Looking Northwest, ca. 1950s. (CHOH NHP)

Figure 62: Center Section, First Floor During Renovation, East Wall Looking Southeast, ca. 1950s. (CHOH NHP)

Figure 63: Center Section, First Floor During Renovation, North Wall Looking Northeast, ca. 1950s. (CHOH NHP)

Figure 64: Center Section, First Floor During Renovation, Southwest Corner Looking Southwest, ca. 1950s. (CHOH NHP)

Figure 65: Center Section, First Floor During Renovation, Northeast Corner Looking Northeast, ca. 1950s. (CHOH NHP)

Figure 66: Center Section, First Floor During Renovation, South Wall Looking South, ca. 1950s. (CHOH NHP)

Figure 67: Center Section, Second Floor During Renovation, North Wall Looking North, ca. 1950s. (CHOH NHP)

Figure 68: Center Section, Second Floor During Renovation, Southwest Corner Looking Southwest, ca. 1950s. (CHOH NHP)

Figure 69: Center Section, Second Floor During Renovation, Southeast Corner Looking Southeast, ca. 1950s. (CHOH NHP)

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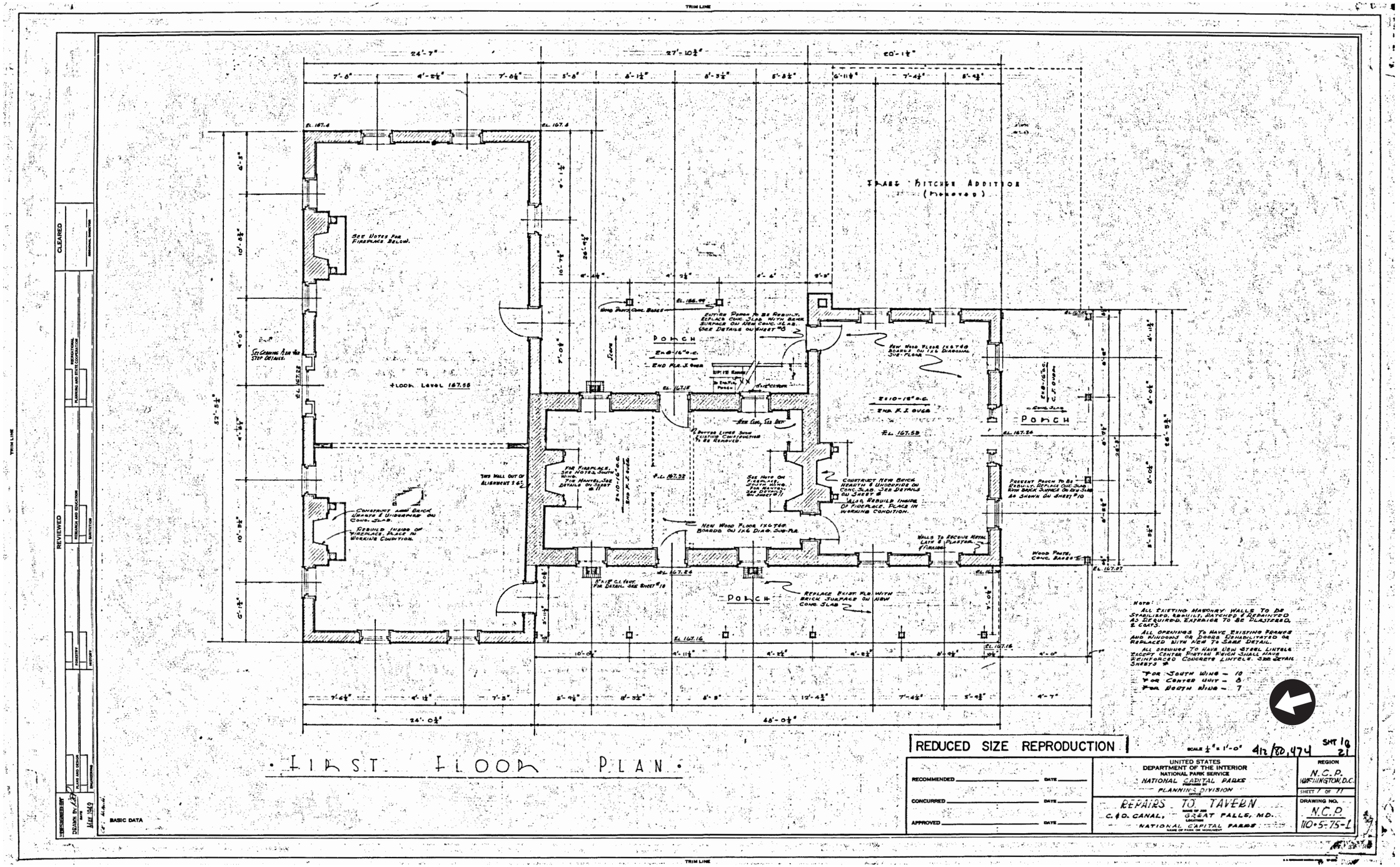

Figure 70: Repairs to Tavern, First Floor Plan, 1949. (NPS)

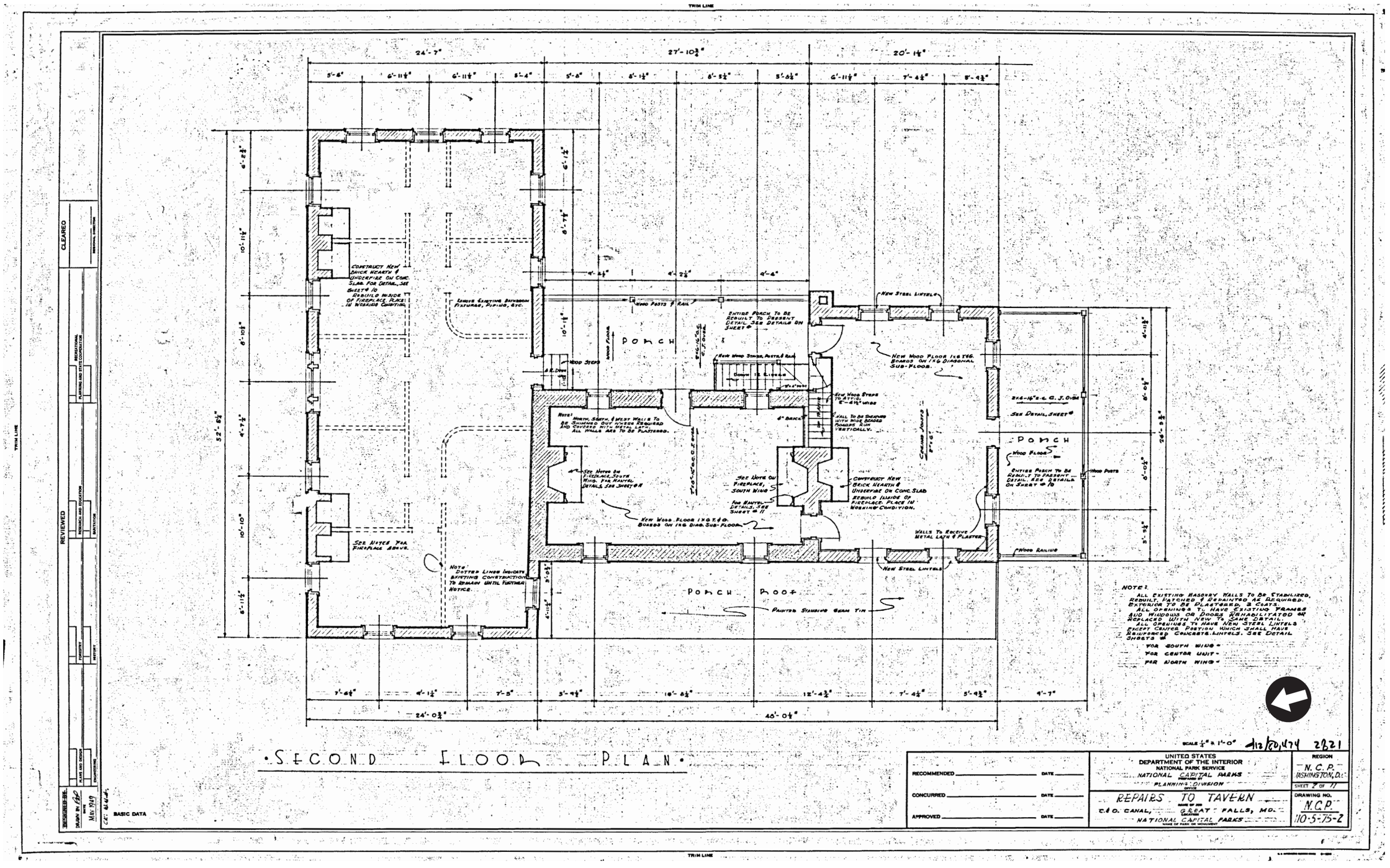

Figure 71: Repairs to Tavern, Second Floor Plan, 1949. (NPS)

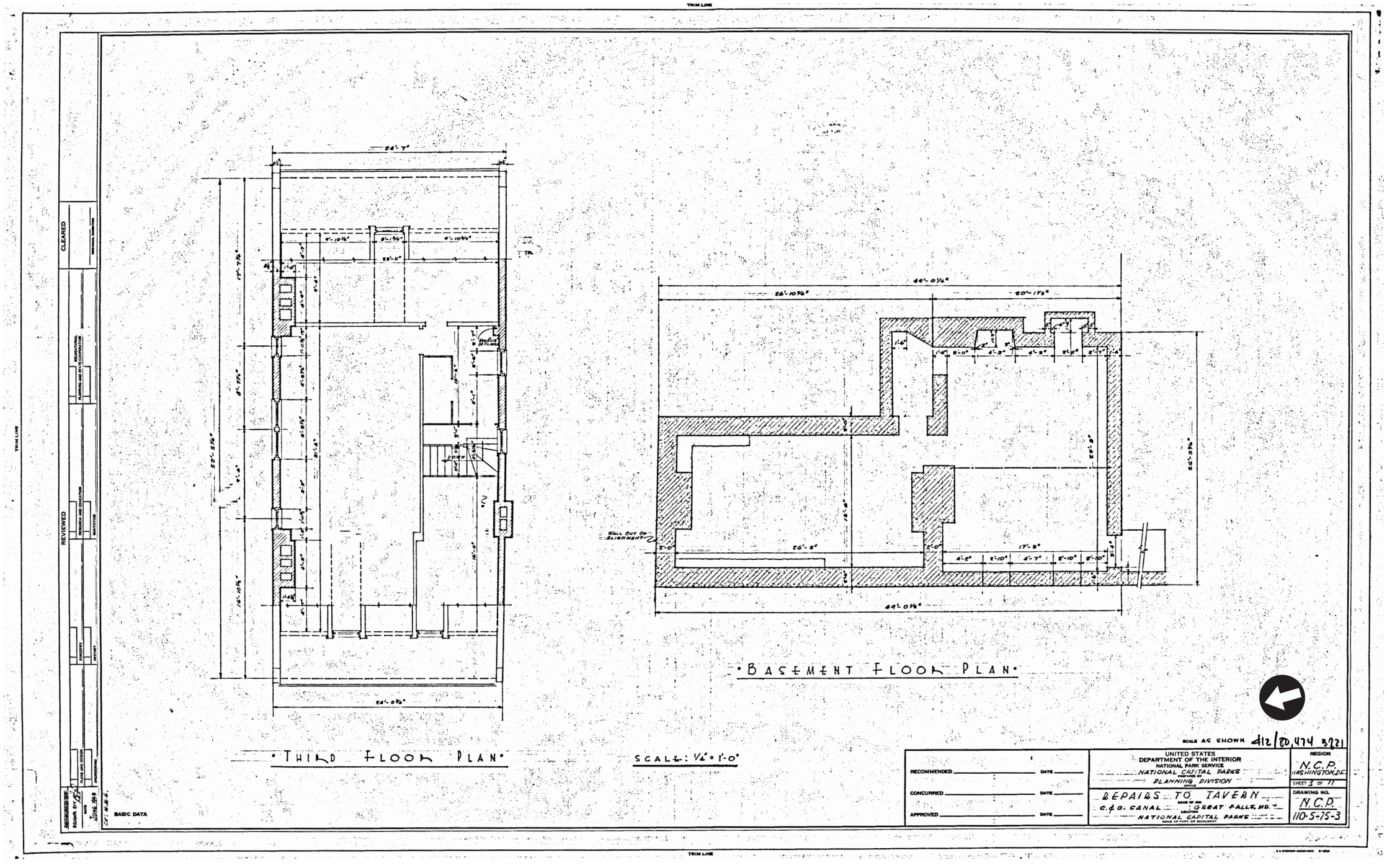

Figure 72: Repairs to Tavern, Third Floor and Cellar Plan, 1949. (NPS)

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Additional Changes: 1950s-1970s

In 1954, the south wing was damaged by an electrical fire. At the time, the south wing first floor was used as a refreshment area/ snack bar and featured electric cooking equipment (Figure 73 to Figure 77). A Park Police substation, whose exact location is unknown, also occupied space in the building and suffered fire damage.[58] No information regarding repairs after the fire has been found.

Several interior renovation projects were completed by NPS in the 1960s. In 1968, three rooms and a hallway located on the second floor of the north wing were renovated. The work included:

> *...removing old plaster, furring walls and installing new plaster, cover[ing] floors with masonite and apply[ing] floor tile, installation of new plumbing, including hot water heater and connecting heat to existing heat snubs, painting area with two coats of Latex paint, installing ceiling lights, wall receptacles and two-twenty line for future air condition...*[59]

In 1969, NPS prepared construction documents to renovate two first floor spaces: the center section for use as a reception room and the south wing for use as an audio-visual room. From the drawings it appears that the design concealed most character-defining interior elements beneath wood frame partitions and curtains. NPS completed this work, which included wallpaper and curtains in the three first-floor rooms, in 1972, as shown in many interior photographs dating to the 1970s in Figure 78 to Figure 89.

Figure 73: Fire Damage to South Wing Exterior Looking Northeast, March 1954 (NPS)

The Friends of Great Falls Tavern, organized in 1973, donated money and volunteer labor in the following years to help restore and maintain the Tavern. The Tavern was whitewashed in 1973.[60] Previous instances of exterior coatings are documented in the 2000 Draft HSR; however, the report does not always specify if whitewash or paint was used. The building exterior was most likely coated with whitewash until 2002, at which point all whitewash was removed and the exterior was coated with latex-based paint.

In 1977, a new cedar shingle roof was installed.

58 *Washington Post*, March 30, 1954 in Grassick 7.
59 January 12, 1968, Memorandum, To: Chief of Maintenance, G.W.M.P., Prince Williams; From: Shop project Coordinator (i.e. Roger L. Sulcer), Subject: Renovating various rooms at Great Falls Tavern."
60 June 19, 1973, "Specifications: Exterior Painting, Great Falls Tavern, C & O Canal National Historical Park, Great Falls, Maryland," (NPS) via Kapsch 19.

Figure 74: Fire Damage to South Wing Interior Looking Northwest, March 1954 (NPS)

Figure 75: Fire Damage to South Wing Interior Looking West, March 1954 (NPS)

Figure 76: Fire Damage to South Wing Interior Looking Northwest, March 1954 (NPS)

Figure 77: Fire Damage to South Wing Interior Looking North to Center Section, March 1954 (NPS)

Figure 78: Center Section, First Floor After Renovation, South Wall Looking South, ca. 1970s. (CHOH NHP)

Figure 79: North Wing, First Floor After Renovation, Southwest Corner Southwest, ca. 1970s. (CHOH NHP)

Figure 80: Center Section, First Floor After Renovation, East Wall Looking Southeast, ca. 1970s. (CHOH NHP)

Figure 81: Center Section, First Floor After Renovation, West Wall Looking West, ca. 1970s. (CHOH NHP)

Figure 82: Center Section, First Floor After Renovation, North Wall Looking North, ca. 1970s. (CHOH NHP)

Figure 83: Art Exhibited in North Wing, First Floor, Looking Northwest, 1974. (CHOH NHP)

Figure 84: Center Section, First Floor South Wall, Looking South, 1974. (CHOH NHP)

Figure 85: Center Section, First Floor North Wall, Looking North, 1974. (CHOH NHP)

Figure 86: South Wing, South Wall Looking South, 1974. (CHOH NHP)

Figure 87: South Wing, East Wall Looking East, 1974. (CHOH NHP)

Figure 88: South Wing, Second Floor After Renovation, North Wall Looking Northwest, ca. 1970s. (CHOH NHP)

Figure 89: South Wing, Second Floor After Renovation, South Wall Looking Southeast, ca. 1970s. (CHOH NHP)

Modernization: 1980s-1990s

A 1984 NPS memorandum called for the installation of a "modern heat/humidity control system," but it is not clear when this was actually installed. The installation of the current chimney cap flashing likely occurred after the introduction of conditioned air. These modifications obviated functionality of the fireplaces.

In 1985 a "demolition by neglect" memorandum was issued, although its origin is unclear. A remedial program was developed as a response. Since it mentions monitoring interior humidity and temperature, the "modern heat/humidity control system" had probably not yet been installed. NPS whitewashed the Tavern exterior in 1985.[61] While the solicitation for this project reads "Paint Great Falls Tavern," the specifications detail a formula for whitewash as follows:

> *50 lb. bag of lime added to 5 gallons of water – Let stand for 12 hours.*
>
> *Mix 12 lbs. of salt, 6 oz. of alum or potash of aluminum, one qt. unsulfated light mollasses [sic] into 1-1/2 gallon of water, add to lime paste.*
>
> *Mix 10 lbs. of ASTM C91 Type N White MASONRY Cement to 6 qts. Of water, add to above mixture.*

In 1990 a proposal was received to "scrape, recaulk, reglaze and paint shutters, windows, door, trim and ceilings."

In 1994, NPS defined objectives to evaluate the condition of the building. Concerns included structural integrity, water shedding and drainage, and the electrical system. A Strategic Work Plan was developed. That year, a lead paint analysis submitted on October 20, 1994 concluded that most samples contained lead and that abatement would be appropriate.[62]

There is no evidence that lead paint abatement took place following the 1994 analysis; however, a memo dated January 25, 1995 notes that by that time, "some flammable and hazardous materials [had been] removed from 2nd and 3rd floors; all [materials] will be [removed]."[63] The type and quantity of materials removed is unknown.

The exterior of the building, including the roof, was cleaned in 1995. The roof was cleaned by low pressure water with wood cleaner, and the building was power washed.[64] Several trees that grew close to the building were removed. Most of the other items in the Strategic Work Plan were completed, including repairing and cleaning the gutters and downspouts, cleaning out the underground drainage system, caulking and improving the flashing and coping stones, and patching window sills.

While a 1994 inspection by a structural engineer confirmed that the porches needed only partial repair, not full reconstruction, a photo from December 1996 shows

Figure 90: South Porch Structure Removed, December 12, 1996. (NPS)

61 Special provisions for Contract Number IFB-3-5-112, issued August 12, 1985. G. K. Painting Corporation, 5141 Bradfield Drive, Annandale, Virginia 22003 was awarded this contract on September 19, 1985 for $19,500. See Letter, From: Thomas M. McConnell, Assistant Chief, Division of Contracting, NCR; To: G.K. Painting Corporation; dated September 19, 1985. Three modifications were issued to this contract bringing the total to $36,360 via Kapsch 42.

62 The 1994 Lead Paint Analysis is included as an appendix to the Draft HSR prepared from 1999-2000 (p.109-113)..

63 Memorandum; Park Historical Architect, CHOH (i.e. Steve Kline); To: Chief, Maintenance Division, CHOH (i.e. Bob Hartman); Maintenance Foreman, Palisades, CHOH (i.e. Larry Umberger); Chief Ranger, CHOH (i.e. Keith Whisenant); Chief, Branch of Natural Resources, CHOH (i.e. Pat Toops); Chief, Branch of Cultural Resources (i.e. Susan Trail); Compliance Officer, CHOH (i.e. David Trail); Subject: "STRATEGIC WORK PLAN FOR GREAT FALLS TAVERN: PHASE ONE ACTION PLAN," dated January 25, 1995.

64 Kapsch 25.

the south porch being fully reconstructed.[65] A work order request from May 28, 1996 describes that the exterior building surface was prepped by scraping, sanding, and wire brushing, and the exterior was dusted and/or power washed.[66] Then volunteers from the Friends of Great Falls Tavern whitewashed the exterior.[67]

Tavern Restoration: 2002-2008

Major renovations have occurred since 2000. A 2002 project focused on exterior renovation wherein all window frames, sills, and sashes dating to 1951 were replaced, except the fanlight over the north entrance and the wood louvers in the dormer windows. The wood shingle roof and dormer cheeks were replaced, and the standing seam metal roof on the east porch was replaced with a standing seam copper roof in 2002. New 6" diameter half round lead-coated copper gutters, 4" diameter round lead-coated copper downspouts, and lead-coated copper coping at the parapets were installed.

The 2002 project also included cleaning all exterior stucco "to be free of lime wash" and painting with latex-based paint. All exterior wood elements were painted and the brick cornice was repointed.

A 2007 project focused on both the interior and exterior of the building. All mechanical and electrical systems were updated at this time. Building work included HVAC system replacement, new fire suppression and alarm systems, electrical upgrades, interior repairs and upgrades to the kitchen and restroom, and complete reconstruction of the east and south porches. A new comfort station was constructed northeast of the Tavern. Site work included flood control improvements, exposed aggregate concrete walk paving to replace brick pavers for accessibility, sewer, water and electrical utility upgrades and landscaping work. Utility work and road and parking paving for the general area was also performed in 2007.

Figure 91: Removing Brick Walkways at East Elevation, May 17, 2007. (NPS)

Figure 92: Installing Utility Trench at East Elevation, June 5, 2007 (NPS)

Figure 93: Excavation and Shoring Cellar Beneath Center Section, East Elevation, June 12, 2007. (NPS)

65 Memorandum; From: Historical Architect, C & O Canal NHP (i.e. Steve Kline); To: Chief, Branch of Cultural Resources, C & O Canal NHP (i.e. Susan Winter/Susan Trail); Subject: Management Plan for the Historic Condition Assessment of the Great Falls Tavern; dated August 16, 1994, 4 pages via Kapsch 24.
66 NPS Work Request Number 96194, White Wash/Paint - Great Falls Tavern, May 29, 1996.
67 Interview, August 24, 1999, w/Ms. Nancy Brown, NPS via Kapsch 26-27.

Figure 94: Reconstructing South Porch, March 15, 2007. (NPS)

Figure 95: Reconstructing East Porch, March 27, 2007. (NPS)

Figure 96: Demolition Work West of Tavern, May 3, 2007. (NPS)

Figure 97: New Concrete Walkways at East Elevation, July 10, 2007. (NPS)

Figure 98: Regrading Front Walkway, May 3, 2007. (NPS)

Figure 99: After Front Walkway Regraded, October 18, 2007. (NPS)

Figure 100: Interior of North Wing First Floor During Renovation, August 28, 2007. (NPS)

Figure 101: Interior of North Wing First Floor During Renovation, July 12, 2007. (NPS)

Figure 102: Interior of North Wing First Floor During Renovation, August 28, 2007. (NPS)

Figure 103: Interior of South Wing First Floor Before Renovation, July 12, 2007. (NPS)

Figure 104: Interior of South Wing First Floor During Renovation, August 16, 2007. (NPS)

Figure 105: Constructing Bathroom at North Wing Second Floor, Looking Southeast, May 3, 2007. (NPS)

Figure 106: After Utility Installation, North Wing Second Floor, Looking East, Closet Still Present at East End, July 12, 2007. (NPS)

Figure 107: Center Section Second Floor Under Construction, July 12, 2007. (NPS)

The Tavern Today: 2009-2020

In September of 2012, fiber optic and copper lines were run through existing conduit into the Tavern.

Emergency action was taken in 2015 to repair the parapet on the north elevation that was in danger of failure.

Between 2016 and 2017, exterior repairs were made to the Tavern, including "scraping, priming, and painting of 5,300 square feet of [masonry] surfaces, 5,300 square feet of plaster surfaces, 2,412 square feet of porches, 644 square feet of trim, 735 square feet of exterior windows, 500 square feet of fascia board, and eight exterior doors."[68]

A flash flood on July 8, 2019 flooded the cellar and first floor of the Tavern. A contract was issued to mitigate the water damage in all first floor rooms and the cellar, and work was completed by November 2019.[69]

In January 2020, NPS approved a project to replace the roof at the Tavern (see PMIS 258109, included as an appendix). While the project has been approved and funds allocated, completion of the project is not guaranteed. This project will replace approximately 2,700 square feet of cedar shingle roofing material. Additional work includes the replacement of approximately ten percent of the staggered sheathing, and repair or replacement of the chimney and wall flashing.[70]

68 "Paint Exterior-Great Falls Tavern, MP 14.31," PMIS 185090, NPS.
69 NPS Purchase Request 0040453411, July 16, 2019.
70 "Replace Roof at Great Falls Tavern," PMIS 258109, NPS.

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Chapter 3: Physical Description

Great Falls Tavern is located at 11710 Macarthur Boulevard in Potomac, Maryland, within the CHOH NHP. It sits directly east of the C&O Canal at Lock 20. Plans and elevations based on NPS-provided CAD drawings are presented in Part 2: Documentation. Please reference these drawings for room, door, and window numbers. BBB noted discrepancies between historical drawings and the CAD files by field observation. The team has modified the CAD drawings to reflect existing conditions based on field observations; however, a complete field survey to confirm all dimensions was not performed.

Exterior

Great Falls Tavern is a T-shaped, three-story masonry building measuring five bays wide by seven bays deep. The building comprises three masses: the original 1828-1830 building, now the center three bays (center section); the 1830-1831 three-story north addition (north wing); and the 1830-1831 three-bay southern ell (south wing). See diagram in Figure 108 for graphic representation.

The center section is of stone construction, while the north and south wings are of brick construction. All sections are faced with stucco and painted white. The stucco on the north elevation is scored to resemble stone coursing. The building sits on an uncoursed rubble foundation. The south wing and center sections have accessible cellars, and the north wing is set on a slab on grade with no cellar.

Figure 108: Building Key; East Elevation Showing South Wing (Left), Center Section (Middle), and North Wing (Right) (BBB 2019)

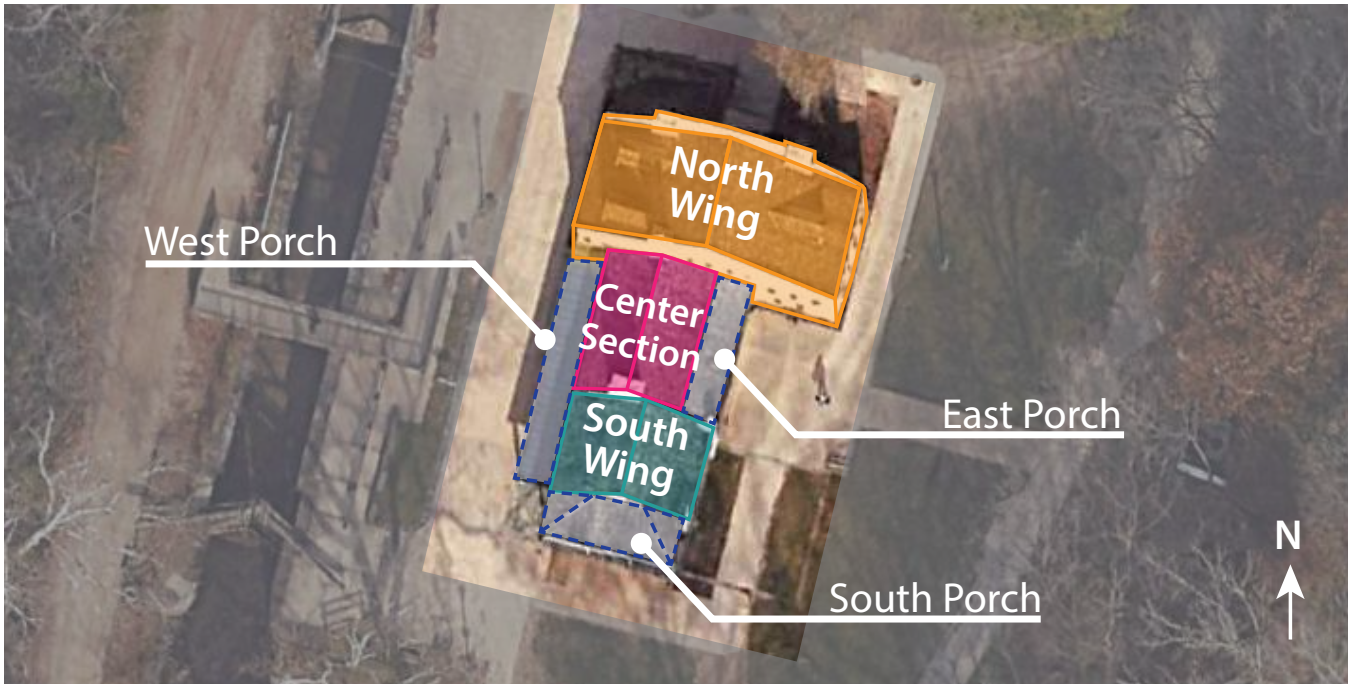

Figure 109: Key Plan; Aerial View from Google Earth (BBB 2019)

Each building section is capped by a front-gabled cedar shingle roof. Two interior stucco-clad chimneys are integrated into the parapet at the gable end of the north elevation, and additional interior stucco-clad chimneys are located at the north and south gable ends of the center section. A fifth chimney is located at the northeast corner of the south wing.

The building is flanked on the east, west, and south elevations by porches. The south porch is three bays wide, one bay deep, and two stories tall. It is covered by a cedar-shingle hipped roof projecting from the gable of the south wing. The east porch is also three bays wide by one bay deep and two stories tall. It is covered by the roof of the center section. The west porch is five bays wide by one bay deep. It is covered by a standing-seam metal shed roof. All porches are supported by chamfered wood posts.

North Elevation (Facade)

The north elevation is faced with stucco that has been painted white and scored to resemble stone coursing. The elevation is five bays wide and two stories tall plus a full attic and prominent parapet.

Figure 110: Detail of North Elevation Showing Scored Stucco (BBB 2019)

Figure 111: Stucco Scratch Coat at Foundation (BBB 2019)

Figure 112: North Elevation (BBB 2019)

The main entrance is located in the center bay on the first story and features a replacement six-panel wood door flanked by multi-light wood sidelights with panels.

The door opening is capped by a rounded wood fanlight that may date to the original construction of north wing in 1831.

Windows throughout the building are wood with aluminum tube balances and date to 2002. First floor openings hold replacement nine-over-six double-hung sashes flanked by green wooden louvered shutters. On the second story, the opening above the doorway is a tripartite window composed of a six-over-six double-hung sash flanked by two-over-two double-hung sashes. All sills are wood.

The third story (attic) is fenestrated by a semi-circular wood window divided into unequal four-light quadrants. To either side sit small nine-over-nine double-hung windows. A circular louvered vent is located within the parapet above the third story.

East Elevation

The east elevation is also faced with stucco painted white. The north wing stucco is scored but the center section and south wing have plain textured stucco. The east elevation is seven bays wide, with two nine-over-six double-hung sashes on the first story of the north wing. On the second floor of the north wing, there are three window openings, each with six-over-six double-hung sashes. All windows have louvered wood shutters and wood sills. At the attic level, a pedimented dormer holds a louvered ventilator. The dormer cheeks are fish scale cedar shingles that appear very weathered.

At the center section, replacement wood paneled doors with strap hinges are located in the center bay on both the first and second stories. The doors are flanked by six-over-six double-hung sashes with wood sills. All windows except the south window on the first story have louvered shutters.

The south window is partially obstructed by a single run, closed string, wood staircase that ascends from north to south along the east elevation. Some wood risers have been replaced with perforated metal panels. The window behind the stairs also features square

Figure 113: East Elevation Looking Southwest (BBB 2019)

wood safety bars. The staircase is enclosed by vertical wood board paneling. Beneath the stairs is a storage closet accessed by a paneled wood door. Two additional doors open onto the first story porch: a replacement paneled wood door with lights leads south into the south wing and a replacement paneled wood door leads north into the north wing.

A two-story porch projects from the east elevation of the center section. The concrete floor from the patio to the east continues and forms the floor of the porch on the first story. The second floor is wood plank. The second floor porch is supported by chamfered wood posts set on sandstone blocks. The second story porch is enclosed by a simple square post wood railing.

Figure 114: East Elevation Porch at First Story, Looking South (BBB 2019)

Figure 115: East Elevation, Second Story Porch Looking Southwest (BBB 2019)

Figure 116: East Elevation, Second Story Porch Looking North (BBB 2019)

Figure 117: East Elevation, Second Story Porch Looking Southeast (BBB 2019)

On the second story, a paneled wood door with lights is located directly above the one on the first story leading to the south wing. Directly west, a paneled wood door provides access to stairs leading to the attic crawl space above the second story of both the center section and the south wing.

West Elevation

The materials of the west elevation are identical to those of the east elevation. The north wing has two window openings on both the first and second stories. The first story holds nine-over-six double-hung sashes and the second story holds six-over-six double-hung sashes. Again, all windows on this elevation are wood and date to 2002. They all feature louvered wood shutters and wood sills. Two pedimented dormers with louvered ventilators punctuate the roofline.

The center section features a doorway in the center bay of the first story holding a vertical paneled wood door with strap hinges. Flanking the door opening are six-over-six double-hung wood sashes. Smaller six-over-six double-hung windows are located on the second story above a shed-roofed porch that spans the full west elevation of the center section and the south wing. The windows have louvered wood shutters. The five-bay porch roof is clad in standing-seam metal and supported by six chamfered wood posts set on sandstone block bases. The floor of the porch is flagstone.

In the south wing, there are two six-over-six windows on both the first and second stories.

Figure 118: West Elevation (BBB 2019)

Figure 119: West Elevation Looking Northeast (BBB 2019)

South Elevation

The majority of the south elevation comprises a full-width, two-story, three-bay porch off the south wing. Like the east porch, the second level roof is supported by chamfered wood posts and the second level is enclosed by a square post wood railing. The posts on the first story sit on sandstone blocks. The stone floor of the west elevation porch turns the corner and continues under the first story south porch. Just south of the porch is a wood-clad metal hatch flush with the ground level, which provides access to the cellar below the south wing and center section.

Door openings are located in the center bay of both the first and second stories of the south elevation. The first story holds a replacement paneled wood door with paneled multi-light wood sidelights. On the second story, there is a single paneled wood door. Both doors are flanked by six-over-six double-hung wood sashes with louvered shutters and wood sills.

There are also door and window openings located on the south elevation of the north wing. The easternmost opening on the first story holds a nine-over-nine double-hung wood sash, while the all other windows are six-over-six double-hung wood sashes. The westernmost opening on the first story holds a replacement paneled wood door leading to the east porch. At the attic, there is a semicircular louvered ventilator in the gable end.

Figure 120: South Porch, Second Story Looking West (BBB 2019)

Figure 121: South Elevation Looking North (BBB 2019)

Figure 122: South and East Elevations Looking Northwest (BBB 2019)

Figure 123: Closed Cellar Door South of South Elevation, Looking North (BBB 2019)

Figure 124: Open Cellar Door South of South Elevation, Looking Northeast (BBB 2019)

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Windows

The windows at the Tavern were inspected and photographed to assess overall conditions as part of this project. A complete survey of the specific conditions of all windows was not completed as part of this report.

All windows were replaced in 2002 with new insulated glass operable wood windows with true divided lights and aluminum tube balances; the only historic glazing element in the building is the semi-circular fanlight above the north elevation doorway, which likely dates to 1831.

Most windows are in good condition but some are experiencing localized deterioration, such as splintering and separation, especially on the north and south elevations of the north wing. Some of the tube balances are loose, causing the sashes to move horizontally and allow debris to enter the building.

Photographs of the most common window types are provided below, followed by a window schedule noting window configurations, sizes, and dates of installation. Sizes are typical for each type. Individual windows were not measured. See drawings in Part 2, Documentation for window locations.

Typical Window Types

A

B

C

D

E

Window Schedule

Window ID	Location (Room)	Window Type	Light Configuration	Opening Width	Opening Height	Date	Notes
101	102	A	3W2H/3W2H	38"	59"	2002	
102	102	A	3W2H/3W2H	38"	59"	2002	
103	103	A	3W2H/3W2H	38"	59"	2002	
104	103	A	3W2H/3W2H	38"	59"	2002	
105	103	A	3W2H/3W2H	38"	59"	2002	
106	103	A	3W2H/3W2H	38"	59"	2002	
107	103	A	3W2H/3W2H	38"	59"	2002	
108	103	A	3W2H/3W2H	38"	59"	2002	
109	102	A	3W2H/3W2H	38"	59"	2002	
110	102	A	3W2H/3W2H	38"	59"	2002	
111	101	B	3W3H/3W2H	38"	72-3/4"	2002	
112	101	B	3W3H/3W2H	38"	72-3/4"	2002	
113	101	B	3W3H/3W2H	38"	72-3/4"	2002	
114	101	B	3W3H/3W2H	38"	72-3/4"	2002	
115	101	B	3W3H/3W2H	38"	72-3/4"	2002	
116	101	B	3W3H/3W2H	38"	72-3/4"	2002	
117	101	B	3W3H/3W2H	38"	72-3/4"	2002	
118	101	B	3W3H/3W2H	38"	72-3/4"	2002	
119	101	B	3W3H/3W2H	38"	72-3/4"	2002	
201	202	A	3W2H/3W2H	32"	51-5/8"	2002	
202	202	A	3W2H/3W2H	32"	51-5/8"	2002	
203	203	A	3W2H/3W2H	38"	59"	2002	
204	203	A	3W2H/3W2H	38"	59"	2002	
205	203	A	3W2H/3W2H	38"	59"	2002	
206	203	A	3W2H/3W2H	38"	59"	2002	
207	203	A	3W2H/3W2H	38"	59"	2002	
208	203	A	3W2H/3W2H	38"	59"	2002	
209	202	A	3W2H/3W2H	32"	51-5/8"	2002	
210	202	A	3W2H/3W2H	32"	51-5/8"	2002	
211	204	A	3W/2H	38"	61-1/8"	2002	
212	205	A	3W/2H	38"	61-1/8"	2002	
213	205	A	3W/2H	38"	61-1/8"	2002	
214	201	A	3W/2H	38"	61-1/8"	2002	
215	206	A	3W/2H	38"	61-1/8"	2002	
216	206	A	3W/2H	38"	61-1/8"	2002	
217	207	A	3W/2H	38"	61-1/8"	2002	
218	208	C	3W2H/3W2H; 1W2H/1W2H sidelights	75"	61-1/8"	2002	Stool dates to 1830
219	209	A	3W/2H	38"	61-1/8"	2002	
220	210	A	3W/2H	38"	61-1/8"	2002	
221	210	A	3W/2H	38"	61-1/8"	2002	
222	211	A	3W/2H	38"	61-1/8"	2002	
223	211	A	3W/2H	38"	61-1/8"	2002	Frame, trim, and stool date to 1830
301	303	A	3W/2H	33-1/4"	47-5/8"	2002	
302	303	A	3W/2H	33-1/4"	47-5/8"	2002	
303	301	E	Wood louver				

Window Schedule (continued from page 75)

Window ID	Location (Room)	Window Type	Light Configuration	Opening Width	Opening Height	Date	Notes
304	301	A	3W/2H	30"	44-3/8"	2002	
305	301	D	2W2H/2W2H	75-1/2"	42-1/2"	2002	Arched window
306	301	A	3W/2H	30"	44-3/8"	2002	
307	301	E	Wood louver				
308	302	E	Wood louver				

Doors

The doors at the Tavern were inspected and photographed to assess overall conditions as part of this project. A complete survey of the specific conditions of all doors was not completed as part of this report. Most doors were replaced during the 1950-1951 renovation, but the doors in the north wing on the second floor and attic appear to date to 1831 and 1850.

The most common door type is a single-leaf six-paneled wood door. Some doors have four panels with two lights above. In the center section, the doors are replacement single-leaf board and batten. The north wing, second floor and attic retain the original single-leaf board and batten doors from 1831 and ca. 1850.

Several of the exterior paneled wood doors are damaged due to extensive use. The board and batten wood doors are in good condition. Many molded wood door stops are damaged or missing. Many doorknobs are loose or broken; some are missing altogether. Insect deposits are also present at many of the exterior door frames. Existing hardware does not meet the Architectural Barriers Act Accessibility Standards (ABAAS) and many doors lack ABAAS required clearances. Refer to the Accessibility section for additional information.

Photographs of the most common door types are provided here, followed by a table noting door configurations and dates of installation as of 2020. See drawings in Part 2, Documentation for door locations.

Typical Door Types

A

B

C

D

E

Door Schedule

Door ID	Location (Room)	Door Type	Date	Notes
101	101	A	c. 1950	Fanlight above likely dates to 1831
101A	101	A	c. 1950	
101B	101	A	c. 1950	
102	102	D	c. 1950	
102A	102	D	c. 1950	
102B	102	other	c. 1950	Double-leaf paneled closet door
102C	102	A	c. 1950	
103	103	B	c. 1950	
103A	103	C	c. 1950	
105	105	E	c. 1950	
201	201	A	c. 1831	Frame and trim date to 1831
201A	201	E	c. 1831	Frame dates to c. 1850; door was likely moved from another location
201B	201	E	c. 1850	Frame dates to c. 1850
202	202	A	c. 1950	
202A	202	D	c. 1950	
203	203	B	c. 1950	
203A	203	A	c. 1950	
204	204	E	c. 1950	Frame, hall-side, and room-side trim date to 1831
205	205	E	c. 1950	Frame, hall-side, and room-side trim date to 1831
206	206	E	c. 1831	Frame and hall-side trim date to 1831
207	207	E	c. 1831	Frame and hall-side trim date to 1831
208	208	E	c. 1831	Frame and hall-side trim date to 1831
209	209	E	c. 1831	Frame and hall-side trim date to 1831
210	210	E	c. 1831	Frame and hall-side trim date to 1831
211	211	E	c. 1950	Trim dates to 1831
212	212	E	c. 1950	
214	304	E	19th century	
303	303	E	c. 1850	Frame dates to c. 1850
303A	303	E	c. 1950	
303B	303	other	c. 1950	Flat plywood door
303C	303	E	c. 1950	

Interior

Almost all interior materials and finishes were replaced during the 1950s and 1970s renovations. Unless otherwise noted, all interior finishes date to the 20th century.

Cellar

A cellar runs beneath the center section and the south wing of the building. The walls are stone and the floors are dirt. The cellar likely dates to the original building construction from 1828-1831. A brick fireplace is located on the east wall of the south wing cellar. This area may have served as a kitchen at some point (Figure 125 and Figure 126).

Figure 125: South Wing Cellar Looking Southeast (BBB 2019)

The ceiling height decreases moving north, as past flooding events have deposited mud and silt, raising the floor level over the years (Figure 127).

Figure 126: South Wing Cellar Looking Southwest to Entrance Stairs. (BBB 2019)

First Floor, North Wing (Room 101)

In the north wing, a single large room spans the first floor. This room is open to the public and holds a reception desk, interpretive exhibits, and merchandise.

The floor is covered with brick laid in cement in a herringbone pattern over a concrete slab dating to the 1950s. The original floor was wood over wood joists—the date of their removal is unknown. Wood floors in an area constantly inundated with water were likely severely deteriorated. The north, east, and west walls are plaster over metal lath, while the south wall features furred gypsum board. The south wall has been so substantially furred that the window frame and stool on the east side are recessed (Figure 130). The north, east, and west walls have a chair rail mounted 32" from the floor. The stepped chair rail has a wide flat top rail and half round profile at the bottom. There is no chair rail on the south wall.

Figure 127: Center Section Cellar Looking Northeast. (BBB 2019)

Two fireplaces are located on the north wall flanking the main entrance. The present mantels are of recent manufacture, and wooden fireboxes with faux painted brick have been inserted into the masonry fireboxes. The ceiling is gypsum board punctuated with vents.

Track lighting and four sound domes are suspended from the ceiling. Interpretive sign boards placed around the perimeter of the space are suspended from cables in the ceiling, which are pulling on the gypsum ceiling at the north perimeter.

Single-leaf paneled wood doors are located on the south wall of the room on either side of the large wood shelving unit behind the reception desk. Windows feature shallow stepped trim with quarter round outer profiles.

Water infiltration is most evident in this room. There is significant plaster delamination and paint bubbling at the northeast and northwest corners both above and below the chair rail (Figure 131).

Figure 130: North Wing First Floor, East Window in South Wall (BBB 2019)

Figure 128: North Wing First Floor, Looking East (BBB 2019)

Figure 129: North Wing First Floor, Looking Northwest (BBB 2019)

Figure 131: North Wing First Floor, Water Damaged Plaster at Northeast Corner (BBB 2019)

Figure 132: Center Section First Floor, Looking South (BBB 2019)

Figure 133: Center Section First Floor, Looking North (BBB 2019)

Figure 134: Center Section First Floor, Looking East (BBB 2019)

First Floor, Center Section (Room 102)

The first floor of the center section holds a single room. This is the original lockkeeper's house and would have had two rooms bisected by a central stair. This room is open to the public and is decorated to its 1830s appearance. Walls and ceilings are of plaster over metal lath, and the floor consists of unfinished yellow pine tongue and groove boards. A chair rail sits 32" above floor level and has half round profiles at the top and bottom of a flat fascia board. Windows have deep, rounded stools and the chair rail sits directly below serving as an apron. Windows feature cyma recta molded trim.

Fireplaces are located in the center of both the north and south walls. The present mantels are of contemporary fabrication dating to the 1950s renovation.

Exterior door openings are located at the center of both the east and west walls. A closet with a double paneled wood door is located east of the fireplace on the south wall. This shallow closet holds electrical breakers and is open to the cellar below. To the west of the south fireplace is an inoperable recessed paneled wood door that leads to the south wing. There is no doorknob and the opening is blocked by a wood barrel.

Figure 135: South Wing First Floor, Looking West (BBB 2019)

Figure 136: South Wing First Floor, Looking Southeast (BBB 2019)

First Floor, South Wing (Room 103)

The first floor of the south wing holds a single room. This room is open to the public and holds interpretive materials and a television that plays informational videos about the park. The floor is finished in carpet over plywood; it is unknown what is beneath that finish system although all joists seen from the cellar date to the 1950s renovation.

The walls are plaster over metal lath and the ceiling is gypsum punctuated with vents, track lighting, and a sound dome. A chair rail sits 32" above floor level and has half round profiles at the top and bottom of a flat fascia board. Windows have rounded stools and feature cyma recta molded trim.

Exposed sprinkler piping runs along the west and south walls below the ceiling level. At the southeast and southwest corners of the room, vertical chases are enclosed with drywall.

A fireplace is located at the center of the north wall. The present mantel is of recent fabrication. The 2006 Historic Integrity Investigation concludes that the historic mantel in this room was likely moved to Room 203 directly above during the 1950s rehabilitation work.

A single-leaf door in the east end of the north wall leads to the east porch, and a single-leaf communicating door in the west end of the north wall leads to the center section.

Figure 137: South Wing First Floor, Looking East (BBB 2019)

Figure 138: South Wing First Floor, Looking North (BBB 2019)

A central door opening flanked by sidelights is located on the south wall and leads to the ground floor of the south porch.

Second Floor, North Wing

The second floor is accessed up a short set of stairs from the second floor east exterior porch. On the second floor, the north wing is divided into nine individual rooms accessed by a T-shaped hallway. This area contains the vast majority of historic interior fabric within the Tavern. Most of these rooms originally served as bedrooms, while present-day Room 204 served as a bathroom. Most spaces now serve as offices and dressing rooms; a kitchen is located in Room 211, and a bathroom is located in Room 212. The majority of the current finishes date to the late-1960s and early 1970s renovation. A closet was installed at the easternmost end of the hallway at some point before 2007; it was removed in 2015 at the same time that the hallway, bathroom, and kitchen were painted.[53]

The floors in the hallway and most rooms are clad in carpet, while the kitchen and bathroom feature luxury vinyl plank (LVP) floors dating to 2014 (PEPC #54098). From 2011 to 2014, linoleum covered the floors in the kitchen and bathroom. In the attic stair closet, the nineteenth-century wood floor is visible beneath carpet, vinyl tile, and a thin plywood underlayment. Tile style and size seems to relate to the 1950 rehabilitation work, and carpet installation sometime thereafter. The

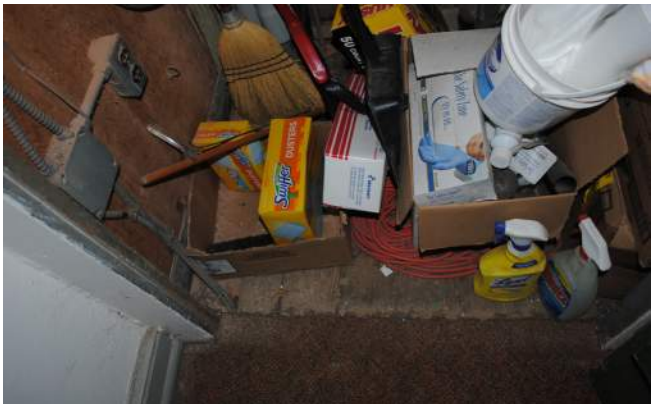

Figure 139: North Wing Second Floor, Wood Flooring in Closet Beneath Attic Stairs. (BBB 2019)

Figure 140: North Wing, Second Floor Hallway (Rm 201) Looking East (BBB 2019)

Figure 141: North Wing, Second Floor Hallway (Rm 201) Looking West (BBB 2019)

53 Comment from Justin Ebersole, CHOH, April 15, 2020.

Figure 142: North Wing, Second Floor Room 210 Looking Northwest (BBB 2019)

Figure 143: North Wing, Second Floor Room 207 Looking Northwest (BBB 2019)

historic floor system consists of random width tongue and groove boards measuring 15/16" thick. The historic floor probably reflects the appearance of the exposed attic floor above. The condition of the historic flooring throughout the wing is unknown, but it is suspected that holes have been sawn through the floor to accommodate heating and plumbing systems.

Ceilings in Rooms 206 through 210 were replaced with gypsum board possibly during the 1960s or 1970s, although there are no documents that definitively indicate the installation date. The remainder of the spaces have plaster over metal lath ceilings that may have been installed in 1968. Sprinkler piping runs below the ceiling in the hallway and some rooms. Rooms without piping have side wall sprinklers on the wall closest to the hallway.

Figure 144: North Wing, Second Floor, South Window in Kitchen (Rm 211) Looking South (BBB 2019)

Figure 145: North Wing, Second Floor Room 208 Looking Northwest (BBB 2019)

Figure 146: North Wing, Second Floor Hall Looking Southwest to Attic Stairs (BBB 2019)

Figure 147: North Wing, Second Floor Room 211 (Kitchen) Looking South (BBB 2019)

The layout of nearly all plaster walls appear to date from 1831. Room partitions depicted in the 1939 HABS drawings essentially remain intact, and may have survived the 1950 construction work. The lone exceptions is the partition forming the north and west walls of the bathroom (212). The walls of rooms 206 through 210 are furred with paneling probably installed during the circa-1970 renovation. In 2006 during preparation of the historic integrity investigation, NPS historical architect Al O'Bright undertook limited exploration in Room 207. At that time, it appeared that historic plaster finishes remained beneath the paneling.[54] Nineteenth-century plaster on masonry perimeter walls are also believed to remain intact.

Painted, vertical beaded board surrounds the attic stair to the east of the bathroom (Room 212). The 2006 historic integrity investigation concluded that this stair and enclosure may date to the mid- to late-nineteenth century.[55]

Most door frames and casings, except the bathroom door at Room 212 that was created in 2007, date to the initial construction of the north wing in 1831. The beaded board and batten doors on the north side of the hallway are believed to date to the nineteenth-century, while doors on the south side likely date to the 1950s work. Door hardware shows that some doors retain the closed pin hinges of the nineteenth-century characterized by five knuckles with three screw holes per leaf. Most, if not all, of the rim locks appear to be twentieth-century replacements.

54 Al O'Bright, "Historic Integrity Investigation," (NPS 2016) 14.
55 O'Bright 15.

All windows on this floor were replaced in 2002; however, the south window in the kitchen (Window 223, Figure 144) retains its original frame, stool, and interior trim. The tripartite window on the north wall of Room 208 may also retain its original stool (Figure 145).

The HABS drawings indicate that each pair of Rooms 206 and 207, and Rooms 209 and 210 may have shared chimney stacks and/or flues serving simple warming fireplaces against the north wall. These areas along the north wall are currently covered by furred paneling installed circa 1970. Exploratory removal of paneling in 2006 in Room 207 revealed the remains of a plastered firebox, hearth, plastered masonry fireplace breast, and plaster ghost of a simple bracketed board mantel. It is assumed that the remains of the other fireplaces may also be concealed in the other three rooms.[56]

Several rooms on the north wing second floor also have window AC units.

Second Floor, Center Section

A single room (Room 202) occupies the second floor of the center section. This room is accessed from the east exterior porch and provides office space for CHOH workers and a small library. Walls and ceilings are of plaster over metal lath, and the floor consists of random width varnished tongue and groove boards. Windows feature cyma recta molded trim and deep rounded stools. Wet sprinkler piping is located along the west wall below the ceiling.

A door opening on the east wall provides access from the exterior east porch, and a communicating door at the southwest corner provides access to the south wing, whose floor is slightly higher than the center section.

Fireplaces are located at the center of the north and south walls of the room. Both mantels were constructed during the 1950s renovation and appear to be designed in a generic stripped mid-nineteenth century style.

Figure 148: Center Section, Second Floor Looking Southwest (BBB 2019)

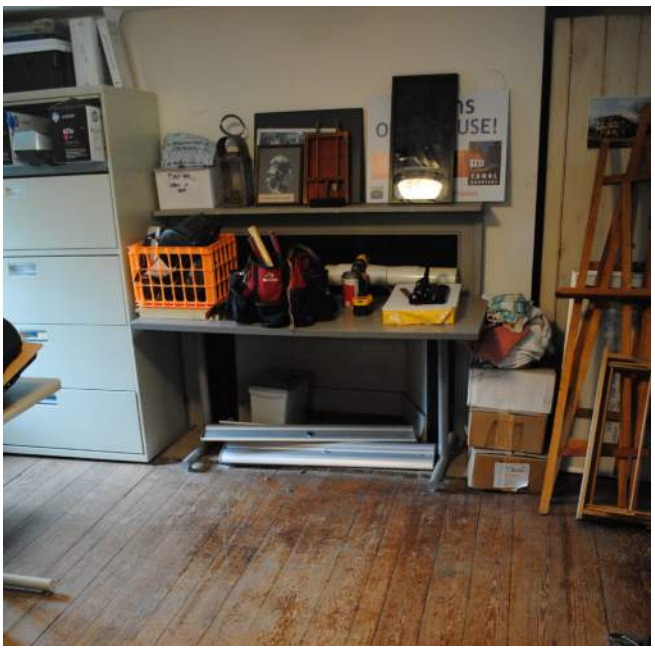

Figure 149: Center Section, Second Floor Looking North (BBB 2019)

Figure 150: Center Section, Second Floor Northwest Corner Looking West (BBB 2019)

56 O'Bright 18-19.

Second Floor, South Wing

A single room (Room 203) occupies the second floor of the south wing. It is accessed from the second floor of the center section (Room 202) and the exterior east porch. This room holds a large conference table and storage space. Walls and ceilings are of plaster over metal lath, and sprinkler piping is located along the north wall below the ceiling. The floor consists of random width wide plank tongue and groove boards. Enclosed vertical chases are located at the southeast and southwest corners of the room.

A fireplace is located in the center of the north wall. This mantel matches the one documented in Room 103 in the 1939 HABS drawings, indicating that the Room 103 mantel was moved to this second floor space. Similar mantels were reproduced for installation in Rooms 101, 102 and 103 in 1950. The fireplace has a brick hearth stone surround and wood trim.

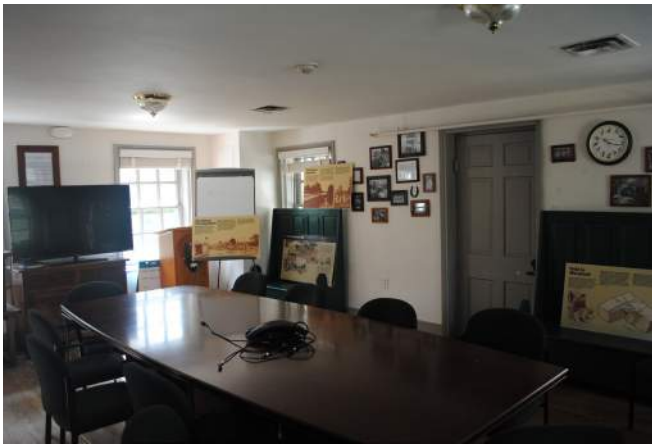

Figure 152: South Wing, Second Floor Looking Southeast (BBB 2019)

Figure 153: South Wing, Second Floor Looking Northeast (BBB 2019)

Figure 151: South Wing, Second Floor Fireplace (BBB 2019)

Figure 154: South Wing, Second Floor Looking Southwest (BBB 2019)

To the east of the fireplace, a vertical beaded board partition forms the south side of an attic stairwell, dating to 1950. The communicating door to the center section is located in the northwest corner of the room, and exterior doors are located at the northeast corner and the center of the south wall. The northeast door leads to the second floor of the east porch, while the south door leads to the second floor of the south porch.

Attic

The attic of the north wing retains the most intact historic finishes in the Tavern. While hotel rooms were once located on the third floor, it currently functions as an attic and houses mechanical and electrical equipment and interpretive materials storage. All nineteenth-century attic ceilings were removed during the twentieth century.

Most of the historic wood tongue and groove flooring remains in the attic. Plaster was applied directly to the perimeter brick walls, but the plaster is currently in poor condition and missing in most locations.

Figure 155: North Wing Attic Exterior Wall and Floor, (BBB 2019)

The attic partitions likely date to the 1850s, 20 years after the original north wing construction, when the attic stairs were constructed and additional hotel rooms were added to the attic. The partitions are plaster over wood lath.

Figure 156: North Wing Attic Stairs Looking South from Second Floor Hallway (BBB 2019)

Figure 157: North Wing Attic, Partition Looking East (BBB 2019)

Structural Description

Great Falls Tavern is a masonry and wood-framed structure. The north and south wings were constructed of brick masonry, while the older center portion is stone masonry at both levels. The center and south wings also have cellars constructed from stone masonry walls. Floors and roofs throughout the building were framed with wood joists, save for a small concrete framed portion below the east porch. All framing except the second floor and attic level was replaced during the twentieth century.

The structure of the building was significantly altered during the 1950-1951 restoration, including replacement of the majority of the floor and roof framing. The Tavern's porches have been modified at various times throughout the building's history, recently in 1996 and 2007. Restoration work in 2007 also included new wall openings through the center wing cellar walls for MEP work, a new cellar access hatch, and infill of unused wall openings.

Structural information was gathered from existing documentation provided by NPS and supplemented with field verification and conditions observations. Existing reports and drawings provided by NPS included thorough documentation of the structure. Because much of the structure was hidden by finishes during the October 2019 field survey, the structural description relies heavily on existing reports and drawings. The 1949 repair drawings prepared by National Capital Parks Planning Division, the 2006 Integrity Investigation prepared by NPS Historical Architect, Al O'Bright, and NPS maintenance records were especially useful resources. During the field survey, the masonry cellar walls, first floor and attic framing were visible and could be measured.

Exterior

Exterior walls of the Tavern are stone and brick masonry. The masonry walls have been furred at most interior spaces. At the exterior, all masonry walls have been stuccoed and painted white (Figure 159). Per existing documentation, masonry over all openings was rebuilt during the 1950-1951 restoration, including the addition of steel lintels at the north and south wings and the addition of concrete lintels at the center section. Brick without a stucco coating or finishes could be viewed at the north wing attic in the closet below the staircase at the center building (Figure 161).

Figure 158: Great Falls Tavern Viewed from the Southeast (Silman 2019)

Figure 159: North Wing Viewed from Northwest (Silman 2019)

Figure 160: South Porch Reconstruction (NPS 1996)

Figure 161: Brick and Stone visible from Closet Below East Porch (Silman 2019)

Figure 162: West Porch Post Base at Grade (Silman 2019)

The north wing exterior walls are brick masonry walls that taper in thickness from 17" at the first floor, to 12" at the second floor, and 8" at the attic. The north elevation features a tall parapet and two chimneys that extend up beyond the gable end. The center section has stone masonry walls and a chimney at each end. At the first floor, the stone walls are approximately 20" thick, and walls at the second floor are approximately 16" thick. Where visible from the attic level, the southern chimney is brick. Like the north wing, exterior walls of the south wing are brick masonry above grade. Walls at the first floor are approximately 11" thick, and walls at the second floor are approximately 12" thick.

Figure 163: South Porch Post Base at Second Floor (Silman 2019)

The structure also has three extant porches: a one-story porch along the west side, a two-story porch at the south elevation, and a two-story porch adjacent to the center section at the east side. Wood porch framing is supported on the existing masonry walls and 6x6 wood posts. At grade, the post bases have been retrofitted with a 10"x10" sandstone pier, ¾" diameter rod, and a 3"x3" square plate, presumably to minimize wood rot during flood events or wet conditions (Figure 162). At the second floor of the south elevation, the wood posts are supported on U-shaped door pull presumably also to stop moisture from moving up into the posts (Figure 163).

Figure 164: South Wing Cellar Looking Southwest (Silman 2019)

Foundation

Foundations of the Tavern are uncoursed rubble stone masonry walls. The south wing and center sections have

Figure 165: South Wing Cellar Looking Southwest (Silman 2019)

Figure 166: Flagstone Paving and Slab on Grade in West Porch (Silman 2019)

accessible cellars, and the north wing has no cellar and a slab on grade.

Foundations of the north wing could not be viewed. Per existing drawings, foundations of this portion of the building are masonry, though it is unknown whether the foundations are brick or stone. Repair drawings from 1949 also indicate that an original cellar in this area was infilled with gravel and the first floor was rebuilt as a 5" concrete slab with welded wire fabric reinforcement. The first floor of the north wing has a brick floor laid in a herringbone pattern (Figure 165).

The center section cellar appears to have a dirt floor without a concrete slab. Per 1828 specifications for the original lockhouse, the cellar walls of the center section are 28 inches thick below grade. Sections of the stone cellar walls have been removed, presumably for mechanical equipment.

The depth, wall thicknesses, and below-grade configuration of the south wing cellar walls are unknown. The east wall includes remnants of a brick fireplace. In this portion, the cellar floor is a slab on grade, but is currently covered with a layer of mud from flooding. Openings at the south wall have been infilled with a rubble stone with visibly different colors and mortar (Figure 164). The original purpose of the openings is unknown. The cellar of the south wing extends beyond the footprint of the first floor the northeast corner. This extension of the cellar is bounded with masonry walls.

Figure 167: Center Section Joist Framing; Likely 1949 Restoration (Silman 2019)

Figure 168: Joist Bearing on Steel Beam in South Wing (Silman 2019)

A slab on grade currently skirts the building at the east and south sides. The interior areas of the east and south porches are finished with slate paving stones laid in a mortar bed (Figure 166).

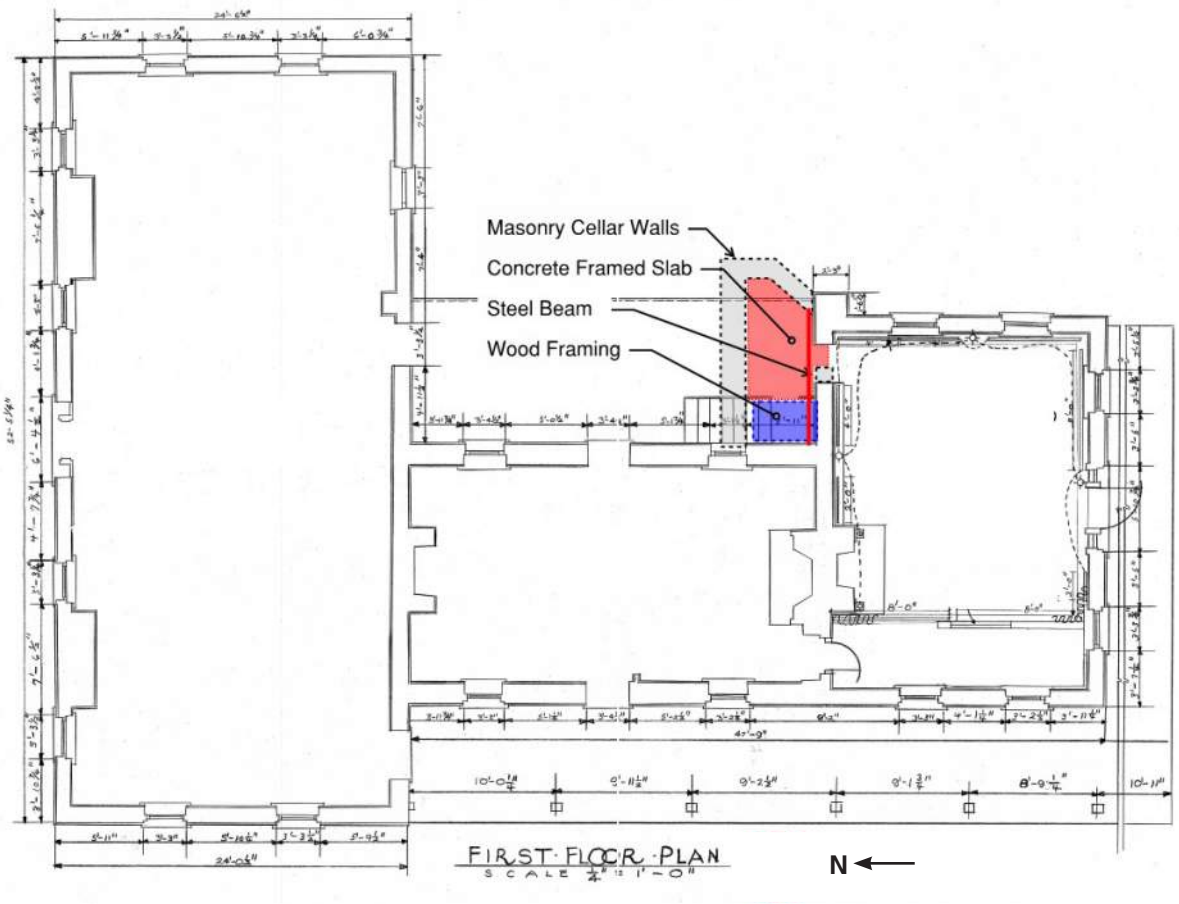

Figure 169: Markup of First Floor Plan Showing Area of Framed Concrete Slab (Silman 2019)

Floor Framing

Floor framing of the Tavern is primarily wood joists with some steel beams. Very little original or pre-1949 framing remains. Per existing documentation and field observations, the only historic extant framing exists at the second floor and attic of the north wing. All other framing appears to have been replaced during the 1949 restoration or during later building projects (Figure 167). Some of the original attic framing could be viewed during the most recent field survey, but second floor framing was hidden behind finishes. Per existing documentation, the existing second floor joists were not removed during the 1949 restoration, but deteriorated joists were replaced on a case by case basis and new joists were installed in between historic joists. The ceiling of the first floor, north wing was removed during the 2007 restoration, and photos taken during construction confirm that the second floor joists are a combination of intact historic joists and joists installed during the 1949 restoration.

In the south wing, a steel beam was observed at the first-floor framing in a configuration different than that shown on the 1949 drawings. This area is suspected to have been reframed in the early 1970s when the first floor was converted to a visitor center with exhibits (Figure 168). Cross bridging was also observed at the midspan of joists. At the perimeter of the first floor, the joists bear directly on the masonry walls or on steel angles placed on masonry ledges.

A small section of the exterior slab is framed with a steel beam and 6 ½" concrete flat slab above the cellar extension to the south wing. This area falls within the east porch of the center lockhouse (Figure 169).

See conditions assessment for additional discussion of the concrete framing. At the center section, the three first floor joists framing are supported on wood and metal shoring posts at locations where openings have been added through the foundation walls (Figure 170).

Figure 170: Cellar Shoring Posts (Silman 2019)

The following framing sizes are documented in existing drawings. Where visible, framing sizes have been corroborated with field measurements. Framing that could be viewed and measured during the October field survey is marked with an asterisk (*). All sizes besides the second floor and attic of the north wing are nominal sizes. See attached structural sketches for diagrammatic plans.

North Wing:

- First floor - slab on grade
- Second floor - 2⅜" x 11" historic joists @ 2' on-center spanning north-south to walls, plus 3" x 12" joists installed between each historic joist
- Attic* - 2⅜" x 11" historic joists @ 2' on-center spanning north-south to walls

Center Section:

- First floor* - 2x12 joists @ 16" on-center spanning east-west to walls
- Second floor - 2x12 joists @ 16" on-center spanning east-west to walls
- Second floor porch - 2x8 joists @ 16" on-center spanning north-south to (3)2x8 beams aligned with each column
- Attic* - 2x8 ceiling joists @ 16" on-center spanning east-west to walls
- Porch ceiling - 2x6 ceiling joists @ 16" on-center

South Wing:

- First floor* - 2x12 joists @ 16" on-center spanning east-west to 12" steel beam
- Second floor - 2x10 joists @ 12" spanning north-south
- Second floor porch - 2x8 joists @ 16" on-center spanning east-west to (3)2x8 beams aligned with east column
- Attic* - 2x6 ceiling joists @ 16" on-center spanning north-south, integral with roof trusses
- Porch ceiling - 2x4 ceiling joists @ 16" on-center spanning east west

Figure 171: Steel Beam Supporting North Wing Attic (Silman 2019)

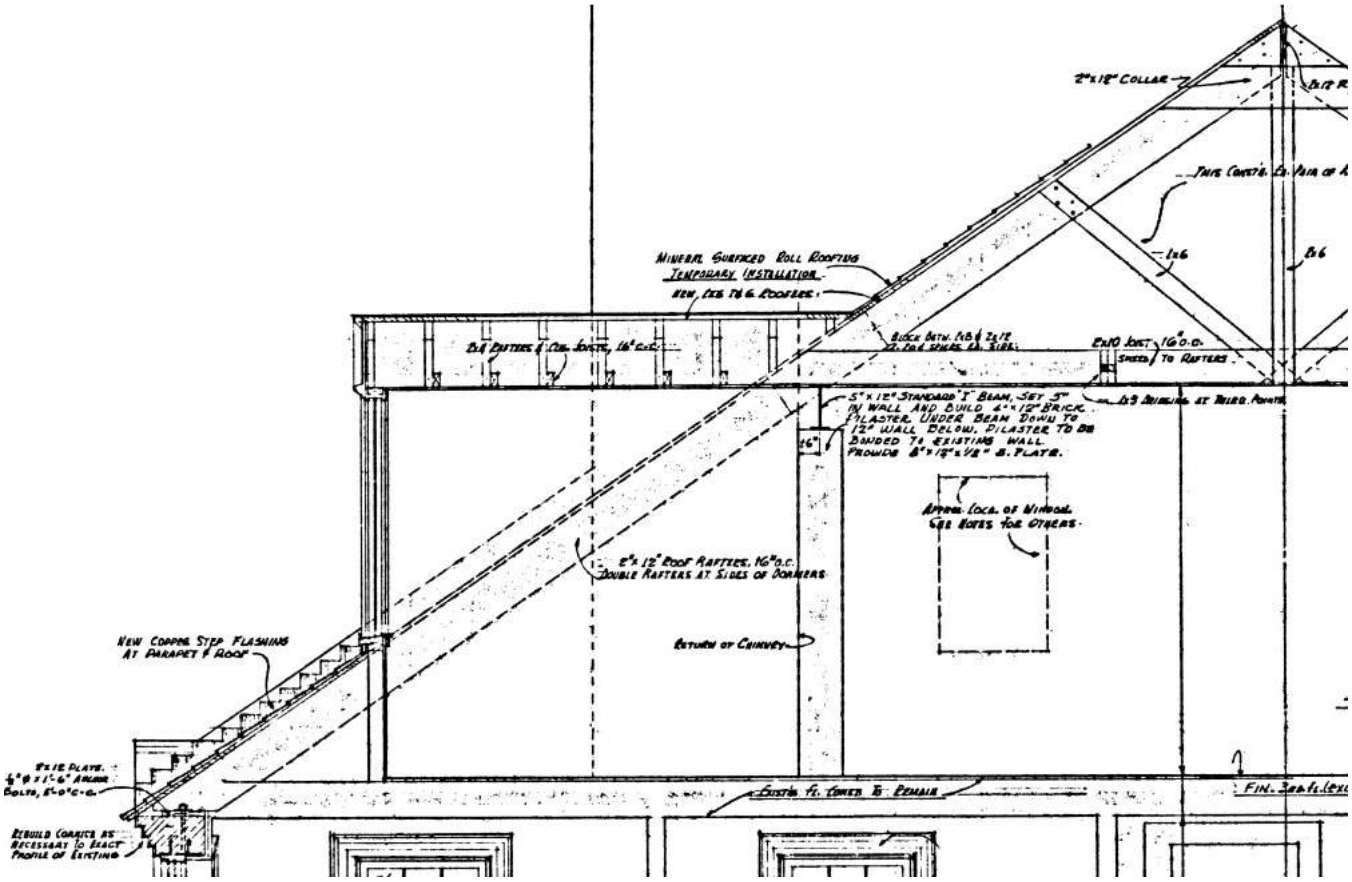

Figure 172: North Wing Roof Section; 1949 Restoration Drawings

Figure 173: Center Section Roof Framing Looking Above Collar Joists (Silman 2019)

Roof Framing

Like the floor framing, roof framing schemes of the north wing, center lockhouse, and south wing are all separate. The roof of the north wing is a gable roof that springs from the attic. The north gable end is built up above the roof line as a parapet. In the north wing, 2x12 rafters @ 16" on-center are supported on a 2x12 plate anchored to the top of existing wall. The rafters frame to steel beams approximately 9-ft above the attic, and a ridge member at the roof peak. Rafters are not continuous over the steel beam. The steel beams are 12" deep and are supported on 4"x12" brick pilasters which have been added proud of the original interior brick face (Figure 171).

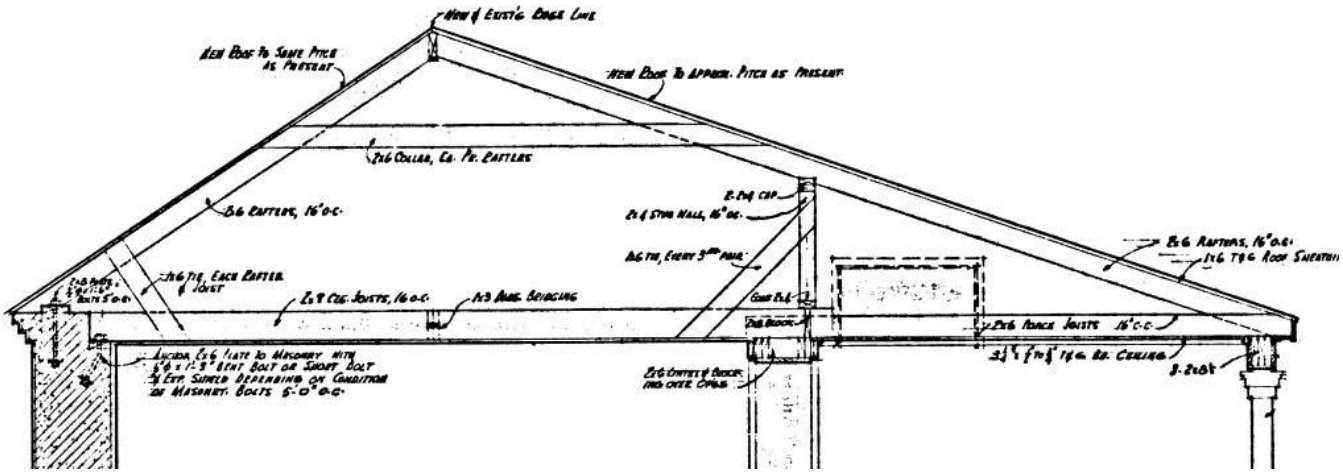

Figure 174: Section Through Center Roof 1949 Restoration Drawings

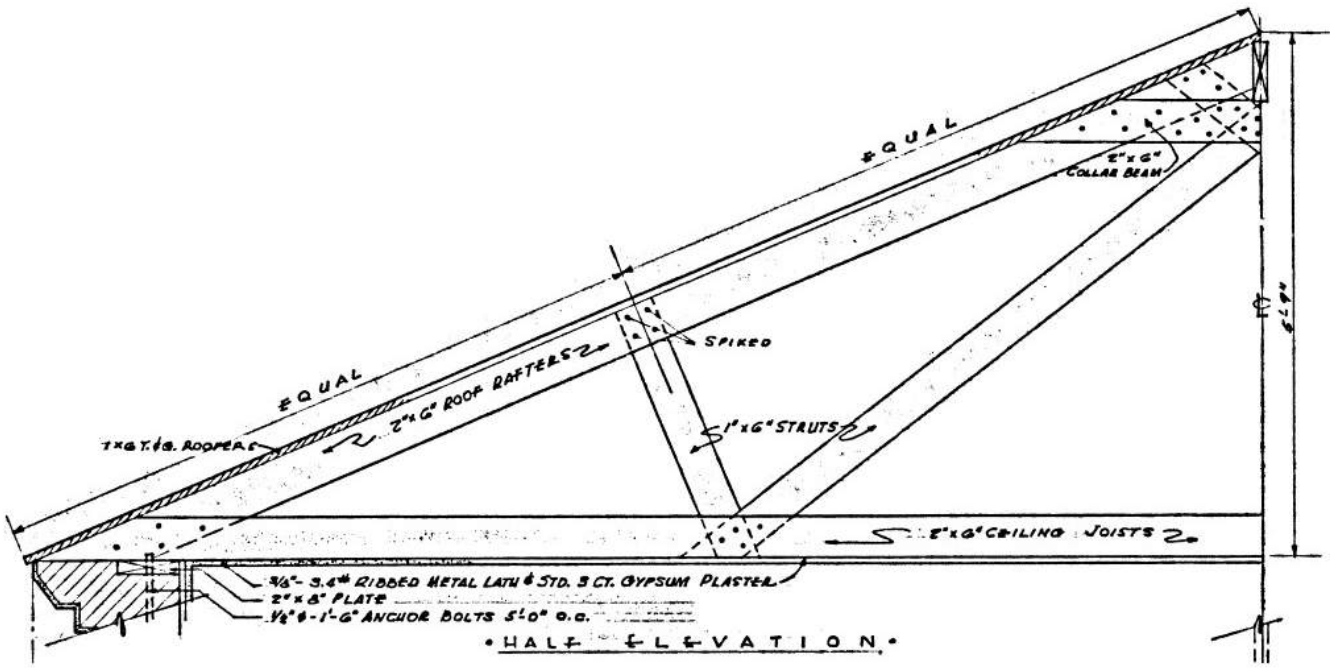

Figure 175: South Roof Section; 1949 Restoration Drawings

The upper portion of the roof is framed with king post trusses aligned with each rafter. Each king post truss comprises a 2x10 horizontal tie, a vertical 2x6 post, and diagonal 1x6 struts (Figure 172). The north wing roof also includes three dormers: two at the east side and one at the west side. The dormers are framed with 2x4 rafters and ceiling joists at 16" on-center.

The roof of the center section is framed with 2x6 rafters at 16" on-center. The rafters are supported on a 2x8 plate anchored to the masonry wall at the west side and a (3)2x8 beam over porch columns at the east. The rafters span to a 2x8 ridge board (Figure 173). The roof framing also includes a 2x6 collar approximately 2-ft below the roof ridge and 2x6 ties. Interior attic joists are 2x8s at 16" on-center and the porch ceiling joists are 2x6s at 16" on-center.

At the east side, the roof rafters span over a stud wall built above the existing masonry wall (Figure 174).

The south roof is a gable roof spanning the same direction as the center lockhouse roof. Unlike the center roof, the south roof is symmetrical about the ridge.

The roof is framed with trusses at 16" on-center, comprising 2x8 rafters, 2x6 ceiling joists, 1x6 diagonal and vertical struts (Figure 175). The porch roof is framed with 2x6 rafters spanning from a (3)2x8 porch beam into pockets on the masonry wall.

MEP Description

The MEP systems at the Tavern were replaced during the 2007 renovation of the facility. Major building utilities including power and domestic water were extended to the building during the renovation. The existing sanitary main, supporting the building's plumbing fixtures, was the only site utility not replaced in 2007. All ductwork is located in the attic spaces and drop down to ceiling diffusers. It does not appear that any ductwork impacted the structure. Only attic floor/ceiling openings were required. All ductwork was routed between open portions in the attic.

The mechanical infrastructure supporting the Tavern consists of heating and chilled water utilities. Heating water is generated in an external boiler house, located approximately 75 feet east of the Tavern. An air cooled chiller is located outside of the boiler house with its associated chilled water pumps located within. The chiller is used to create the chilled water utility. Both sets of mechanical utilities are piped, below grade, to the Tavern. The equipment and piping were all installed in the 2007 renovation. The heating water and chilled water system equipment is in fair condition, but are all approaching the end of their expected lives. Replacement of all system components is recommended within the next 5-7 years. The distribution piping is in good condition and has at least 20 years of life remaining.

All spaces in the Tavern are conditioned by ducted style fan coil units. The units are located in the attic space and were installed in the 2007 renovation. The equipment is in good condition, and has 5-7 years of life remaining, based on industry standard life expectancies. Distribution ductwork is in good condition and has at least 20 years of life remaining.

The domestic water main serving the Tavern is a combination fire and water service. The water main enters the building in the southeast corner of the cellar through a former window opening. The cellar was flooded recently, and the piping is covered in debris. The water service is expected to have at least 20 years of life remaining, assuming no damage occurred during the flood. Shutoff valves were noticed to be leaking and require repair or replacement.

The plumbing fixtures in the Tavern consist of restroom fixtures in a single-occupant restroom and a kitchen sink in the break room. All fixtures are in good condition. The plumbing fixtures are supplied hot water that is generated by a 6 gallon electric water heater. The heater was installed in 2013 and is in fair condition. It is recommended that the heater be replaced at the end of its expected life, which would be in the next 3 years.

The fire suppression system consists of a combination wet-pipe and dry-pipe sprinkler system. The fire main

enters the cellar in the southeast corner of the building. The wet and dry pipe zone valve assemblies are located in the cellar. Wet pipe mains extend to risers in the south and north corners of the building. Branch sprinkler piping routes are exposed below the ceiling to sprinkler heads on each floor. The dry pipe sprinkler main extends to the attic, where it continues to connect to dry branch sprinkler piping and sprinkler heads.

The low tension (low voltage) service system at the Tavern was installed with the 2007 renovation and consists of a single 400A, 120/208V, 3 phase, 4 wire underground feeder. This feeder originates from distribution panel MDP-1 located in the Pump House. The feeder terminates at a 3P-400A service disconnect switch located on the cellar level. The low tension distribution system serving the Tavern was installed with the 2007 renovation and consists of three branch circuit panelboards

The lighting system in the Tavern consists of various types of fixtures with incandescent or fluorescent sources. Lighting fixtures are controlled by local switches.

The fire alarm system serving the Tavern was installed in the 2007 renovation and is based on a Silent Knight Model 5820XL control panel. The system is an addressable type and consists of the control panel, a fire alarm annunciator panel, a cellular dialer, manual pull stations, audible/visual signaling devices, smoke detectors, heat detectors, sprinkler system flow switches, sprinkler system valve tamper switches, and monitoring modules. The control panel and cellular dialer are located in Room 203.

Accessibility

The existing conditions of the Tavern present challenges to persons with mobility limitations. Two of the three public exhibit spaces can be accessed from doors that, except for hardware, are ABAAS compliant; however, there is no ABAAS compliant access to the second or third levels, limiting personnel who are able to work at the Park. A civil survey to confirm the slope of the paved pathways from the parking lot and around the Tavern was not included in the scope of the project.

While most of the first floor public doors meet or exceed the 32" minimum ABAAS required width, most of the door thresholds do not, and none of the operating hardware meets ABAAS requirements. Exhibit rooms 101 and 102 can be accessed through doors 101 and 102 that are ABAAS complaint except they lack ABAAS compliant lever hardware. There is no ABAAS complaint access to exhibit room 103, as there is a 6 inch step at door 103A, a 4 inch step at door 103, and door 102C lacks the 36 inch clearance required for doorways deeper than 24 inches.

The stairs that lead to the second floor do not comply with International Building Code (IBC). IBC requires 36 wide stairs. The existing stairs are only 32 inches wide. Additionally, the quarter turn at the top of the stair is not ABAAS compliant and the stairs lack an ABAAS compliant handrail. Door 201 that leads from the east

Figure 176: Temporary ramp at exterior concrete pad at Door 101A (BBB 2019)

Figure 177: Six-inch step at Door 103A (BBB 2019)

porch to the offices lacks the IBC and ABAAS required landing on the push side of the door and the stairs lack a handrail.

While neither the first or second level of Tavern complies with ABAAS standards, the public portions of the site are not entirely prohibitive to people with limited mobility and it is clear that effort has been made to provide accessible pathways for the public within the constraints of the historic fabric. For example, temporary ramps have been installed at the concrete pad at the exterior of door 101A to improve accessibility. Replacing the door handles with levers instead of knobs would allow doors 101 and 102 to be ABAAS complaint; however, Park staff who can open doors are on site at all times the Tavern is open to the public, so this change may not be necessary. The existing knob hardware, while not original, is more in keeping with the historic character of the building.

As the primary function of the Tavern is a visitor center, the need to provide access to persons with mobility limitations should be balanced by the need to preserve character-defining features. As the Tavern is open to the public, effort should be made to provide accessible accommodations to the maximum extent feasible. ABAAS guidelines stipulate that additions and alterations to existing buildings or facilities must comply with ABAAS standards. As an addition or major alteration that would require conformance with ABAAS is not anticipated and the site is a qualified historic structure, improving the accessibility of the site is at the discretion of NPS. ABAAS standards provide an exception for historic structures unable to achieve full compliance with ABAAS guidelines, stating: "Where the State Historic Preservation Officer or Advisory Council on Historic Preservation determines that compliance with the requirements for accessible routes, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, the exceptions for alterations to qualified historic buildings or facilities for that element shall be permitted to apply."[53]

Figure 178: Non code and ABAAS complaint stair at east porch (BBB 2019)

Figure 179: Non-ABAAS compliant threshold at Door 101B (BBB 2019)

53 United States Access Board ABA Accessibility Standards F202.5 Alterations to Qualified Historic Buildings and Facilities.

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Chapter 4: Character Defining Features and Materials

This chapter contains a list of the features and materials within the Tavern from which its significance is derived. While many historic finishes have been removed over time, various character-defining features dating to the period of significance (1828-1948) still exist at the building.

Plan

The T-shaped building plan has remained constant since the completion of the building in 1831. The north wing is perpendicular to the main block and south wing, forming an identifiable T shape that has been present for most of the building's existence.

Massing

Similar to the plan, the building's tripartite massing has remained constant since 1831. The three identifiable components convey the three building campaigns that brought about the Tavern's current appearance.

The center section and south wing rise two stories and have a connected attic crawlspace above. The north wing is also two stories but has a full-height attic that was once used for hotel rooms.

Materials

The stone and brick exterior walls contribute to the integrity of the Tavern building. These materials, clad in stucco, date to the construction of the building. The stucco cladding, while extensively repaired and replaced over time, also contributes to the significance of the Tavern. Its scored treatment on the north wing is also emblematic of the building. The original wood joists are also still present at the second floor and attic of the north wing.

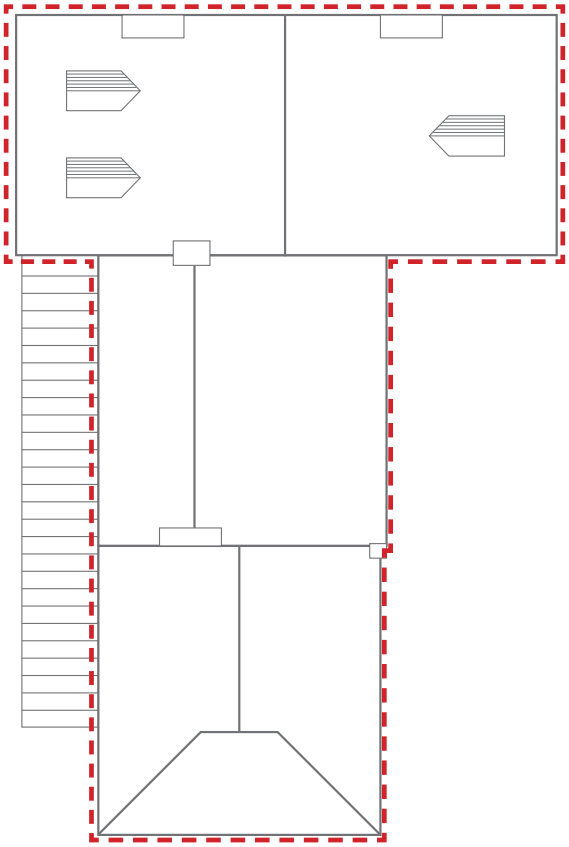

Figure 180: Roof Diagram, BBB 2020.

Figure 181: Tripartite Massing (BBB 2019)

Roof

While the roof structure and cladding are not original, the gabled roof form of the center section and north wing, as well as the hipped form of the south wing, also convey the building's significance. These roof forms have been constant since the building's original construction. The dormers, while also reconstructed, still maintain their original shape and placement.

Composition

The symmetrical composition of the north (main) elevation has remained constant through the decades (Figure 182 and Figure 184). The punched window openings are regularly spaced both vertically and horizontally, and shutters flank the windows to either side of the main entrance on both the first and second levels. The regular window light configuration also contributes to the significance of the building.

Finishes

There are few extant historic elements and finishes at the Tavern. The wood fanlight (frame and glazing) above the main entrance on the north elevation likely dates to the 1830s. Much of the interior on the second and third floors in the north wing also date to the 1830s and 1850s.

The following intact interior elements contribute to the Tavern's integrity:

- South wing, second floor—wood mantel (likely relocated from first floor)
- North wing, second floor—wood floorboards, framed and plastered partition walls, plaster ceiling finishes, and select doors, door frames, and door and window trim (see door and window schedules in Chapter 3 for specific locations)
- North wing, third floor—wood floor joists, wood floorboards, framed and plastered partitions, plaster over masonry finishes (see door and window schedules in Chapter 3 for specific locations)

Reconstructed Elements

Reconstructed elements can contribute by maintaining the original design intent and uses within the Tavern. The following features have been reconstructed, but their forms contribute to the significance of the Tavern:

- Two-story porches at east and south elevations
- One-story porch at west elevation
- Chamfered wood porch posts
- Dormer windows
- Gabled roof
- Chimneys
- Fireplace mantels
- Interior wood trim

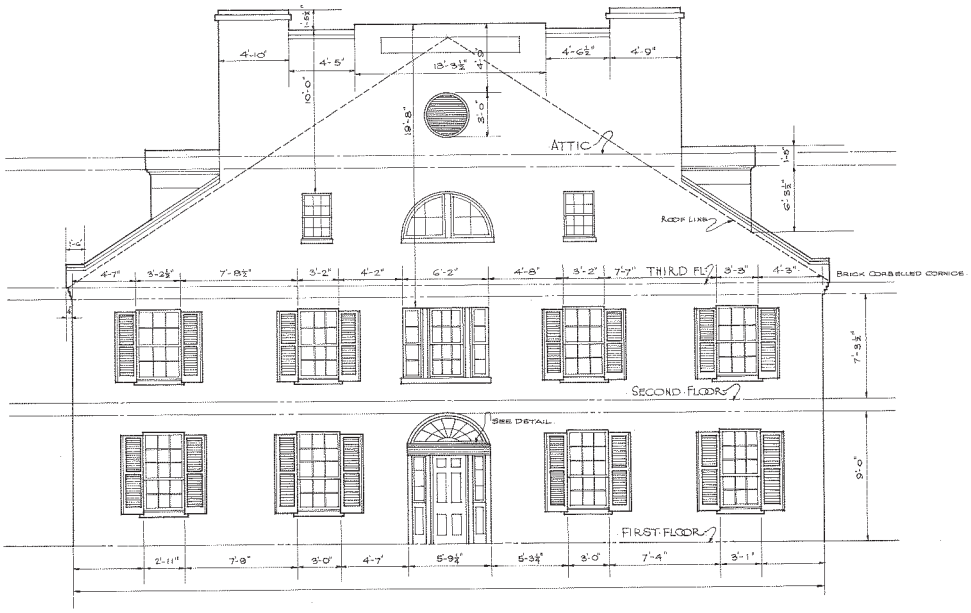

Figure 182: South Elevation Symmetrical Composition (HABS 1939)

Setting

The Tavern retains its location and setting immediately adjacent to Lock 20 of the C&O Canal. This proximity allows the historic use and occupancy of the Tavern building to be easily read. The Tavern setting was described and evaluated in the Cultural Landscape Inventory (2004) and Cultural Landscape Report (2006).

The Tavern sits on a gently sloping grassy lot. A single immature tree is located immediately north of the north elevation, and individual mature trees are located north and south of the building. Besides small plantings in a small areaway on the east and south elevations of the north wing, there is no other vegetation in the immediate vicinity of the Tavern building. A steeply sloping ridge roughly 75 feet east of the Tavern is heavily vegetated with mature trees. Views from the Tavern to the north and south along the canal are uninterrupted.

Over the decades, various landscaping projects have occurred in the Tavern area. Most recently, the 2007 project involved impermeable concrete paving around much of the Tavern and paved walkways, parking lots, and driveways that have a negative impact on the setting.

Figure 183: Original Stone in Cellar (L) and Brick in Third Floor (R) (BBB 2019)

Figure 184: South Elevation Symmetrical Composition (BBB 2020)

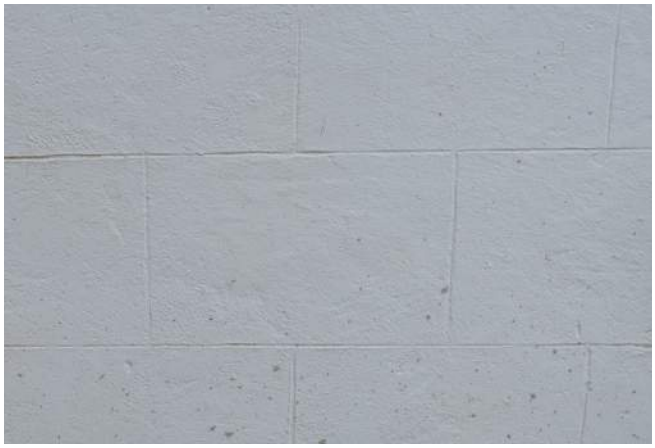

Figure 185: Scored Stucco on North Wing (BBB 2019)

Figure 186: Historic Fanlight Above Main Entrance, North Elevation (BBB 2019)

Figure 187: Historic Mantel in Room 203 (BBB 2020)

Figure 188: Historic Wood Lath and Plaster in Third Floor (BBB 2019)

Chapter 5: Condition Assessment

This chapter describes the existing conditions of Great Falls Tavern as of October 2019. It identifies areas and types of deterioration exhibited by the building's architectural, structural, electrical, and mechanical features, as categorized in the ASTM Uniformat II building element master list. A condition rating and deficiency rating is provided for each element. Additionally, a written description of the observed conditions of the building materials and elements is provided. The chapter also provides recommendations for material and feature repairs.

Methodology

Survey work for preparation of the conditions assessment was completed in October 2019. The field assessment was limited to visual inspection from the ground. The structure was measured and assessed where visible; finishes were not removed to investigate the configuration and condition of the structure. Assessment of the roofs was limited to access from within third floor spaces and conditions visible from the ground.

Non-destructive testing for mortar or wood species identification was also excluded from the scope of this project. Recommendations for materials testing are provided in sections B2010: Exterior Walls and B1010: Floor Construction.

Provisions of the 2015 International Building Code (IBC) and 2015 International Existing Building Code (IEBC) were used to analyze some elements of the existing structure, including referenced standards:

- ASCE 7-10 Minimum Design Loads (and Associated Criteria) for Buildings and Other Structures
- NDS 2015 National Design Specification (NDS) for Wood Construction with 2015 Supplement
- ASCE 41-13 Seismic Evaluation and Retrofit of Existing Buildings

The structural analysis was limited to the north wing attic, as it is the only area suspected to retain the historic joists in their original configuration. Specific allowable loads for all additional spaces, which were modified in 1950-1951, could not be accurately calculated without viewing the structure.

Summary

The Tavern is in fair to good condition overall. Major and endemic issues are known to exist. The site remains at risk to catastrophic flooding, and water infiltration around the foundation is a persistent issue. Various projects have been conducted in the last 20 years to address flooding and water infiltration risk. The brick parapet at the northeast corner of the roof has been subjected to recurring issues. Emergency masonry work was conducted in 2015, but as of this survey the parapet again appears to be leaning.

Overall, structure of the Great Falls Tavern is in fair to good condition. A few structural repairs are recommended for code compliance and extending the longevity of the structure:

- Cracking and displacement of existing chimneys and parapet wall at the north wing should be monitored for continued movement. Within long term planning efforts, NPS should consider reinforcing or rebuilding the chimneys and parapet to be seismically compliant. Recommendations for monitoring are included in B2012: Parapets and Chimneys.
- Limit storage loading in the third floor to lessen demand on historic joists.

- Repoint brick and repair finishes in areas with cracking and excessive moisture infiltration (primarily the north wing).
- Replace framed concrete slab within the east porch.
- Remove the metal bar supports at the west porch posts and replace with an appropriate detail.

Condition Assessment Standard Definitions

The condition assessment definitions used for this HSR are based on those outlined in NPS Park Facility Management Division's (PFMD) Asset Management Process (AMP), the Facilities Management Software System (FMSS), and the Facility Condition Assessment (FCAS) and adapted for use by the CHOH NHP. For the purposes of this report, these definitions were strictly interpreted as a way to qualitatively assess the current condition of the Tavern.

Qualitative Condition Ratings:

GOOD

- Routine maintenance should be sufficient to maintain the current condition; and/or
- A cyclic maintenance or repair/rehabilitation project is not specially required to maintain the current condition or correct deficiencies.

FAIR

- The feature generally provides an adequate level of service to operations; but
- The feature requires more than routine maintenance; and
- Cyclic maintenance or repair/rehabilitation work may be required in the future.

POOR

- Feature requires immediate attention;
- Routine maintenance is needed at a much higher level of effort to meet significant safety and legal requirements;
- Cyclic maintenance should be scheduled for the current year; and/or
- A special repair/rehabilitation project should be requested consistent with park requirements, priorities, and long-term management objectives.

Maintenance Deficiency Priority Ratings (10-Year Rating Period):

Minor – Short-Term/Long-Term Priority

- This rating indicates standard preventive maintenance priorities and preservation methods have not been followed; or
- There is a reduced life expectancy of affected adjacent or related materials and/or systems within five to 10 years and beyond; or
- There is a condition with a long-term impact within five to 10 years and beyond.

Serious – Immediate/Short-Term Priority

- This rating defines a deteriorated condition that if not corrected within one to five years will result in the failure of the feature; or
- A threat to the health and/or safety of the user may occur within one to five years if the ongoing deterioration is not corrected; or
- There is ongoing deterioration of adjacent or related materials and/or features as a result of the feature's deficiency.

Critical – Immediate Priority

- This rating defines an advanced state of deterioration which has resulted in the failure of a feature or will result in the failure of a feature if not corrected within one year; or
- There is accelerated deterioration of adjacent or related materials or systems as a result of the feature's deficiencies if not corrected within one year; or
- There is immediate threat to the health and/or safety of the user; or
- There is a failure to meet a legislated requirement.

Not Rated

- The feature was not rated as it was not extant at the time of the report or is non-contributing, removed, and/or not planned to be replaced.

ASTM Uniformat II Building Feature Master List–Condition Assessment Ratings

In the following section, the building features are described and rated according to the ASTM Uniformat II Classification.

ASTM Uniformat II Classification for Building Elements (E1557-97)

Level 1 Major Group Elements	Level 2 Group Elements	Level 3 Individual Elements
A SUBSTRUCTURE	A10 Foundations	A1010 Standard Foundations A1020 Special Foundations A1030 Slab on Grade
	A20 Basement Construction	A2010 Basement Excavation A2020 Basement Walls
B SHELL	B10 Superstructure	B1010 Floor Construction B1020 Roof Construction
	B20 Exterior Enclosure	B2010 Exterior Walls B2020 Exterior Windows B2030 Exterior Doors
	B30 Roofing	B3010 Roof Coverings B3020 Roof Openings
C INTERIORS	C10 Interior Construction	C1010 Partitions C1020 Interior Doors C1030 Fittings
	C20 Stairs	C2010 Stair Construction C2020 Stair Finishes
	C30 Interior Finishes	C3010 Wall Finishes C3020 Floor Finishes C3030 Ceiling Finishes
D SERVICES	D10 Conveying	D1010 Elevators & Lifts D1020 Escalators & Moving Walks D1090 Other Conveying Systems
	D20 Plumbing	D2010 Plumbing Fixtures D2020 Domestic Water Distribution D2030 Sanitary Waste D2040 Rain Water Drainage D2090 Other Plumbing Systems
	D30 HVAC	D3010 Energy Supply D3020 Heat Generating Systems D3030 Cooling Generating Systems D3040 Distribution Systems D3050 Terminal & Package Units D3060 Controls & Instrumentation D3070 Systems Testing & Balancing D3090 Other HVAC Systems & Equipment
	D40 Fire Protection	D4010 Sprinklers D4020 Standpipes D4030 Fire Protection Specialties D4090 Other Fire Protection Systems
	D50 Electrical	D5010 Electrical Service & Distribution D5020 Lighting and Branch Wiring D5030 Communications & Security D5090 Other Electrical Systems
E EQUIPMENT & FURNISHINGS	E10 Equipment	E1010 Commercial Equipment E1020 Institutional Equipment E1030 Vehicular Equipment E1090 Other Equipment
	E20 Furnishings	E2010 Fixed Furnishings E2020 Movable Furnishings
F SPECIAL CONSTRUCTION & DEMOLITION	F10 Special Construction	F1010 Special Structures F1020 Integrated Construction F1030 Special Construction Systems F1040 Special Facilities F1050 Special Controls and Instrumentation
	F20 Selective Building Demolition	F2010 Building Elements Demolition F2020 Hazardous Components Abatement

A10 AND A20: SUBSTRUCTURE (FOUNDATIONS) AND CELLAR CONSTRUCTION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
A1010 Standard Foundations	Below Cellar	Good	Minor	
Description: Foundations of the tavern could not be viewed during the site survey and are not well documented in existing drawings. Given the age and type of structure, foundations of this building are likely stone walls that corbel below grade. No evidence of foundation settlement or failure was observed in the cracking patterns at the above grade walls. ***Recommendations:*** Remove sediment and debris from the cellar spaces, repoint the south cellar walls (assume 80% repointing) with compatible lime mortars, contingent on mortar testing. Mortar testing should include at least one sample from the original stone bedding mortar.				
A2020 Cellar Walls	Center Section and South Wing	Good	Minor	 **Figure 189:** Mortar Loss in South Wing Cellar (Silman 2019)  **Figure 190:** Mortar Loss in Cellar Below East Porch (Silman 2019)
Description: Cellar walls of the south wing and center section are uncoursed rubble masonry walls. Where cellar walls could be viewed from cellar spaces, the masonry walls are in fair to good condition. Mortar loss and loose mortar was observed in the south wing, primarily at the south elevation (Figure 189). Cellar walls in the center portion appear to have been repointed. Foundation walls below the east porch were also missing mortar and sections of stone have come loose (Figure 190). A thick layer of sediment and mud has also built up over the concrete slab from flooding events. Some areas of remaining plaster left on the cellar walls was observed to be delaminating from the masonry walls. Mortar loss, mud buildup, and plaster deterioration is all evidence of moisture issues in the cellar from both wet conditions and flood damage. No evidence of foundation settlement or failure was observed in cracking patterns at the above grade walls. ***Recommendations:*** In the south wing, cellar walls should be repointed with a compatible mortar. Assume 80% of the cellar south wing cellar walls will be repointed. Debris and built-up sediment should be removed from all cellar spaces to prevent continued deterioration of the slab on grade, existing mechanical equipment, and existing shoring posts. In future rehabilitation projects, a new mud slab or concrete slab on grade can be added to the cellar below the center portion. The new slab will help control moisture levels in the cellar level and increase the longevity of the existing first floor framing.				

B10: SUPERSTRUCTURE - FLOOR AND ROOF CONSTRUCTION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B1010 Floor Construction	North Wing	Good	Minor	

Description: Floor construction of the north wing is a slab on grade at the first floor and large, historic wood joists at the second and third floors. See structural description for framing sizes.

The first-floor slab on grade could not be viewed below brick paving but is assumed to be in fair to good condition given the condition of the brick paving. Some mortar was observed to be missing between the brick units. Floor joists could not be observed except for in small gaps through the floor sheathing but is assumed to be in good condition due to the condition of floor and wall finishes. The floor framing at the second and third floors date to the building's original construction.

A preliminary structural analysis was conducted to study the performance of the historic joists against contemporary building codes. In the absence of material testing, conservative assumptions were used for the material properties of the historic joists. Based on the location and age of the building, the historic wood joists were assumed to have a material strength equivalent to Southern Yellow Pine #1. Analysis indicates that the joists have the loading capacity of 20 psf—it does not have capacity for the current loading requirements for either residential spaces (40 psf) or office loading (50 psf plus 15 psf for the weight of partitions).

Although the joists may not be compliant with contemporary codes, no evidence of structural distress was observed. It is also important to note that the structural properties of old-growth timber of 1830s construction are often much higher than contemporary design values for Number 1 Grade or Select Structural lumber. The analysis of the historic joists can be further refined with material testing or further probes to confirm the as-documented configuration.

Samples could be collected and tested from the exposed attic joists to refine material strength assumptions. Because the capacity of the existing joists is unknown, NPS should avoid using the second and third floors of the north wing for storage or public access.

Recommendations: Brick pavers on the first floor should be locally reset in replacement mortar to improve the condition and safety of the floor. During any brick replacement, the condition of the slab on grade should be investigated to confirm it is in good condition. At the upper floors, special attention should be given to any future repairs and modifications at the second and third floors of the north wing at the floor framing to maintain and properly preserve the only extant wood framing from the nineteenth century. Storage in the third floor should be limited to 20psf. During field survey, the amount of storage currently in the third floor appears to be approaching this capacity. NPS should not allow any additional storage on the third floor. Alternately, the floor should be reinforced to allow additional storage.

Figure 191: Brick Paving in North Wing Built over a Concrete Slab on Grade (Silman 2019)

B10: SUPERSTRUCTURE - FLOOR AND ROOF CONSTRUCTION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B1010 Floor Construction	Center Section	Fair	Serious	

Description: Floor construction of the center section is wood joists at the first and second floors. See structural description for framing sizes. First floor joists could be viewed from the cellar level and are in good condition. Shoring posts have been installed near the north wall of the cellar where openings have been cut through the cellar walls. The shoring posts re-support joists where the joist pockets were disturbed, though the joists have not been cut surrounding the openings. Metal shoring posts were observed to be rusted near their bases due to flooding damage and wet cellar conditions (Figure 197). Second floor joists could not be viewed due to the presence of finishes, but the structure is assumed to be in good condition due to the lack of observed distress in finishes. Loading capacity, however, cannot be assessed without viewing the joists.

The flagstone terrace on the west elevation has uneven stone pavers. The flagstone should be monitored to ensure that further settlement does not result in tripping hazards.

Recommendations: The corroded shoring posts should be replaced in-kind as a temporary measure. Shoring posts should be able to support at least 650 lbs per joist supported. If these mechanical openings are retained in future rehabilitation projects, the first floor can be reframed with a header and joist sisters in place of the shoring posts. Alternatively, abandoned mechanical penetrations can be infilled to reestablish bearing of the joists. If openings are required for mechanical equipment or ventilation, a long-term solution should be developed to replace the temporary shoring posts, such as framing any required openings.

Figure 192: Corroded Shoring Posts at West Wall in Cellar of Center Section (Silman 2019)

B1010 Floor Construction	South Wing	Poor	Critical	

Description: Floor construction of the south wing is wood joists and steel beams. See structural description for framing sizes. Like the center section, first floor joists and steel could be viewed from the cellar level and are in good condition. Floor joists span east-west to a steel beam that spans north-south between the masonry walls. At the northeast corner of the south wing, there is a small section of reinforced concrete slab at grade. This area is exterior to the center section.

First floor framing is in good condition. Some corrosion of the steel beam was observed at bearing ends, and the wood joists are in good condition.

The concrete framed slab is in poor condition (Figure 193). At the underside of the slab, significant concrete spalling and corrosion of reinforcement was observed. Where exposed, that bars have corroded all the way through.

Figure 193: Concrete Slab in Poor Condition (Silman 2019)

B10: SUPERSTRUCTURE - FLOOR AND ROOF CONSTRUCTION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B1010 Floor Construction	South Wing	Poor	Critical	

Recommendations: Joists should be assessed for water damage after any future flood events. Cleaning of the cellar and restoration of the masonry walls (see A1010 and A2020) will prolong the life of existing first floor framing.

The concrete slab below the east porch should be removed and replaced as a critical repair. The new slab should be constructed with adequate bearing and reinforcement cover depth for exterior applications.

The current structural capacity of the slab could not be determined. However, due to the extremely poor condition and exposed corroded reinforcement, the slab should be replaced. For cost estimating purposes, it can be assumed that the structure should be shored with temporary shoring posts and wood framing infill as a temporary repair. Until shoring is installed, public access to this area of slab should be restricted.

In longer term restoration projects, the slab should be reframed. For cost estimating purposes, this area can be repaired with a 6" framed concrete slab and limited masonry restoration to establish appropriate bearing for the new slab.

A reinforced concrete slab is recommended as a durable, in-kind solution that will be resilient against moisture-related corrosion. As an alternative, the slab can be framed with reinforced concrete on form deck and galvanized steel beams.

B1020 Roof Construction	North Wing	Good	Minor

Description: Roof structure of the north wing is a wood truss system with rafters bearing on masonry and a steel beam at the third floor (Figure 194). The roof system also includes wood ties and diagonal struts. Steel beams in the roof structure bear on masonry end walls. The steel beam does not have fireproofing, which is acceptable in Type III B Unprotected Combustible Construction.

The roof structure appears to be in good condition.

Recommendations: Monitor for roof leaks; any leaks should be locally repaired.

Figure 194: Roof Framing, North Wing (BBB 2019)

B10: SUPERSTRUCTURE - FLOOR AND ROOF CONSTRUCTION

Feature(s)	Location	Condition	Deficiency	Photo(s)
B1020 Roof Construction	Center Section	Good	Minor	

Description: Roof structure of the center section is wood rafters, third floor joists, and diagonal ties. See structural description for framing sizes.

The roof structure appears to be in good condition. One split rafter was observed near the south end of the structure (Figure 189).

Recommendations: Repair split roof joist with a 2x6 sister. Monitor for roof leaks; any leaks should be locally repaired.

Feature(s)	Location	Condition	Deficiency	Photo(s)
B1020 Roof Construction	South Wing	Good	Minor	

Description: Roof structure of the south wing is also wood rafters, third floor joists, and vertical and diagonal ties. Like other roof systems, the structure is in good condition.

Recommendations: Monitor for roof leaks; any leaks should be locally repaired.

Figure 195: Split in Roof Rafter, Center Section (Silman 2019)

B20: EXTERIOR ENCLOSURE

Feature(s)	Location	Condition	Deficiency	Photo(s)
B2010 Exterior Walls	North Wing	Fair to Poor	Critical	

Description: Exterior walls of the north wing are brick masonry walls with a stucco coating painted white. Restoration drawings also indicate that steel lintels were installed at all masonry openings at the north wing around 1949. A past repair area was also viewed at the top of the gable at the north elevation. Park documentation includes a study of a large crack in the northeast corner that was investigated and repaired in 2015. The crack was repaired by removing out of plumb brick units above the below the crack and rebuilding the brick around the crack to be plumb. See B2012 Parapets and Chimneys for further discussion of the exterior walls specific to these elements.

The walls are in fair condition. Hairline cracking was observed at all elevations, including vertical cracking near window openings and some horizontal cracking, and step cracking near the northwest corner of the building. Vertical and horizontal cracking is typical for buildings of this age and construction type. Vertical and horizontal cracking was concentrated above and below the window openings, typically caused by local stress concentrations as load moves down through the masonry walls. Horizontal cracking near the northwest corner may be attributable to corrosion of the steel lintel installed over the first-floor windows.

Figure 196: Step Cracking Between First and Second Story Windows, South Elevation, North Wing (BBB 2019)

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2010 Exterior Walls	North Wing	Fair to Poor	Critical	

At the south elevation of the north wing, 1/8" vertical and step cracking was observed near the corner of the roof and near window openings. These cracks were also noted during the 2015 survey and repair of the northeast corner, though it appears that the cracks have not been repaired or patched further. The stucco at the foundation on all elevations is delaminated. At the north elevation, the finish coat is missing at the foundation level. Park documentation indicates that previous exterior paint and whitewash treatments were latex, which is not breathable and could be contributing to interior moisture issues.

On the third floor, brick, mortar, and plaster deterioration was observed at the interior face of brick, primarily below windows. In some instances, the soft brick has also started to weather away or the inside face of brick units has spalled off, suggesting that previous repair mortars may have been incompatible and too hard for the soft historic brick (Figure 197).

Figure 197: Mortar and Plaster Loss at Interior of North Wing Third floor, North Wall (BBB 2019)

The deterioration is likely attributable to rainwater infiltration through the soft historic brick. Cracking also allows water to penetrate the stucco coating, soak the brick and mortar, and widen any cracking through freeze thaw cycles. This method of deterioration was noted during the 2015 destructive investigation of cracking at the northeast corner. The original cause of cracks is unknown, but could have been caused by previous incompatible repair mortars, seismic events, temperature and shrinkage of the unreinforced masonry, and small differential settlements over time. The ground surrounding the building has also been disturbed many times for utility work and paving projects.

Although site disturbances have not caused any structural instabilities, the additional basement wall penetrations, construction equipment, and altered drainage conditions may have caused settlement leading to hairline cracking that is worsened by moisture infiltration.

Near grade, the brick deterioration may also be caused by rising damp, exacerbated by any pooling of water directly adjacent to the building. Rising damp does not appear to be the primary cause of moisture infiltration issues.

Recommendations: As a critical priority, brick at the upper portion of the north elevation should be repointed at the interior face. This will help prevent further deterioration of the brick units and spalling of the brick faces. A compatible mortar should be used, contingent on analysis of the historic mortar. Mortar should be tested to determine the composition of current repointing mortars and any original bedding mortars still extant in the wall. Park documentation includes various specifications for repair mortars including both natural hydraulic lime mortars and mortar containing portland cement. Given the age of the building, the original bedding mortar would have been a lime-based mortar. In some cases, introduction of portland cement mortars can exacerbate moisture and cracking issues in existing masonry assemblies, especially where the original brick is quite soft.

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2010 Exterior Walls	North Wing	Fair to Poor	Critical	

If possible, any portland cement mortars should be removed in repair areas and replaced with a more appropriate lime-based mortar.

At the exterior, the brick should be locally repointed where 1/8" or larger cracks occur, especially at the gabled ends. This would also include the removal of the stucco coating and replacement that conforms to the existing historic materials and appearance. A more invasive but longer-term repair would be to remove the stucco coating from the exterior and plaster from the interior elevations and proceed with a full repointing. If exterior finishes are fully removed, all new paint should be non-latex and breathable. Delaminated stucco and missing finish coat at the exterior foundation should be repaired.

For cost estimating purposes it can be assumed that 150 square feet of exterior facade should be further investigated including removal of exterior stucco. Where cracking is limited to the mortar joints, the areas should be repointed. Where cracking has compromised brick units, the areas should be locally rebuilt.

Previous paint and whitewash treatments have contained latex, which is non-permeable. No known hazardous materials testing has been conducted on exterior surfaces; however, it is assumed that paint and any whitewash treatments performed in or prior to 1949 contain lead. If stucco is to be removed from the exterior, the stucco and paint should be tested for lead and asbestos and removed under containment if needed. If the stucco remains in place, lead may need to be encapsulated prior to any repair.

The steel lintel at the first-floor window at the northwest corner of the north elevation should also be further investigated to confirm the condition of the steel and any required cleaning, painting, or replacement of the steel member.

Figure 198: Mortar Loss and Brick Spalling at Interior of North Wing Third floor, North Wall (BBB 2019)

B2010 Exterior Walls and Porch Framing	Center Section	Fair	Minor	

Description: Walls of the center section are rubble masonry. The center section also includes wood framed porches on either side. See structural description for wall thicknesses and porch configurations. Restoration drawings indicate that concrete lintels were installed at all openings during the 1949 restoration.

Walls of the center section appear to be in good condition with very limited instances of cracking. Vertical cracking was observed below the northernmost window within the west porch. The cracking is likely due to the mechanical/ventilation opening added to the cellar in this location. A 1/8" vertical crack was observed at the interface between the center section and south wing, and another 1/8" crack was observed within the east porch near the bottom of the stair, likely attributable to the attachment of stair framing causing distress to the stucco (Figure 198).

Figure 199: Cracking in East Porch (Silman 2019)

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2010 Exterior Walls and Porch Framing	Center Section	Fair	Minor	
Along the west elevation, porch posts have been retrofit with a detail including a metal bar and small 3"x3" baseplate. The metal bars supporting the posts were observed to be corroding. ***Recommendations:*** If no longer required for mechanical equipment or ventilation, the cellar opening should be infilled. The minor cracking likely does not require structural repair, but it may be included as a long-term repair item. During a future larger repointing campaign, the stucco should be removed at areas of cracking to allow for localized repointing. At the porch, the post supports should be replaced with larger sandstone bases to meet the bottom of the wood posts. Alternatively, the wood posts may be replaced with longer members to bear on the existing sandstone bases. Previous paint and whitewash treatments have contained latex, which is non-permeable. No known hazardous materials testing has been conducted on exterior surfaces; however, it is assumed that paint and whitewash treatments performed in or prior to 1949 contain lead. If stucco is to be removed from the exterior, the stucco and paint should be tested for lead and asbestos and removed under containment if needed. If the stucco remains in place, lead may need to be encapsulated prior to any repair.				**Figure 200:** West Porch Post Base (Silman 2019)
B2010 Exterior Walls and Porch Framing	South Wing	Fair to Good	Serious	
Description: Walls at the south wing are brick masonry built over rubble masonry cellar walls. Steel lintels were installed at all openings during the 1949 restoration. Above grade, the south wing walls are in fair to good condition. Hairline vertical cracking was observed near window openings, typical of buildings this age. A crack was also observed at the north elevation of the south wing, within the east porch. This cracking may be attributable to deterioration of the concrete slab below this area. A noticeable lintel sag was also observed at the first-floor door of the south elevation, indicating corrosion of the steel lintel or an inadequately sized member (Figure 201).				**Figure 201:** Door at South Elevation; Note the Lintel Deflection (Silman 2019)

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2010 Exterior Walls and Porch Framing	South Wing	Fair to Good	Serious	 **Figure 202:** Check in Wood Post at South Wing Porch (BBB 2019)
Porch framing at this area is also in fair to good condition. The structure of the porch was entirely reconstructed in 2007 with pressure treated lumber. The support detail with a small 3"x3" baseplate was also maintained at this elevation. Some deterioration of the second floor tongue and groove flooring was observed during the 2019 field surveys, likely due to moisture and temperature expansion of the wood. Checks have also developed in the wood posts due to the new pressure-treated timber drying out. The checked members do not compromise the structural integrity of the porch but do pose aesthetic and longevity issues as water can infiltrate through the checked areas. ***Recommendations:*** Like the north wing, façade cracking should be repaired by removing stucco and locally repointing the brick masonry. Replace lintel with new steel member to correct deflection of the door frame. See section regarding north walls for additional discussion of mortar testing and masonry repairs. The porch support detail should also be replaced as described in B2010 for the center section. Checks in wood posts should be sanded, wood filler applied, and repainted. Previous paint and whitewash treatments have contained latex, which is non-permeable. No known hazardous materials testing has been conducted on exterior surfaces; however, it is assumed that paint and whitewash treatments performed in or prior to 1949 contain lead. If stucco is to be removed from the exterior, the stucco and paint should be tested for lead and asbestos and removed under containment if needed. If the stucco remains in place, lead may need to be encapsulated prior to any repair.				
B2012 Parapets and Chimneys	North Wing, North Elevation	Fair	Serious	 **Figure 203:** North elevation parapet (BBB 2019)
Description: The north wing features a tall brick parapet at the north elevation and three chimneys; two integral with the north parapet and one at the south elevation of the north wing. The 2015 investigation noted that the north wing parapets are two wythes deep with a stucco coating. Displacement and cracking of parapet and chimneys was observed. The brick structures were observed to have tilted to the north, and cracking was observed at the east, west, and north sides of the tall slender brick structures. Extent of displacement could not be accurately determined from the ground. It is unknown if the damage was caused by the 2011 Mineral Earthquake. ***Recommendations:*** Cracking of the parapets and chimneys should be monitored for continued movement. In the short-term, cracking and displacement should be visually monitored. In the near term, inexpensive tell-tale crack monitors should be installed across existing cracks and visually monitored by Park staff to determine if the parapets and chimneys are actively moving. For cost estimating purposes, it can be assumed that six monitors should be installed. See field notes in appendix for suggested location of crack monitors.				

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2012 Parapets and Chimneys	North Wing, North Elevation	Fair	Serious	

If more than 5mm of movement is observed, the Park should engage a structural engineer to investigate further and develop appropriate repairs. Crack monitors can also be installed to accurately quantify continued movement of the chimneys. Existing cracking should be repaired by removing the stucco and repointing deteriorated areas. Given the extent of cracking, it would also be appropriate to rebuild sections of the brick masonry to address existing conditions during a future long-term restoration project.

Unreinforced masonry parapets and chimneys are typically not seismically compliant. In order to achieve seismic compliance and increase the site's safety during a seismic event, the chimneys and parapet should be reinforced or reconstructed as a reinforced wall.

A seismic analysis of the existing chimneys and parapets following current code requirements shows that the chimneys will experience 20 - 30psi of tensile stress in a design level seismic event. A brick masonry chimney in good condition may be able to withstand these tensile forces, but given the observed exterior condition and typical masonry deterioration in a chimney flue, we recommend planning for chimney reinforcement within a long-term restoration project. Similarly, the parapet at the north elevation may experience upwards of 100psi in a design level seismic event, exceeding the capacity of unreinforced masonry.

Options for chimney and parapet reinforcement include adding a brace point at the mid-height of the parapet, such as a kicker supported on the roof framing. The chimneys could also be reinforced by infilling the flue with reinforced concrete that extends down past the roof height.

Previous paint and whitewash treatments have contained latex, which is non-permeable. No known hazardous materials testing has been conducted on exterior surfaces; however, it is assumed that paint and whitewash treatments performed in or prior to 1949 contain lead. If stucco is to be removed from the exterior, the stucco and paint should be tested for lead and asbestos and removed under containment if needed. If the stucco remains in place, lead-based paint may need to be encapsulated prior to any repair.

Figure 204: Displacement of North Wall Chimney and Parapet (Silman 2019)

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2015 Balcony Walls and Handrails	South Balcony and East Balcony	Fair	Minor	 **Figure 205:** Deterioration at Bottom Rail, South Balcony (BBB 2019)
Description: There are two balconies on the building, located on the second story of the south and east elevations. Each balcony is three bays wide by one bay deep. The balcony walls are formed by the exterior of the main building. See B2010 Exterior Walls for conditions. Handrails are 1" x 1" wood posts between wood top and bottom rails. The center segment of both railings is removable. Patches have replaced previously deteriorating wood but rot still exists at the posts and bottom rail on the balustrade of both balconies. ***Recommendations:*** Replace bottom rails of balustrade on south balcony and make localized repairs on bottom rail of east balcony.				
B2020 Exterior Windows	All	Fair	Minor	 **Figure 206:** Window on North Elevation with Deteriorated Sidelight Bottom Rail and Insect Deposits (BBB 2019)
Description: All windows were replaced in 2002. The windows have insulated glass units (IGUs), which necessitated muntin profiles thicker than the historic window profiles. The windows also have incompatible aluminum tube balances. One window, the fanlight over the main entrance on the north elevation, likely dates to the ca. 1831. Most windows are in good condition but some are experiencing localized deterioration, such as splintering and separation, especially on the north and south elevations of the north wing. Some of the tube balances are loose, causing the sashes to move horizontally and allow debris to enter the building. Exterior wood window sills on the north and south elevations of the north wing are splitting and deteriorating, and insect deposits are present at many of the exterior window frames. ***Recommendations:*** Clean windows and remove insect deposits. Repair localized deterioration, including resetting any loose tube balances. Replace deteriorated sills. If windows are replaced during future rehabilitation projects, all windows should be replaced with thinner, more compatible muntin profiles and cotton sash cords.				

B20: EXTERIOR ENCLOSURE				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
B2030 Exterior Doors	Building Doors	Fair	Minor	
Description: Several of the paneled wood exterior doors are damaged. Batten wood doors are in good condition. Many molded wood door stops are damaged or missing. Many doorknobs are loose or broken; some are missing altogether. Insect deposits are also present at many of the exterior door frames. Existing hardware does not meet ABAAS and many doors lack ABAAS required clearances. ***Recommendations:*** Clean doors and remove insect deposits; Repair damaged doors; Replace missing or damaged wood door stops; Repair damaged doorknobs and locksets. Replace door knobs with ABAAS compliant levers.				**Figure 207:** Main Entrance, North Elevation Showing Damage to Door, Doorknob, and Door Stop (BBB 2019)
B2030 Exterior Doors	Cellar Door	Poor	Critical	
Description: A watertight steel door clad with wood boards leads to stairs to the cellar, located immediately south of the south porch. This door was installed in 2007. The door requires a removable key wrench to open. During survey in 2019, staff on site were unaware of how to open the door. This poses serious safety risks should an emergency occur and on-site staff are unable to operate the hatch. Three of the six lifting mechanisms also appear to be broken and the door has experienced rusting. ***Recommendations:*** Cellar door should be repaired or replaced as soon as possible. Replacement with an integrated opening mechanism with a lock that does not create a tripping hazard is recommended so that an independent key wrench is not necessary to operate the door.				**Figure 208:** Cellar Door in Open Position Showing Broken Lifting Mechanisms at Right (BBB 2019)

B30: ROOFING

Feature(s)	Location	Condition	Deficiency	Photo(s)
B3010 Roof Coverings	All	Fair	Minor	

Description: Square red cedar shingles cover the main building roof. According to as-built drawings, shingles were installed in 2002. The shingles currently exhibit cupping and splitting, and there are isolated areas of biogrowth. The ridge cap is also failing. The dormers on the north wing have red cedar shingle cladding on their cheeks. This cladding is stained and weathered. Previous inspection by the Park determined that the cedar shingle roof was fast approaching the end of its service life.

Standing seam copper covers the roof over the west porch. The standing seam cladding was installed in 2002 and is in good condition. A roof cladding replacement project was approved in January 2020.

Recommendations: Proceed with cedar shingle roof replacement project as approved and monitor standing seam roofs.

Figure 209: Red Cedar Shingles on Roof of North Elevation and Center Section (BBB 2019)

Feature(s)	Location	Condition	Deficiency	Photo(s)
B3014 Flashings and Trim / B3016 Gutters and Downspouts	All	Fair to Poor	Serious	

Description: Flashing at the center of the parapet on the north elevation appears to be failing. Downspouts at the north addition are in poor condition and should be replaced. Gutters are also failing in some locations, such as at the second floor of the center portion on the west elevation, as evidenced by staining of the masonry walls below.

Recommendations: Replace flashing at center on parapet on north elevation. Replace downspouts as needed and clean gutters seasonally.

Figure 210: North Elevation Parapet with Failed Flashing (BBB 2019)

C10: INTERIOR CONSTRUCTION AND C20: STAIRS

Feature(s)	Location	Condition	Deficiency	Photo(s)
C1020 Interior Doors	All	Fair	Minor	

Description: Several of the interior wood doors are dented and paint has flaked off due to constant use. Existing hardware does not meet ABAAS and many doors lack ABAAS required clearances.

Recommendations: All interior doors should be repaired and repainted, and any malfunctioning hardware should be repaired.

Figure 211: Door 102C looking south; no doorknob (BBB 2019)

C10: INTERIOR CONSTRUCTION AND C20: STAIRS

Feature(s)	Location	Condition	Deficiency	Photo(s)
C2010 Stairs	All	Fair	Serious	

Description: Stair treads throughout the building are uneven. The only stairs from the first floor to the second floor are located on the exterior of the building (connecting the east covered porch to the balcony above). These stairs do not meet current Life Safety Code or ABAAS requirements. Additionally, the stairs from the second floor porch to the north wing do not have a code-required landing at the top of the stairs.

Recommendations: It is assumed that in order to preserve the integrity of the Tavern, the second floor will not be made ABAAS accessible and the stairs will not be replaced with code-compliant alternatives.

Figure 212: Exterior Stairs from First to Second Floor (BBB 2019)

C30: INTERIOR FINISHES

Feature(s)	Location	Condition	Deficiency	Photo(s)
C3010 Wall Finishes	North Wing, First Floor	Fair	Minor	

Description: Most of the walls within the Tavern are replacement plaster on expanded metal lath. At the exterior walls in the north wing first floor, photos taken during construction in 2007 show the plaster applied to metal lath instead of directly to the masonry. The south wall is furred out and clad with gypsum boards.

Within the first floor, finish distress was observed including bubbling of the plaster and some crazing and cracking, indicating water infiltration issues. Plaster delamination was concentrated at the northeast and northwest corners suggesting that moisture issues may be related to the building's gutter and downspout systems.

The wood baseboard on the first floor of the north wing has unpatched openings where cuts were made in the baseboard to install building systems that have since been removed or abandoned.

Figure 213: Plaster On Metal Lath at Exterior Wall, 2007 (NPS)

C30: INTERIOR FINISHES

Feature(s)	Location	Condition	Deficiency	Photo(s)
Recommendations: Plaster damage in the masonry walls is attributable to moisture infiltration from either site water seeping up through the brick foundation course or rain runoff from the exterior and roof. Likely, the moisture issues observed are a combination of the two, exacerbated by the soft historic brick. In localized areas, the plaster and stucco should be removed and hose testing should be conducted to determine source of water infiltration beyond the foundation. Replace plaster once wall has completely dried. The damaged baseboards should be repaired with a Dutchman repair.				 **Figure 214:** Plaster Delamination Below Chair Rail in North Wing, First Floor (BBB 2019)
C3010 Wall Finishes	North Wing, Second and Third Floors	Fair	Minor	 **Figure 215:** Historic Plaster Applied to Wood Lath on Third Floor (BBB 2019)
Description: The plaster finishes on the second and third floors of the north wing date to 1830 according to the 2007 Interior Historic Integrity report. Contemporary drywall finishes, installed in 2007, are located in portions of the kitchen and bathroom (Rooms 211 and 212). Most interior walls feature lime and sand-based plaster with animal hair binder laid up against sawn wood lath. The walls of Rooms 206 through 210 are furred with wood paneling likely installed around the 1970 renovation; however, from exploration undertaken by the Historic Integrity investigation in 2007, it appears that historic plaster finishes remain beneath paneling. The 2007 investigation also postulated that original plaster applied directly to perimeter walls is intact on the second floor. On the third floor, the plaster applied directly to the perimeter masonry walls is visible. See B2010 Exterior Walls for a description and recommendations for the interior face of the third floor. ***Recommendations:*** Monitor historic plaster finishes and repair in kind as necessary. If a future renovation is undertaken, consider removing 20th century paneled wall coverings and restoring historic plaster finishes.				
C3010 Wall Finishes	Center Section and South Wing	Fair	Minor	 **Figure 216:** Replacement Plaster Applied to Metal Lath on Center Section, First Floor (BBB 2019)
Description: The walls in the Center Section and South Wing are finished with replacement plaster on expanded metal lath. Some walls have been furred and clad with gypsum board. ***Recommendations:*** Monitor and repair as necessary.				

C30: INTERIOR FINISHES				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
C3020 Floor Finishes	North Wing	Fair to Good	Minor	
Description: The first floor has brick paver flooring in the north wing. There is evidence of water damage, especially at the north elevation, where there has been flooding in the past. Additionally, there is some missing mortar and bricks have become loose. On the second floor, the historic wood flooring has been covered with carpet in most rooms. In the kitchen and bathroom, there is laminate wood flooring. The third floor retains its historic wood flooring and is in fair condition. ***Recommendations:*** Repair and re-set loose or uneven brick pavers with compatible mortar on first floor. Clean first floor flooring after all flood events. Consider removing carpet in second floor and refinishing wood floor below.				 **Figure 217:** Wood Flooring in Attic, North Wing (BBB 2019)
C3020 Floor Finishes	Center Section and South Wing	Good	Minor	
Description: The center section has replacement wood flooring on the first floor and historic wood flooring on the second floor. The south wing has carpeting on the first floor and historic wood flooring on the second floor. ***Recommendations:*** Polish and seal wood floors on second floor to preserve historic material.				 **Figure 218:** Wood Flooring in Second Floor, Center Section (BBB 2019)

C30: INTERIOR FINISHES				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
C3030 Ceiling Finishes	All	Fair	Minor	

Description: Ceilings throughout the building are finished with plaster or gypsum board. In the north wing, the ceilings are finished with gypsum board. In locations on the first floor along the north wall, the ceilings are buckling and sagging due to the weight of exhibit boards suspended from the ceiling (Figure 219 and Figure 220). The ceiling in the first floor of the center section is cracked. All ceilings suffer from incompatible patching. In many locations, there are cracks at the seam where the historic plaster over lath walls meet the gypsum board ceiling. Additionally, the ceilings in the first floor rooms intersect the top of door and window molding (Figure 219).

Recommendations: Remove suspended exhibit boards in north exhibition space and repair sagging drywall. Exhibit boards should be reconfigured to be freestanding or attached in a different manner or to another feature. Repair cracked ceilings and open joints where ceilings meet walls. In future renovations, raise ceilings if possible to allow the full door and window moldings to remain exposed.

Figure 219: Bowed Ceiling at North Wall, First Floor North Wing (BBB 2019)

Figure 220: Sagging Ceiling at North Wall, First Floor North Wing (BBB 2019)

D20: PLUMBING

Feature(s)	Location	Condition	Deficiency	Photo(s)
D2010 Plumbing Fixtures	All	Good	None	

Description: The facility includes a single user restroom. The restroom fixtures included a floor mounted, tank-type water closet and a wall mounted lavatory with a manually activated, metering type faucet. The fixtures and all trim accessories are in good condition.

The restroom is not ABAAS complaint. The toilet lacks the required clearance from the wall, adequate turning space is not provided, and there are no grab bars. The restroom would require enlargement and reconfiguration to meet ABAAS. It is not recommended to add ABAAS grab bars to the restroom to improve accessibility as the toilet is already located too close to the wall and grab bars would further constrict the free area adjacent to the toilet. Also, the restroom is located on a level that is not accessible.

Kitchen plumbing fixtures include a counter mounted sink with a deck-mounted faucet with individual hot and cold leavers. The fixture and all associated trim accessories are in good condition.

Recommendations: Maintain as required.

Figure 221: Bathroom Plumbing Fixtures (JPA 2019)

Figure 222: Kitchen Plumbing Fixtures (JPA 2019)

D2021 Cold Water Service	Cellar	Fair	Minor	

Description: The building's water supply consists of a 4" combination fire/water service. Once inside the building, the service splits into a 4" fire service and a 3/4" domestic water service.

The domestic water system piping includes a pressure reducing valve and a water meter. No backflow prevention device or strainer is installed on the domestic water main serving the plumbing fixtures in the building. The domestic water piping system consists of copper piping and fittings. The fire service entrance piping included a double check valve backflow preventer.

The domestic water piping main enters the building in the cellar and is routed a few inches above the floor. The 4" piping main is steel with grooved ends.

The cellar experienced flooding recently, and the service entrance piping mounted near the floor was exposed to the water. No visible damage was noticed; however, piping was covered in dirt and mud from the flood (Figure 223).

The shut-off valve on the inlet of the fire service backflow preventer was leaking at the stem (Figure 224).

Figure 223: Water Service Entrance (JPA 2019)

D20: PLUMBING				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D2021 Cold Water Service	Cellar	Fair	Minor	

Recommendations: It is recommended that all piping exposed to the water while the cellar was flooded be cleaned and inspected for damage. It is recommended that the leaking gate valve on the inlet of the fire protection backflow preventer be replaced.

It is recommended that a double-check backflow preventer and y-type strainer be installed on the domestic water service. The backflow device will make the installation compliant with the latest plumbing codes. The addition of the strainer will protect the meter and other fixtures from debris in the system.

Figure 224: Fire Service Backflow Preventer (JPA 2019)

D2022 Hot Water Service	North Wing, Second Floor	Good	Minor

Description: The building's hot water service consists of a small, storage type electric water heater. The heater is located in a storage closet below the stairs to the third floor on the second floor. The heater was installed in 2013.

Domestic hot water piping extends directly from the heater to the lavatory and the kitchen sink. The piping and the heater did not appear to have any visible deficiencies.

Recommendations: It is recommended that the water heater be monitored. Tank type electric heaters typically have 10-year life spans. When discolorations appear in the hot water, it is a sign that the heater is about to fail. It is recommended that this particular heater be replaced at 10 years since it is located on a wood floor above occupied space. Replacement before failure would be a preventive maintenance item.

To avoid potential water damage to the facility due to a heater failure, it is also recommended that the heater be placed on a drain pan with moisture sensor. If a failure were to occur, the pan would help prevent water damage. The moisture sensor is recommended to be connected to a solenoid valve. Upon detection of water in the drain pan, the valve would shut-off the water supply.

It is recommended that the storage room where the water heater is located be re-organized so that the equipment is visible and accessible. In its current condition, maintenance staff would not be able to pick up visible indications on the surface of the tank that would signal a potential tank failure (Figure 225).

Figure 225: Water Heater (BBB 2020)

D20: PLUMBING				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D2030 Sanitary Waste	All	Fair to Good	Minor	

Description: 3" PVC waste piping extends from the cellar up to the fixtures on the second floor. PVC piping is used for all fixture connections. No visible deformities were noticed.

In the cellar, the piping transitions to cast-iron before exiting to the site utility. It is believed that this pipe was installed prior to the 2007 renovation.

The 3" sanitary service is sufficient for the current connected load, however, will limit the number of fixtures that could be added to the facility and the type of fixture that could be added. The existing sanitary main will be insufficient if water closets with flush valves are added in the future, for example.

PVC vent piping is used for all plumbing fixtures the facility. The piping is exposed in the third floor and vents through the roof.

The sump pump basin, located in the cellar, is vented by a PVC vent pipe. The vent is terminated with an air admittance valve. It appears that damage has occurred to the vent pipe connection to the basin, possibly from the cellar flood (Figure 226).

Recommendations: Due to the age of the existing sanitary main routed in the cellar, it is recommended that the piping be scoped to identify any deformities before any new fixtures are added or any future renovation occurs. The vent piping connection to the sump pump appears to be damaged from the July 2019 flood and should be repaired.

Figure 226: Sump Pump Basin (JPA 2019)

D2040 Rain Water Drainage	All	Fair	Minor

Description: Rainwater systems for the facility mostly consists of gutter and downspouts. In the cellar, clear water waste is collected and discharged to grade by a sump pump. The clear water waste consists of sprinkler drainage piping. The inlet piping was exposed to the flood. The piping connections to the basin appear to be damaged. The sump pump is located in a buried fiberglass basin and is rated for 10 gpm at 10 feet of head. The basin and pump were exposed to the flood (Figure 226).

Recommendations: It is recommended that the piping be cleaned and inspected for any damage and the connection to the basin be repaired. It is also recommended that the basin cover be removed and the pump be inspected for any damage. It is recommended that this work occur by maintenance personnel or by a service contractor.

D30: HVAC				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D3010 Energy Supply	Boiler House	Fair	Minor	

Description: The fuel oil supply system is located in the boiler house. The boiler house is a separate standalone building, remotely located from the Tavern. The boiler house includes the heating water and chilled water equipment that supports the HVAC systems located in the Tavern.

The fuel oil supply system consists of a fuel port for filling the storage tank from a supply truck. The fuel port is mounted on the exterior wall of the boiler house (Figure 227). Fuel oil supply and return piping extend from the exterior storage tank and route to the boiler.

The piping and equipment are original from the 2007 construction project. No visible deficiencies were noticed. The piping and equipment are approaching 14 years of age and have useful life remaining.

Recommendations: The fuel oil supply system is approaching 14 years of age. While it appears to be functioning, it should be replaced in the next 5-7 years.

It is recommended that the piping and equipment be replaced within the next 5-7 years, or whenever the associated boiler is replaced.

Figure 227: Fuel Port (JPA 2019)

D3020 Heat Generating Systems	Boiler House	Fair	Minor

Description: The heating water boiler that produces the heating water utility for the HVAC systems within the Tavern is located in the boiler house. The boiler house is a free-standing structure located approximately 75 feet east of the Tavern.

The boiler is the only heat generating equipment for the Tavern, and it also supplies heat for the adjacent, stand-alone restroom facility. The boiler, heating water piping and specialties, and propylene glycol feed system date to the 2007 renovation project.

The cast iron section boiler includes a fuel oil burner and is rated for 285 MBH (output). The heating water system operates with 35% propylene glycol as the fluid (Figure 228). The boiler is approaching the end of its useful life.

Figure 228: Boiler (JPA 2019)

D30: HVAC				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D3020 Heat Generating Systems	Boiler House	Fair	Minor	
The heating water piping is expected to last 20 more years or more if proper water treatment continues. Insulation on the piping and equipment within the boiler room is in fair condition. Most of the insulation is intact, with only a few areas noticed to have minor damages (Figure 229). ***Recommendations:*** Replace boiler, burner, associated trim, glycol feed system, specialty valves, expansion tanks, and air separators in the next 5-7 years. Maintain piping and repair damaged insulation in the boiler room. It is recommended that the boiler, burner, and associated trim be replaced in the next 5-7 years. The heating water specialties, such as the expansion tank and air separator, as well as the propylene glycol feed system for the heating water system are recommended to be replaced when the boiler is replaced, in the next 5-7 years.				**Figure 229:** Boiler Room Piping Insulation (JPA 2019)
D3030 Cooling Generating Systems	Boiler House	Fair	Minor	
Description: The chilled water system for the Tavern consists of an air-cooled chiller, pumps, an ethylene glycol feeder, and buffer tank. The entire system was installed in the 2007 renovation project. The air-cooled chiller is mounted to a concrete pad and is located outside of the boiler house. Chilled water piping extends from the boiler house and routes, above grade, to the machine. The chiller has a nominal 20-ton cooling capacity and operates with a 30% ethylene glycol solution as the fluid. Located within the boiler house are the chilled water pumps, expansion tank, buffer tank, and ethylene glycol feeder. It is recommended that the chiller, expansion tank, glycol feeder and buffer tank all be replaced in the next 5-7 years. The piping has more useful life remaining than the chilled water system equipment. Although the piping is expected to have at least 20 years of life remaining if proper water treatment is maintained, the exterior piping is recommended to be re-insulated at the time of chiller replacement (Figure 230). ***Recommendations:*** Replace chiller within 5-7 years. Re-insulate exterior piping when chiller is replaced.				**Figure 230:** Exterior Chilled Water Piping (JPA 2019)

D3040: HVAC DISTRIBUTION SYSTEMS				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D3041 Air Distribution Systems	All	Fair	Minor	

Description: All spaces in the Tavern are conditioned and ventilated by ducted 4-pipe fan coil units. The fan coil units are all located within the third floor space. Although difficult, all components that require regular maintenance are accessible (Figure 231).

Supply and return air is fully ducted from the fan coil units to each space. Most of the horizontal duct routing occurs in the third floor, with vertical drops extending to air devices in the ceiling below. Chases are provided in 2nd floor spaces to allow supply and return ducts to reach the ceiling space of the ground floor. All manual volume dampers are accessible from the third floor floors.

Fresh air is ducted from louvers to the mixed air plenums at the inlet to each fan coil unit. The fresh air louvers are integrated into the existing windows openings of the dormers. Motorized dampers are used to control the fresh air intake to the fan coil units. The fresh air damper operators are two-position style. Each fan coil unit is balanced such that when the fresh air dampers are open, they provide the design minimum amount of fresh air to the spaces.

The fan coil units are configured with chilled water coils and heating water coils. The coil control valves react to the associated thermal zone's temperature sensor. The configuration of the fan coil units and the current control sequences do not provide any opportunity to manage humidity. Since the fan coil units supply fresh air to the space, there is a great potential that building humidity levels are exceeded during the warmer, more humid months of the year.

Many of the larger spaces located in the Tavern had window air conditioning units installed, even though they are conditioned by dedicated fan coil units. The window A/C units were installed to provide conditioning when the central system is out of service. The window A/C units were also used during a period when the FCUs were not properly maintained. Filter boxes were reported to be left open, and unconditioned third floor air was being returned through the FCUs. The situation was corrected. Additionally, the HVAC systems were recently balanced. From a preservation perspective, however, it is not desirable to have A/C window units.

Recommendations: Equipment replacement is recommended within the next 10 years. With the physical space limitations of the third floor, it is recommended that a similar fan coil design approach be used in a replacement project. However, it is recommended that the new design incorporate new technology to improve comfort and energy efficiency. It is recommended that the fan coil units utilize supply fans with EC motors, which will enable variable speed control of the supply fan speed to match the load in each zone. The variable speed design will better manage humidity levels in the space and make the installation compliant with the latest energy codes.

Figure 231: Typical Attic Fan Coil Unit (JPA 2019)

D3040: HVAC DISTRIBUTION SYSTEMS				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D3042 Exhaust Ventilation Systems	North Wing, Second Floor Restroom	Good	None	
Description: The exhaust ventilation systems in the Tavern consists of an inline ceiling exhaust fan, located above the restroom. The fan connects to a ceiling mounted register in the restroom. The exhaust fan is activated by the light switch in the restroom. Exhaust discharge extends from the fan to an exhaust air louver, which is integrated into the existing window opening of an third floor dormer. The exhaust system is in good condition and has useful life remaining. ***Recommendations:*** Continue routine maintenance.				
D3044 Hot Water Distribution	Boiler House	Fair	Minor	 **Figure 232:** Heating Water Pumps (JPA 2019)
Description: The heating water distribution system consists of two, fully redundant, inline pumps. The pumps are located in the boiler house and operate as a constant volume system. The inline pumps have some visible deficiencies which appears to be from leaky pump seals (Figure 232). The distribution piping extends from the boiler house and routes, below grade, into the cellar of the Tavern. Once in the cellar, the heating water piping splits into two main risers. The risers extend to the two main portions of the third floor, which house the fan coil units. The coil connections to the fan coil units include 3-way modulating control valves. It is expected that the heating water piping system has at least 20 years of useful life remaining, assuming proper water treatment is maintained. ***Recommendations:*** The distribution pumps are recommended to be replaced when the boiler is replaced in the next 5-7 years. It is recommended that replacement heating water pumps be provided with variable speed drives that modulate the pump motor speed based on demand. The variable speed control will make the installation compliant with the latest energy codes. In order to achieve variable speed control, the 3-way valves, located at each fan coil unit, will need to be replaced with 2-way control valves.				

D3040: HVAC DISTRIBUTION SYSTEMS

Feature(s)	Location	Condition	Deficiency	Photo(s)
D3045 Chilled Water Distribution	Boiler House	Fair	Minor	

Description: The chilled water distribution system consists of two, fully redundant, inline pumps. The pumps are located in the boiler house and operate as a constant volume system.

The distribution piping extends from the boiler house and routes, below grade, into the cellar of the Tavern. Once in the cellar, the chilled water piping splits into two main risers. The risers extend to the two main portions of the third floor, which house the fan coil units.

The chilled water coil connections to the fan coil units include 3-way modulating control valves. It is expected that the chilled water piping system has at least 20 years of useful life remaining, assuming proper water treatment is maintained.

Recommendations: The distribution pumps are recommended to be replaced when the chiller is replaced in the next 5-7 years. It is recommended that replacement chilled water pumps be provided with variable speed drives that modulate the pump motor speed based on demand. The variable speed control will make the installation compliant with the latest energy codes. In order to achieve variable speed control, the 3-way valves, located at each fan coil unit, will need to be replaced with 2-way control valves.

Figure 233: Chilled Water Distribution. (JPA 2019)

D3060: HVAC CONTROLS & INSTRUMENTATION

Feature(s)	Location	Condition	Deficiency	Photo(s)
D3061 Heating Generating Systems	Boiler House	Fair	Minor	

Description: The boiler includes packaged controls that control the firing rate of the boiler and all safeties. The heating water system is controlled and monitored by the building automation system (BAS). The BAS energizes and deenergizes the boiler and pumps, monitors performance, and alarms failures. The sensors and equipment associated with the control of the heating water system are original from the 2007 renovation project.

Recommendations: The boiler packaged controls are recommended to be replaced with the equipment in 5-7 years. It is recommended that the future replacement heating water pumps be selected to operate with variable speed drives. Variable speed pumping will make the installation compliant with the most recent energy codes. Control features that are also required to achieve variable speed pumping include a differential pressure sensor in the piping mains and 2-way modulating control valves at all loads (heating coils).

D3060: HVAC CONTROLS & INSTRUMENTATION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D3062 Cooling Generating Systems	All	Fair	Minor	
Description: The chiller includes packaged controls that control the compressors, condenser fans, and all other components of the refrigeration cycle that are internal to the machine. The chilled water system is controlled and monitored by the building automation system (BAS). The BAS energizes and deenergizes the chiller and pumps, monitors performance, and alarms failures. The sensors and equipment associated with the control of the chilled water system are original from the 2007 renovation project. ***Recommendations:*** The chiller packaged controls are recommended to be replaced with the equipment in 5-7 years. It is recommended that the future replacement chilled water pumps be selected to operate with variable speed drives. Variable speed pumping will make the installation compliant with the most recent energy codes. Control features that are also required to achieve variable speed pumping include a differential pressure sensor in the piping mains and 2-way modulating control valves at all loads (cooling coils).				
D3063 Heating/ Cooling Air Handling Units	All	Fair	Minor	
Description: The fan coil units are controlled by the BAS. Wall mounted temperature sensors are located in each thermal zone. The BAS activates the fan coil units based on an occupancy schedule. When the building is occupied, the fan coil units are energized and their fresh air dampers are open. The space temperature sensors control the heating and chilled water control valves so that the fan coil unit supplies either heating or cooling, as required. When the building is unoccupied, the BAS energizes the fan coil units and opens the required control valve to maintain unoccupied temperature setpoints. The fresh air dampers are closed during this unoccupied mode. It is recommended that all sensors and equipment associated with the control of the fan coil unit systems be replaced when the equipment is replaced. It is anticipated that the equipment has up to 10 years of useful life remaining. ***Recommendations:*** The fan coil unit controls are recommended to be replaced when the fan coils are replaced within 10 years.				

D3060: HVAC CONTROLS & INSTRUMENTATION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D3064 Exhaust & Ventilating Systems		Good	None	
Description: The ceiling exhaust fan in the restroom operates under electric controls. The light switch in the restroom energizes the fan. The fan is deenergized when the switch is in the off opposition. The fan is in good working condition. ***Recommendations:*** Replace the switch activation control of the fan when the fan is replaced.				
D3068 Building Automation Systems	All	Fair	Minor	
Description: The building automation system (BAS) was installed with the 2007 renovation project. The BAS controls and monitors the majority of HVAC equipment in the Tavern and boiler house. The sensors and equipment were observed to be fully functional. It is expected that the sensors and control equipment associated with the major pieces of mechanical equipment (pumps, boilers, chillers, and fan coils) will have a life span equal to that of the associated equipment. ***Recommendations:*** Building automation system sensors and equipment are recommended to be replaced as other equipment is replaced.				

D40: FIRE PROTECTION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D4010 Sprinklers	All	Fair	Minor	
Description: The main water service to the Tavern is a 4" combination fire / water service. Refer to section D2021 for more information about the incoming service entrance pipe and accessories. The fire service main pipe routes near the floor of the cellar. Extending off of this 4" fire main is a wet-pipe sprinkler zone valve assembly and a dry pipe sprinkler zone valve assembly. The wet-pipe sprinkler zone valve assembly monitors and reports flow for the entire wet-pipe sprinkler system. The entire Tavern is protected by the wet-pipe sprinkler system, with the exception of the third floor. Two main wet-pipe sprinkler risers extend from the cellar to the occupied floors. Horizontal sprinkler piping routes below the ceiling of each space. The exposed sprinkler pipe generally routes along the exterior wall with side wall-style sprinkler heads connected directly to the pipe.				 **Figure 234:** Ceiling Sprinkler Head in North Wing, First Floor (BBB 2019)

D40: FIRE PROTECTION				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D4010 Sprinklers	All	Fair	Minor	

Dry, sidewall sprinkler heads also extend from the wet-pipe system to provide sprinkler protection along the covered porches of the Tavern.

The main exhibit space on the ground floor has sufficient ceiling space, where horizontal sprinkler pipe is routed. Ceiling-mounted, pendant style sprinkler heads are used in the exhibit space.

The majority of the sprinkler piping and heads are in good condition.

The fire main in the cellar was exposed to the flood waters and requires cleaning and inspection for any damage.

A dry pipe sprinkler assembly, consisting of a dry pipe system control valve and air compressor, taps off the fire main in the cellar. The dry pipe sprinkler system is used to protect the third floor of the Tavern.

Recommendations: Piping exposed to the cellar flood should be cleaned and inspected for damage.

Figure 235: Sprinkler Head on South Elevation (BBB 2019)

D50: ELECTRICAL				
Feature(s)	**Location**	**Condition**	**Deficiency**	**Photo(s)**
D5010 Electrical Service & Distribution		Good	None	

Description: The low tension (a.k.a. low voltage) service system serving the Tavern was installed with the 2007 renovation and consists of a single 400A, 120/208V, 3 phase, 4 wire underground feeder. This feeder originates from distribution panel MDP-1 located in the Pump House. The feeder terminates at a 3P-400A service disconnect switch located on the cellar level (Figure 236).

The low tension distribution system serving the Tavern was installed with the 2007 renovation and consists of three branch circuit panelboards:

- Panelboard P1 – 3P-4W-120/208V-400A with 300A main circuit breaker.
- Panelboard P2 – 3P-4W-120/208V-225A with 150A main circuit breaker.
- Panelboard P2 – 3P-4W-120/208V-100A with 50A main circuit breaker.

Recommendations: Monitor and repair as necessary.

Figure 236: Low Tension Service Entrance In Cellar (JPA 2019)

D5020: ELECTRICAL, LIGHTING & BRANCH WIRING

Feature(s)	Location	Condition	Deficiency	Photo(s)
D5021 Branch Wiring Devices	All	Fair	Minor	

Description: Branch wiring devices in the Tavern includes wall mounted manual lighting control switches and receptacles. The age of the Branch Wiring Devices is unknown. Multiple receptacles in the north exhibit space are corroded (Figure 237).

Recommendations: All water damaged receptacles and conduit should be replaced. Consider replacing manual lighting switches with wall box type occupancy sensor for energy savings.

Figure 237: Corroded Receptacle in North Wing, First Floor (BBB 2019)

D5022 Lighting Equipment	All	Fair	Minor	

Description: Lighting equipment in the Tavern consists of various types of fixtures with incandescent or fluorescent sources. Generally, the fixtures are arranged as follows:

- Exhibit Areas - Incandescent track style spot lighting or surface mounted incandescent decorative fixtures (Figure 238)
- Offices - Ceiling mounted incandescent decorative fixtures or surface mounted architectural fluorescent fixtures with linear lamps (Figure 239 and Figure 240)
- Utility Spaces (e.g. cellar, third floor) - Surface mounted fluorescent utility style fixtures with linear lamps.

The lighting equipment in the third floor was installed with the 2007 renovation. The age of the remaining lighting equipment is unknown.

Recommendations: Consider replacing incandescent and fluorescent lamps with LED direct-fit replacements for energy savings.

Figure 238: Track Lighting (JPA 2019)

Figure 239: Decorative Office Lighting (JPA 2019)

Figure 240: Architectural Office Lighting (JPA 2019)

D5030: ELECTRICAL, COMMUNICATION & SECURITY

Feature(s)	Location	Condition	Deficiency	Photo(s)
D5037 Fire Alarm Systems		Good	None	

Description: The fire alarm system serving the Tavern was installed in the 2007 renovation and is based on a Silent Knight Model 5820XL control panel. The system is an addressable type and consists of the control panel, a fire alarm annunciator panel, a cellular dialer, manual pull stations, audible/visual signaling devices, smoke detectors, heat detectors, sprinkler system flow switches, sprinkler system valve tamper switches, and monitoring modules. The control panel and cellular dialer are located in Room 203 (Figure 241).

Recommendations: Monitor and repair as necessary.

Figure 241: Fire Alarm System. (JPA 2019)

Feature(s)	Location	Condition	Deficiency	Photo(s)
D5038 Security and Detection Systems		Fair	Minor	

Description: The Security and detection system serving the Tavern was install prior to the 2007 renovation and is based on a Maxsys control panel manufactured by Digital Security Controls. The control keypad for the system is located in the entrance corridor of the office suite. The system configuration is unknown.

Recommendations: Consider replacing the system in the next 10 years to avoid obsolescence.

Figure 242: Security and Detection System. (JPA 2019)

Feature(s)	Location	Condition	Deficiency	Photo(s)
D5039 Local Area Network		Good	None	

Description: An Ethernet-style Local Area Network (LAN) serves the Tavern. The LAN was installed in 2012 and consists of a data rack (located in Room 302), data cabling, and data outlets. Data outlets are located throughout the facility.

Recommendations: Monitor and repair as necessary.

Figure 243: Data Rack in Attic (BBB 2019)

D5090: OTHER ELECTRICAL SYSTEMS

Feature(s)	Location	Condition	Deficiency	Photo(s)
D5092 Emergency Light & Power Systems		Good	None	

Description: Emergency lighting in the Tavern is provided by wall mounted emergency battery units located throughout the facility. These unit were installed in the 2007 renovation.

Recommendations: Monitor and repair as necessary.

Figure 244: Emergency Lighting. (BBB 2019)

Routine Maintenance Recommendations

This section provides recommendation for routine maintenance and component renewal to be performed by the Park. Recommendations are specific to the FMSS and adhere to routine maintenance categories as defined by the 2013 NPS manual, "Operations and Maintenance: Facility Management Software System (FMSS) Classroom Training Student Manual." Definitions for routine maintenance ratings are described below.

Corrective Maintenance

Unscheduled reactive repairs that would not be estimated and planned but are accomplished by local staff or existing service contractors.

Preventive Maintenance

Regularly scheduled periodic maintenance activities (within one year) on selected equipment.

Recurring Maintenance

Work activities that recur based on normal wear patterns on a periodic cycle of greater than one year and less than 10 years. Typical work includes painting, caulking, sealing, carpet replacements, etc.

Routine Maintenance Recommendations

Asset	Description	Maintenance Category	Priority	Maintenance Recommendation
1189374	Fire Sprinkler System, Wet Pipe, NCRO SF Contract - Great Falls Tavern	Preventive	Minor	Clean and inspect piping for damage or leaks
1280242	Fiber Optic Cabinet - Great Falls Tavern			No recommendation
1319814	Hot Water Heater - Great Falls Tavern	Preventive	Minor	Check for visible deformations on tank or in water quality
1321798	Generic Exhibit - Great Falls Tavern			No recommendation
1321799	Floor Surface - Great Falls Tavern	Corrective	Minor	Re-set loose brick pavers in first floor north wing and replace missing mortar throughout
1321800	Pipe - Great Falls Tavern	Preventive	Serious	Maintain chemical treatment system and inspect for pipe leaks
1321801	Interior Finish: Paint	Corrective	Serious	After the source of the water infiltration in the north wing is identified and corrected, brick masonry should be repointed and interior plaster should be repaired and repainted
1329292	Wooden Shutters - Great Falls Tavern	Preventive	Minor	Clean and inspect biannually
1662324	EXTERIOR FINISH			
1662301	*Exterior Finish: Paint*	Preventive	Minor	Paint building exterior every five years
1662325	*Exterior Door*	Corrective	Minor	Repair damaged doors and broken doorknobs and locksets
1662347	*Exterior Window*	Corrective/ Preventive	Serious	Repair deteriorated window components and remove insect deposits. Clean and inspect quarterly for damage
1662353	*Exterior Finish: Stucco*	Corrective/ Recurring	Serious	After the source of the water infiltration in the north wing is identified and corrected, brick masonry should be repointed and stucco should be repaired
1664158	Boiler; hot water circulation pump	Preventive	Minor	Maintain regular lubrication schedules on pumps
1664159	Chiller circulating pumps	Preventive	Minor	Maintain regular lubrication schedules on pumps
1683356	Door locks	Corrective	Serious	Repair all damaged door handles and locking mechanisms
320913	Heat Pump, Straight AC, 2.5 TON, 7412AHU1 - Great Falls Tavern	Corrective	Serious	Replace unit when failure occurs
320914	Boiler, Cast Iron Sect., 480 MBH, Fuel Oil, 7412BL1 - Great Falls Tavern	Corrective	Serious	Repair failed components

Asset	Description	Maintenance Category	Priority	Maintenance Recommendation
320925	Fire Alarm Signaling System, Addressable, Government Monitoring Service, NCRO SF Contract	Corrective	Minor	Repair/replace failed components
320926	Roof Surface, Shingle-Cedar	Preventive	Minor	Clean and inspect quarterly for damage or leaks
320928	Roof Surface, Stand Seam Metal, 7412RO5 - Great Falls Tavern	Preventive	Minor	Clean and inspect quarterly for damage or leaks.
320929	AC Package Unit, 4 TON, Air Cooled, None, 7412RTU1 - Great Falls Tavern	Corrective	Serious	Replace unit when failure occurs
320930	AC Package Unit, 4 TON, Air Cooled, 7412RTU2 - Great Falls Tavern	Corrective	Serious	Replace unit when failure occurs
320932	Valve, Gate, Brass, 3 IN, 7412VAD1 - Great Falls Tavern	Corrective	Serious	Replace valve when fails to open/close or leaks
320946	Condenser Unit, Air Cooled, 2 TON, 7412DXS1 - Great Falls Tavern	Corrective	Serious	Replace unit when failure occurs
37746	Lighting - Great Falls Tavern	Preventive	Minor	Replace failed lamps

Undocumented Assets

The FMSS list of assets should also include the following elements that are not currently listed in the inventory:

- Porch Support Posts
- Porch Balustrades
- Stairs
- Interior Finishes
- Chimneys
- Fireplaces
- Roof Coping and Flashing
- Roof Dormers
- Building Automation System (BAS)
- Fan Coil Units
- Chiller