HARPERS FERRY NATIONAL HISTORICAL PARK

HISTORIC STRUCTURES REPORT

ARCHITECTURAL DATA SECTION

Part I- BLDGS. 32,33 & 33A



West Virginia

December 1994

United States Department of the Interior
NATIONAL PARK SERVICE
DSC-EASTERN TEAM
FALLS CHURCH BRANCH
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FALLS CHURCH, VIRGINIA 22044

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:

H3015 (DSC-EAF)

JUL 11 1995

Memorandum

To: Superintendent, Harpers Ferry National Historical Park

From: Project Architect, Denver Service Center, Falls Church Branch

Reference: Harpers Ferry National Historical Park, Package 116, Restoration of Buildings 32-36, Type 35

Subject: Transmittal of Historic Structures Report

Enclosed please find the completed Historic Structures Report for Package 116, including; the Architectural Data Section, Parts I and II, the History Section, and the Archeological Component. This package has provided challenges at every turn, with our understanding of the buildings' evolution in constant flux. We believe DSC has taken a rigorous approach during planning and design phases, and currently in construction, with the cooperation and support of your staff.

Thanks are due to Gary Bowers, Peter Dessauer, Tim Fox, Bill Hebb, Paul Shackel, Dave Tucker and Perry Wheelock, as well as former staff members Dennis Frye, Susan Trail, Maureen Joseph, and the late Don Depfer for their helpfulness during our research for the Architectural Data Section. Special thanks go to Pat Chickering, ably assisted by Michael Jenkins, for remaining a dedicated and scholarly resource throughout the project.

Two paper bound copies are being provided for your use. Paper bound copies are also being distributed to your staff. Arrangements will be made for special hardbound copies for your use and distribution, including one for Senator Byrd's office. An official transmittal to the National Capital Field Directorate will follow. Should additional copies be needed for park use or distribution, please have someone contact me at (703) 285-3068.

Laura Simpkins
Project Architect, DSC-EAF

cc:file
HAFE-Bolton, Chickering (2), Dessauer, Fox, Historians, Lowe, Noble, Shackel, Schultz-DePalo (2) (each w/ attachments)

HISTORIC STRUCTURES REPORT

ARCHITECTURAL DATA SECTION:

Package 116, Buildings 32, 33 and 33A

Lot 3, Block B
Shenandoah Street
Harpers Ferry National Historical Park
Harpers Ferry, West Virginia

Prepared by:

Laura L. Simpkins

September 1994

National Park Service
Denver Service Center

PREFACE

Buildings 32, 33, 33A, 34-35, 34A and 36 on Shenandoah Street in the lower town comprise Harpers Ferry National Historical Park Package 116. This Architectural Data Section, Part I, addresses Buildings 32, 33, 33A and the rear yard common to all the buildings in this package. Its companion section, Part II, details Buildings 34A, 34-35 and the backyards. (See Appendix A, Fig. 1). A separate Building Evaluation Report documents Building 36.

The History Section, Archeological Component, Building 33 Exhibit Plan and the Building 34-35 Historic Furnishings Report are being published as separate volumes. These reports and the supporting studies listed under "Investigation and Documentary Information" together with this Architectural Data Section, Part I and II constitute the Historic Structures Report for Package 116.

The History Section, based on a previous report, has evolved over several drafts to reflect critical internal review at the park, a continued dialogue with the Denver Service Center, Falls Church Branch, and insight shared by the architect/engineer firm during the design phase. The bulk of the Architectural Data Section, Parts I and II, was done in 1991-1992.

These final documents printed in 1994, while essentially complete before the construction documents for the restoration were completed in November 1993, incorporate the latest findings to date regarding the history of the Package 116 buildings. The architecture sections reference the History Section in its March 1994 final draft form. Subsequent changes before printing refined the format only, and did not change the content. Should new data come to light during the construction effort, they will be attached to the Architectural Data Section, Parts I and II as an addendum.

This report provides administrative data, documentary information and references, building history, architectural data and analysis, use alternatives, guidelines and recommendations, proposed work program and relevant appendices. Documentary evidence, denoted by a note number in brackets, is referenced under "Endnotes" in the "Investigation and Documentary Information" section.

Appreciation is extended to Historical Architect Robert Carper, Denver Service Center, Western Team for his field investigation, analysis and an early draft of this document. At the Falls Church Branch of the Eastern Team, Denver Service Center Architect Tony Donald, Chief, Design Section I, provided guidance and insight throughout the project and Architect Audrey Tepper assisted in field investigation, and drafting of existing conditions and proposed work. Architect Steve Doulis, formerly of the Falls Church office, contributed much of the photographic documentation, early research and some of the drafting. Cartographic Specialist Larry Sutphin shared his expertise in the graphic reproduction for this project. Thanks are also due to former Section Secretary Karin Brooks who accomplished much of the data entry for this document.

We are grateful for the cooperation from Superintendent Campbell and the Harpers Ferry National Historical Park staff, especially Dennis Frye, Chief of Resource Education and Cultural Resource Management, and Historians Pat Chickering and Michael Jenkins.

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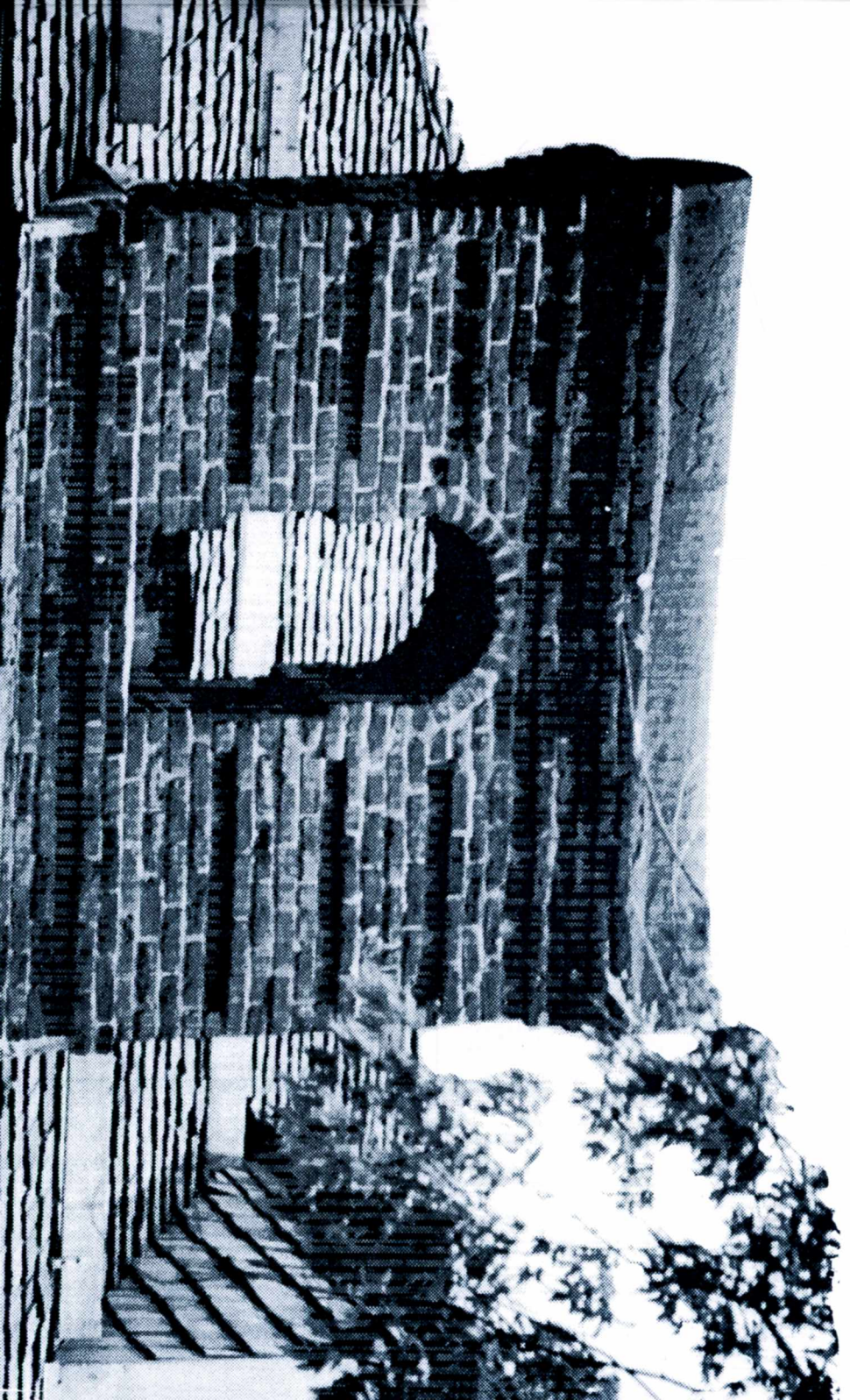
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ADMINISTRATIVE DATA

NAME AND LOCATION OF STRUCTURE

Package 116 Buildings 32, 33, and 33A are on historic Government Lot 3, Block B, on the south side of Shenandoah Street in the lower town of Harpers Ferry, West Virginia. (See Appendix A, Fig.1-3). Building 33 is commonly known as the "Doran Building," and historically known as the "McGraw Residence." To the west is historic Market Street, and to the east, Building 34-35.

Building 33A, the "Bottling Plant," connects with the south elevation of Building 33. Building 32 abuts the south face of Building 33A and stands approximately ten feet from a retaining wall, behind which is an active railroad trestle. This small structure was used for ice, carriage and coal storage.

The existing backyards, bounded on the south by the 1835 Winchester and Potomac Railroad retaining wall and trestle, evolved through the nineteenth century with the construction of the main buildings and outbuildings on these lots.

HISTORICAL SIGNIFICANCE

Buildings 32, 33, and 33A are important because they contribute as historic elements of the Harpers Ferry townscape and its physical and cultural histories. These structures are intrinsically related to the other Package 116 buildings (34-35, 34A and 36), and extend their story of the armory presence and Civil War (1812-1865) to the post-war commercial-industrial success and decline of one of Harpers Ferry's most prominant families (1869-1897). From the time of National Park Service acquisition, until the new "Development Concept Plan" (3/80) and the "Interpretive Prospectus" (5/80), Buildings 32, 33 and 33A were valued only as scene-setting background buildings. In 1955, they were slated for demolition, but were spared to serve as "flood buffer buildings" [1]. (See Appendix A, Fig.4). With the new planning documents, which called for interpretation of the entire nineteenth century, these post-war structures earned significance [2].

The exterior historic integrity is only fair, as many historic features are missing, and modern treatments have been added. Many original features are in storage. Their re-installation and the removal of non-historic elements will greatly improve the integrity of the historic scene.

The historic integrity of the first floor of Building 33, which housed a hardware store from 1883-1897, is poor as a result of repeated flooding and extensive National Park Service (NPS) alteration. The second floor was altered to provide for NPS quarters, and later, offices. Windows, many doors, and much millwork is in place and in good condition. The third floor and attic retain their historic integrity, but the fabric integrity is poor with missing doors and floor and wall finishes in need of repair. Buildings 33A and 32, like the upper floors in Building 33, have not been changed significantly from their historic configuration, but the original fabric is in need of repair, or in some cases, replacement. While physical evidence allows for a good understanding of the historic configurations and general uses, no substantial documentation exists that would justify historic furnishings exhibits or reconstruction in this group of buildings. Any such treatment would be strictly speculative.

This building group does not exhibit a high level of architectural significance. The structures are representative of the type of buildings erected during the time period for commercial, small industry and residential use, with the intent of presenting a good business image, but with no extraordinary craft nor unusual architectural design or features. They were built with materials commonly available at the time.

Building 33 is the most substantial, being well-constructed and finished. Building 33A was erected quickly and simply with on-hand or inexpensive materials to provide space and shelter for an industrial operation. The basement and first floor walls are stone, perhaps designed for cold storage. The upper levels are framed with a variety of dimension lumber sizes and some logs, amounting to a haphazard and poorly executed framing system. Building 32 was originally well-built but its original use as a stable is no longer obvious, having been destroyed and rebuilt for a variety of uses over the years. The use of materials in Building 32 does link the building to those of earlier construction in Harpers Ferry.

The backyards of this group of buildings are significant in their own right as a cultural landscape and an archeological site, with enormous interpretive potential. The "Cultural

Landscape Study" and "Archeological Historic Structures Report Component" should be carefully consulted to maximize the resources of this rich area of the lower town.

Package 116, along with the balance of Harpers Ferry National Historical Park and the larger Harpers Ferry Historic District, is listed on the National Register of Historic Places. Although Harpers Ferry was automatically included on the Register when it was established in 1966, the nomination was not completed until the early 1980's.

Buildings 32, 33, and 33A, are on the List of Classified Structures with numbers 03867 for Building 33 and 00561 for Buildings 32 and 33A. The management catagories for these structures is "A", which determines that the structure "must be preserved and maintained" as it meets two "Category A" criteria [3]:

1) The structure is related to the park's legislated significance.
2) The structure is less than nationally significant, but contributes to the park's national significance.

PROPOSED USE AND JUSTIFICATION

The exterior will be restored to its 1890's appearance according to documentation, without reconstructing missing elements for which there is no physical evidence [4].

The front portion of Building 33's first floor will be used for an exhibit on the evolution of the town, to be designed by the Harpers Ferry Center. The rear portion will provide dispatch, first aid, a disabled-accessible restroom, and a visitor contact area, as part of the visitor protection facilities. The stair hall on the east side of the building will be restored.

The second and third floors of Building 33 will be rehabilitated to provide for park offices with the second floor accessible by elevator and nearly all spaces within fully-accessible. The fourth floor will be rehabilitated for storage. All historic windows, doors, and millwork in the building will be preserved or restored.

The first floor of Building 33A will contain a consultation room and storage for visitor protection staff use, and a fully accessible elevator to the second floor offices. The upper floors will be used for elevator and mechanical equipment and storage. Building 32 will hold fire cache storage on the ground floor and mechanical equipment for environmental controls above.

All of the buildings will require structural reinforcement. A ramp will be provided between Buildings 33 and 34 for equal disabled-access to Buildings 33, 33A, 34-35 and the backyards. (See Appendix C, "Handicapped Accessibility Study"). Water damage must be mitigated during execution of the proposed work, and is likely to include a new site drainage system and improved roof drainage. Environmental controls and electrical service will be designed according to these proposed uses. A sprinkler system will provide fire protection. Interpretation of the backyards should receive careful attention, and follow plans outlined by the "Cultural Landscape Study".

These proposed uses and treatments are in compliance with the management category assigned by the List of Classified Structures, the "Development Concept Plan", the "Interpretive Perspectus", and Section 106 Part 36, CFR 800.(a) & (b) of the National Historic Preservation Act.

COOPERATIVE AGREEMENTS

Package 116 is owned fee simple by the National Park Service, with no cooperative agreements, concession agreements, special use permits, or lease agreements.

COMPLIANCE

Harpers Ferry National Historical Park is included in the National Register of Historic Places both independently as a park and as part of a larger Historic District, the buildings within this package all being contributing features to the District. All work on these buildings will be carried out in accordance with the Cultural Resources Management Guideline (NPS-28) and the Secretary of the Interior's Standards for Archeology and Historic Preservation. Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470, et.seq.) and the implementing regulations (36 CFR 800) requires that any undertaking which affects historic fabric or earth disturbance be subject to prior review through the cultural compliance process. This process, which includes consultation with the West Virginia State Historic Preservation Officer as outlined in the Programmatic Agreement of August 15, 1990, has been completed with approval of the project by reviewing authorities. It is documented in Appendix C.

The treatment proposals presented must comply with National Park Service procedures for implementing Executive Order 11988, "Floodplain Management." Accordingly, Buildings 32, 33 and 33A have been reviewed for compliance. Although the structure is located within the 100-year floodplain, it is listed in the National Register of Historic Places and therefore must be managed according to NPS-28. The restoration and rehabilitation must utilize the most flood campatible building materials and mechanical-electrical systems to minimize clean-up and damage to the buildings. Exhibits on the first floor will be furnished with portable objects.

References from the Uniform Federal Accessibility Code, Uniform Building Code and NFPA Life Safety Code used in preliminary code compliance review are included in Appendix C.

LEGISLATION

Harpers Ferry National Monument was established in 1944 by Public Law 386. Subsequent legislation, Public Law 88-33, changed the park name to Harper's Ferry National Historical Park.

HISTORICAL CHRONOLOGY

CHRONOLOGICAL LISTING OF EVENTS

1835	Master Armorer's stable moved from Winchester & Potomac Railroad right-of-way in south central portion of Lot 3 to southwest corner of lot.
1869	Children of James McGraw purchase land & buildings on Lots 2 and 3, Block B at Government sale.
1870	Flood displaces McGraw's (Old Master Armorer's) stable into Market Street; McGraw moves it back.
1877	McGraw rebuilt stable building (32) for "ice, carriage, and coal" storage out of stone and added to original foundations.
1878	James McGraw files Abatement Petition to U.S. Government for a $4,100 deduction from the original selling price of $5,100 based on the delapidated condition at the time of sale, flood damage and diminished promise of economic recovery.
1880	Deed transferred from U.S. to McGraw children upon agreement to the sum of $1,200 for the property.
1882	McGraws (James & family) began building 3-1/2 story store building (33). Deed for property was passed from McGraw children to James, the elder.
1883-84	McGraws were completely moved into new dwelling with new hardware store operating on the first floor.
1888	McGraw built stone and wood frame "Bottling Plant" building (33A).
1889	Lower Town was flooded.
1890	Long shed building attached to ice and coal storage building (32) is built along the railroad embankment with conveyers for unloading trains.
1890	First evidence of elevator in bottling plant building (33A): employee is wounded falling down shaft.
1893	James McGraw, the elder, dies.
1895	Brewery in operation in new building on Lot 11, Block C along the Shenandoah beyond the railroad trestle.
1896	By this date, there was a second story porch on the east side of bottling plant (33A), with shed below. Gone by 1907.
1897	McGraw children, James C. and Kate, are bankrupted, forcing public sale of property.

1899 Lot 3 bought by Savage & Haddox, former "McGraw residence" building (33) was used as a general store; railroad shed was removed.

1906 Lot 3 granted to Mary Ellen Doran.

1907 By this date, Building 33 housed pool hall on ground floor and restaurant above.

1911 Dorans convert upper floors into apartments with furniture store operating below; the 3rd story of the porch may have been added at this time, the middle story window converted to a door, and the west side of porch enclosed and a stair up to the third floor built.

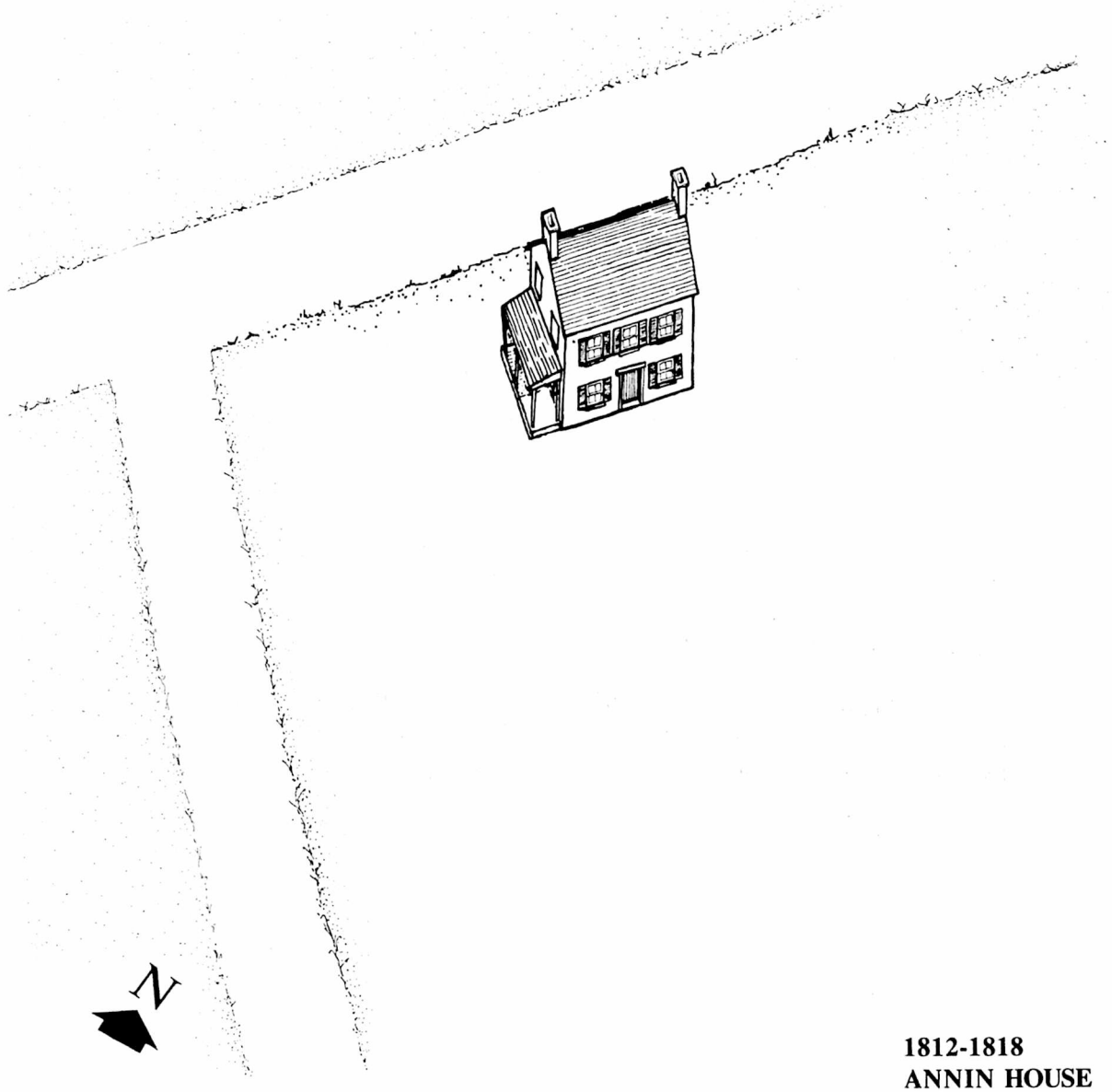
1924 Doran mercantile sustains serious flood damage.

1925 William Doran, Sr. dies.

1926 It is believed Mary Ellen and later Mary Cecilia Doran continued operating store until the land was deeded to the state.

1946 Mary Ellen, sister of William Sr., dies.

1952 William Jr. and his mother, Mary Elizabeth Doran, deed land, including Lot 3, to State Conservation Commission, which in turn deeds it to NPS for Harpers Ferry National Historical Park the following year.



1812-1818
ANNIN HOUSE

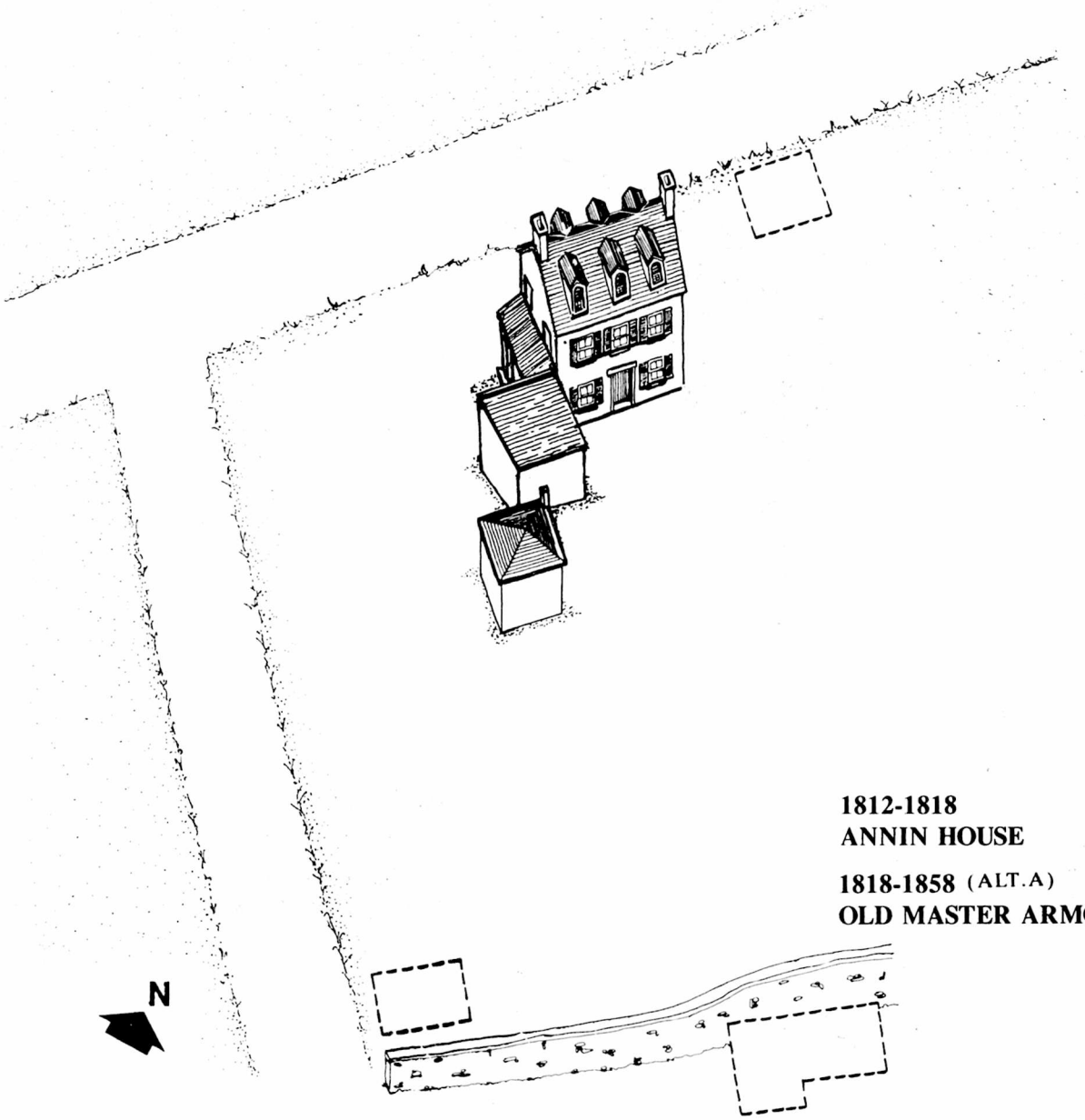
PLATE 1
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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1812-1818
ANNIN HOUSE

1818-1858 (ALT.A)
OLD MASTER ARMORER'S HOUSE

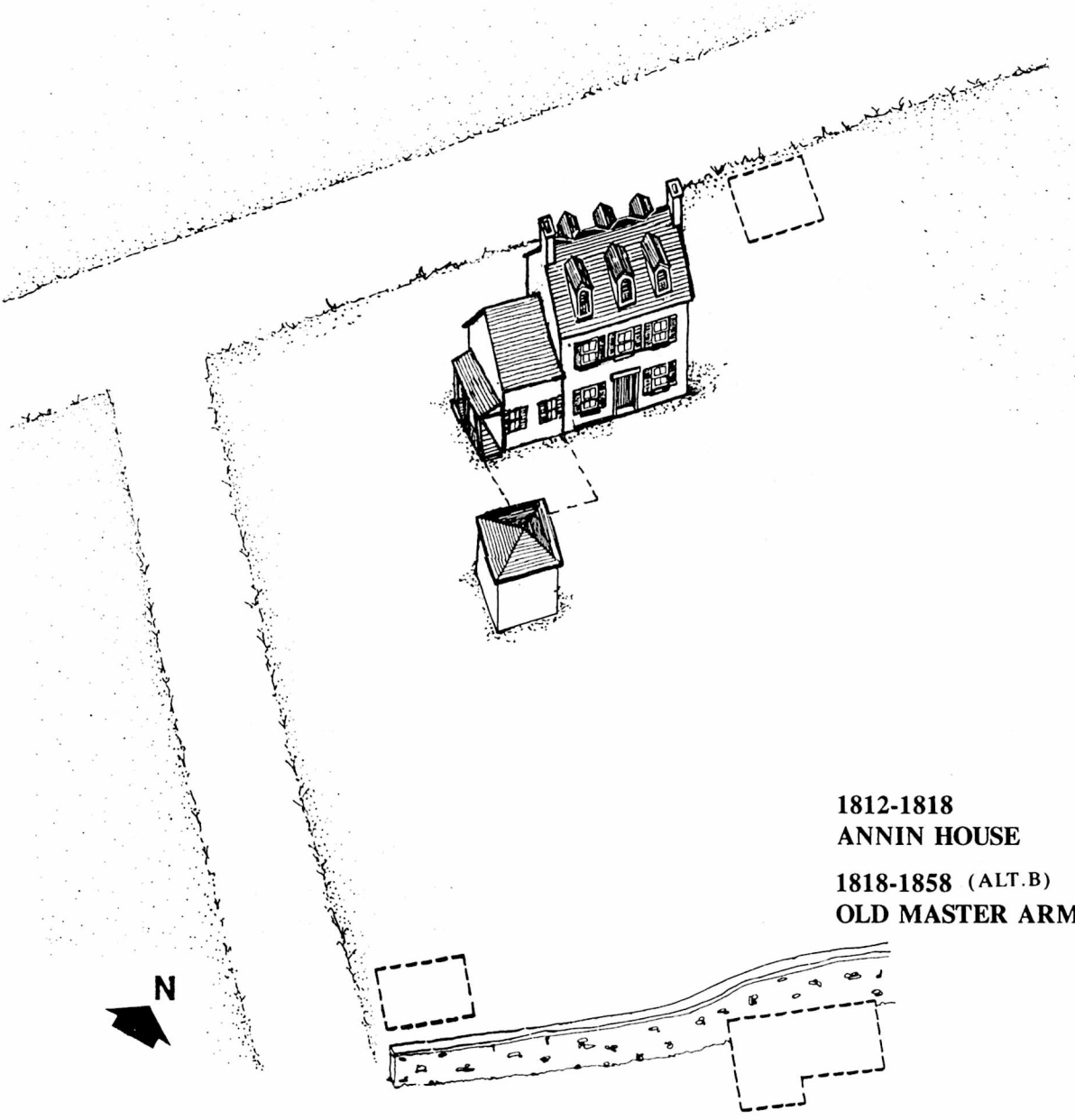
PLATE 2
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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1812-1818
ANNIN HOUSE

1818-1858 (ALT.B)
OLD MASTER ARMORER'S HOUSE

PLATE 3
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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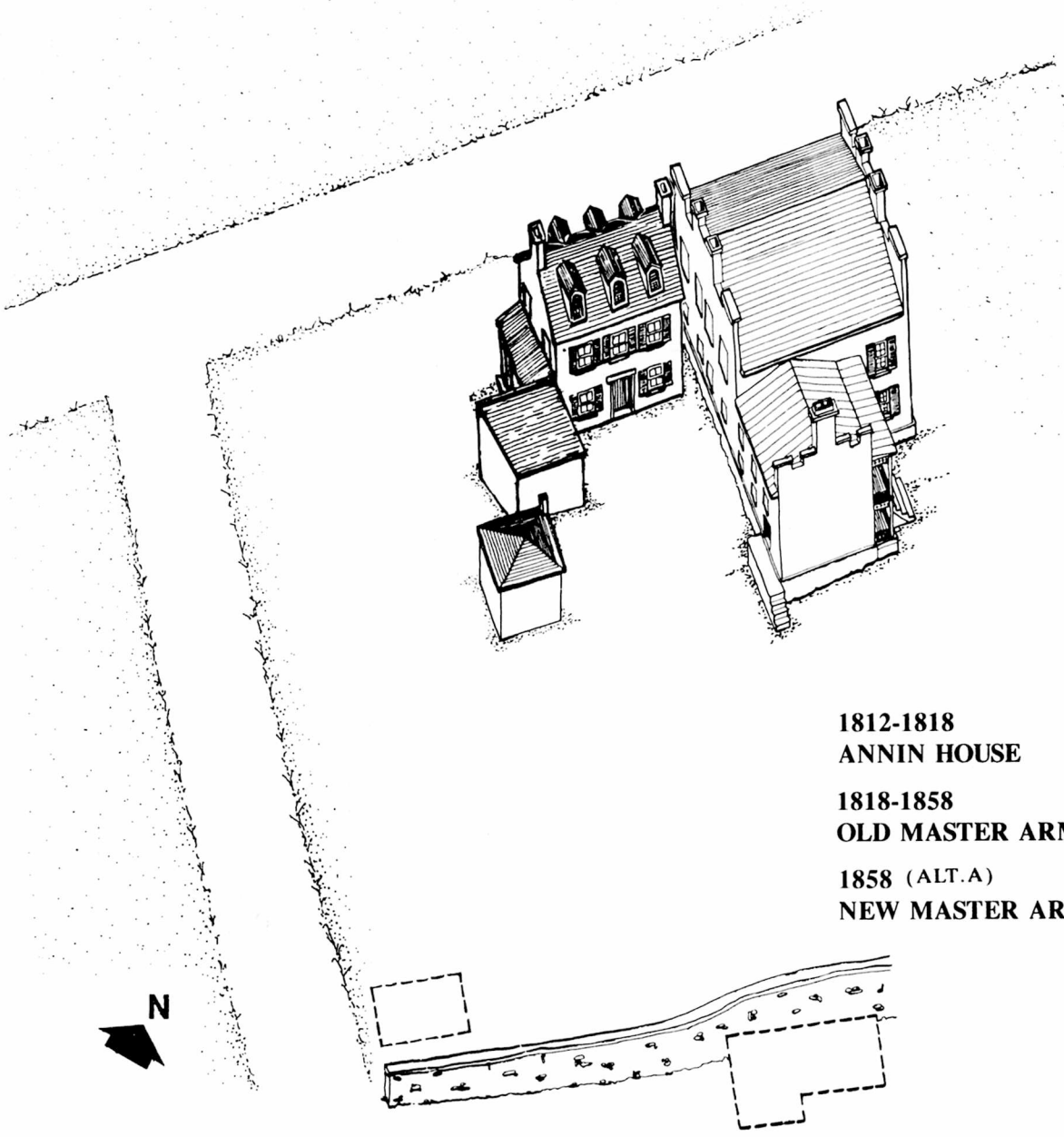


PLATE 4
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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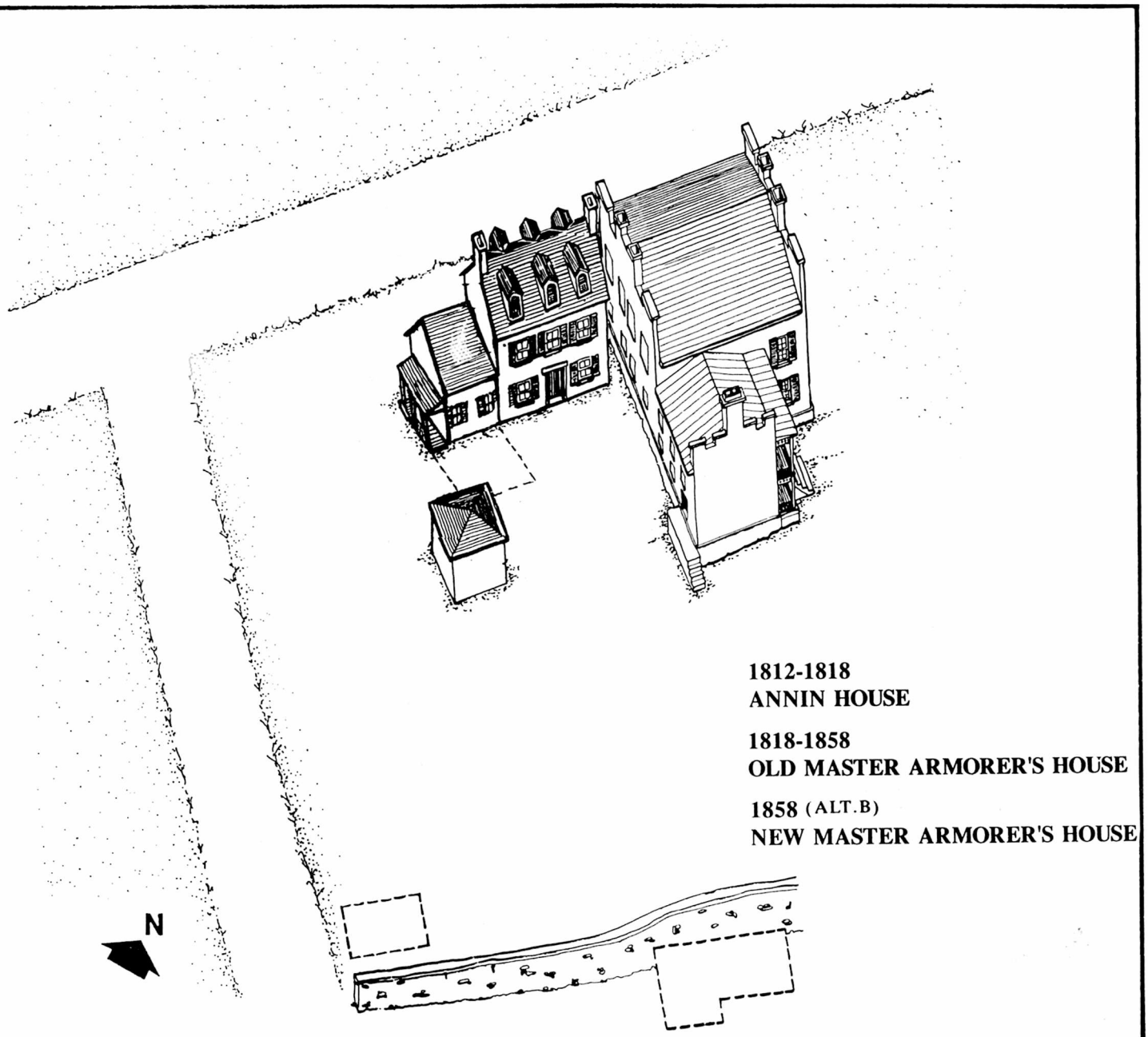


PLATE 5

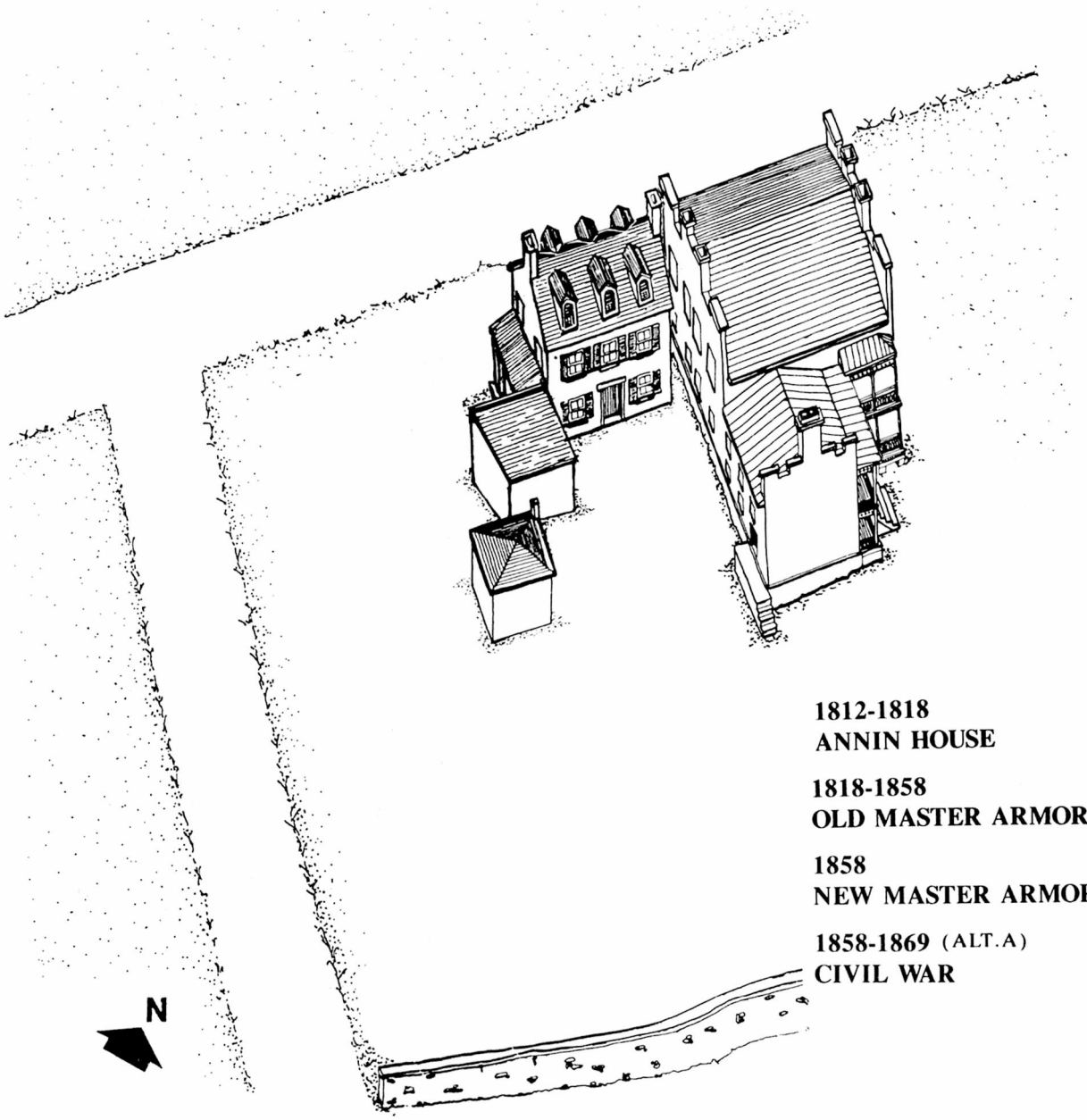
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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1812-1818
ANNIN HOUSE

1818-1858
OLD MASTER ARMORER'S HOUSE

1858
NEW MASTER ARMORER'S HOUSE

1858-1869 (ALT.A)
CIVIL WAR

PLATE 6
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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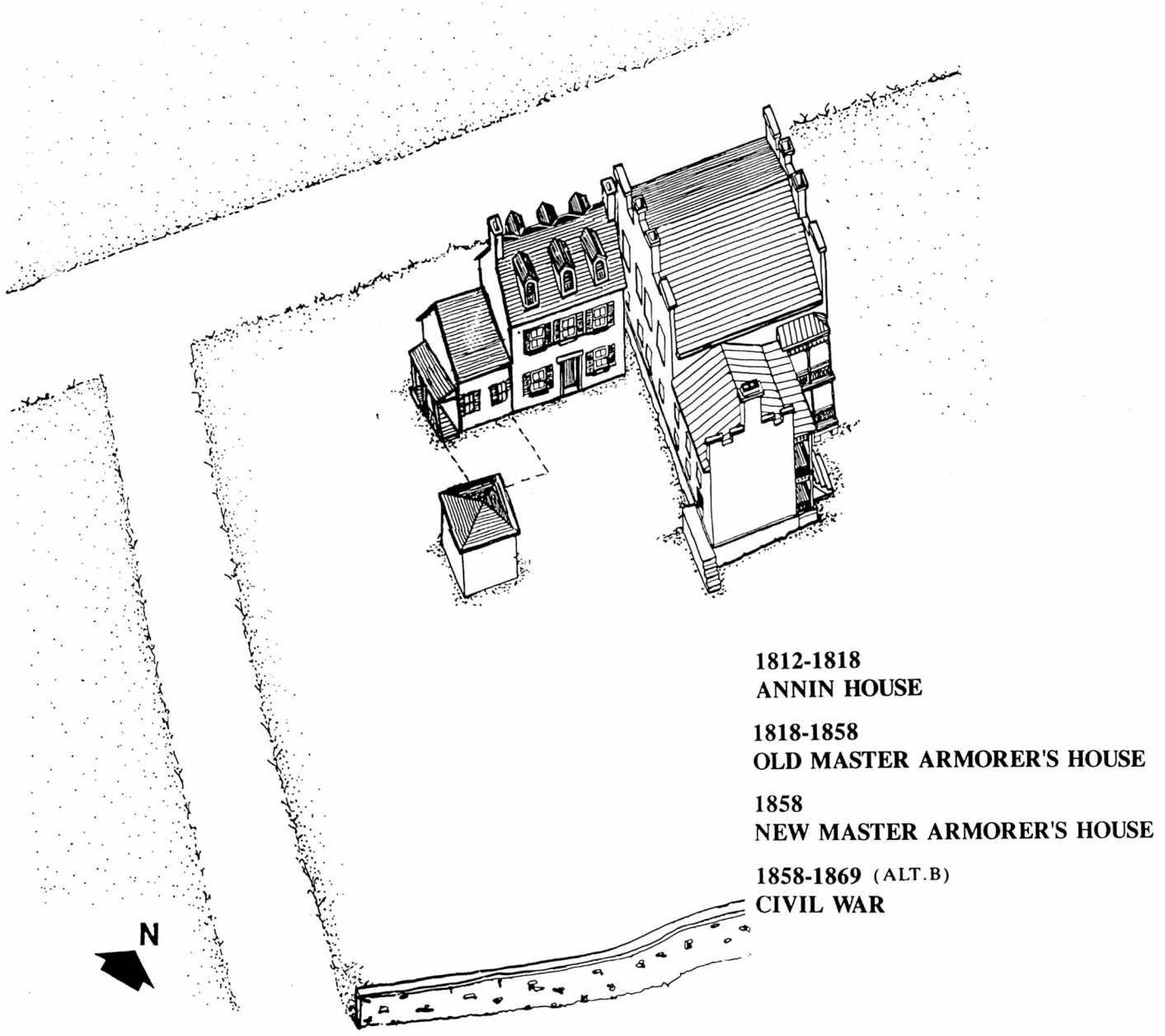


PLATE 7

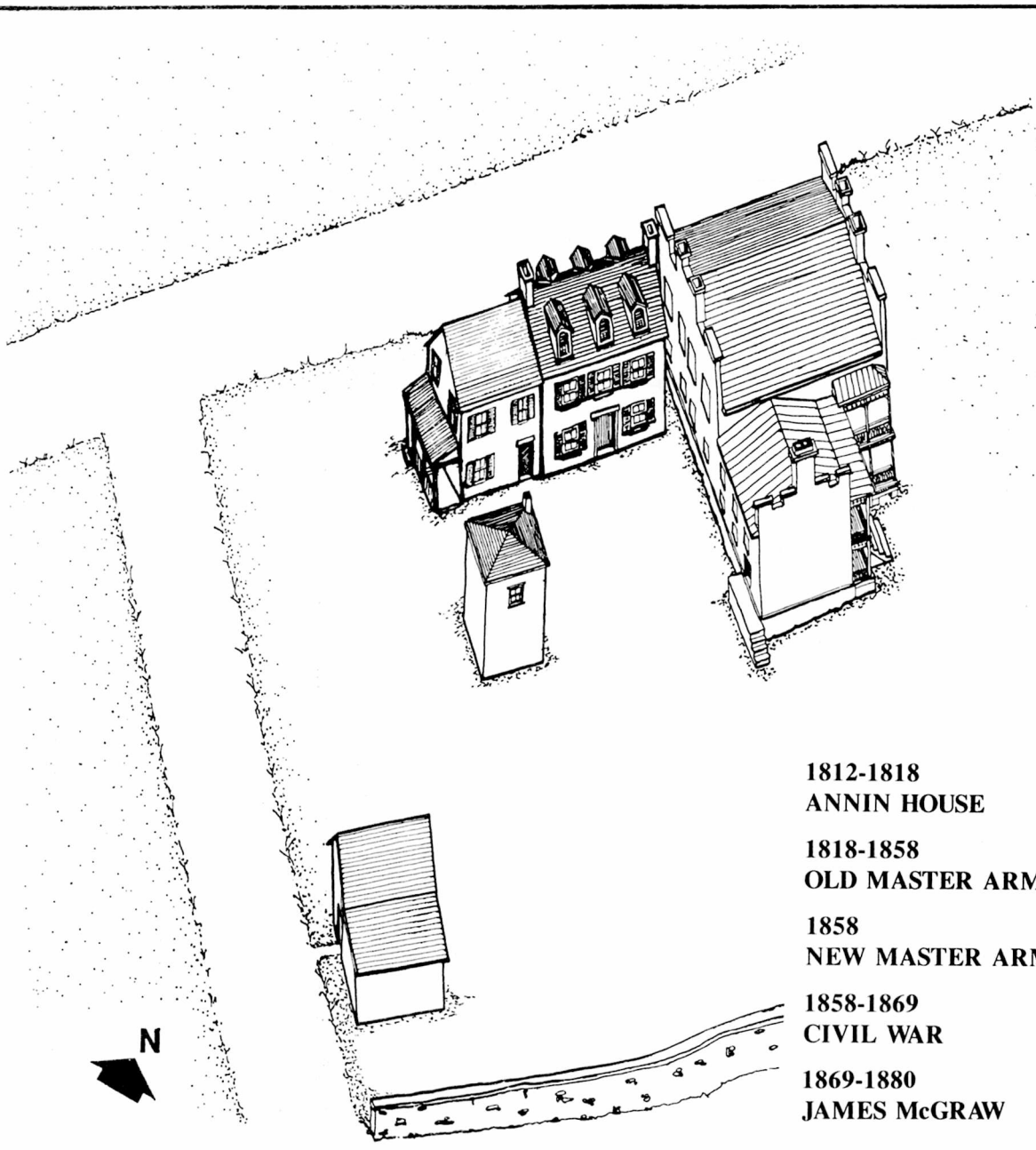
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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1812-1818
ANNIN HOUSE

1818-1858
OLD MASTER ARMORER'S HOUSE

1858
NEW MASTER ARMORER'S HOUSE

1858-1869
CIVIL WAR

1869-1880
JAMES McGRAW

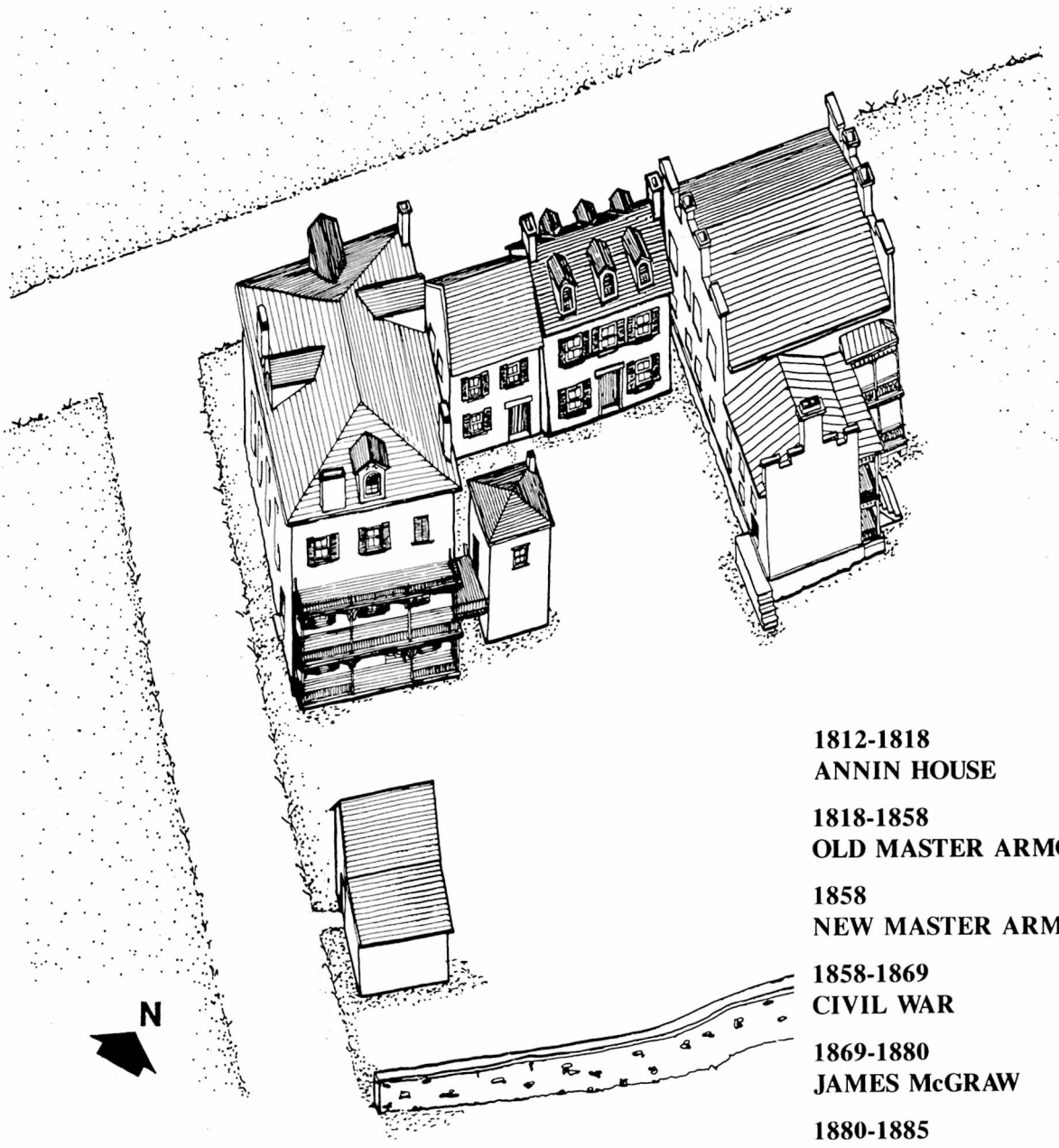
PLATE 8
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

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1812-1818
ANNIN HOUSE

1818-1858
OLD MASTER ARMORER'S HOUSE

1858
NEW MASTER ARMORER'S HOUSE

1858-1869
CIVIL WAR

1869-1880
JAMES McGRAW

1880-1885
McGRAW EXPANSION

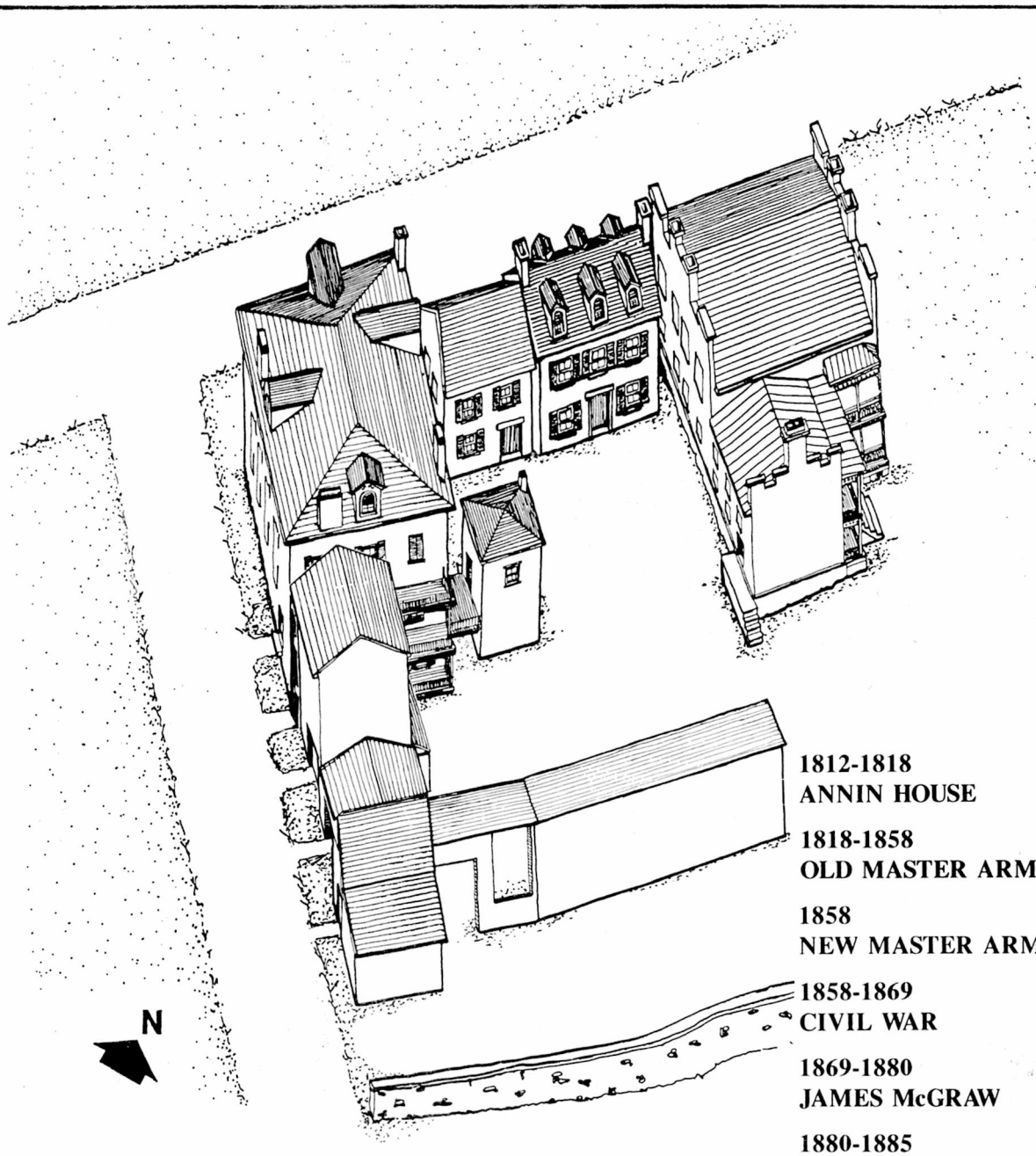
PLATE 9
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

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1812-1818
ANNIN HOUSE

1818-1858
OLD MASTER ARMORER'S HOUSE

1858
NEW MASTER ARMORER'S HOUSE

1858-1869
CIVIL WAR

1869-1880
JAMES McGRAW

1880-1885
McGRAW EXPANSION

1885-1890
McGRAW PROSPERITY

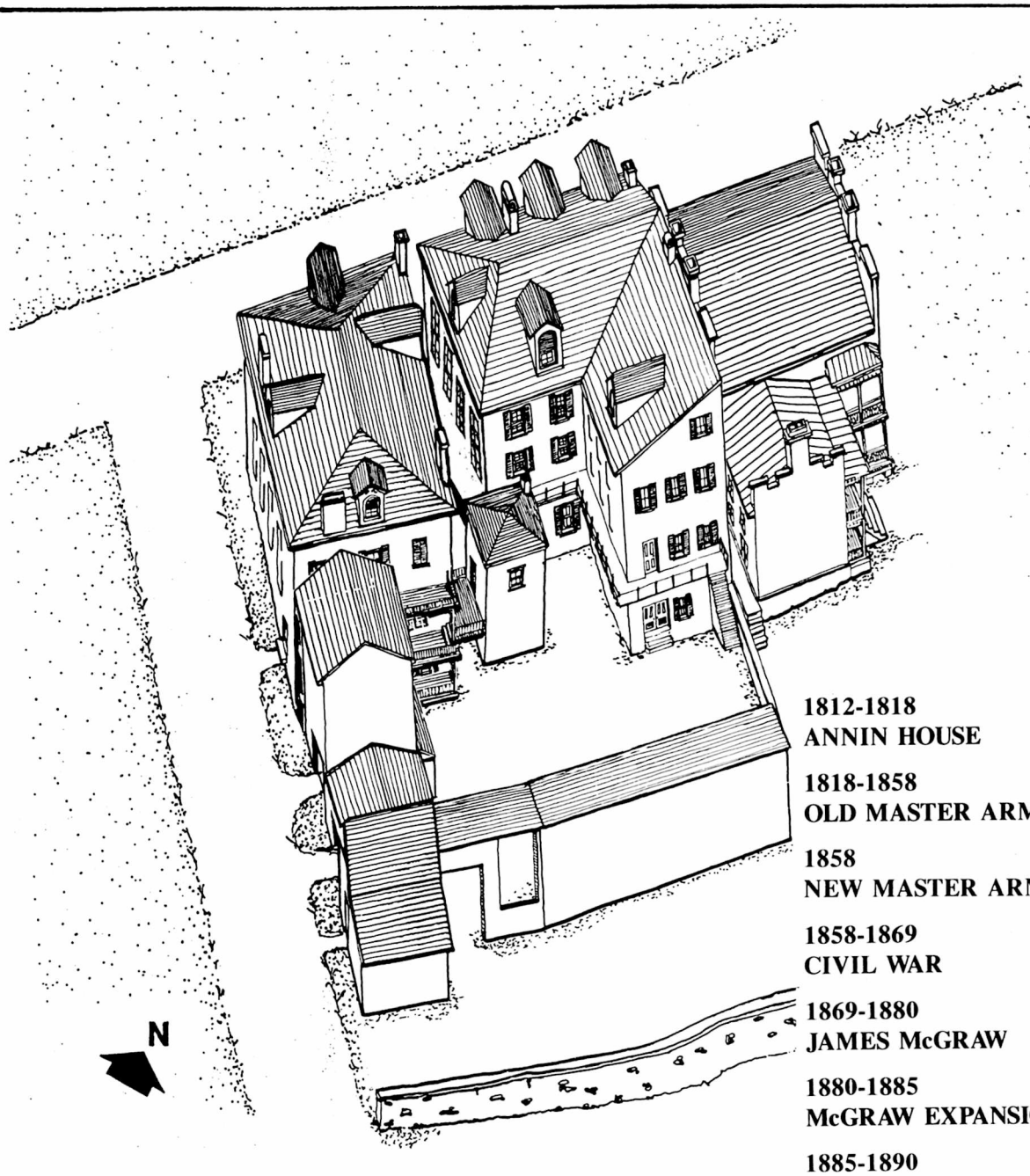
PLATE 10
EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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1812-1818
ANNIN HOUSE

1818-1858
OLD MASTER ARMORER'S HOUSE

1858
NEW MASTER ARMORER'S HOUSE

1858-1869
CIVIL WAR

1869-1880
JAMES McGRAW

1880-1885
McGRAW EXPANSION

1885-1890
McGRAW PROSPERITY

1890-1900
McGRAW BANKRUPTCY

PLATE 11

EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

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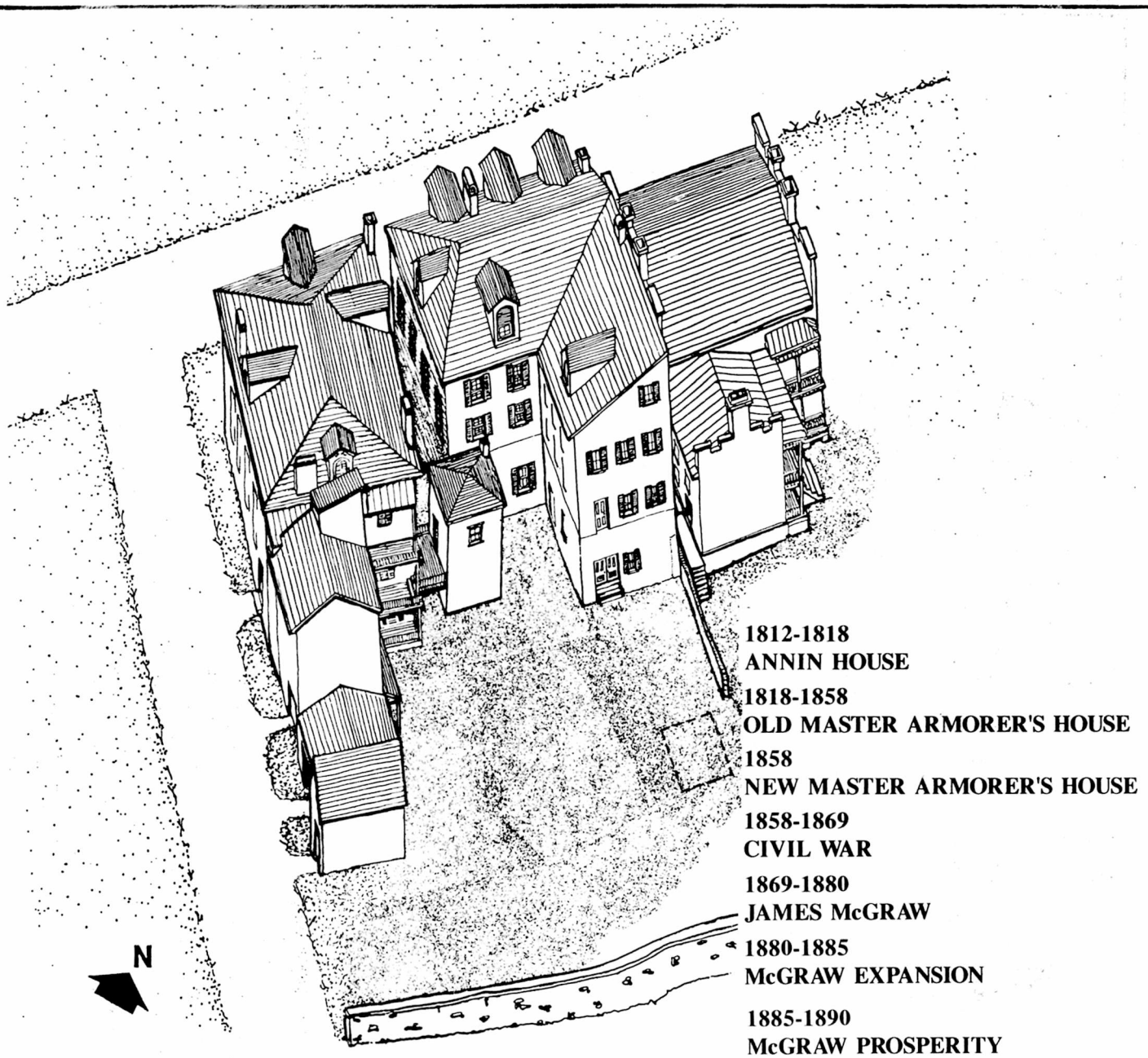


PLATE 12

EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

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1812-1818
ANNIN HOUSE

1818-1858
OLD MASTER ARMORER'S HOUSE

1858
NEW MASTER ARMORER'S HOUSE

1858-1869
CIVIL WAR

1869-1880
JAMES McGRAW

1880-1885
McGRAW EXPANSION

1885-1890
McGRAW PROSPERITY

1890-1900
McGRAW BANKRUPTCY

1900-1952
COMMERCIAL DECLINE

1952-1992
NATIONAL PARK SERVICE

PLATE 13

EVOLUTION OF STRUCTURES

Buildings 32,33,33A,34,34A,35 & 36

HARPERS FERRY NATIONAL HISTORICAL PARK

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PHYSICAL HISTORY & ANALYSIS

1812-1869: ANNIN HOUSE; MASTER ARMORERS' HOUSES

Development of Government Block B began in 1812 on Lot 3 with a 2-1/2-story brick dwelling built by Joseph Annin, son of Master Armorer Samuel Annin [5]. The building served as his house and apothecary until 1818. Several outbuildings came onto the property while it was occupied by the Master Armorer from 1818-1858. Development was forced to the western boundary of Lot 3 in 1835 when the master armorer's stable was displaced by the building of the Winchester and Potomac Railroad. Archeological research reveals that the base of the eastern wall foundation for Building 32 lies at 262.5 ft. asl (above sea level). The north corner of this wall is now at 268 ft. asl and the south corner is at 268.63 ft. asl. A trench or cellar was built and stone laid abutting the soil for these original foundations in the rear of the lot along Market Street [6].

1869-1890: JAMES MCGRAW

In 1869, the land and buildings of Lot 3 were purchased by the children of James McGraw in a government sale [7]. McGraw made many improvements to the property which had been neglected during government ownership. The flood of 1870 knocked the stable off its foundations and into Market Street. On his 1878 abatement petition to the U.S. Treasury, McGraw claimed the costs of "moving stable off the road," "paving the stable," and "hauling sand and stone and foundation stone work" [8]. Another disasterous flood in 1877 apparently decimated the stable.

BUILDING 32

Exterior:
For the price of $600.00, McGraw built a new stone "ice, carriage and coal house" in 1877 on the stable foundations and added to them [9]. It appears from physical evidence and probable use that there were two vertical board doors, as there are now, both several feet above grade, one on the west side and one on the north. (See Appendix A, Fig.5). By this time, the interior grade, due to rubble fill, was nearly one foot higher than exterior ground level.

The new stone ice, carriage, and coal house was apparently expanded at this time to include a shed roof addition, also of stone, and two stories high. The building reached south to the railroad tracks. A porch on the east side, for loading and unloading goods from rail cars, appears in 1896-1897 photographs to connect to and service the long 1890 shed that was attached to the gabled portion of Building 32 and stretched across Lot 3 parallel to the tracks. (See Appendix A, Fig.6). There is physical evidence of openings on the east side of Building 32 as it exists today, likely connecting the ice, carriage, and coal building to the long "railroad shed." Similarly, evidence of joist pockets on the second floor level on the west elevation signal some sort of porch or attachment. There is no further evidence to conclude what exactly was there or when. The roof on Building 32 was slate. Because of the risk of fire presented by the railroad, it is presumed the long shed roof was slate as well. It had in fact become common practice at Harpers Ferry by around 1850 to use fire-proof roofing materials.

Joist pockets in the north wall are evidence that the original floor level of Building 32 was originally 2'-6" lower than it is today. There is no clear reason why it was altered, but it appears that it matched the level of the breezeway when it was constructed in 1888.

Interior:
The interior of the ice, carriage, and coal building walls was probably exposed stone with a dirt ground floor and wood frame second floor. Rubble fill, more dirt, and concrete were added over time. It is not clear whether the existing floor system is original. The existing panel door on the south elevation of Building 32 was undoubtedly originally a vertical board door which was, in the 1890's, an interior door leading into the second floor of the McGraw's shed addition abutting the railroad.

BUILDING 33

In 1882, James McGraw began construction on a 3-1/2-story stone building (33) [10]. It was previously believed that the "McGraw Post Office Building," (34), was built simultaneously, as the tax assessment value of the McGraw properties quadrupled in 1883, with little change in years previous [11]. However, reevaluating the millwork, and Winchester and Potomac Railroad maps, dates Building 34 to the 1810's, soon after Building 35. This accounts for the great difference in millwork profiles between Buildings 33 and 34-35.

The new stone building "...about 36x57 feet in size...[is] covered with slate, and with an attractive sandstone finish. On the first floor is a spacious storeroom and large hallway, on the second and third floors, six rooms each for dwelling purposes, and on the attic floor, four rooms" [12].

Exterior:
The exterior was stuccoed and scored to immitate ashlar stone with quoins on the corners. (See Appendix A, Fig.7). On the Shenandoah Street frontage, were two large storefront windows, with two-over-two sash, and another set of four-over-four inside to create a display case. A double-leaf door with upper-glazed panels was between them. To the east of the main door was a smaller, unglazed panel door entering onto the stair hall leading up to the dwelling spaces.

A balcony with wrought and cast iron railing was at the second story level with access from a bay window. The balcony deck, as seen in an early 1950's photo just after park aquisition, appears to have been wood. (See Appendix A, Fig. 8). On the roof deck of the bay window was a gallery under a third-story window. (See Appendix A, Fig. 7). Each side of the bay window had a fixed upper sash and two operable ones below. It is possible that a finish such as a stain or wash was applied to the front, or even all sides of the building as evidenced by a rosy tinge. The Shenandoah Street face second and third story windows were like the rest of the windows elsewhere in the building.

Excepting the dormers, bay window, and storefront, all windows in Building 33 were similar. The typical window was a double-hung two-light over two-light sash operated by counterweights. The sash in the first and second floor windows measured at 2'- 10" by 6'- 10", and 2'- 10" by 5'- 10" in the third story. Interestingly, the meeting rail was narrower than the vertical mullions. All lintels on these windows were steel and sills were stone, possibly brought from damaged buildings on Virginius Island [13].

The first floor sashes were surrounded by a rounded stop. A stucco splay covered most of the wood of the frame, leaving only approximately one-half inch of jamb and head exposed. The stops in the second and third story windows were rectangular in section. Beyond these stops was mounted a surround +/- 3" wide with a gentle ogee profile ending in a perpendicular return to meet the stucco splay.

All windows but the bay and storefront were flanked by two-panel louvered wooden shutters. Where there was not enough space between windows for two adjacent shutters to be open flush against the wall they overlapped, or one was left half-open such as on

the west elevation. The gallery above the bay window crowded window 310 which stayed in a half-open position. (See Appendix A, Fig.7).

On the east face of the building at the first floor were two doors, one single leaf door giving way to the stair hall, and another double-leaf door with presumably glazed upper panels which opened onto McGraw's store room. Large two-over-two windows occurred demarcating the interior stair hall on the exterior, while the standard narrower versions appeared elsewhere on the elevation, arranged symetrically with respect to the interior spaces. The similar second and third floor interior layout of spaces yielded matching articulation on the exterior.

At the window 315 level was a porch from Building 34A which ran along the Building 33 wall. Photo-documentation at first glance appears to show the smokehouse porch at the third floor being connected to the Building 33 porch. It does not, however, show any porch connections or indicate any stairs down from the porch. Physical evidence on Building 34 implies that the smokehouse porch probably did not connect to the Building 34-35 porch. Furthermore, it is unlikely that an outbuilding would have been connected to the dwelling portion of the buildings. With this evidence it seems there must have been a stair down into the alley presumably accessing Building 34A at the third floor level. Physical evidence which suggests that the porch was attached to the east wall of Building 33 supports this. A 1950's photo shows stairs onto the rear yard. This single, straight run began adjacent but not connected to the east end of the second story porch and ended in the backyard.

The west facade was comparatively blank, with a sole double-leaf door at the ground level with glazed upper panels and typical windows on the second and third floor levels, again centered with respect to the interior spaces.

The south elevation was nearly symmetrical on the second and third floors. In the center of the second floor level was a door leading onto the three-story porch. A third story window was directly above this door. Later, perhaps in the Doran family's 1911 apartment conversion, a third story roof and framed west wall were added to the porch and the window became a door [14]. (See Appendix A, Fig.10).

Similarily, it is probable that a window was originally in place on the first floor adjacent to the historic double-leaf door (114). The existing door may have been installed in 1888 or later, to provide access to Building 33A. The width and height of the opening roughly match that of the windows. The door framing material does not match that of the other doors and the single-leaf door itself is not typical of the ground floor. Additionally, it would not seem to make functional sense to have two doors so close, serving what is understood to have been one large storeroom on the interior. Window 102 was open and operable.

A stair probably connected the second and first floor levels of the porch, descending along the rear wall of the building (33) to the ground in what is now the northern end of the Building (33A) interior. The third floor porch gallery was not accessible until the window was converted to a door years later. (See Appendix A, Figs. 9 & 10). An oral history account of the 1924-1925 period claims that tenants of the converted apartments would enter Building 33 on the west side through the double-leaf door to the rear of the

building and go up to the units. Presumably, they would have gone through single-leaf door 115 and up the stair at the rear wall of Building 33 [15].

There is no evidence clarifying when this lower run of stairs from the second floor down to the first may have been removed. It is not clear whether the Dorans lived in Building 33 or Building 34-35, or for how long they rented the apartments in Building 33 [16 & 17]. Perhaps they removed the lower run of stairs internal to Building 33A, mentioned above, and constructed the exterior run of stairs, extant at the time of park acquisition, to accomodate these uses (NHF no. unknown, 1955, park library showing stair down into backyard from Bldg. 33 rear porch).

The roof of Building 33 was originally slate, as documented by several sources [18]. (See Appendix A, Fig. 8; also, NHF-398, 399, 400, 402, park library). Armory buildings had originally been built with wood roofs. Because of frequent fires in Harpers Ferry, an effort was made beginning in the 1830's to use slate in new and replacement roof work [19]. By 1850, nearly all the wood shingle roofs had been replaced by slate. The shingle exposure on Building 33 was approximately 9" x 10" width on all four sides of the hip roof. The pitch of each hip is approximately 7:12. The dormers, with a 6-1/2:12 pitch had slate roofs and sidewalls as well.

It is clearly documented that the roll roofing previously installed by the park was replaced in 1963-64 with wood shingles. No additional work other than reshingling was recorded. It is accepted that the rough sawn joists and rafters are original. They are unchanged two-inch by six-inch and spaced 24" on center, with 1/2" x 10" board sheathing above. The members appear to be southern yellow pine. The NPS reroofing work laid a plywood deck on top of the board sheathing.

Interior:
Judging by newspaper accounts, the McGraws, enjoying commercial prosperity, spared no expense on their new store and dwelling interiors. In January, 1890, the Spirit of Jefferson noted the painting and papering for their remodeling job just completed:

> There are in the building fourteen large rooms and a double hallway, to paper which required six hundred and fifty pieces of paper, at a cost for that material alone of $250. It makes a fine appearance, however, and Mr. McGraw, who is one of the most substantial citizens of Harper's Ferry, has the pleasure of luxuriating in a house whose inside adornment is probably not excelled by any on the Shenandoah Valley [20].

Unfortunately, no detailed documentation about the configuration or uses of the spaces has survived. The Spirit of Jefferson, in a November, 1882 article, describes the first floor as a "spacious storeroom and a large hallway" [21]. The same article counts six rooms each on the second and third floors and four in the attic, not counting the hallways. In 1890 (quotation above), there were fourteen rooms and two hallways noted.

In the 1897 notice of public sale of McGraw properties, "twenty-two rooms, including a large storeroom, a bar room, shipping and soft drink manufacturing room, beer-bottling rooms, and storage rooms, fitted-up with elevators," were advertised [22]. The 1894 Sanborn Fire Insurance map illustrates one large first floor room in Building 33 and four spaces in Buildings 33A and 32. (See Appendix A, Fig. 11a).

Subtracting from the twenty-two rooms advertised for public sale the four rooms behind the store room illustrated on the Sanborn Map leaves eighteen in the McGraw residence and store building (33), which had been described as having fourteen and two halls in 1890. This subtlety may be explained simply by assuming that various people visiting the property counted different spaces to be rooms. It could however, imply that differing functions or division of spaces existed at various times over the fifteen years of McGraw ownership.

The location of the "bar room" described in the 1897 sale announcement is unclear. The Sanborn maps make no note of a bar anywhere on the lot. It is possible that there was a partition in the rear of the storeroom, or merely that McGraw held a liquor license and sold alcohol somewhere in the rear of the store. Any conclusion however, is only conjecture.

Later, in 1911, the Doran's made alterations to the former McGraw residence to create apartments [23]. It is difficult to state what changes they may have made at that time besides new finishes and redecorating. Documentation about the building under McGraw ownership, and physical investigation and analysis substantiate that the remaining historic fabric is basically 1882 fabric from the original design [24].

Second and Third Floor Configuration:
There is little doubt that the stair hall ascended up to an open foyer at the nearly mirror-image second and third floors. (See Appendix D, 1957 & 1992 Proposed Work Drawings, Floor Plans). To the left, or southeast, of the foyers was a door to a large room. The center hall running north-south stemmed from the southwest corner of the foyer. To the right, or north, was another large room. On the second floor, a door on the west wall of the foyer gave passage to a large divided parlor room with a double-leaf door, probably boasting ornate glazed upper panels. On the third floor, the corresponding spaces were divided into two rooms with individual entry.

The rooms in the rear were arranged similarily on the second and third floors. The south end of the second floor hall opened directly onto a large room (211) with two windows, one on the south wall and one on the west, and a door on the south wall giving way to the porch. The current room 211 door is not in its original location, aligned with the hall. On the third floor the same arrangement existed, but the existing door onto the porch was a window. Both windows 202 and 302 were open and operable.

Some question surrounds the historic arrangement of the spaces at the south end of the halls on both the second and third floors. The fabric of all the walls and ceiling in the closet (room 208) to the east of the hall appears to be historic plaster, as do the walls of the adjacent closet (room 207A). The closet door architrave however, is narrower on the east side of the closet 207A to fit between the door and wall. The south wall of room 204 displays a crack which appears to follow the outline of a door at the east end of the wall. The sound when knocking on the wall along with destructive investigation confirms that the wall area is gypsum board except for the door-shaped area separated by the crack which was finished with plaster. A modern 1"x 3" board trim surrounds door 207 between room 205 and the foyer. Cracks and curious features in the foyer, room 209, adjacent to rooms 205 and 207 indicate that alterations have been made.

A field sketch of existing conditions in the 1950's reveals that door 312 from room 305 onto the hall did not exist, and there was in fact a wall in place. (See Appendix A, Fig.12). The new 1"x 3" board frame and trim and an atypical door, corroborate that this is a new opening. Historically, the south wall of room 305 turned back to the south to create the west wall of closet 305A, probably a niche for a coal-burning stove. This curve in the wall is now concealed by a 1980's wall extension and door frame. The hall opened onto a small foyer (room 303), giving passage to room 307 to the south, and a closet (room 308A) to the east, as it does today, except that as found on the second floor, there was no door into room 305 from the foyer.

It is probable that the second floor configuration was similar to that depicted by the 1950's sketch of the third floor. There was perhaps a solid wall in place of door 207, as supported by the modern trim in place. The combination of gypsum board and plaster in-fill construction of the room 204 south wall may indicate that, similar to the floor above, there was a closet or niche between the exterior wall and closet (room 208). In place of door 209 there may have been a wall which would have been the rear wall of closet 204A. Scars on the walls may indicate that a door frame was removed from the room 207 foyer opening onto the long hall.

The original configuration of the spaces containing modern bathrooms is also uncertain. The 1950's existing conditions sketch shows the west wall of the hall continuing straight back to the northwall of room 311, with a door opening opposite the small room 307 foyer to a long narrow space. This room (309, 310) may have originally served as a bathroom, as the building was certainly plumbed for heating, and probably for water and waste as well. A bathtub was listed for sale in the McGraw bankruptcy auction [25]. The transom of this door (317) is not original, and alterations have certainly been made to the opening. The door from room 306 into the bath (room 309, 310) is probably a new opening, if not a modern reframing of a historic door. Destructive investigation during construction will provide more conclusive evidence.

No destructive investigation has been undertaken, but closer inspection may reveal conclusive evidence about the "bathroom" on the third floor, as well as the second floor. It is probable that the second floor arrangement mirrored the plan shown in the 1950's sketch of the third floor. If this was the case, opening 212 between room 206 and rear hall 209 did not exist. Scars from hinges are evidence that a door did exist at some point in this location. Without this door, there would have likely been a door in room 206 corresponding to door 309 above. Because of modern finishes and repair work, there is no visible evidence of any partitions in the long "bathroom." The rear hall (room 209) would not have existed as such. Door 211 would have been in line with the long hall. A "bath room" door would have punctuated the west wall of the hall.

The remaining configuration in question is orientation of the northenmost closets, adjacent to the main foyer. The 1950's sketch locates the room 301 door directly opposite the foyer from the room 305 door as it is now. The closet (room 303) did not, however, have a door in the foyer as it does now. Its door opened onto room 302. Curiously, an adjoining door is recorded between rooms 301 and 302, which had been assumed earlier in this research to be a modern alteration.

All other spatial arrangements appear to be unaltered from their historic appearance, and windows and doors remain in their original location. The new openings and in-fill such

as doors 304, 310, 311 and 312 introduced new fabric to the interiors of the third floor in the 1980's. Besides these alterations, and the addition of a wall and doorways at the top of the stair, the new material amounts essentially to plaster repair and replacement. The 1960-1961 renovation of the second floor introduced substantial amounts of new fabric, but largely retained the historic configuration. The fabric and configuration of the fourth floor attic remains essentially unchanged.

Finishes:
No responsible conclusion can be drawn about the first floor finishes as there is insufficient documentation and no extant physical evidence.

The two-feet thick plastered walls of the second floor and the stair hall were covered with flocked paper. One predominant architrave profile, with several variations, was used on the second floor, an ornate profile of half circles, for both doors and windows. (See Appendix D, Existing Conditions Drawings, Sheet 44, Millwork, Architrave Type 2). It consisted basically of a quirk bead and ogee. A secondary profile of divergent style was used, especially in the rear of the building. It occurs on two doorways (208 and 212) which were probably altered at some unknown time, and on random windows in rooms 210, 211, 207, 204, and in the stairwell. Perhaps these were replacements. This profile, similar to that of the third floor architraves, was made of a bead turning into ogee followed by a series of quirk beads, fillets and a cove. (See Appendix D, Existing Conditions Drawings, Sheet 44, Millwork, Architrave Type 5). A few miscellaneous profiles exist today, but were probably added later.

Second floor door panels were detailed with ogee and bead combination profiles. The double-leaf doors between parlor rooms 202 and 206 were undoubtedly glazed with decorative glass. There was probably a cornice moulding, but its profile cannot be determined. The bases were likely to consist of a grecian ogee and bevel cap moulding and a 1"x 7" skirting with a quarteround base. This same base was used in the entry hall and stair hall. Random width flooring, similar to that in the stair and upper floors, was most likely used.

The third floor walls were also papered. One historic architrave profile was used on virtually all window and door surrounds. (See Appendix D, Existing Conditions Drawings, Sheet 44, Millwork, Architrave Type 3). The profile consisted of a quirk bead, ogee and quirk combination. A cornice moulding was probably in place, but no evidence of a profile remains. The bases were comprised of a cap moulding with a small, shallow cove on a square atop a nearly quarteround grecian ovolo. (See Appendix D, Existing Conditions Drawings, Sheet 44, Millwork, Baseboard Type C). The skirting board was six inches high with a quarteround base. The random width flooring was finished with a reddish stain.

There are no remains of wallpaper on the fourth floor, other than in the stair well. It may have never been papered. The dormer windows had no trim. The architrave was the same profile as the secondary, possibly replacement, architrave on the second floor. There was presumably no cornice moulding because of the pitched ceilings; there appears to be no scarring. The bases were probably a six-inch high skirting with a quarteround base and no cap moulding. The floors were also random width boards with a reddish stain.

BUILDING 33A

Exterior:
Building 33A, built in 1888 by James McGraw to serve as a bottling plant, had an 11' - 9" deep stone-walled basement continuing up to the first floor with a height of 13'-0" from the floor to the top of the second floor joists (or bottom of the finished second floor). The basement was accessible by a cellar door on the east side, probably similar to the modern door in place. The second and third floor were wood frame. The original siding was of (approximately) 12" vertical boards, appearing in photos to have been covered with approximately 1" x 2" batten strips covering the joint. (See Appendix A, Fig.9, 10). On the inside of the space, the siding appears to have been butt-jointed. A vertical board door with a transom light and a small window were the only openings in the west masonry wall at the first floor level. Above, at the second story level, were two simple two-over-two light windows in seemingly simple frames, and a vertical board door. There were no openings on the third floor on the west wall.

The east wall ground floor level had a door, probably vertical board with transom light, which opened onto the Building 33 rear porch. Near the middle of the wall length was another door, probably also vertical board with a transom light. A tall, two-over-two light window with a simple frame was just to the south of the door. In the yard close to the first floor window was a boiler with a stack reaching above the roof ridge. (See Appendix A, Fig.10). On the level above was a door between two windows, virtually a reflection of the openings on the west elevation. This sliding door, however, was hung on a track with wheels. The gable roof was slate.

A shed addition appears at the ground level in an 1896-1897 photograph. (See Appendix A, Fig.6). A porch is shown above it connecting with the second story rear porch of Building 33. The porch appears on the 1902 Sanborn Fire Insurance map where it does not connect with the railroad shed extending from the stable, but instead, returns on a diagonal to the breezeway wall where it meets the ice and coal shed. The 1907 Sanborn map shows no trace of either. (See Appendix A, Figs.11a & b). Physical evidence of the porch remains on the building as cut-off joist ends flush with the stone wall.

The south wall of the bottling plant had a vertical board door which is now 2'- 10" above grade, with historic grade level approximately 1'- 0" below current grade. (See Appendix A, Fig.9). To the west was either a window or another door. The breezeway, at the same level as the second story of Building 32, connected to the bottling plant about two feet below the Building 33A original second floor level. The stone connector's west wall had two windows to match the ice and coal building, which may have been inherited from Building 35. The east side had a vertical board door.

Interior:
The interior of Building 33A, offers little physical evidence of its spatial configurations when it was in operation as a bottling plant. Random parged patches are the only remnants of stucco-finished walls. The Sanborn Fire Insurance maps (from 1894 and 1902), show Building 33A divided into a narrow room immediately south of Building 33, and a larger room behind. (See Appendix A, Figs. 11a & b). Perhaps the narrow room was storage, or a separate stair hall enclosing the stair descending from the second story porch.

The height of the original elevator shaft is not certain, nor is the date of the cupola, or the raising of the first floor ceiling/second floor framing. The room was filled with machinery and the elevator conveyed goods up from the basement [26]. The concrete first floor, supported by steel railroad rails layered with shale, dates to some time after the McGraw era as it does not have an opening for the elevator shaft to descend to the basement. The upper floors and the breezeway wall sheathing have largely been replaced, along with much of the flooring. The rough wood columns however, are original. A lack of evidence to the contrary infers that he upper spaces looked much like they do today.

The breezeway portion of Building 33A originally had a floor level to match that of Building 32, which was dropped 2"-6" below the current level and 1"-10 below the historic level of Building 33A's main bottling plant space. Physical evidence such as joist pockets and a sill on the north wall of Building 32 attest to this.

1890-1900: MCGRAW BANKRUPTCY

In 1890, J.C. McGraw announced in the Spirit of Jefferson, that he had succeeded his father in the family beer bottling and ginger ale business [27]. The older McGraw died suddenly on the morning of October 31, 1893 [28]. Around this time most of the younger McGraw's energies were going to the bottling operation. In 1894, James C. McGraw improved the process by the installation of an ice engine. In 1895, he built the Harpers Ferry Brewing Company beyond the railroad trestle at the end of Market Street on land that had been accquired by his father. Production began in June of that year.

James C. McGraw had overextended himself financially, and by October 1, 1897, he and his sister Kate were forced into bankruptcy; public sale of their goods and property soon followed. In 1899, William and M.E. Doran purchased the McGraw Post Office Building (34, 35), and the McGraw Residence (33) and Bottling Plant (33A, 32) was bought by J. Perry Haddox, and Joseph H. and Ralph Savage, to expand their Belvidere Brewing Company [29 & 30].

1900-1952: DORANS AND COMMERCIAL DECLINE:

The Savage & Haddox partnership operated a general store in Building 33. In 1906, Ralph Savage went bankrupt and sold his interest to the other two partners who deeded the property to Mary Ellen Doran in January of 1907. This brought the entirety of Lot 3, Block B into Doran family possession. [31]. It appears that Savage & Haddox were responsible for the replacement of the long railroad shed with several smaller ones, and may have removed the porch and shed on the east side of Building 33A.

It is possible that they extended the elevator shaft up to the third story level, adding the cupola, and replaced the original first floor, covering the elevator access to the basement. It is almost certain that this work cannot be attributed to the McGraws. Photographs from 1897, the year of the McGraw bankruptcy, do not show the cupola. (See Appendix A, Figs. 6 & 98). It is unlikely that the financially troubled McGraws completed major alterations in the few months before the sale of their property.

There is reason to believe the Dorans were responsible for the elevator. The Farmers Advocate reported in September 1911:

> S. and W. Doran have built a large elevator in the rear of the McGraw property,which they have converted into an apartment house, being admirably constructed for alteration into flats for comfortable homes. There is ample grounds around the property and various approaches back and front for the occupants. The lower floor he reserves as his furniture and store department [32].

It is clear from oral history accounts and Sanborn maps that the building described was Building 33. The "various approaches" may have included the stair presumed to descend from the porch into Building 33A, and the straight run of stairs from the porch second story to the ground, inherited by the park in 1953. Perhaps the building of the "large elevator" was in fact the extension of the c.1890 elevator to the third floor. The extant elevator however, is really a freight lift and not designed to carry people, as the article implies.

It is not clear whether the Dorans lived in Building 34-35 or Building 33 in the early years. A bid for extensive plumbing work to Building 33 dating to the year of his marriage suggests that he was living there with a general store below [33]. Based on oral history accounts, by the time of the 1924 flood, they certainly lived in Building 33 [34]. Additionally, the family ccould have no longer inhabited Building 34-35 after its apparent lease to the Jefferson Baking Company in 1925.

A variety of mercantile businesses, a pool hall, and a restaurant were housed in the store room from 1900-1912, and the bottling plant and its ice engine were abandoned by 1907 according to Sanborn maps. Bottling functions had been moved to the brewery building beyond the railroad trestle. Essentially no industrial functions occurred in the bottling plant after the Doran purchase. There seems to be no reason for the Dorans to have built an elevator in a space they were not using.

The picket work on the porch may have been replaced with a more ornate pattern at this time. The roof and third floor door, as previously discussed, were probably added by

the Dorans in this renovation. These changes were certainly in place by c.1930. (See Appendix A, Fig.7; also NHF no. unknown, 1930's of Willie Doran sitting on shaded porch, park library).

Although the "W & M.E. Doran" store went out of business in 1926, the Doran family mercantile business continued [35]. Miss Mary Ellen Doran, sister of William Doran, died in 1946 at the age of 87, at home in Building 33. Mary Elizabeth Doran (84), wife of William A. Doran, with her son, William, deeded four parcels of land, including Lot 3, Block B, to the West Virginia State Conservation Commission on November 29, 1952. On December 9, 1953, the land was passed to the National Park Service for Harpers Ferry National Historical Park.

1952-1992: NATIONAL PARK SERVICE

All Park Service maintenance efforts recorded here are taken from the "Building History (NPS Ownership)" Report [36].

In 1956, the Park Service began rebuilding the north wall of Building 32 and replacing the Building 33 gutters and downspouts. The cantilevered balcony was replaced. Roof repairs and replacement of slate with wood shingle took place in 1957-1964. In 1958, aluminum storm windows were installed throughout Building 33.

A HABS survey was completed in 1959, and the park's Individual Building Report recommended retaining Building 33 as a "flood buffer." In 1960-1961, the second floor of Building 33 was rehabilitated for park quarters. The construction of three CMU walls running east-west in the first floor of Building 33 was proposed for lateral stability. The work was accomplished later that decade and finishes were applied to the walls in 1972. Plastering in the new quarters was also completed.

The breezeway was stablized and all buildings were painted in 1976. In 1979, some of Building 33's parging was replaced, and gutters and downspouts were again replaced. A heating pump system and air conditioning was installed in 1983. The Building 33 exterior was painted in 1985. The bay window was repaired and restored in 1986, stair hall joists and floor were replaced, and the stair was stabilized. The stair hall, stair well, and third floor were plastered as needed.

In 1987, the rear stair was reconstructed and the northeast chimney removed. The rotten breezeway walls were replaced in 1988. In November, 1989, archeological investigations began inside Building 32.

In January, 1989, research began for the Package 116, Part I, Historic Structures Report.

EXISTING CONDITIONS

SITE DESCRIPTION

Buildings 32, 33 and 33A form a long narrow masonry and frame construction filling the western portion of Lot 3 along Market Street from Shenandoah Street to the railroad trestle. (See Appendix B, Fig.1). To the east of Building 33 lies Building 34. To the east of Buildings 32 and 33A is an open yard which now shows few above ground clues about the outbuildings and business of the nineteenth century industrial complex embracing it. (See Appendix B, Figs.1 & 3).

Across the front of Building 33 is a walk which runs along Shenandoah Street east to the enbankment at "the Point". In front of Building 33 it is approximately twelve feet wide, widens to thirteen in front of Building 34-35 and then narrows for the rest of its length. Maps and historic documents refer to a stone walk as early as 1859. Some of the walk in front of adjacent Buildings 34-35 and its stone curb may be reused historic stone. The portion in front of Building 33 has been replaced with brick due to a shortage of flagstone as a 1989 photograph shows. In 1982 the Federal Highway Administration reconstructed a portion of Shenendoah Street and the two and a half foot wide cobblestone gutter, concealing new utilities below.

There is not an abundance of trees on the immediate site of these three buildings. Two silver maples stand across Market Street in the former Globe Inn site. There are trees scttered in the backyards of the modern landscape of Block B and several along Shenandoah Street in the sidewalk. None of these were original to the historic landscape, and several are in poor health. Historically there were a few trees dotted around the perimeter, notably along the front walk in front of Buildings 33, 34-35 and Building 36 (in Block B, Lot 2), essentially where modern trees there stand today.

A narrow walkway of concrete lies between Buildings 33 and 34 and wraps around the south facade of Building 33 with a wood ramp onto its rear porch on top of the slab (See Appendix B, Fig.4). Along this path is a ventilation well from the crawlspace under the stair hall. Nearby is a modern reconstruction of a historic gate connected to both Buildings 33 and 34 [37]. (See Appendix B, Fig.5).

The rear yard is bounded to the south by the Baltimore and Ohio railroad trestle and retaining wall, to the north by Buildings 33 and 34-35, and to the west by Buildings 32 and 33A. The east boundary is the low wall between Building 34-35 and Building 36. The area is approximately 6000 square feet. Notable intrusions surrounding the buildings include an 1987 stair reconstruction from the rear porch second level, and a manhole accessing the telephone cable buried below ground. The site is cluttered with debris and a stack of shale.

Building 33 is especially vulnerable to water damage. When it rains, water runs behind and loosens the parging on the east elevation and often puddles under the wood ramp adjacent to the smokehouse. It is not clear if the problem originates in poor roof drainage due to undersized or clogged gutters and downspouts, or if there is a more complex site drainage problem. This will require careful investigation. There is also effluorescence, predominantly at the bottom of the east interior wall of Building 33. This presumably results from rising damp. There are utility lines beneath the path between

Buildings 33 and 34 which may contribute to this problem. This effluorescence and its cause will require special attention in the design phase.

BUILDING 32

EXTERIOR

General Description:
The present building was constructed in 1877 on the foundations of the original ca. 1835 stable. This two story structure is stone with wood second floor and gable roof framing.

Roof and Roofing:
The original or historic period roofing was probably slate, as a 1957 "Individual Building Report" done soon after park acquisition lists the roof on Building 32 as slate. Roof repairs were undertaken in February 1957. Roll roofing was apparently installed in December 1963 and was replaced with wood shingles under a reroofing contract for the building group completed in June 1964 [38]. The roof was rebuilt and reshingled; the present roofing is wood shingle, sheathing is rough sawn, and rafters are recent 4x6's. (See Appendix B, Fig. 6).

Walls:
The stone walls exhibit evidence of numerous modifications over time, other structures having been attached to serve various functions. (See Appendix A, Figs.10 & 13; also, NHF-398, 401, park library). There are remaining joist ends in their stone pockets at a level just below the south door sill. Another lower set of joist pockets was filled-in with stone, and possibly was structure for the rear shed addition in historic photos. (See Appendix A, Figs.6 & 9; Appendix B, Fig. 6). There is also a timber sill member and the remaining ends of joists in the north wall. There are various remaining joist ends in the east wall.

There are several openings in the east wall, and one at the center of the south wall filled-in with various wood members, presumably cut-off abandoned joists. (See Appendix B, Fig.7). A vertical 6"x6" timber has been added into the southeast corner, second floor level; at the southwest corner there is some brick in-fill above the second floor level and a corner timber to the eave. (See Appendix B, Figs.6 & 8). These may have been installed in 1956. Note that there are two different sill levels of the west second story doorway. (See Appendix B, Fig.6).

To stabilize the east and west second floor end walls, tie rods were installed between the two, with steel and wood timber bearing plates at the exterior faces. (See Appendix B, Fig.9). Some exterior painting was done in 1976 [39]. Mortars used to repoint portions of the north wall were too hard and smooth as compared to historic mortar mixes.

INTERIOR

The first floor level, changed many times with the addition of fill, was once covered with a thick concrete slab which is now broken with dirt piled on top. On the interior, the stone walls are plastered. Vertical 2" x 3 1/2" blocking members at approximately 21" on center support a horizontal layer of 1" x 8" boards, building paper and a finish surface of 3/4" x 2 1/2" vertical tongue and groove boards. The ceiling is finished with largely dilapidated 1" x 8" boards nailed to the joists. Areas of the wood wall finish and

floor infill have been removed in the northwest corner and near the door at the southwest corner, presumably for archeological investigation.

The second floor interior space is cut through by two reinforcing tie rods installed by the National Park Service. The floor is rough sawn 1" x 8" boards on 3" x 12" joists. The walls are bare stone.

BUILDING 33

EXTERIOR

General Description:
The building is a rectangular three-story block with a slightly angled street fronting facade, the body of the building not being perpendicular to the street. (See Appendix B, Fig.10). The hip roof has one dormer at the center of each face.

Of the four brick chimneys, two are wide with a center arched opening, one located on the west and the other near the southeast corner. (See Appendix B, Fig.11). Two are smaller without the opening, one at the rear of the building, one at the northeast corner. Three of the chimneys have a continuous arched cap. The northeast one also had this cap originally, which was removed in 1988. (See Appendix B, Fig.12). The bricks remain in storage.

All exterior walls are two feet thick stacked Harpers Ferry shale laid with mortar and finished with stucco. All corners are parged to imitate stone quoins from the ground level to the cornice.

At the top of the walls on all elevations, a simple decorative brick cornice with a sawtooth course contrasts with the stuccoed walls below. (See Appendix B, Fig.13). The north (front) side has a second floor balcony and bay window and first floor storefront windows. Exterior doors are double leaf with the exception of one at the east wall leading to the stair hall. Windows are double hung, with the exception of the storefront windows. Doors and windows have stone sills. Generally, the window and door openings occur symetrically with respect to the interior spaces. On the exterior, no elevation is symetrical, nor is any similar to another. There is however, balance vertically and horizontally.

Mud dauber or wasp nests were noted in numerous locations, for example on the exterior south wall second floor, and in third floor rooms at the corner intersections of walls and ceilings.

Roofing:
A 1958 "Individual Building Report" and historic photos depict the historic roofing as slate. The roofing is presently wood shingle. One installation was by contract beginning in December 1963 and completed in June 1964 [40]. This may have been replaced again in 1988. The rough sawn board sheathing is still in place with plywood sheathing on top. Board widths vary and are spaced at about 1/4". Rafters are 2"x6" rough sawn and appear to be spaced at 24" on center.

Dormers:
Presently wood shingled, the dormers were historically finished with slate shingles on the roof and side walls. (See Appendix A, Fig.7).

Chimneys:
The northwest brick chimney was re-pointed in April and May 1988. The upper "two-

thirds" of the northeast chimney was removed in May 1988 [41]. Whether work was done on the other two chimneys was not indicated. The mortar work on the southeast chimney is failing. Drawings for the northeast chimney can be found at the National Capital Region, Operations, Maintenance Division. The bricks are in storage at the park. Asbestos-containing mastic was found around the flashing at the southeast chimney (See Appendix C, "Asbestos Survey"). The mastic is in non-friable condition. The condition should be monitored. If it becomes loose or when maintenance is done in the area Environmental Protection Agency safety standards for worker protection and material disposal should be carefully upheld.

Gutters and downspouts:
Half-round gutters and plain round leaders are recent replacements. Gutters were installed in November 1956 "on entire building and downspouts on one side." These were probably replaced under a contract executed between April 1979 and June 1980. These appear to be presently in fair condition, but their connections to the building and the downspouts need to be inspected. Debris may be clogging gutters and downspouts, contributing to the drainage problem. The gutter over the rear porch is missing and the gutter brackets are exfoliating. (See Appendix B, Fig.14).

Stucco and Stone Quoins:
The stucco is hard but analysis indicates the original material to be a lime stucco [42]. Much of the material is probably original and appears sound but there are numerous cracks and patches, with missing and damaged stucco especially on the east wall. (See Appendix B, Fig.15). The stucco is worn, as evidenced by its rough, grainy texture in places and because the historic scoring has vanished. (See Appendix A, Fig.7). Some patching was done from September to November 1979. Cracks are small with some exceptions, notably one major crack north of center on the west wall. This crack extends from about three feet above grade to the eave taking a route of least resistance through the second and third floor window openings.

On the west elevation the stone sill of the second floor window is broken. The stone sill of the second window opening from the south, on the second floor, is also broken. Stucco is missing at the southwest building corner at the juncture with the stone wall of Building 33A.

The stucco of the east wall has more texture and is darker in color than the other walls. Stucco around many of the openings in the east wall is deteriorated, damaged or missing. Most stucco around the two doorway openings is missing, revealing the stone wall construction. Portions have been poorly patched with high portland cement mortar. At the heads of the two second floor windows at the center of the building there is considerable loss of stucco and some stone. The northernmost of the two has been partially patched, but done poorly. Patches of stucco are missing at various locations on this wall, predominantly around windows. There is erosion at the base of the wall, with impact damage above that to about six or seven feet. At the second story level, the stone sill of the second sill from the southwest corner is broken, mirroring the broken sill on the opposite (west) wall.

In the alley, joists extend overhead from the third floor door on the smokehouse, which once supported a porch. (See Appendix B, Fig.16). On the east wall of Building 33,

about 1'-10" north of window 217 are two bolt ends, each with a nut exposed by the chipping-away of surrounding stucco. One bolt is two feet above the other, and a ghost mark around them implies a wood piece had been held against the stucco. The position of these findings corresponds to where a support for the smokehouse porch could have been.

Physical evidence substantiates that the Building 34-35 porch ended on the Building 34 southwest corner and did not wrap around to connect with the smokehouse porch. Historic photos seem to show that the Building 34A porch did not connect with the Building 33 porch. Several 1950's photos show a stair down into the backyard which did not exist in the 1890's. Though the porch did align with the window sill, there is little reason an outbuilding would let into a bedroom. The only configuration that seems to make sense is that a steep stair down into the alley gave access to the upper level of the smokehouse. There is no additional physical evidence to support this at this time.

The quoins are stuccoed like the rest of the walls. Two photos show that they are formed from the stucco with the shale wall behind. (NHF-326 & 3855, park library). At the northwest and northeast building corners are in good condition except for a vertical crack through the lower three "stones" on the west face of the northwest corner. (See Appendix B, Fig.17). On the north face of this same corner, the quoins upto about five feet above grade have been treated with a surface mortar wash, probably to stabilize the stone surface.

At the the southeast corner of the building, and on the south wall, second floor level, there is some cracking through quoins. There is a stucco crack around the west end of the stone sill of the second floor southeast window. Stucco is missing around the south doorway opening, third floor. The stucco is approximately two inches thick here. An open hole in the south wall, third floor, was made for an electrical box or conduit, but no equipment was installed.

Walls:
The west building wall is bowed outward in the central portion, with a differential of +/- 9" from the northernmost third story window sill to +/- 1'-0" above grade. The east building wall has a general inward curvature of +/- 4" in the location corresponding to the east wall. The cause of these deformations has not been determined, but may be a result of an inadequate roof structure bearing directly on the exterior walls [43]. Settlement may also be contributing. At the second floor level tie bolts are seen on the east and west walls at the north corners. It is assumed that the tie rod is continuous through the north wall.

The north front storefront windows and doors have stone sills forming a building base at the walkway level. (See Appendix B, Fig.18). The sill of the easterly storefront window is broken.

Balcony & Bay Window:
The framing of the second floor front balcony is not visible, being enclosed by the wooden soffit boarding. The decorative brackets, which appear to be of cast iron, may or may not be the sole structural supporting system. (See Appendix B, Fig.18). Rather than

undertake destructive investigation, the structural system and condition should be verified during construction as there do not appear to be significant problems.

The balcony is finished with wood flooring and trim and a cast and wrought iron railing, and appears to be in good condition. The flooring and soffit were replaced in November 1956. A bay window opens onto the balcony deck and is comprised of three glazed sashes, two over two double-hung, with a fixed two over two sash on top. (See Appendix B, Fig.20).

Rear Porch, South Side of Building:
The existing configuration of the porch and its internal stair is not original to the building, and at the earliest, dates to 1907, but probably later. (See Appendix B, Figs.21 & 22). These elements were reconstructed in 1987 and 1988. The soffit boards of the underside of the upper two decks were probably spaced to provide ventilation of the framing but it is unclear how it looked historically. The deck, porches and stair are in fair condition, but paint is peeling and the railing at the southeast corner of the ground level deck is broken. There is inadequate headroom (5'- 11") at the intermediate stair landing between the second and third floor south porches. Remains of earlier wall to deck flashing was noted on the south wall, second floor level, west of the doorway. The reconstructed exterior never existed in the interpretive period, that being the late 1800's.

Exterior Doors and Door Openings:
Detailed door data discussing hardware, clear dimensions and accessibility is found in Appendix C.

Most exterior first floor doors are historic wood double-leaf panel doors with upper panels glazed, and two-light transoms (doors 101, 102, 111, 114, 116). (See Appendix B, Figs.23 & 24). Doorways have stone sills and wood thresholds except that the first floor south and west entries have concrete thresholds, probably replacements for the wood thresholds. Door 111, at the east entry to room 108 is still in place, but the opening has been blocked off at the inside. (See Appendix B, Fig.25).

The east entry to the northeast stairway, a single-leaf glazed panel door is probably historic. One patterned glazing panel remains, but is probably not original. The second floor south entry door is not original. It is two panel wood, with an upper glazed panel. (See Appendix B, Fig.26). An aluminum storm door has been added. The third floor south entry door, a six panel door with the upper four panels glazed, was added later, probably in 1911 when the building was converted into apartments. All exterior doors are in fair condition but need repair and considerable restoration work. Hardware is a conglomeration from all time periods.

Windows:
It was previously surmised that the first floor storefront windows had at some time been removed for repair work then reinstalled with the interior side on the outside. Upon reinspection of historic photographs, it was discovered that they were in fact installed inside-out. For the rest of the building, the typical window is a double hung two-over-two wood sash unit. First and second floor windows have been repaired and refinished but are showing deterioration. (See Appendix B, Figs.27 & 28). Third floor windows are in poor condition. The attic dormer windows, double hung wood sash with an arched

top rail in the upper sash, are in poor condition. Some sash units are missing, having been replaced with louvres, or used in another opening. (See Appendix B, Fig.29).

INTERIOR

First Floor:
Very little interior historic fabric is visible except at window and door openings and in the stairwell. The original and subsequent historic features that may have remained were removed or modified during renovations between 1960 and 1986. Three cross walls of concrete block were constructed in the early 1960's for lateral stability and supposed flood protection. (NHF-1946, 1966(?), park library). All other presently existing partitions were installed between 1972 and 1986, except the stairwell enclosure, which is probably original except for the plaster. The brick pilasters on the historic stone walls are plastered with historic mortar containing horse hair.

The floor is a concrete slab. It is not clear whether there originally was a crawl space below the Building 33 storeroom. A dirt floor basement remains below the stair hall. The only vents along the building's perimeter are those adjacent to the stair hall. The first floor stair hall partition wall continues down to the floor of the basement.

The present ceiling is a suspended acoustical tile system with drop-in fluorescent lighting fixtures. The ceiling system over the hallway (room 104) is at a lower level, +/- 8'- 9", to provide space above for the heating and air-conditioning units installed in 1983 [44]. Walls are painted, typically gypsum board on stud framing or concrete block, some plastered, some not. The floor is a concrete slab, which replaced the original floor system. All of the floor areas are carpeted. Part of the electrical system installation is surface mounted.

The present uses of the first floor are:

room 101	dispatch office/visitor contact
room 102/103	stairwell/stair
room 104/105	hallway
room 106	consultation/first aid
room 107	emergency equipment (also closet 107A)
room 108	ranger conference
room 109	equipment
room 110	coffee room
room 112	restroom
room 111/113	vestibule
room 113A	janitorial closet

The joists of the second floor framing, believed to be historic, run north-south. The present system consists of steel beams and the concrete block walls. It is not clear if the historic pilasters at the ends of these CMU walls were intended for lateral stability or for bearing the east-west beams. The "Structural Survey" suggests the block walls were intended for lateral stability and not for bearing the wood beams. The structural engineering report indicates need for additional support for vertical loads of the center north-south (hallway partition) walls of the upper floors.

West exterior walls are plastered masonry, painted in rooms 101, 106 and 113, and also in room 109. The south building wall is also plastered masonry, painted. The concrete block wall forming the north wall of rooms 110, 112 and 113 is unplastered but painted.

Some building movement seems to be indicated by cracks at junctions of interior and exterior walls, such as at the southwest corner of room 106 where there is a vertical crack at the pilaster.

At the northwest corner of room 106 the paint on the block wall is peeling. Water stains at a similar location on the third floor are indicative of a roof leak, probably at the west chimney. The leak may or may not be active. In the east building wall in room 108 is a horizontal crack approximately two feet above the floor south of the exterior doorway to the southeast corner of the room. This does not show at the exterior. However, at the pilaster in the southeast corner of the room peeling paint and leaching salts are seen from the level of the crack down to the floor. Here and in other locations on the ground floor, rising damp and effluorescence are a significant threat to the fabric as previously discussed.

When the concrete block shear walls were constructed, a narrow closet was formed at the south end of the stairwell (room 107A); the closet south wall is concrete block. The north wall of this closet would appear to be the original stairwell wall. Plaster has been removed, but some of the lath still remains. However, the stairwell side of this wall is now gypsum board.

First Floor Doors:
The north elevation main entrance, door 101, is primarily historic in its wood frame, glazed double leaf doors, and glazed transom. (See Appendix B, Fig.18). Historic hardware includes hinges, a boxlock, and an exterior thumblatch with staple and catch below the boxlock. This may not be original as this type of latch was usually used for barns and outbuildings. The transom has a top latch like that at the top of the doors. Recent additional hardware includes a closer, two surface deadbolts, and a surface mounted magnetic contacts for an intrusion detector. The doorway is not accessible because of the historic marble stoop which is a six inch rise above the sidewalk; the wood threshold at the door is more than one-half inch in height; and the active leaf of the door has opening clearance of 31" and the clear opening of the doorway is 63".

The north entry to the stairway, door 102, is a historic double leaf door with some historic hardware including a bell. (See Appendix B, Fig. 30). This doorway is also not disabled-accessible because of the stone sill and the narrowness of the active leaf.

The east entry to the same stairway, door 103, is a single leaf door with two glazed upper lights, one having modern patterned glass. (See Appendix B, Fig.31). It is probably historic, but has been partially stripped of a paint finish. Its hinges are historic; the lockset is modern.

The historic exterior doorway, door 111, in the east wall to room 108 has been closed off from the interior side with plywood. The door in place is probably historic.

The south exterior entry, door 114, still has its historic double leaf wood door, which is similar to the west exterior door, including the hardware. (See Appendix B, Fig.23).

The south exterior entry, door 114, still has its historic double leaf wood door, which is similar to the west exterior door, including the hardware. (See Appendix B, Fig.23). The double opening is 47" clear; the active door leaf is 22" clear. The historic marble sill is flush with the rear porch deck but slopes up to meet a concrete threshold similar to that at the west entry.

The door opening providing access into Building 33A, door 115, has a modern wood door with a two-inch wide wood frame, and also an older 2" frame which may date to 1888. The rough stone opening is approximately 40 inches in width. The upper portion of the historic opening is covered with plywood, but historic boarding remains behind.

The exterior west doorway, door 116, has its historic double leaf door and transom. Both door and transom are glazed. (See Appendix B, Fig.24). The clear width of the double door opening is 59"; the clear opening of the active leaf is 29". The historic marble sill is 16" above present grade; a piece of stone is used for an intermediate step. A wide concrete threshold at the door, although rounded, is approximately two inches above the marble sill at its highest point. Hardware is a combination of historic and modern.

The interior doorways to rooms 106, 107, 108, 109, 110, 112, closet 113A, and the hallway door, are all modern steel frames and flush steel doors. The doorway to closet 107A has a flush wood hollow core door.

First Floor Windows:
The two historic north storefront windows are large four pane fixed wood sash. It was believed that these sash units had been removed for repair at some time but reversed when reinstalled. In fact, they were originally installed backwards or changed during the interpretive period as evidenced by photodocumentation Interior wood at the top and sides of the openings is probably not historic; the interior sills were replaced with tw0-inch wide material. Trim may also be replacement material.

The two windows at the southeast corner of the building, in room 110, one in the east wall, one in the south, are the historic four pane (two-over-two light) double hung sash. These windows have a deep interior splayed opening with historic trim. There are separations between the window frames and side panels, and heavy layers of paint are evident, but these windows and all others on the first floor are repairable.

A historic window opening in the south building wall, near the southwest corner of room 113, has been in-filled with plywood. It is not clear when this occurred.

Plumbing:
The fixtures in bathroom 112 are an NPS installation. A waste line from the second floor above the restroom extends across the north wall of rooms 112 and 113 to a riser and vent at the building west wall, in closet 113A.

Second Floor:
The interior was renovated in 1961 for use as employee quarters and later changed to office use. A set of 1957 Proposed Work drawings shows the configuration before this work, and confirms conclusion drawn based on physical evidence and historical precedent. (See Appendix D). The present uses are:

Rooms 201, 202, 204 and 206	Ranger offices
Room 207	First aid supplies
Room 21	Bath
Room 211	Kitchen

Ceilings and walls appear to be painted gypsum board. Stud furring was used at the exterior walls; it is quite possibly original. Cove mouldings date from the renovation, as does a 1" x 3" "picture rail." It is not clear as to whether this is an accurate reproduction or a modern additon. Base trim is typically 1"x8" with an ogee and bevel cap molding or a quarter round cap. Some of these may be reinstalled historic trim. Those interior walls which form the six primary rooms are probably historic, including the center north-south wall and the north and south walls of the stairwell. The stairwell side of these two walls are plastered and painted. There is some diagonal cracking in this plaster and some patchwork but the plaster is in fairly good condition. The wall between the stairwell and the vestibule [Rm 203A] and closet [203B] is recent with gypsum board finish. The diagonal wall across the northwest corner of room 206 may hide a historic chimney element or modern ducts or pipe. Some minor diagonal stress cracking in the plaster of the north and west walls of room 204 may indicate original fabric.

The modern stair hall flooring at the first floor appears to be unfinished southern yellow pine, installed running north-south, parallel to the floor joists in 1986. Flooring in the stair treads, risers and landings upto the second floor, however, is historic variable width tongue and groove hardwood, and in good condition.

The flooring elsewhere on the second floor, with the exception of vinyl in the restroom and kitchen, appears to be southern yellow pine tongue and groove boards in approximately two inch widths, with a natural finish or light stain and coated with varnish or eurethane.

Evidence of building movement is seen at the intersection of the west exterior wall and the south partition of room 202, in slight separation and cracks at the top. Paint failure at this same location indicates moisture intrusion, similar water staining seen at this location on the first and third floors. Slight separation of the interior partition from the west exterior wall is also seen at the upper corners of room 206. In room 204, similar separation of partition walls from the exterior walls is clear in the upper northeast and southeast corners and again in the northeast corner of room 207.

Displacement due to a lack of support beneath the north-south hallway partition walls, as discussed in the Structural Survey, is evidenced by a discernable downward slope of the room 201 floor towards the building center wall.

The closets along the south wall of room 201 are part of the modern renovation. The doorway to the smaller closet behind is the historic doorway to the stair hall. The back wall of this small closet has gypsum board on both sides. The base molding on the stairway side is recent. There is no base molding on the closet side.

The space between rooms 204 and 206 which is now occupied with closets was originally a hallway. The southerly closet (205) may have been built prior to the NPS renovations, judging from the enamel paint and its comparatively faded and soiled appearance. This closet now contains a water heater, electrical panel and also serves as a janitorial closet. The closet (room 208) and the bathroom (room 210) also have finishes that appear somewhat earlier than the NPS renovation. The kitchen (room 211) was part of the NPS renovation [45].

Existing plumbing is from the NPS renovation. As noted above, the closet (room 205) contains a water heater and electrical panel. Lighting fixtures in the second floor rooms are predominantly fluorescent.

Second Floor Doors:
Two sets of double leaf doors remain from the historic period. The upper panels were probably glazed but have been replaced with plywood or similar thin sheet wood. (See Appendix B, Fig.32). Of the other openings on the second floor, some have historic doors, some are historic but perhaps from other locations, some are modern doors, and yet several openings do not presently have doors in place. Many door hardware and opening trims are historic, but some are modern renovation material.

Second Floor Windows:
Historically the window openings had shutters for which the pintles are still in place. Some shutters are stored in the attic. All windows appear to be historic, have had some repair and renovation work, and generally are in fair condition. Some glazing panels are cracked. With the exception of the north front bay window, windows are two-over-two light, double hung. There is a deep, splayed reveal at the interior, finished with wood panels and trim. Most extant window trim is historic. Counterweight ropes are generally in place but some are broken. Various pieces of historic hardware are missing. Several windows have separations between the frame and the rough opening.

The bay window has two-over-two double hung sash in the lower sections, and a two panel fixed sash in the upper sections. The sashes need repair and refinishing; there are two cracked lights. The interior trim, except the valence, appears to be historic. Repair work was done on these windows in February and March 1986.(See Appendix B, Fig.33).

The northern-most window opening (window 213) in the east wall has been in-filled at the inside, the window still in place. (See Appendix B, Fig.34). Similarly, at the south wall of the building, near the southwest corner, a historic window opening has been in-filled at the inside with glazed brick. The window sash is still in place, but the lower glazing lights appear to be missing.

Aluminum storm sashes were installed by contract in September 1958 on the interior side of the windows, including the bay window. Many of these units are missing or in poor condition.

Third Floor:
A project was undertaken in 1986 to renovate the third floor of the building as well as the northeast stairwell, but the work was not completed. New electrical distribution for lighting and convenience outlets was installed, plumbing modifications or improvements

were started and ceilings and many walls were replastered. The electrical work and plastering was completed but plumbing and trim work is incomplete and no painting or finish work done.

Perhaps fifty percent of the wall and ceiling areas were replastered, and done very well. (See Appendix B, Fig.35). Wall replastering with metal lath, was done predominantly on interior partitions. Most of the original or historic plaster on the exterior walls remains. Most historic finishes are gone, except on exterior walls and trim, which are painted. Both the historic and replacement plaster work are in good condition although shrinkage cracking occurred predominantly a few inches from the top of walls between old and new plaster. There is a horizontal crack between the two north window openings in room 302, at sill level. Base trim is typically 7/8" x 6 1/2" with a cove cap and quarter round base; some is in place, some missing, some added or moved.

The tongue and groove flooring is undoubtedly original. It is a softwood species with varying board widths and remnants of a red-brown paint or stain finish. Gaps occur where some was removed for electrical work but not reinstalled or replaced.

Stove flue pipe openings in walls to chimney flues have been in-filled with plaster. This occurs in all four of the corner rooms, corresponding to chimney locations: room 301, east wall; room 302, west wall; room 307, a possible chimney and stove flue opening plastered over, northwest; room 308, east wall; and room 313, south wall.

Evidence of water damage is seen in various locations: room 301, above the east window with leaking at either the chimney or window opening head; in room 302 at the southwest corner, ceiling and wall with leaking at the chimney; at the room 313 ceiling and east wall one to four feet from the south wall; and in bathroom 312, at the south wall, with leakage of watercloset plumbing stubs.

The north-south center hallway width is 41-1/2" to 42". The hallway surfaces were replastered. The partition between the stairway and third floor stair vestibule is a modern addition, and has hardboard on the stair side rather than gypsum board. The south wall of bathroom 310 is an original wall with full 2"x4" studs at 16" on center and a recently added wall on the north side. The bathroom renovation is also incomplete. Because the casing and trim of the doorway opening between rooms 307 and hall 311 are recent material, this indicates the opening was modified.

There is some gypsum board in the north closet (room 301A) where the original door was moved from room 302 to room 304. Noting the curved wall corner between closets 305A and 308A, the north wall and door framing of closet 305A is a later addition. A stovepipe hole is in the exterior (east) wall of closet 305A.

Third Floor Doors:
Many of the third floor door openings, doors and trim are historic although some doors are not in place. Because the previously mentioned renovation project was not completed, some doors were left in random rooms and closets. Some historic trim has been replaced. Doors 312 and 319 are not historic, but the remainder are. (See Appendix B, Figs.36 & 38). There is a rensom sampling of door hardware pieces dating from the original construction to the present. Current door 319 was originally a window. (See Appendix B, Fig.38).

Third Floor Windows:
The general configuration of the third floor windows is similar to those of the second floor, but shorter. Also there is an offset between the sash and the wood trimmed splay. The condition of the third floor windows is poorer than that of the second floor. Gaps around sash units allow considerable air flow and passage of insects, and in many rooms at wall and ceiling corners are wasp nests. Historic trim and shutter pintles remain. These windows also had been fitted with interior aluminum storm sashes in 1958. (See Appendix B, Fig.39). An original window opening in the south wall, room 313, near the southwest corner, has been closed in.

Mechanical Systems:
The heat pumps for the first and second floor heating and air conditioning system are located on third floor south porch. The air handling unit is in the first floor ceiling plenum, suspended from the second floor joists.
(See Appendix B, Fig.40).

Electrical:
Electrical service is underground, entering the building group near the northeast corner of Building 33A, from across the rear yards from the southeast. The electrical panels are located on the rear second floor porch, on the north wall of the lift shaft, covering the opening to the lift shaft. (See Appendix B, Fig.41).

On the third floor, the rear porch ceiling houses an uncovered fixture box with unprotected wire installed by the National Park Service.

Fourth Floor (Attic):
The attic probably presents the most original appearance of any spaces in Building 33, but is in poor condition. The ceiling and wall plaster, on sawn lath with, no apparent finish, is believed to be the original as evidenced by the cracking pattern expected of old plaster, and the horse hair binder. Plaster is missing in localized areas having lost its keying and fallen. (See Appendix B, Fig.42). Most is probably not stable, having suffered from roof leakage and vibration from roof work. Some has been cut out for electrical or plumbing installations, or for roof framing access.

A flocked floral patterned wallpaper remains on the south wall and ceiling of the stairwell, both sides of the stairwell dormer and on the exterior wall above the stair landing.

In the east dormer there is separation at the junction of the south wall with the exterior wall.

The historic flooring is variable width tongue and groove in a softwood with much of the original red-brown paint or stain finish intact. Some was taken up for electrical installation access, but not reinstalled and is probably not reusable. Base trim is similar to those of the third floor but without a cap molding.

The existing two of four original doors were four panel except for the door at the top of the stair, which is a single thickness of vertical beaded tongue and groove siding. Two doors are not in place but the historic trims survive.

Dormer windows were two-over-two double hung with an arched top rail of the upper sash unit. Remaining sash units are in poor condition. The top sash has been removed in the north and south dormers are replaced with louvres. One of these upper sash units is now in the lower portion of the west dormer opening. An abandoned bathroom vent pipe channelled through the second floor ceiling to the attic has been route out the room 404 dormer. (See Appendix B, Fig.43).

The structural connection between the fourth floor joists and ceiling rafters should be investigated closely to expand on the analysis done in the "Structural Survey".

BUILDING 33A

EXTERIOR

General Description:
Building 33A was built in 1888 to house a bottling plant. The east, south and west first story exterior walls are bare stone. The parged stone south wall of Building 33 serves as the north wall of Building 33A at the first floor. The second and third story main portion is wood framed with a gable roof and horizontal wood siding. The second and third story wood framed porch connecting with Building 33 has a shed roof.

Buildings 32 and 33A are connected at the second story level by the in-fill of two stone walls flush with the existing east and west elevations. The gabled roof and second floor framing is timber. Below is an open breezeway between the backyards and Market Street. (See Appendix B, Fig.44).

Doors and windows vary in size, shape and configuration. Although considerably modified over time, a double doorway on the west side was similar in style to those of Building 33. Windows in the east and west walls of the frame portion of the building are four pane with a pedimented hood added this century. Near the northeast corner is a wood frame cupola with horizontal wood siding which is the upper part of the lift shaft. (See Appendix B, Fig. 45). This cupola was not in place until after 1900.

Roof:
According to documentation, the original roofing was slate. The roof system was rebuilt or replaced under a contract which started in December 1963 and was completed in June 1964. Rafters are replacements, the one-inch width board sheathing probably reused, and a plywood deck was installed on top of the board sheathing. Roofing is now wood shingle. (See Appendix B, Fig.45). Most roof surfaces of Buildings 33A and 32 do not appear to be flat planes. This is probably the result of the rebuilt roofs having been constructed to conform with the levels of their bearing on the top of the walls.

Walls:
The stone and wood frame walls of this building appear to be more plumb than those of Building 33, which is surprising considering the lack of a north wall at the first floor, and the idiosyncrasies of the second and third level wood framing systems. One of the side walls was reported in August 1976 to be "in danger of collapsing requiring emergency stabilization including steel channels and wood bracing." Some wood frame wall and window repair work was done in April 1988 [46].

The west stone wall is eroded, missing mortar and needs repointing. Below the window opening is a vertical crack through the stone mortar indicating wall distress in this area. Since the crack followed mortar joints around stones, this indicates well formulated mortar, of lower strength than the stones. An open gap exists up to 3 inches at the north end of the wall where it abuts Building 33. This gap was convenient for modern conduit routing but also has accumulated debris and vegetation. Two tie-rod anchors are located near the top north end of the wall. About one cubic foot of stone is missing at the lower south-side corner of the door opening. Most of the mortar is missing between the stone and the door frame, with gaps up to two inches.

The stonework of the south wall, below the second floor connection with Building 32, is in fairly good condition. Lower portions have been repointed with mortar that is too hard and has aggregate that is too small. Stone and mortar is missing at the easterly opening and at the lower east wall corner just above grade.

Stonework on the east wall, at the first floor level, is in fair condition and appears to be sound and plumb, although mortar is eroded and missing. Some vegetation is returning to this wall. A projecting bar near the southeast building corner may be related to the historic boiler located outside the building. (See Appendix A, Fig.11a). Joist pockets at the top of this wall, now filled-in with stone, remain from the attached shed structure, and the porch cantilevered immediately above the shed shown on the 1902 Sanborn Fire Insurance Map and in historic photos from 1896. The stone window sill is broken. A first floor center door opening is missing its door assembly entirely, the opening closed with plywood, but this temporary closure is not secure.

Paint is peeling from the post-McGraw siding of the upper two levels, both west and east walls. The siding near the north end of the east frame wall is warped. There is also warped siding in the south wall of the twentieth-century cupola. The third floor south wall is vertical board and batten siding above the roof level of the second story level breezeway connection to Building 32. (See Appendix B, Fig.46). The paint is peeling here especially. The siding at the lower portion of this wall may be deteriorated because of rainwater splash from the roof. All of the German lap siding is a twentieth-century replacement. The historic finish was vertical board and batten siding. Paint is peeling from the window in the east wall, first level, but the window is in fairly good condition.

Flashing has been added at the modern window and door hoods, covering the first siding course above the window and slipped under the next siding course above. (See Appendix B, Fig.47). The two windows in the east second floor wall are in fair condition. A center opening (between the windows) is closed with plywood.

Breezeway (Second Floor Connection to Building 32):
The east and west walls of the second floor level connection to Building 32 are stone, supported by three timbers on the west, two timbers and a steel beam on the east. The floor framing consists of heavy wood joists. Because of the deteriorated, broken and missing flooring, pigeons enter the building here, even though chicken wire mesh and a discarded door were laid over a large area of missing flooring. (See Appendix B, Figs.48 & 49).

Just as the second floor level in the main portion of Building 33A changed, so did the breezeway. Originally its level matched that of Building 32 and fell approximately 1'-10" below the Building 33A level. The breezeway floor matches that of Building 32 today as well, about eight inches above the historic Building 33A level and 2'-6" above its own original level.

Exterior Doors and Door Openings:
At the west doorway, with a non-historic door, a loose stone, partly broken off at a rear corner, was placed to provide an additional step of approximately 7 1/2". The stone doorway sill fixed in the wall is approximately an additional 11 1/2" above grade. (See Appendix B, Fig.50). This sill has a four inch wide by about one inch deep channel cut at the center. A concrete threshold at the door is approximately 1 1/2" high. The door

may have been double leaf; it is now a single leaf door with a side panel separated with a post. The door is two panel, the upper glazed with two lights, one wood panel below. The side panel is two light glazed over one wood panel below. The modified transom with a wood panel and grill indicates the modifications made for a since-removed 1955 telephone booth, which is seen in photographs in park files. The opening width to the historic wood jambs is 56 3/4", the present single door opening is 28 3/4".

At the east center doorway, all of the door assembly is missing. The rough opening is covered by plywood. (See Appendix B, Fig.3).

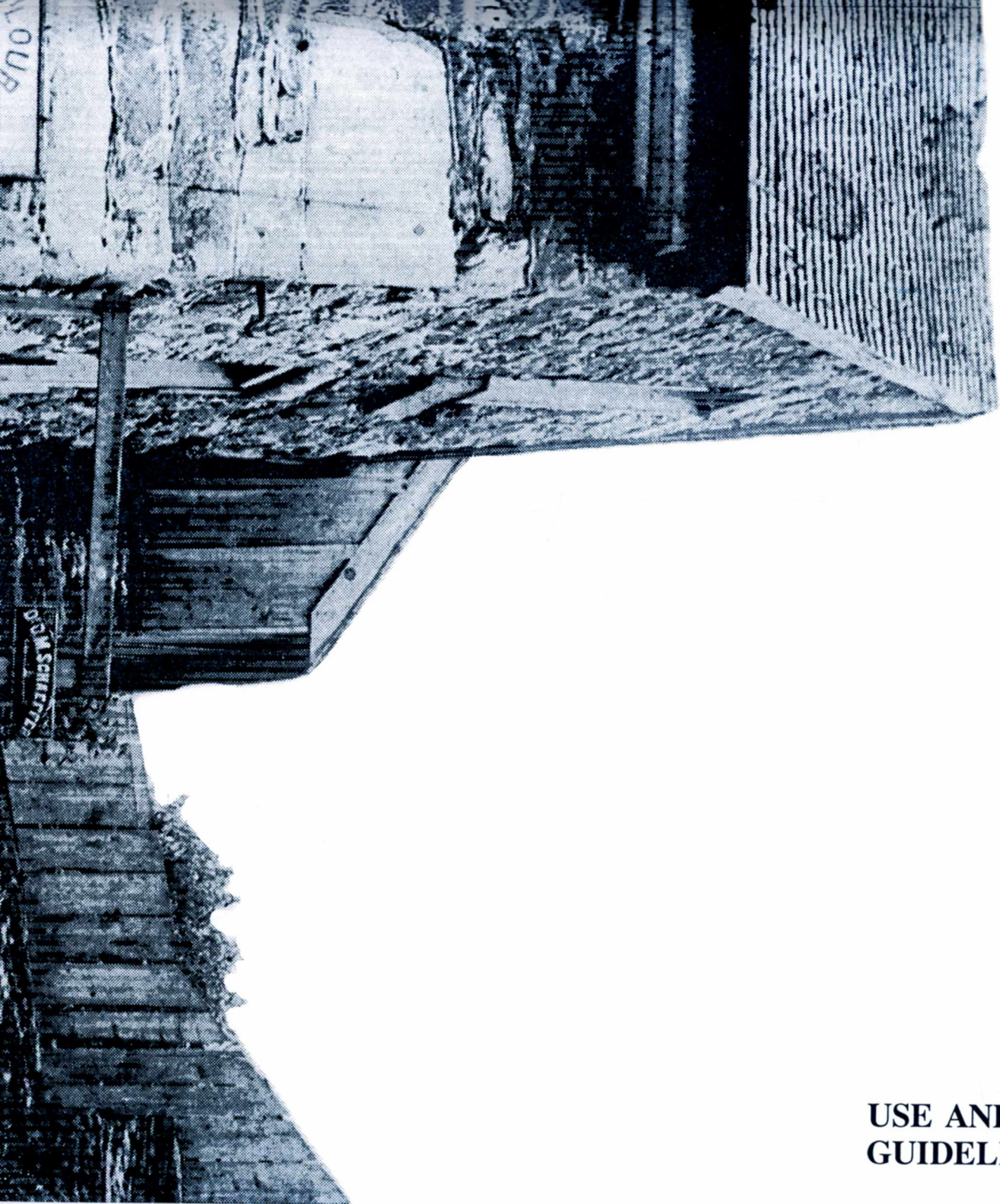
INTERIOR

Access to the stone basement is through a replacement cellar door which opens onto the backyards near the southeast corner of Building 33A. (See Appendix B, Figs.51 & 52). The interior sides of the first floor stone walls are unfinished, except for remains of plaster, mostly on the west and south walls. The north wall is the original outside face of Building 33, which was stuccoed. This stucco however is in poor condition. The floor is a concrete and stone slab supported on steel beams visible in the basement below. (See Appendix B, Fig.55). The concrete slab is cracked and spalling. The steel beams are rusted [45]. (See Appendix B, Fig.56). There is an opening in the slab floor at the east wall approximately 6'-5" x 4' - 10", and on the southeast corner, measuring 3'- 5" square.

Wall framing is exposed in the second and third floor interiors, with log posts and dressed saw-cut lumber. There is no uniform layout or spacing of framing members and there are connection and anchoring deficiencies. Beneath the German lap siding is what appears to be original wall sheathing or perhaps exterior siding in variable width rough sawn vertical boards. The interior is unfinished. Flooring is tongue and groove with a subfloor of 1" x 8" rough sawn boards (See Appendix B, Figs.57-60). There is no subfloor on the third floor level.

The elevation of the second floor was raised above the top of the stone walls at some inconclusive time; the original floor level can be seen by the remaining joist ends left in their pockets at the top of the stone walls approximately eighteen inches below the current floor.

Historic Lift:
The clear dimensions of the historic lift shaft are approximately 4'-3" by 8'-0", with log timbers and other framing members projecting into the space randomly. The historic lift platform rests at the third floor level on timbers placed across the opening. (See Appendix B, Fig.61). The platform, its lifting frame and some pieces of the lifting mechanism are still in place. (See Appendix B, Fig.62). The shaft is enclosed only with horizontal tongue and groove boarding. There is no enclosure at the first floor level.(See Appendix B, Fig.63).



USE AND TREATMENT ALTERNATIVES, GUIDELINES AND RECOMMENDATIONS

USE AND TREATMENT ALTERNATIVES

Three alternatives for use and treatment have been considered:

A. Exterior restoration to the 1953 period (when the park acquired the property) with interior rehabilitation for modern use and preservation of historic features.

B. Exterior restoration to the 1890's period with interior rehabilitation for modern use and preservation of historic features.

C. No action.

ALTERNATIVE A:

Alternative A provides for the rehabilitation of the first floor of Building 33 for exhibit space, as planned by Harpers Ferry NHP staff and Harpers Ferry Center. Extensive National Park Service alterations since 1953 have left virtually no historic interior fabric to preserve and no conclusive evidence to support historic restoration or reconstruction. According to 36 CFR Part 800.3(b) this treatment would have no adverse effect as "the proposed work would not result in the destruction of significant features of the property."

Changes to the interiors of the second, third and fourth floors in Building 33 and the first floor of Building 33A made by the National Park Service since 1953 can be reversed with limited damage to the historic fabric. The configuration was not significantly changed between 1901 and 1953. Rehabilitation of those spaces for offices, storage and visitor protection will not significantly differ from the historic configuration, only to allow for handicapped accessibility per the Uniform Federal Accessibility Standards (UFAS) requirements.

Exterior restoration to the 1953 period would include restoring the buildings to their appearance at the time of National Park Service aquisition, accepting the evolution of the buildings and limiting the alteration or destruction of fabric surviving through that period. This conflicts with the nineteenth century historic restoration period defined by the "Interpretive Prospectus" and the "Development Concept Plan". Accordingly, the fabric dating from 1901 to 1953 has no historical significance. Furthermore, of the features added or altered since 1900, the majority have been reconstructed with new material during NPS ownership.

ALTERNATIVE B:

As for the previous Alternative A, rehabilitation of the first floor of Building 33 complies with historic preservation guidelines and legislation. Similarly, rehabilitation in the upper floors and in Buildings 32 and 33A could be achieved while retaining much of the historic fabric, and adaptive reuse implemented with little diversion from their historic configurations.

Alternative B, restoration to the 1890's decade is in concurrence with the "Interpretive Prospectus" and the "Development Concept Plan", and can be readily accomplished with available documentation.

In order to restore the exterior of the buildings to the 1890's period, elements altered or added since 1900 would be returned to their previous appearance or be removed,

respectively. The majority of these changes would necessitate the replacement of existing post-1900 fabric with new material to replicate the historic configuration.

Since these portions of historic fabric and configuration have already been altered and the replacement material, according to the "Interpretive Prospectus" and the "Development Concept Plan", having earned no significance of its own there is essentially no loss of valuable material involved.

Because Alternative B is in concurrence with established planning documents, preservation guidelines and legislation, and with the treatment recommended for package 116 Buildings 34-35 and 34A, it is the recommended treatment alternative for these buildings.

ALTERNATIVE C:

Alternative C, taking no action, would allow current deterioration to continue and would not reverse historically inaccurate alterations and maintenance efforts made during National Park Service ownership.

To allow further loss of historic fabric and the potential for life-threatening structural conditions is in direct conflict with National Park Service Management Policies [48]. The criteria of effect 36 CFR Part 800.3(a) establishes that taking no action would have an effect on the structures. The corresponding criteria of adverse effect 36 CFR Part 800.3(b) disallows "neglect of a property resulting in its deterioration or destruction."

Since National Park Service aquisition in 1953, historically unfounded alterations have been made and modern materials and techniques have been used in maintenance. These should not remain as they violate the "Interpretive Prospectus" and the "Development Concept Plan" which call for restoration through the nineteenth century. A plan of no action would preclude their removal.

GUIDELINES FOR TREATMENT

Alternative B, the recommended treatment for Package 116, Buildings 32, 33, and 33A, encompasses six types of work detailed in the "Proposed Work" section.

Each of these types of work comes with its own intent and requirements. Varying degrees of historic, architectural and fabric integrity appear throughout the structures. This recommended treatment is a conscientious effort to preserve historic fabric wherever possible, to reverse inappropriate NPS alterations, and to provide for public cultural interpretation and park staff use. The general principles of this treatment follow, with specific objectives discussed in the "Proposed Work" section.

Several principles should be adhered to in the design and execution of the work required for the treatment of these buildings:

1. "Historic" refers to periods, fabric, or configurations which date to 1897 or before.

2. Where spaces are to be rehabilitated for an adaptive use, introducing disabled accessibility, upgraded plumbing, mechanical and electrical service, and life safety code compliance, an alternative shall be selected which makes the least impact on the smallest amount of historic fabric.

3. Historic fabric which retains its integrity shall be preserved with minimal intervention. Historic fabric in poor condition shall be repaired, if possible, using a minimum of new material.

4. Conversely, historic fabric which has lost its integrity and cannot be repaired, and will only cause future distrubance shall not be retained. ([For example, the ceiling plaster in the attic has lost its keying).

5. Historic fabric shall be reconstructed if sufficient physical or documentary evidence is available to reproduce the feature without doubt about its accuracy. Conjecture is not justification for reconstruction.

6. Where the destruction of historic fabric cannot be avoided, the design and execution of the work shall direct the destruction to the area of least fabric integrity or of least historical or architectural significance. (For example, structural reinforcement required in the framing of the fourth floor shall be accomplished through the water damaged third floor plaster ceiling, rather than by destroying original attic flooring. Similarily, to disturb a portion of plastered wall is preferable to disturbing a historic architrave).

7. Any alteration of historic fabric, in any degree, shall be documented.

8. No alteration shall be made in such a manner that it could not be reversed in the future without destroying historic fabric.

9. Historic spatial configurations and doorways shall be restored where evidence

is conclusive. They shall be altered only to allow for handicapped accessibility and to provide improved life safety protections.

10. Historic windows, millwork and hardware shall be preserved.

SUMMARY OF RECOMMENDED TREATMENT

The recommended treatment, Alternative B, would restore the exteriors of Buildings 32, 33, and 33A, to their appearance in 1897, when the McGraws declared bankruptcy and were forced to sell their goods and land in a public sale. Good photo-documentation is available for this era. This would require the removal of post-1899 fabric and the repair, re-installation or restoration of historic fabric since removed, such as shutters, the gallery over the bay window, and the northeast chimney. The roofs on all buildings will be restored to slate, and will require structural investigation.

Sitework would mitigate water damage and provide accessibility for the physically disabled public into the exhibit space and visitor protection facilities, and disabled staff into park offices.

The front three-quarters of the first floor would be rehabilitated to serve as an exhibit space in which the evolution of the town of Harpers Ferry will be depicted. The exhibit will be designed by the Harpers Ferry Center, and structural, mechanical, and electrical considerations will be designed by the Denver Service Center. It will be fully accessible via a ramp between Buildings 33 and 34-35, from Shenandoah Street to door 111 on the east elevation, and around to the rear. The historic streetscape should be respected so that any view from the street into the exhibit space would not detract from, or conflict with, the interpretation of the historic scene. The historic fabric remaining (exterior walls, their pilasters, stair hall walls, doors and windows, and ceiling framing) should be restored.

The stair hall should be restored and a mechanical/electrical control room created under the stair, accessible from the exhibit room.

The rear of Building 33 will be rehabilitated to serve as visitor protection facilities for ranger staff, including a visitor contact point, dispatch, a fully-accessible restroom, a first aid room, and will be fully accessible, probably through door 114, from the ramp. This area will open onto the elevator and stair up to the second floor, and onto a hall leading back to the consultation room in the rear of Building 33A. The finished walls in Building 33 should be wall-within-a-wall construction, so as not to damage the bare historic stone. The upper floors of Building 33A will be given over to mechanical and elevator equipment. Structural reinforcement will be required in all the floors in Building 33A.

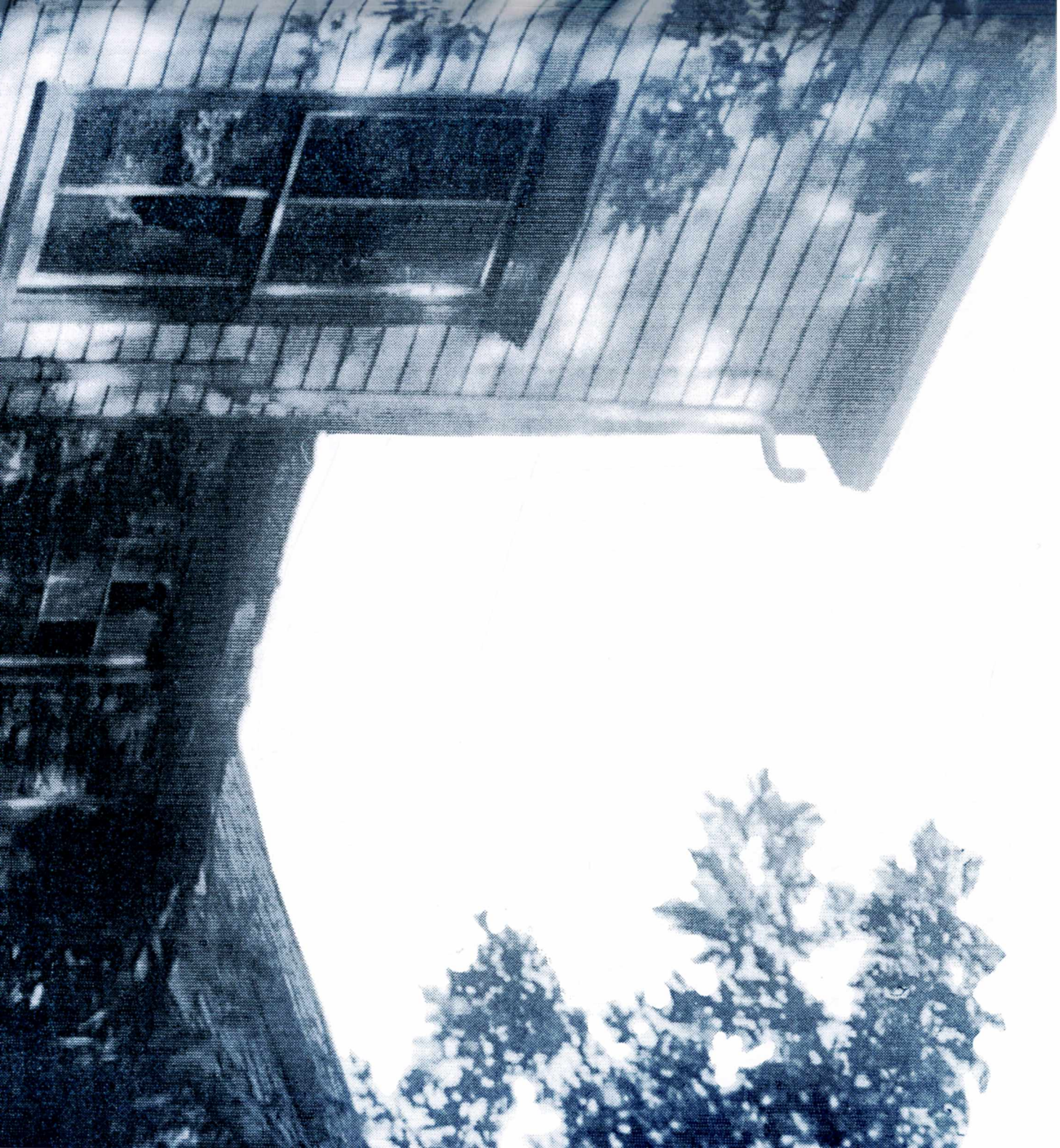
The upper floors of Building 33 will be rehabilitated to create office space and storage. The spatial arrangements will be returned to their historic configuration. Doors and millwork will be preserved or restored, and wall and floor finishes will be repaired as needed. The second floor will be handicapped-accessible by the elevator.

Building 32 will be made readily accessible to rangers through a rear door to allow for the storage of fire cache materials on the ground floor. The second floor will be converted to a mechanical equipment room. The walls and floor will need structural reinforcement.

A new climate control system should be designed to impact historic fabric as little as possible. This might be achieved by using exposed ductwork where necessary rather than

to alter historic fabric and configuration to conceal equipment. Plenty of space will be available in Buildings 32 and 33A without making a negative impact.

The new mechanical, electrical, plumbing and fire protection systems will be designed for the complex after detailed assessment of use and code requirements.



PROPOSED WORK

SUMMARY OF PROPOSED WORK BY BUILDING

BUILDING 33 EXTERIOR

Repair wall cracks.

Repair wall stone and stucco.

Repair or replace broken stone window and door sills.

Restore and weatherstrip windows and their hardware; remove aluminum storm sash.

Restore all exterior doors and their hardware to historic form; weatherstrip.

Restore and modify exterior doors selected to provide egress and accessibility, add automatic operating system.

BUILDING 33 INTERIOR

Remove modern first floor interior walls, suspended acoustical ceiling, doors and finishes to reconfigure space for new use pattern.

Install new interior first floor framing system for both lateral loading and support of upper floor loading.

Use waterproof or water-resistant interior finishes at first floor to the extent possible.

Refinish first floor interior for adaptive uses in a scheme visually supportive of the historic scene.

Restore all interior doors and their hardware to historic form and finish.

Remove selected post-historic wall construction and related items.

As required to implement the selected plan, widen door openings for accessibility; replace doors and trim.

Repair and restore or stabilize all interior ceilings and walls to be retained.

Increase fire rating of interior walls, ceilings and floors to the extent required. Provide new fire door separations as required by code.

Repair and restore or stabilize all flooring to be retained.

Repair and restore stairwell and stair.

Design structural reinforcement per "Structural Survey" and further investigation in design phase.

BUILDING 33A EXTERIOR

Repair and repoint stonework.

Repair or replace and refinish siding, flashings and trims.

Repair and restore windows and their hardware.

Repair and restore or replace doors and their hardware, modified as required for egress and accessibility.

Replace exterior third floor deck to meet load requirements.

BUILDING 33A INTERIOR

Strengthen roof framing for stability.

Improve support and connections of wall and floor framing systems.

Replace first floor slab support system using waterproof or water-resistant materials.

Develop design for adaptive uses within a structural/architectural system which will have minimal effect on historic fabric.

Repair or replace flooring, second and third floors.

Record historic lift system; then remove and place in building artifact collection.

Install new elevator system. Enlarge cupola above elevator shaft.

Construct new fire rated elevator vestibule/fire stair tower within connecting space between Buildings 33 and 33A; replace floor systems to meet load requirements; reconfigure stair serving second and third floors.

Design Structural reinforcement per "Structural Survey" and further investigation in design phase.

BUILDING 32 EXTERIOR

Strengthen roof framing system (horizontal thrust and anchoring).

Stabilize and repair second floor stone walls and replace bracing system.

Repair and repoint stonework as required.

BUILDING 32 INTERIOR

Repair first floor slab.

If second floor is selected for use as mechanical equipment room, determine requirements for loading (possible framing modification to increase load capacity) and fire rated system as required.

Replace flooring, second floor.

If second floor is selected for use as mechanical equipment room, walls should be insulated and fire-rated.

Design structural Structural reinforcement per "Structural Survey" and further investigation in design phase.

OUTLINE OF PROPOSED WORK TYPES

Alternative B, the recommended treatment for Package 116, Buildings 32, 33A, and 33, encompasses six types of work:

1. Sitework to mitigate water damage to the buildings and to provide accessibility for physically disabled visitors to the exhibit and visitor protection facilities and staff to park offices.

2. Exterior restoration of all three buildings to the 1890's period.

3. Rehabilitation of the front portion of the first floor in Building 33 for exhibit space.

4. Rehabilitation of: the upper floors of Building 33, for office use by park staff and storage; Buildings 33A and 32 for visitor protection facilities, storage and environmental controls; and preservation of historic architectural millwork, finishes and hardware which will remain.

5. Structural reinforcement per the "Structural Survey" conducted by James Madison Cutts, Consulting Structural Engineers and investigation conducted in the design development phase.

(The recommendations are outlined in the proposed rehabilitation work. For greater detail, the full report should be consulted in Appendix C).

6. Mechanical, electrical, plumbing, fire supression and intrusion systems design following use and code requirements.

PROPOSED SITEWORK

The Building 33 structure is vulnerable to water damage from suspected poor roof and site drainage as well as rising damp causing effluorescence on the interior walls. These issues must be carefully examined and mitigated in the design phase to prevent loss of historic fabric as well as work done in the restoration.

A brick ramp should be constructed in the alley between Buildings 33 and 34 to provide access for the disabled from Shenandoah Street into the exhibit space and visitor protection facilities. This location makes the least visual impact on the historic scene and provides a functional circulation path not only to the buildings, but to the backyards. The existing reconstruction of a historic gate in the alley should be removed from this fully-accessible route. (See Appendix C, Oehrlein Associates, "Accessibility Study")

PROPOSED EXTERIOR RESTORATION

BUILDING 33

Much of the historic exterior fabric and character of Buildings 32, 33 and 33A remains and should be carefully restored according to the historical documentation.

Windows:
Some of the shutters original to the building are in storage at the park and will require repair or replacement and painting before re-installation. Windows should be repaired wherever necessary and replaced only when they cannot be repaired. Window frames and sashes are generally in fair condition, but many lights will require replacement with restoration glass. Filled-in windows should be opened and restored except for window 101 on the south wall of Building 33. The historically reversed storefront windows should remain right-side-out.

The third story gallery above the north elevation's balcony window should be restored with the pieces stored in the attic. Original hardware should be restored or refabricated as necessary.

Doors:
Historic doors should be repaired as necessary, and non-historic doors should be replaced by doors compatible with the restoration period and typical to this building. For doors 111 and 114, which will be fully accessible, the swing should be reversed, automatic door opening devices must be provided, and door 111 must be uncovered and restored. Non-historic door 214 must be widened to accomodate for wheelchair accessibility. Historic hardware should be restored or refabricated as necessary.

Walls:
Exposed stone should be repointed as needed and reparged. Exterior wall parging should remain wherever it is in stable condition as the "Mortar, Plaster and Stucco Analysis" determined it to date to before 1900. The study outlines appropriate mortar mixes to be used to replace damaged areas. Water damage should be abated before these repairs are done. New stucco should be scored, as it was historically, to imitate ashlar stone. All paint finishes should be selected according to the "Paint Analysis" [49].

The Building 34A porch from the third floor level, which ran along the east wall of Building 33 under window 215 should be interpreted. Not enough is known to merit reconstruction of the presumed stair down into the alley at this time, but physical evidence substantiates the porch's existence and probable attachment to Building 33. An interpretive device such as a shadow or ghostline on Building 33 would be appropriate to indicate that the porch did exist adjacent to the building.

Doors:
The existing three-story porch at the rear of Building 33 dates to between 1907 and the 1930's and the rear exterior stair is a park construction with no historic precedent. The porch should be reduced to its two-story height and the third story exterior door made a window, as it was in the 1890's, with no access onto the porch gallery. The internal porch stair should be reconfigured to connect the second floor to the first, and the

exterior rear stair removed. The framed west wall of the porch should be replaced with the picketed porch rail documented in historic photographs (See Appendix A, Figs. 9 & 10).

Roof:
All failing gutters, downspouts and their connections should be replaced with material to match the historic features. The roof should be shingled with slate, as should the roofs and side walls of the dormers, to replace the existing NPS-installed wood shingles. All chimneys should be repointed as necessary, after the careful removal of vegetation. The capped northeast chimney should be restored to match the others with its original brick now in storage at the park.

BUILDING 33A

The twentieth-century cupola should be removed, the slate gabled roof restored, and vertical siding put in place of the post-1900 horizontal siding. Windows and doors should be returned to their original appearance and the modern NPS framing for an interpretive television screen removed from window 121. The stone wall should be repointed, vegetation should be removed. A moisture barrier system should be put in the gap between Buildings 33 and 33A. Mortar used for repointing should match following the recommendation in the "Mortar, Stucco and Plaster Analysis". The two wood beams set in the west wall with steel rings should be stablized and preserved.

BUILDING 32

Structural reinforcement, as detailed in the Structural Analysis, is required in Building 32, after which modern tie rods should be removed. The telephone should be removed as should all other NPS alterations. Historic windows and doors should be repaired and non-historic ones replaced with appropriate reconstructions. The second-story windows on the west side of the Building 33A breezeway and Building 32 should be carefully restored. It is possible that the original windows were saved when the Building 35 kitchen built in 1827 was destroyed, and reused in this building. The existing windows are replacements in either part or sum. Stone walls should be repointed and any missing stones replaced.

PROPOSED REHABILITATION FOR BUILDING 33 EXHIBIT

The front three-fourths of Building 33 will house an exhibit on the evolution of Harpers Ferry. Planning and design for the exhibit are being undertaken by the Harpers Ferry Center. While the historic character has been destroyed and a substantial amount of modern fabric was introduced by the National Park Service, care must be taken in demolition and new construction to protect the small amount of historic fabric that remains.

A small mechanical room and exhibit controls closet is proposed for under the stair. It should not alter the historic south and west bearing walls enclosing the stair hall more than to provide one opening for access to the closet from the exhibit space.

The concrete masonry unit walls running east to west must be removed for the exhibit space. The pilasters to which these partitions are perpendicularly connected are historic, as evidenced by the mortar found encasing them. The existing modern material must be removed without damaging the parged pilasters. Any new construction covering the pilasters should be reversible, without damage to them. The suspended acoustical tile ceiling should be removed.

A new, fire-rated block partition wall will be built approximately two feet north of the southmost block wall (to be demolished) to divide the exhibit space from the visitor protection spaces beyond.

The storefront windows be left backwards as they were originally installed, with the glazing compound and chamfered mullions on the exterior. The sashes may not require repair and should not be altered.

Door 111 should be re-opened, made operable and repaired as needed. An automatic door opener should be installed to make the exhibit space disabled-accessible from the east elevation of Building 33 off of Shenandoah Street.

PROPOSED REHABILITATION OF BUILDINGS 32, 33 &33A FOR OFFICES, VISITOR PROTECTION AND ENVIRONMENTAL CONTROLS

BUILDING 33, FIRST FLOOR

As with the first floor exhibit space, there is little historic fabric to be preserved in the rear portion of Building 33, set aside for visitor protection activities. A visitor contact space, with limited Market Street access, dispatch area, disabled-accessible restroom, and first-aid area, are proposed and would be fully accessible by the exterior ramp between Buildings 33 and 34 through the historic rear door 119 of Building 33. The rear door 115, opening into Building 33A will give full access to the elevator.

In the removal of the existing concrete masonry unit wall and the construction of a new wall two feet further north, the historic pilasters should be carefully protected. New construction around the pilasters should be undertaken in such a way that removal in the future would not destroy the pilasters.

The filled-in south wall window shall remain closed and its architectrave saved. The other two windows in room 107 should be repaired as necessary, and the storm windows removed. The historic exterior doors, 114 and 116, should be repaired as needed. Door 114 may require an automatic door opener and reversed swing. Window and door architraves are in good condition and should remain.

The first floor joists in the stair hall were replaced by the NPS and new flooring laid in 1986, along with construction of the closet under the stair. At the same time, the stairwell was stabilized. The closet door and two exterior doors in the stair hall are historic. Some plasterwork was done in the stairwell, especially at the fourth floor level. The west wall of the first floor hall was completely replastered, as was much of the other three walls.

The treads and risers of the first run of stairs, from the first to the second floor, are historic, but the plywood wall enclosing the stair is a new replacement. All balusters, newel posts, landings, and upper level stairs are historic and in good condition. The stairwell walls and the dormer at the fourth floor level are in poor condition. Any cracks or missing patches in the stair hall or stair well plaster should be repaired. All other features of the stair hall and stair well should be repaired as needed, and preserved in their current form. The storm windows should be removed from the windows and repairs to the windows should be made as necessary. The dormer window is in need of repair and should be restored to its original arched top rail sash over flat meeting rail sash.

BUILDING 33, SECOND FLOOR

Configuration/Accessibility:
This proposed rehabilitation to create office spaces would provide for a nearly fully disabled-accessible second floor, serviced by the elevator in Building 33A, and a reconfigured wheelchair-accessible bathroom. Every attempt should be made to preserve

historic material in the work. The partitions enclosing the historic central hall should be removed, as should the partition between the stairhall and the foyer of room 203. This would allow for egress to a stair hall safe haven in the event of fire. The modern closet in room 201 should be removed, and the door covered by it should be opened. The door (211) from the current kitchen to the rear hall should be moved to its historic location, further east along the kitchen's north wall, mirroring the configuration in room 311 above.

Room 207 would not be fully accessible by UFAS [50]. All other rooms would be fully accessible after minor modification. One of the two double-leaf doors in rooms 201 and 204 should be fixed in an open position. The historic doorway between room 204 and the stairhall should be reopened at a 32" minimum width, and door opening 212 should be widened by 2" to become fully accessible. Exterior door 204, onto the rear porch, must also be widened by 2" to provide access to the elevator.

Windows/Doors/Millwork:
All aluminum storm windows should be removed, and windows, sashes, and lights repaired as necessary. Window splays, sills, and architraves are in good condition and should not be damaged by any work. Likewise, historic doors and door trims are in good condition and should remain. Where doors must be widened, historic material should be reused, and new trim and door material should be documented for future reference and added without damaging the original fabric. Some millwork in bases and cornices may be historic, but most is probably replacement fabric. Any new material should be added in kind. The non-historic picture rail occurring throughout the second floor, and the valance over the bay window should be removed. Historic hardware should be restored or refabricated as necessary.

Walls/Floors:
As partition walls are removed, the modern flooring should be lifted in a few inconspicuous sample areas. If historic flooring exists below and is in repairable condition, the modern flooring should be removed and the historic flooring repaired and refinished. If there is no historic flooring below, or it is in irrepairable condition, the 1960's renovation flooring should remain. The flooring should also be inspected from below, between the floor joists.

Structural:
Any structural reinforcement recommended by the "Structural Survey" should be done from below, at the first floor ceiling. Historic second floor framing should not be removed unless it is rotten, or poses a safety hazard. Reinforcement should be done by the addition of new members, in lieu of the replacement of the old, and should be rehabilitated sensatively, retaining as much historic fabric as possible. These spaces will serve as offices.

BUILDING 33, THIRD FLOOR

The upper two floors of this building are especially important as they are among the few remaining spaces whose historic configuration and fabric integrity have not been significantly altered by the National Park Service.

Configuration/Accessibility:
The stair hall partition and flanking doorways should be removed. The NPS alterations to closets 301A and 303 should be reversed. The bathroom 205 vent should be removed from the historic central hallway. The rear hall bathroom door placement should be restored to mirror that of the second floor rear hall, room 209. The room 305A closet wall should be reduced to its historic size to expose its curved wall. The filled in window, 302, should be re-opened. The roof to the porch should be removed, as should the stair down to the second floor. Door 319 should be made into a window. The third floor will not be fully accessible.

Windows/Doors/Millwork:
All aluminum storm windows should be removed, and window sashes and lights repaired as needed. Virtually all original splays, sills, and architraves are in place, and should be restored. Likewise, historic doors and door trims exist and should also be restored. Missing and non-historic doors should be replaced with panel doors typical to this building. Some portions of bases are replacements, but much is original and should be the pattern for any new work. Presumably, a cornice moulding was in place and should be investigated further before replicating the profile on the second floor. Historic hardware should be restored or refabricated as necessary.

Structural/Floors:
The floors should be repaired and refinished. Structural reinforcement recommended by the Structural Analysis should be done from below, since the second floor ceiling material is modern. The floor framing should not be altered unless members are rotten or pose a safety threat, but instead should be reinforced by the addition of new material.

BUILDING 33, FOURTH FLOOR/ATTIC & ROOF

The rehabilitated fourth floor will serve as light storage space. Like the third floor, it has not been drastically changed by NPS ownership.

The pipe-vent should be removed and the holes in the walls patched. All failing plaster should be removed and replaced. Flooring should be repaired as necessary. All sashes in the dormer windows should be repaired or replaced with the arched top rail sash over flat meeting rail sash original to the building. Panel doors to match door 401 should replace the missing doors and the vertical boards. Missing baseboards and door trims should be replaced in kind.

Any floor deficiencies should be augmented by adding to the current framing accessed through the third floor ceiling before it is replastered. Replastering of the attic ceiling and walls should occur after the reinforcement of the roof and knee wall structural framing.

BUILDING 33A, BASEMENT & FIRST FLOOR

The basement, vulnerable to flooding, is not scheduled for use. It should be stabilized and repointed as needed. Plans for site work addressing site drainage should include

mitigating water and moisture problems in the basement. The chimney, originating at the first floor with a slightly corbelled base, should be removed.

The recommended treatment for the first floor includes rehabilitation into spaces for visitor protection activities and full accessibility to the offices in the 2nd floors of Building 33. The door connecting with Building 33 would open into a foyer, giving way to the fire-rated elevator and stairs to the second floor. Storage would be provided under the stairs and along the corridor leading to the consultation room. No historic doors remain. The frame of door 120 contains historic fabric, as may window 108. All other window and door fabric is either missing or reconstructed.

The bare stone walls should be repointed as necessary. New finished wall material should be constructed as a wall within a wall, limiting attachment to the stone wall to reduce the potential for damaging historic fabric. The floor level should be raised six inches to match the door 115 threshold to allowing obstacle-free movement from Building 33. The finished ceiling height should be at approximately 8'- 9", allowing for mechanical equipment above. The door 119 opening should be fitted with an inoperable vertical board door, as it will be blocked from the interior by the elevator. Door 118 will require a new frame, a vertical board door and a transom light as will door 121. This west door, 121, was probably a sliding door on tracks. The windows, 107 and 108, should be repaired as necessary. Window 107 may have originally been a door similar to door 120, and should be restored as such. The floor will require a new structural system. The entire floor should be removed and replaced since the steel beams are rusting and the concrete is spalling. At this time, the floor level should be raised.

The elevator is proposed for use as a secondary access and an access for wheelchair-dependent staff. The designers must consider code requirements in refining this circulation route. The elevator must be a minimum of 5'-8" by 6'-8", and should be oriented to offer ease of movement in and out of the elevator and surrounding area [51]. The structural shaft must be fire-rated with a buffer between itself and the adjacent floor structural systems [52]. The shaft should be constructed with a minimum thickness to allow enough space for fully-accessible passage beside it into the consultation space. This may be accomplished with a gypsum cavity shaft wall, or like construction, to satisfy NFPA fire-rating requirements.

BUILDING 33A, SECOND FLOOR

The proposal for this treatment gives the second floor (rooms 213 and 214) over to the elevator, mechanical ducting, and storage. The breezeway space could carry the mechanical ductwork from Building 32. The frame wall structure is good and retains its historic rustic character featuring the rough, non-uniform, round-section columns. However, the former vertical board door on the west wall has been sided-over on the exterior by the National Park Service, and the windows and exterior door opposite have been altered. The floor level was raised by approximately eighteen inches. The date of this alteration is not clear. The current floor framing is inadequate for storage loading purposes.

The west door should be restored. Historic photographs show the windows as they exist, two-over-two sash, similar in proportion to the windows on Building 33. The exterior

treatment however, will change to match the window existing at the first floor east elevation. The east door was probably a vertical board and "Z" batten sliding door. The door leading to the breezeway and its frame are in poor condition. This doorway could be reinforced and used for carrying the mechancial ducting. Mechanical and elevator equipment should be covered or obscured so that it is not visible to visitors through the restored windows. Any other breaks made in this south wall to accomodate mechanical equipment will necessitate structural reinforcement of the wall.

The floor level should be lowered to match its original height and to allow full accessibility from the elevator across the porch to the second floor of Building 33. As much of the historic floor framing and finished floor boards as possible should be used in the reconstructed floor. Reinforcement material may be added to make the floor structure sound for storage, according to the "Structural Survey". This work should be accomplished before the first floor mechanical equipment and finished ceiling are installed. The chimney should be removed.

BUILDING 33A, THIRD FLOOR

The third floor will be proposed as storage space and will be accessible from the Building 33A second floor through a ceiling access panel. The elevator will not give access to this floor, but will require equipment to be housed on this floor. Mechanical ductwork may also require part of the space. Like the second floor, the character of the space is intact, but the fabric will require repair and reinforcement, especially in the floor.

The two post-1890's windows on the south elevation should be removed. The chimney should be removed, as should the cupola. The floor framing will require significant reinforcement, and the flooring significant repair.

BUILDING 33A, BREEZEWAY

The breezeway floor framing is adequate for carrying ductwork, but may require reinforcement for bearing equipment. Large areas of flooring are missing and will require replacement. Whether the floor level should be restored must be decided in the design phase.

BUILDING 32

Building 32 is proposed to house fire cache on the first floor, which could be easily moved in an eventual flood. The second floor would serve as the origin of the Building 33 and 33A mechanical system. This would reduce noise and vibration disturbance in the occupied spaces. Structural work is required for any restoration or rehabilitation of this building.

As discussed in the Exterior Restoration, the telephone box should be removed and a vertical board door similar to the one on the north wall facing the breezeway should be reconstructed and put in place. Similarly, windows should be restored. The infill at the first floor level of the south elevation should be replaced with a 7' - 0" high vertical

board door to give access to the fire cache storage area. The second-story door on the south elevation may need to be replaced with louvers to vent the mechanical equipment. The first floor level should be reduced to grade and finished with a wood floor deck raised on sleepers over a new concrete slab. To make the second floor usable space, the tie rods crossing the room should be removed. Before the ties can be removed, the stone walls will need reinforcement as settling has caused them to lean out. The roof structure is adequate, but bears directly on the walls and contributes to the leaning. These problems should be resolved per the "Structural Survey" recommendations.

The second floor framing is adequate for light storage, but may require reinforcement to carry the mechanical equipment and withstand the vibration from it. Restoration of the original floor level must be decided in the design phase.

PROPOSED MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION SYSTEMS

A new climate control system should be designed to impact historic fabric as little as possible. This might be achieved by using exposed ductwork where necessary rather than to alter historic fabric and configuration to conceal equipment. Plenty of space will be available in Buildings 32 and 33A without making a negative impact.

The new electrical system could incorporate portions of the existing system if code requirements can be met. Research into this issue will be necessary. Lighting fixtures should be unobtrusive; standard fluorescent fixtures should not be used.

After careful consideration of the proposed uses, new fire detection and security systems should be installed.

Buildings 33 and 33A will be provided with a sprinkler system. The fire-rated Building 33 stair hall second floor landing will serve as a safe haven for the handicaped since the sprinklers allow it to be reached in safety. Installation design for minimizing impact on historic fabric is preferred, such as exposed system elements where necessary. Equivalency concepts (NFPA-101M) should be considered.

A new plumbing system must be designed, incorporating portions of the existing system if possible. Restrooms, a kitchen, and laundry washing facilities should be considered basic needs.

Detailed life safety, egress, fire protection and building interior accessibility analysis must be undertaken by the A/E consultant previous to design decisions being made on uses and treatment.

COST ESTIMATE

PACKAGE 116, BLDGS. 32, 33, 33A:
CLASS "B" ESTIMATE FOR RECOMMENDED WORK

Work is organized by Construction Specification Institute "Masterformat" with units approved by the Denver Service Center for estimating & construction.

DIVISION 2 - SITE WORK	UNIT PRICE ($)	QUANTITY	TOTAL ($)
DEMOLITION:			
Remove C.M.U. partition walls, bldg.33.	8.00	750.75 cu. ft.	6,006.00
Remove suspended acoustical tile ceiling, bldg. 33.	1.00	1,325 sq. ft.	1,325.00
Remove frame partition walls & bathroom, bldg.33.	5.00	715 sq. ft.	3,575.00
Remove modern doors, bldg. 33	50.00	7 doors	350.00
Remove post-1900 interior partition walls on second & third flrs., bldg. 33.	5.00	100 sq. ft.	500.00
Remove post-1900 doors on second & third flrs., bldg. 33.	50.00	12 doors	600.00
Remove post-1900 cupola at roof, bldg. 33A.	6.45	310 sq. ft.	1,999.50
Remove post-1900 rear porch roof, bldg. 33.	5.00	315 sq. ft.	1,575.00
Remove post-1900 brick chimney, bldg. 33A.	5.00	110 cu. ft.	550.00
Remove wood shingle roof, bldgs. 32, 33 & 33A.	1.00	2800 sq. ft.	2,800.00

ASBESTOS REMOVAL: Remove asbestos-containing roof mastic at time of roof structural re-inforcement & installation of slate roofing, bldg. 33.	9.00	65 sq. ft.	585.00
PAVING & SURFACING: Install new brick ramp in alley between bldgs. 33 & 34, from Shenandoah St. sidewalk to rear porch of bldg. 33 for handicapped accessibility, must match walk in front of bldg. 33.	12.00	300 sq. ft.	3,600.00
Correct water damage & effluorescence in exterior walls (which may be results of poor site drainage & rising damp) with damp-proof membrane at bldg. 33 perimeter.	7.00	188 lin. ft.	1,316.00
Lay crused shale walks in backyards according to Cultural Landscape Report.	2.00	2250 sq. ft.	4,500.00
Lay crused shale at breezeway.	2.00	240 sq. ft.	480.00
SIGNAGE: Install visitor information on bldg. 33.	300.00	3 signs	900.00
LANDSCAPING: Reseed backyards.	210.00	6000 sq. ft.	1,260.00
Plant vegatation according to Cultural Landscape Report.	500.00	2 red maples	1,000.00
DIVISION 3 - CONCRETE			
Replace first flr. slab with steel re-inforced structural concrete slab in bldg. 33A.	10.00	460 sq. ft.	4,600.00
Repair first flr. slab, bldg. 32.	10.00	225 sq. ft.	2,250.00

DIVISION 4 - MASONRY			
Repair exterior wall cracks, bldg. 33.	20.00	2500 lin. ft.	50,000.00
Repair stone wall & stucco, bldg. 33.	15.00	4750 sq. ft.	71,250.00
Repair & repoint stone work, bldg. 33A.	8.00	800 sq. ft.	6,400.00
Repair & repoint stone work, bldg. 32; stablize second flr. walls.	10.00	1400 sq. ft.	14,000.00
Construct new fire-rated C.M.U. wall to separate exhibit space form visitor protection spaces, bldg. 33.	8.00	32 sq. ft.	256.00
Repair or replace broken door & window sills, bldg. 33.	35.00	25 lin. ft.	875.00
DIVISION 5 - METALS			
Replace existing wood beams at second flr. framing with steel I-beams, bldg. 33.	50.00	100 lin. ft.	5,000.00
DIVISION 6 - WOOD & PLASTICS			
Install new interior second flr. framing system for increased lateral loading support & upper flr. loading support; re-inforce longitudinal support of hall, bldg. 33.	30.00	1850 sq. ft.	55,500.00

Fabricate & install missing millwork & pieces of trim at doors which must be altered for accessibility, bldg. 33.	40.00	75 lin. ft.	3,000.00
Restore & preserve all historic millwork, bldg. 33.	15.00	1550 lin. ft.	23,250.00
Improve support connections of wall & flr. framing systems, bldgs. 33A & 32.	100.00	120 lin. ft.	12,000.00
Remove bracing system & stablize second flr. framing, bldg. 32.	25.00	285 sq. ft.	7,125.00
Re-inforce flr. framing at third flr., bldg. 33A.	30.00	475 sq. ft.	14,250.00
Rebuild second flr. at original height with structure to bear storage, bldg. 33A.	20.00	475 sq. ft.	9,500.00
Repair rear porch, bldg. 33.	60.00	300 sq. ft.	18,000.00
Re-inforce rear porch third flr. deck, bldg. 33.	40.00	300 sq. ft.	12,000.00
Replace existing rear porch stair with new one from second flr. to first, bldg. 33.	5,000.00	one flight	5,000.00
Re-inforce second flr. framing for load of mechanical equipment, bldg. 33A, breezeway & bldg. 32.	50.00	300 sq. ft.	15,000.00
Re-inforce roof framing to bear slate & own weight, bldgs. 32, 33 & 33A.	5.00	3150 sq. ft.	15,750.00
<u>DIVISION 7 - THERMAL & MOISTURE PROTECTION</u>			
Install slate roofing, bldgs. 32, 33 33A.	1,000.00	3150 sq. ft.	31,500.00

Replace flashings, bldgs. 32, 33 & 33A.	9.00	75 sq. ft.	675.00
Install vapor barrier between bldgs. 33 & 33A.	10.00	16 lin. ft.	160.00
Replace gutters & downspouts & their connections as needed, bldgs. 32, 33 & 33A.	10.00	150 lin. ft.	1,500.00
Fire-rate & insulate second flr. mechanical equipment rm., bldg. 32.	2.50	1250 sq. ft.	3,125.00
Install weatherstripping on all windows, bldgs. 32, 33 & 33A.	5.00	1000 lin. ft.	5,000.00
Install interior storms on all windows to replace existing storm windows, bldg. 33.	10.00	1060 sq. ft.	10,600.00
Weatherstrip all exterior doors.	6.00	150 lin. ft.	900.00
Repair vertical board siding, bldg. 33A.	4.00	200 sq. ft.	800.00
Replace horizontal board siding with vertical board siding, bldg. 33A.	5.00	900 sq. ft.	4,500.00
DIVISION 8 - DOORS & WINDOWS			
Restore all exterior doors to their historic appearance, bldgs. 32, 33 & 33A.	600.00	15 doors	9,000.00
Restore, reverse swing & install automatic door openers for handicapped accessibility, doors 111 & 114, bldg. 33.	1,800.00	2 doors	3,600.00
Widen interior door openings & exterior door 214 for accessibility according to drawings, bldg. 33.	500.00	10 doors	5,000.00

Restore all interior historic doors to historic form & finish, bldg. 33.	600.00	30 doors	18,000.00
Repair & restore or replace doors to match historic form & finish; modify as required for egress & accessibility, bldg. 33A.	600.00	10 doors	6,000.00
Repair & restore or replace doors to match historic form & finish, bldg. 32.	600.00	5 doors	3,000.00
Repair & restore to operable historic form all windows, bldgs. 32. 33 & 33A.	300.00	55 windows	16,500.00
Remove infill covering windows 202 & 302; window 102 will remain filled-in, bldg. 33.	1,500.00	2 windows (30 sq.ft.ea.)	3,000.00
Replace all modern or broken glazing panels with restoration glass, bldgs. 32, 33 & 33A.	30.00	500 sq.ft.	15,000.00
Reverse storefront window, repair & restore, bldg. 33.	2,500.00	2 windows (30 sq.ft. ea.)	5,000.00
DIVISION 9 - FINISHES			
Refinish first flr. interior for exhibit space, using waterproof/resistant materials wherever possible, bldg. 33.	4.00	6250 sq.ft.	25,000.00
Repair & restore or stablize all interior ceilings & walls to be retained, bldgs. 32, 33 & 33A (with new fire rating as determined in design phase).	5.00	2100 sq.ft. one flight	10,500.00
Repair & restore stairwell & stair, bldg. 33.	3,000.00	10,500.00	3,000.00

Repair flooring, second, third & fourth flrs., bldg. 33.	4.00	4775 sq. ft.	19,100.00
Repair or replace flooring, second & third flrs. & breezeway, bldg, 33A.	10.00	1320 sq.ft.	13,200.00
Replace flooring, second flr., bldg. 32.	20.00	300 sq.ft.	6,000.00
Paint exterior trim, bldgs. 32 & 33.	1.50	1000 lin.ft.	1,500.00
Paint exterior shutters & frame portion of 33A.	1.50	1300 sq.ft.	1,950.00
Paint interior finished walls, bldgs. 32, 33 & 33A.	1.60	17865 sq.ft. (tot. surf. area)	28,584.00
Paint interior millwork, bldg. 33.	1.00	1500 lin. ft.	1,500.00
DIVISION 10 - SPECIALTIES			
Install lockers &/or storage shelving, first floor, visitor protection spaces, bldg. 33A.	50.00	150 cu. ft.	7,500.00
DIVISION 11 - EQUIPMENT			
Install kitchenette on second floor, bldg. 33.	10,000.00		10,000.00
Install clothes washing facilities, bldg. 33.	1,000.00	1 each, washer & dryer	1,000.00

DIVISION 12 - FURNISHINGS			
Install storage shelving, visitor protection facilities, bldg. 33.	50.00	250 cu. ft.	12,500.00
DIVISION 13 - SPECIAL CONSTRUCTION			
Provide athletic room for visitor protection staff, bldg. 33.	10,000.00		10,000.00
DIVISION 14 - CONVEYING SYSTEMS			
Handicapped accessible electric traction passenger elevator, bldg. 33A; record, remove and store historic lift mechanism.	45,000.00	1 elevator (1 story)	45,000.00
DIVISION 15 - MECHANICAL			
Install fire protection (detection & suppression) system according to drawings, bldgs. 33 & 33A.	6.00	8730 sq. ft.	52,380.00
Install all new plumbing for 3 baths, 1 kitchenette & washer/dryer in bldg. 33.	8.00	7325 sq. ft.	58,600.00
Install all new HVAC for spaces to be conditioned (all flrs. bldgs. 33, first flr. bldg. 33A) with potential for unconditioned spaces to be conditioned later, bldgs. 33 & 33A.	5.00	7325 sq. ft.	36,625.00

DIVISION 16 - ELECTRICAL

Utilizing as much of existing as possible (will require +/- 80% new), install: basic electrical; service & distribution; lighting	8.00	8730 sq. ft.	69,840.00
Install intrusion detection system.	3.00	7325 sq. ft.	21,975.00
Install all required special electrical for exhibit space.	10.00	1890 sq. ft.	91,815.00

Sub-Total	$1,048,356.50
General Conditions	$ 150,880.00
TOTAL	$ 1,199,236.50

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Sources Consulted

Endnotes

SOURCES CONSULTED

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"Building Evaluation, Master Armorer's House, Building 36", Oehrlein & Associates Architects, Contract No. CX-2000-0-0011, Work Order No. 2, October 31, 1990. Internal review pending.

"Task Directive, Package 116, Harpers Ferry National Historical Park, Restoration of Buildings 32, 33, 33A, 34, 34A, 35 and 36, Historic Structure Report, Construction Documents, Construction, Post Construction, Preservation Guides", Denver Service Center, National Park Service, April 1989. Approvals 4/17/89 -- 12/14/89.

"Handicapped Accessibility Study, Pkg. 116 Bldgs.", Oehrlein & Associates Architects and Shefferman & Bigelson, Contract No. CX-2000-0-0011, Work Order No. 5, February 14, 1991.

"Historic Structures Report: Archeological Component, Package 116, Block B, Lot 3, Buildings 32, 33A, 33, 34, 34A, 35, Shenandoah Street, Harpers Ferry National Historical Park, Harpers Ferry, West Virginia", Paul A. Shackel, Research Archeologist, Harpers Ferry National Historical Park, National Park Service, November 1989.
With "Addendum, Bldgs. 32 & 34A", Ellen Armbruster, April 1990.

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"Mechanical/Electrical/Plumbing Survey, Bldgs. 32, 33, 33A", Oehrlein & Associates Architects and Shefferman & Bigelson, Contract No. CX-2000-0-0011, Work Order 3, September 20, 1990.

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"Paint Analysis, Bldgs. 32, 33, 33A", Oehrlein & Associates Architects, Contract No. CX-2000-0-0011, Work Order No. 3, July 22, 1991.

"Structural Survey, Bldgs. 32, 33, 33A", Oehrlein & Associates Architects and James Madison Cutts, Consulting Structural Engineers, Contract No. CX-2000-0-0011, April 11, 1991.

Additional Reports Consulted:

"Cultural Landscape Report: Lower Town, Harpers Ferry National Historical Park", Harpers Ferry National Historical Park and the National Capital Region: Cathy Gilbert, Maureen De Lay Joseph and Perry Carpenter Wheelock, 1993.

"Historic Building Report, Master Armorer's House", Herbert Kissling, Harpers Ferry National Historical Park, October 10, 1957.

"Historic Building Report, Part II, Historical Data Section, Buildings 34-35, 33 and 34A", Charles Snell, Eastern Office of Design and Construction, for Harpers Ferry National Monument, March 4, 1959. Transcription can be found in Part II of the Architectural Data Section of this Historic Structures Report.

Drawings:

There are no construction drawings of this building.

A 1957 Historic American Building Survey documented the buildings, but no HABS data on Buildings 32, 33A, and 33 can be found.

Existing Conditions Drawings, prepared by Denver Service Center, Eastern Team, Falls Church, June 1, 1992.

Proposed Alternatives Drawings, prepared by Denver Service Center, Eastern Team, Falls Church, June 1, 1992.

Maps:

The earliest known maps of the lot are railroad maps dated to 1835.

A variety of historical base maps, including a compilation by Charles Snell in 1959 and the "Cultural Landscape Report" researchers in 1991, are available in the park library. The Sanborn Fire Insurance Maps chronicle the development of the site periodically from 1894 to 1933. These are reproduced in Appendix A.

Photographs:

The park library contains many historic and modern photographs. Pertinant photos were reproduced in this report.

Project Related Planning Documents:

"Assessment of Alternatives", National Capital Region, July 1978.

"Environmental Review of Alternatives", National Capital Region, February 1979.

"Development Concept Plan", National Capital Region, March 1980.

"Interpretive Prospectus", National Capital Region, May 1980.

"Statement for Management", Harpers Ferry National Historical Park,January 1986.

"Resource Management Plan", National Capital Region, December 1987.

Project Related Policies and Guidelines:

NPS Management Policies, National Park Service, Washington Office, Dec. 1988.

NPS-28, Cultural Resources Management Guidelines, National Park Service, Washington Office, Ed. 3, Aug.1985.

Uniform Federal Accessibility Standards, General Services Administration, Dept. of Defense, Housing & Urban Dev., U.S. Postal Service. April 1988.

BOCA National Building Code/1990, Building Officials & Code Administrators Int'l., Inc. Country Club Hills, IL. March 1990.

Uniform Building Code, 1991 Edition. International Conference of Building Officials. Whittier, CA, May 1, 1991.

Life Safety Code, NFPA-101,1991 Edition. National Fire Protection Association. Quincy, MA. Feb.8, 1991.

ENDNOTES

[1] Snell, Charles. "Historic Building Report, Part II, Historical Data Section, Bldgs. 34-35, 33 and 34A". Eastern Office of Design & Construction, for Harpers Ferry National Monument. March 4, 1959, p.32.

[2] National Park Service, National Capital Region and Harpers Ferry Center. "Harpers Ferry National Historical Park Interpretive Prospectus". May 1980, p.6.

[3] National Park Service, Washington Office. "User Manual for Cultural Resource Databases, LCS section". p. 17.

[4] National Park Service, Preservation Assistance Division, "The Secretary of the Interior's Standards for Historic Preservation Projects". Washington, D.C. 1985, p.8.

[5] Snell, Charles. "A Comprehensive History of Armory Dwelling Houses of the U.S. Armory & Harpers Ferry, West Virginia, 1798-1841, Vol.I". Denver Service Center. Denver, CO. Nov. 1981, pp.15, 64.

[6] Armbruster, Ellen. "Historic Structures Report: Archeological Component, Addendum for Buildings 32 & 34A". Harpers Ferry National Historical Park. April 1990, pp. 44, 48.

[7] Chickering, Patricia with Jenkins, Michael. "Historic Structures Report, History Section for Package 116, 1865-1952, Lots 2 & 3, Harpers Ferry, West Virginia". National Park Service & University of Maryland. September, 1994, pp.14 and 19.

[8] Chickering, Jenkins, Appendix II, pp. 73-75. Letter from James McGraw to Hon. K Raynor [sic], Sept. 23, 1878 for petition of abatement.

[9] Ibid.

[10] Spirit of Jefferson. Charles Town, WV. Aug. 7, 1883, p.3, col.3.

[11] Chickering, Jenkins, p. 27 and Appendix X, p. 105.

[12] Spirit of Jefferson. June 26, 1883, p.2, col.4.

[13] Chickering, Jenkins, pp. 25-27. Letter from James McGraw to Hon. K. Rayner, April 5, 1882 requesting material from Virginius Island.

[14] Farmers Advocate. Charles Town, WV. Sept. 16, 1911, p.2, col.4.

[15] Historic Research Office, Brackett House, Harpers Ferry National Historical Park. Personal interview with James Manuel of Clear Spring, WV. Harpers Ferry, WV, April 1991. Documentation by Pat Chickering and Michael Jenkins.

[16] Ibid.

[17] Ibid.

[18] Harpers Ferry National Monument. "Individual Building Report for Store & Residence". Harpers Ferry, WV. 1957. Found in park architect's files, Brackett House.

[19] Snell. "A Comprehensive History..."

[20] Spirit of Jefferson. Jan. 28, 1890, p.3, col.2.

[21] Ibid, Nov. 14, 1882, p.2, col. 1.

[22] West Virginia University Collections. "Jefferson County Court Material on case of James C. McGraw", Advertisement for public sale of McGraw property, Dec. 7, 1897.

[23] Farmers Advocate. Sept. 16, 1911, p.2, col.4.

[24] West Virginia University Collections. "Jefferson County Court Material on case of James C. McGraw", Advertisement for public sale of McGraw property, Dec. 7, 1897.

[25] Spirit of Jefferson. Dec. 14, 1897. p.2, col.4.

[26] Harpers Ferry Sentinel. Harpers Ferry, WV. July 15, 1890, p.3, col.4.

[27] Spirit of Jefferson. May 13, 1890, p.3, col.2.

[28] Virginia Free Press. Charles Town, WV. Nov. 1, 1893, p.3, col.2.

[29] Spirit of Jefferson. Oct. 4, 1898, p.2, col.6.

[30] Jefferson County Courthouse, WV. Deed Book 86, pp.260-266.

[31] Ibid. Deed Book 98, p.384.

[32] Farmers Advocate. Sept 16, 1922, p.2, col.4.

[33] Historic Research Office, Brackett House, Harpers Ferry National Historical Park. Doran/Delauder Papers. Documentation by Patricia Chickering and Michael Jenkins and staff.

[34] Historic Research Office, Brackett House, Harpers Ferry National Historical Park. Personal Interview with Isabel Kern Flanagan of Martinsburg, WV. August through October 1992. Documentation by Patricia Chickering, Michael Jenkins and staff.

[35] Spirit of Jefferson. Feb. 10, 1926, p.3, col. 3 and March 17, 1926, p.4, col.1.

[36] Bumgardner, Stanley. "Building History (NPS Ownership)" for Bldgs. 32, 32A(breezeway now part of 33A) & 33, Harpers Ferry National Historical Park. 1989.

[37] Jefferson County Courthouse, WV. Deed Book 86, pp.260-266.

[38] Bumgardner. Bldg. 32.

[39] Ibid.

[40] Ibid. Bldg. 33.

[41] Ibid.

[42] Albee, Peggy. "Mortar, Plaster and Stucco Analysis, for Buildings 32-36". Cultural Resource Center, Building Conservation Branch, North Atlantic Region for Denver Service Center. Sept. 1990.

[43] Cutts, James Madison, Consulting Structural Engineers. "Structural Survey, Bldgs. 32, 33A & 33". Washington, D.C. April, 11, 1991. Included in Appendix C.

[44] Bumgardner. Bldg. 33.

[45] Ibid.

[46] Ibid, Bldg. 32A.

[47] Cutts.

[48] National Park Service, Washington Office. Management Policies. Dec. 1988.

[49] Oehrlein & Associates Architects. "Paint Analysis, Bldgs. 32, 33A & 33", Washington, D.C. July 22, 1992.

[50] "Uniform Federal Accessibility Standards (UFAS)--Federal Standard 795." General Services Administration, Dept. of Defense, Housing & Urban Development, U.S. Postal Service. Washington, D.C
April 1, 1988.

[51] Ibid. p.31.

[52] "NFPA 101 Life Safety Code, 1991". National Fire Protection Association. Quincy, MA. Feb. 8, 1991.

APPENDIX A

Maps, Photos & Sketches

1835-1959

APPENDIX A

Figures 1-11

1. 1990 Package No. 116 Map

2. 1835 Winchester & Potomac Railroad Map

3. 1869 U.S. Government Land Sale Map

4. 1955 "Demolition Plan"/Architectural Base Map

5. Photo: NHF-409, c.1955

6. Photo: HF-96, 1896-1897

7. Photo: Number Unknown, showing Doran Buildings on South Side of Shenandoah Street (33, 34-35), c.1910.

8. Photo: NHF-526, c.1953

9. Photo: HF-526, c.1896-1897

10. Photo: HF-51, c.1892-1896

11 a. Sanborn Fire Insurance Map, 1894
b. Sanborn Fire Insurance Map, 1902
c. Sanborn Fire Insurance Map, 1907
d. Sanborn Fire Insurance Map, 1912
e. Sanborn Fire Insurance Map, 1922
f. Sanborn Fire Insurance Map, 1933

12. Field Sketch of Existing Conditions, Third Floor, Building 33, c. 1955 (Franzen?) Found in Park Architects Files, Brackett House.

13. Photo: NHF-3124, 1959

14. Photo: NHF-3124A, 1959

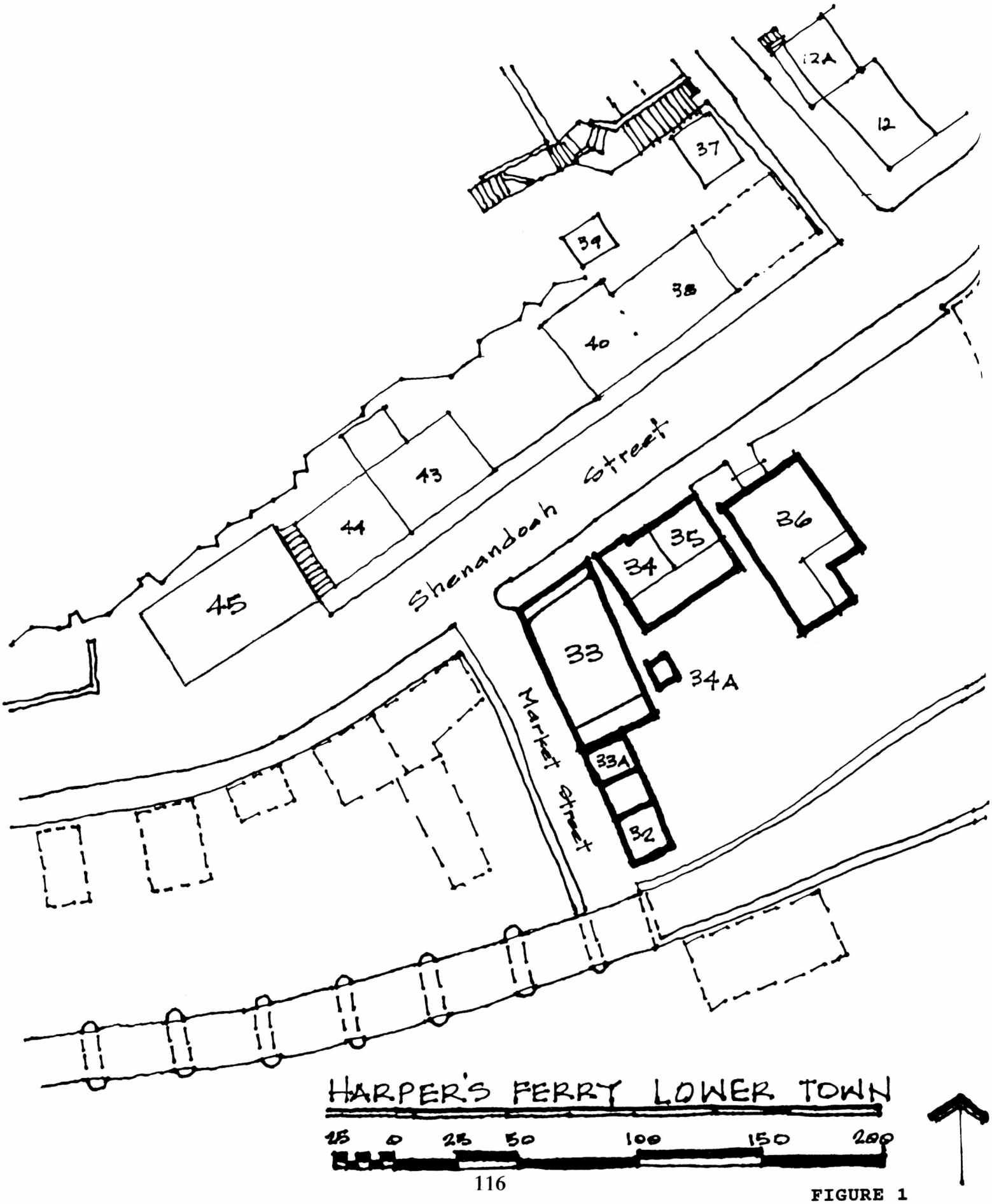

12A
12
37
39
38
40
43
44
45
Shenandoah Street
35
34
36
33
34A
Market Street
33A
32
HARPER'S FERRY LOWER TOWN
25 0 25 50 100 150 200

FIGURE 1

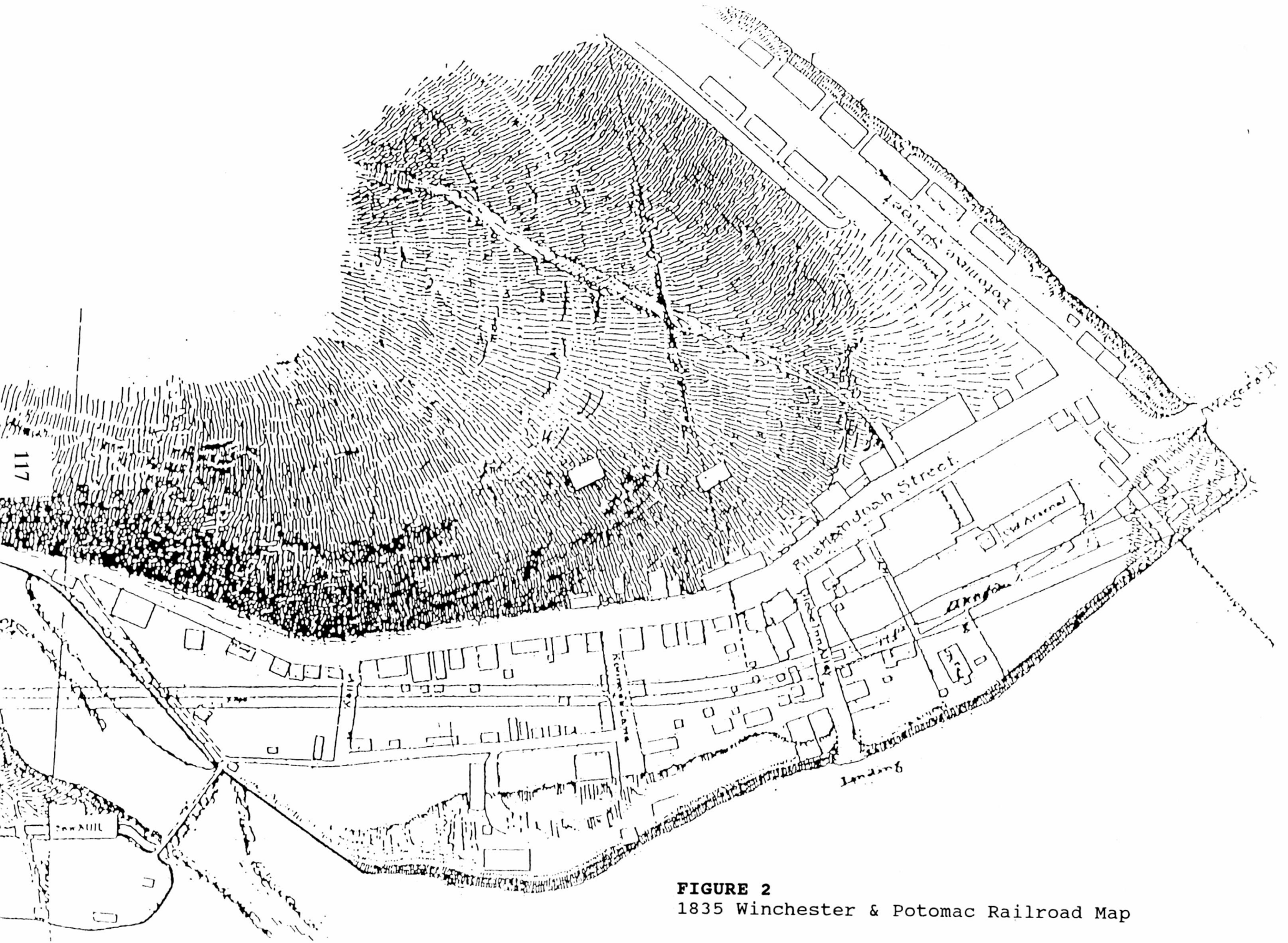


FIGURE 2
1835 Winchester & Potomac Railroad Map

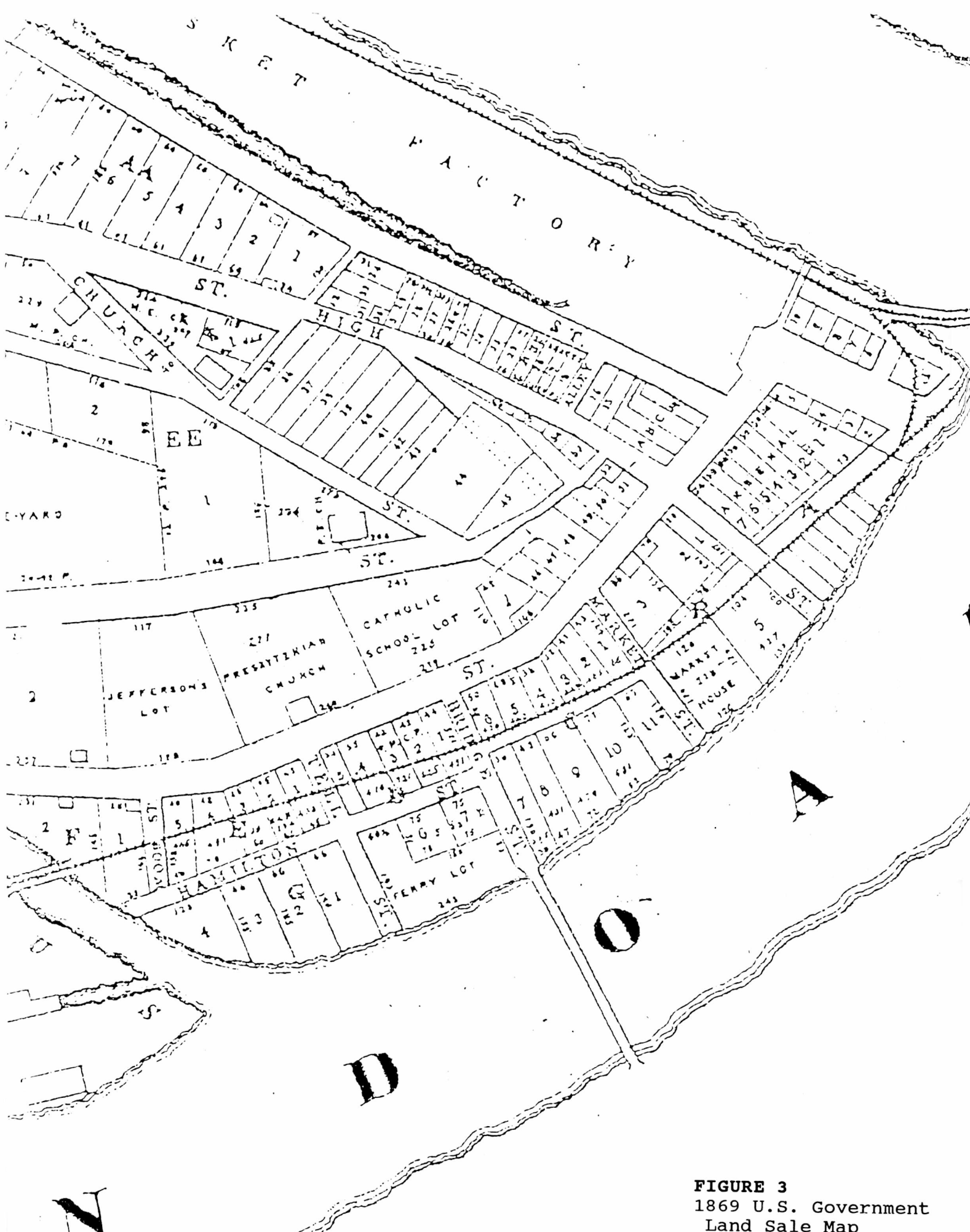


FIGURE 3
1869 U.S. Government
Land Sale Map

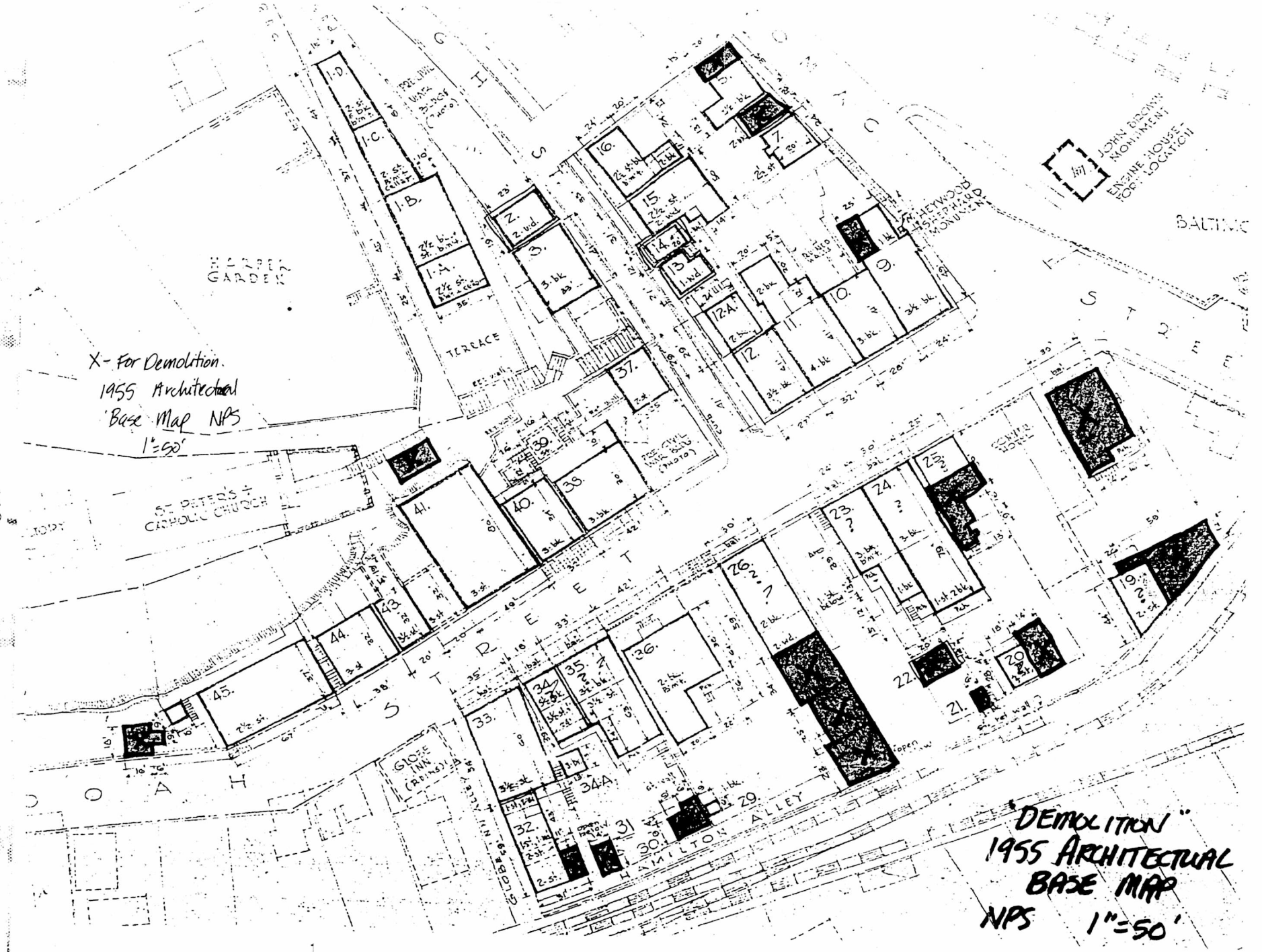

X- For Demolition.
1955 Architectural
Base Map NPS
1"=50'
DEMOLITION"
1955 ARCHITECTURAL
BASE MAP
NPS 1"=50'
JOHN BROWN MONUMENT
ENGINE HOUSE - FORT LOCATION
HEYWOOD SHEPPARD MONUMENT
ST. PETER'S CATHOLIC CHURCH
GLOBE INN (RUINS)
HAMILTON ALLEY
TERRACE
BALTIMORE
STREET
SOUTH

FIGURE 4



FIGURE 5
NHF-409
(mid-1950'S)

Buildings 33A and 32 in poor condition at time of NPS acquisition. Note original doors on both buildings. Building 33A pedimented window hoods are not original.



FIGURE 6
HF-96
1896-1897

Harpers Ferry, as seen from Maryland Heights. Package 116 buildings next to railroad, left of center. Note: porch on east wall of 33A with shed below; building 32 shed addition abutting railroad.

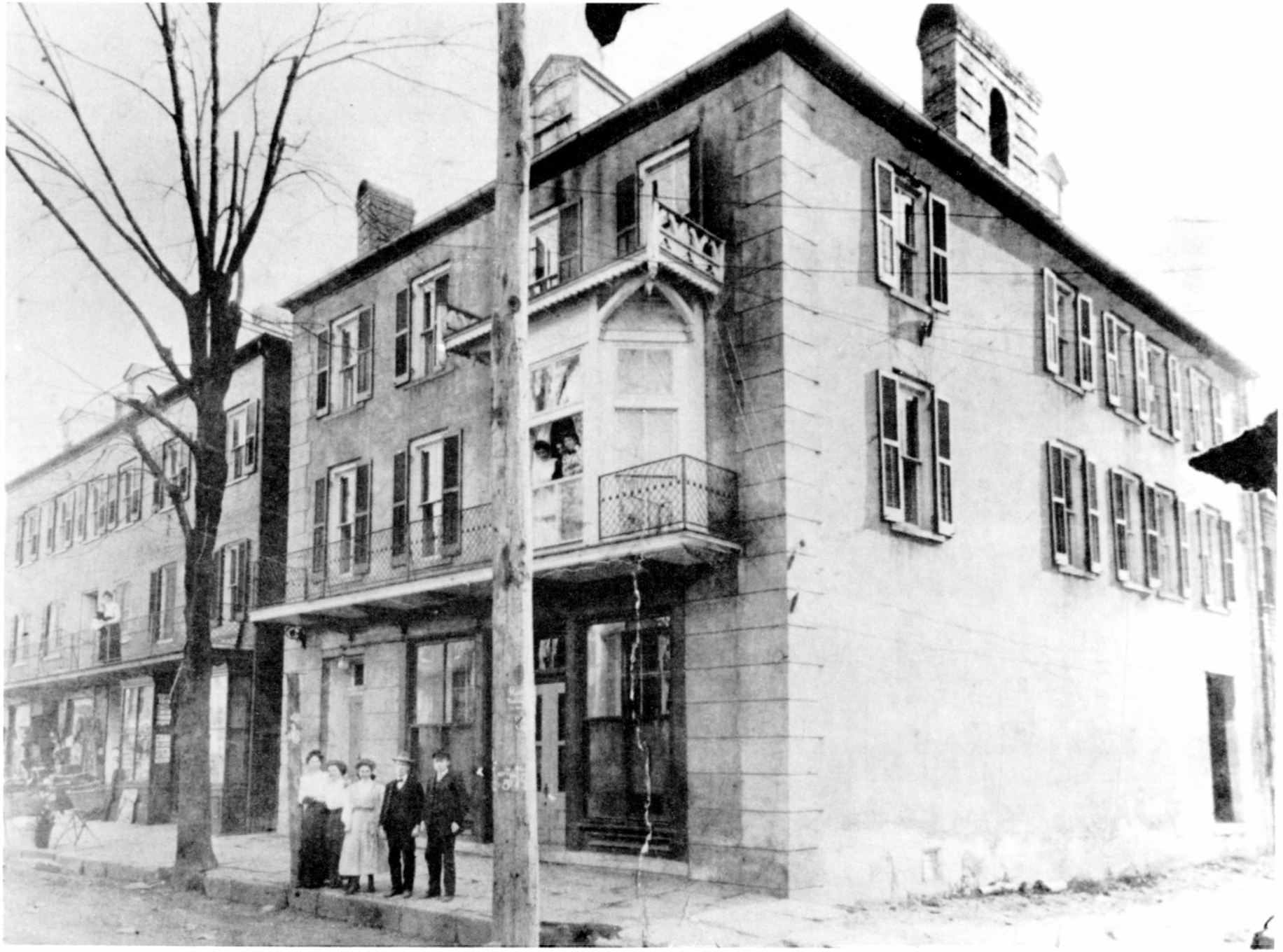


FIGURE 7
HF-?
c.1910

Taken of Doran buildings (33, 34-35) from Shenandoah Street. Note: gallery over bay window; storefront windows; scored parging; northeast chimney; dormer sashes. Building 33 rear porch appears to be framed to second or third story level.

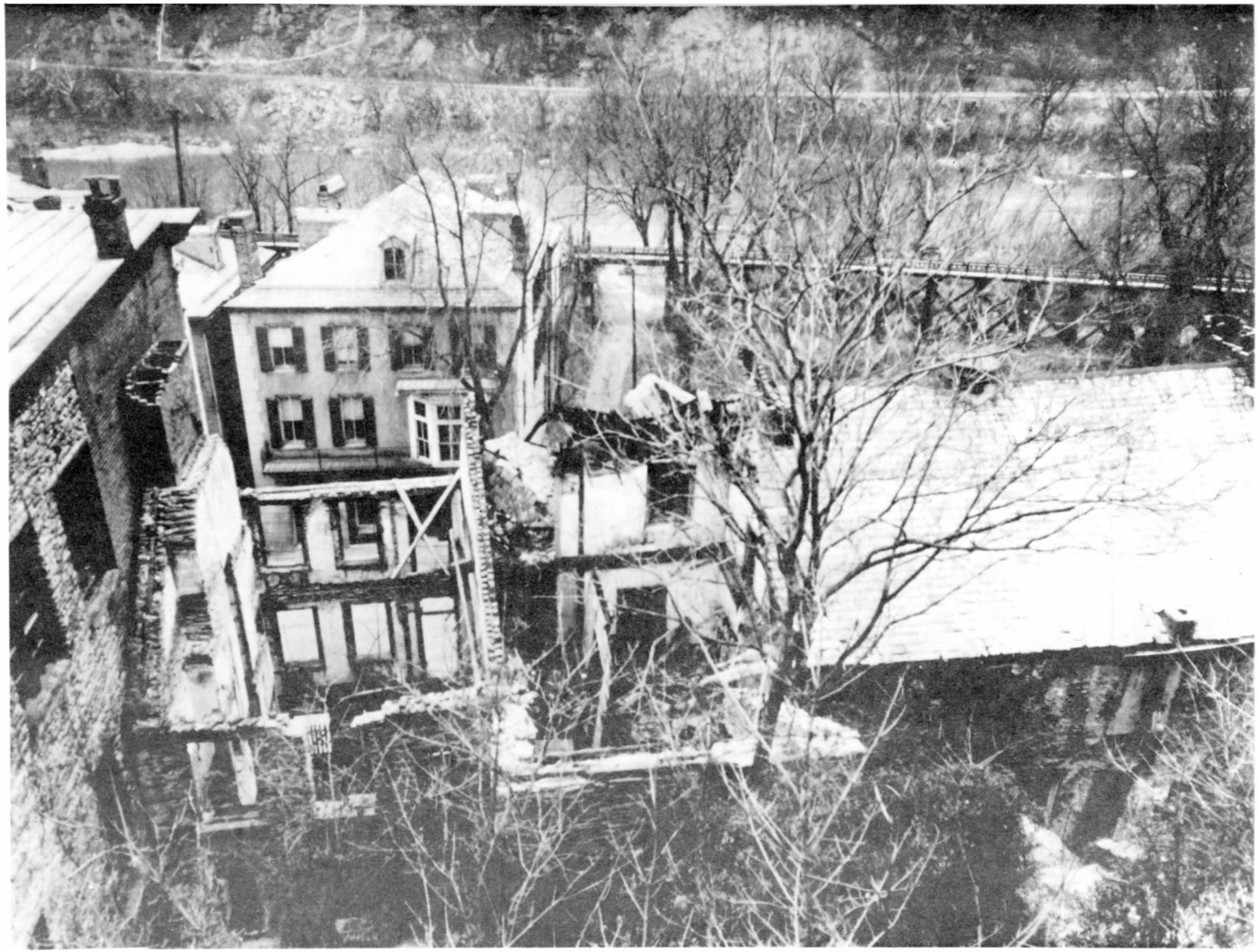


FIGURE 8
NHF-526
c.1953

View down onto building 33 from Church Street. Note: shutters; slate roofs; wood balcony and deck. Northeast chimney not original. Building 33A framed to three stories.

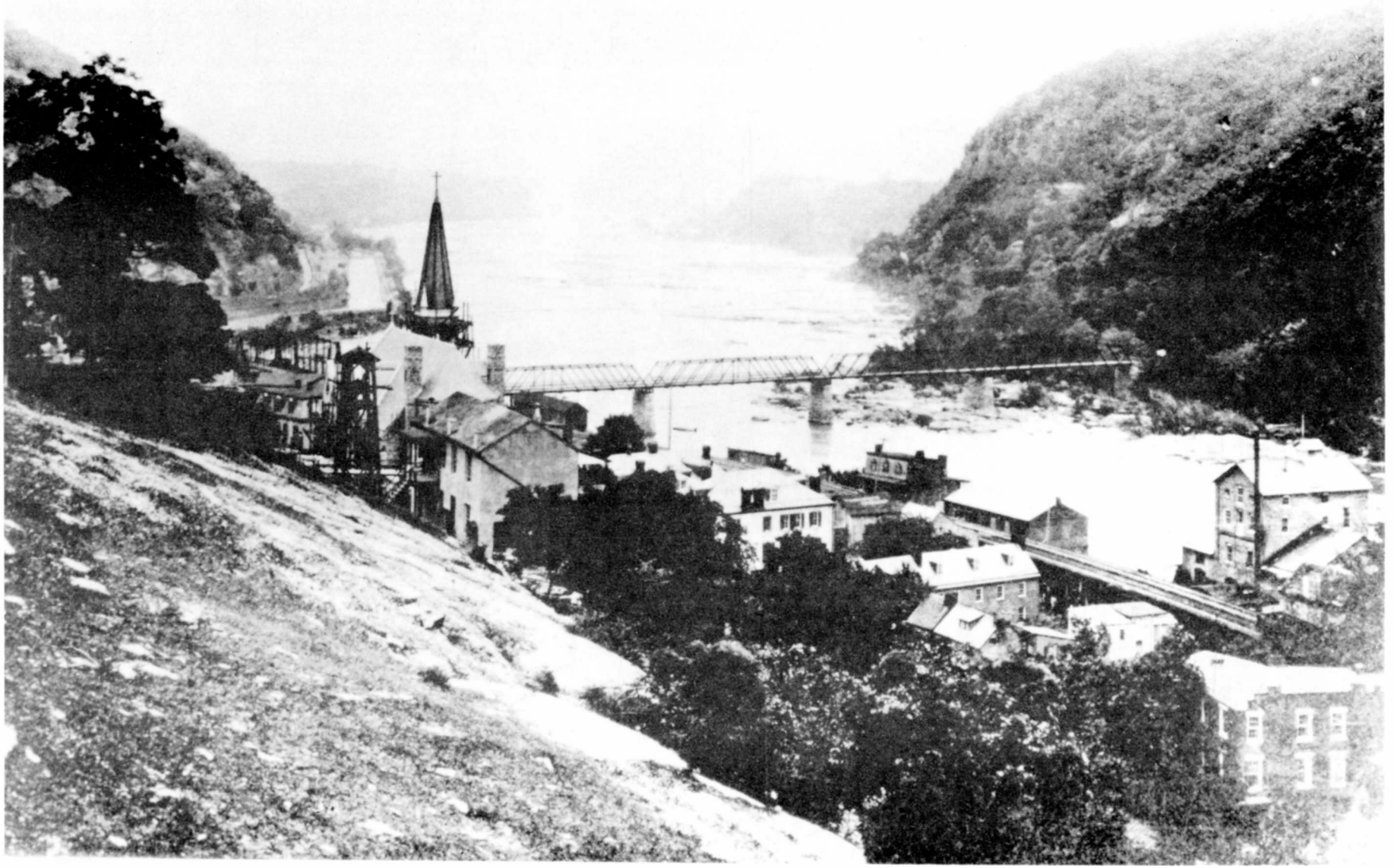


FIGURE 9
HF-526
1896-1897

View from Jefferson Rock down onto the Lower Town of Harpers Ferry. Building 33 is below the middle bridge span. Note: open porch and connection to building 33A; building 33A siding.



FIGURE 10
HF-51
c.1892-1896

View of Harpers Ferry from Loudoun Heights. Package 116 in central foreground. Note: railroad sheds; building 33A siding; building 33 rear porch; connection to smokehouse; northeast chimney matches others at this date.

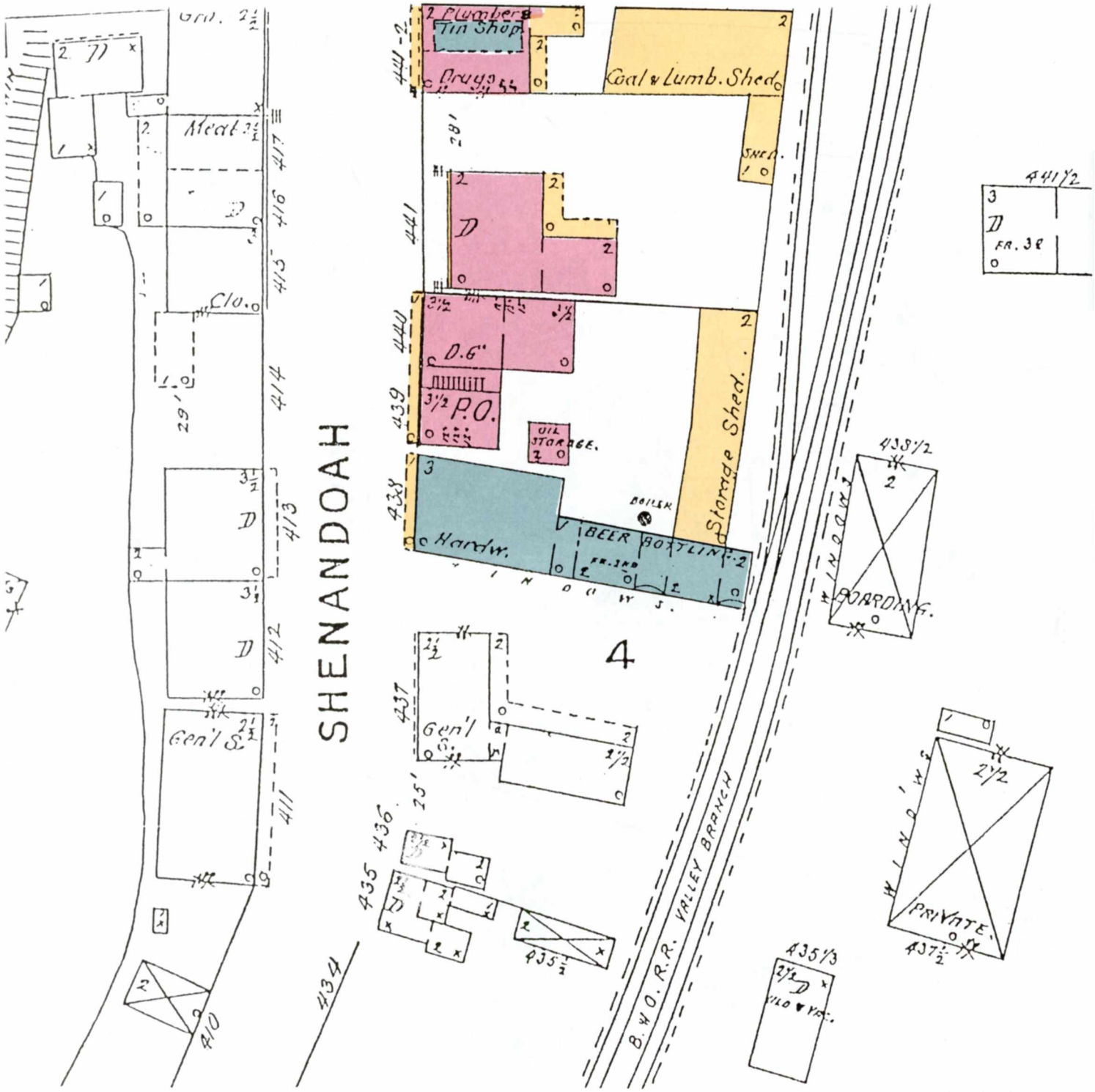


FIGURE 11A

Sanborn Perris
Fire Insurance Map

1894


Potomac River
1
2
Nov. 1894
HARPERS FERRY
W. VA.
POTOMAC
HIGH
ALLEY
ALLEY NO.
HOTEL CONNER
P.O.
CATHO. CHURCH
EPISC. CHURCH
PRESBYN. CHURCH
SHENANDOAH
4
3
Shenandoah River
Scale of Feet

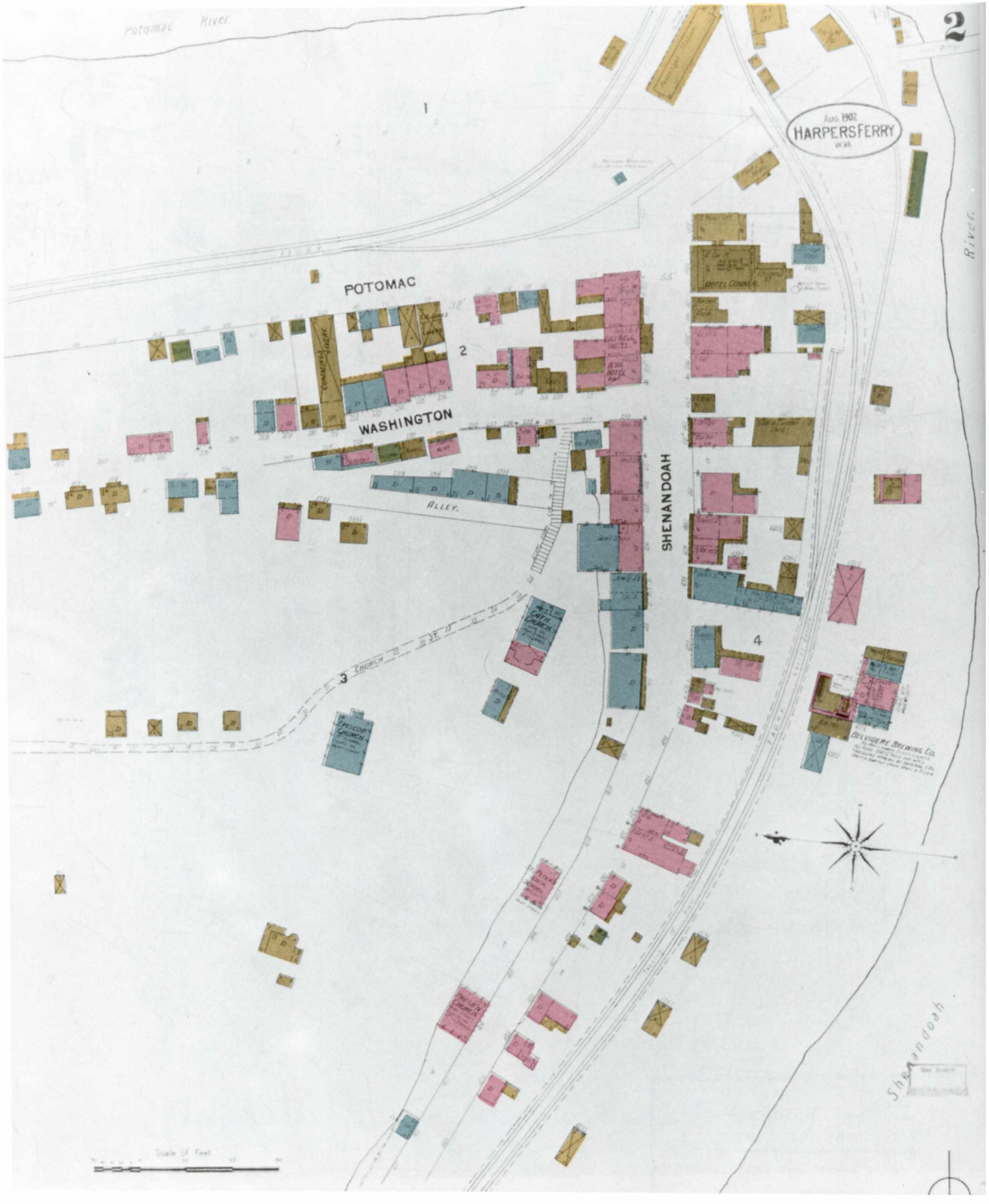

Potomac River
2
1
Aug. 1902
HARPERS FERRY
W. VA.
POTOMAC
2
WASHINGTON
ALLEY.
SHENANDOAH
4
3
CHURCH
River.
Shenandoah
Scale of Feet



FIGURE 11B

Sanborn Perris
Fire Insurance Map

1902

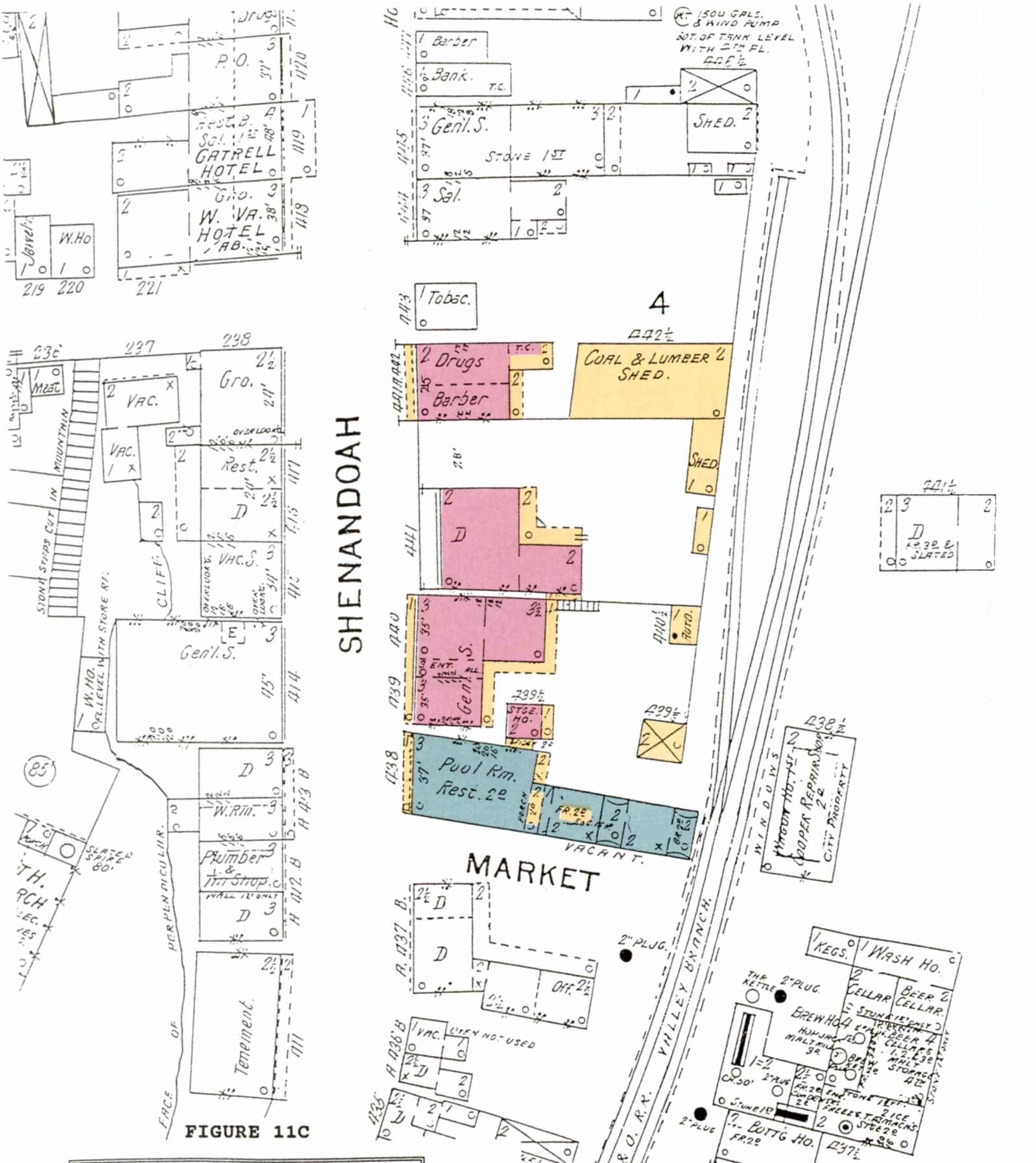


FIGURE 11C

Sanborn Perris
Fire Insurance Map

1907


Potomac River
2
SEPT. 1907
HARPERS FERRY
W. VA.
POTOMAC
WASHINGTON
SHENANDOAH
MARKET
CHURCH ST.
ALLEY
BRIDGE
EPIS CHURCH
JEFFERSON BREWING CO.
Scale of Feet
Shenandoah River


Potomac River
2
Nov. 1912
HARPERS FERRY
W. Va.
POTOMAC
WASHINGTON
CHURCH
MARKET
SHENANDOAH
BRIDGE
Shenandoah River
Scale of Feet

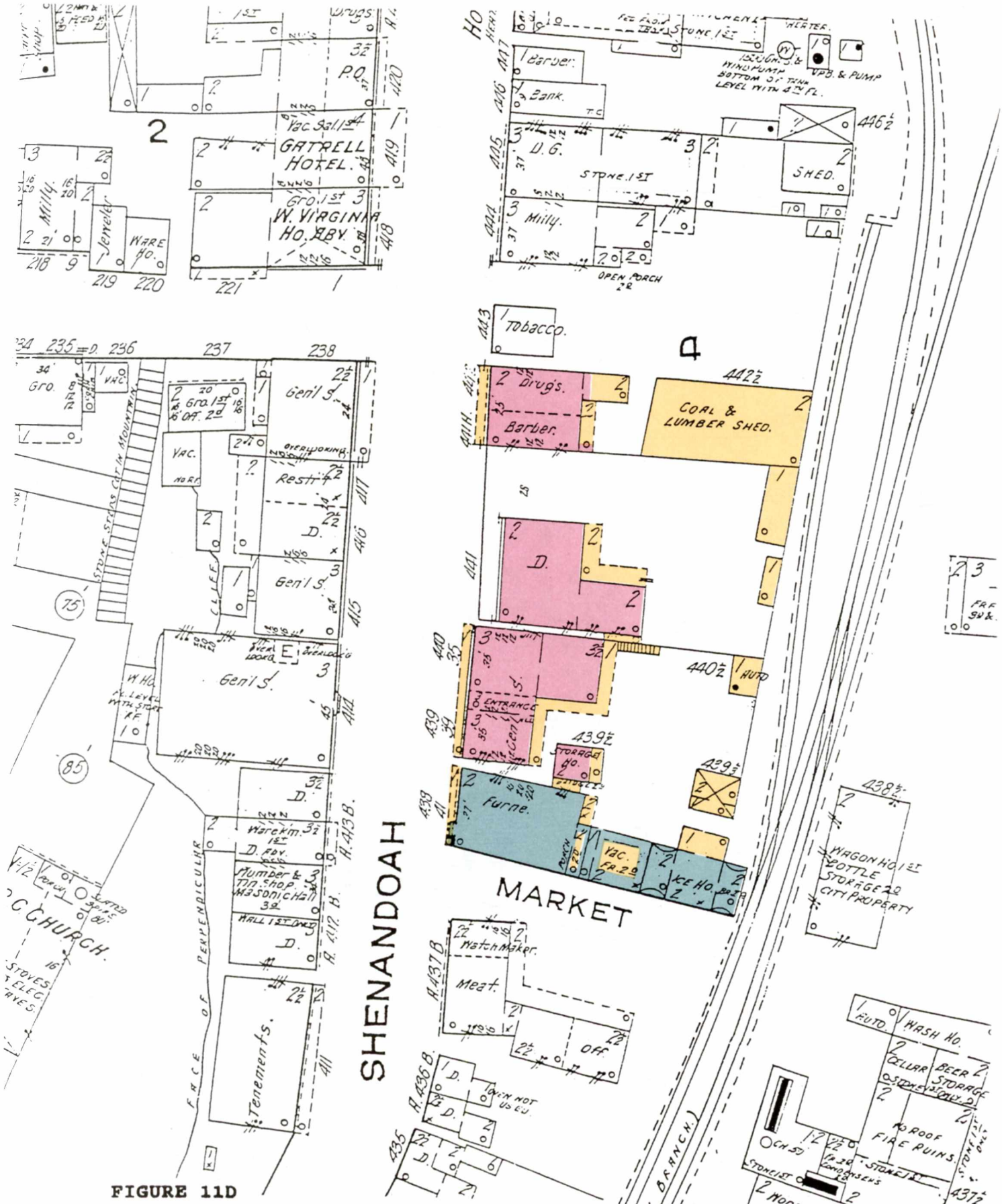


FIGURE 11D

Sanborn Perris
Fire Insurance Map

1912

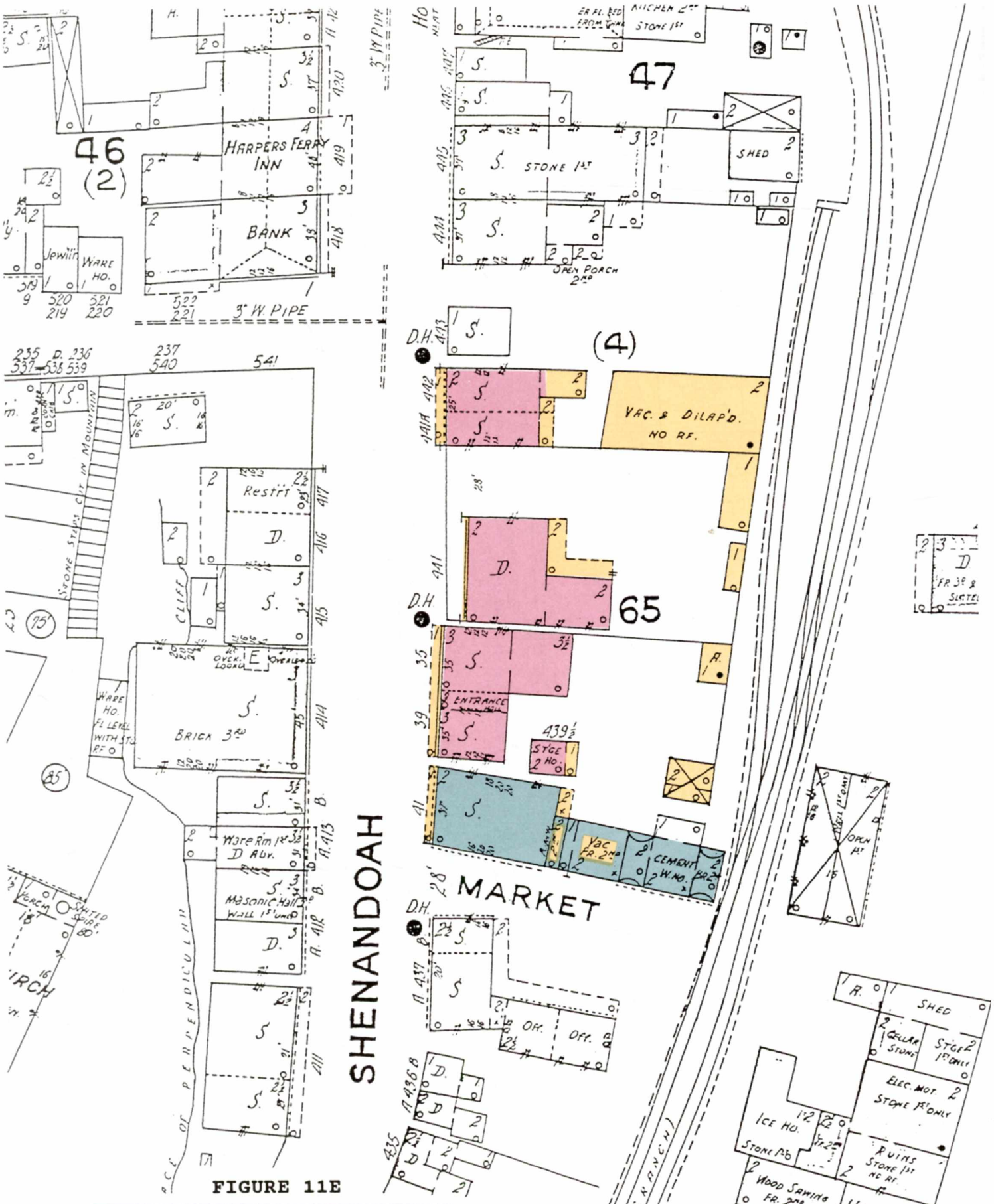
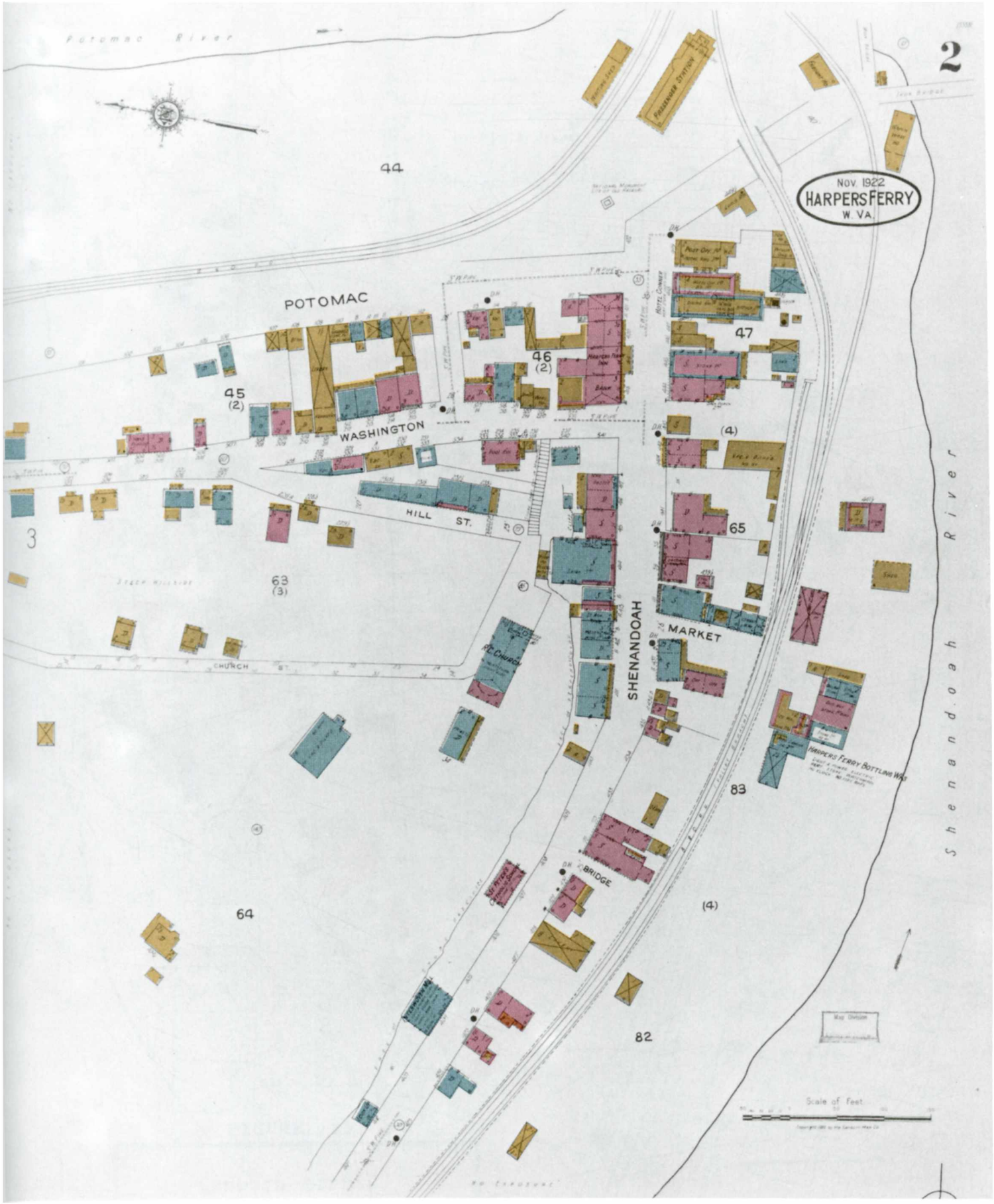


FIGURE 11E

Sanborn Perris
Fire Insurance Map

1922


2
Potomac River
Nov. 1922
HARPERS FERRY
W. VA.
POTOMAC
WASHINGTON
HILL ST.
MARKET
SHENANDOAH
CHURCH ST.
BRIDGE
Shenandoah River
44
45
(2)
46
(2)
47
(4)
65
63
(3)
64
83
(4)
82
3
Scale of Feet


HARPERS FERRY, W VA
MAY 1933
2
Potomac River
Maryland
West Virginia
BACKE STATION
POTOMAC
POST OFFICE
47
46
45
3
WASHINGTON
PUBLIC WALK (HILL)
63
65
MARKET
CHURCH
ST PETERS RC CHURCH
SHENANDOAH
HARPERS FERRY BOTTLING WORKS
83
CLIFF
64
BRIDGE
81
HAMILTON
82
PELL
Shenandoah River

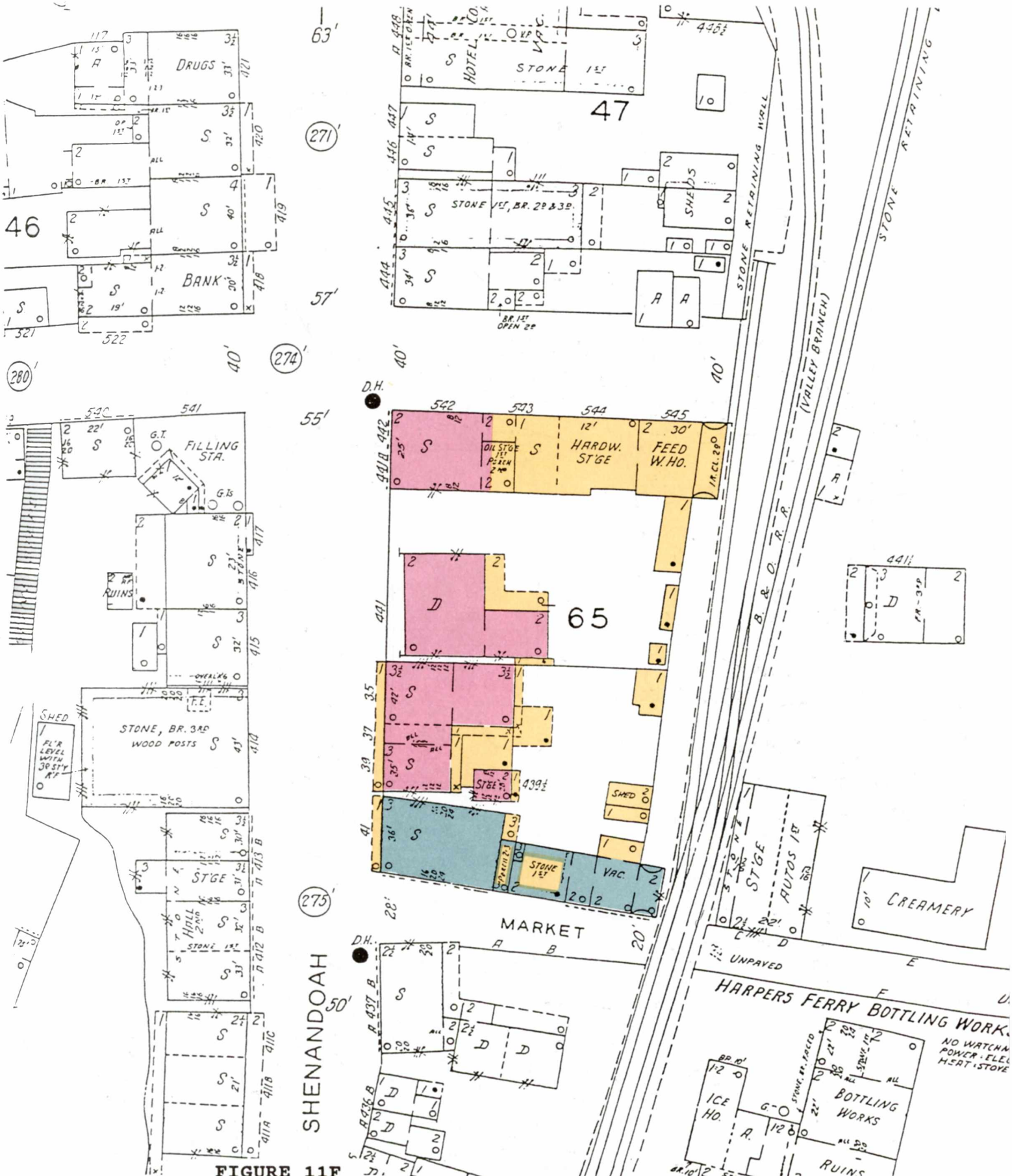


FIGURE 11F

Sanborn Perris
Fire Insurance Map

1933

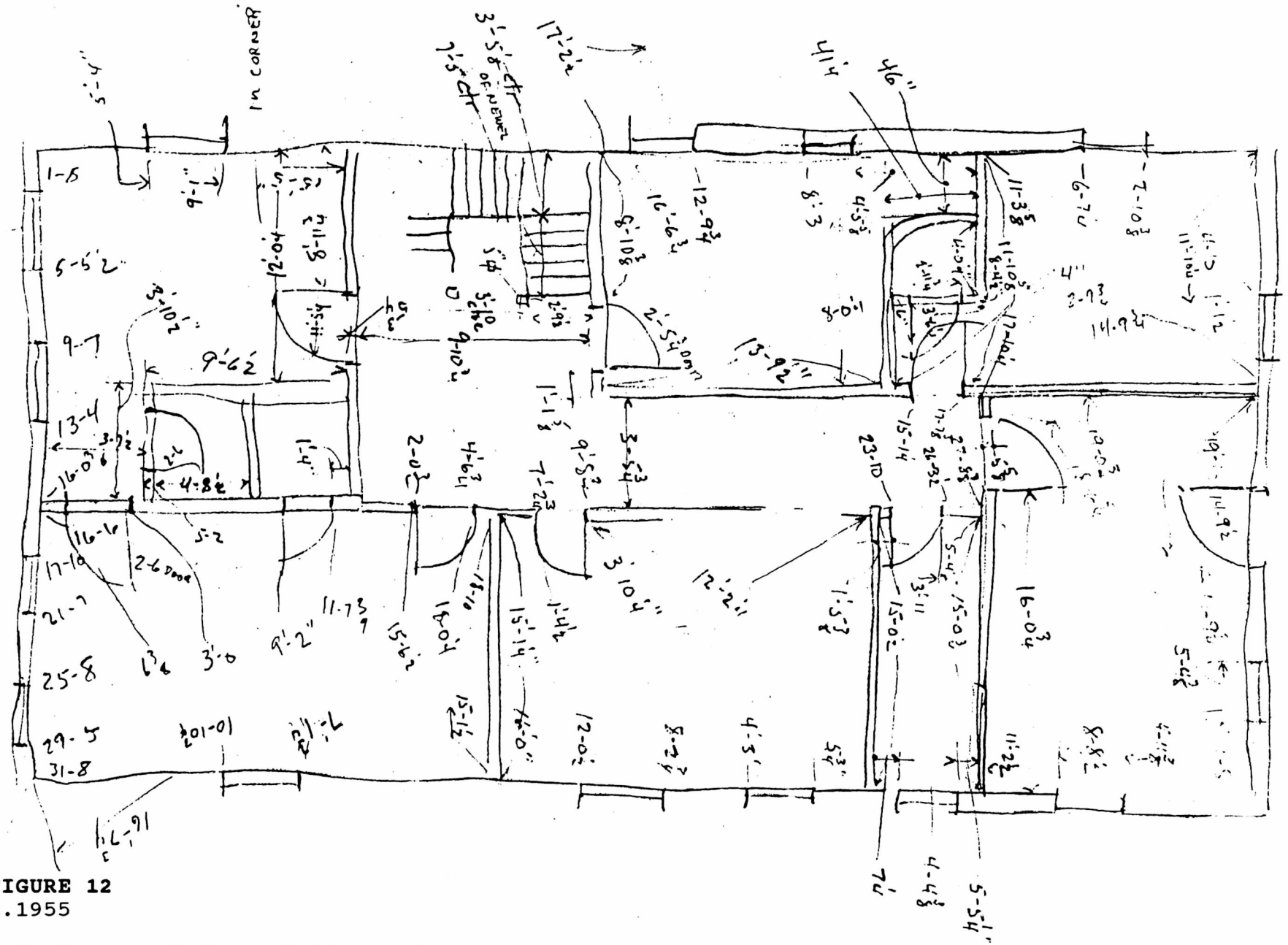


FIGURE 12
c.1955

Existing Conditions Field Sketch,
Building 33, 3rd Floor.



View from above river's confluence, similar to NHF-3124A. Note building 32 shed addition to east added by this date, one to south removed.

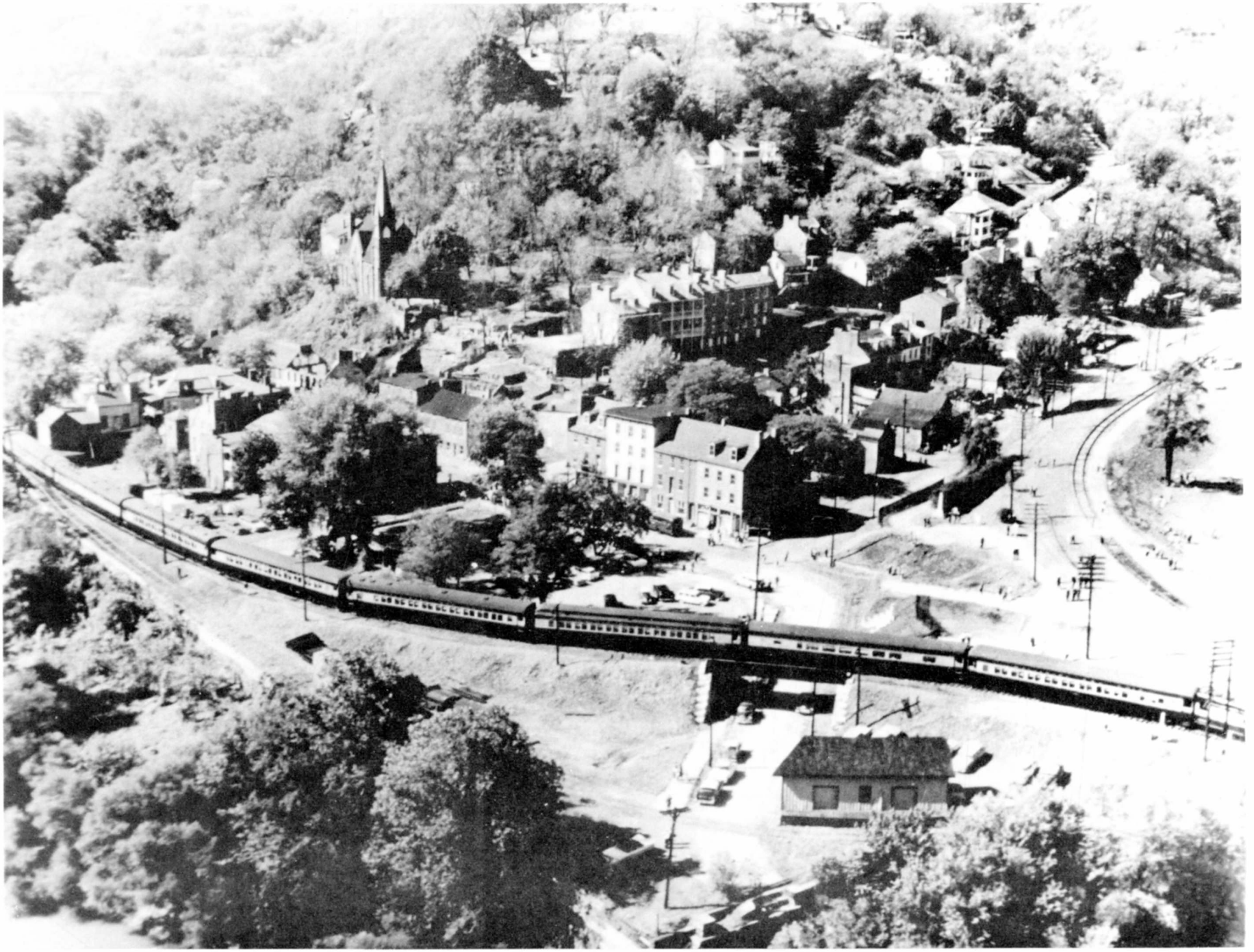


FIGURE 14
NHF-3124A

View from above the river's confluence. Note: building 33A cupola over elevator added by this date; railroad shed removed; building 33A porch still in place; windows added to south elevation of building 33A; horizontal siding.

APPENDIX B

Existing Conditions Photos

1992

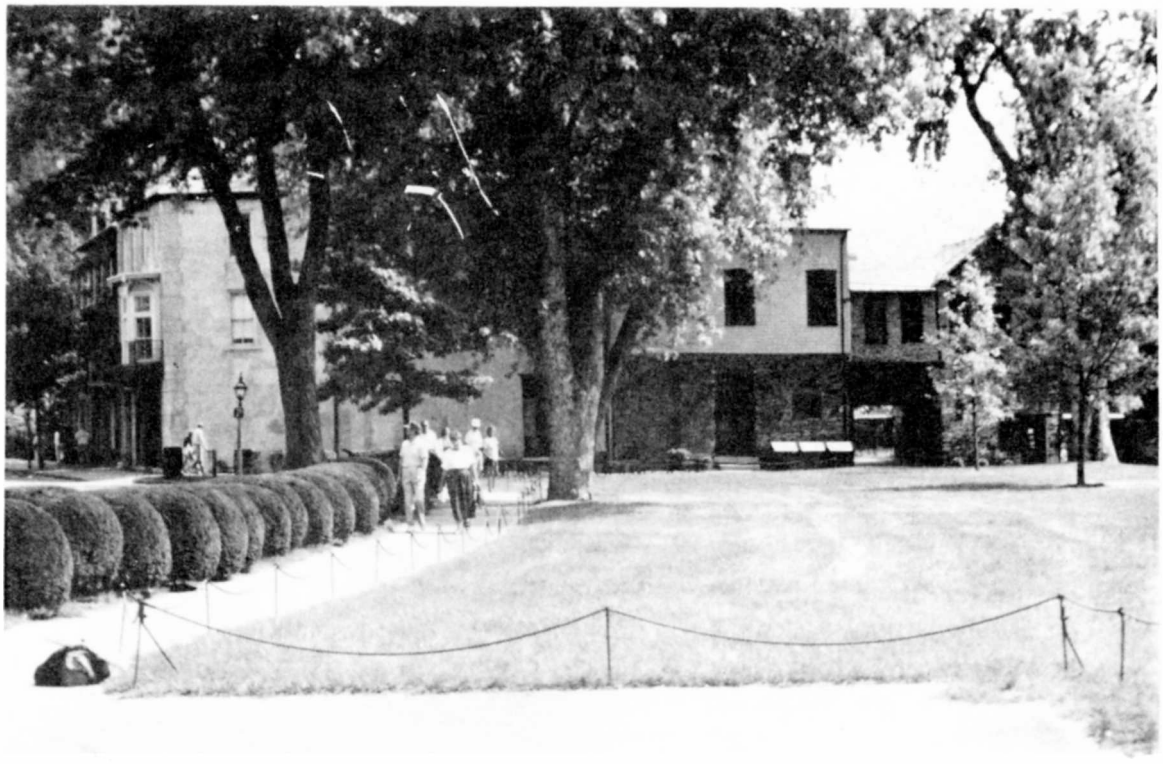


FIGURE 1
Bldgs. 32, 33A, 33
west elevations along
Market Street.



FIGURE 2
View from Bldg. 33
roof onto backyard.



FIGURE 3
View of Bldgs. 32, 33A, and 33 from backyard.

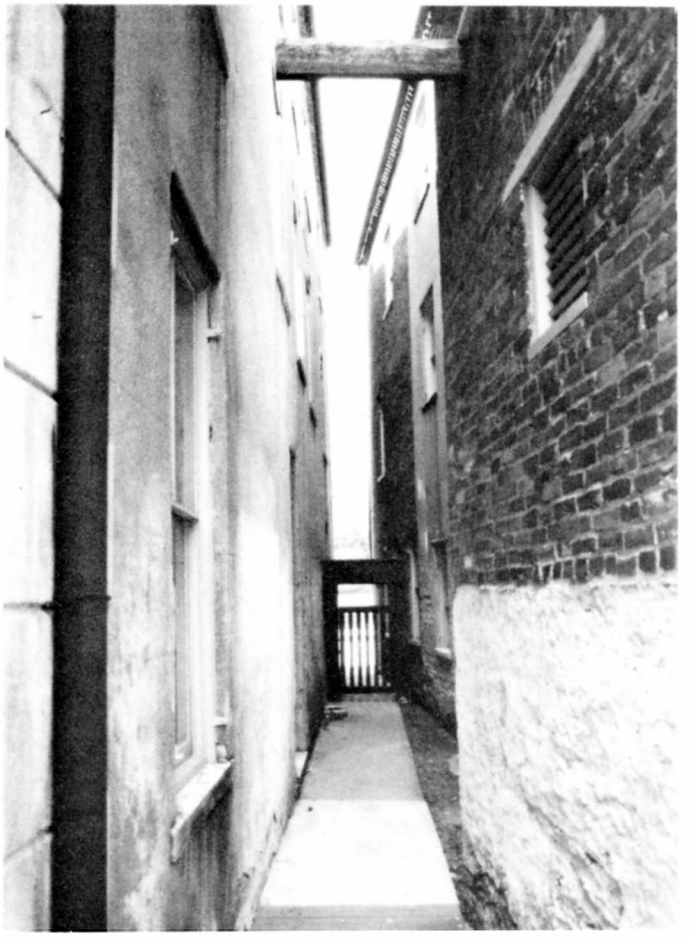


FIGURE 4
Looking north from between Bldgs. 33 & 34A towards Shenandoah Street.



FIGURE 5
NPS gate reconstruction between north ends of Bldgs. 33 & 34.

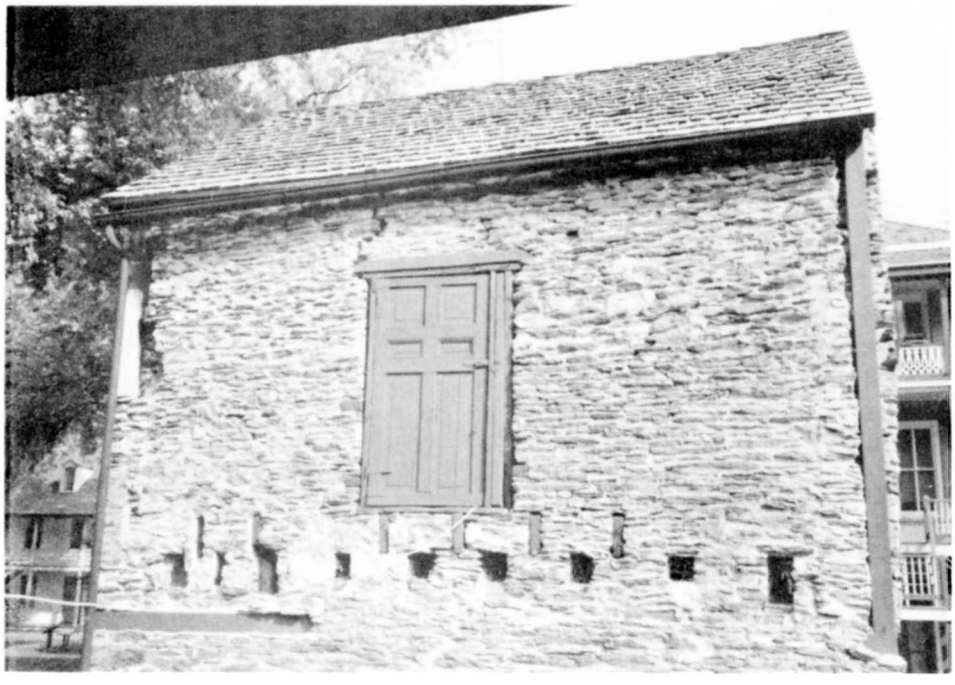


FIGURE 6
South elevation, Bldg. 32, with wood shingle roof.

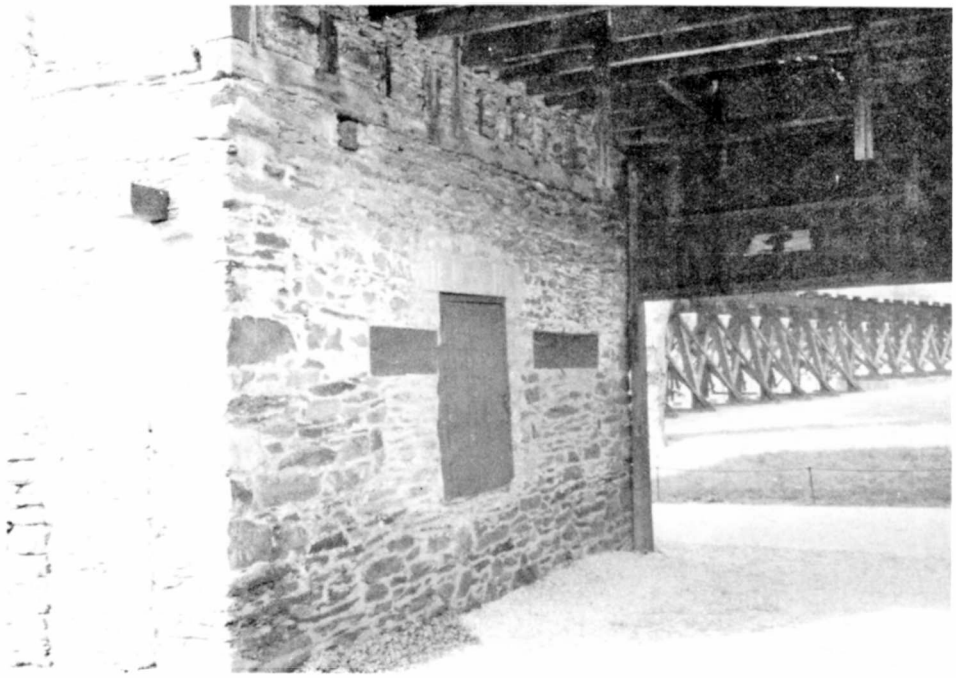


FIGURE 7
Infill on east wall & north wall around door 122.

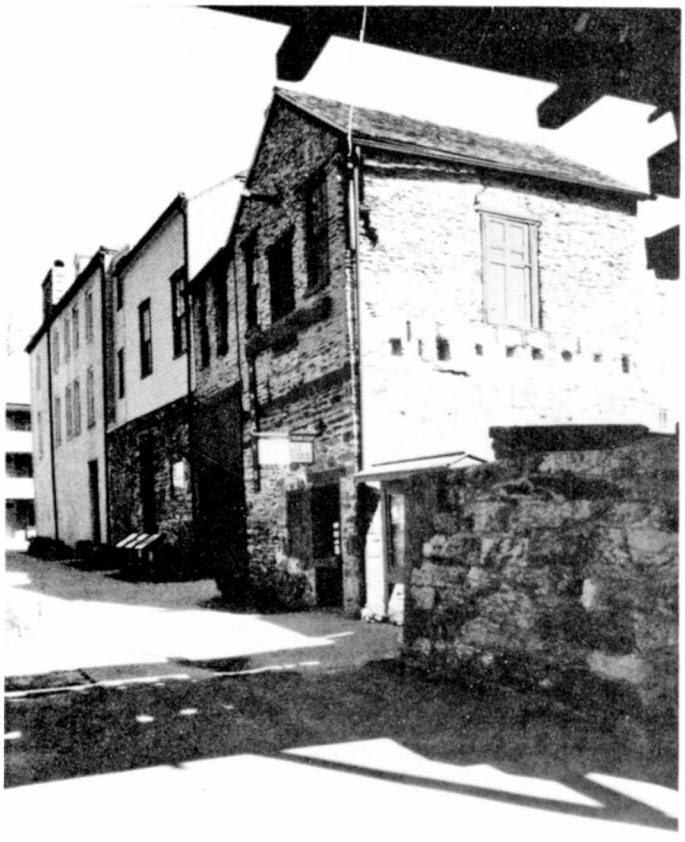


FIGURE 8
Southwest corner of Bldg. 32 from beneath railroad trestle. Brick infill below patch of missing stone.



FIGURE 9
The rods above 2nd floor level stablize the Bldg. 32 walls.



FIGURE 10
Bldg. 33 rooftop.



FIGURE 11
Chimney with center arch opening, west side of Bldg. 33.



FIGURE 12
Southwest chimney, Bldg. 33, showing arched cap.

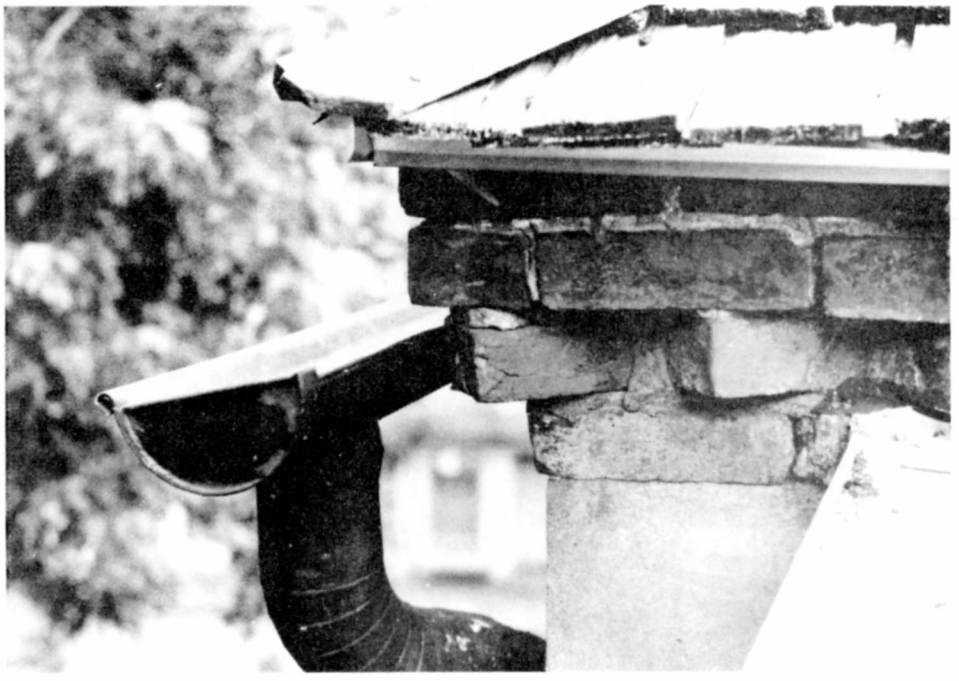


FIGURE 13
Four course, brick cornice on Bldg. 33.

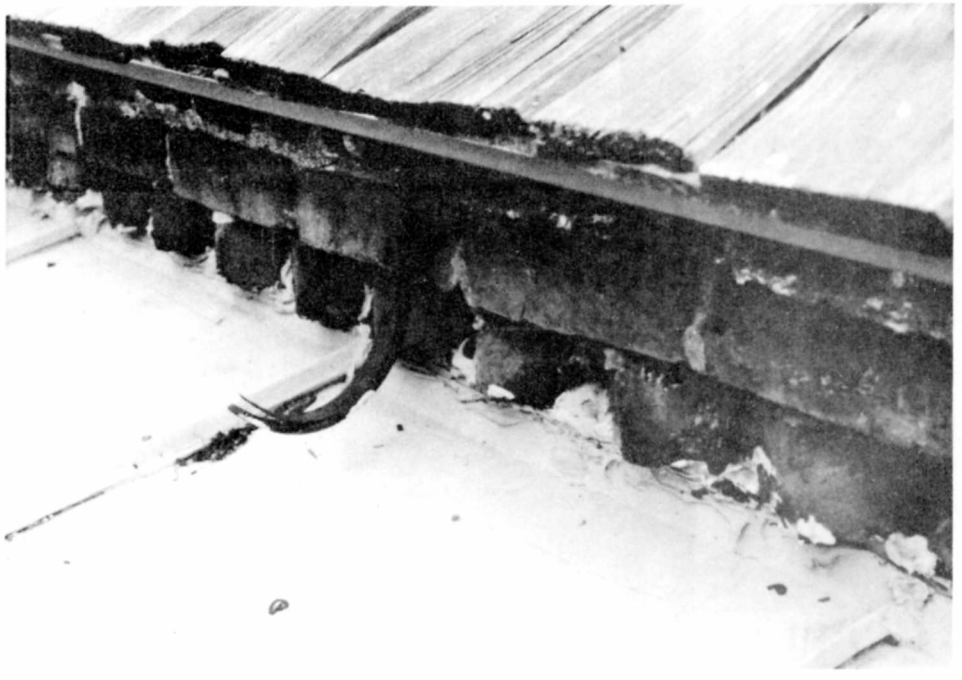


FIGURE 14
Missing gutter over Bldg. 33 porch roof & peeling iron gutter brackets.

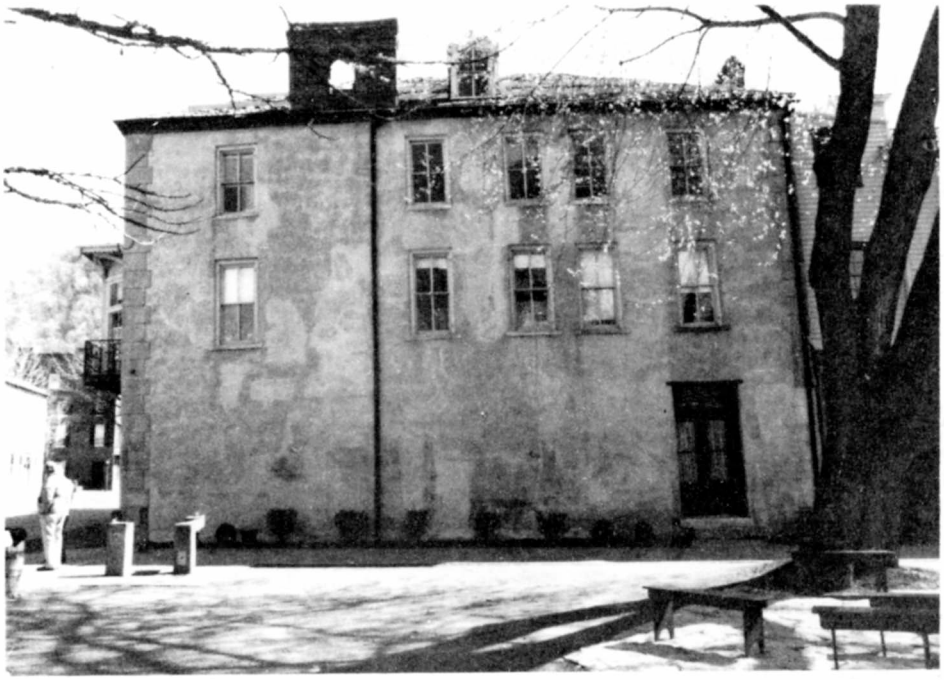


FIGURE 15
Patched stucco on Bldg. 33;
east elevation evident.

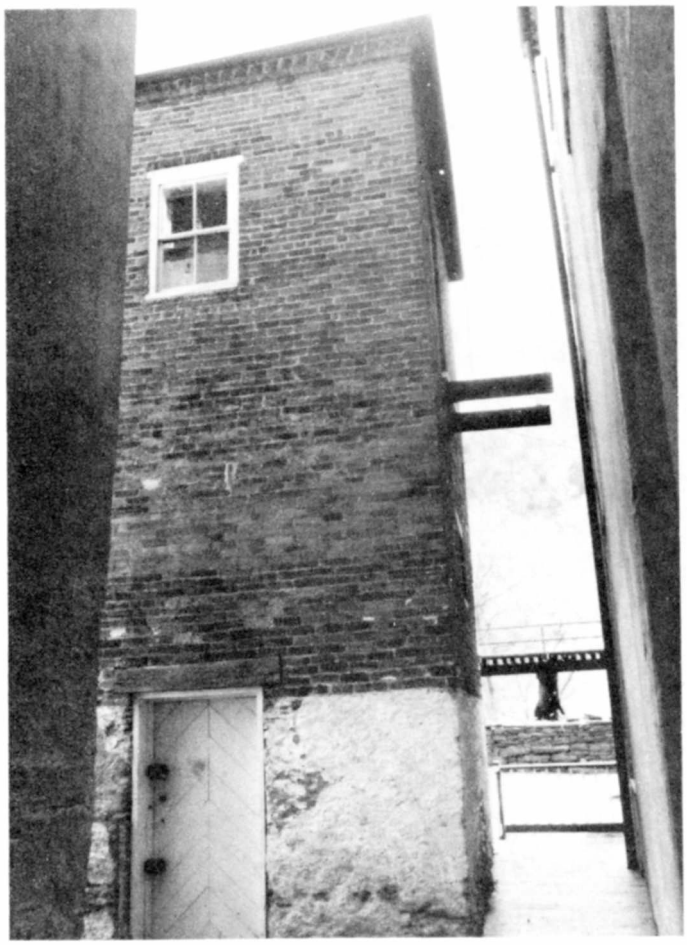


FIGURE 16
Bldg. 34A porch joist
adjacent to Bldg. 33
east elevation

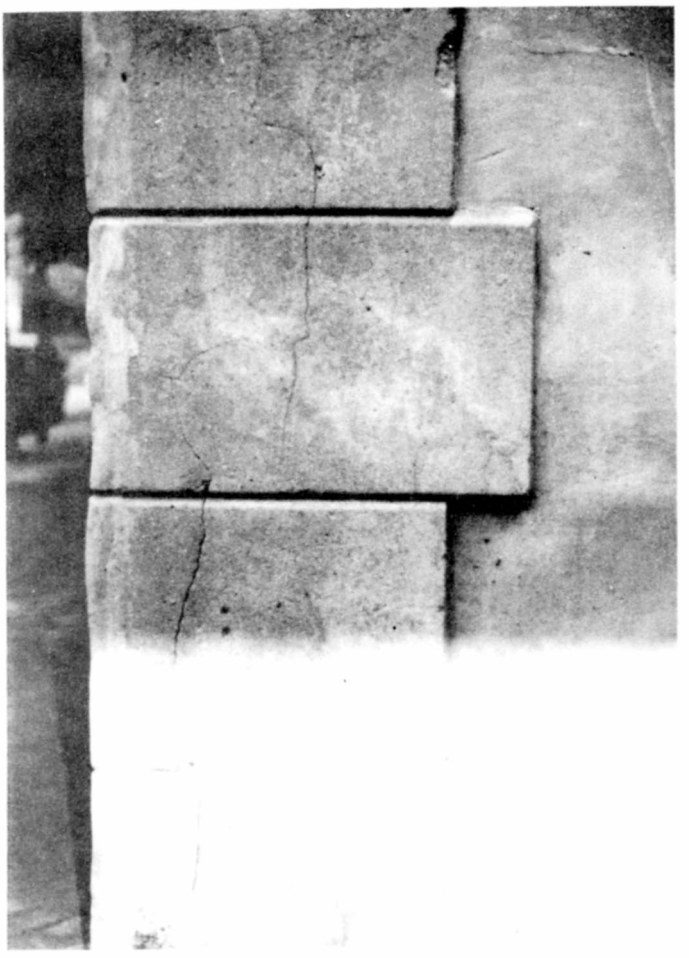


FIGURE 17
Cracks through parged quoins on northwest corner of Bldg. 33.



FIGURE 18
Bldg. 33 storefront window with stone sill and balcony deck above.



FIGURE 19
Iron brackets supporting balcony, balcony railing, and roof deck structure, north elevation, Bldg. 33.

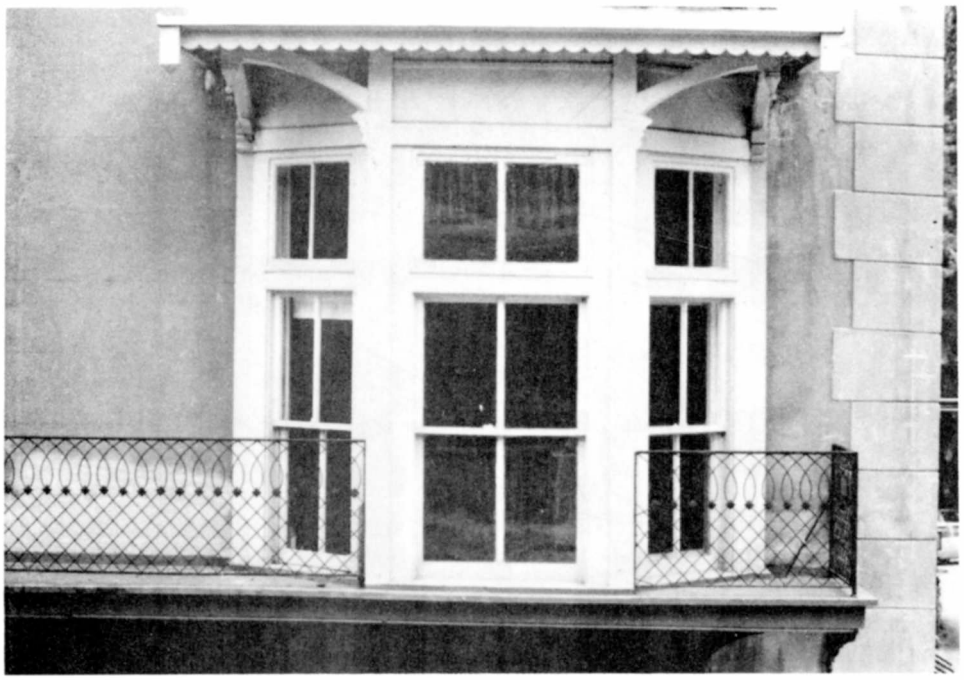
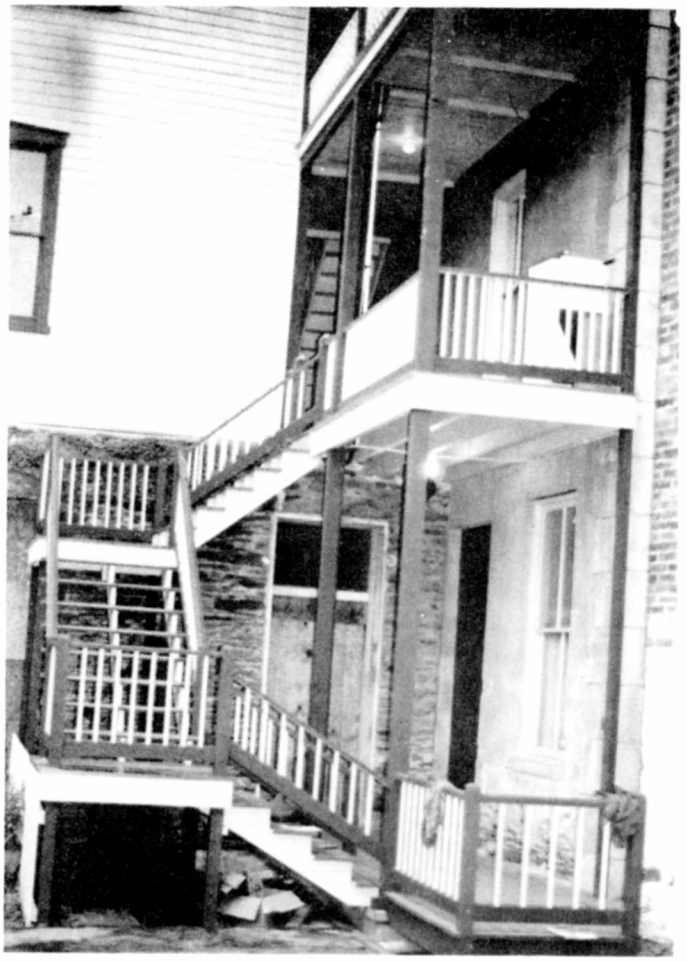


FIGURE 20
Bay window opening onto front balcony, Bldg. 33.



FIGURES 21-22
Bldg. 33 rear porch and reconstructed stair. Pickets on the 3rd floor, reconstructed from the Doran era, have been replaced to match those on the 2nd floor.
(Photo, 1989)

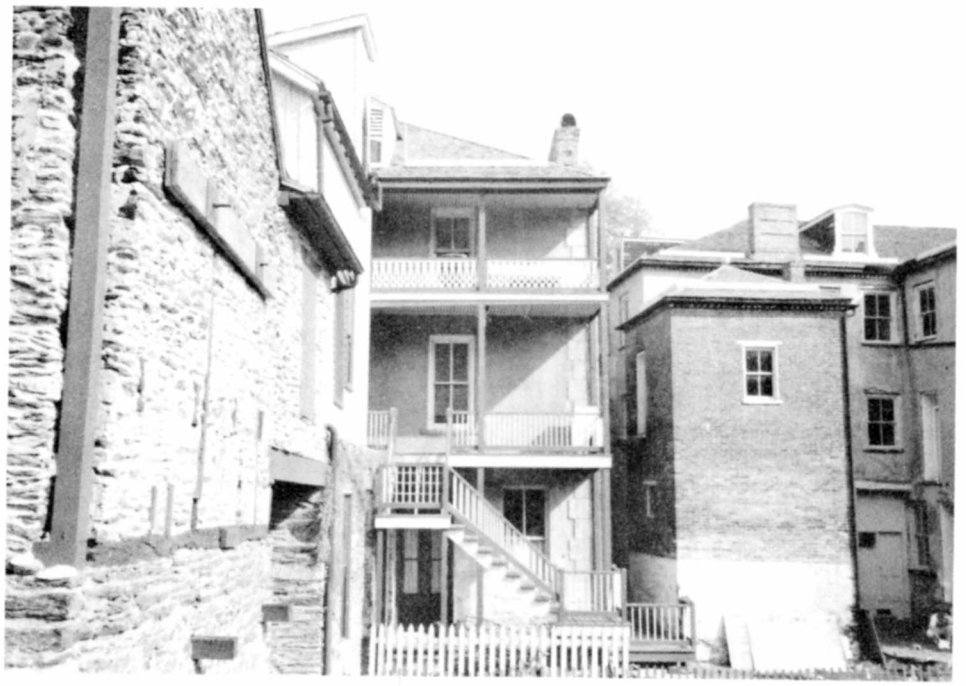




FIGURE 23
Door 114, south elevation,
Bldg. 33.

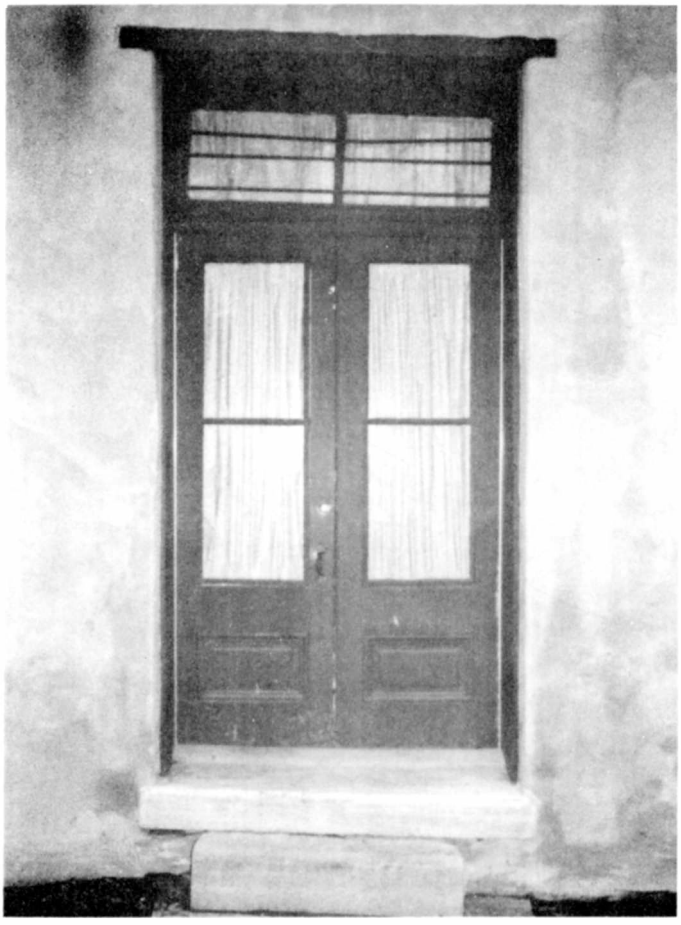


FIGURE 24
Door 116, west elevation,
Bldg. 33.

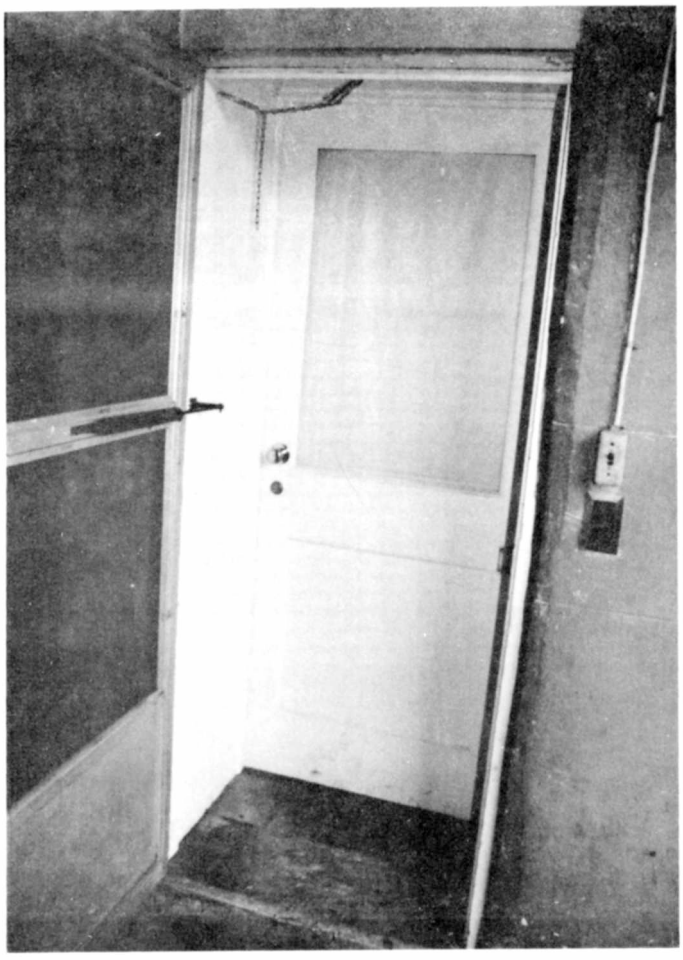


FIGURE 25
Door 111, east elevation,
Bldg. 33.

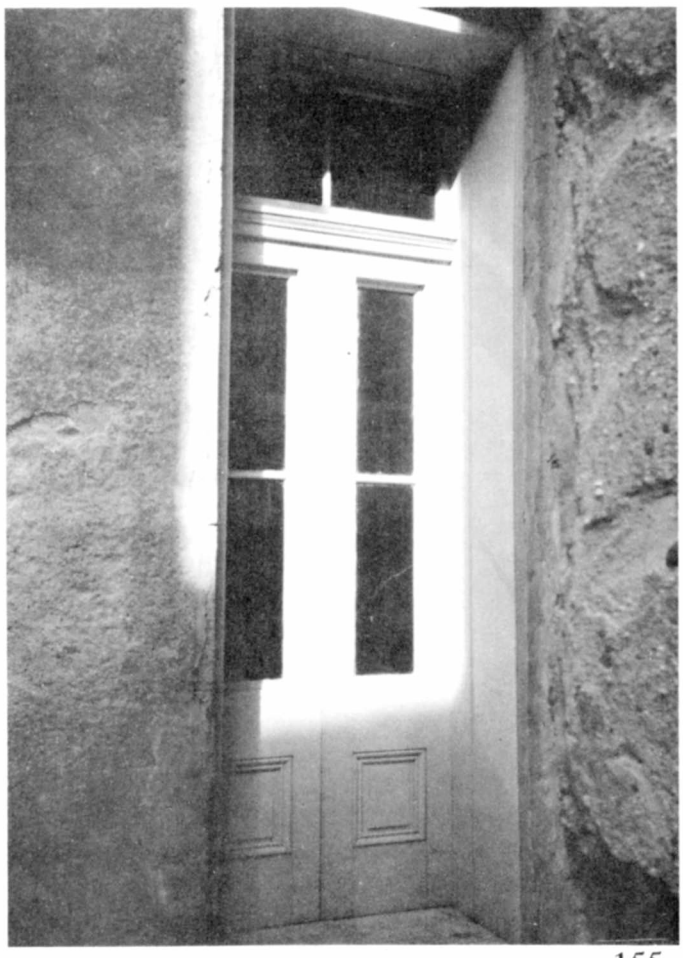


FIGURE 26
Door 214, south elevation,
Bldg. 33.



FIGURE 27
Window 101, typical to 1st floor, Bldg. 33.



FIGURE 28
Window 201, typical to 2nd & 3rd floors, Bldg. 33.

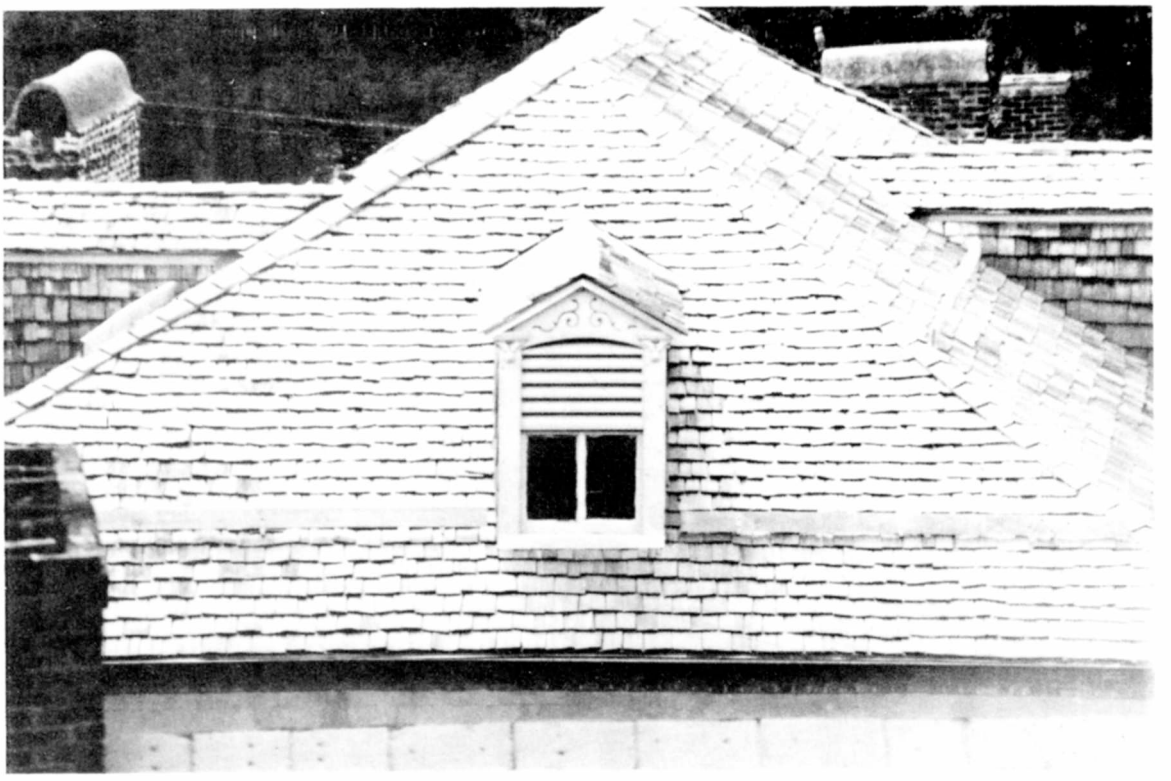


FIGURE 29
North dormer with modern sash alteration,Bldg.33.



FIGURE 30
Door 102, north entry to stair hall, Bldg. 33.

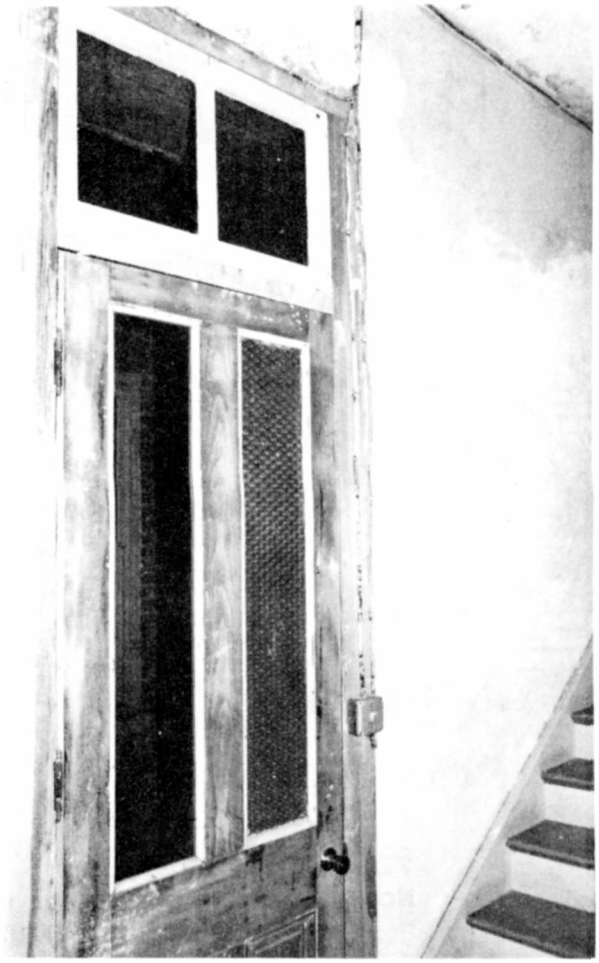


FIGURE 31
Door 103, east entry to stair hall, Bldg. 33.



FIGURE 32
Bldg. 33, historic door 201, probably had glazed upper panels.

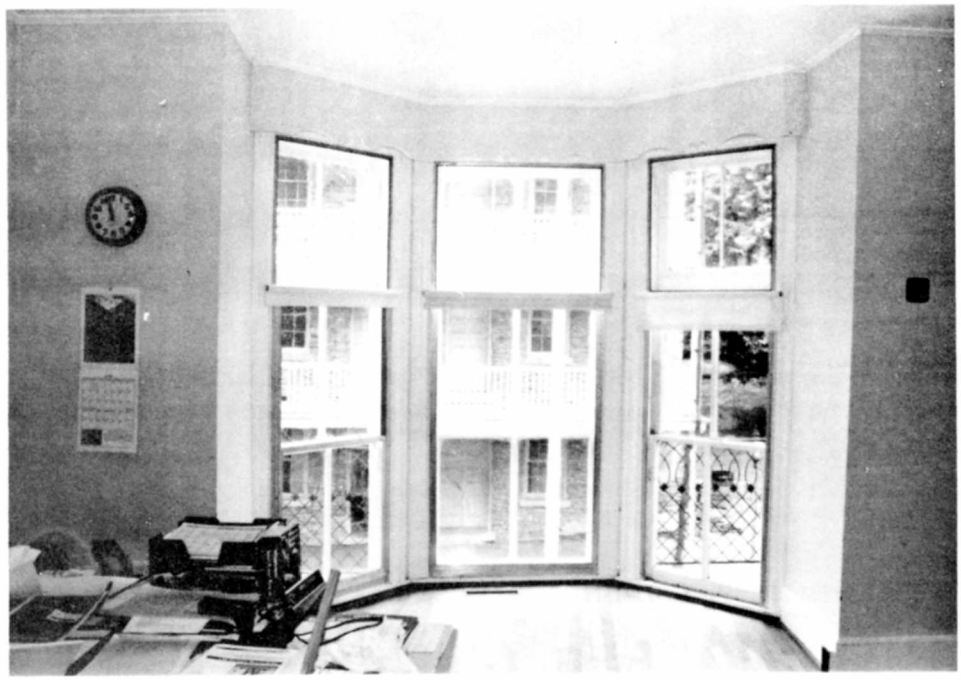


FIGURE 33
Bldg. 33 bay window, room 202 with non-historic valence.

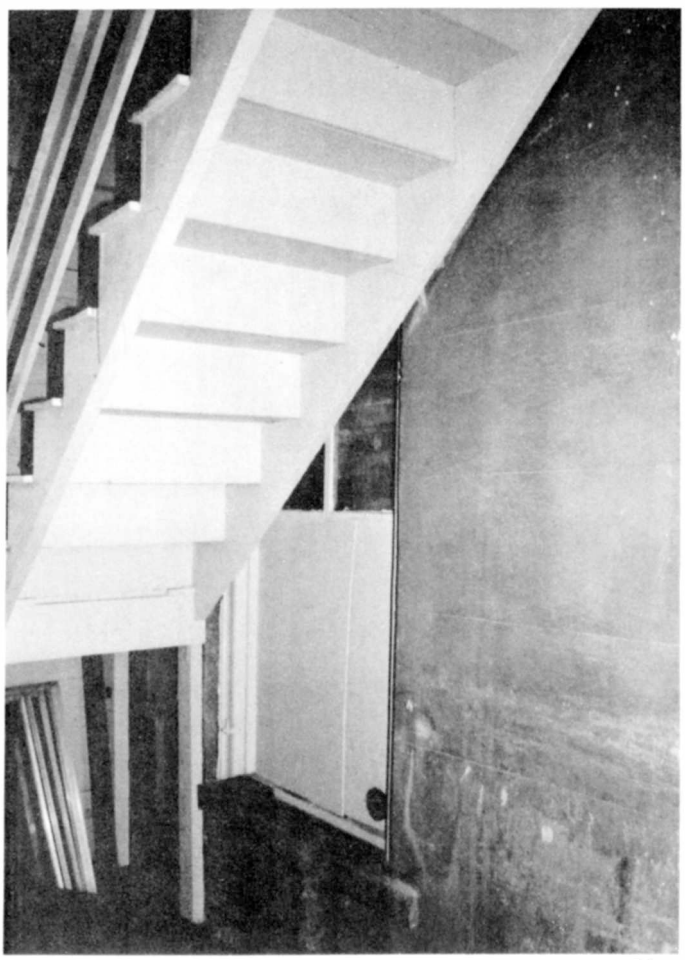


FIGURE 34
Window 202, filled-in on unknown date, Bldg. 33.



FIGURE 35
Replastering and repair in room 302, Bldg. 33, looking north across Shenandoah St.

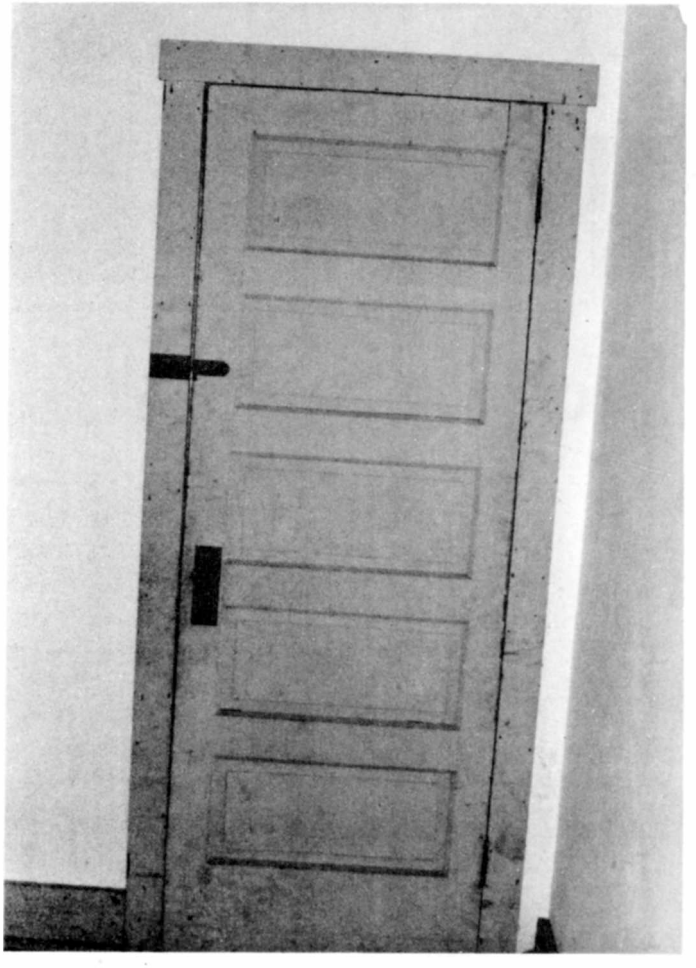


FIGURE 36
Non-historic door 312, Bldg. 33

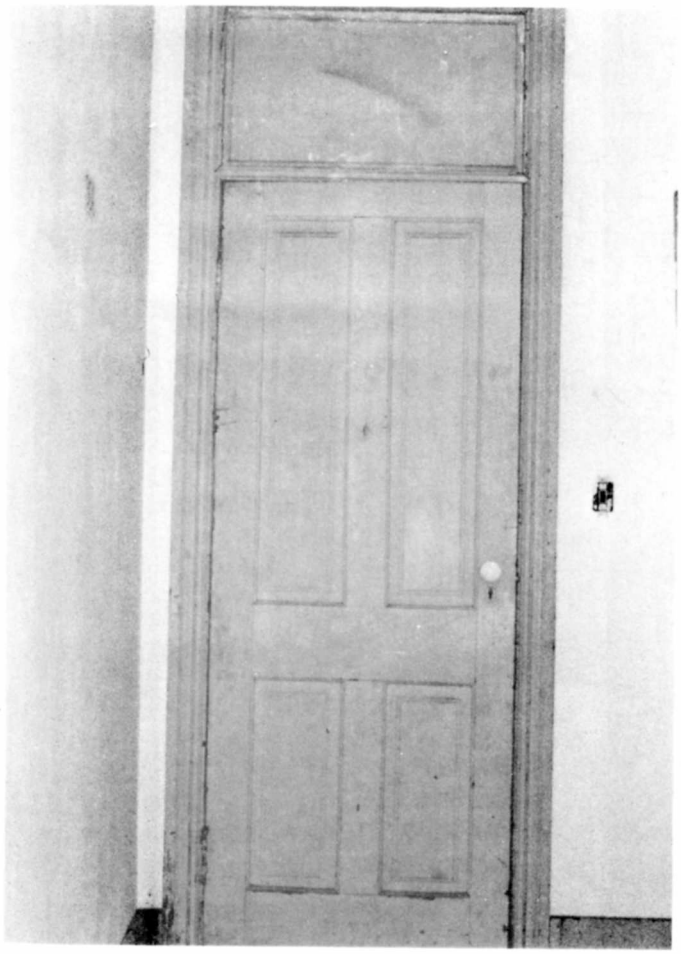


FIGURE 37
Historic door 308, typical on 2nd, 3rd, & 4th floors, Bldg. 33.

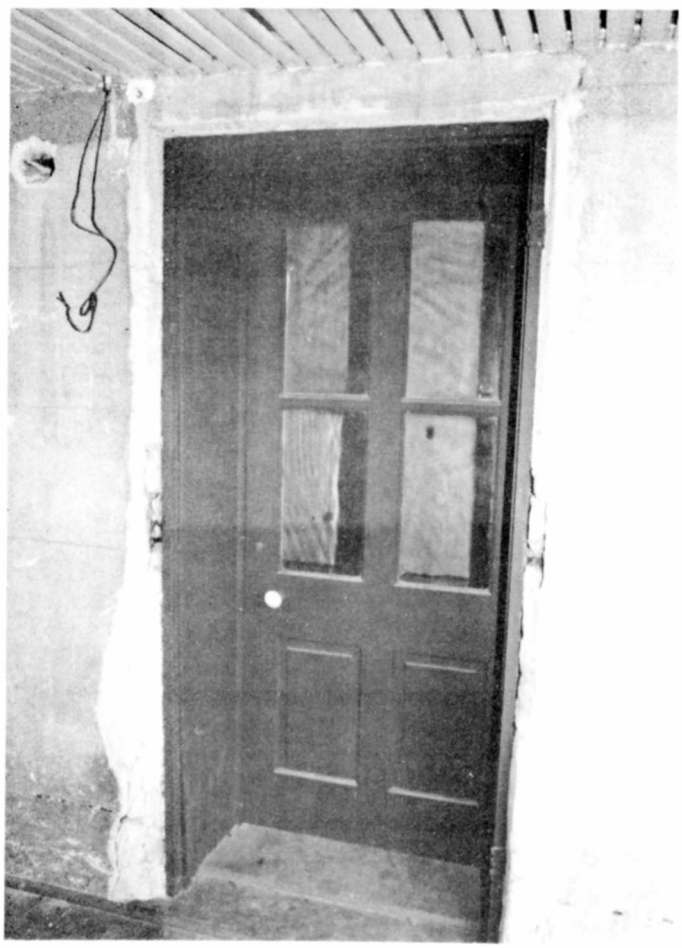


FIGURE 38
Non-historic door 319 was originally a door.

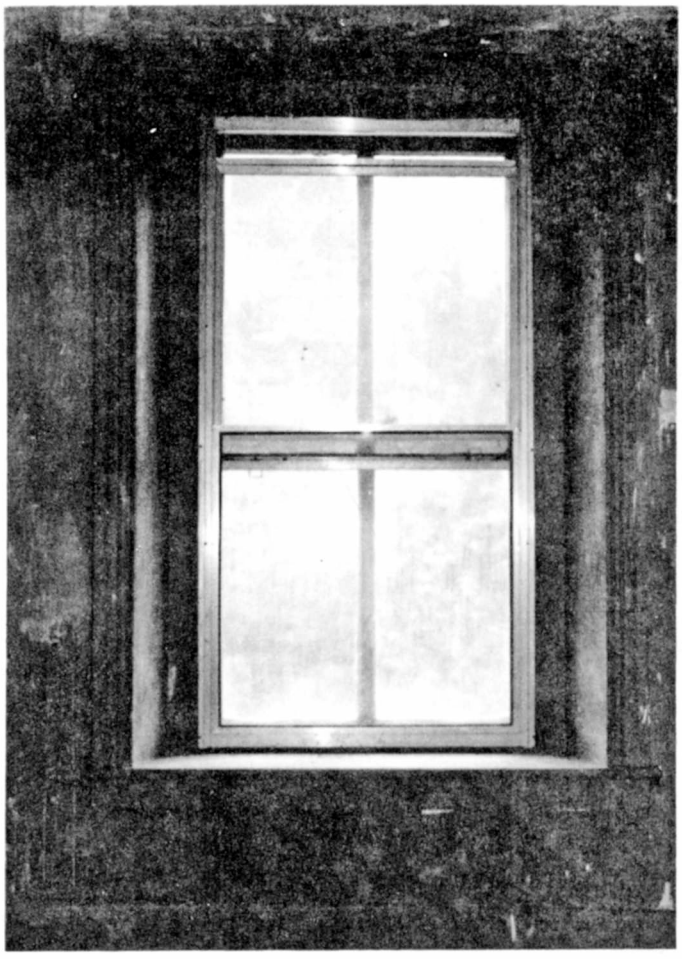


FIGURE 39
Window, Bldg. 33 (room 301?) with 1958 aluminum storm window.



FIGURE 40
HVAC equipment visible in background, electrical panel in foreground on 2nd floor porch, Bldg. 33.



FIGURE 41
Electrical service on Bldg. 33A north wall at Bldg. 33 2nd floor porch, at rear of Bldg. 33.

FIGURE 42
Bldg. 33, room 404, fallen plaster.



FIGURE 43
Vent pipe channelled out south dormer window, Bldg. 33.



FIGURE 44
Bldg. 33 exterior.

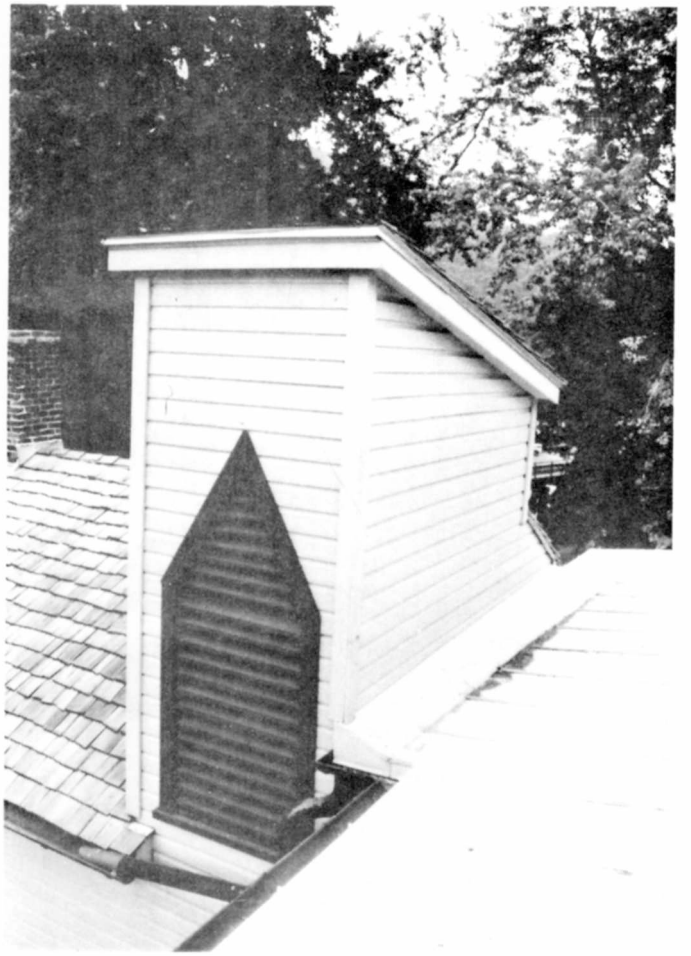


FIGURE 45
Post-1990 cupola over elevator shaft, Bldg. 33A.

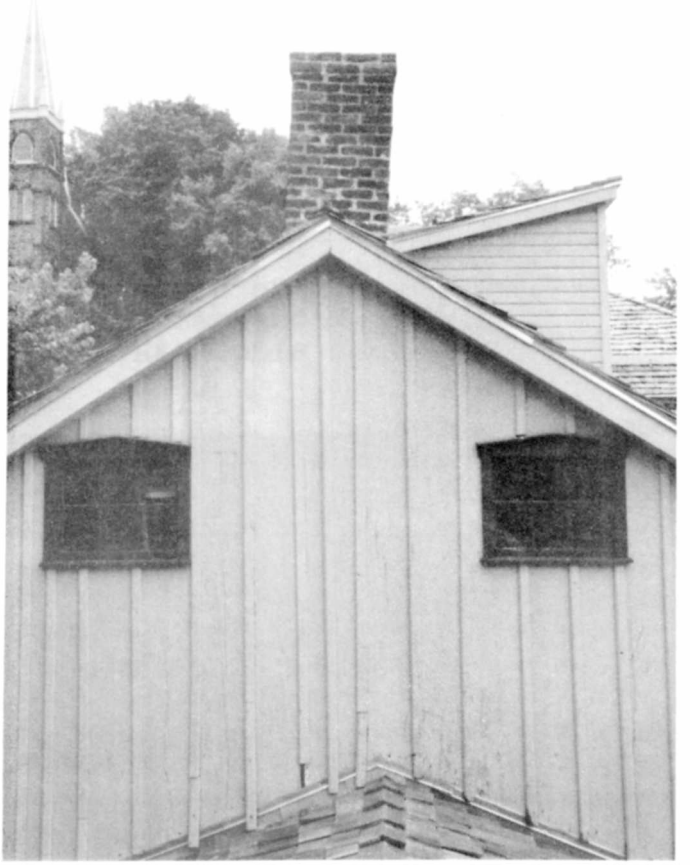


FIGURE 46
Vertical siding on south wall with non-historic windows, Bldg. 33A.

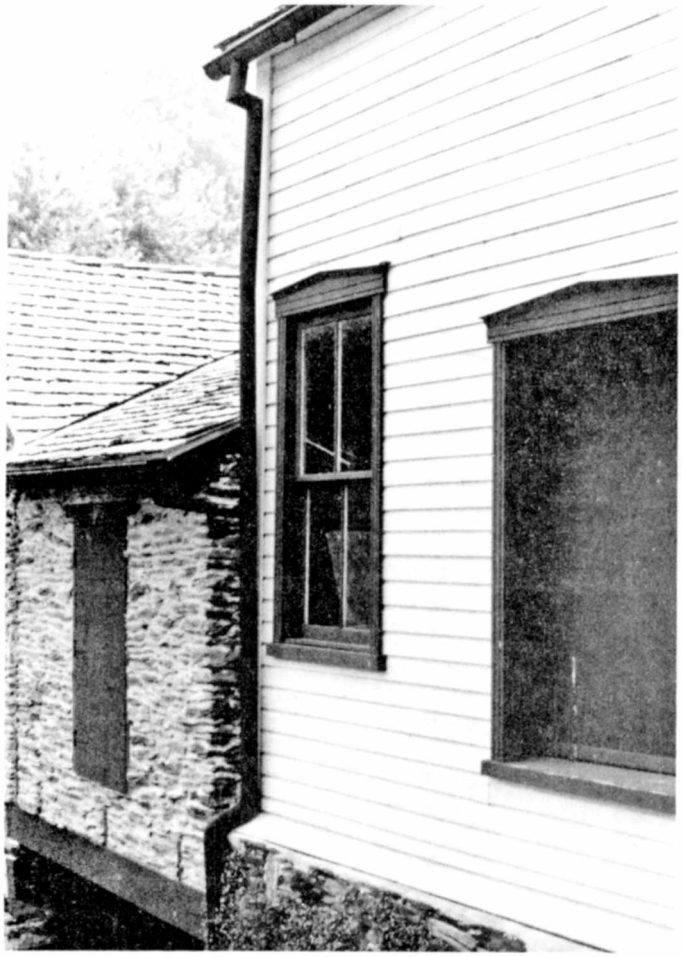


FIGURE 47
Flashing at modern window and door hoods, east elevation, Bldg. 33A.

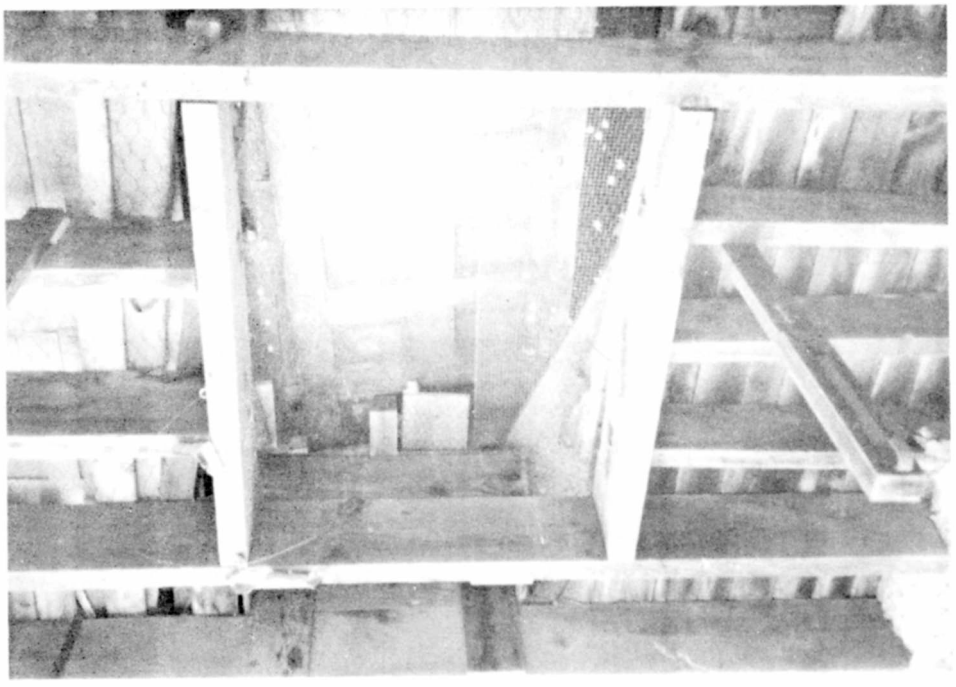


FIGURE 48 & 49
Breezeway floor, structurally unsound.

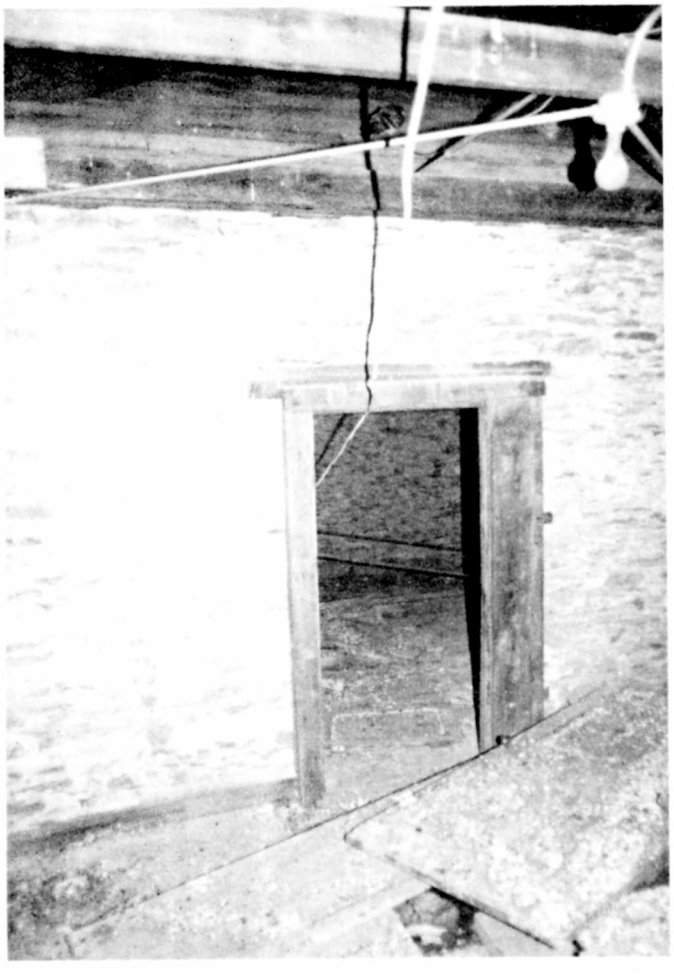




FIGURE 50
Bldg. 33A, door 218 was undoubtedly vertical board and batten.

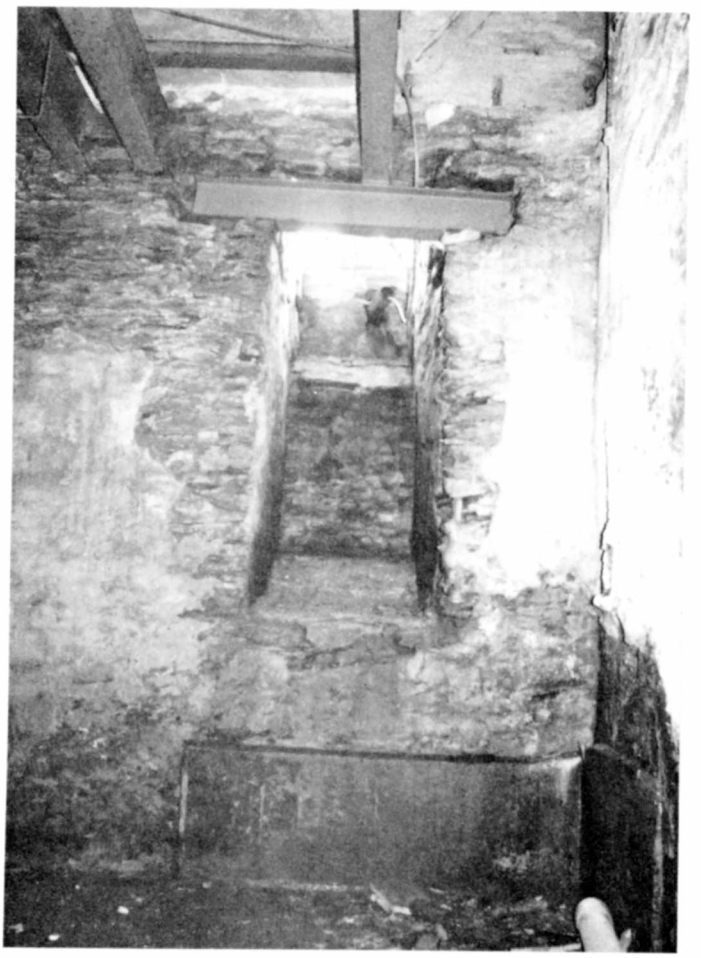


FIGURE 51
Bldg. 33A, 1st floor, southwest corner with remains of plaster.



FIGURE 52
Bldg. 33A, 1st floor looking north to door 115.





FIGURES 53 & 54
Basement access from east exterior, Bldg. 33A.

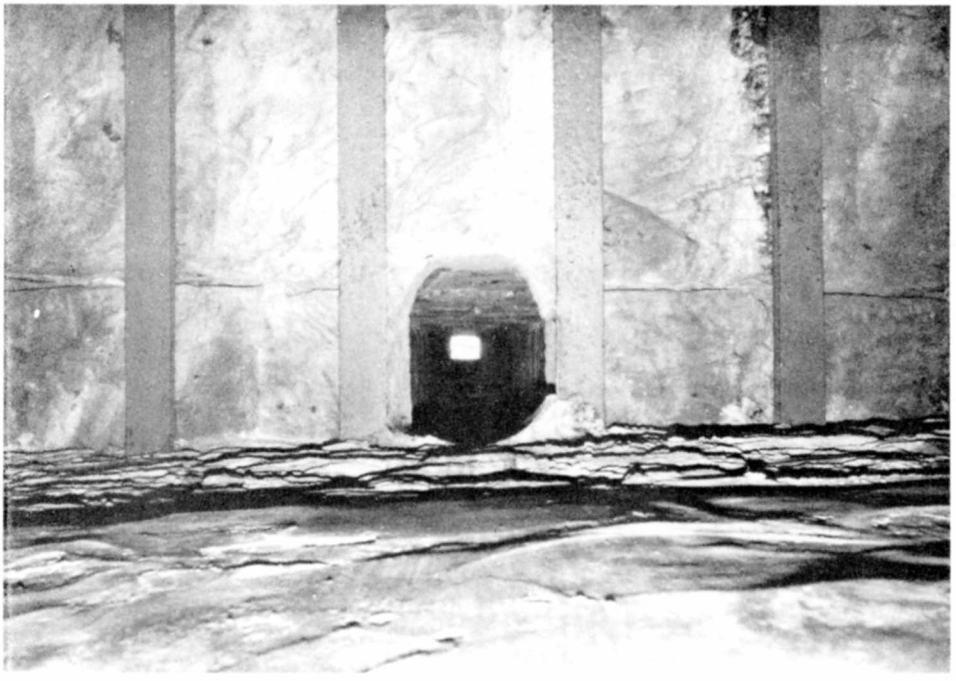


FIGURE 55
First floor slab of steel beams and flagstone with concrete on top, as seen from basement, Bldg. 33A.

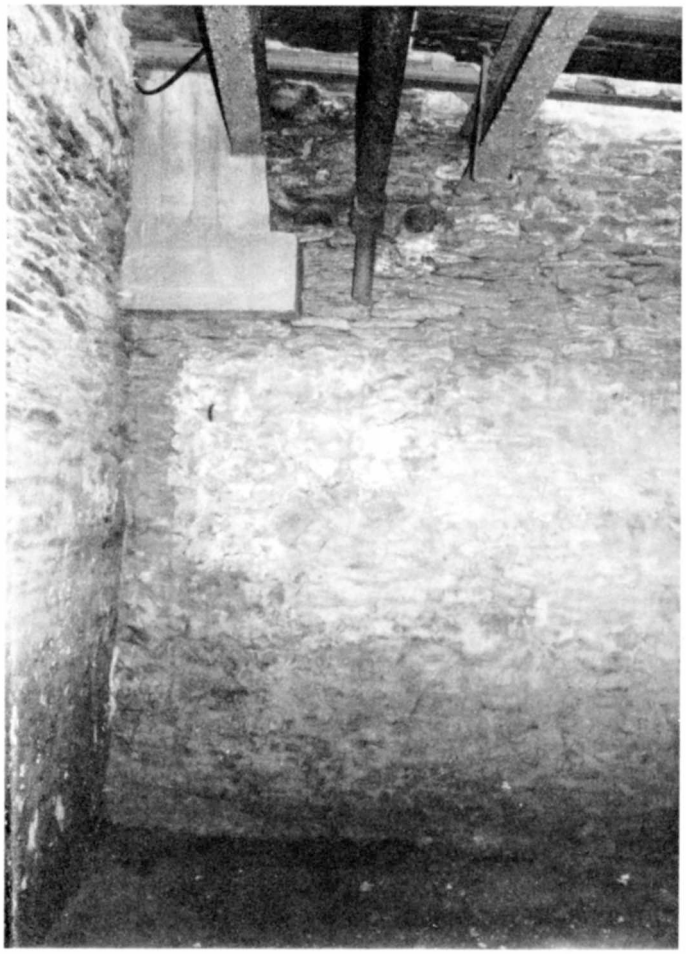


FIGURE 56
Beams supporting first floor, badly rusted, Bldg. 33A.



FIGURE 57
Bldg. 33A, 2nd floor, looking north towards elevator shaft.



FIGURE 58
Bldg. 33A, 2nd floor, looking south towards Bldg. 32.

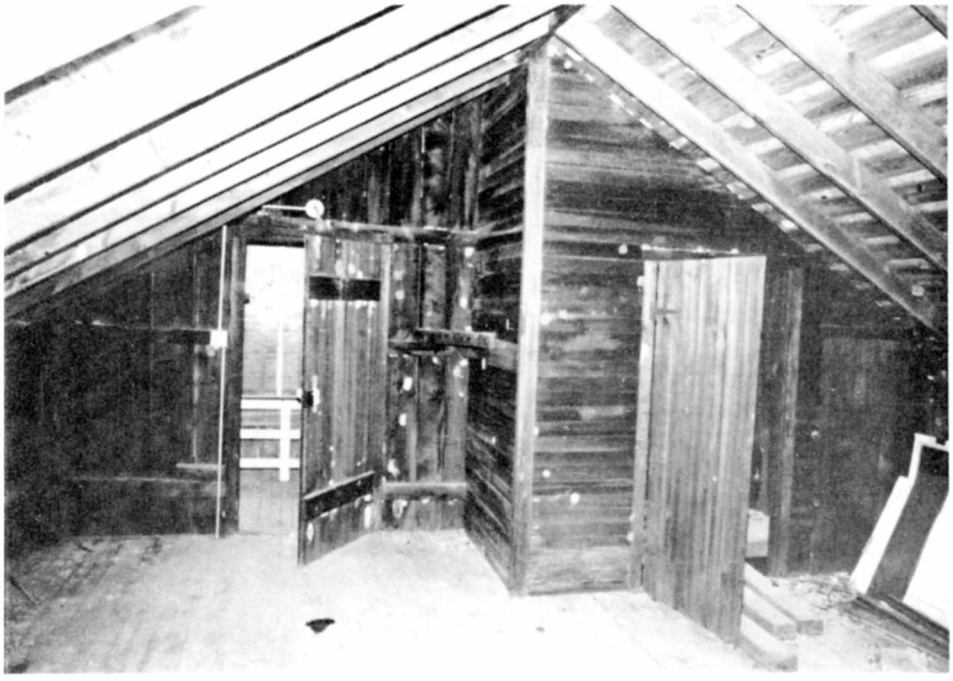


FIGURE 59
Bldg. 33A, 3rd floor, looking north towards Bldg. 33.

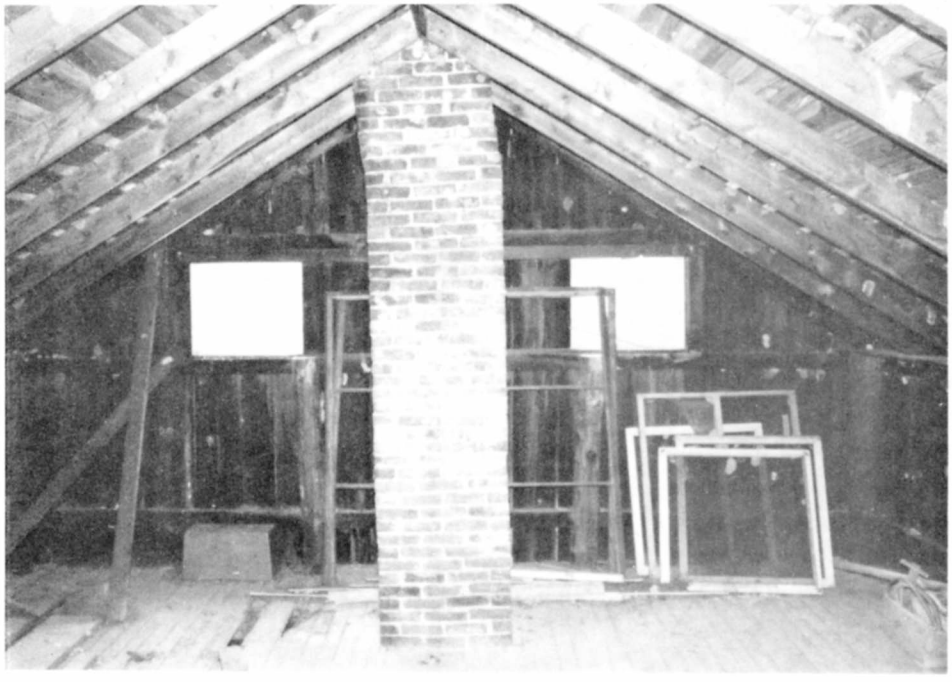


FIGURE 60
Bldg. 33A, 3rd floor, looking south towards Bldg. 32.



FIGURE 61
Looking up elevator shaft to platform supported at 3rd floor level.



FIGURE 62
Recees of historic lifting mechanism in place, Bldg. 32A.



FIGURE 63
Elevator shaft enclosed on 2nd & 3rd floors, Bldg. 33A.

Documentary Sources Reproduced

"Handicapped Accessibility Study"
Door Data & Accessibility
UFAS Compliance References
Life Safety Code Compliance References
UBC Compliance References
Section 106 Compliance
"Paint Analysis"
"Mechanical, Electrical & Plumbing Survey"
"Structural Survey"
"Asbestos Survey"
"Mortar, Plaster and Stucco Analysis"
Task Directive
Related Correspondence

Documentary Sources Reproduced

"Handicapped Accessibility Study"

HANDICAPPED ACCESSIBILITY STUDY

PACKAGE 116/BUILDINGS 33, 33A, 34, 35 AND 36

HARPERS FERRY NATIONAL HISTORIC PARK

HARPERS FERRY, WEST VIRGINIA

Contract No. CX-2000-0-0011

Work Order No. 5

February 14, 1991

rec'd 2/14/91

Oehrlein & Associates Architects
1702 Connecticut Avenue, NW
Washington, DC 20009

Shefferman & Bigelson
8455 Colesville Road
Silver Spring, MD 20910

GENERAL

This handicapped accessibility study is part of an overall study of the buildings and landscape in Package 116. Our goal has been to study and recommend handicapped-accessible routes into Buildings 33, 33A, 34, 35, and 36, while maintaining the historical and architectural integrity of the Lower Town buildings and landscape. This study is based on the Uniform Federal Accessibility Standards (UFAS), published in the Federal Register on August 7, 1984. The scope of work does not include analysis of the interior circulation of the buildings, although some consideration for these issues has been made.

While UFAS does allow the use of platform lifts in handicapped-accessible routes, we have avoided their use. As UFAS states, lifts should be used only if "no other alternative is feasible". All ramps in this study are designed with a slope of 1:12, although historic buildings are allowed to have steeper slopes for short distances. Signage must be provided at all non-accessible entries indicating the direction to the accessible entry.

The lengths of ramps and sizes of landings required at entrances directly off of Shenandoah Street would be major intrusions on the Lower Town streetscape. Ramps on Shenandoah Street would be visually undesirable, and they would cause crowded circulation on the narrow sidewalks.

Although handicapped-accessible entrances directly from Shenandoah Street into the Package 116 buildings cannot be accommodated, it is important to orient the handicapped circulation to the street. Side and back entrances to the buildings are recommended, but circulation between the buildings should return to Shenandoah Street, so that the handicapped visitor can maintain their orientation to the street and understand the urban relationship between the buildings.

While all of the proposed handicapped-accessible entries are on the sides or backs of the buildings, it is important to ensure that these are not treated as secondary entries. The public should be encouraged to use the entries which are designated as handicapped accessible as part of the typical circulation route. This already is taking place in Building 36, where many visitors enter the front door and exit out the back door. The design of the new exhibit spaces in Buildings 33, 34 and 35 should also encourage the use of handicapped-accessible entries for typical circulation.

It is also important that the quality of the handicapped-accessible routes is high. The space between Building 33 and Building 34 is particularly prone to being dark and uninviting. It must be designed and maintained to be clean and well-lit, and the existing gate should be removed.

BUILDING 33

Door 101- Any ramp at this door would be an undesirable intrusion on Shenandoah Street. Access to this door requires a 7.3'long ramp for a .62' rise, and a 5' by 5' landing. The double-leaf doors require an automatic opener.

Door 102- This door leads only to the stair hall. Any ramp at this door would be an undesirable intrusion on Shenandoah Street. Access to this door requires a 5' ramp for a .43' rise, and a 5' by 5' landing.

Door 103- This door leads only to the stair hall. Access to this door requires a 4.2 long ramp for a rise of .35', and a 5' by 5' landing. There is not enough room between the buildings for the required landing.

Door 111- This is a recommended entry for handicapped accessibility. Access to this door requires a 12' long ramp for a 1.02 rise, and a 5' by 5' landing. Ramps and landings at this

location can be designed to be unobtrusive. An automatic opener is required for the double-leaf doors, or the doorway must be rebuilt to provide a 32" wide single leaf. The space between Buildings 33 and 34 provides the minimum 32" required for accessibility at the north end, and it broadens as it goes south.

Door 114- Existing ramps and thresholds to this door meet minimum standards, and this entry has been used by the NPS for handicapped accessibility in the past. To meet UFAS standards, an automatic opener is required, or the doorway must be rebuilt to provide a 32" wide single leaf.

Door 117- Although accessibility to these spaces can be achieved using Door 114, the NPS has indicated that direct access to the planned Dispatch Room is desired. The ramp and landing which are required would be visible on the side of the building, but they would not be too intrusive if well designed. Access to this door requires a 16.3' long ramp for a 1.36' rise, and a 5' by 5' landing. A set of steps to the landing is also recommended for pedestrian access. The existing threshold must be rebuilt, and an automatic opener is required for the double-leaf doors.

BUILDING 33A

Door 118- This entry has no existing door or frame. The rough opening can accommodate a new door which meets the requirements for accessibility. Existing ramps can be used to provide access.

Door 119- This entry has no existing door, frame or ramp. The rough opening can accommodate requirements for accessibility, but the location of the door makes it difficult to provide an unobtrusive ramp.

Door 121- This door would require extensive rebuilding to be usable as a handicapped-accessible entry. The existing door is only 28" wide, and must be rebuilt with a 32" opening. The threshold has a 1 1/2" step which must be rebuilt. Access to this door requires a 24' long ramp for a rise of 2'.

BUILDING 34/35

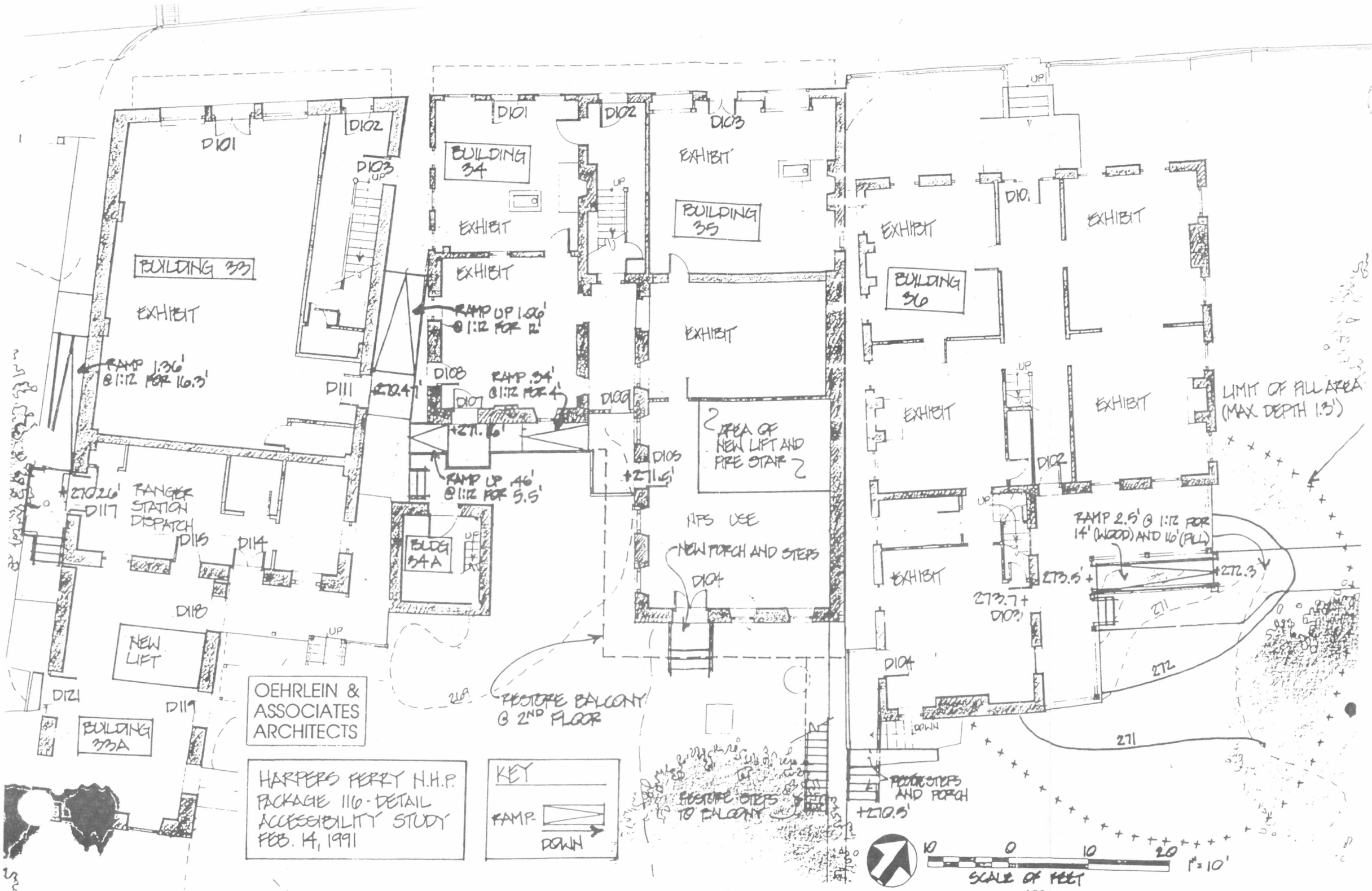
General- There is a .58' high step between Buildings 34 and 35. Either a 7' long ramp can be built in the space to the south of the stairs between the two levels, or separate entries must be provided.

Door 101- Any ramp at this door would be an undesirable intrusion on Shenandoah Street. Access to this door requires a 19' long ramp for a 1.58' rise, and a 5' by 5' landing. Any configuration of ramp to this door would block either Door 102 or the alley between Building 33 and Building 34.

Door 102- Any ramp at this door would be an undesirable intrusion on Shenandoah Street. Access to this door requires a 16' long ramp for a 1.35' rise.

Door 103- Any ramp at this door would be an undesirable intrusion on Shenandoah Street. Access to this door requires a 14.4' long ramp for a 1.2' rise.

Door 104- Because of the sloping grade and the door's proximity to the cistern, this is a very difficult place for a ramp. Any ramp would have to project directly out from the building. Access to this door requires a 14.5' long ramp for a rise of 1.21', and a 5' by 5' landing. An automatic opener is required for the double-leaf door, or the doorway must be rebuilt with a 32" wide opening.


D101
D102
D103
BUILDING 33
EXHIBIT
RAMP 1.36' @ 1:12 FOR 16.3'
D111
+270.47'
D108
D107
RAMP .34' @ 1:12 FOR 4'
+271.6'
RAMP UP 1.66' @ 1:12 FOR 12'
RAMP UP .46' @ 1:12 FOR 5.5'
D101
D102
D103
BUILDING 34
EXHIBIT
EXHIBIT
UP
D109
D105
+271.6'
BUILDING 35
EXHIBIT
EXHIBIT
AREA OF NEW LIFT AND FIRE STAIR 2
2
NPS USE
NEW PORCH AND STEPS
D104
+270.26'
D117
RANGER STATION DISPATCH
D115
D114
D118
BLDG 34A
UP
NEW LIFT
D121
D119
BUILDING 33A
OEHRLEIN & ASSOCIATES ARCHITECTS
HARPERS FERRY N.H.P.
PACKAGE 116 - DETAIL
ACCESSIBILITY STUDY
FEB. 14, 1991
KEY
RAMP
DOWN
RESTORE BALCONY & 2ND FLOOR
RESTORE STEPS TO BALCONY
UP
D101
EXHIBIT
BUILDING 36
EXHIBIT
EXHIBIT
EXHIBIT
D102
EXHIBIT
273.7+
D103
273.5'+
RAMP 2.5' @ 1:12 FOR 14' (WOOD) AND 16' (PLL)
272.3
271
272
271
D104
DOWN
PORCH STEPS AND PORCH
+270.5'
LIMIT OF FILL AREA (MAX. DEPTH 1.3')
10 0 10 20
1"=10'
SCALE OF FEET

#2

Door 105- This is a recommended entry for handicapped accessibility. As shown, access to this door requires a 4' long ramp for a .34' rise from the landing at Door 107 and a 5' by 5' landing. A ramp from this landing to grade would have to be 30' long, and is not recommended. A set of steps from the landing to grade would provide emergency access from the building's proposed fire stairs. The width of the door is 33", which is adequate for handicapped accessibility. A 1 1/2" step in the threshold must be rebuilt.

Door 106- It is possible to provide access to this existing door, using a ramp similar to the one recommended for Door 107. Use of this door is not recommended, because the landing for this door would make it impossible to ramp to Door 105. This door is a modern intrusion, and has no historic basis for use as an entry.

Door 107- This is a recommended entry for handicapped accessibility. Access to this door requires a 5.5' long ramp from the landing at Door 111 of Building 33, for a rise of .46'.

Door 108- A landing for a handicapped-accessible entry at this door would conflict with the ramp and landing for Door 111, Building 33. It requires a 17.5' long ramp for a rise of 1.52', and a 5' by 5' landing.

BUILDING 36

Door 101- Any ramp at this door would be an undesirable intrusion on Shenandoah Street. Access to this door requires a 26' long ramp for a rise of 2.15 feet from grade, and a 5' by 5' landing. This would be impossible to do without having a major impact on the appearance of the building.

Door 102- If preferred by the designers of the internal circulation of Building 36, this door could be used instead of, or in addition to, Door 103. It requires modification of the joint between the wood deck and the stone threshold, which has a 1" step. The wood threshold is too high and must be replaced. The door swing does not allow the required 18" standing space to the side of the door and must be reversed. The width of the opening is adequate.

Door 103- This is a recommended entry for handicapped accessibility. The joint between the wood decking and the stone is 1 1/2", and must be rebuilt. The door width is adequate. This door requires a 30' long ramp to existing grade, with a rise of 2.5'. This could be accomplished using a wood ramp for the 14' length of the porch, and grading the land in the area of the porch to provide the remainder of the required ramp. The wood ramp could be designed to be a unobtrusive part of the existing porch, and the grading can blend well with the existing landscape. The maximum fill required would be 1.3'.

Door 104- This door requires a ramp 42' long for a rise of 3.46'. This ramp would be much too long and would be an awkward intrusion on the landscape. The door width is adequate for handicapped accessibility.



BUILDINGS 32, 33, 33A, 34, 34A AND 35

CIRCULATION AND ACCESSIBILITY STUDY

PACKAGE NO. 116 • HARPERS FERRY NATIONAL HISTORIC PARK

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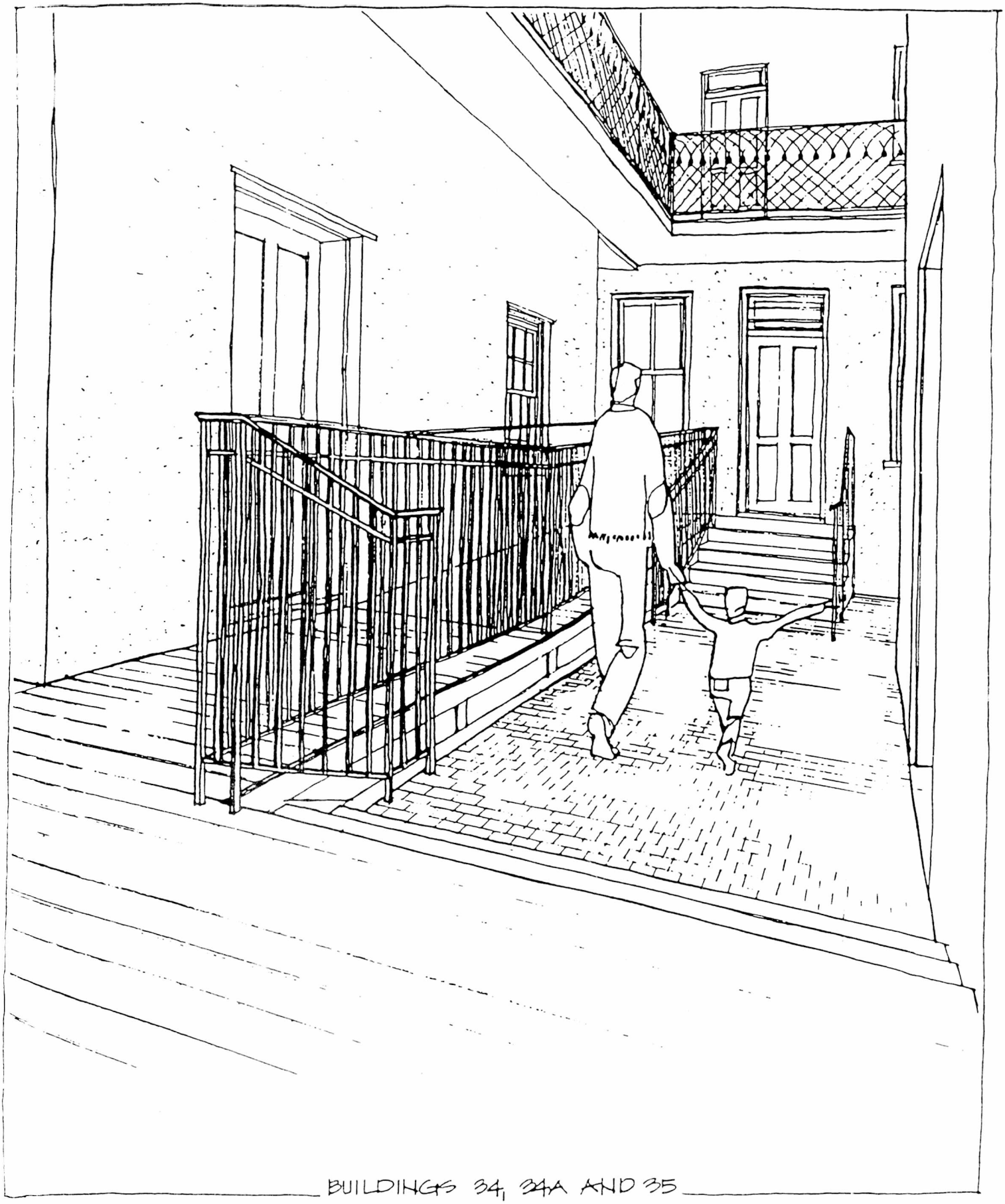


BUILDINGS 33 AND 34

CIRCULATION AND ACCESSIBILITY STUDY

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BUILDINGS 34, 34A AND 35

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Door Data & Accessibility

DOOR DATA AND ACCESSIBILITY

Notes: Door opening clear dimensions are face to face of door stops. Where the door swing is limited by a wall or a built-in furnishing, the clear opening is to the edge of the door projecting into the opening.

DOOR DATA BLDG. 33 1ST FLOOR

Exterior Doors

[Door 101], north front main entry.
Description: Historic double door, wood panel, glazed, and a glazed transom.
Sill and Threshold: The doorway is not accessible as there is the historic marble stoop which is a 6 inch rise above the sidewalk; the wood threshold at the door is more than 1/2-inch in height.
Opening/Door Clearance: Opening = 63"; active leaf = 31". Opens inward.
Hardware: Accumulation of historic to modern hardware. Historic hardware includes hinges, a boxlock, a thumblatch except the interior components, a cane bolt at the bottom, and a later bolt at top. The transom has a top latch like that at the top of the doors. Recent additional hardware includes a closer, two surface deadbolts, and a surface mounted intrusion detector.
Egress/Accessibility/Treatment: Historic hardware should be repaired; recent hardware should be replaced with new systems to meet code requirements in as compatible design styles as possible.

[Door 102], north front stair entry.
Description: Historic double door, panel type.
Sill and Threshold: Stone sill [height not measured]; [wood threshold if any not measured.]
Opening/Door Clearance: [Dimensions not obtained.] Opens inward.
Hardware: Accumulation of historic to modern hardware. Historic hardware includes hinges, box lock, bell, cane bolts and transom bolts of various time periods. Recent hardware includes a surface mounted dead bolt lock.
Egress/Accessibility/Treatment: Doorway not accessible; modification for accessibility not feasible due to step at sidewalk. No real need exists to alter for accessibility to stair. Historic hardware should be repaired; recent hardware should be replaced with new systems to meet code requirements in as compatible design styles as possible.

[Door 103], east entry to stair.

Description: Historic single door, wood panel type, two upper glazed panels. One historic glazing panel remains, patterned glass.

Sill and Threshold: Stone sill 6" ± and wide wood threshold 1 3/8" ±

Opening/Door Clearance: Clear opening 34 1/2".

Hardware: Both historic and recent; historic hinges, recent lockset.

Egress/Accessibility/Treatment: Door swings into path of stair travel; no "landing" space between stair and door opening. No real need exists to alter for accessibility for stair. Historic hardware should be repaired; recent hardware should be replaced with new systems to meet code requirements in as compatible design styles as possible.

[Door 111], east entry to Room 111.

Description: Historic double door, panel type, upper panels glazed, one lower wood panel each leaf. Two light glazed transom over door.

Sill and Threshold: Stone sill 8 3/4" (at north side of opening), 9 3/4" (at south side of opening); wide wood threshold 1 1/2" ±.

Opening/Door Clearance: Clear opening 39 1/2".

Hardware: [Not determined; some historic hardware probably still remains.

Egress/Accessibility/Treatment: Accessibility could be achieved with ramping, threshold modification, hardware modification. Historic hardware should be repaired; recent hardware should be replaced with new systems to meet code requirements in as compatible design styles as possible. The swing should be reversed and an automatic opener installed.

[Door 114], south entry, first floor.

Description: Historic double door, panel type, glazed, with glazed transom.

Sill and Threshold: Marble sill flush with back porch deck but slopes up to meet concrete threshold, similar to that at west entry.

Opening/Door Clearance: Clear opening = 47"; active leaf = 22". Opens inward (verify).

Hardware: Combination of historic to modern.

Egress/Accessibility/Treatment: Door will probably need to be reversed to open outward. Door should be restored. Historic hardware should be repaired; recent hardware should be replaced with new systems to meet code requirements in as compatible design styles as possible. Automatic opener should be installed.

[Door 115], first floor passage to Bldg. 33A
Description: Post-historic period recent wood door and wood frame of 2x material. Door and frame can be replaced.
Sill and Threshold: Concrete, elevation constant (verify).
Opening/Door Clearance: Rough opening 40" ±.
Hardware: Recent, can be replaced.
Egress/Accessibility/Treatment: Replace with compatibly designed door and hardware. Opening width adequate for single leaf door meeting requirements.

[Door 116], west entry, first floor.
Description: Historic double door, panel type, glazed, with glazed transom.
Sill and Threshold: Marble sill, 16" above grade. A piece of stone used for an intermediate step. Wide concrete threshold, rounded, 2" ± in height.
Opening/Door Clearance: Clear opening = 59"; active leaf = 29". Door opens inward.
Hardware: Combination of historic to modern.
Egress/Accessibility/Treatment: Steps and landing required at exterior. Door should be restored. Historic hardware should be repaired; recent hardware should be replaced with new systems to meet code requirements in as compatible design styles as possible. Full accessibility is not recommended.

Interior Doors

[Doors 106, 107, 108, 109, 110, 111, 112, 113], first floor.
All recent flush steel doors with steel frames. Can be removed and salvaged or reused. The accessibility of the rest room is impeded by the inward swing of door 112. If this rest room is retained, the door needs to be modified with some combination of location of opening, door swing and electric operating device.

[Door 105], first floor.
Recent hollow core wood flush door.

DOOR DATA BLDG. 33 2ND FLOOR

Exterior Door

[Door 214], south entry, second floor.
Description: Probably not historic period, two panel wood, upper panel glazed, transom opening blocked both sides.
Sill and Threshold: Marble sill, flat, 3" above porch deck. Inner concrete sill level with stone sill. Wood threshold, 5/8" to 3/4".
Opening/Door Clearance: Clear opening = 32"; Clearance to door = 30 5/8". Aluminum screen/storm door at outside of opening, 32" opening but 31 1/4" clear to edge of door.
Hardware: Modern.
Trim: Historic on room [211] side.
Egress/Accessibility/Treatment: Opening must be widened by 2" and sill reduced to no greater than 1/2" H.

Interior Doors

[Door 201], Room 201 to Room 202.
Description: Historic double leaf door, large upper glazing panels have been replaced with plywood.
Threshold: None.
Opening/Door Clearance: Clear opening = 56"; active leaf opening = 28", 27" clear to door edges.
Hardware: Historic.
Trim: Historic both sides.
Egress/Accessibility/Treatment: Fix one of leaves in open position.

[Door 201A], small closet, Room 201.
Description: No door extant.
Threshold:
Hardware: Hinges, strike historic.
Trim: Historic on Rm 201 side; post-historic on closet side.
Egress/Accessibility/Treatment: Closets will be removed and door onto stair hall restored.

[Door 202], stairway vestibule to Room 202.
Description: Historic four panel wood; top two panels may have glazed or wood panels, replaced with plywood.
Threshold: None.
Opening/Door Clearance: Clear opening = 33".
Hardware: Historic.
Trim: Historic on Rm 202 side; post-historic on vestibule 203A side.
Egress/Accessibility/Treatment: Will be restored to match hisotirc configuration (as in 3rd floor); door will be removed.

[Door 203], Stairwell 203 to Stair Vestibule 203A.
Description: Wood four panel, possibly historic from another location, reused.
Threshold: None.
Opening/Door Clearance: Clear opening = 31"; clearance to edge of door = 30".
Hardware: Modern.
Trim: Modern.
Egress/Accessibility/Treatment: Restore door.

[Door 203A], Vestibule Closet 203B.
Description: Modern double sliding doors.
Threshold:
Trim: Non-historic architrave.
Egress/Accessibility/Treatment: Door and closet should be removed.

[Door 201], Hall 209 to Room 204.
Description: Historic four panel but may be later period.
Threshold:
Opening/Door Clearance: Clear opening = 28 7/8"; clearance to door = 27 5/8".
Hardware: Historic, appear to be various periods.
Trim: Modern, both sides.
Egress/Accessibility/Treatment: Door will be removed to match historic configuration.

[Door 205], Closet 204A to Room 204.
Description: Historic two panel.
Threshold:
Opening/Door Clearance: Door = 22 3/4".
Hardware: Appears to be of different periods.
Trim: Historic on Rm 204 side [closet inaccessible].
Egress/Accessibility/Treatment: Door and closet will be removed.

[Door 206], Closet 205 to Hall 209.
Description: Historic two panel.
Threshold:
Opening/Door Clearance: Door = 24".
Hardware: Historic, appears to be mixed periods.
Trim: Modern both sides (1x4 typical).
Egress/Accessibility/Treatment: Closet and door will be removed.

[Door 204], Room 202 to Room 206.
Description: Historic double leaf door, large upper glazing panels have been replaced with plywood.
Threshold: None.
Opening/Door Clearance: Clear opening = 55 3/4"; active leaf clear opening = 27 1/2".
Hardware: Historic.
Trim: Historic both sides.
Egress/Accessibility/Treatment: One of doors will be fixed in open position.

[Door 212], Hall 209 to Room 206.
Description: No door, stops missing.
Threshold: None.
Opening/Door Clearance: Door casing opening = 30".
Hardware: Evidence of historic hardware, possible ca. 1900.
Trim: Historic both sides but different profiles.
Egress/Accessibility/Treatment: Doorway should be filled-in to match 3rd floor historic configuration.

[Door 210], Hall 209 to Room 207.
Description: Historic four panel door seemingly in non-original position.
Threshold:
Opening/Door Clearance: Door = 31".
Hardware: Latch possibly ca. 1900.
Trim: Historic on Rm 207 side, modern on Hall 209 side.
Egress/Accessibility/Treatment: Return and restore as is.

[Door 209], Closet 207A to Room 207.
Description: Historic four panel in altered position.
Threshold:
Opening/Door Clearance: Door = 30".
Hardware: Historic.
Trim: Historic on Rm 207 side; modern on closet side.
Egress/Accessibility/Treatment: Door should be moved to room 205 side of closet and room 207 wall filled-in.

[Door 208], Closet 208 to Hall 209.
Description: Historic four panel
Threshold:
Opening/Door Clearance: Door = 30"
Hardware: Mixed historic periods
Trim: Historic on Hall 209 side, plain on closet side.
Egress/Accessibility/Treatment: Restore door.

[Door 211], Hall 209 to Room 211.
Description: Historic four panel, upper two lights may have been glazed or wood panels -- replaced with plywood
Threshold:
Opening/Door Clearance: Clear opening = 31"; clearance to edge of door = 30".
Hardware: Historic hinges; modern latch and lock.
Trim: Historic on Rm 211 side; modern on Hall 209 side.
Egress/Accessibility/Treatment: Move opening to match historic configuration, restore door.

[Door 213], Hall 209 to Bath 210.
Description: Historic two panel, appears reused from another location.
Threshold:
Opening/Door Clearance: Clear opening = 23"; clearance to door edge = 19 1/4".
Hardware: Historic hinges, modern latch.
Trim: Modern.
Egress/Accessibility/Treatment: Remove door, make bathroom fully accessible.

DOOR DATA BLDG. 33 3RD FLOOR

The third floor will not be fully accessible.

Exterior Door

[Door 319], south exterior entry.
Description: Vertical six panel wood with upper four panels glazed.
Sill and Threshold: Wood threshold has two levels, 1" ± and 3/4" ± above the porch deck level.
Opening/Door Clearance: Clear opening 34 3/4".
Hardware: Box lock with white porcelain knobs; modern dead bolt.
Trim: Historic at interior side.
Egress/Accessibility/Treatment: Door should be restored to a window.

Interior Doors

[Door 303], Foyer 304 to Room 301.
Description: Historic four panel, with transom -- blocked.
Threshold: Wood, 3/4" ±.
Opening/Door Clearance: Clear opening = 29".
Hardware: Historic victorian period patterned hinges; historic latch/lock set with brown porcelain knobs.
Trim: Historic both sides.
Egress/Accessibility/Treatment: Door should be restored.

[Door 301], Room 301 to Closet 301A.
Description: Historic four panel.
Threshold: None.
Opening/Door Clearance: 27 1/2"
Hardware: Historic; hinges are two knuckle pintle type -- may be earliest type in building ?
Trim: Historic on Rm 301 side; plain on closet side.
Egress/Accessibility/Treatment: Restore door.

[Door 302], Room 301 to Room 302.
Description: No door on opening, transom blocked.
Threshold: Wood, 3/4" ±.
Opening/Door Clearance: Clear opening = 29".
Hardware:
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Restore door.

[Door 307], Foyer 304 to Room 302.
Description: Historic four panel, transom blocked.
Threshold: Wood.
Opening/Door Clearance: Clear opening = 29".
Hardware: Hinges modern; historic latchset with white porcelain knobs.
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Restore door.

[Door 306], foyer to stair hall (from second floor).
Description: No door in place.
Opening/Door Clearance: Clear opening = 29 3/8".
Hardware: Hinges and strike modern, possibly ca. 1950s.
Trim: Modern.
Egress/Accessibility/Treatment: Remove door opening.

[Door 305], Foyer 304 to stair hall (from attic).
Description: Historic four panel, reused from another location.
Opening/Door Clearance: Clear opening = 29 3/8".
Hardware: Historic latchset with white porcelain knobs.
Trim: Modern, plain.
Egress/Accessibility/Treatment: Remove door and opening.

[Door 304], Closet 303 to Stair hall 304.
Description: Door not in place, door in closet may be for opening -- historic four panel; opening relocated from room 302.
Opening/Door Clearance: 27 1/2"
Hardware:
Trim: Historic on hall side, plain on closet side.
Egress/Accessibility/Treatment: Move opening to room 302 and fill-in wall on foyer side.

[Door 308], Foyer to Room 305.
Description: Historic four panel with transom (blocked)
Threshold: Wood.
Opening/Door Clearance: Clear opening = 28 7/8".
Hardware: Historic, similar to door 301 except knobs white porcelain.
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Restore door.

[Door 311], Closet 305A to Room 305.
Description: Door not in place. (Two doors in closet, four panel); probably was not historically a door opening.
Threshold: Wood.
Opening/Door Clearance: 27"
Hardware:
Trim: Plain 3x both sides of opening.
Egress/Accessibility/Treatment: Remove door opening.

[Door 312], Hall 308 to Room 305.
Description: Horizontal five panel, non-historic door and opening.
Threshold: None.
Opening/Door Clearance: Clear opening = 27 5/8".
Hardware: Later period hinges; historic latch set with round metal knobs.
Trim: Plain 1x trim both sides of opening.
Egress/Accessibility/Treatment: Remove door and opening.

[Door 314], Hall 308 to Room 307.
Description: Door and hardware not in place. Swing had been reversed. Transom blocked.
Threshold: Missing.
Opening/Door Clearance: Clear opening = 28 7/8".
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment:

[Door 315], Hall 304 to Room 307.
Description: No door in place. Opening has been revised, trim replaced, or possibly new opening. (Four doors are stored in Rm 307, all four panel; three are later historic period with brown porcelain, white porcelain and metal knobs; one door early historic period and had upper two panels glazed, replaced with plywood, knobs missing).
Threshold:
Opening/Door Clearance: Clear opening = 28 3/4".
Trim: 1x plain.
Egress/Accessibility/Treatment: Door should be replaced with accurate reproduction or salvaged historic door.

[Door 316], Hall 304 to Room 311.
Description: No door in place. Modern opening frame.
Threshold: Wood.
Opening/Door Clearance: Clear opening = 30" without stops.
Trim: Modern 1x.
Egress/Accessibility/Treatment: Door should be restored.

[Door 313], Closet 308A to Hall 304.
Description: No door in place.
Threshold: Wood.
Opening/Door Clearance:
Trim: Modern 1x.
Egress/Accessibility/Treatment: Door should be re-installed with accurate reproduction or salvaged historic door.

[Door 317], Hall 304 to Hall 309.
Description: No door in place; historic opening with transom blocked. Historic opening with old replacement fabric.
Threshold: None.
Opening/Door Clearance: Clear opening = 29 1/4" without stops.
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Modern alterations should be reversed and door re-installed.

[Door 318], Hall 309 to Bath 309.
Description: No door in place. May be modern opening.
Threshold: Wood.
Opening/Door Clearance: Clear opening = 27 1/4".
Trim: Modern; some reused casing.
Egress/Accessibility/Treatment:

[Door 309], Hall 304 to Room 306.
Description: No door in place. Historic opening. Transom missing.
Threshold: Wood.
Opening/Door Clearance: Clear opening = 28 7/8".
Trim: Historic both sides.
Egress/Accessibility/Treatment: Door should be re-installed, either accurate reproduction or salvaged historic one.

[Door 310], Hall 309 to Room 306.
Description: No door in place. Likely a modern opening.
Threshold: None.
Opening: Opening = . Obstruction due to configuration.
Trim: Modern 3x, both sides.

DOOR DATA BLDG. 33 4TH FLOOR

The fourth floor will not be fully accessible.

Interior Doors

[Door 401], Room 402 to Room 401.
Description: Historic four panel.
Threshold: Wood.
Opening/Door Clearance: Clear opening = 29 1/4".
Hardware: Historic.
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Preserve door.

[Door 402], Stair to Room 402.
Description: Single layer vertical beaded t&g car siding.
Threshold: None.
Opening/Door Clearance: Clear opening = 30 1/4" but stair post projects into opening.
Trim:
Egress/Accessibility/Treatment: Replace with panel door.

[Door 404], Room 402 to Room 404.
Description: Door not in place.
Threshold: Missing.
Opening/Door Clearance: Clear opening = 29 1/4".
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Re-install appropriate door.

[Door 403], Room 402 to Room 403.
Description: Door not in place.
Threshold: Missing.
Opening/Door Clearance: Clear opening = 29 1/4".
Trim: Historic both sides of opening.
Egress/Accessibility/Treatment: Re-install appropriate door.

Note: Stored in Rooms 404 and 405 are some four panel windows, shutters and a door.

DOOR DATA BLDG. 33A 1ST FLOOR

[Door],
Description:
Threshold:
Opening/Door Clearance:
Hardware:
Trim:
Egress/Accessibility/Treatment:

Documentary Sources Reproduced

UFAS Compliance References

FED - STD - 795
April 1, 1988

Uniform Federal Accessibility Standards

GENERAL SERVICES ADMINISTRATION

DEPARTMENT OF DEFENSE

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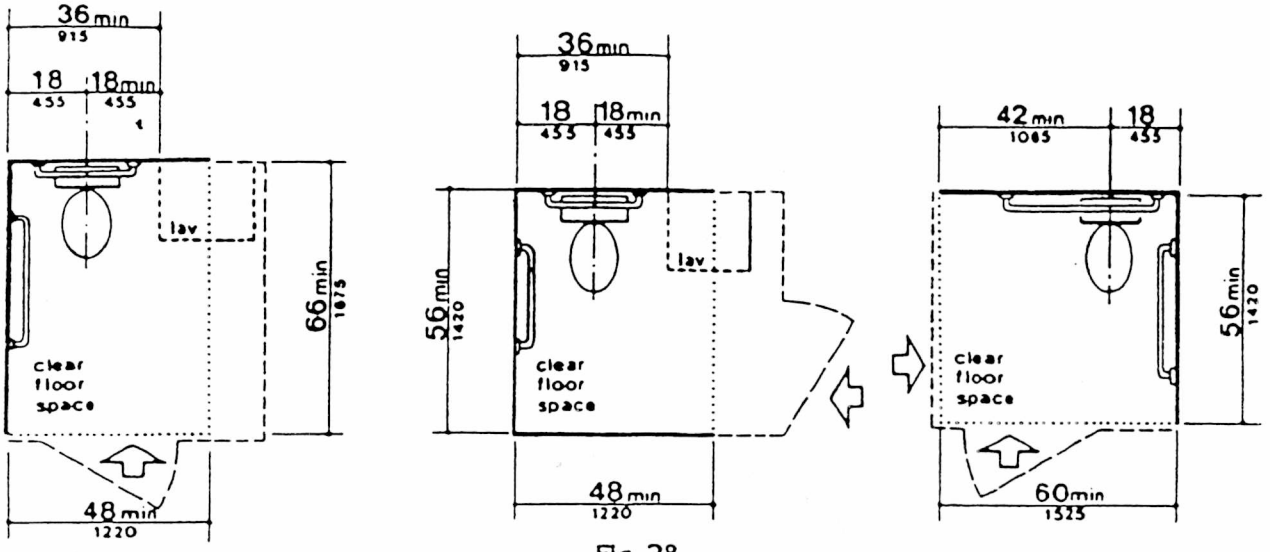


Fig. 28
Clear Floor Space at Water Closets

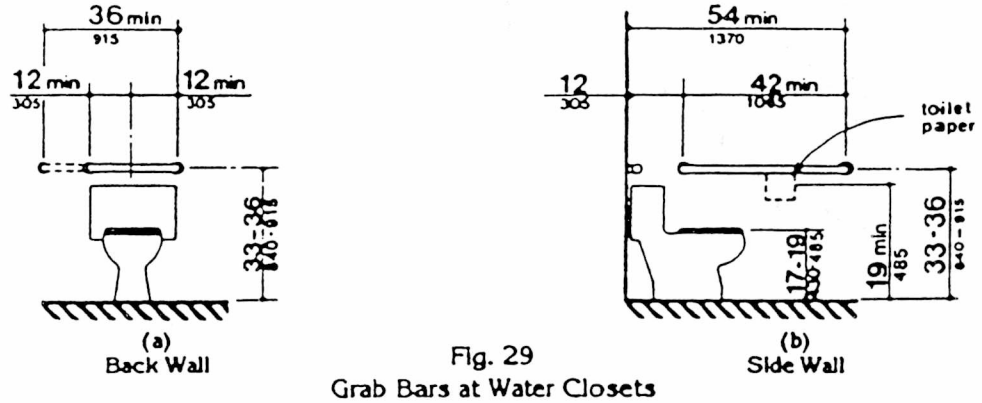


Fig. 29
Grab Bars at Water Closets

4.16.5* Flush Controls. Flush controls shall be hand operated or *automatic* and shall comply with 4.27.4. Controls for flush valves shall be mounted on the wide side of toilet areas no more than 44 in (1120 mm) above the floor.

4.16.6 Dispensers. Toilet paper dispensers shall be installed within reach, as shown in Fig. 29(b). *Dispensers that control delivery, or that do not permit continuous paper flow, shall not be used.*

4.17 Toilet Stalls.

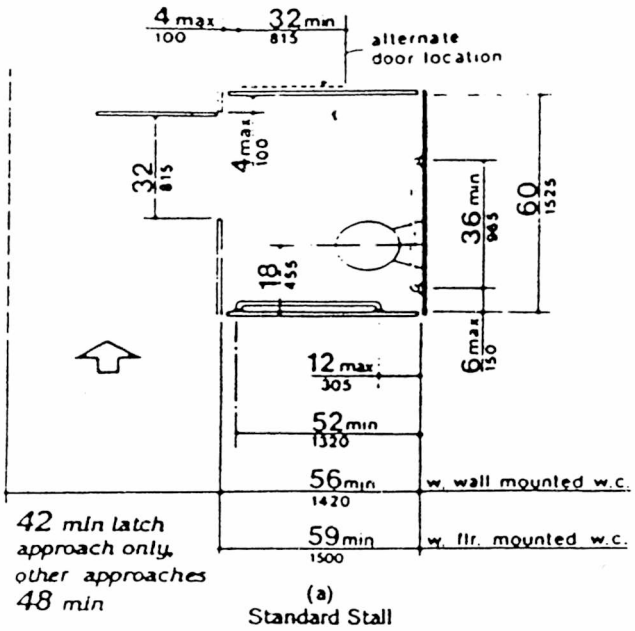
4.17.1 Location. Accessible toilet stalls shall be on an accessible route and shall meet the requirements of 4.17.

4.17.2 Water Closets. Water closets in *accessible* stalls shall comply with 4.16.

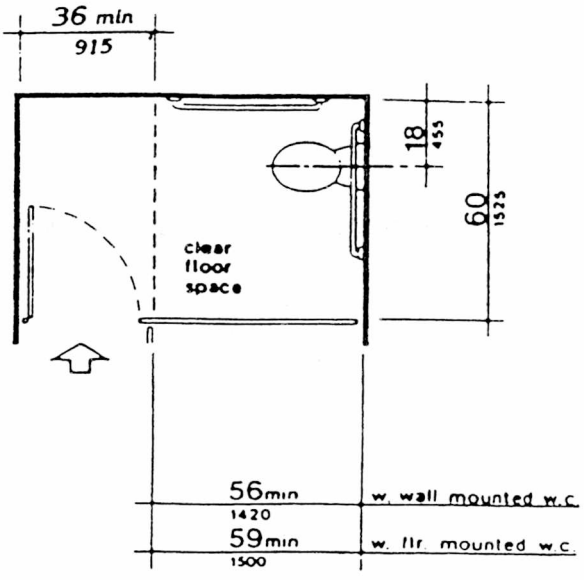
4.17.3 Size and Arrangement. The size and arrangement of toilet stalls shall comply with Fig. 30(a). Toilet stalls with a minimum depth of 56 in (1420 mm) (see Fig. 30(a)) shall have wall-mounted water closets. If the depth of toilet stalls is increased at least 3 in (75 mm), then a floor-mounted water closet may be used. Arrangements shown for stalls may be reversed to allow either a left- or right-hand approach.

EXCEPTION: In instances of alteration work where provision of a standard stall (Fig. 30(a)) is structurally impracticable or where plumbing code requirements prevent combining existing stalls to provide space, an alternate stall (Fig. 30(b)) may be provided in lieu of the standard stall.

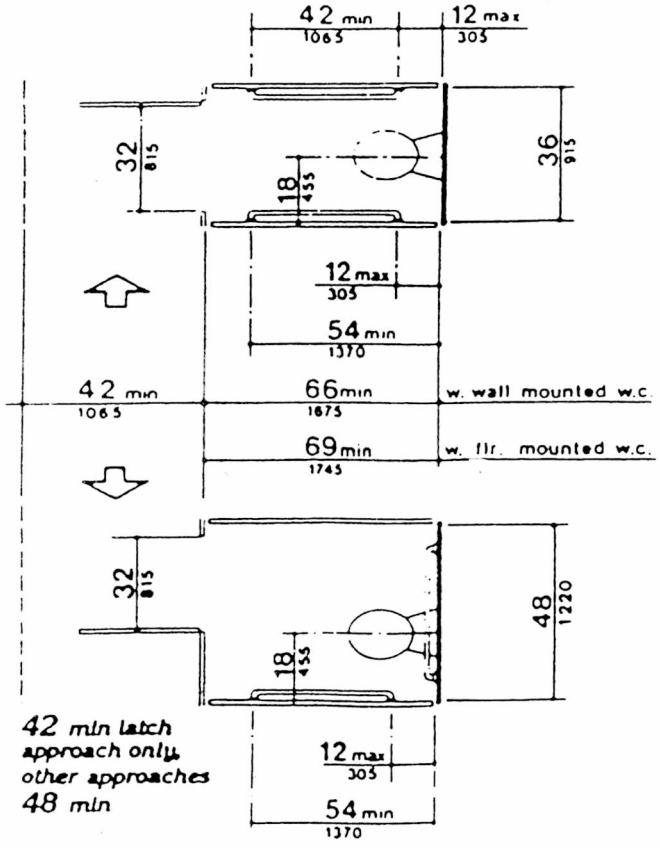
4.17.4 Toe Clearances. In standard stalls, the front partition and at least one side partition shall provide a toe clearance of at least 9 in (230 mm) above the floor. If the depth of the stall is greater than 60 in (1525 mm), then the toe clearance is not required.



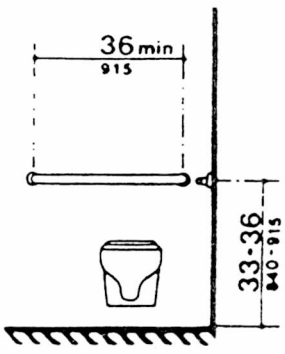
(a)
Standard Stall



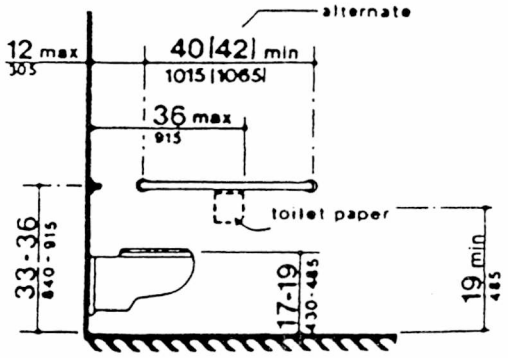
(a-1)
Standard Stall (end of row)



(b)
Alternate Stalls

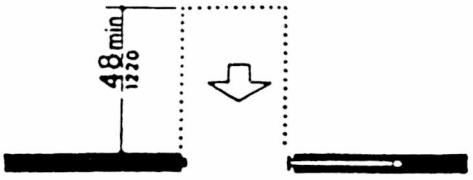


(c)
Rear Wall of Standard Stall

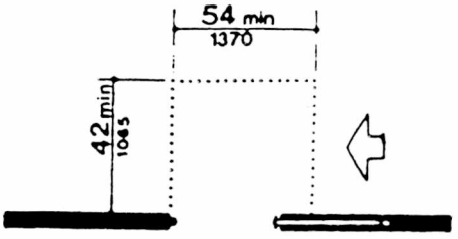


(d)
Side Walls

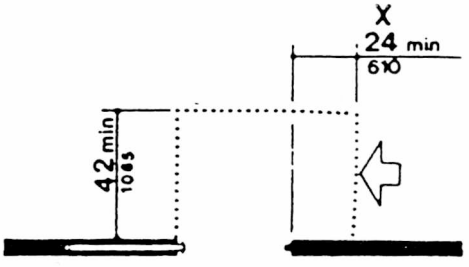
Fig. 30
Toilet Stalls



(d)
Front Approach — Sliding Doors *and Folding Doors*



(e)
Slide Side Approach — Sliding Doors *and Folding Doors*



(f)
Latch Side Approach — Sliding Doors *and Folding Doors*

NOTE: All doors in alcoves shall comply with the clearances for front approaches.

Fig. 25
Maneuvering Clearances at Doors *(Continued)*

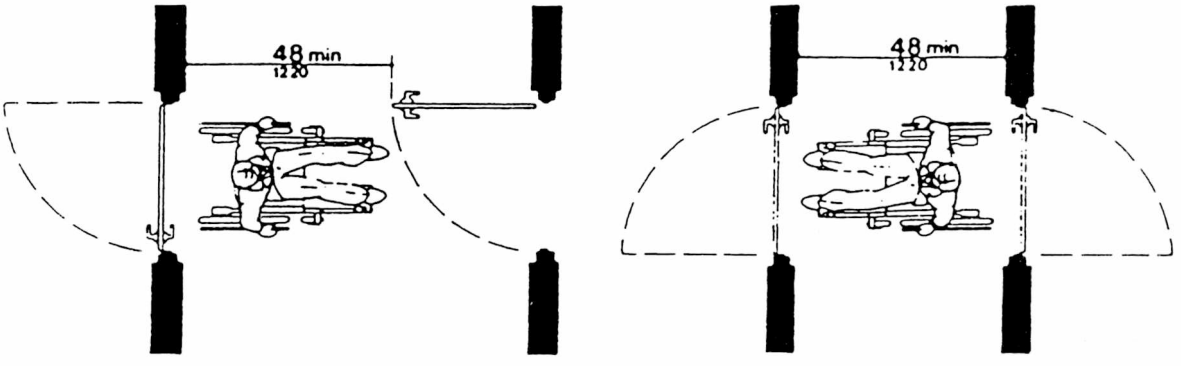
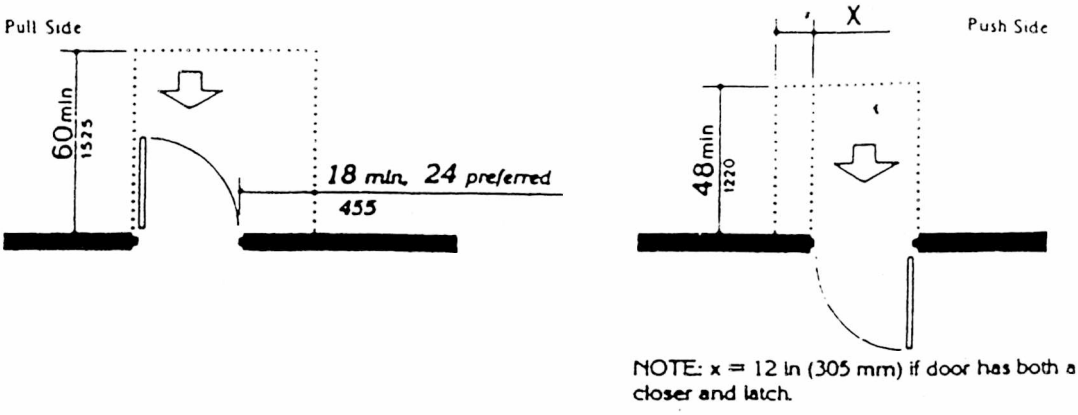
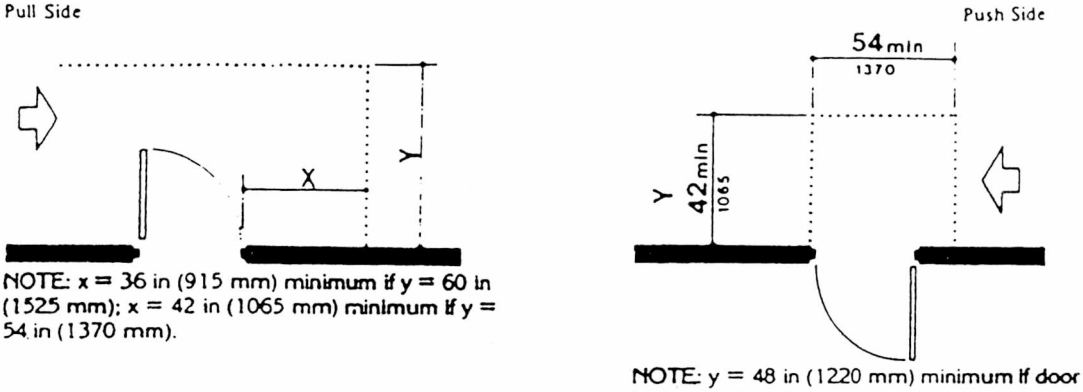


Fig. 26
Two Hinged Doors in Series



NOTE: x = 12 in (305 mm) if door has both a closer and latch.

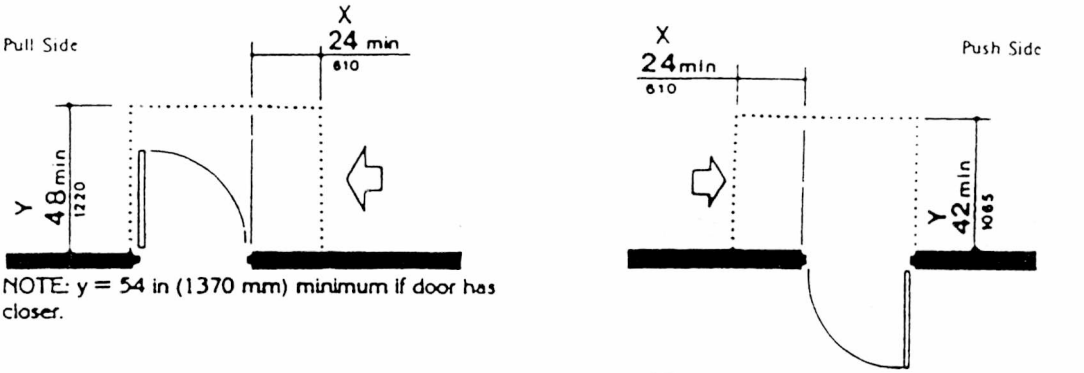
(a)
Front Approaches — Swinging Doors



NOTE: x = 36 in (915 mm) minimum if y = 60 in (1525 mm); x = 42 in (1065 mm) minimum if y = 54 in (1370 mm).

NOTE: y = 48 in (1220 mm) minimum if door has both a latch and closer.

(b)
Hinge Side Approaches — Swinging Doors



NOTE: y = 54 in (1370 mm) minimum if door has closer.

NOTE: y = 48 in (1220 mm) minimum if door has closer.

(c)
Latch Side Approaches — Swinging Doors

NOTE: All doors in alcoves shall comply with the clearances for front approaches.

Fig. 25
Maneuvering Clearances at Doors

the handset shall be at least 29 in (735 mm). *If the system is located in a closed compartment, the compartment door hardware shall conform to 4.27, Controls and Operating Mechanisms. The emergency intercommunication system shall not require voice communication.*

4.11* Platform Lifts.

4.11.1 Location. *Platform lifts permitted by 4.1 shall comply with the requirements of 4.11.*

4.11.2 Other Requirements. If platform lifts are used, they shall comply with 4.2.4, 4.5, 4.27, and the applicable safety regulations of administrative authorities having jurisdiction.

4.11.3 *Entrance.* *If platform lifts are used, then they should facilitate unassisted entry and exit from the lift in compliance with 4.11.2.*

4.12 Windows. *(Reserved).*

4.13 Doors.

4.13.1 General. *Doors required to be accessible by 4.1 shall comply with the requirements of 4.13.*

4.13.2 Revolving Doors and Turnstiles. Revolving doors or turnstiles shall not be the only means of passage at an accessible entrance or along an accessible route. *An accessible gate or door shall be provided adjacent to the turnstile or revolving door and shall be so designed as to facilitate the same use pattern.*

4.13.3 Gates. Gates, including ticket gates, shall meet all applicable specifications of 4.13.

4.13.4 Double-Leaf Doorways. If doorways have two *independently operated* door leaves, then at least one leaf shall meet the specifications in 4.13.5 and 4.13.6. That leaf shall be an active leaf.

4.13.5 Clear Width. Doorways shall have a minimum clear opening of 32 in (815 mm) with the door open 90 degrees, measured between the face of the door and the stop (see Fig. 24(a), (b), (c), and (d)). Openings more than 24 in (610 mm) in depth shall comply with 4.2.1 and 4.3.3 (see Fig. 24(e)).

EXCEPTION: Doors not requiring full user passage, such as shallow closets, may have the clear opening reduced to 20 in (510 mm) minimum.

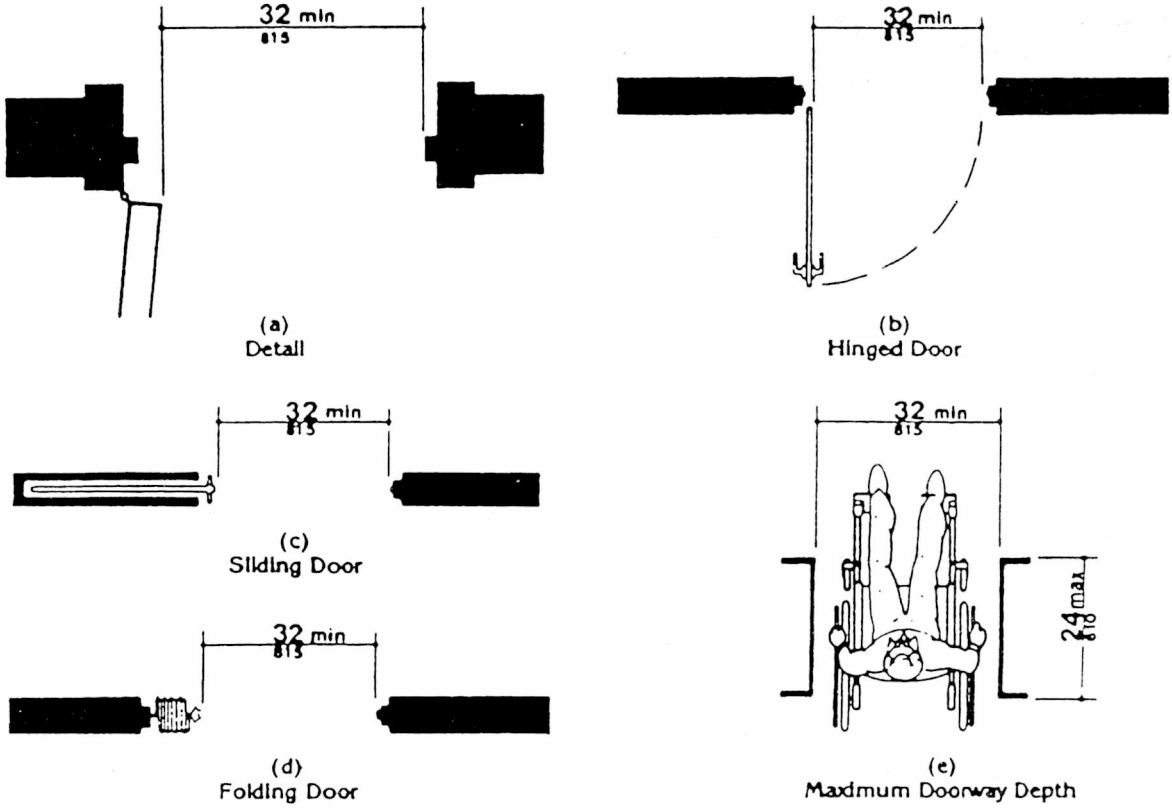


Fig. 24
Clear Doorway Width and Depth

call button controlling that car to the centerline of its hoistway door (see Fig. 21). For cars with in-car lanterns, T begins when the lantern is visible from the vicinity of hall call buttons and an audible signal is sounded. *The minimum acceptable notification time shall be 5 seconds.*

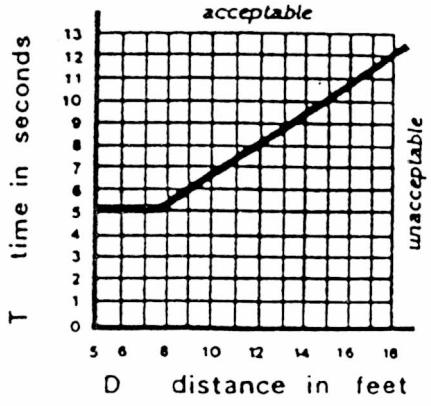


Fig. 21
Graph of Timing Equation

4.10.8 Door Delay for Car Calls. The minimum time for elevator doors to remain fully open in response to a car call shall be 3 seconds.

4.10.9 Floor Plan of Elevator Cars. The floor area of elevator cars shall provide space for wheelchair users to enter the car, maneuver within reach of controls, and exit from the car. Acceptable door opening and inside dimensions shall be as shown in Fig. 22. The clearance between the car platform sill and the edge of any hoistway landing shall be no greater than 1-1/4 in (32 mm).

4.10.10 Floor Surfaces. Floor surfaces shall comply with 4.5.

4.10.11 Illumination Levels. The level of illumination at the car controls, platform, and car threshold and landing sill shall be at least 5 footcandles (53.8 lux).

4.10.12* Car Controls. Elevator control panels shall have the following features:

(1) Buttons. All control buttons shall be at least 3/4 in (19 mm) in their smallest dimension. They may be *raised* or flush.

(2) Tactile and Visual Control Indicators. All control buttons shall be designated by *raised* standard alphabet characters for letters, arabic characters for numerals, or standard symbols as shown in Fig. 23(a), and as required in ANSI A17.1-1978 and A17.1a-1979. Raised characters and symbols shall comply with 4.30. The call button for the main entry floor shall be designated by a *raised* star at the left of the floor designation (see Fig. 23(a)). All *raised* designations for control buttons shall be placed immediately to the left of the button to which they apply. Applied plates, permanently attached, are an acceptable means to provide *raised* control designations. Floor buttons shall be provided with visual indicators to show when each call is registered. The visual indicators shall be extinguished when each call is answered.

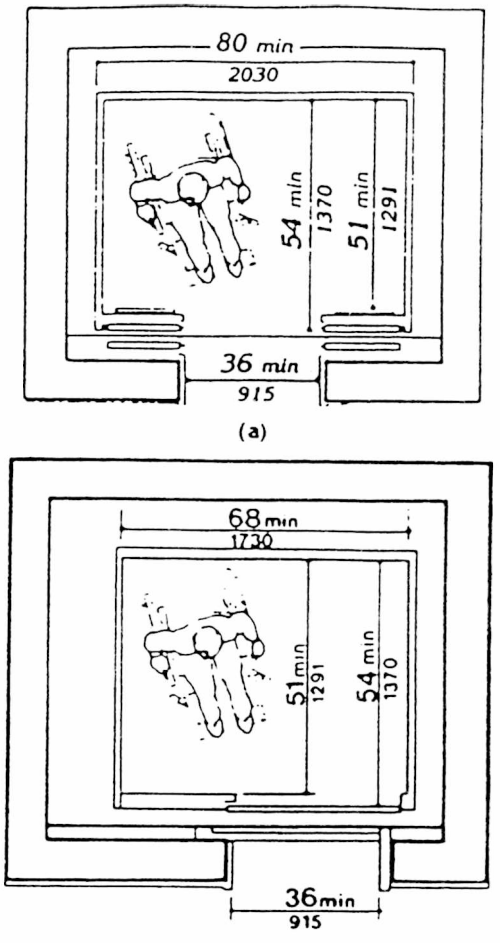


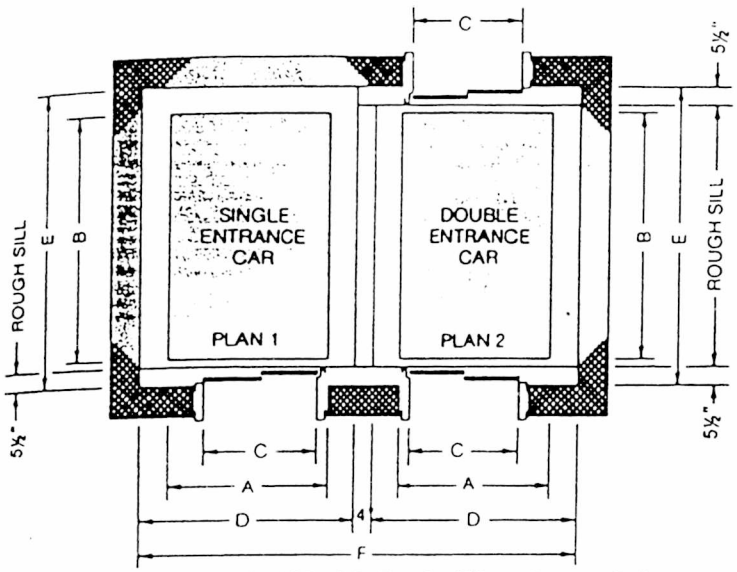
Fig. 22
Minimum Dimensions of Elevator Cars

(3) Height. All floor buttons shall be no higher than *48 in (1220 mm), unless there is a substantial increase in cost, in which case the maximum mounting height may be increased to 54 in (1370 mm),* above the floor. Emergency controls, including the emergency alarm and emergency stop, shall be grouped at the bottom of the panel and shall have their centerlines no less than 35 in (890 mm) above the floor (see Fig. 23(a) and (b)).

DOVER. Oildraulic Elevators for Hospitals

FOR USE IN BUILDINGS UP TO SIX FLOORS

HOISTWAY PLAN



TWO SPEED DOORS – BOTH RIGHT AND LEFT HAND AVAILABLE

BLUE BACKGROUND INDICATES PRE-ENGINEERED MODELS

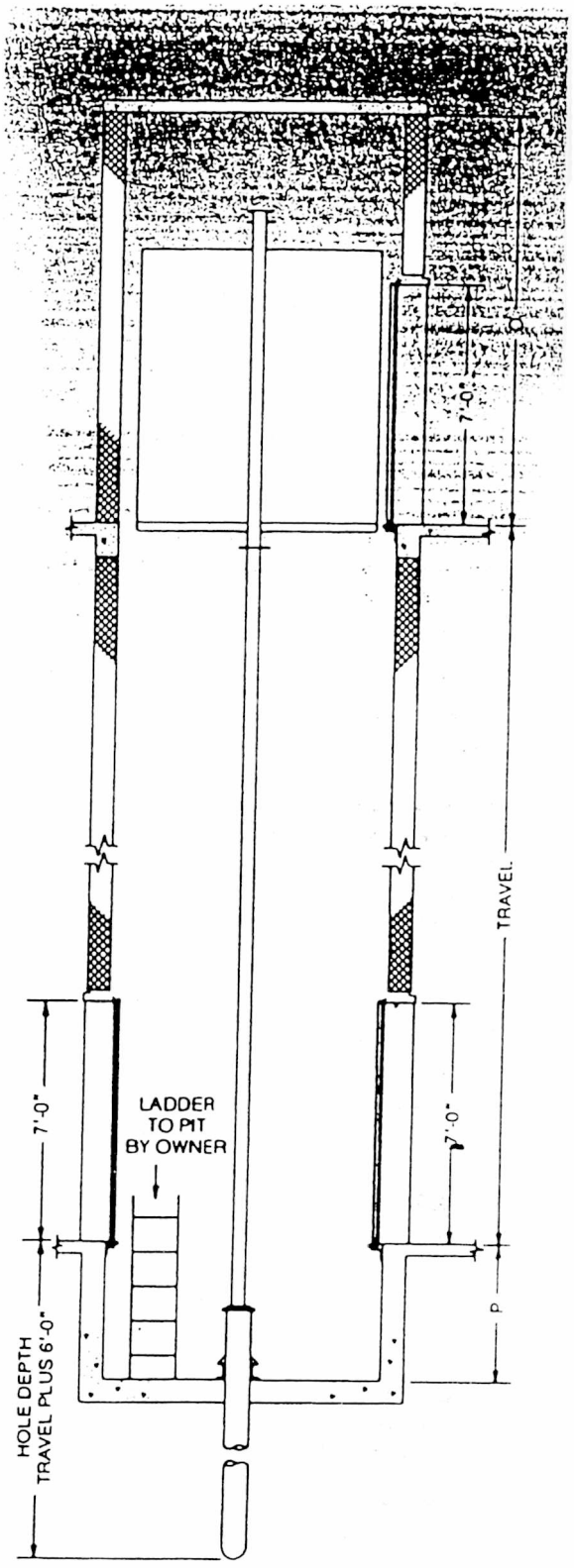
RECOMMENDED SIZES AND CAPACITIES						
CAPACITY (IN LBS.)	KINGSWOOD MODEL 4000♿		4500♿		5000♿	
DIMENSIONS	PLAN 1	PLAN 2	PLAN 1	PLAN 2	PLAN 1	PLAN 2
A[1]	5'-4"	5'-4"	5'-4"	5'-4"	5'-8"	5'-8"
B[1]	7'-9½"	7'-10"	8'-5"	8'-5½"	8'-7"	8'-7¾"
C	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
D[2]	7'-3"	7'-3"	7'-4"	7'-4"	7'-4"	7'-4"
E	9'-6½"	10'-9¼"	10'-2"	11'-4¾"	10'-4"	11'-7"
F	14'-10"	14'-10"	14'-10"	14'-10"	15'-10"	15'-10"

[1] Inside dimensions
[2] Single car dimensions
Hoistway dimensions are based on no provisions for seismic conditions and 8'-0" O.A. nominal cab height

MINIMUM PIT AND OVERHEAD DIMENSIONS							
CAPACITY (IN LBS.)	DIMENSIONS	SPEED (FEET PER MINUTES) 75	100	125	150	175	200
4000 LBS.	O	12'-0"	12'-0"	12'-3"	12'-3"	12'-3"	12'-3"
	P	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"
4500 5000 LBS.	O	12'-0"	12'-0"	12'-3"	12'-3"	12'-3"	12'-3"
	P	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"	4'-0"

POWER UNIT (MACHINE) LOCATION: The most desirable machine room location is on the lowest floor, adjacent to the elevator hoistway. It may, however, be located remote from hoistway if necessary. Typical size for one-car installation: 7'-10" x 5'-6" x 8'-0" high; for two cars: 10'-9" x 6'-6" x 8'-0" high. Enclosure to meet local code requirements must be provided. A sound-isolated machine room is recommended for quietest operation. Adequate heating and ventilation of machine spaces must be provided.

♿ These models meet minimum size for handicapped use



Documentary Sources Reproduced

Life Safety Code Compliance References

LIFE SAFETY 1991

5-2.2 Stairs.

5-2.2.1 General. Stairs, either interior or exterior, used as a component in the means of egress shall conform to the general requirements of Section 5-1 and to the special requirements of this subsection.

Exception No. 1: Aisle steps in assembly occupancies as provided in Chapters 8 and 9.

Exception No. 2: Existing noncomplying stairs may continue to be used subject to the approval of the authority having jurisdiction.

5-2.2.2 Types of Stairs.

5-2.2.2.1* Dimensional Criteria. Stairs shall be in accordance with the following table:

New Stairs	
Minimum width clear of all obstructions, except projections not exceeding 3½ in. (8.9 cm) at or below handrail height on each side	44 in. (112 cm) 36 in. (91 cm), where total occupant load of all floors served by stairways is less than 50.
Maximum height of risers	7 in. (17.8 cm)
Minimum height of risers	4 in. (10.2 cm)
Minimum tread depth	11 in. (27.9 cm)
Minimum headroom	6 ft 8 in. (203 cm)
Maximum height between landings	12 ft (3.7 m)
Doors opening immediately onto stairs without a landing that is at least the width of door	No

Exception: Existing stairs in existing buildings shall be permitted to remain in use or be rebuilt if they meet the requirements shown in the table for existing stairs.

Existing Stairs

	Class A	Class B
Minimum width clear of all obstructions, except projections not exceeding 3½ in. (8.9 cm) at or below handrail height on each side	44 in. (112 cm)	44 in. (112 cm)
	36 in. (91 cm); where total occupant load of all floors served by stairways is less than 50.	
Maximum height of risers	7½ in. (19.1 cm)	8 in. (20.3 cm)
Minimum tread depth	10 in. (25.4 cm)	9 in. (22.9 cm)
Minimum headroom	6 ft 8 in. (203 cm)	6 ft 8 in. (203 cm)
Maximum height between landings	12 ft (3.7 m)	12 ft (3.7 m)
Doors opening immediately onto stairs without a landing that is at least the width of door	No	No

5-2.2.2.2* Tread Slope. Tread slope shall not exceed ¼ in./ft (2.1 cm/m) (1 in 48).

5-2.2.2.3* Riser Height and Tread Depth. Riser height shall be measured as the vertical distance between tread nosings. Tread depth shall be measured horizontally between the vertical planes of the foremost p adjacent treads and at a right angle to the tre edge but shall not include bevelled or rounde faces that slope more than 20 degrees (a slope At tread nosings, such bevelling or roundir exceed ½ in. (1.3 cm) in horizontal dimension.

5-2.2.2.4 There shall be no variation excee (.5 cm) in the depth of adjacent treads or in t adjacent risers, and the tolerance between the smallest riser or between the largest and smalle not exceed ⅜ in. (1.0 cm) in any flight.

Exception: Where the bottom riser adjoins a lic way, walk, or driveway having an establishe serving as a landing, a variation in height of riser of not more than 3 in. (7.6 cm) in every 3 stairway width is permitted.

5-2.2.2.5 Monumental Stairs. Monumental s inside or outside, shall be permitted as a con means of egress if in compliance with all the r for stairs.

5-2.2.2.6 Curved Stairs. Curved stairs shall l as a component in a means of egress provided t depth of tread is 11 in. (27.9 cm) measured 12 from the narrower end of the tread, and the sm is not less than twice the stair width.

Exception: Existing curved stairs shall be per continued in use provided the minimum depth 10 in. (25.4 cm) and the smallest radius is n twice the stair width.

5-2.2.2.7 Spiral Stairs. Where permitted fo occupancies by Chapters 8 through 30, spiral s permitted as a component in a means of egress

(a) The clear width of the stairs is not less (66 cm).

(b) The height of risers shall not exceed 9½ i

(c) Headroom shall be not less than 6 ft 6 in

(d) Treads shall have a minimum depth (19.1 cm) at a point 12 in. (30.5 cm) from the na

(e) All treads shall be identical.

(f) The occupant load served is not more th

5-2.2.2.8 Winders. Where permitted for indi pancies by Chapters 8 through 30, winders ar stairs. Such winders shall have a minimum dep 6 in. (15.2 cm), and a minimum depth of tr (22.9 cm) at a point 12 in. (30.5 cm) from th edge.

5-2.2.3 Stair Details.

5-2.2.3.1 All stairs serving as required mea shall be of permanent fixed construction.

5-2.2.3.2 Each new stair, platform, and lan buildings more than three stories in height and i ings required by this *Code* to be of Type I or struction shall be of noncombustible material t

Exception: Handrails.

Documentary Sources Reproduced

UBC Compliance References

Cross aisles located within the seating area shall be provided with guardrails not less than 26 inches high along the front edge of the aisle.

EXCEPTION: When the backs of the seats in front of the cross aisle project 24 inches or more above the surface of the cross aisle, guardrails may be omitted.

TABLE NO. 33-A—MINIMUM EGRESS AND ACCESS REQUIREMENTS

USE[1]	MINIMUM OF TWO EXITS OTHER THAN ELEVATORS ARE REQUIRED WHERE NUMBER OF OCCUPANTS IS AT LEAST	OCCUPANT LOAD FACTOR[2] (Sq. Ft.)	ACCESS BY MEANS OF A RAMP OR AN ELEVATOR MUST BE PROVIDED FOR THE PHYSICALLY HANDICAPPED AS INDICATED[3]
1. Aircraft Hangars (no repair)	10	500	Yes
2. Auction Rooms	30	7	Yes
3. Assembly Areas, Concentrated Use (without fixed seats) Auditoriums Churches and Chapels Dance Floors Lobby Accessory to Assembly Occupancy Lodge Rooms Reviewing Stands Stadiums	50	7	Yes[4,5]
Waiting Area	50	3	Yes[4,5]
4. Assembly Areas, Less-concentrated Use Conference Rooms Dining Rooms Drinking Establishments Exhibit Rooms Gymnasiums Lounges Stages	50	15	Yes[4,5,6]
5. Bowling Alley (assume no occupant load for bowling lanes)	50	[12]	Yes
6. Children's Homes and Homes for the Aged	6	80	Yes[7]
7. Classrooms	50	20	Yes[8]
8. Courtrooms	50	40	Yes
9. Dormitories	10	50	Yes[7]
10. Dwellings	10	300	No

(Continued)

USE[1]	MINIMUM OF TWO EXITS OTHER THAN ELEVATORS ARE REQUIRED WHERE NUMBER OF OCCUPANTS IS AT LEAST	OCCUPANT LOAD FACTOR[2] (Sq. Ft.)	ACCESS BY MEANS OF A RAMP OR AN ELEVATOR MUST BE PROVIDED FOR THE PHYSICALLY HANDICAPPED AS INDICATED[3]
11. Exercising Rooms	50	50	Yes
12. Garage, Parking	30	200	Yes[9]
13. Hospitals and Sanitariums—Nursing Homes	6	80	Yes
14. Hotels and Apartments	10	200	Yes[10]
15. Kitchen—Commercial	30	200	No
16. Library Reading Room	50	50	Yes[4]
17. Locker Rooms	30	50	Yes
18. Malls (see Chapter 56)	—	—	—
19. Manufacturing Areas	30	200	Yes[7]
20. Mechanical Equipment Room	30	300	No
21. Nurseries for Children (Day care)	7	35	Yes
22. Offices	30	100	Yes[7]
23. School Shops and Vocational Rooms	50	50	Yes
24. Skating Rinks	50	50 on the skating area; 15 on the deck	Yes[4]
25. Storage and Stock Rooms	30	300	No
26. Stores—Retail Sales Rooms Basement Ground Floor Upper Floors	 [11] 50 10	 30 30 60	 Yes[7] Yes Yes
27. Swimming Pools	50	50 for the pool area; 15 on the deck	Yes[4]
28. Warehouses	30	500	No
29. All others	50	100	

(Footnotes appear on page 666.)

FOOTNOTES FOR TABLE NO. 33-A

[1]For additional provisions on number of exits from Group H and I Occupancies and from rooms containing fuel-fired equipment or cellulose nitrate, see Sections 3320, 3321 and 3322, respectively.

[2]This table shall not be used to determine working space requirements per person.

[3]Elevators shall not be construed as providing a required exit.

[4]Access to secondary areas on balconies or mezzanines may be by stairs only, except when such secondary areas contain the only available toilet facilities.

[5]Reviewing stands, grandstands, bleachers, and folding and telescopic bleachers need not comply.

[6]Access requirements for conference rooms, dining rooms, lounges and exhibit rooms that are part of an office use shall be the same as required for the office use.

[7]Access to floors other than that closest to grade may be by stairs only, except when the only available toilet facilities are on other levels.

[8]When the floor closest to the grade offers the same programs and activities available on other floors, access to the other floors may be by stairs only, except when the only available toilet facilities are on other levels.

[9]Access to floors other than that closest to grade and to garages used in connection with apartment houses may be by stairs only.

[10]See Section 1214 for access to buildings and facilities in hotels and apartments.

[11]See Section 3303 for basement exit requirements.

[12]Occupant load based upon five persons for each alley, including 15 feet of runway.

Documentary Sources Reproduced

Section 106 Compliance

Advisory
Council On
Historic
Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

APR 5 1983

Mr. Robert Stanton
Regional Director
National Park Service
National Capital Region
1100 Ohio Drive, S.W.
Washington, D.C. 20242

REF: Proposed Rehabilitation of Buildings 32, 33, 33A,
34, 34A, 35, 36
Harpers Ferry National Historical Park, West Virginia

Dear Mr. Stanton:

The Council recently received your determination that the referenced project would not adversely affect Harpers Ferry National Historical Park, a property listed on the National Register of Historic Places. We have reviewed your supporting documentation and we agree with your determination. Our agreement is based upon your intention to carry out the project in accordance with the Secretary's "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings," (Standards) and your intention to submit plans, as available, to the West Virginia State Historic Preservation Officer (SHPO) for review and comment. Should the National Park Service determine that the Secretary's Standards cannot be met for any portion of this project, or should the West Virginia SHPO object to any plans submitted, the National Park Service should contact the Council to consult on ways to avoid, minimize or mitigate any adverse effects.

Both this letter and your supporting documentation should be retained in your environmental or project files, as evidence of your compliance with Section 106 of the National Historic Preservation Act.

If you have any questions, please contact Martha Catlin at (202) 606-8505. Thank you for your cooperation.

Sincerely,

[signature]

[illegible] Klima
Director
Eastern Office of Review

424 8/11/93

United States Department of the Interior

NATIONAL PARK SERVICE

NATIONAL CAPITAL REGION
1100 OHIO DRIVE, S. W.
WASHINGTON, D.C. 20242

TAKE PRIDE IN AMERICA

H42 (NCR-PCR)

3 A[illegible]

Mr. William M. Drennan
Commissioner
Department of Culture and History
Capitol Complex
Charleston, West Virginia 25305

Dear Mr. Drennan:

On December 3, 1992, you agreed to a conditional no adverse effect determination on Package 116 at Harpers Ferry National Historical Park (see enclosed correspondence), on the condition that your office is given the opportunity to comment on the plans and specifications during the design phase of the project.

Enclosed are the plans and specifications you requested for your comment and review. By copy of this letter we are sending copies of these plans and specifications to the Advisory Council with an additional copy of your conditional no adverse effect determination.

For further information, please contact me or Regional Historian Gary Scott at (202)619-7279.

Sincerely,

Regional Director, National Capital Region

Enclosures

cc:
Mr. Don Klima
Chief, Eastern Division of Project Review
1100 Pennsylvania Avenue, N.W., #809
Washington, D.C. 20004

WEST VIRGINIA DIVISION OF
CULTURE AND HISTORY

September 2, 1993

Burnice Kearney
Acting Regional Director
National Capital Region
National Park Service
1100 Ohio Drive SW
Washington, D.C. 20242

Dear Mr. Kearney,

er your letter dated August 3, 1993 my staff has reviewed plans and pecifications for Package 116 at Harpers Ferry National Historical ark. At this time we have no objections and find the plans to be in keeping with the no adverse effect determination.

Thank you for the opportunity to comment. If you have any questions, please contact Susan Pierce, Director of Review and Compliance.

Sincerely,

William G. Farrar, Deputy
State Historic Preservation Officer

• CHARLESTON, WEST VIRGINIA

Park: HFE
Pkg. # 116a P.T. 3a
Area lower town
Subject Letters: 32-36
corr.doc

DSC RECORD COPY

H42(NCR-PCR)

12 JAN 1994

Mr. Don L. Klima
Director, Eastern Office of Review
Advisory Council on Historic Preservation
1100 Pennsylvania Avenue, N.W., #803
Washington, D.C. 20004

Dear Mr. Klima:

On August 3, 1993 we sent you a copy of the enclosed letter that was addressed to the West Virginia State Historic Preservation Office (SHPO) that included the plans and drawings for Package 116 at Harpers Ferry National Historical Park. This was done in an attempt to complete an earlier determination, December 3, 1992, of conditional no adverse effect. On September 2, 1993, we received a letter from the West Virginia SHPO (see enclosed) stating that he had no objections and found the plans to be in keeping with the no effect determination. This letter concludes the SHPO review of the project.

We hope that you will review the plans sent to you earlier and will concur in the SHPO's determination of no adverse effect. For additional information, please contact me or Regional Historian Gary Scott at (202)619-7279.

Sincerely,

(sgd.) Chrysandra L. Walter

Acting

Regional Director, National Capital Region

Enclosures

bcc:
NCR-Surname/Files
DSC/EAF LSimpkins
NCR-PCR SZiegenfuss
NCR-PCR H42 File (HAFE)
NCR-PCR GScott
HAFE-Superintendent
GSCOTT:jsy:HAFE116.KLM:WP5.1:December 21, 1993:619-7279:

DSC RECORD COPY

ASD rcd 3/8/94

United States Department of the Interior

NATIONAL PARK SERVICE

NATIONAL CAPITAL REGION
1100 OHIO DRIVE, S. W.
WASHINGTON, D.C. 20242

TAKE PRIDE IN AMERICA

NATIONAL PARK SERVICE
RECEIVED

MAR 8 1994

DENVER SERVICE CENTER
EASTERN TEAM
FALLS CHURCH, VA.

H4217 (NCR-PCR)

Park: HAFE
Pkg. # 116 P.T. 36
Area lower town
Subject bldgs. 32-36

Memorandum

To: Superintendent, Harpers Ferry National Historical Park

From: Chief, Cultural Resource Services Division
National Capital Region

Subject: Section 106 approval for HAFE Package 116

Attached is the signed XXX form for the above referenced project along with the copies of the correspondence that was sent to the West Virginia State Historic Preservation Officer (SHPO) and the Advisory Council. The letter to the Advisory Council was sent on January 12, 1994. To date there has been no reply. The thirty-day review period for the Council has been exceeded. You may proceed with the project.

Gary Scott, acting for
Dwight T. Pitcaithley

Attachments

cc:
DSC/EAF-LSimpkins

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL | # of pages ▸

To Laura Simpkins	From Gary Scott
Dept./Agency DSC/EAF	Phone # 619-7275
Fax #	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

4/14 G4 c 2

ASSESSMENT OF ACTIONS HAVING AN EFFECT ON CULTURAL RESOURCES
ORIGINATING OFFICE

Park: Harpers Ferry NHP Park district (optional) Lower Town

2. **Work/Project Description:**
a. Project name Rehabilitate Bldgs. 33-36 park project #(s) Pkg. 116
b. Describe project and area of potential effects (as defined in 36 CFR Part 800.2(c)); explain why work/project is needed. Park buildings 33, 33A, 34, 34A, 35, and 36 are 19th century structures ranging in dates from the second decade of the 1800s through the 1890s. The buildings comprise one block on the south side of Shenandoah Street. Pzckage 116 will upgrade or install electrical and mechanical systems, make bldgs. accessible, and repair or replace missing or damaged fabric.

3. **Has the area of potential effects been surveyed to identify cultural resources?**
___ No
_X_ Yes Source or Reference HSR completed; archeological, historical, and architectural assessments all completed.
_X_ Check here if no known cultural resources will be affected. (If area has been disturbed in the past, please explain or attach additional sheets to describe nature, extent, and intensity of disturbance.)

4. Affected Resource(s):
Name and number(s): Bldgs. 33, 33A, 34, 34A location: Lower Town NR status: listed
Name and number(s): 35, 35 location: Lower Town NR status: listed
(REPEAT FOR EACH AFFECTED RESOURCE)

5. **The proposed action will:** (Check as many as apply.)
Destroy, remove, or alter features/elements from a historic structure
Replace historic features/elements in kind
___ Add nonhistoric features/elements to a historic structure
_x_ Alter or remove features/elements of a historic setting or environment (inc. terrain)
_x_ Add nonhistoric features/elements (inc. visual, audible, or atmospheric) to a historic setting or cultural landscape
_x_ Disturb, destroy, or make archeological resources inaccessible, or alter terrain
___ Potentially affect presently unidentified cultural resources
___ Begin or contribute to deterioration of historic fabric, terrain, setting, landscape elements, or archeological or ethnographic resources
___ Involve a real property transaction (exchange, sale, or lease of land or structures)
___ (OPTIONAL) Meet criteria for Programmatic Exclusion C.1 ___ in the 1990 Servicewide Programmatic Agreement for Section 106 compliance.
___ Other (please specify)

6. **Measures to prevent or minimize loss or impairment of historic/prehistoric fabric, setting, integrity, or data.**
Completed HSR work has fully documented the interior/exterior of these buildings. Construction drawings have been prepared that respect the historic fabric of the resource. Construction will be monitored by historical architect(s) and rehabilitation work documented throughout construction project.

7. **Supporting Study Data:** (attach if feasible; if action is in a plan, give name and project or page number):
HSRs for Bldgs. 33, 33A; 34-34A-35; building condition assessment for Bldg. 36. Archeological report for the site; historic data section for the site; landscape study for the site; construction drawings for the site--all have been completed.

8. **Attachments:** [ ] Maps [ ] Archeological Clearance, if applicable [ ] Drawings [ ] Specifications
[ ] Photographs [ ] Scope of Work [ ] Site plan [ ] List of Materials [ ] Samples
[ ]Other ___

9. Prepared by Dennis J Frye Date 1-5-94

Title Chief of Interpretation & Cultural Resources Telephone 304-535-6223

10. I certify that the proposed work conforms to NPS Management Policies and NPS-28.

Signature of Superintendent [signature]

Date 1-6-94

B. REGIONAL ASSESSMENT

RECOMMENDED ASSESSMENT OF EFFECT (completed by Regional compliance coordinator):

_____No Effect _____No Adverse Effect _____Adverse Effect

COMPLIANCE REQUIREMENTS--PLEASE INDICATE WHICH OF THE FOLLOWING APPLIES.

[ ] 1. STANDARD 36 CFR PART 800 CONSULTATION
Consultation under 36 CFR Part 800 has been carried out subsequent to preparation of this XXX form.

[ ] 2. PROGRAMMATIC EXCLUSION
The above action meets all conditions for a programmatic exclusion under Stipulation C.1 or C.2 of the 1990 Servicewide PA.
APPLICABLE EXCLUSION(s): C.1 _____ [specify a-m] or C.2 addition.

[ ] 3. PLAN-RELATED UNDERTAKING
Consultation about the proposed undertaking was completed in the context of a plan review process, in accordance with the 1990 Servicewide PA, Stipulation E or F, and 36 CFR Part 800. (If Stipulation F of the 1990 PA applied to this case, please so note.)

[ ] 4. MOA-RELATED UNDERTAKING
Consultation about the proposed action was conducted in development of a Memorandum of Agreement or Programmatic Agreement approved by NPS, the SHPO and the Advisory Council.

Contingent upon stipulations developed in the consultation process or listed above, requirements for Section 106 compliance have been met.

STIPULATIONS/CONDITIONS:

Signed _____ Date _____
Regional Compliance Coordinator

Approved [signature] Date 2/7/94
Regional Director
Acting

I have reviewed this proposal for compliance with the National Historic Preservation Act and, if applicable, the 1990 PA. I have noted below any additional stipulations that could apply.

Stipulations:

Stephen Potter — Regional Archeologist — Date 1/10/94

Regional Cultural Landscape Architect — Date

Pamela Bethel — Regional Curator — Date 2/4/94

Regional Ethnographer — Date

Nancy Hunt — Regional Historian — Date 1-11-94

Rebecca Tekel — Regional Historical Architect — Date 1.25.94

Other — Date

COMPLIANCE REQUIREMENTS--PLEASE INDICATE WHICH OF THE FOLLOWING APPLIES.

[X] 1. Consultation under 36 CFR Part 800 has been carried out. (If Stipulation F of the 1990 PA applied to this case, please note in Stipulations section above.)

[ ] 2. The above action meets all conditions for a programmatic exclusion under Stipulation C.1 or C.2 of the 1990 PA. APPLICABLE EXCLUSION: C.1 ___ [specify a-m] or C.2 addition.

[ ] 3. Consultation about the proposed undertaking was previously completed in the context of a plan review process, in accordance with the 1990 PA, Stipulation E or F. (Please note in Stipulations section above if Stipulation F of the 1990 PA applied in this case.)

[ ] 4. Consultation about the proposed action was previously conducted in development of a Memorandum of Agreement or programmatic agreement approved by NPS, the SHPO and the Advisory Council.

Contingent upon stipulations developed in the consultation process or listed above, requirements for Section 106 compliance have been met.

Signed: ___ Regional Compliance Coordinator — Date

Approved: Sara Blumenthal — Regional Director — Date 2/7/94

Documentary Sources Reproduced

"Paint Analysis"

PAINT ANALYSIS

BUILDINGS 32, 33 AND 33A

HARPERS FERRY NATIONAL HISTORIC PARK

HARPERS FERRY, WEST VIRGINIA

Contract No. CX-2000-0-0011

Work Order No. 3

July 22, 1991

Oehrlein & Associates Architects
1702 Connecticut Avenue, NW
Washington, DC 20009
(202) 387-8040

PURPOSE AND METHODOLOGY

The purpose of this paint analysis study was to determine and record the color and finish of the painted surfaces on the exterior and interior of the buildings and to test for the presence of lead. This work involved on-site examination of surfaces, taking samples from the building and performing further examination and testing in the office.

The on-site investigation involved cutting a shallow bevel through all layers of paint with a scalpel blade. Each layer was then examined with a hand held 7X lense under 3200 degree Kelvin illumination. Numerous samples of each repetitive element were examined to ensure that complete sequences were found and recorded, as well as determining that all similar elements in a room have the same finishes.

After exposing the paint layers to the fullest extent possible, each layer was described using common color names (National Bureau of Standards nomenclature), recorded chronologically on the attached charts, and matched to the Munsell System of Color Notation, glossy edition. Each vertical column on the charts corresponds to a specific sample or samples with identical layering sequences, with the location indicated at the top. The original layers appear at the top of the column and the most recent near the bottom. All layers are aligned horizontally so that by reading across the chart, the decorative scheme for a room at any particular period may be discerned.

Samples were also taken from the buildings for further study and color matching under stereoscopic magnification with 3200 degree Kelvin illumination. These samples were also tested for lead content by wetting the surface with a 10% solution of sodium sulfide, which turns any lead present on the sample black. Samples determined to contain lead are recorded at the top of the column by a "L" in a circle with a "T" suffix for "test." Samples which were tested with negative results are marked with only a "T". Surfaces which were not tested, but are suspected of containing lead are marked by a "L" in a circle.

The scope of work for this report does not include identifying types of finishes such as wallpapers, limewashes, oil paints, varnishes or shellacs, however this was noted where it was readily identifiable. Where there are limewashes listed, it is often difficult to determine the exact ordering of the layers and the presence of all colors due to their instability. These finishes are often worn or washed away before a new finish is applied. Wall surfaces which do not have many finishes listed either have been covered with a finish which is now removed, (such as limewash, other waterbased paint, or wallpaper) or have been replastered.

Room, door, and window numbers in this report and on the charts correspond to plans provided by the National Park Service that are dated November 1990.

BUILDING 32

Building 32 has always been used for utilitarian purposes and has no intact finished surfaces on the interior. The only evidence of interior paint is on the second floor where there are traces of white limewash on exposed wood framing and other wood surfaces.

Exterior doors, trim and exposed framing are painted with one coat of modern reddish brown (10YR 4/4) paint, which matches the present finish on the exterior of Buildings 33 and 33A. Windows at the second floor are recent additions and are painted with one coat white primer and one coat reddish brown (10YR 4/4). Due to the lack of paint finishes, no charts were completed for this building.

BUILDING 33

The basic form of Building 33 is intact as it was originally built, although the building has had many interior alterations and some replacement of exterior doors and frames. Most surfaces have many layers of paint. But often the same color was used on all surfaces in a room, making it easy to determine the relative age of painting alterations and periods of neglect. Elements which are recent additions are easily discerned by the lack of early paint, while it is also readily apparent which surfaces were not painted for long periods of time by their lack of intermediate layers. Many of the most recent layers of paint (approximately 3 to 6) are modern paints, evident by their pliable consistency and lack of lead content.

The exterior appears to have been painted regularly over its history, with more frequency in recent years. The paint is moderately deteriorated, making it difficult on some surfaces, (such as the north bay and its windows) to determine exactly how many finish layers of the same color exist. The colors and the seriations indicated are as accurate as possible.

The storefront has windows (W101 and W102) and doors (D101) that have been turned inside-out as evidenced by the presence of the glazing putty on the interior. This is confirmed by the finishes and is best illustrated by comparing the first finish on the existing exterior window sash, W104, and the first finish on the interior transom sash over Door 101. Both are the same dark grayish red. The remainder of the seriations for all of the surfaces on the exterior and the first floor align chronologically on the paint charts, making it possible to make other determinations about decorative schemes.

The first floor has been gutted and renovated extensively, with the exception of most exterior doors and windows. The Stairhall (Room 102) appears to have been partially removed and reinstalled, with the main elements of the stair itself reused. The wall under the stair and the closet it creates are recent alterations and were not sampled, along with other ecent alterations.

The second floor appears to have been used steadily over its history, with many paint layers on most surfaces. Alterations are evident by the presence of only three to four layers of modern paint over modern materials, such as those found in Rooms 203, 203A, 204A, 205 and 210, and were not all sampled. Rooms 203 to 205 are closets that were carved out of a former hallway, while Room 210 is a bathroom that has been added. Most

rooms on this floor also have recent wallboard ceilings as noted on the charts.

Most rooms have no evidence of early paint on the walls indicating that the surface was covered with wallpaper, a water based paint that has been removed, or that the plaster has been replaced or recoated. Original doors were grained over a reddish gray base coat. It would be necessary to remove a relatively large area of all subsequent layers of paint to reveal the graining to determine its exact appearance.

Doors in Room 209, the back hallway, have been altered as evident by differences in the moulding profiles and paint layers on doors, frames and trim. These fall neatly in groups and it is easy to determine when alterations took place relative to the paint history of the building.

The third floor has fewer layers of paint than the second floor and is not currently being used. It is relatively unfinished, with many recent unfinished plaster surfaces and areas of missing trim. It appears that some baseboard has been reinstalled in locations that may have not been original, making it difficult to know which surfaces to sample. Only baseboard that seemed to be located in a reliable location, usually along an exterior wall where the original plaster is intact, was sampled and recorded.

The fourth floor has only one or two finishes on the surfaces and appear to be original.

BUILDING 33A

This building was built as a bottling facility and has always been used for utilitarian purposes. The exterior has been largely rebuilt and the siding, doors and windows are not original. The building was originally clad on the upper foors with vertical board siding which appears in early photographs, which also show that the building was a light color that is partially weathered away. This indicates that the building was probably whitewashed.

The interior walls are plaster on the first floor with several layers of white limewash and exposed structure on the upper floors with traces of white limewash. The interior of the doors and windows are either unfinished or coated with a modern white primer.

PAINT ANALYSIS CHARTS

BUILDING 33

EXTERIOR (Storefront) BUILDING 35

D101 (exist. exterior, former interior		D101 - FRAME		D101 - TRANSOM SASH		W104 - SASH (exist. exterior, former interior)		Panel, window sill, frame + dilapidated	
WOOD	(L)T	WOOD	(L)T	WOOD	(L)	WOOD	(L)T	WOOD	(L)
[illegible]	5YR 7/2	yellowish white	5Y 9/2	very dark green	5G 2/6	dark gray red	2.5R 3/2	yellowish white	5Y 9/2
[illegible]									
—		blackish green	7.5G 2/2	lt. gray brown	7.5YR 6/2	red brown	10R 3/4	blackish green	7.5G 2/2
—		blackish green	7.5G 3/2	dark gray red	2.5R 3/2	black	N0.5	—	
—		pale yellow	2.5Y 9/4	red brown	10R 3/4	—		—	
—		dark green	5G 3/4	black	N0.5	light brown	7.5YR 5/6	dark green	5G 3/4
—		pale yellow	2.5Y 9/4	lt. brown	7.5YR 5/6	yellowish gray	5Y 3/1	—	
					5Y 8/1	black	N0.5		
—		dark green	5G 3/4	dark green	5G 3/4	dark green	5G 3/4	dark green	5G 3/4
dark brown	5YR 4/2	—		—		—		—	
red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	—		red brown	10R 4/4
—		—		—		—		—	
red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4

Sand moulding @ corner of frame + panel		DIO2		DIO2 - FRAME		DIO2 - TRANSOM SASH			
WOOD	(L)	WOOD	$(L)_T$	WOOD	$(L)_T$	WOOD	$(L)_T$		
yellowish gray	5Y 8/2	—		yellowish white	5Y 9/1	Y. White	5Y 9/1		
Y. gray	5Y 8/2	—		yellowish white	5Y 9/1	Y. White	5Y 9/2		
—		—		pale yellow	2.5Y 8.5/4	yellowish white	5Y 9/1		
—		—		pale yellow	2.5Y 9/4	moderate brown	7.5YR 5/4		
greenish gray	5BG 6/1	dk. orange yellow	10YR 6/8	yellowish White	2.5Y 9/2	pale yellow	2.5Y 9/4		
pale orange yellow	10YR 9/4	—		dark green	5G 3/4	—			
White	N9.5	—		dark green	5G 3/4	dark green	5G 3/4		
—		—		grayish brown	5YR 4/2	grayish brown	5YR 4/2		
red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4		
—		H. blue gray	10B 8/1	—		—			
red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4		

D103- (door has been stripped, matching @ glass door)		D103- FRAME + TRANSOM		D111- DOOR, TRANSOM, SASH		D111- FRAME		D114- DOOR, TRANSOM, SASH	
WOOD	(L)	WOOD		WOOD		WOOD	(L)	WOOD	(L)
primer graining	5YR 7/2	—		—		yellowish white	5Y 9/1	yellowish white	5Y 9/1
—		—		—		—		—	
—		—		—		—		—	
red brown	10R 3/4	—		—		red brown	10R 3/4	red brown	10R 3/4
orange	7.5YR 6/8	—		—		—		lt. brown	7.5YR 5/6
—		—		—		—		—	
—		—		—		Y white	5Y 9/1	—	
—		—		—		—		lt. gray red brown	5YR 4/2
red brown	10R 4/4	—		—		—		—	
lt. blue gray	10B 8/1	lt. blue gray	10B 8/1	lt. blue gray	10B 8/1	lt. blue gray	10B 8/1	—	
red brown	10R 4/4	red brown	10R 4/4	—		—		red brown	10R 4/4

EXTERIOR

BUILDING 33

D116 - (illegible)		D116 - FRAME		D116 - TRANSOM BAR		D116 - TRANSOM SASH			
WOOD	(L)	WOOD	(L)	WOOD	(L)	WOOD	(L)T		
yellowish white	5Y 9/1	yellowish white	5Y 9/1	yellowish white	5Y 9/1	yellowish white	5Y 9/1		
—		red brown	10R 3/4	—		—			
—		dark gray red	2.5YR 3/2	—		—			
dk orange yellow	10YR 6/8	dk orange yellow	10YR 6/8	dk orange yellow	10YR 6/8	yellow pink	7.5YR 8/3		
—		—		—		—			
—		—		—		—			
—		—		—		—			
gray brown	5YR 3/2	gray brown	5YR 3/2	gray brown	5YR 3/2	gray brown	5YR 3/2		
red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4		
H. blue gray	10B 8/1	H. blue gray	10B 8/1	—		—			
red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4		

EXTERIOR

BUILDING 33

WINDOWS - FRAME + SASH		BAY @ 2ND FLOOR		STUCCO @ SOUTH WALL		SOUTH PORCH		NORTH BALCONY	
WOOD	(L)T	WOOD	(L)	STUCCO		WOOD		[illegible]	
yellowish white	5Y 9/1	yellowish white	5Y 9/1	grayish red brown (Placement with other colors unknown.)	2.5YR 6/2	(1) [illegible]			
—		yellowish white	5Y 9/1						
—		—							
—		lt. blue gray	10B 8/1						
—		—							
grayish yellow	2.5Y 8/4 *	grayish yellow	2.5Y 8/4						
—		—							
—		—							
—		—							
lt. blue gray (2 coats)	10B 8/1	lt. blue gray (2 coats)	10B 8/1						
* = variant on all samples									

1RST FLOOR
RMS. 101, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113 + 113A BUILDING 33

Most materials and surfaces are not historic. Remaining historic materials were sampled and are described on other charts.

(1) originals (2) 1991 alterations/additions

WALLS		CEILING		DOORS + FRAMES		FLOOR			
PLASTER		LAY-IN ACOUSTICAL TILE		HOLLOW	METAL	CARPET			
White	(primer)			White	(primer)				
Drafting Grey	SVR 9/1-9/1			Drafting Grey	SVR 9/1 4/1				

R.1 (storefront) BUILDING 33

(exist interior; former exterior)		D101 TRANSOM SASH		D101 TRANSOM BAR		STOREFRONT FRAMES + CASING			
WOOD	(L)	WOOD	(L)	WOOD	(L)	WOOD			
yellowish gray	10YR 9/2	dark brown	2.5YR 3/2	yellowish gray	10YR 9/2	—			
dark brown	5YR 2/1	red brown	10R 3/4	yellowish gray	5Y 8/2	—			
—		yellowish gray	5Y 8/2	yellowish gray	5Y 8/2	—			
greenish gray	5BG 7/1	yellowish gray	5Y 8/2	yellowish gray	5Y 8/2	—			
orange yellow	10YR 4/8	—		—		—			
yellowish white	5Y 9/1	pale o. yellow	10YR 9/4	pale o. yellow	10YR 9/4	—			
White	N9.5	White	N9.5	White	N9.5	White	N9.5		
pale yellow	2.5GY 9/2	—		pale yellow	2.5GY 9/2	—			
yellowish white	2.5Y 9/2-1	yellowish White	2.5Y 9/2-1	yellowish white	2.5Y 9/2-1	—			
pinkish gray	5YR 9/1-3/1	pinkish gray	5YR 9/1-3/1	pinkish gray	5YR 9/1-3/1	pinkish gray	5YR 9/1-3/1		

RM 101 (Storefront) BUILDING 33

W 104 SPLAY		W 104 SASH (exist. interior, former exterior)							
WOOD	(L)	WOOD	(L)						
yellowish white	5Y 9/1	yellowish gray	10YR 9/2						
yellowish white	5Y 9/2	yellowish gray	5Y 8/2						
—		yellowish gray	5Y 8/2						
yellowish white	5Y 9/1	yellowish white	5Y 9/1						
greenish gray	10G 6/2	greenish gray	5BG 6/1						
pale o.yellow	10YR 9/4	pale o.yellow	10YR 9/4						
white	N9.5	White	N9.5						
—		—							
—		—							
pinkish gray	5YR 9/1-8/1	pinkish gray	5YR 9/1-8/1						

RM 110 RM 113 BUILDING 3

W105 + W101 TRIM, SILL + SPLAY		W105 + W101 SASH				D115 DOOR + TRIM			
WOOD	(L)	WOOD	(L)			WOOD			
yellowish white	5Y 9/1	yellowish white	5Y 9/1			—			
yellowish white	5Y 9/1	yellowish white	5Y 8.5/1			—			
—		yellowish white	5Y 8.5/1			—			
—		—				—			
yellow green	2.5GY 6/4	—				—			
dark bluegreen	5B 5/1	dark bluegreen	5B 5/1-6/1			—			
—		White	N9.5			White	N9.5		
—		—				—			
yellowish White	5Y 9/1	yellowish White	5Y 9/1			yellowish white	5Y 9/1		
pinkish gray	5YR 9/1-8/1	pinkish gray	5YR 9/1-8/1			pinkish gray	5YR 9/1-5/1		

RM 113 BUILDING 33

D 114		D 114 Surround @ glass		D114 TRANSOM SASH		D 114 + D116 TRIM		D 116	
WOOD	(L)+	WOOD	(L)	WOOD	(L)	WOOD	(L)	WOOD	(L)
yellowish white	5Y 9/1	yellowish white	5Y 9/1	—		yellowish white	5Y 9/1	yellowish white	5Y 9/1
dark brown	5YR 2/1	greenish tan	5Y 8.5/1	—		greenish tan	5Y 8.5/1	dark brown	5YR 2/1
		greenish tan	5Y 8.5/1	—		greenish tan	5Y 8.5/1	—	
Olive gray	5BG 7/1	—		—		—		—	
orange brown	10YR 4/3	orange yellow	10YR 6/8-7/8	—		mustard	10YR 6/8-7/8	—	
olive	7.5Y 5/2								
dark olive green	5B 5/1-6/1	dark olive green	5B 5/1-6/1	yellowish white	10YR 9/2	dark olive green	5B 5/1-6/1	—	
White	N9.5	White	N.9.5	White	N9.5	White	N9.5	White	N9.5
—		—		yellowish white	5Y 9/1	—		—	
yellowish white	5Y 9/1	yellowish white	5Y 9/1	yellowish white	5Y 9/1	—		—	
				White	N9.5				
pinkish gray	5YR 9/1-9/1	pinkish gray	5YR 9/1-8/1	pinkish gray	5YR 9/1-8/1	pinkish gray	5YR 9/1-8/1	pinkish gray	5YR 9/1-8/1

STAIRHALL RM 102 BUILDING 33

WALLS		CEILING		BASE		TRIM - D102 TRANSOM - D102 + D103			
PLASTER		PLASTER		WOOD		WOOD	(L)		
—		Wallpaper		bare		H gray brown	7.5YR 5/6		
—		—				pale yellow	2.5Y 8.5/4		
—		—				yellowish white	10YR 8/1		
pale orange	10YR 8/4	—				yellowish white	10YR 9/2		
yellow									
yellowish gray	5Y 8.5/2	—				pale yellow	5GY 9/2		
						green			
—		—				yellowish gray	10YR 3/2		
—		White	N9.5			White	N9.5		
—		—				yellowish gray	10YR 7/2		
pale orange yellow	7.5YR 8/6	—				pale orange yellow	10YR 3/4		

STAIRHALL RM 102 BUILDING #3

D102		TRIM - D103		D103*		HANDRAIL NEWEL POST PICKETS		RISERS	
WOOD	(L)T	WOOD		WOOD	(L)	WOOD		WOOD	
primer red gray	5R 6/1	bare		primer red gray	5R 6/1	varnish		—	
graining				graining					
dk gray brown	5YR 2/2			—		—		—	
gray yellow pink	5YR 7/2			—		—		—	
lt. brown	7.5YR 5/6			yellowish white	10YR 9/2	—		—	
pale yellow green	5GY 9/2			pale yellow green	5GY 9/2	—		—	
yellowish gray	10YR 9/2			yellowish gray	10YR 3/2	—		—	
White	N9.5			White	N9.5	—		[illegible]	N9.5
yellowish gray	10YR 7/2			yellowish gray	10YR 7/2	—		—	
pale orange yellow	10YR 9/4			pale orange yellow	10YR 9/4	—		[illegible] Yellow	10YR [illegible]
				*Door has stripped at glass	Seen Sampling bead.				

HAIRHALL RM 102 BUILDING 33

READ									
WOOD	T								
—									
—									
-									
—									
-									
—									
primer red brown	7.5R 2/6								
brown	7.5YR 3/4								
gray red brown	7.5R 3/2								

SECOND FLOOR
RMS 201 + 201A

BUILDING 33

WALLS		CEILING + CORNICE		BASE (@ S. WALL)		BASE CAP (@ S. WALL)		TRIM (@ DOOR 201 + WALL + DOOR IN RM 201A)	
WOOD		WALLBOARD WOOD		WOOD	(L)	WOOD	(L)	WOOD	(L)
—		—		olive brown	2.5Y 5/2-4/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2
—		—		yellowish brown	10YR 5/4	yellowish gray	5Y 8/2	yellowish gray	5Y 8/2
—		—		—		yellowish gray	5Y 8/2	yellowish gray	5Y 8/2
—		—		—		H green gray	5GY 3/1	yellowish gray	5Y 3/2
yellowish gray	2.5Y 8/2	—		black	N0.5	yellowish gray	2.5Y 3.5/2	—	
—		—		pale green	2.5G 6/2	green	7.5G 5/4	pale green	2.5G 6/2
[illegible]	10BG 8/4	—		yellowish gray	5Y 8.5/2	yellowish gray	5Y 3.5/2	yellowish gray	5Y 3/2
—		—		yellowish white	5Y 9/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2
yellowish gray	10YR 8/2	y. gray	10YR 8/2	y. gray	10YR 8/2	y. gray	10YR 8/2	y. gray	10YR 8/2
yellowish white	10YR 9/1	—		—		—		yellowish white	2.5Y 9/2
pale y. [illegible]	10Y 8.5/2	pale y. green	10Y 8.5/2	—		—		pale y. green	10Y 8.5/2
—		white	N9.5	white	N9.5	white	N9.5	white	N9.5

RM 201 BUILDING 33

D1201		WINDOW SPLAY (W211)		SASH (W211)		FLOOR + SHOEMOLD			
WOOD	(L)	WOOD	(L)	WOOD	(L)	WOOD			
primer	5R 6/1	yellowish white	5Y 9/2	Y. white	5Y 9/2				
graining									
—		yellowish gray	5Y 8/2	Y. gray	5Y 8/2				
—		yellowish gray	5Y 8/2	Y. gray	5Y 8/2				
—		yellowish gray	5Y 8/2	Y. gray	5Y 8/2				
—		—		—					
pale green	2.5G 6/2	pale green	2.5G 6/2	pale green	2.5G 6/2				
yellowish gray	5Y 8.5/2	Y. gray	5Y 8.5/2	—					
yellowish white	5Y 9/2	yellowish white	5Y 9/1	yellowish white	5Y 9/1				
yellowish gray	10YR 8/2	Y. gray	10YR 8/2	—					
yellowish white	2.5Y 9/2	pale green	10GY 9/2	—					
—		pale Y. green	10Y 8.5/4	—					
white	N9.5	—		white	N9.5	clear varnish			

RM 202 BUILDING 33

WALLS		CEILING + CORNICE		BASE (@ W. Wall)		BASE CAP (@ W. Wall)		TRIM (D201 + W210)	
PLASTER		WALLBOARD WOOD		WOOD	(L)	WOOD	(L)	WOOD	(L)
—		—		yellowish gray	5Y 7/2	grayish yellow	2.5Y 8/4	grayish yellow	2.5Y 8/4
—		—		yellowish gray	5Y 8/2	Y. gray	5Y 8/2	Y. gray	5Y 8/2
—		—		olive brown	2.5Y 4/2	yellowish gray	5Y 8/2	Y. gray	5Y 8/2
yellowish gray	10Y 8/1	—		H. olive brown	2.5Y 5/4	yellowish gray	5Y 8/2	yellowish gray	5Y 8/2
yellowish gray	2.5Y 8/2	—		black	No. 5	—		—	
yellow green	7.5GY 7-8/2	—		D.G. green	2.5G 6/2	pale green	2.5G 6/2	pale green	2.5G 6/2
yellowish gray	2.5Y 8/2	—		yellowish white	5Y 9/1	yellowish gray	2.5Y 8.5/2	—	
—		—		yellowish white	5Y 9/1	Y. white	5Y 9/1	Y. white	5Y 9/1
V. light gray white	7.5Y 9/2	yellowish gray	10YR 8/2	Y. gray	10YR 8/2	Y. gray	10YR 8/2	Y. gray	10YR 8/2
—		—		—		pale Y. green	10Y 8.5/2	—	
—		—		—		yellowish white	5Y 9/1	—	
V. pale blue	7.5B 8/2-3/4	white	N9.5	white	N9.5	white	N9.5	white	N9.5

RM 202 BUILDING 33

D201, D203 + D204		WINDOW SPLAY (W207)		SASH (W207)		FLOOR + SHOEMOLD			
WOOD	(L) T	WOOD	(L)	WOOD	(L)	WOOD			
primer	5R 6/1	yellowish white	5Y 9/2	Y. white	5Y 9/2				
graining									
—		yellowish gray	5Y 8/2	yellowish gray	5Y 8/2				
—		yellowish gray	5Y 8/2	Y. gray	5Y 8/2				
—		yellowish gray	5Y 8/2	Y. gray	5Y 8/2				
—		—		—					
pale green	2.5G * 6/2	pale green	2.5G 6/2	pale green	2.5G 6/2				
yellowish gray	5Y 8.5/2	yellowish gray	5Y 8.5/2	—					
yellowish white	5Y 9/2	—		—					
yellowish gray	10YR 8/2	Y. gray	10YR 8/2	—					
yellowish white	2.5Y 9/2	Y. white	7.5Y 9/2	Y. white	2.5Y 9/2				
—		Y. white	7.5Y 9/2	—					
white	N9.5	light blue	7.5B 8/2-4	White	N9.5	clear varnish			

* NOT SPEC'D FOR D202

Rooms have been added, dividing up a former hallway. All surfaces are recent alterations and have 3 to 4 layers of modern paint.

RM 206 BUILDING 33

TRIM - D203, D209, D210, D211 + D212 FRAME - D206 STOP - D206, D211 + D212				FRAME - D210, D211, + D212 STOP - D210				TRIM + FRAME - D203	
WOOD				WOOD	(L)			WOOD	(L)
—				brown	7.5YR 4/4			brown	7.5YR 4/4
—				grayish yellow	2.5Y 8/4			grayish yellow	2.5Y 8/4
—				—				—	
—				—				—	
—				—				—	
—				—				—	
—				—				—	
yellowish gray	2.5Y 8/2			yellowish gray	2.5Y 8/2			yellowish gray	10YR 8/2
yellowish white	2.5Y 9/2			yellowish white	2.5Y 9/2			yellowish white	2.5Y 9/2
—				—				—	
White	N9.5			White	N9.5			White	N9.5
White	N9.5			white	N9.5			White	N9.5

RM 204 BUILDING 33

WALLS		CEILING + CORNICE		BASE		BASE CAP		TRIM	
PLASTER		WALLBOARD WOOD		WOOD	(L)	WOOD	(L)	WOOD	(L)
—		Similar to rooms 201 + 202.		dark red gray	10R 3/1	dark red gray	10R 3/1	Yellowish White	5Y 9/2
		(Recent addition.)							
grayish [illegible]	5BG 5/2			olive brown	2.5Y 4/2	olive brown	2.5Y 4/2	—	
[illegible]	[illegible]								
—				lt. olive brown	2.5Y 5/4	Y. White	5Y 9/1	yellowish gray	5Y 9/2
—				—		Y. White	10YR 9/4	Y. gray	5Y [illegible]
—				black	N0.5	Y. White	5Y 3.5/1	Y. [illegible]	5Y [illegible]
[illegible]				lt. [illegible] gray	5B 7/1	lt. blue gray	5B 7/1	[illegible]	[illegible]
[illegible]	[illegible]			—		Y. gray	10YR 9/2	Y. [illegible]	[illegible]
[illegible]	10G 9/1			yellowish White	2.5Y 9/2	Y. White	5Y 9/1	Y. [illegible]	5Y 9/1
[illegible]	[illegible]			Y. gray	10YR 9/2	Y. gray	10YR 9/2	Y. gray	10YR 9/2
—				—		—		yellow	5Y 9/0
[illegible]	[illegible]			Y. White	10Y 8.5/2	Y. White	10Y 8.5/2	White	N9.5
[illegible]	[illegible]			white	N9.5	white	N9.5	white	N9.5

RM D207		D207		D205		WINDOW SPLAY		WINDOW SASH	
WOOD		WOOD	(L)	WOOD		WOOD	(L)	WOOD	
—		primer	5R 6/1	—		Y white	5Y 9/2	[illegible]	[illegible]
		graining							
—		—		—		yellowish gray	5Y 8/2	—	
—		—		—		Y. gray	5Y 9/2	—	
—		—		—		Y. gray	5Y 9/2	[illegible]	[illegible]
—		—		—		Y. white	5Y 9.5/1	—	
lt blue gray	5B 7/1	—		—		lt. blue gray	5B 7/1	—	
Y gray	10YR 8/2	—		—		Y. gray	10YR 8/2	—	
Y white	5Y 9/1	—		—		Y. white	5Y 9/1	Y. White	5Y [illegible]
				primer					
Y. gray	10YR 8/2	Y. gray	10YR 8/2	Y. gray	10YR 8/2	Y. gray	10YR 8/2	—	
—		—		—		—		—	
white	N 9.5	White	N9.5	white	N9.5	lt blue	7.5B 8/2-4	—	
White	N9.5	White	N9.5	white	N9.5	[illegible]		White	N9.5

RM 206 BUILDING 32

WALLS		CEILING + CORNICE		BASE (@N. WALL)		BASE CAP (@ N. WALL)		TRIM (D204)	
PLASTER		WALLBOARD WOOD		WOOD	(L)	WOOD	(L)	WOOD	(L)
		similar to Rms 201 + 202							
—		(rec) + addition)		yellowish gray	5Y 7/2	grayish yellow	2.5Y 8/4	yellowish gray	10YR 7/2
—				yellowish white	5Y 9/1	yellowish gray	5Y 8/2	yellowish gray	5Y 9/2
—				olive ivorin	2.5Y 4/2	yellowish gray	5Y 8/2	yellowish gray	5Y 9/2
—				[illegible] olive gray	2.5Y 5/4	yellowish gray	5Y 8/2	pale yellow	10YR [illegible]
gray	N7.5			black	N0.5	—		—	
—				—		—		grayish gray	5GY [illegible]
pale orange yellow	10YR 8/2			yellowish white	5Y 9/1	yellowish white	2.5Y 8.5/2	[illegible]	7.5Y [illegible]
—				yellowish white	5Y 9/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2
grayish yellow green	7.5GY 7/2			yellowish gray	10YR 8/2	yellowish gray	10YR 8/2	yellowish gray	10YR [illegible]
—						—		—	
pale Y. green	10Y 8.5/2			white	N9.5	white	N9.5	[illegible]	10Y [illegible]
pale Y. green	10Y 8.5/2			white	N9.5	white	N9.5	white	N9.5

RM 206 BUILDING 33

[illegible]24		WINDOW SPLAY		WINDOW SASH		FLOOR + SHOEMOLD			
WOOD	(L)	WOOD	(L)	WOOD	(L)+	WOOD			
primer red gray varnish	5R 6/1	yellowish white	2.5Y 9/2	yellowish white	2.5Y 9/2				
—		—		—					
—		—		—					
—		H. olive brown	2.5Y 5/4	yellowish gray	5Y 8/2				
—		—		—					
[illegible] gray	5GY 6/1	yellowish white	5Y 9/1	greenish gray	5GY 6/1				
yellowish white	7.5Y 9/2	yellowish white	7.5Y 9/2	—					
yellowish white	5Y 9/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2				
yellowish gray	10YR 8/2	yellowish gray	10YR 8/2	—					
—		—		—					
[illegible] green	10Y 8.5/2	pale yellow green	10Y 8.5/2	—					
white	N9.5	plaster skim							
	N9.5	[illegible]	10Y 8.5/2	white	N9.5	clear varnish			

WALLS (N, E + W)		CEILING + CORNICE		BASE (@ W. WALL)		BASE CAP (@ PARTIAL WALL)		TRIM	
PLASTER		WALLBOARD / PLASTER		WOOD	(L)	WOOD	(L)	WOOD	(L)
Gray limewash	N6.75	Similar to rooms 201 + 202.		H. olive brown	2.5Y 5/2	yellowish white	5Y 9/1	yellowish white	
		(recent addition)							
H.y. green limewash	2.5GY 9/4			H. olive brown	2.5Y 9/2	yellowish gray	5Y 5/2	yellowish gray	5Y 3/2
White limewash	N9.25			—		—		—	
—				—		—		—	
light yellow	5Y 9/6			light yellow	5Y 9/6	light yellow	5Y 9/6	light yellow	5Y 9/2
—				—		—		—	
—				yellowish gray	10YR 9/2	yellowish gray	10YR 3/2	gray	10YR 3/2
—				yellowish white	2.5Y 9/2	yellowish white	2.5Y 3/2	white	2.5Y 9/2
pale green	10G 8/2			—		—		—	
pink	2.5R 3/4			pink	2.5R 8/4	pink	2.5R 3/2	pink	2.5R 3/2
[illegible]	5Y 9/2							yellowish white	5Y 3/2
pale blue	10B 3/2			white	N9.5	white	N9.5	white	N9.5
[illegible]	5Y 9/1								
[illegible] gray	10YR 1/2			white	N9.5	white	N9.5	white	N9.5

207

BUILDING 33

D 210 + D209				WINDOW SPLAY + SASH (W201)		FLOOR + SHOE MOLD			
WOOD	(L)T			WOOD	(L)T	WOOD			
primer	5R 6/1			pale orange yellow	7.5YR 8/4				
graining									
—				yellowish gray	5Y 8/2				
—				—					
—				yellowish white	5Y 9/1				
—				light yellow	5Y 9/6				
—				—					
—				—					
yellowish white	2.5Y 9/2			—					
—				—					
[illegible]	2.5R [illegible]			—					
[illegible]	N9.5			white	N9.5				
[illegible]	N9.5			[illegible]	N9.5	[illegible]			

RM 207A

BUILDING 33

WALLS + CEILING		BASE + BASE CAP		TRIM		DOOR		FLOOR + THRESHOLD	
PLASTER		WOOD	(L)T	WOOD	(L)T	WOOD	(L)	WOOD	
lt. gray interviors.	N8.75	H. olive brown	2.5Y 5/2	primer	5R 6/1	primer	5R 6/1		
				graining		graining			
lt gray interviors	N8.75	H. olive brown	2.5Y 9/2	—		—			
—		—		—		—			
—		—		—		—			
—		light yellow	5Y 9/6	—		—			
—		—		—		—			
yellowish gray	10YR 9/2	yellowish gray	10YR 8/2	yellowish gray	10YR 9/2	[illegible] gray	10YR 3/2		
yellow white	2.5Y 9/2	yellowish white	2.5Y 9/2	yellow white	2.5Y 9/2	yellowish white	2.5Y 9/2		
—		—		—		—			
pink	2.5R 8/4	pink	2.5R 8/4	pink	2.5R 8/4	pink	2.5R 8/4		
yellowish white	5Y 9/2			yellowish white	5Y 9/2				
pale blue	10B 8/2	pale blue	10B 8/2	pale blue	10B 8/2	white	N9.5		
[illegible]	[illegible]								
yellowish gray	10YR 9/2	yellowish gray	10YR 9/2	White	N9.5	White	N9.5	clear finish	

RM 208 BUILDING 53

WALLS + CEILING		BASE		TRIM (DOOR)		DOOR		FLOOR + SUBFLOOR	
PLASTER		WOOD	(L)	WOOD	(L) T	WOOD	(L)	WOOD	
[illegible]	N 7	brown	7.5YR 4-5/4	brown	7.5YR 4-5/4	primer graining	5R 6/1		
White [illegible]	N9	—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
[illegible] gray	10YR 5/2	—		yellowish gray	10YR 5/2	yellowish gray	10YR 5/2		
Yellowish [illegible]	2.5Y 9/2	Yellowish [illegible]	2.5Y 9/2	[illegible] White	2.5Y 9/2	yellowish [illegible]	[illegible]		
—		—		—		—			
Grey [illegible]	7.5 9/1 1/2-9/2	Grey [illegible]	7.5 5Y 9/2-9/1	White	N 9.5	White	N 9		
Yellow [illegible]	2.5 5Y 9/2	Yellow [illegible]	2.5 5Y 9/2	[illegible]	[illegible]	[illegible]	[illegible]	clear [illegible]	

RM 209 BUILDING 33

WALLS		CEILING		BASE		BASE CAP FRAME D'207		TRIM + STOOL D'207	
PLASTER		WALLBOARD WOOD		WOOD	(L)	WOOD	(L)	WOOD	
—		Similar to rooms 201 + 202. (recent addition)		brown	7.5YR 4-5/4	yellowish white	5Y 9/1	—	
—				—		grayish yellow	2.5Y 5/4	—	
—				—		—		—	
—				—		—		—	
—				—		—		—	
—				—		—		—	
pale yellow	5Y 9/4			—		—		—	
								PAINTED	
yellowish gray	5Y 8/1			yellowish gray	10YR 8/2	yellowish gray	2.5Y 8/2	yellowish gray	2.5Y 8/2
yellowish white	5Y 9/1			yellowish white	2.5Y 9/2	yellowish white	2.5Y 9/2	white	
—				—		—		—	
gray	7.5GY 8/2-9/4			White	N9.5	White	N9.5	White	N9.5
yellow	2.5GY 8/2			White	N9.5	White	N9.5	White	N9.5

RM 209 BUILDING 33

D206		D201 D213		D203 D211		D210		FLOOR	
WOOD	(L)	WOOD	(L)	WOOD	(L)	WOOD	(L)	WOOD	
primer	5R 6/1	grayish brown	5YR 3-4/2	reddish brown		primer	5R 9/1		
graining				varnish		graining			
—		—		—		grayish yellow	2.5Y 8/4		
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
yellowish white	5Y 9/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2		
—		—		—		—			
white	N9.5	White	N9.5	white	N9.5	white	N9.5		
white	N9.5	white	N9.5	white	N9.5	white	N9.5	clear varnish	

RM 210 BUILDING 33

WALLS, CEILING, FLOOR + BASE		WINDOW TRIM + SPLAY		WINDOW SASH					
WALLBOARD/ VINYL TILE/ WOOD		WOOD	(L) T	WOOD	(L) T				
Surfaces are recent additions and have 3-4 layers of paint.		yellowish gray	10YR 7/2	yellowish gray	10YR 7/2				
		yellowish gray	5Y 8/1	yellowish gray	5Y 8/1				
		yellowish gray	5Y 8/1	yellowish gray	5Y 8/1				
		pale yellow	5Y 8.5/4	pale yellow	5Y 8.5/4				
		bluish gray	5B 6/1	—					
		White	N9.5	—					
		White	N9.5	—					
		White	N9.5	—					
		grayish brown	5YR 4/2	—					
		bluish gray	10B 7/1	bluish gray	10B 7/1				
		yellowish white	5Y 9/1	yellowish white	5Y 9/1				

RM 211 BUILDING 33

WALLS (@ N WALL)		BASEBOARD SHOE MOLD + CAP		D 2/4		D2/4 TRIM			
PLASTER (S, E, + W WALLS WALLBOARD)		WOOD		WOOD		WOOD			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
—		—		—		—			
yellowish gray	10YR 9/4	yellowish gray	2.5Y 8.5/2	—		—			
D. K	5Y 8/4	—		—		—			
yellow	5Y 9/6	yellow	5Y 9/6	—		yellow	5Y 9/6		
pale y. green	7.5GY 9/2-9/4	White	N9.5	White	N9.5	White	N9.5		
yellow green	2.5GY 8/2								
yellow green	2.5GY 8/2	White	N9.5	White	N9.5	White	N9.5		

RM 211 BUILDING 33

D211-TRIM W203-TRIM SILL-SPRAY		W203-SPRAY		W203-SASH		FLOOR			
WOOD	(L)T	WOOD	(L)	WOOD	(L)	VINYL TILE			
yellowish gray	10YR 7/2	yellowish gray	10YR 7/2	yellowish white	5Y 9/1				
grayish brown	5YR 5/2	grayish brown	5YR 3/2	—					
olive brown	2.5Y 4/2	olive brown	2.5Y 4/2	olive brown	2.5Y 4/2				
grayish yellow	2.5Y 8/4	grayish yellow	2.5Y 8/4	grayish yellow	2.5Y 8/4				
grayish yellow	2.5Y 8/4	grayish yellow	2.5Y 8/4	grayish yellow	2.5Y 8/4				
pale yellow	5Y 8.5/1	yellowish gray	5Y 8.5/1	—					
pale yellow	5Y 9/4	pale yellow	5Y 9/4	—					
yellowish gray	2.5Y 8.5/2	yellowish gray	2.5Y 8.5/2	—					
yellowish white	7.5Y 9/2	yellowish white	7.5Y 9/2	—					
yellow	5Y 9/6	yellow	5Y 9/6	yellow	5Y 9/6				
				yellowish white	5Y 9/1				
white	N9.5	pale yellow green	7.5GY 9/2-9/4	white	N9.5				
White	N9.5	yellow green	2.5GY 8/2	White	N9.5				

THIRD FLOOR
RM 301

BUILDING 33

WALLS (N + E only)		FLOOR		BASE (@ South wall)		SHOEMOLD (@ South wall)		TRIM + WINDOW SASH	
PLASTER		WOOD		WOOD	L T	WOOD	L T	WOOD	L T
linewash yellowish gray	5Y 8.5/1	—		dark red brown	2.5YR 2/2	dark red brown	2.5YR 2/2	yellowish gray	5Y 3.5/1
—		—		light olive	7.5Y 6/4	light olive	7.5Y 6/4	lt. olive brown	2.5Y 6/2
wallpaper		—		yellowish white	5Y 9/2	yellowish white	5Y 9/2	yellowish white	5Y 9/2
—		brown	2.5YR 4/6	dk brown varnish	10R 2/2	brown	2.5YR 4/6	—	
blue green	5BG 6/2	—		blue green	5BG 6/2	blue green	5BG 6/2	blue green	5BG 6/2
(ceiling + S+W walls plaster)									

RM 301 BUILDING 33

D 303 + D 301									
WOOD	(L) T								
primer	5R 6/1								
graining									
—									
—									
—									
blue green	5BG 6/2								

RM 301A

BUILDING 33

WALLS		FLOOR		BASE + SHOEMOLD		HANGING RAIL		SHELVING	
PLASTER		WOOD	bare	WOOD	(L)	WOOD	(L)	WOOD	
lt. reddish yellowish gray	5Y 8/1			dark red brown	2.5YR 2/2	yellowish gray	5Y 8.5/1	—	
lt. reddish yellowish gray	10YR 8/1			light olive	7.5Y 6/4	light olive	7.5Y 6/4	—	
—				—		—		—	
—				—		—		—	
blue green	5BG 6/2			blue green	5BG 6/2	blue green	5BG 6/2	blue green	5BG 6/2
(ceiling - bare)									

RM 302 BUILDING 33

WALLS (N+W only)		FLOOR		BASE + SHOEMOLD		BASE CAP		TRIM + WINDOW [illegible]	
PLASTER		WOOD		WOOD	(L) T	WOOD		WOOD	(L) T
—		—		grayish brown	7.5 YR 5/2	—		yellowish gray	[illegible]
—		—		light olive	7.5Y 6/4	—		—	
wallpaper		—		—		—		[illegible] white	[illegible]
—		brown	2.5YR 4/6	—		—		—	
greenish gray	5BG 8/1	—		greenish gray	5BG 8/1	greenish gray	5BG 8/1	[illegible] gray	[illegible]
(Ceiling + other walls — bare)									

ROOM 304 BUILDING 33

WALLS + CEILING		FLOOR		BASE + SHOEMOLD		TRIM		DOORS	
PLASTER		WOOD		WOOD	(L)T	WOOD	(L)T	WOOD	(L)
WALLS		—		sampling not reliable - may have been redid from another location		yellowish brown	10YR 5/4	orig. w/ red stray varnish grain	5R 6/1
						grayish yellow	2.5Y 8/2	—	
		—				grayish green	5Y 7/1	Yellowish white	5Y 8.5/1.5
		brown	2.5YR 4/6			—		—	
		—				bluish white	10BG 9/1	bluish white	9/1
						Similar to Doors		Similar to Trim	

RM 304A

BUILDING 33

WALLS + CEILING		FLOOR		BASE + SHOEMOLD		TRIM			
PLASTER		WOOD		WOOD	(L) T	WOOD	(L)		
—		bare		—		Yellowish brown	10YR 5/2		
—				light olive	7.5Y 6/4	grayish yellow	2.5Y 8/2		
grayish green	5Y 7/1			grayish green	5Y 7/1	grayish green	5Y 7/1		
—				—					
—				—					

RM 305 BUILDING 3

WALLS (E only)		FLOOR		BASE + SHOEMOLD		TRIM		WINDOW SASH	
PLASTER		WOOD		WOOD	L T	WOOD	L T	WOOD	L T
—		—		dark red brown	2.5 YR 3/2	yellowish gray	10YR 7/1	—	
—		—		light olive	7.5Y 6/4	lt olive brown	2.5Y 6/2	—	
—		—		yellowish White	5Y 9/1	yellowish gray	5Y 8.5/2	yellowish White	5Y 9/1
yellowish pink	5YR 8/4	brown	2.5YR 6/4	yellowish White	5Y 9/1	—		yellowish White	5Y 9/1
lt green gray	5G 8/1	—		lt green gray	5G 8/1	- green gray	5G 8/1	lt green gray	10G 8/1
Ceiling & remaining walls - bare									
						Sampled 2.5Y 8/2			

RM 305A

BUILDING 33

WALLS		FLOOR		BASE + SHOEMOLD					
PLASTER		WOOD		WOOD	(L)				
—		—		dark red brown	2.5 YR 2/2				
—		—		light olive	7.5Y 6/4				
—		—		—					
yellowish pink	5YR 9/4	lt. red brown	2.5 YR 6/4	yellowish olive	5Y 8.5/2				
lt. green gray	5G 8/1	—		lt. green gray	5G 8/1				

RM 306 BUILDING 33

WALLS (W only)		FLOOR		BASE		TRIM		WINDOW SASH	
PLASTER		WOOD		WOOD		WOOD	L T	WOOD	L T
wallpaper		bare		sampling not reliable - base may have been reused from another location		yellowish gray	2.5Y 6 1/2	yellowish gray	2.5Y 7/2
limewash bluish green	7.5BG 7/4					yellowish white	5Y 9/1-9/2	—	
wallpaper						yellowish white	5Y 9/1-9/2	yellowish white	5Y 9/1
dark green	2.5G 2/4					pale green	2.5G 7/4	pale green	2.5G 7/4
orange yellow	7.5YR 8/4					orange yellow	7.5YR 8/4	—	
ceiling + remaining walls -	bare.								

RM 307 BUILDING 33

WALLS (S+E only)		FLOOR		BASE		TRIM		WINDOW SASH	
PLASTER		WOOD		WOOD	(L) T	WOOD	(L) T	WOOD	(L)
lin[illegible] yellowish white	5Y 8.5/1	—		gray reddish brown	2.5YR 5/2	yellowish gray	2.5Y 8/2	yellowish white	5Y 9/1-2
—		—		dark grayish yellow	5Y 6/4	very reddish brown	2.5YR 5/2	—	
—		—		yellowish white	5Y 9/1-9/2	yellowish white	5Y 9/1-[illegible]	yellowish white	5Y 9/1-[illegible]
—		Mixed brown	2.5YR 4/6	yellowish white	5Y 9/1-9/2	yellowish white	5Y 9/1-[illegible]	—	
yellowish pink	7.5R 8/4	—		yellowish pink	7.5R 8/4	yellowish pink	7.5R 8/4	yellowish [illegible]	[illegible]
pale blue	5B 7/2	—		pale blue	5B 7/2	pale blue	5B 7/2	—	

RM 308A

BUILDING 33

WALLS + CEILING		FLOOR		BASE + SHOEMOLD					
PLASTER		WOOD	(L) +	WOOD	(L)				
limewash yellowish gray	5Y 8.5/1	dark brown	5YR 2/1	dk red brown	5YR 2/2				
—		—		bluish gray	10B 5/1				
—		—		yellowish white	5Y 9/2				
—		—		yellowish white	5Y 9/2				
White	N 9	—		White	N 9				

RM 311 BUILDING 3

WALLS (S+W only)		FLOOR		BASE		TRIM + D3/9		WINDOW SASH	
PLASTER		WOOD		WOOD		WOOD	(L) +	WOOD	
limewash bluish green	7.5BG 7/4	bare		sampling not reliable - base may have been reused from another location		pale orange yellow	10YR 9/4	—	
—						lt. olive brown	2.5Y 6/2	—	
—						yellowish gray	5Y 8.5/1	—	
grayish yellow	2.5Y 8/4					yellowish white	5Y 9/1	yellowish white	5Y 9/1
—						—		—	
ceiling + remaining walls - bare									

PAINT ANALYSIS CHARTS

BUILDING 33A

EXTERIOR

BUILDING 33

WALLS (2ND + 3RD FLR)		FRAME-DIRT		DIRT		WINDOW FRAME + SASH			
WOOD SIDING	L T	WOOD	L T	WOOD	L	WOOD		Remainder of exterior doors + other wood elements	
yellowish brown	10YR 4/4	—		—		—			
pale yellow	2.5Y 9/4	—		—		—			
pale orange yellow	10YR 9/4	—		—		—			
H. green gray	5GY 6/1	—		—		—			
H. green gray	5GY 3/1	—		—		—			
		—		—		—			
		—		—		—			
		—		—		—			
		grayish brown	5YR 3/2	—		—			
		red brown	10R 4/4	red brown	10R 4/4	—			
		pale blue	2.5B 7/2	pale blue	2.5B 7/2	—			
						primer			
		red brown	10R 4/4	red brown	10R 4/4	red brown	10R 4/4		
Aluminum with other colors									
Unknown		See exterior Building 33.							

FIRST FLOOR
RM 114

BUILDING 33A

WALLS		CEILING		FLOOR		FRAME - D121		FRAME - D120	
finish not noted		wood		wood		wood		wood	(L)T
limewash white	N9	bare exposed structure		bare		—		yellowish brown	5Y 7/1
limewash white	N9					—		reddish brown	10R 5/4
						—			
						primer			
						dk red brown	2.5YR 2/4		
						yellowish white	10YR 9/2		
						gray	N7		
						Office doors + trim have either bare or [illegible] coat white primer.			N9

Documentary Sources Reproduced

"Mechanical, Electrical & Plumbing Survey"

MECHANICAL/ELECTRICAL/PLUMBING SURVEY

BUILDINGS 32, 33 AND 33A

HARPERS FERRY NATIONAL HISTORIC PARK

HARPERS FERRY, WEST VIRGINIA

Contract No. CX-2000-0-0011

Work Order No. 3

September 20, 1990

Oehrlein & Associates Architects
1702 Connecticut Avenue NW
Washington, DC 20009

Shefferman & Bigelson
8455 Colesville Road
Silver Spring, MD 20910

DESCRIPTION OF EXISTING SERVICE AND EQUIPMENT

MECHANICAL

Buildings 32 and 33A

These buildings do not have mechanical systems.

Building 33

The first floor of Building 33 is heated and cooled by an air-to-air Carrier split system heat pump. The air handler (Model 40AQ03630088) is located in the first floor ceiling plenum and the heat pump (Model 38QN03010) is located outside on the third floor porch. The air handler is mounted on a trapeze suspended from the second floor structure which is insulated. Supply air is distributed to the first floor area through insulated ductwork to ceiling diffusers or wall registers. Bathroom ventilation is provided by a ceiling mounted exhaust fan.

The second floor of Building 33 is heated and cooled by an air-to-air York split system heat pump. The air handler (Model N2AHD14A06A) is located in the first floor ceiling plenum and the heat pump (Model E2CP04225) is located outside on the third floor balcony. The air handler is mounted on a trapeze suspended from the second floor joists. Supply air is distributed to the second floor area through insulated ductwork to floor registers. The kitchen is equipped with a recirculating fan in the range hood. Additionally, there appears to be a ceiling mounted Nutone kitchen exhaust fan above the range.

There are no mechanical systems on the third and fourth floors of Building 33.

PLUMBING

Buildings 32 and 33A

These buildings do not have water service or plumbing fixtures.

Building 33

The incoming water service and sanitary connections are located in Room 113A. Incoming water service is equipped with a shut-off valve, pressure gauge, pressure reducer, and a water meter. The bathroom in Room 112 is equipped with a disabled accessible toilet and wall mounted lavatory. There is a wall mounted Elkay drinking fountain in Room 113.

On the second floor, there is a Rheem 66 gallon water heater (2,000 watt upper element and a 1,250 watt lower element) in Room 205, which is an abandoned toilet room. A water heater is located directly over the abandoned water closet floor connection. Room 211 is a kitchen and is equipped with an electric oven with range hood, porcelainized cast iron two compartment sink, and a refrigerator. There is a clothes washer and electric dryer; adjacent to the clothes washer is a wall mounted laundry sink faucet without a laundry sink underneath.

Room 210 is a bathroom and is equipped with a wall mounted lavatory, close coupled toilet and porcelainized cast iron bathtub with a ceramic tile tub surround.

Room 311, on the third floor, was apparently a kitchen at one time, but all the equipment and cabinets have been removed. There are clothes washer bibb connections installed in the kitchen wall in a rough opening. Room 310 is an abandoned bathroom and is equipped with an enamel finish steel bathtub with plastic tub surround and close coupled toilet. The lavatory has been removed.

The galvanized pipe located on the fourth floor appears to be the vent line serving the abandoned bathroom in Room 205.

ELECTRICAL

Buildings 32 and 33A

Buildings 32 and 33A has one incoming power service of 120/208 volts, three phase, four wire. The service terminates into a 100 amp main safety switch. A 125 amp panelboard (Square D type QO), with 120/208 volts serves both buildings. The safety switches and the panelboard are installed at the third floor porch. The service is monitored by a kilowatthour meter installed adjacent to the panelboard at the third floor balcony.

Only partial power distribution is installed in Building 33A. There are rigid conduits as well as open wiring on ceramic insulators. Illumination in the building is surface mounted ceiling outlets with incandescent lamps. Bare bulb light fixtures are installed at the second floor.

Building 33

Building 33 has one incoming power service, located on the second floor rear porch, of 120/208 volts, three phase, four wire. The service terminates into a 200 amp main safety switch at 480 volts and then is stepped down to 120/208 volts via a 75 KVA dry type transformer. Separate panelboards with 120/208 volts serve the first floor and the second floor loads. The first floor panelboard is a Square D type Q0 equipment rated at 125 amps. The second floor panelboard is a Cutler Hammer equipment with a 150 amp main breaker. Safety switches and the distribution equipment are also installed at the second floor rear porch. Sub-panelboards serving the first floor and second floor lighting and power loads are installed on the first and second floors respectively.

The second floor rear porch electrical installation also contains the wiring trough that feeds the street lighting panelboard, the lighting contactor and the timer. The street lighting panelboard, manufactured by the Cutler Hammer Company, is rated at 125 amps with a 100 amp main circuit breaker.

The building electrical service is monitored by two kilowatthour sub-meters connected to the first floor and second floor panelboard respectively. The kilowatthour meters are installed adjacent to the panelboards on the second floor porch.

Power distribution in the building utilizes a combination of rigid steel conduits, surface mounted Wiremold raceways, BX cables and type NM wires (Romex). Branch circuit conductors are generally in copper.

Illumination in the building consists of recessed 4 x 40 watt fluorescent lamps with acrylic diffusers in the first floor office areas. Surface mounted fluorescent fixtures in the second floor office spaces, and incandescent lamps in the utility rooms and in the stairways. The building rear exterior is provided with ceiling mounted incandescent light fixtures.

Smoke detectors and security motion detectors are installed throughout the building. An Ademco security and fire alarm control LED display panel is installed in the kitchen at the first floor. The control panel is provided with 8 zones.

ANALYSIS AND RECOMMENDATIONS

MECHANICAL

Building 32 and 33A

As these buildings do not have mechanical systems, a system to serve the anticipated occupancy should be installed. It would appear that areas open to the public or used as office space should be equipped with split system heat pumps. Areas dedicated to storage only should be equipped with ventilation air and heat, unless there are climate sensitive storage requirements requiring conditioned air. The existing heat pump systems appear in good condition and should be considered for re-use in the design of the new space.

Building 33

The mechanical systems serving Building 33 appear to be in good condition and no major defects in the equipment were observed. There were no maintenance records available for review. The interior of the third and fourth floors have no mechanical installations. The current mechanical installation is inadequate to handle the additional loads of these floors.

It is recommended that new mechanical systems be installed to serve the anticipated occupancy. Areas open to the public or used as office space should be equipped with split system heat pumps. Areas dedicated to storage only should be equipped with ventilation air and heat, unless there are climate sensitive storage requirements requiring conditioned air.

The following items need to be addressed to correct deficiencies and bring the existing equipment up to code:

1. Equipment should be labeled and coordinated with the electrical panel identification.

2. Replace insulation where missing from the refrigerant suction lines serving the air handlers. Insulation was observed to be missing from some sections in the first floor ceiling space.

3. Install insulation on horizontal sections of PVC condensate drain lines to prevent "sweating."

4. Room 112 - The ceiling mounted bathroom exhaust fan discharges into the ceiling plenum directly above the bathroom. The fan should either be replaced with a recirculating type bath fan or the existing fan should be exhausted to the outside.

5. Room 211 - The ceiling mounted kitchen exhaust fan should have the location of the exhaust identified. The fan should exhaust outdoors if it does not currently do so.

6. Room 109 - Install missing flexible duct and diffuser to provide supply air.

PLUMBING

Buildings 32 and 33A

Plumbing systems are not anticipated in the future.

Building 33

The plumbing system serving the first and second floors appears to be in fair to good condition with no major defects noted. The kitchen and bath areas serving the third floor have been abandoned and require repair and/or replacement to return these areas to service.

The following items should be addressed for the anticipated reuse of the building:

1. The galvanized vent line serving the abandoned Room 205 bathroom should be removed and abandoned.

2. Review condition of existing piping serving the third floor and install plumbing fixtures to service the anticipated occupancy.

3. Review capacity of the water heater and compare with anticipated occupancy requirements.

ELECTRICAL

Buildings 32 and 33A

The electrical system installation in the two buildings are in poor condition and the integrity of the service equipment installation is questionable as it has been affected by neglect, temperature extremes, corrosion and the lack of proper monitoring. The remaining useful life of the electrical system is approximately ten to fifteen years with more than usual maintenance and downtime anticipated. The existing electrical service is not adequate to handle any additional loads.

These two buildings are not equipped with any fire alarm detection, security and telephone systems and do not have adequate illumination. A panelboard directory is not provided.

The following deficiencies should be addressed:

1. The main service to the two buildings should be upgraded to handle the anticipated occupancy and the new HVAC equipment loads.

2. Install a new power, lighting, fire alarm, security and telephone system to serve the anticipated occupancy.

3. Provide identification of existing electrical equipment (disconnects, motor starters, panels etc.).

4. Provide wiring identification on the existing panelboards and pull/junction boxes.

5. Identify circuits, and update and type panelboard directories and remove unused circuit conductors.

6. Clean and touch-up paint all the panelboard and disconnect switches; tighten all loose terminations; check operation of circuit breakers, terminal discoloration and replace defective breakers.

Building 33

The electrical system installation in the building is in good condition for the first and second floor and poor for the third floor and attic. No major defects in the equipment are evident. Record of preventive maintenance for the system is not available. Some items have been noticeably affected by neglect, temperature extremes, corrosion and the lack of proper monitoring. Partial components of equipment interiors installed at the first and second floor, which are visibly accessible seem to be free from defects. Random feeders and branch circuit conductors have no evidence of deterioration. The existing electrical service is not adequate to handle any additional loads.

Electrical systems installed for the first and second floor projects an additional 20 to 25 years of useful usage. The third floor and attic does not have a complete electrical system installation. There are abandoned wires, wiring devices and ceiling light outlets throughout the spaces.

The security and fire alarm control system in the building has limited capacities and is installed on the first and second floors only. The smoke detectors installed at the second floor are inoperable and are not connected to the fire alarm system installed at the first floor.

The general area illumination at the first and second floor is adequate for the present usage. Some light fixtures require cleaning of diffusers and lenses and replacement of broken fixtures and defective lamps, especially at the second floor. The third floor and attic has no lighting system installed.

A review of the electrical system efficiency is recommended to determine excess capacity, losses and possible savings (i.e. types of lamps, ballasts, lighting control, motor efficiency, power factor, life expectancy, transformer efficiency, etc.). The integrity of the grounding system should also be reviewed due to loose connections, corroded conduits and access restrictions.

Various electrical code violations exist in the building as listed below.

1. Tags and identification on disconnecting means, feeders and branch circuit in equipment rooms are not provided.

2. Covers are not provided on numerous pull and junction boxes.

3. Faceplate covers on wiring devices are not provided.

4. Wires and cables are installed without proper supports.

5. Exit lights are not provided.

6. Light fixtures are inoperable, especially in egress areas.

7. Wiring terminations and splices without junction boxes and conductors are left hanging.

8. Junction boxes and disconnect switches have missing plugs and unused knock-outs.

9. Equipment grounding conductors in the electrical room are not painted green on the outside for proper identification.

Recommendations to correct existing deficiencies and improve electrical service are as follows.

1. The main service to the building should be upgraded to handle the anticipated occupancy and the new HVAC equipment loads for the third floor and attic.

2. The existing main service equipment serving the first and second floor should be cleaned, corroded parts touch-up painted and all connections torqued to manufacturer's recommendations.

3. Panelboard directories need to be provided or updated.

4. Install a new power, lighting, fire alarm, security and telephone system for the third floor and attic.

5. Clean all the existing dirty and stained diffusers throughout the first and second floor. The existing lighting system should be upgraded and modified to accommodate the anticipated usage.

6. Install the code required exit lights and emergency lighting system throughout the building.

7. Throughout the building, provide adequate support for all the wires and cables installed.

8. Provide identification of existing electrical equipment (disconnects, motor starters, panels, etc.)

9. Replace covers on wiring devices.

10. Plug all unused knock-outs on panelboards, disconnect switches, control boxes and pull boxes.

11. Cover all open pull and junction boxes to remove danger of exposed conductors.

12. Install a new fire alarm detection system for the entire building.

13. Provide wiring identification on the existing panelboards and pull/junction boxes.

14. Provide green colored tape markers on equipment grounding conductors.

15. Review the grounding system integrity throughout the building.

16. Identify circuits, and update and type panelboard directories and removed unused circuit conductors.

17. Clean and touch-up paint all existing panelboards, dry type transformer and disconnect switches; tighten all loose terminations; check operation of circuit breakers, terminal discoloration and replace defective breakers.

18. Review the operational integrity of the corroded disconnect switches. Test for proper latching and breaking.

19. Remove all unused electrical equipment, tag and cap empty conduits and update as-built plans and maintenance manuals.

20. The existing panelboard and other electrical equipment installed at the first floor should be relocated to the second floor to eliminate the damage from flooding. All the branch circuit conductors shall be rerouted accordingly.

Documentary Sources Reproduced

"Structural Survey"

STRUCTURAL SURVEY

BUILDINGS 32, 33 AND 33A

HARPERS FERRY NATIONAL HISTORIC PARK

HARPERS FERRY, WEST VIRGINIA

Contract No. CX-2000-0-0011

Work Order No. 3

April 11, 1991

Oehrlein & Associates Architects
1702 Connecticut Avenue, NW
Washington, DC 20009

James Madison Cutts
Consulting Structural Engineers
1147 20th Street, NW
Washington, DC

INTRODUCTION

The structures reviewed in this study have been observed by professional engineers with regard to structural integrity. Observations were limited to elements which could be observed without demolition of the existing buildings. The study included

- observation of bearing conditions and analysis of any found irregular or questionable
- bending stress analysis
- shear stress analysis
- deflection analysis
- general building stability

Wood samples were taken from several locations within the buildings. Although their species were identified (see Appendix), the exact bending stress or shear stress capacities were not determined. These capacities would be of little value since the allowable stresses for wood are as dependent on the amount of checks, knots and other defects, as well as grain direction, as they are on wood species. Therefore, engineering judgement was used, based on experience with many other structures of this age, and the following allowables were used in the analysis:

f_b = 1400 psi
f_v = 70 psi
E = 1,400,000 psi

When modifications are suggested, it is assumed new lumber will be used. For new lumber, (or what appears as recently installed existing framing) the following allowables were used:

f_b = 1200 psi
f_v = 70 psi
E = 1,100,000 psi

When member sizes are quoted for existing framing, the sizes represent actual dimensions. For proposed new lumber, nominal dimensions are given.

Please refer to the appendix for detailed calculations.

Anticipated loadings were provided by the National Park Service in terms of occupancy/use. The following floor design loadings were assigned:

Open to public	100 psf
Office	50 psf
Storage	125 psf
Heavy Storage	250 psf
Utilities	125 psf
Roof	35 psf
Corridors	80 psf

BUILDING 32

EXISTING CONDITIONS

Building 32 is a stone bearing wall building with its floors and roof framed in wood. The roof structure is comprised of 3" by 4-1/2" wood rafters spaced at 2'-0" centers with 1" random width board sheathing. The bottoms of the rafters bear on a double 2" by 6" plate which bears onto the stone walls. Wood tie members measuring 1-5/8" by 5-1/2" exist at the ends of the building (east and west) and at the centerline. The ties are nailed into the bottom of the adjacent rafters, but no positive connection was seen between the rafters and the sill plates.

Calculations indicate that the roof rafters are adequately sized for snow load and the addition of a slate roof. However, the ties are inadequate. Stresses in the tie members make the connections between rafters and the members impractical. Further, if the rafter/tie connections were sufficient, the rafters without ties would put a horizontal load on the sill plates, causing bending in the sill plates in a horizontal plane. The sill plates are incapable of resisting that stress.

The second floor consists of 3" by 12-1/2" wood joists spaced at roughly 21" centers with 1" tongue and groove wood flooring. The joists are in good condition and bearing appears adequate. Calculations support this space being used for light storage, however the flooring is damaged and will need to be replaced.

The first floor is a slab on grade, with part of it removed, and an excavation dug in the dirt below.

The stone walls show dramatic movement above the second floor level. In the southeast corner, in particular, the walls have moved out, creating a gap over an inch wide. This conditions is caused mostly by normal settlement and the irregular condition of the wall corner (see drawings). Two 1" diameter tie-rods stretch from the east wall to the west and anchor onto steel plates PL 3/8 x 12 x 12 and a pair of pressure treated 2 x 12's. It appears the tie-rods have stopped the movement, but they should be considered a temporary fix.

Flood loading has little impact on Building 32 because of its small floor plan and the thick stone walls. The walls form a relatively small box-shape structural unit.

RECOMMENDATIONS

Problems with the roof framing are easily rectified by adding ceiling joists at or near the bottoms of the rafters. Ceiling joists (2 x 10's) should be added at each rafter. This reduces the stress on the existing ties by spreading out the horizontal thrust among a greater number of ties. Further, it is recommended that 16 gage clip angles be added, attaching the rafters to the sill plate to ensure connectivity between the roof system and the bearing walls.

As mentioned above, the second floor flooring requires replacement.

The first floor needs only to be cleared and to have the excavation properly back-filled. The slab then should be patched.

The stability of the stone bearing walls is a serious matter and must be carefully addressed. Occupation of the second floor precludes retaining the existing 1" diameter tie-rods. An external strap could be installed around the entire building to replace the tie-rods and would be inexpensive and very effective in restraining any further movement. Since exterior straps are likely to be deemed visually unacceptable and/or may interfere with existing window and door openings, a more complicated system of interior tie-rods running along the inside face of the four walls and connecting to end plates on the exterior could work well. Any solution must involve repointing of the stone.

BUILDING 33

EXISTING CONDITIONS

Building 33 has exterior stone bearing walls and wood interior bearing walls from the second to fourth floors. The roof and floors are wood framed.

The roof consists of 2" by 6" wood rafters with 2" by 6" ceiling joists two-thirds up the rafters forming collar-ties. Additionally, wood knee-walls exist between the rafters and fourth floor joists. By analyzing the roof system as a stand-alone system, it is not adequate to sustain roof loads. Consideration was given to the fourth floor's ability to help support the roof by way of the knee-walls, but the system was inadequate. Furthermore, the thrust from the roof rafters is currently being resisted by the top of the stone wall because there is no direct connection between the rafters and the fourth floor joists.

The third and fourth floors are framed with 2" by 10" joists which span from the exterior stone walls to the interior wood partition at the centerline of the building. Analysis shows the floors are adequate for office loading but not for storage.

The second floor is framed perpendicular to the floors above. The 2" by 9-1/2" wood joists frame north-south and bear on 14" deep steel I-beams. The beams are supported by relatively new CMU walls. We believe the CMU walls are not there to support the steel beams, but for lateral stability of the overall building.

The second floor is adequate to support office loading, but not to support light storage. Further, the interior bearing wall from second to fourth floors rests on only double joists. These double joists are far from being adequate to support the loads imposed. Diaphragm action from the plaster and lath on the bearing partitions above help to distribute the loads to the steel beams below, but should not be counted on to function long-term. The floor in rooms 201 and 202 slopes drastically toward the centerline of the building and serves to represent this problem.

The front porch at the second floor level is capable of supporting up to 50 psf which is adequate for snow loads. The brackets supporting the porch are cast iron and appear adequate.

The first floor appears to be predominately a slab on grade and is adequate to support intended loads. The entry way in the northeast corner of the building is framed with relative modern 2 x 12's at 16" centers (pressure treated) and is adequate to support design loads.

The rear porch is framed in wood. The roof structure is inadequate to support snow loads. The third floor level is inaccessible, but is likely to be inadequate. The east side of the second floor level will support the 100 psf design live load, but the west portion will not. The stairs to the east appear adequate to support design loads, but the stairs between the second and third level to not. The first floor level is a wood floor on sleepers on a concrete slab which appears adequate.

The building is in good condition, structurally. However, when viewed from the front, the building leans slightly to the west between the first and second floors. The CMU walls in the first floor which run east/west are adequate to resist stresses induced by this leaning action. It's not clear if the walls were installed for this reason or to help the building resist flood loadings, but they are adequate for both. No sign of distress was observed in these walls.

RECOMMENDATIONS

To reinforce the building roof structure, it is recommended that either one 2 x 10 or two 2 x 6's be scabbed onto each rafter for its full length. Also, a tie should be made between the roof rafters and the fourth floor members to resist the thrust from the rafters. The tie could be in the form of a 2 x 4 nailed to the side of each rafter and to the side of each joist below it, forming a 30 degree angle between the joist and the tie.

The fourth floor is adequate for office loading but not for storage. To achieve storage capacity, additional 2 x 10 should be scabbed onto the existing floor joists. This will be a problem with any electrical or plumbing lines presently through the joists. Additional bearing walls could be added but would restrict the use of spaces below.

The third floor does not require modifications.

The second floor is adequate for office loading, but not for storage. Similar to the fourth floor, the second floor could be reinforced to accept storage loading.

Of greater importance is the lack of support for the interior bearing wall. It is recommended that a W18X35 steel beam be placed under the bearing partitions to span from CMU wall to CMU wall.

The rear porch roof requires an additional 2 x 4 between each existing rafter. The stair from level two to level three needs additional 2 x 4's scabbed to the sides of its stringers.

The west portion of the second floor level of the porch can be reinforced by adding 2 x 12's to the existing structure or by introducing a new support at mid-span. The double joists under the post point load are ruefully inadequate. Addition of a steel beam would be required to reinforce this span.

BUILDING 33A

EXISTING CONDITIONS

Building 33A is comprised of two distinct structures tied together. The northern portion has stone bearing walls up to the second floor level with wood posts providing bearing above the second floor. The roof, second and third floors are framed in wood while the first floor is an unusual system of steel, stone and concrete. The southern portion begins at the second floor level and has stone bearing walls up to its roof at the third floor level.

Northern Portion

The roof of the northern portion of Building 33A consists of 1 5/8" by 5 1/2" rafters at 24" centers with no ridge beam at the apex. The rafters rest on a wooden sill plate framed onto the roughly 8" diameter posts which form the exterior bearing wall. In trying to structurally justify the present construction with no ridge beam, thrust loads were imposed on the bearing plates and analyzed for their capacity to carry the roof loads into the posts. The post, in turn, must function as cantilevers vertically off the third floor deck. Both the sill plates and the posts proved inadequate.

The third floor is comprised of 2" by 6" wood joists which originally spanned the full width of the building. Presently, a wooden beam supports them at mid-span, but it is supported on the second floor which also spans the full width of the building. The second floor works well for its intended load but cannot offer much support to the third floor. Given the third floor's intended use as heavy storage, it is far from adequate.

The second floor, as mentioned above, is adequate to support its intended load of public use. The 1-7/8" by 11-3/4" joists which comprise the second floor bear onto a 2" by 11-3/4" ledger on the east and west sides. In most cases, the ledger bears onto the stone wall below. However, along the east wall the stone wall below and the wood wall above are not parallel. Therefore in the northeast corner the ledger does not bear on the stone wall.

At the first floor level a 1-1/2" wide crack exists between Building 33 and Building 33A. This crack appears to be a result of normal movement of the two buildings. The opening must be addressed from an architectural point of view.

The first floor was constructed by placing steel I-beams to span east to west. Then railroad rails were placed at random perpendicular and on top of the steel beams. Next, large stones were set onto the rails. Lastly, concrete was poured over the stones to create a level surface.

Given the random spacing of the rails and the nature of stone, the floor capacity is difficult to determine, although probably quite high. This is irrelevant though, because the steel I-beams are rusted badly. Delamination has occurred on virtually all beam flanges. At the points of bearing, rust is even more severe. In most places, only 25% of sound metal remains of the webs and flanges.

The basement has a relatively new concrete slab on grade which is in good condition. The basement walls are parged stone and appear plumb.

Southern Portion

The roof of the southern portion of Building 33A is built with 2" by 5-3/4" rafters supporting wood sheathing. Every second rafter is tied by 1-3/4" by 5-5/8" tie members. The roof system is adequate to support the design loads along with the proposed slate roof. However, the tie members may not support a plaster ceiling if one were to be installed.

The second floor is comprised of 2-3/4" by 12-1/4" wood joists under a badly damaged 1" thick, random width, flooring. The joists are adequate for their proposed use.

Below the stone bearing walls on the east and west side of the southern portion of 33A are large lintels. On the west, three large wood beams support the stone wall. If the beams are analyzed to carry the entire wall and roof above, they prove inadequate. However, the stone is likely to arch to some degree but, when this is considered, the wood beams are still inadequate from a bending point of view.

On the east side, only a small opening existed to allow observation of the lintel. It was apparently steel and assumed to be a steel beam. No cracking in the wall above indicated any distress.

RECOMMENDATIONS

Northern Portion

To alleviate the problems with the roof structure, a ridge beam could be installed to span from the existing chimney to the corner of the elevator shaft and then onto the north end of the building. A pair of 1-3/4" by 11-7/8" micro-lam beams would perform well. The sill plates at the bottom of the rafters need to be reinforced with a 2 x 6 to help them span between posts.

The third floor will require significant restructuring to support its intended use of heavy storage. To carry heavy storage loading, either additional support must be provided (new beam or bearing wall at the centerline of the building) or framing other than sawn lumber must be used. One system available would be 22" deep, plywood-webbed wooden I-beams at 12" centers or a concrete deck on steel bar joists.

At the second floor level, the 2" by 11 3/4" ledger should be lag-bolted into the bases of the 8" diameter posts to provide support where the ledger does not bear on the stone wall.

The first floor is adequate for public use provided the existing I-beams are supplemented (or replaced) by new structural steel beams.

Southern Portion

The flooring of the second floor level requires replacement with either a layer of plywood and a hardwood floor, or two layers of plywood and carpet or 5/4" wood flooring. One joist has a large notch taken out of the bottom. Two new 2 x 12's should be scabbed onto the joist for reinforcement.

The lintel under the eastern stone wall should be opened to allow an inspection of the lintel configuration and condition.

Appendix: Part I

Harper's Ferry, W.O. #3

Buildings 32, 33, 33A

Structural Calculations

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Summary of Calculations

The calculations included in this appendix are organized in the following manner:

- Live load capacities and deficiencies, in tabular form
- Total load deflections, in tabular form
- Flexural and shear capacity calculations, given on a room-by-room basis.
- Rehabilitation measures required to bring room capacity up to code.

The live load capacity table in some instances presents two numbers. This accounts for possible mixed use requirements of certain rooms.

The total load deflection table lists deflections for the required room loading as dictated by the NPS.
1 Deflections are calculated using the BOCA Code Design Load requirements for the intended uses

Flexural and shear capacity calculations are performed for each framing configuration found on a particular floor. The live load capacity results are the numbers presented in the live load table.

Rehabilitation measures immediately follow the flexural calculations of a deficient structure or group of structures.

Design values:

Wood Types and Properties:

The following wood species, as determined by analysis, were found in the buildings:

	F_b (psi)	F_v
Yellow Pine	1400	70
Yellow Poplar	1300	75
White Oak	1400	
Pitch Pine	1200	

The maximum stresses given above reflect values for present-day commercially available lumber. These values do not account for increase in strength over time. Since the wood samples range from 90 to 125 years old, it can be conservatively assumed that all intact members have achieved a maximum bending stress of 1400 psi. However, we will assume that the maximum shear stress maintains a 70 psi value.

Thus:

F_b = 1400 psi

F_v = 70 psi

Avg. density = 30 pcf

E = 1,400 ksi

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Location: Bldg 32, 33, 33A
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Sheet 1-1

Live Load Capacities / Deficiencies

	Room	Use	Existing	Required	Deficiency
Building 32	215	Storage	146	125	0
	Roof @ 215	Snow	56	35	0
	114	Public access	Slab-on-grade	100	—
	212, 213	" "	119	80	0
Building 33A	214	Storage	168	125	0
	312, 313	Heavy Storage	54	250	196
	Roof @ 313	Snow	28	35	7
	Roof @ 214	Snow	34†	35	0
Building 33	101, 104-113	Public access	Slab-on-grade	100	—
	102, 103	Corridor	160	100	0
	201	Storage	79	125	46
	202, 204, 206-211	Storage	88	125	37
	203	Corridor	88	80	0
	204A, 205	Storage	88	125	37
	301, 301A	Office	65	50	0
	302	↓	70	50	0
	303	↓	65	50	0
	304	Corridor	175	80	0
	305	Office/Corridor	71	50/80	0/9
	305A	Office	95	50	0
	306	↓	70	50	0
	307	↓	95	50	0
	308, 308A	Corridor	95	80	0
	309, 309A	Office	70	50	0

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Live Load Capacities

	Room	Use	Existing	Required	Deficiency
Building 33	310	Office	70	50	0
	311	Office	41	50	9
	401	Office/Storage	65	50/125	0/60
	402	↓	71	50/125	0/54
	402 ingress/egress	Corridor	160	80	0
	403	Office/Storage	70	50/125	0/55
	404	↓	71	50/125	0/54
	Roof (min)	Snow	13	35	22
	Roof (hip)	Snow	0	35	35

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REV#1

Deflections

	Room	Span	DL(PSF)	LL (PSF) CAPAC./REQ	TL (PSF) CAPAC./REQ	W(PLF)	I(IN⁴)	Δ (IN)	Δ = ℓ/3 (IN)
Bldg. 32	215	12'-3"	17	146 125	163 142	249	488	0.19	0.41
	Rf. @ 215	8'-0"	14	56 35	70 49	98	22.8	0.28	0.27
	114	—	—	100	—	—	—	SLAB-ON-GRA	
	212, 213	17'-7"	8	119 80	127 88	88	288	0.47	0.59
	214	11'-3"	17	168 125	185 142	321	475	0.18	0.38
Bldg. 33A	312, 313	9'-6"	10	54 250	64 260	520	36	1.89	0.32
	Rf. @ 214	10'-0"	14	28 35	42 49	98	31.4	0.50	0.33
	Rf. @ 213	9'-0"	15	34 35	49 50	100	22.5	0.47	0.30
Bldg. 33	101, 104-113	—	—	100	—	—	—	SLAB-ON GRAD	
	102, 103	7'-6"	7	160 100	167 107	142	190	0.04	0.25
	201	14'-8"	17	79 125	96 142	189	167	0.84	0.49
	202, 204, 206-211, 204A, 205	13'-4"	17	88 125	105 142	189	167	0.58	0.44
	203	13'-4"	17	88 80	105 97	129	167	0.39	0.44
	301, 301A, 302, 303	15'-11"	23	65 50	88 73	97	167	0.60	0.53
	304	8'-0"	20	175 80	195 100	133	167	0.05	0.27
	305, 305A, 306, 307	14'-9"	23	71 50 71 80	99 73 94 103	97 138	167	0.11 0.63	0.49
	308, 308A	11'-10"	23	95 80	118 103	137	167	0.26	0.39
	309, 309A, 310, 311	15'-0"	23	70 50	93 73	97	167	0.47	0.50
	311	19'-1"	23	41 50	64 73	97	167	1.24	0.64

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Deflections

Bldg. 33

Room	Span	DL(PSF)	LL (PSF) CAPAC/REQ		TL (PSF) CAPAC/REQ		W(PLF)	I(IN⁴)	Δ(IN.)	Δ = ℓ/360 (IN.)
401	16'-0"	22	65	50	87	72	96	167	0.61	0.53
402	14'-9"	23	71	50	94	73	96	167	0.41	0.49
403 DR.	15'-0"	23	70	50	93	73	96	167	0.47	0.50
404	14'-9"	23	71	50	94	73	96	167	0.44	0.49
RF., Main	15'-3"	15	13	35	28	50	100	36	2.91	0.51

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Bldg 32 — Sheet 3-32.1

Room 25

Joist size: 3 x 12 1/2"
Joist span: 12'-3"
Joist spacing: 21"
Joist capacity:

Bending:

$S = \frac{3(12.5)^2}{6} = 78.1 \text{ in}^3$

$M = \frac{(78.1)(12)}{12} = 9.11 \text{ k-ft}$

$W_{max} = \frac{8(9.11)}{(12.25)^2} = 485.9 \text{ plf}$

$W_{TL} = \frac{485.9(12)}{21} = 277.7 \text{ psf}$

Shear:

$V = \frac{2}{3}(70)(3)(12.5) = 1750 \text{ lb}$

$W_{max} = \frac{(1750)(2)}{12.25} = 285.7 \text{ plf}$

$W_{TL} = \frac{285.7(12)}{21} = 163.3 \text{ psf}$

Shear governs

DL: $\frac{(3)(12.5)(30)}{144(1.75)} + 2.5 + 10 = 17 \text{ psf}$

LL: $163.3 - 17 =$ **146.3 psf**

Floor board check: $f_b = 1200$ psf

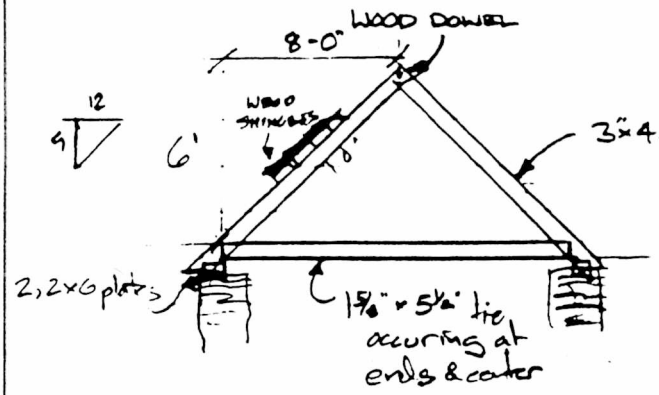
1" thick

	S	M	W_{TL}	DL	LL
18"	2	0.20	711	−2.5	708
21"	2	0.20	522		519
24"	2	0.20	400		397

	V	W_{TL}	DL	LL
18"	560	747	−2.5	744
21"	↓	640	↓	637
24"	↓	560	↓	557

Bldg 32

Roof @215



roof angle = 37°

DL = 14 psf

$A_{tie} = 1.625 \times 5.5 = 8.94\ in^2$

$A_{rafter} = 3 \times 4.5 = 13.5\ in^2$

1¼" ø hardwood dowel at peak

$F_v = 95$ psi

$V = \frac{2}{3}(95)(\pi\frac{(1.25)^2}{4}) = 77.7$ k ∴ assume pin failed, bearing ok

RAFTERS

Bending capacity:

$S = \frac{3(4.5)^2}{6} = 10.13\ in^3$

$M = \frac{10.13(1.4)}{12} = 1.18$ k-ft

$w_{max} = \frac{1.18(8)}{(8.0)^2} = 147.5$ plf

$w_{TL} = \frac{147.5}{2} = 74$ psf

$-\ 14$ psf

LL: 60 psf

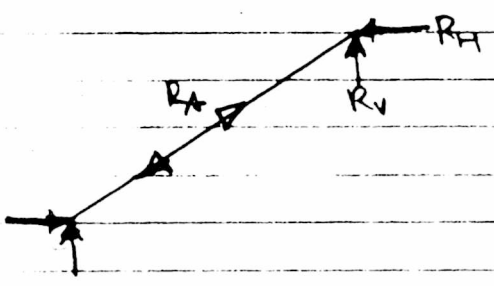
Shear capacity:

$V = \frac{2}{3}(70)(3)(4.5) = 630$ lb

$w_{max} = \frac{630(2)}{8'} = 157.5$ plf

bending governs

Component forces:



$R_V = \frac{147.5(8)}{2} = 590$ lb

$R_A = \frac{590}{\sin 37} = 980$ lb

$R_H = 980 \cos 37 = 783$ lb

$f_b = 1400\ psi = \frac{M_{max}}{10.13\ in^3} + \frac{980\ lb}{13.5\ in^2}$

$M_{max} = 1.12$ k-ft

$w_{max} = 140$ plf

$w_{TL} = \frac{140}{2} = 70$ psf

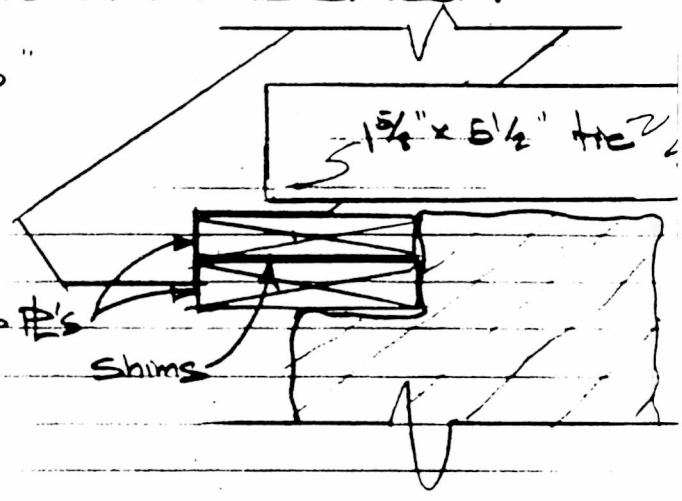
$w_{LL} = 56$ psf

Roof @ 215

Check tie members:

Ties occur only at ends and at middle of roof.

- lateral load taken by 2×6" plates
- end ties take ¼ lateral load
- center tie takes ½ lateral load



- roof is 20.42' long:

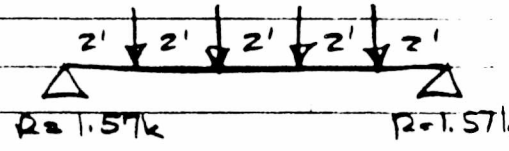
R_{H_i} = 783 lb every 24" o.c.

end ties receive $\frac{20}{4}$ = 5 × 783 lb = 3.92 k
center ties receive $\frac{20}{2}$ = 10 × 783 lb = 7.83 k

Check plates' ability to transfer lateral load:

$S = \frac{2(6)^2}{6}(2) = 24\ in^3$

$M = 1.57(5) - 0.783(1+3) = 4.7\ k\text{-}ft$



$S_{req'd} = \frac{(4.7)(12)}{(1.4 ksi)} = 40\ in^3$ ∴ plates N.G.

Assuming load does find ties:

End ties: $\frac{3920}{(1.625)(5.5)} = 346$ psi

Center tie: $\frac{7830}{(1.625)(5.5)} = 691$ psi

Design roof ties:

try 2x4 (nom) @ 24" o.c.

$A = 5.25\ in^2$ $S = 3.06\ in^3$

Individual rafter horiz thrust:
783 lb

$f_a = \frac{783\ lb}{5.25} = 150\ psi$ ∴ OK.

Assume ties used for maintenance access:
load = 5 psf DL + 20 psf LL = 25 psf

$w = (25\ psf)(2') = 50\ plf$

$M = \frac{.050(15.6)^2}{8} = 1.14\ k\text{-}ft$

$S_{req'd} = 11.4\ k\text{-}ft$, $F_b = 1200\ psi$

∴ 2x4 N.G.

use 2x8 @ 24"

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Bldg 33A | Sheet: 3-33A.1

Room 212, 213

joist size: 2 × 12"
joist span: 17'-7 3/4"
joist spacing: 12"

Bending:

$S = \frac{2(11.5)^2}{6} = 48 \text{ in}^3$

$M = \frac{48(1.1)}{12} = 5.6 \text{ k-ft}$

$w_{max} = \frac{5.6(8)}{(17.646)^2} = 143.9 \text{ plf}$

$W_{TL} = \frac{143.9}{10} = 143.9 \text{ psf}$

Shear:

$V = \frac{2}{3}(70)(2)(17) = 1120 \text{ lb}$

$w_{max} = \frac{1120(2)}{17.646} = 126.9 \text{ plf}$

$W_{TL} = 126.9 \text{ psf}$

∴ shear governs

DL: $\frac{5}{1.0} + 2.5 = 7.5 \text{ psf}$

LL: 126.9 − 7.5 psf = 119.4 psf

Room 214

joist size: 2 3/4" × 12 1/4"
joist span: 11'-3 3/4"
joist spacing: 18"

Bending:

$S = \frac{2.75(12.25)^2}{6} = 68.78 \text{ in}^3$

$M = \frac{68.78(1.1)}{12} = 8.02 \text{ k-ft}$

$w_{max} = \frac{8(8.02)}{(11.3125)^2} = 502 \text{ plf}$

$W_{TL} = \frac{502}{1.5} = 334 \text{ psf}$

Shear:

$V = \frac{2}{3}(70)(2.75)(12.25) = 1572 \text{ lb}$

$w_{max} = \frac{1572(8)}{11.3125} = 277.9 \text{ plf}$

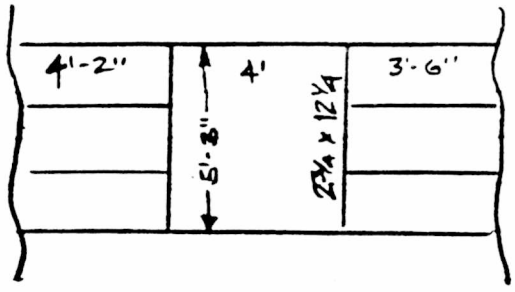
$W_{TL} = \frac{277.9}{1.5} = 185.3 \text{ psf}$

∴ shear governs

DL: $\frac{(2.75)(12.25)(30)}{144(1.5)} + 2.5 + 10 = 17.2 \text{ psf}$

LL: 185.3 − 17.2 = 168.2 psf

Breezway Room 214 Opening



typical member: 2¾" × 12¼"

$S = \frac{(2.75)(12.25)^2}{6} = 68.8 \text{ in}^3$

$M_{cap} = \frac{68.8(1.4)}{12} = 8.02 \text{ k-ft}$

$V_{max} = \frac{2}{3}(90)\dagger(2.75)(12.25) = 2021 \text{ lb}$

check opening framing members:

required load 125 psf LL + 10 psf DL = 135 psf TL

$M = \frac{(.135)(4.167/2)(5.25)^2}{8} = 0.97 < M_{cap} \therefore \text{OK}$

$V = .135\left(\frac{4.167}{2}\right)\left(\frac{5.25}{2}\right) = 738 \text{ lb} < V_{max} \therefore \text{OK}$

check framing joist:

$w = (.135)(1.5') = 203 \text{ plf}$

$M_{max} = \frac{.203(11.67)^2}{8} + \frac{4.167(7.5)(.738)}{11.67} = 5.42 \text{ k-ft} < M_{cap} \therefore \text{OK}$

$V = \frac{(.203)(11.67)}{2} + \frac{.738(4.167+8.167)}{11.67} = 1964 \text{ lb} < V_{max} \therefore \text{OK}$

† Note: due to excellent condition and size of members in building, a high maximum shear stress value was justified.

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Bldg 33A

Room 312, 313

joist size: 2" × 6"
joist span: 9'-6"
joist spacing: 24"

DL: flr bds 2.5 psf + joists 1.5 psf = use 5 psf

Bending:

$S = \frac{2(6)^2}{6} = 12\ in^3$

$M = \frac{12(1.14)}{12} = 1.14\ k\text{-ft}$

$w_{max} = \frac{(1.4)(8)}{(9.5)^2} = 124\ plf$

$w_{TL} = \frac{124}{2.0} = 62\ psf$

Shear:

$V = \frac{2}{3}(70)(2)(6) = 560\ lb$

$w_{max} = \frac{560(2)}{9.5'} = 118\ plf$

$w_{TL} = \frac{118}{2.0} = 54\ psf\ TL$

$-\ 5\ psf\ DL$

$54\ psf\ LL$

-13

NPS desires heavy storage, required 250 psf LL (BOCA REQ)

Test new flooring system: 2×12 (nom) @ 12" oc.

$S = 31.64\ in^3$ $l = 17.5'$

$w = (250 + 10)(1') = 260\ plf$

$M = \frac{260(17.5)^2}{8} = 9.95\ k\text{-ft}$

$S_{reqd} = 99.5$ ∴ N.G. ⇒ 2×12 @ 3"o/c

wood framing impractical

Try shorter span:

$l = 9'$

$M = \frac{(.200)(9)^2}{8} = 2.63\ k\text{-ft}$ $V = \frac{200(9)}{2} = 1.17\ k$

$S_{reqd} = 26.3\ in^3$ $A_{reqd} = \frac{3}{2}\frac{1.17}{20} = .25\ in^2$

use 3×12 ; $S = 52.7\ in^3$

$A = 28\ in^2$

313 joist support

Since wooden joist for 250 psf LL is impractical, design joist support for 125 psf, light storage.

2x4's span between posts to pick up joists.

Worst case span is 6'-0"

load (future) = $125\left(\frac{12.5}{2}\right) = 1.09$ k/ft

$M = \frac{1.09(6)^2}{8} = 4.91$ k-ft $\qquad V = 1.09\left(\frac{6}{2}\right) = 3.27$ k

$S_{req'd} = 49.1$ in^3 $\qquad A_{req'd} = \frac{3}{2}\cdot\frac{3270}{70} = 70$ in^2

Shear area required for wood is impractical

Try steel angle:

$S_{req'd} = \frac{4.91 \text{ k-ft}}{2} = 2.46$ in^3

use L 6 x 3½ x 5/16, $S_x = 2.73$ in^3

use w/ LLV

Alternatively, with 250 psf LL and shorter span:

$W = (250+10)\,9/2 = 1.17$ k/ft

$M = \frac{1.17(6)^2}{8} = 5.27$ k-ft $\qquad V = \frac{1.17(6)}{2} = 3.51$ k

$S_{req'd} = 52.7$ in^3 $\qquad A_{req'd} = \frac{3}{2}\cdot\frac{3.51}{70} = 75.2$ in^2

∴ wood section impractical

Steel

$S_{req'd} = \frac{5.27}{2} = 2.64$ in^3

use L 6 x 3½ x 5/16, $S_x = 2.73$ in^3

use LLV

Roof 313
new edge members

replacement section for 3x4 / 1x7 combination:

load: 15 psf DL
35 psf LL

worst case span: 6'-0"

$w = 15\left(\frac{10}{2}\right) + 35\left(\frac{9}{2}\right) = 233$ plf

$M = \frac{233(6)^2}{8} = 1.05$ k-ft $\quad V = \frac{233(6)}{2} = 609$ lb

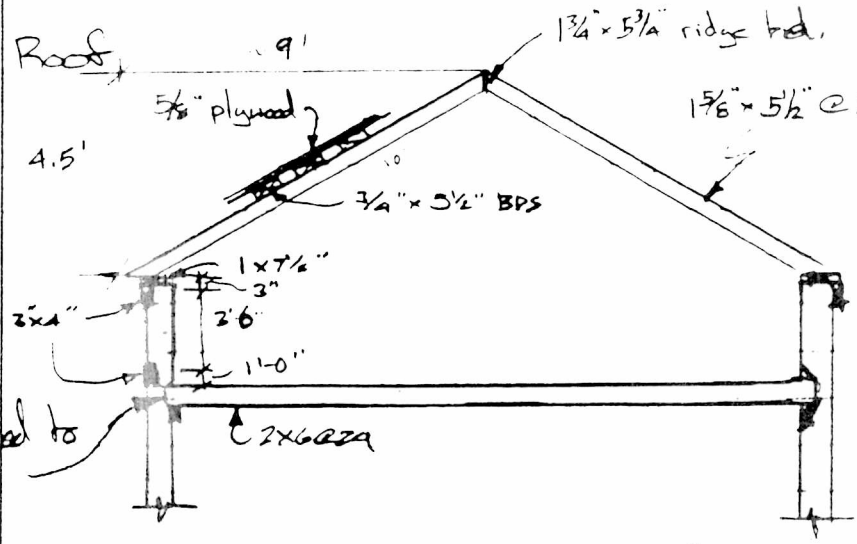
$S_{req'd} = 10.5\ in^3$ $\quad A_{req'd} = \frac{3}{2}\frac{609}{20} = 14.3\ in^2$

use 2-2x6 (nom) $\quad S = 7.56(2) = 15.12\ in^3$
$A = 8.25(2) = 16.50\ in^2$

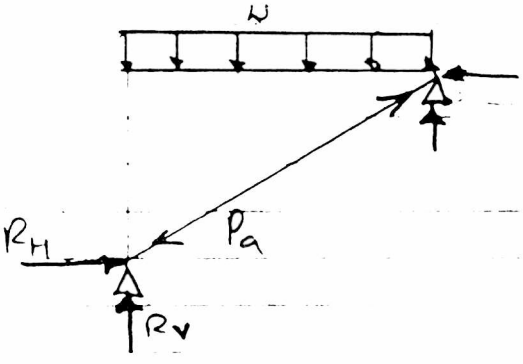
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Bldg 33A



DL: plywood 5(0.4) psf + boards 1.8 psf + rafters 1.25 psf + slate 10 psf = total DL 15 psf



Rafters:

Bending

$$S = \frac{(1.625)(5.5)^2}{6} = 8.19 \text{ in}^3$$

$$M = \frac{8.19(144)}{12} = 0.96 \text{ k-ft}$$

$$w_{max} = \frac{8(0.96)}{(9)^2} = 95 \text{ plf}$$

$$W_{TL} = \frac{75}{2'} = 47 \text{ psf}$$

$$-DL = 15 \text{ psf}$$

$$LL = 32 \text{ psf}$$

Component forces:

$R_V = 417$ lb

$R_A = \frac{417}{\sin 26^\circ} = 951$ lb

$R_H = 951 \cos 26 = 855$ lb

Rafter axial stress:

$f_a = \frac{951 \text{ lb}}{(1.625)(5.5)} = 106$ psi ∴ OK 327

Shear:

$$V = \frac{2}{3}(70)(1.625)(5.5) = 417 \text{ lb}$$

$$w_{max} = \frac{417(2)}{9} = 93 \text{ plf}$$

$$W_{TL} = \frac{93}{2} = 46 \text{ psf}$$

$$-15 \text{ psf DL}$$

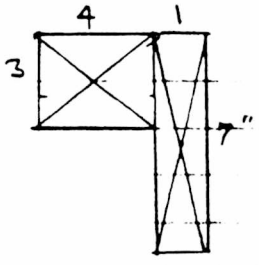
$$LL = 31 \text{ psf}$$

Roof

Check 'composite' section for transfer of lateral loads to posts

Worst case span = 8'-0"

lateral member section properties:



$I_{y\ 1\times7} = \frac{1(7)^3}{12} = 1.75\ in^4$

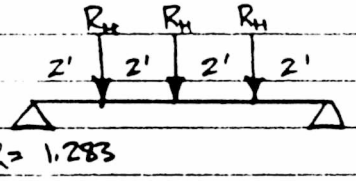
$I_{y\ 3\times4} = \frac{4(3)^3}{12} = 3.00\ in^4$

$\bar{y} = \frac{(3.5)(7)+(1.5)(12)}{(12+7)} = 2.32"$

$I_y = 1.75 + (1.18)^2(7) + 3.0 + (.82)^2(12)$
$= 22.48\ in^4$

$S_y = \frac{22.48\ in^4}{2.32"} = 9.70\ in^3$

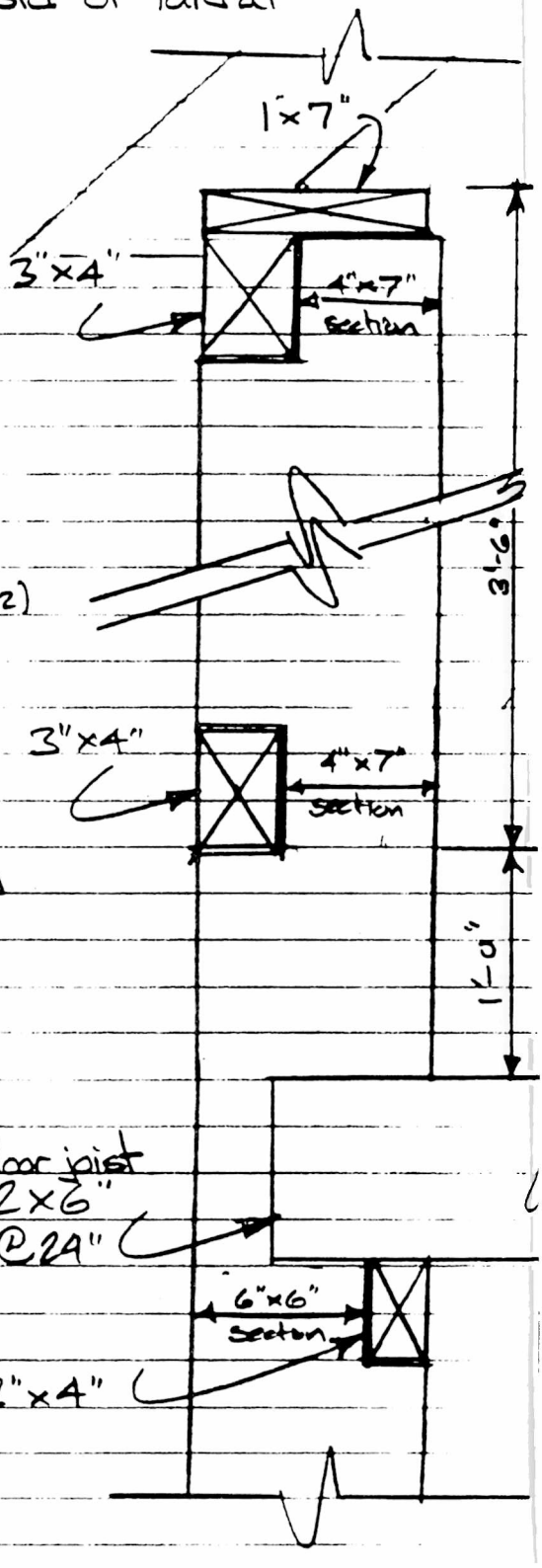
loaded member:



$M = 1.283(4) - 2(.855) = 3.42\ k\text{-}ft$

$S_{req'd} = \frac{3.42(12)}{1.4} = 29.3\ in^3$

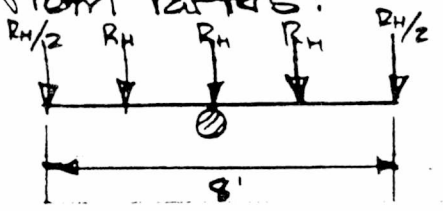
∴ section N.G.



Roof

Check post for moment capacity due to lateral load:

Assuming lateral loads are distributed to posts from rafters:



Total lateral load = $4 \times R_H$
= 3.42 k

@ 3'-6" from rafter bearing, section notched to 4"x 7":

$M = (3.42\,k)(3.5') = 11.97$ k-ft

$S_{req'd} = \frac{11.97(12)}{1.4} = 102.6\ in^3$

$S_{supplied} = \frac{4(7)^2}{6} = 32.7\ in^3$ ∴ N.G.

@ 4'-6 from rafter, section notched to 6"x 6":

$M = (3.42\,k)(4.5') = 15.39$ k-ft

$S_{req'd} = \frac{15.39(12)}{1.4} = 131.9\ in^3$

$S_{supplied} = \frac{6(6)^2}{6} = 36\ in^3$ ∴ N.G.

Lateral load from roof

$P_A = 855$ lb

This is from rafters @ 24" o.c.
Examine capacity of floor joists acting as ties @ 16" o.c.

$P_A = 855 \cdot \frac{16}{24} = 570$ lb

bm dim: 2" x 10"
area: 20 in²

$f_a = \frac{570}{20} = 28.5$ psi ∴ OK

Roof Ridge Beam

Try addition of ridge beam to attain required capacity:

loads: 15 psf DL + 35 psf LL = 50 psf TL

△ 5' △ 14 △

$W = 15\left(\frac{10'}{2}\right) + 35\left(\frac{9}{2}\right) = 233$ plf

$M = \frac{233(14)^2}{8} = 5.71$ k-ft

$S_{reqd} = 57.1$ in³ ($F_b = 1200$ psi)

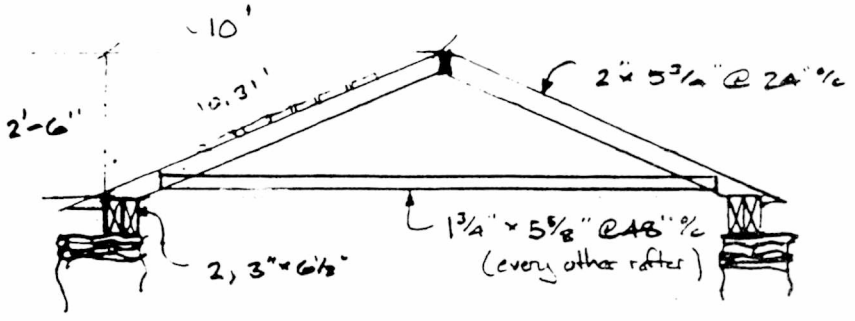
$V = \frac{233(14)}{2} = 1631$ lb

$A_{reqd} = \frac{3}{2}\frac{V}{F_v} = \frac{3}{2} \cdot \frac{1631}{70\text{ psi}} = 35$ in²

∴ Use 2 - 2x12, $S = 63.28$ in³, $A = 33.$

4x12 work $S = 73.83$, $A = 31.88$

Bldg. 33A (bridge section, over rm 214)



roof angle = 14°

DL: framing = 1.5 psf
rafter boards = 2.5 psf
slate = 10 psf
14 psf

RAFTER

Bending:

$S = \frac{2(5.75)^2}{6} = 11.02 \text{ in}^3$

$M = \frac{11.02(1.4)}{12} = 1.29 \text{ k-ft}$

$w_{max} = \frac{1.29(8)}{(10.31)^2} = 96.8 \text{ plf}$

$w_{TL} = \frac{96.8}{2} = 48.4 \text{ psf}$
$- 14.0 \text{ psf DL}$
34.4 psf LL (within 2%, ∴ OK)

Shear:

$V = \frac{2}{3}(78)(2)(5.75) = 537 \text{ lb}$

$w_{max} = \frac{537(2)}{10.31} = 104 \text{ lb}$

∴ bending governs

$A_{rafter} = 2(5.75) = 11.50 \text{ in}^2$

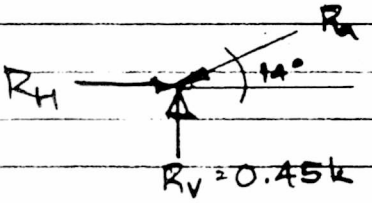
Actual loads:

snow: 35 psf × 2' = 70 plf + 20 plf DL = 90 plf TL
wind: 12 psf × 2' = 24 plf

$M_w = \frac{0.09(10.31)^2}{8} = 1.20 \text{ k-ft}$

$R_V = 0.09\left(\frac{10}{2}\right) = 0.45 \text{ k}$

$R_a = \frac{0.45 \text{ k}}{\cos 14°} = 0.46 \text{ k}$



$f_b = \frac{1.20(12)}{11.02} + \frac{0.46}{11.50} = 1347 \text{ psi} < 1400 \therefore \text{OK}$

$F_y = (460\text{lb}) \sin 14° = 111 \text{ lb}$

$f_t = \frac{(111)(2)}{(1.75)(5.125)} = 22.6 \text{ psi} \therefore \text{OK}$

Roof @ breezeway

Check ties:

member: $1\frac{3}{4}" \times 5\frac{5}{8}"$

spacing: 48"

horiz. thrust: $R_H = 2R_a \cdot \cos 14^\circ$ (due to tie spacing) $= 2 \cdot 460 (\cos 14^\circ) = 892$

$A_{tie} = (1.75)(5.625) = 9.84 \text{ in}^2$

$f_a = \frac{892}{9.84 \text{ in}^2} = 91 \text{ psi}$ ∴ O.K.

Check rafter bearing members acting as lintles over windows

$S = 2 \cdot \frac{3.5(6.5)^2}{6} = 49.3 \text{ in}^3$ $A_{rs} = 2(3.5)(6.5) = 45.5 \text{ in}^2$

$l_u = 4'$

$w = 300 \text{ plf}$

$M = \frac{(300)(4)^2}{8} = 0.60 \text{ k-ft}$

$S_{req'd} = \frac{0.60(12)}{1.4} = 5.14 \text{ in}^3$ ∴ OK

$V = 300(2) = 600 \text{ lb}$

$A_{req'd} = \frac{3}{2} \frac{600}{70} = 12.86 \text{ in}^2$ ∴ OK

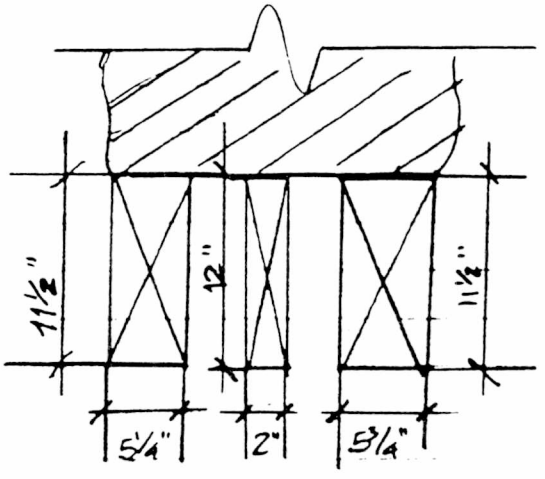
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Bldg. 33A

lintels @ breezeway

west



Determine S of composit lintle:

$S_1 = \frac{5.25(11.5)^2}{6} = 115.7$

$S_2 = \frac{2(12)^2}{6} = 48.0$

$S_3 = \frac{5.75(11.5)^2}{6} = 126.7$

$S_{total} = 290.4 \text{ in}^3$

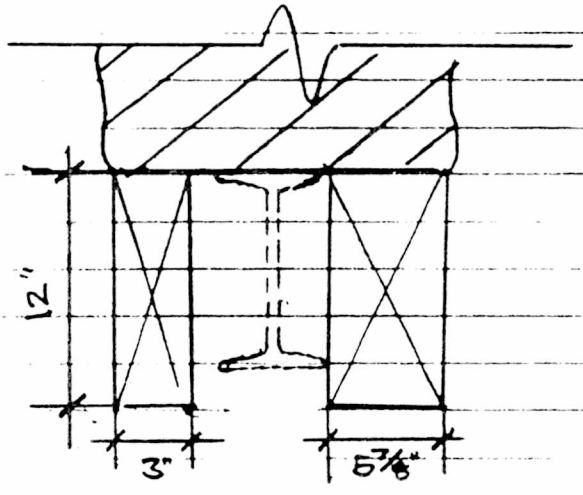
Area provided:
$(5.25+5.75)(11.5)+2(12) = 150.5 \text{ in}^2$

Lintle length = 11.67' ft

Weight of wood: $40 \text{ pcf}\left[(5.25+5.75)(11.5)+2(12)\right]/144$

$W_w = 41.8 \text{ plf}$

east



Combined S:

$S_1 = \frac{3(12)^2}{6} = 72.0$

$S_2 = \frac{5.875(12)^2}{6} = 141.0$

$S_{total} = 213.0 \text{ in}^3$

Lintle length = 11.5 ft

Area provided: $(3+5.875)(12) = 106.5 \text{ in}^2$

Weight of wood: $40 \text{ pcf}\,(3+5.875)(12)/144 = 29.6 \text{ plf}$

assumed weight of steel section (use S 10 x 25.4) $W_{st} = 25.4 \text{ plf}$

55.0 plf

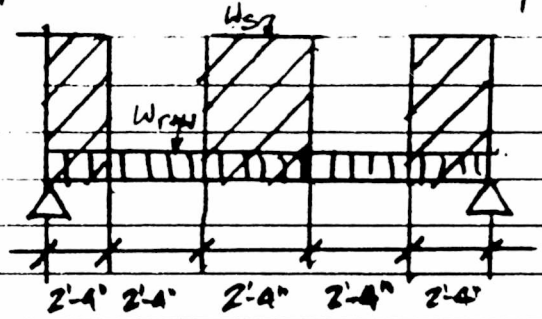
lintles

loads:

Roof: $w_r = 50psf\left(\frac{11.33'}{2}\right) = 283 plf$

Stone $w_s = 160pcf(1.625')(8.58') = 2232 plf$

West lintle:



$w_{r+w} = 283 plf + 42 plf = 325 plf$

Reaction: $\frac{(325)(11.67)}{2} + \frac{3}{2}(2.33)(2.232) = 9.71 k$

$M_{max} = 9.71\left(\frac{11.67}{2}\right) = 56.6 k\text{-}ft$

$S_{req'd} = \frac{56.6(12)}{1.4} = 485 in^3$ | $A_{req'd} = \frac{3}{2}\frac{9710}{70} = 208 in^2$

$S_{add'l} = 485 - 290 = 190 in^3$ | $A_{add'l} = 208 - 150.5 = 57.5$

reqd section modulus impractical for wood.

Steel alternatives:

additional:

$S = 190\frac{1.4}{24} = 11.1 in^3$

use W8×15 beams,

$S = 11.8 in^3$

replacement:

$S = \frac{56.6}{2} = 28.3 in^3$

use W 14 × 22 beam,

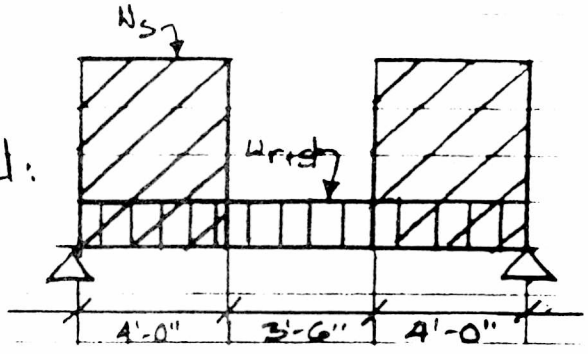
$S = 29.0 in^3$

lintles

East lintle

Check assuming no help from steel:

$W_{roof+structure}$: 283 plf
+ 55 plf
338 plf



$V = \frac{(.338)(11.5)}{2} + 4'(2.232) = 10.87$ k

$M_{max} = 10.87\left(\frac{11.5}{2}\right) = 62.5$ k-ft

$S_{req'd} = \frac{62.5(12)}{1.4} = 535.8$ in^3
$- 213.0$ in^3
$S_{addl\ req'd} = 322.8$ in^3

$A_{req'd} = \frac{3}{2}\frac{10870}{70} = 233$ in^2
$- 106.5$ in^2
$A_{addl\ req'd} = 126.5$ in^2

req'd wood section impractical, check steel alternative:

Steel:

additional steel:

$S_{req'd} = 322.8 \cdot \frac{1.4}{24} = 18.83$

use $w = 2.0$ k/ft & $\delta/600 = \Delta_{max}$

$I_{req'd} = \frac{5(2.0/12)(136)^3 \cdot 600}{384 \cdot 29000} = 118$ in^4

S 10 x 25.4 provides $S = 24.7$ in^3, $I = 124$ in^4 ∴ ok.

also practical:

W 10 x 22, $S = 18.8$ in^3, $I = 118$ in^4
W 12 x 22, $S = 25.4$ in^3, $I = 156$ in^4

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Bldg. 33

Room 102

joist size: 1½" × 11½" "new" pressure treated lumber
joist span: 7'-6"
joist spacing: 16"

Bending:

$S = \frac{1.5(13.5)^2}{6} = 33\ in^3$

$M = \frac{33(1.2)}{12} = 3.3\ k\text{-}ft$

$W_{max} = \frac{3.3(8)}{(7.5)^2} = 470\ plf$

$W_{TL} = \frac{470}{1.33} = 363\ psf$

Shear:

$V = \frac{2}{3}(70)(1.9)(11.5) = 805\ lb$

$W_{max} = \frac{805(2)}{7.5} = 215\ plf$

$W_{TL} = \frac{215}{1.33} = 161\ psf$

O.K. for 100 psf LL

Porch, Exterior Stairs

Stringer size: 1½" × 5¼"
stringer span: 6' horiz. } length = 7.5'
4.5' vert }
spacing: 1.75'

Bending:

$S = \frac{1.5(5.25)^2}{6} = 6.89\ in^3$

$M = \frac{6.89(12)}{12} = 0.689\ k\text{-}ft$

DL = 5 psf

$689 = \frac{5(7.5)^2}{8} + \frac{W_{LL}(6)^2}{8}$

$W_{LL} = 145\ plf$

$W_{TL} = \frac{145}{1.75'} = 83\ psf_{LL}$ ∴ N.G.

ck treads:
1" × 9½" S = 1.58

$M = \frac{1.58(12)}{12} = 1.58$

$158 = \frac{5(9.5)^2}{8} + \frac{W_{LL}(9.5)^2}{8}$

$W_{LL} = 98$
CAN almost span side to side.

∴ assume 3 stringers carry equal load.

$S = 6.89 \times 3 = 20.7$ $M_R = 2.07^{1k}$ $2070 = \frac{5(9.5)(7.5)^2}{8} + \frac{w(6)^2}{8}$

$w = 433$

$W_{LL} = \frac{433}{3.5} = 124\ psf$. OK.

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Bldg 33

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Porch Roof

member: 1½" × 3½" @ 24" => new wood
span: 6'
use F_b = 1200 psi

$S = \frac{(1\frac{1}{2})(3\frac{1}{2})^2}{6} = 3.06\ in^3$

$M_{max} = \frac{3.06(1.2)}{12} = 0.306\ k\text{-}ft$

$W_{TL_{max}} = \frac{0.306(8)}{6^2} = 68\ plf$

$W_{TL} = \frac{68}{2} = 34\ psf\ TL$

$-10\ psf\ DL$

$24\ psf\ LL < 35\ psf\ req'd \therefore N.G.$

DL: 2 psf framing
8 psf sheathing/shingles
10 psf

$V = \frac{2}{3}(70)(1.5)(3.5) = 245\ lb$

$W_{TL} = \frac{245(2)}{6} = 82\ plf \therefore$ bending governs

Porch 3rd floor

member: ? × 6¾" framing inaccessible
assume 1½" width
and 24" o/c spacing

$S = \frac{1.5(6.75)^2}{6} = 11.4\ in^3$

$M_{max} = \frac{11.4(1.4)}{12} = 1.33\ k\text{-}ft$

$W_{TL} = \frac{1.33(8)}{(8.0)^2} = 147\ plf$

$W_{TL} = \frac{147}{2} = 74\ psf\ TL$

$\therefore$ Shear governs

$V_{max} = \frac{2}{3}(70)(1.5)(6.75) = 473\ lb$

$W_{max} = \frac{473(2)}{8.5} = 111\ plf$

$W_{TL} = \frac{111}{2} = 55.6\ psf\ TL$

$-10.0\ psf\ DL$

$45.6\ psf\ LL$

$\therefore$ N.G.

Check support beams:
member: 2 1/8" × 8½"

$S = \frac{(2.125)(8.5)^2}{6} = 25.6\ in^3$

$M = \frac{25.6(12)}{12} = 2.98\ k\text{-}ft$

$M_{req'd} = \frac{(110\ psf)(8.5)(6)^2}{8} = 4.21\ k\text{-}ft$

$S_{req'd} = \frac{4.21(12)}{12} = 4.21\ in^3$

$V_{max} = \frac{2}{3}(70)(2.125)(8.5) = 843\ lb$

$W_{max} = \frac{843(2)}{6} = 281\ plf$

Bldg 33

Porch 2nd floor, east

member: $2\frac{5}{8} \times 9\frac{1}{4}$"
spacing: 16" o/c
span: 14.5'

$$S = \frac{(2.625)(9.25)^2}{6} = 37.4 \text{ in}^3$$

$$M_{cap} = \frac{(37.4)(1.4)}{12} = 4.4 \text{ k-ft}$$

$$M_{req'd} = \frac{(.110)(1.33')(14.5)^2}{8} = 3.8 \text{ k-ft} < M_{cap} \therefore \text{O.K.}$$

$$V_{max} = \frac{2}{3}(70)(2.625)(9.25) = 1133 \text{ lb}$$

$$w_{max} = \frac{1133(2)}{14.5} = 156 \text{ plf}$$

$$W_{TL} = \frac{156}{1.33} = 118 \text{ psf TL}$$

$$-10 \text{ psf DL}$$

$$108 \text{ psf LL} \therefore \text{OK.}$$

Porch 2nd floor, west

member: $2\frac{1}{4} \times 10\frac{1}{4}$
spacing: $21\frac{1}{2}$"
span: 17.5'

$$S = \frac{(2.25)(10.25)^2}{6} = 41.3 \text{ in}^3$$

$$S(x) = \frac{41.3}{1.79} = 23 \text{ in}^3/\text{ft}$$

$$M_{req'd} = \frac{(.110)(17.5)^2}{8} = 4.2 \text{ k-ft}$$

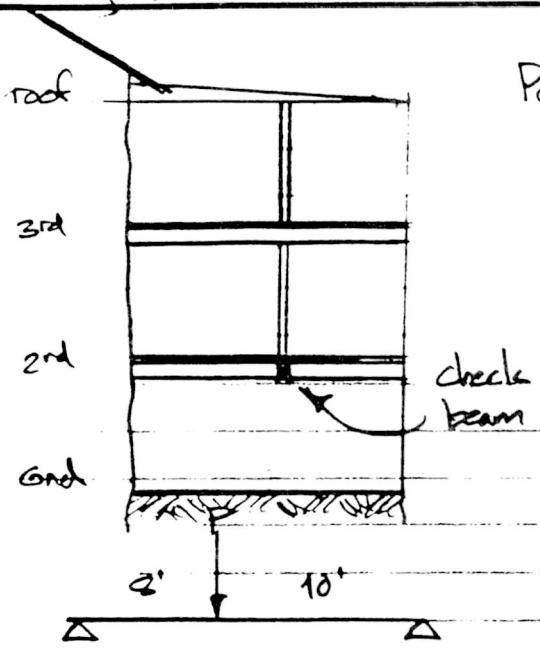
$$S_{req'd} = \frac{4.2(12)}{1.4} = 36 \text{ in}^3/\text{ft} \therefore \text{N.G.}$$

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Bldg 33

Porch Posts



Post load:

area picked-up:

$4' \times 8.5' = 34\ ft^2$

roof: $34\ (45\ psf) = 1.53\ k$

3rd: $34\ (110\ psf) = 3.74\ k$

total: $P = 5.27\ k$

$$M = \frac{8(10)(5.27)}{18} = 23.4\ k\text{-}ft$$

$$S_{req'd} = \frac{23.4(12)}{1.4} = 200\ in^3$$

too great for wood, use steel

$$S_{provided} = \frac{(2.25+1.75)(10.25)^2}{6} = 70\ in^3$$

For steel sections:

$$S_{req'd} = \frac{(23.4+8.4)(12)}{24} = 16.2\ in^3$$

$$M_{unif} = \frac{.110(2)(18)^2}{8} = 8.4\ k\text{-}ft \qquad \Delta_{max} = \frac{18(12)}{240} = 0.90\ in$$

$$I_{req'd} = \frac{l^2}{\Delta E}\left(\frac{5wl}{384} + \frac{P}{48}\right)$$

$$= \frac{(216)^2}{0.9(29000)}\left(\frac{5\left(\frac{.220}{12}\right)(216)}{384} + \frac{5.27}{48}\right)$$

$$= 62.3\ in^4$$

∴ use W12×16

Porch, West Stairs 2ND/3RD Floor

Stringers: $1\frac{7}{8}" \times 3\frac{3}{4}"$
treads: $1" \times 10"$
span: horiz: 6'-10", 4'-8"
drag: 9.1', 5.5'

$S = \frac{(1.875)(3.75)^2}{6} = 4.39 \text{ in}^3$

$M_{cap} = \frac{4.39(1.4)}{12} = 0.51 \text{ k-ft}$

$M_{req'd} = \frac{0.090(9.1)^2}{8} + \frac{(.100)(6.85)^2}{8} = 0.69 \text{ k-ft}$

$S_{req'd} = \frac{(0.69-0.51)(12)}{1.2} = 1.8 \text{ in}^3$ add'l

landing beam:
member: $1\frac{5}{8}" \times 5\frac{3}{4}"$

$S = \frac{(1.625)(5.75)^2}{6} = 8.95 \text{ in}^3$

$M_{cap} = \frac{8.95(1.4)}{12} = 1.04 \text{ k-ft}$

$M_{req'd} = \frac{.110(5.25)^2}{8} = 0.38 \text{ k-ft}$ ∴ O.K.

$V_{max} = \frac{2}{3}(70)(1.625)(5.75) = 436 \text{ lb}$

$w_{max} = \frac{436(2)}{5.25} = 166 \text{ plf}$

$w_{TL} = \frac{166}{1} = 166 \text{ psf}$ ∴ O.K.

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Bldg 33

Room 201

joist size = 2" x 10"
joist span = 14'-8"
joist spacing = 16" o/c

Bending:

$S = \frac{2(10)^2}{6} = 33.3 \text{ in}^3$

$M = \frac{33.3(14)}{12} = 3.88 \text{ k-ft}$

$w_{max} = \frac{3.88(8)}{(14.67)^2} = 144 \text{ plf}$

$w_{TL} = \frac{144(12)}{16} = 108 \text{ psf}$

Shear:

$V = \frac{2}{3}(70)(2)(10) = 933 \text{ lb}$

$w_{max} = \frac{933(2)}{14.67} = 127 \text{ plf}$

$w_{TL} = \frac{127(12)}{16} = 95.7 \text{ psf}$

∴ SHEAR GOVERNS

DL: $\frac{2(10)(20)}{144(1.33)} + 2(1.88) + 10 = 16.7 \text{ psf}$

LL: $95.7 - 16.7 = 79.0 \text{ psf}$

Room 202, 203 A/B, 204, 206, 207, 207A, 208, 209, 210, 211

joist size: 2x10
joist span: 13'-4"
joist spacing: 16" o/c

Bending:

$S = 33.3 \text{ in}^3$

$M = 3.88 \text{ k-ft}$

$w_{max} = \frac{3.88(8)}{(13.33)^2} = 175 \text{ plf}$

$w_{TL} = \frac{175}{1.33} = 131 \text{ psf}$

Shear:

$V = \frac{2}{3}(70)(2)(10) = 933 \text{ lb}$

$w_{max} = \frac{933(2)}{13.33} = 140 \text{ plf}$

$w_{TL} = \frac{140}{1.33} = 105 \text{ psf}$

∴ shear governs

DL: 16.7 psf

LL: $105 - 16.7 \text{ psf} = 88.3 \text{ psf}$

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Building 33

Rooms 301, 301A, 303

joist size: 2"x10" ← typ
joist span: 15'-11"
joist spacing: 16" ←
joist capacity:

Bending:

$S = \frac{2(10)^2}{6} = 33.3 \text{ in}^3$

$M_{max} = \frac{33.3(14)}{12} = 3.89 \text{ k-ft}$

$W_{max} = \frac{8(3.89)}{(15.82)^2} = 122.8 \text{ plf}$

$W_{TL} = \frac{122.8}{1.33} = 92.1 \text{ psf}$

Shear:

$V = \frac{2}{3}(70)(2\text{X}10) = 933 \text{ lb}$

$W_{max} = \frac{933(2)}{15.917} = 117.3 \text{ plf}$

$W_{TL} = \frac{117.3}{1.33} = 88 \text{ psf}$

∴ Shear governs

DL: $\frac{(2\text{X}10)(30)}{144(1.33)} + 2.24 + 8 + 10 = 23.3$

LL: $W_{LL} = 88 - 23.3 = \boxed{64.7 \text{ psf}}$

Rooms 302, 306, 309, 309A, 310, also: 403, half of 401

joist span: 15'-0"

$S = 33.3 \text{ in}^3$

$M = 3.89 \text{ k-ft}$

$W_{max} = \frac{8(3.89)}{(15)^2} = 138.3 \text{ plf}$

$W_{TL} = \frac{138.3}{1.33} = 104 \text{ psf}$

$V = 933 \text{ lb}$

$W_{max} = \frac{933(2)}{15} = 124.4$

$W_{TL} = \frac{124.4}{1.33} = 93.5$

∴ Shear governs

DL: 23.3 psf

LL: 93.5 − 23.3 = 70.2 psf

Room 304

joist size: 2 x 10"
joist span: 8'-0"
joist spacing: 16"

Bending:

$S = 33.3 \text{ in}^3$

$M = 3.88$ k-ft

$w_{max} = \frac{3.88(8)}{(8)^2} = .485$ klf

$w_{TL} = \frac{.485}{1.33} = .363$ ksf

Shear:

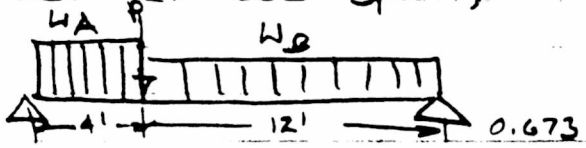
$V = \frac{2}{3}(70)(2)(80) = 933$ lb

$w_{max} = \frac{933(2)}{8} = 233$ plf

$w_{TL} = \frac{233}{1.33} = 175$ psf

OK for 100 psf LL req'd.

304 corridor (in 305 span)



1.023

DL: 7.5 psf (floor) + 10 psf (ceiling/part bm) + 1.0 = 18.5 psf

$w_A = 18.5 + 100 = 118.5$ psf

$w_B = 18.5 + 50 = 68.5$ psf

$P = 40 \text{ psf} \times 10' = 400$ lb

M = 3.3 k-ft @ x = 10' from right.

M_{max} (2x10" joist) = 3.88 k-ft ∴ O.K.

James Madison Cutts — Consulting Structural Engineers — Washington DC

Job: Harpers Ferry
Location:
By: JCH Check: Date:
Sheet: 3-33.9

Bldg 33

Room 305, 402, part of 404

joist span: 14'-9½" = 14.7917'

Bending:
$S = 33.3\ in^3$
$M = 3.89\ k\text{-}ft$
$W_{max} = \frac{3.89(8)}{(14.79)^2} = 142.2\ plf$
$W_{TL} = \frac{142.2}{1.33} = 106.7\ psf$

Shear
$V = 933\ lb$
$W_{max} = \frac{933(2)}{14.79} = 126\ plf$
$W_{TL} = \frac{126}{1.33} = 94.9\ psf$
∴ shear governs

$DL = 23.3\ psf$ $LL = 94.9 - 23.3 = \boxed{71.6\ psf}$

Room 307, 308, 308A, 305A

joist span: 11'-10"

Bending:
$S = 33.3\ in^3$
$M = 3.89\ k\text{-}ft$
$W_{max} = \frac{3.89(8)}{(11.83)^2} = 222\ plf$
$W_{TL} = \frac{222}{1.33} = 167.2\ psf$

Shear:
$V = 933\ lb$
$W_{max} = \frac{933(2)}{11.83} = 157.7\ plf$
$W_{TL} = \frac{157.7}{1.33} = 118.6\ psf$
∴ shear governs

$DL = 23.3\ psf$ $LL = 118.6 - 23.3 = \boxed{95.3\ psf}$

Room 311

joist span: 19'-1"

Bending:
$S = 33.3\ in^3$
$M = 3.89\ k\text{-}ft$
$W_{max} = \frac{3.89(8)}{(19.083)^2} = 85.5\ plf$
$W_{TL} = \frac{85.5}{1.33} = 64.3\ psf$
∴ bending governs

Shear:
$V = 933\ lb$
$W_{max} = \frac{933(2)}{19.083} = 97.8\ plf$
$W_{TL} = \frac{97.8}{1.33} = 73.5\ psf$

$DL = 23.3\ psf$ $LL = 64.3 - 23.3 = \boxed{41.0\ psf}$

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Job: Harpers Ferry
Location:
By: SGH | Check: | Date:
Sheet: 3-33.10

Bldg 33

Room 401 (long span)

joist size: 2" × 10"
joist span: 16'
joist spacing: 16"

Bending:

$S = 33.3 \text{ in}^3$

$M = 3.89 \text{ k-ft}$

$W_{max} = \frac{3 \times (8)}{(16)^2} = 120 \text{ plf}$

$W_{TL} = \frac{120}{1.33} = 90 \text{ psf}$

Shear:

$V = 933 \text{ lb}$

$W_{max} = \frac{933(2)}{16} = 117 \text{ plf}$

$W_{TL} = \frac{117}{1.33} = 87.5 \text{ psf}$

DL: flr + part + ceil. + joist = $2.5 + 10 + 8 + 1.5 = 22 \text{ psf}$

LL: 65.5 psf

401/402 (short span) exit

joist span 8'

Bending:

$S = 33.3 \text{ in}^3$

$M = 3.89 \text{ k-ft}$

$W_{max} = \frac{3.89(8)}{8^2} = 486 \text{ plf}$

$W_{TL} = \frac{486}{1.33} = 365 \text{ psf}$

Shear:

$V = 933 \text{ lb}$

$W_{max} = \frac{933(2)}{8} = 233 \text{ lb/ft}$

$W_{TL} = \frac{233}{1.33} = 175 \text{ psf}$

404 (short span)

joist span: 11'-10"

Bending:

$S = 33.3 \text{ in}^3$

$M = 3.89 \text{ k-ft}$

$W_{max} = \frac{3.89(8)}{(11.83)^2} = 222 \text{ plf}$

$W_{TL} = \frac{222}{1.33} = 167 \text{ psf TL}$

-23 psf DL

144 psf LL

Shear:

$V = 933 \text{ lb}$

$W_{max} = \frac{933(2)}{11.83} = 157.7 \text{ plf}$

$W_{TL} = \frac{157.7}{1.33} = 118 \text{ psf TL}$

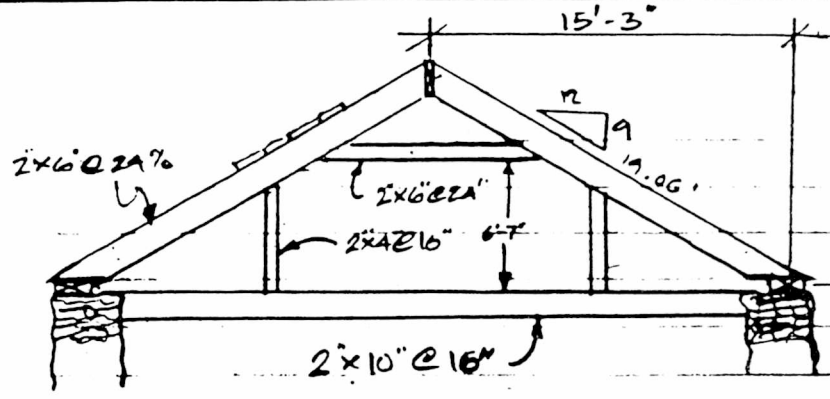
-23 psf DL

95 psf LL

James Madison Cutts — Consulting Structural Engineers — Washington DC

Job: Harpers Ferry
Location:
By: JGH Check: Date:
Sheet: 3-35, 11

Bldg. 33



roof angle = 37°
DL = 15 psf

$A_{tie} = 2(10) = 20\ in^2$
$A_{rafter} = 2(6) = 12\ in^2$
$A_{brace} = 2(4) = 8\ in^2$

Bending capacity:

$S = \frac{2(6)^2}{6} = 12.0\ in^3$

$M_{max} = \frac{12.0(1.4)}{12} = 1.4\ k\text{-}ft$

$w_{max} = \frac{1.4(8)}{(15.26)^2} = 48\ plf$

$w_{TL} = \frac{48}{2} = 24\ psf$

$-\ 15$

LL: $9\ psf$

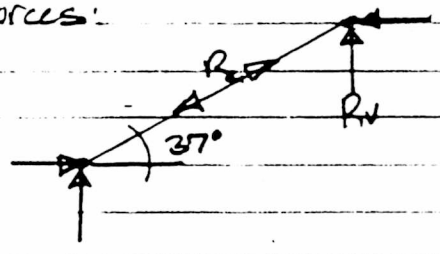
Shear capacity:

$V = \frac{2}{3}(70)(2)(6) = 560\ lb$

$w_{max} = \frac{560(2)}{15.25} = 73\ plf$

∴ bending governs

Forces:



$R_V = \frac{45(15.25)}{2} = 366\ lb$

$R_A = \frac{366}{\sin 37°} = 608\ lb$

$R_H = 608 \cos 37° = 486\ lb$

With combined loading effects:

$1400\ psi = \frac{M}{12.0} + \frac{608\ lb}{12\ in^2}$

$M_H = 1.35\ k\text{-}ft$

$w_{max} = 46\ plf$

$w_{TL} = 22\ psf$

$w_{LL} = 13\ psf$ ∴ NG

James Madison Cutts	Consulting Structural Engineers Washington DC	Job Harpers Ferry Location By JGH Check Date
Bldg 33		Sheet 3-33.12

Try roof with knee wall and joist system taking load:

$M_{max} = 1.4$ k-ft

$W_{max} = \frac{1.4(8)}{(15.25/2)^2} = 193$ plf

∴ shear governs

$V = 560$ lbs.

$W_{max} = \frac{560(2)}{(15.25/12)} = 147$ plf

$W_{LL} = \frac{147}{2'} = 73.5$ psf

$-\ 10.0$ DL

63.5 psf ∴ OK.

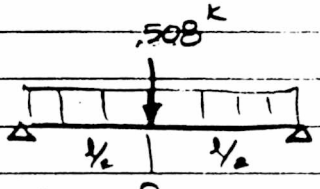
Axial load on knee wall:

50.0 psf (roof DL+LL) $\times \frac{15.25}{2} = 381$ lbs per foot.

pt. load $= 381\left(\frac{16''}{12''}\right) = 508^{\#}$ ← to account for difference in spacing

$f_a = \frac{508\#}{8\ in^2} = 63$ psi ∴ OK

Floor joist: worst case $\ell = 15'-0''$



$S = \frac{2(10)^2}{6} = 33.3\ in^3$

DL = 17 psf

$M_{max\ (CAPACITY)} = \frac{1.4(33.3)}{12} = 3.89$ k-ft

$W_{DL} = \frac{\times 1.33'}{22.7}$ plf

$M_{FROM\ ROOF} = \frac{.508(15)}{4} = 1.9^{IK}$

$M_{REMAINING\ FOR\ FLOOR\ LOAD} = 3.89 - 1.9 = 1.99^{IK}$

$W_{max} = \frac{1.99(8)}{(15)^2} = 71$ lbs per foot Total Load

$-\ 22.7$

48 lb per foot L.L.

$\div 1.33 = 36$ lbs per sq. ft. L.L.

U.G.

Try roof with kneewall and joist system taking load:

$M_{max} = 1.4$ k-ft

$W_{max} = \frac{1.4(8)}{(15.25/2)^2} = 193$ plf

$\therefore$ shear governs

$V = 560$ lb.

$W_{max} = \frac{560(2)}{(15.25/2)} = 147$ plf

$W_{ft} = \frac{147}{2'} = 73.5$ psf

$-\ 10.0$ DL

63.5 psf .. OK.

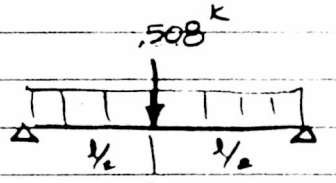
Axial load on kneewall:

50.0 psf (roof DL + LL) $\times \frac{15.25}{2} = 381$ lbs per foot.

pt. load $= 381\left(\frac{16"}{12"}\right) = 508^{\#}$ ← to account for difference in spacing

$f_a = \frac{508}{8 in^2} = 63$ psi ∴ OK

Floor joist: worst case $\ell = 15'-0"$



$S = \frac{2(10)^2}{6} = 33.3\ in^3$

$M_{max\ (CAPACITY)} = \frac{1.4(33.3)}{12} = 3.89$ k-ft

DL = 17 psf

$W_{DL} = \frac{x \cdot 1.33'}{22.7}$ plf

$M_{FROM\ ROOF} = \frac{.508(15)}{4} = 1.9^{IK}$

$M_{REMAINING\ FOR\ FLOOR\ LOAD} = 3.89 - 1.9 = 1.99^{IK}$

$W_{max} = \frac{1.99(8)}{(15)^2} = 71$ lbs per foot Total Load

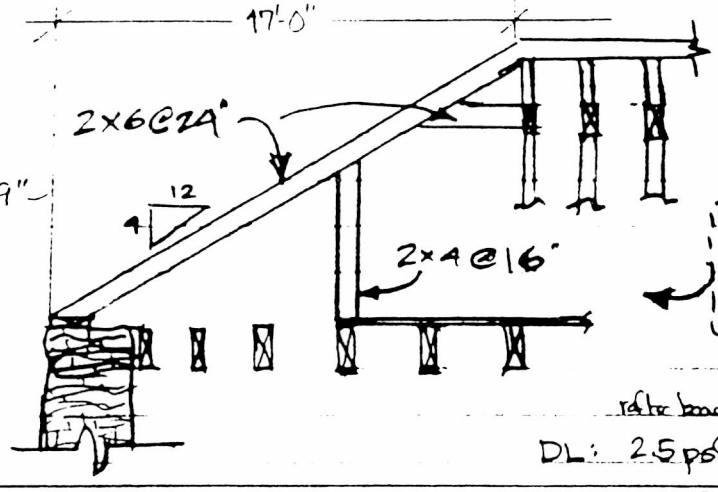
$-\ 22.7$

48 lb per foot L.L.

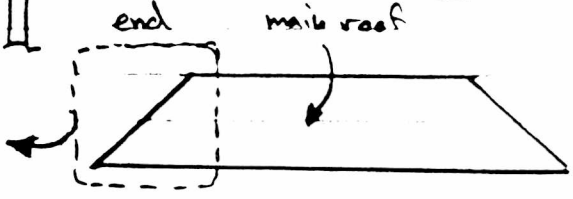
$\div 1.33 = 36$ lbs per sq. ft. L.L.

U.6

Bldg 33



Roof section at ends of bldg



	rafter boards	sheath	ceiling
DL:	2.5 psf	+ 10 psf	+ 8 psf = 20.5 psf

check full-span rafters:

$S = \frac{2(6)^2}{6} = 12.0\ in^3$

$M = \frac{12.0(1.4)}{12} = 1.4\ k\text{-}ft$

$w_{max} = \frac{1.4(8)}{(17)^2} = 39\ plf$

$w_{TL} = \frac{39}{2} = 19.5\ psf$ ∴ N.G.

$V = \frac{2}{3}(70)(2)(6) = 560\ lb$

$w_{max} = \frac{560(2)}{17'} = 66\ plf$

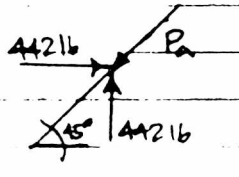
bearing governs

Component forces:

$R_V = 39\ plf \times \frac{17}{2} = 332\ lb$

$R_H = 332\ lb \times \frac{12}{4} = 442\ lb$

Ridge rafter: 2"x6"

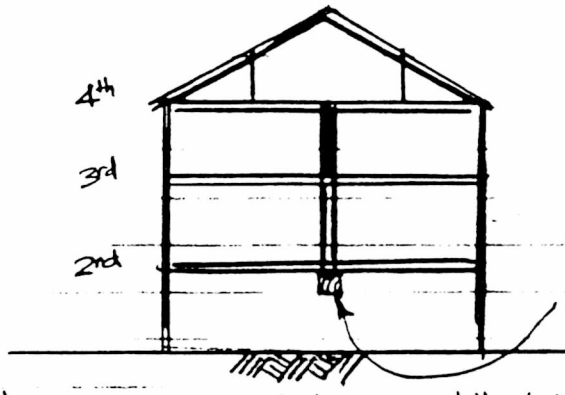


$P_a = \left(\frac{442}{.707}\right) \cdot 2 = 1250\ lb$

$f_a = \frac{1250\ lb}{12\ in^2} = 104\ psi$ ∴ O.K.

assume framing rafters resolve vertical reactions, ridge rafter transfers axial load only.

Support under load bearing partitions:



floor	tributary width (ft)	req'd load (psf)	w (plf)
4	15.5	50 + 23 = 73	1132
3	15.5	50 + 23 = 73	1132
2	15.5	125 + 17 = 142	2201

total uniform load = 4465 plf

span length: 13'-4" = 160 in

$M = \frac{4.465(13.33)^2}{8} = 99.2$ k-ft

$S_{req'd} = \frac{99.2(12)}{12} = 992\ in^3$ ∴ too large for wood section

try steel:

$S_{req'd} = \frac{99.2(12)}{24.0} = 49.6\ in^3$

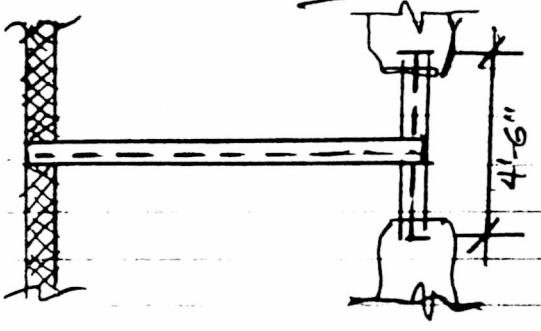
$\Delta_{max} = \frac{160}{360} = 0.44$ in

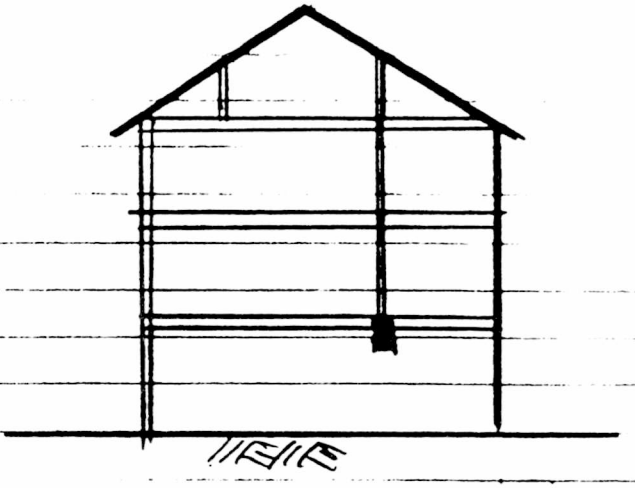
$I_{req'd} = \frac{5wl^4}{384E\Delta_{max}} = \frac{5(4.465^{k}/_{ft})(160^{in})}{384(12)(29000)(0.44)} = 249\ in^2$

∴ S_x => use W18x35, $I = 510\ in^4$

Support for load bearing partitions (cont)

Lintle at doorway:





Beam reaction:

$W = (4.465^{k}/_{ft})(44'/2) = 31.3k$

Moment:

$M = \frac{(31.3k)(4.5')}{4} = 35.2\ k\text{-}ft$

$S_{req'd} = \frac{35.2}{2} = 17.6\ in^3$

use W12 × 19, $S_x = 23.2$, $M_r = 42\ k\text{-}ft$

LAW ENGINEERING

GEOTECHNICAL, ENVIRONMENTAL
& CONSTRUCTION MATERIALS
CONSULTANTS

August 16, 1990

Oehrlein & Associates
1702 Connecticut Avenue, N.W.
Washington, D.C. 20009

ATTENTION: Ellen P. Harris, AIA

SUBJECT: Analysis of Wood (7 samples)
Harpers Ferry
West Virginia
Law Engineering Project Number: W0-8268

Dear Ms. Harris:

As requested, and authorized by your letter of July 31, 1990, Law Engineering is pleased to submit this evaluation of site wood samples from Harpers Ferry, West Virginia.

PROJECT INFORMATION/SCOPE OF SERVICES

Based on our review of your letter of July 23, 1990, we have provided an analyses of seven wood samples supplied by Oehrlein and Associates and identified as being from Harpers Ferry, West Virginia.

FINDINGS

Visual - Review of the submitted samples grain and texture and comparison with wood commonly used in the Harpers Ferry area between 1865 and 1900 has determined the samples to be classified as follows.

Sample No.	Identification	Standard Name
1.	Building 32 - Second Floor Framing	Yellow Pine
2.	Building 33A - Post	American White Oak
3.	Building 33 - Third Floor Framing, Room 36	American Pitch Pine
4.	Building 33 - Roof Framing	Yellow Pine
5.	Building 35 - Second Floor Framing	Yellow Pine
6.	Building 35 - Third Floor Framing	Poplar
7.	Building 34 - 35 - Roof Framing, Room 401	Yellow Pine

OEHRLEIN & ASSOCIATES
AUG 20 1990

4465 BROOKFIELD CORPORATE DRIVE
CHANTILLY, VA 22021
(703) 968-4700
TELEFAX 703-968-4778

This report has summarized our evaluation of the supplied wood samples for this project. The findings are based on the samples provided and the understanding that the structures were built between 1865 and 1900. The discovery of any conditions which deviate from the data outlined in this report should be presented for our further evaluation.

We appreciate the opportunity to be of service to you and look forward to assisting you in the future.

Very truly yours,
LAW ENGINEERING

Michael S. Violette, P.E.
Project Engineer

John R. Smith, P.E.
Project Consultant

MSV/JRS/dlk

Documentary Sources Reproduced

"Asbestos Survey"

ASBESTOS SURVEY

BUILDINGS 32, 33, 33A

HARPERS FERRY NATIONAL HISTORIC PARK

HARPERS FERRY, WEST VIRGINIA

Contract No. CX-2000-0-0011

Work Order 3, Title I Services

September 19, 1990

Oehrlein & Associates Architects
1702 Connecticut Avenue, NW
Washington, DC 20009

Dewberry & Davis Risk Management, Inc.
8401 Arlington Boulevard
Fairfax, VA 22031

SUMMARY

On May 31, 1990, Dewberry & Davis Risk Management Inc. (D&DRM), inspected and sampled roofing materials from National Park Service Buildings 32, 33, and 33A in Harpers Ferry, West Virginia. The purpose of the inspection was to determine if asbestos-containing materials (ACMs) are present in the roofing materials from each building. Samples were taken of suspect tar paper, mastic, and flashing materials. Laboratory analysis identified asbestos in roof mastic in Building 33.

No asbestos was detected in the tar paper in Building 32, and no other suspect roofing materials were identified. Tar paper in Building 33A tested negative for asbestos, and no other suspect roofing materials were identified.

Representative samples were also taken of deteriorated plaster in Building 33. All plaster samples tested negative for asbestos, however further sampling is recommended prior to work which would disturb the existing plaster.

BACKGROUND

There has been a growing public awareness of the link between the inhalation of asbestos fibers and various diseases such as asbestosis, mesothelioma, lung and other cancers. As a result, the Federal and state governments have, or are in the process of enacting legislation on the handling of asbestos-containing materials (ACMs). While this legislation varies greatly from state to state, all entities regard the building owners responsible for asbestos in their buildings.

ON-SITE SURVEY

The limited asbestos survey was performed on the roof of each subject building. The survey entailed a visual inspection by an EPA accredited asbestos inspector and management planner. (See **Appendix A** for inspector's certification.)

Bulk samples were taken from each suspect homogeneous material. A Homogeneous Material is defined as a material that is uniform in color, appearance, and texture. In the event a material could not be tested because of a constraint, it was noted as an assumed suspect asbestos-containing material. The locations of bulk samples extracted during this survey are noted on building sketches included in **Appendix C.**

Bulk samples were analyzed by a laboratory accredited by the American Industrial Hygiene Association and the United States Department of Commerce, National Institute of Standards and Technology. A sample is considered positive if it contains more than one percent (1%) asbestos by volume when measured by visual estimation using polarized light microscopy (PLM). The laboratory certification is included in **Appendix B.**

SURVEY FINDINGS

The survey findings are divided into three sections: Homogeneous areas testing positive for asbestos, homogeneous areas assumed to contain asbestos or inaccessible areas, and homogeneous areas that are negative for asbestos. Laboratory reports are included in Appendix D.

Homogeneous Areas Testing Positive for Asbestos

Sample No.	Description	Location	%/Type
BUILDING 33			
33-9	Roof mastic	Northeast slope Near chimney	2-5% Chrysotile

Assumed Asbestos-Containing Materials

All suspect materials were sampled. No materials were assumed to contain asbestos.

Homogeneous Areas Testing Negative for Asbestos

Sample No.	Description	Location
BUILDING 32		
32-1	Tar paper	North corner at eave
32-2	Tar paper	Adjacent to valley flashing
BUILDING 33		
33-1	Tar paper	Southwest dormer
33-2	Tar paper	Southeast slope near chimney
33-4	Wall plaster, base	Stairwell, 3rd floor
33-5	Wall plaster, finish	Stairwell, 3rd floor
33-6	Wall plaster, patch	Vacant room, 3rd floor
33-7	Wall plaster, original	Vacant room, 3rd floor
33-8	Tar paper	Northeast slope near chimney
BUILDING 33A		
33A-1	Tar paper	West edge under metal roof
33A-3	Tar paper	West corner over shaftway
33A-4	Tar paper	West edge under wood shingles

ANALYSIS AND RECOMMENDATIONS

The purpose of the limited survey was to determine if ACMs are present in the roofing materials of the subject buildings and if they are in a harmful condition. The findings at each inspection site are provided below:

BUILDING 32

Two samples of tar paper were taken from the roof of Building 32. Both samples tested negative for asbestos.

BUILDING 33

Four samples of roofing material were taken from the roof of Building 33. Three samples of tar paper tested negative for asbestos. One sample of roof mastic taken from the chimney on the northeast slope tested positive for asbestos.

The roof mastic is non-friable and in fairly good condition. In its present condition it is not considered to be a hazard, however it should be included in an operations and maintenance program.

Representative samples of deteriorated plaster were taken from the third floor of Building 33. The plaster tested negative for asbestos.

BUILDING 33A

A sample of tar paper was taken from each of the three distinct roof areas of Building #33. All three samples from Building #33 tested negative for asbestos.

CONCLUSIONS

Samples of interior plaster were taken only to provide preliminary information on the possible use of asbestos in this material. While laboratory analysis of these samples detected no asbestos, additional sampling and analysis must be accomplished to provide conclusive results.

The ACMs identified in this report do not present a hazard under the conditions noted at the time of the survey. The condition of these materials should be monitored through an Operations & Maintenance (O&M) program to ensure that they remain intact. It is also advisable to notify construction and maintenance personnel of the location of ACMs to prevent the accidental release of asbestos fibers during normal maintenance and repair work.

As major repair or re-roofing projects for the subject buildings are scheduled, the ACMs in the affected areas should be removed. If allowed to remain, the ACMs must be protected so that they are not damaged during the project. If ACMs remain after the project, O&M procedures should remain in place until the ACM is finally removed.

We recommend the following procedures be followed prior to asbestos abatement:

1. Protective equipment should be required for anyone working with or around asbestos-containing materials.

2. Contract a licensed asbestos abatement contractor to do abatement work.

3. Written records should be kept on all actions and/or personnel affecting ACM's.

APPENDIX A

Inspectors Certification

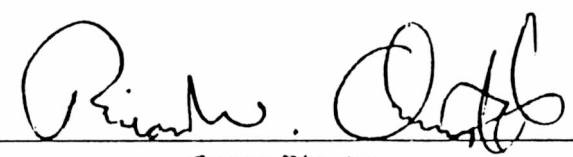
Alice Hamilton Occupational Health Center

This is to Certify that

Tom Kuepper

has met the Attendance Requirements
and successfully completed the Exam in
the Course entitled

Asbestos Inspector/Management Planner Refresher



Course Director

June 28, 1990
Date

Approval by:
Environmental Protection Agency (EPA)
Virginia Department of Commerce
Maryland Department of the Environment

Registered Certificate
No: IMP-R-158
Expires on: June 28, 1991

362

APPENDIX B

Laboratory Certification

United States Department of Commerce
National Institute of Standards and Technology

NVLAP

Certificate of Accreditation

BIOSPHERICS INCORPORATED
BELTSVILLE, MD

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 7 Code of Federal Regulations. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:

ASBESTOS FIBER ANALYSIS

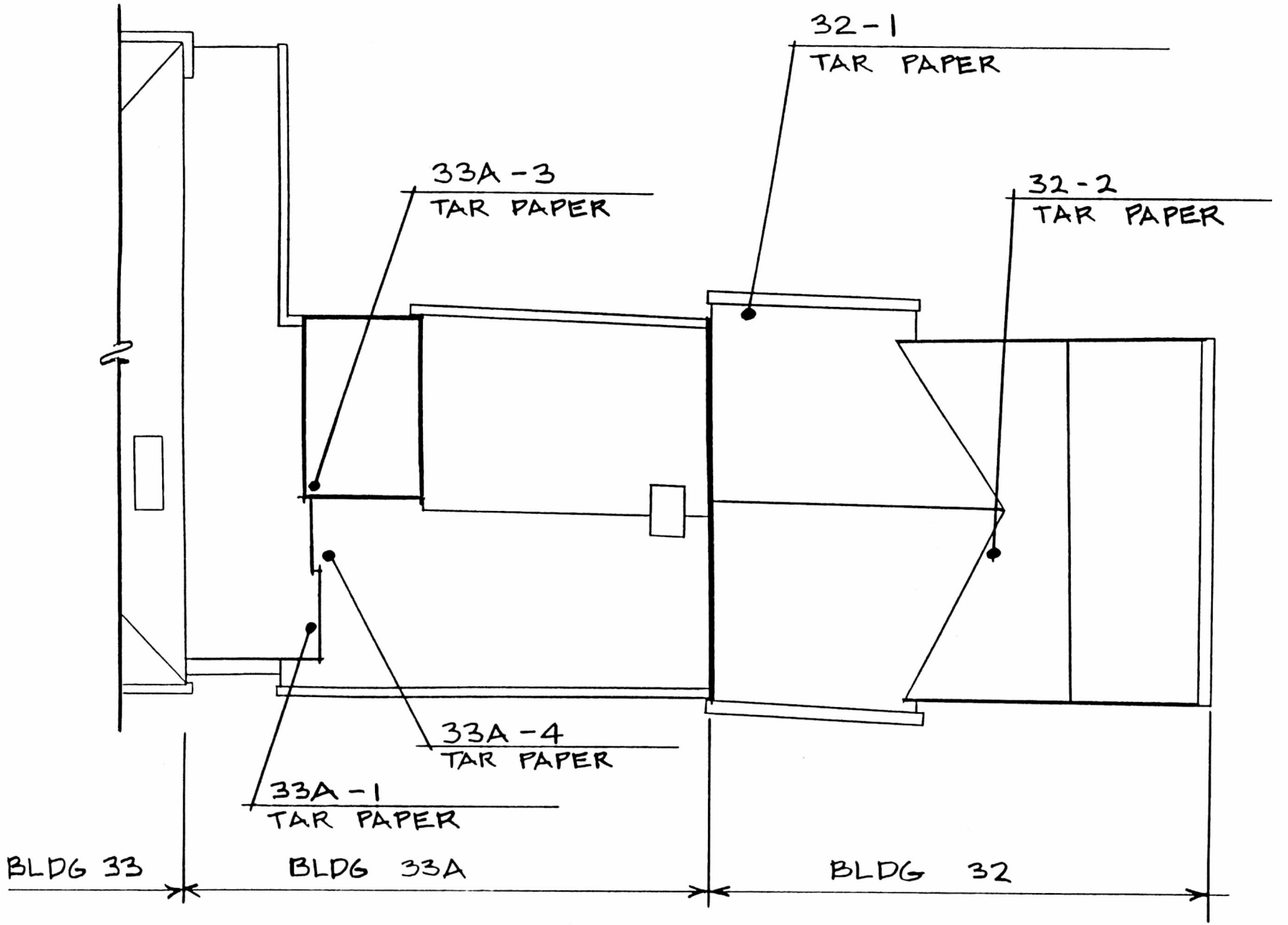
April 1, 1990
Effective until

DEPARTMENT OF COMMERCE • UNITED STATES OF AMERICA •

For the National Institute of Standards and Technology

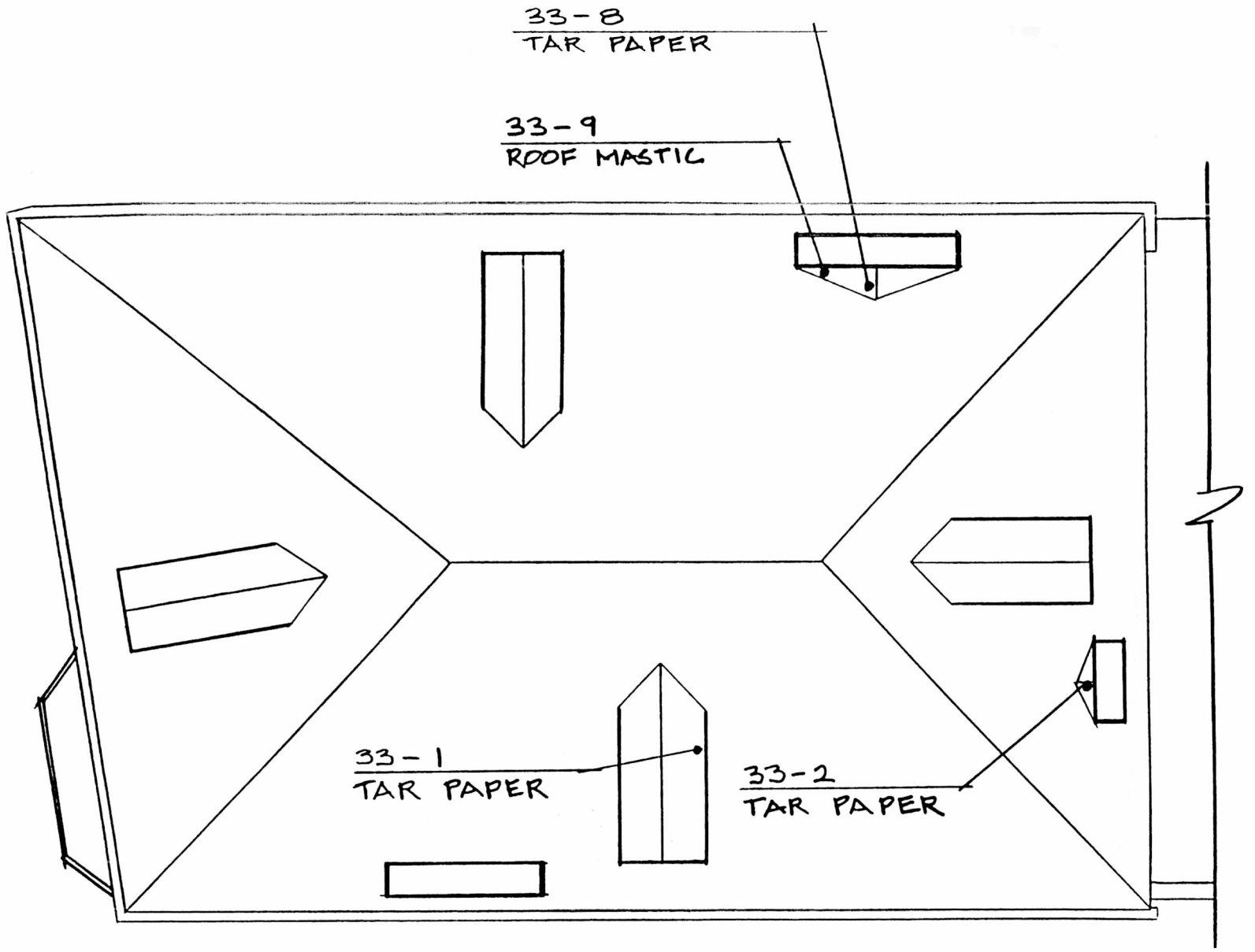
APPENDIX C

Building Sketches



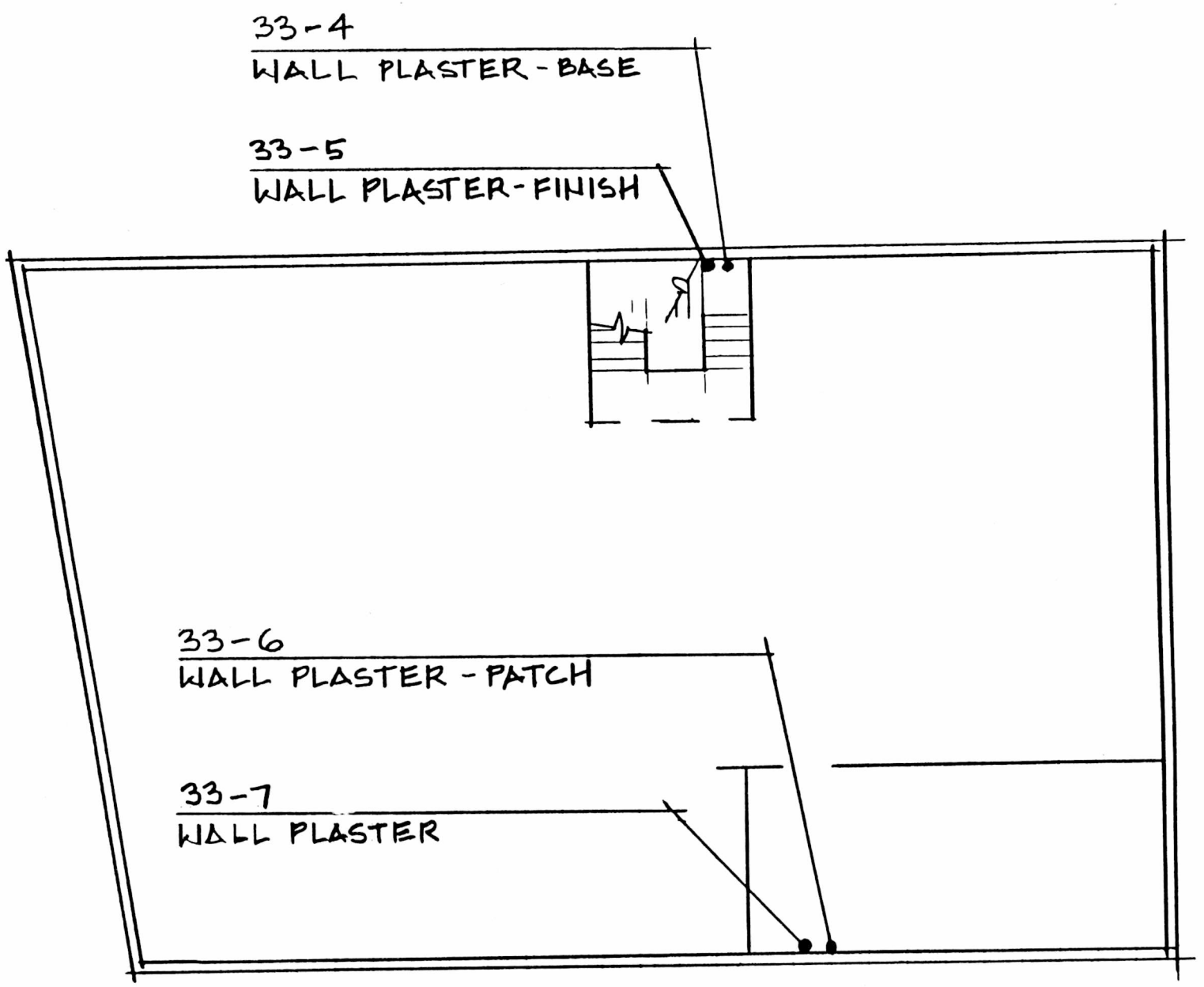
BUILDINGS #33A, #32

N.T.S.



BUILDING #33

N.T.S.



BUILDING #33 3RD FLOOR

N.T.S.

APPENDIX D

Laboratory Reports

Homogeneous Areas/Sample Summary

SAMPLE DESIGNATION FOR SUSPECT ACBMs

BUILDING # N.P.S. HARPERS FERRY

HOMOG ID		MTL	TYPE	QUANTITY	UNIT	SIZE	DESCRIPTION/COMMENTS	SAMPLE #
		W	PL				WALL PLASTER BASE COAT	33-4
		W	PL				WALL PLASTER FIN. COAT	33-5
		W	PL				PLASTER PATCH	33-6
		W	PL				WALL PLASTER (OLD)	33-7

CHAIN OF CUSTODY

- BATCHED BY: TOM KUEPPER DATE: 7/3/90
- SENT IN GOOD CONDITION BY: Tom Kuepper DATE: 7/3/90
- RECEIVED IN GOOD CONDITION BY: [illegible] DATE: 7/3/90
- ORGANIZATION: BIOSPHERICS

PLEASE RETURN ORIGINAL WITH RESULTS TO
8401 ARLINGTON BLVD.
FAIRFAX, VIRGINIA, 22031-4666

BIOSPHERICS INC REPORT
Work Order # 90-06-053
Received: 06/05/90
Results by Sample

SAMPLE ID SAMPLE #32-1
FRACTION 01A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90
Category BULK

DATE ANALYZED 06/08/90
ANALYST KUNDICH
VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	55-60%
FIBROUS GLASS	TRACE
NANF	35-40%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

SAMPLE ID SAMPLE #32-2
FRACTION 02A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90
Category BULK

DATE ANALYZED 06/08/90
ANALYST KUNDICH
VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	55-60%
NANF	35-40%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

SAMPLE ID SAMPLE #33-1 FRACTION 03A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	55-60%
NANF	35-40%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

SAMPLE ID SAMPLE #33-2 FRACTION 04A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	50-55%
NANF	40-45%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

SAMPLE ID SAMPLE #33-8 FRACTION 05A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMH

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	50-55%
NANF	40-45%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

SAMPLE ID SAMPLE #33-9 FRACTION 06A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	2-5%
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	30-35%
SYNTHETIC FIBER	TRACE
NANF	55-60%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; ROOF MASTIC

BIOSPHERICS INC REPORT
Results by Sample

SAMPLE ID SAMPLE #33A-1 FRACTION 07A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	50-55%
NANF	40-45%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

SAMPLE ID SAMPLE #33A-3 FRACTION 08A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	50-55%
NANF	40-45%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted: less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

Received: 06/05/90 Results by Sample

SAMPLE ID SAMPLE #33A-4 FRACTION 09A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 06/04/90 Category BULK

DATE ANALYZED 06/08/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	50-55%
NANF	40-45%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
HARPER'S FERRY - N.P.S.; TAR PAPER

Received: 07/02/90 07/11/90 13:17:48

REPORT TO: DEWBERRY & DAVIS
ARCHITECTS ENGIN. PLAN. SURV.
8401 ARLINGTON BOULEVARD
FAIRFAX, VIRGINIA 22301-4666
ATTEN THOMAS E. KUEPPER

CLIENT DEWBERRY4 SAMPLES 9
COMPANY DEWBERRY & DAVIS
FACILITY 8401 ARLINGTON BOULEVARD
FAIRFAX, VIRGINIA 22301-4666

WORK ID HARPER'S FERRY
TAKEN
TRANS U. S. MAIL
TYPE ENVIRONMENTAL SERVICE
P.O. #
INVOICE under separate cover

PREPARED BY: BIOSPHERICS INCORPORATED
12051 INDIAN CREEK COURT
BELTSVILLE, MARYLAND
20705
ATTEN LABORATORY DIVISION
PHONE (301) 369-3900

CERTIFIED BY

CONTACT WATSON

BULK ASBESTOS ANALYSIS PERFORMED USING POLARIZED LIGHT MICROSCOPY IN CONJUNCTION WITH DISPERSION STAINING

	SAMPLE IDENTIFICATION
01	SAMPLE #33-4
02	SAMPLE #33-5
03	SAMPLE #33-6
04	SAMPLE #33-7

TEST CODES and NAMES used on this report

ASBULK BULK ASBESTOS ANALYSIS

377

340

BIOSPHERICS INC REPORT Work Order # 90-0,-039
Received: 07/02/90 Results by Sample

SAMPLE ID SAMPLE #33-4 FRACTION 01A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 07/03/90 Category BULK

DATE ANALYZED 07/05/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	TRACE
SYNTHETIC FIBER	1-2%
NANF	98+%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
N.P.S. HARPER'S FERRY; WALL PLASTER BASE COAT

SAMPLE ID SAMPLE #33-5 FRACTION 02A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 07/03/90 Category BULK

DATE ANALYZED 07/05/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	TRACE
NANF	99+%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
N.P.S. HARPER'S FERRY; WALL PLASTER FIN. COAT

BIOSPHERICS INC REPORT
Results by Sample

Work Order # 90-C 039

SAMPLE ID SAMPLE #33-6 FRACTION 03A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 07/03/90 Category BULK

DATE ANALYZED 07/05/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	1-2%
SYNTHETIC FIBER	TRACE
NANF	98+%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
N.P.S. HARPER'S FERRY; PLASTER PATCH

SAMPLE ID SAMPLE #33-7 FRACTION 04A TEST CODE ASBULK NAME BULK ASBESTOS ANALYSIS
Date & Time Collected 07/03/90 Category BULK

DATE ANALYZED 07/05/90 ANALYST KUNDICH VERIFIED BY RMC

ASBESTOS	RESULT
% Chrysotile	NAD
% Amosite	
% Crocidolite	
% Tremolite	

NON-ASBESTOS	RESULT
CELLULOSE FIBER	1-2%
HAIR	2-5%
NANF	90-95%

Definitions of Reporting Terms.
NAD = No Asbestos Detected. * = Presence Noted.
NANF = Non-asbestos Non-fibrous.
Trace = Trace Amounts Noted; less than 1%
Sample Information:
N.P.S. HARPER'S FERRY; WALL PLASTER (OLD)

Documentary Sources Reproduced

"Mortar, Plaster and Stucco Analysis"

MORTAR, PLASTER, AND STUCCO ANALYSIS
PACKAGE 116

Block B, Shenandoah Street
Park Buildings 32, 32A, 33, 34-35, and 34A
Harpers Ferry National Historical Park
Harpers Ferry, West Virginia

In Conjunction with Denver Service Center
Eastern Team

September 1990

Prepared by:

Peggy A. Albee
Historic Preservation Conservator
Cultural Resources Center, Building Conservation Branch
North Atlantic Region
National Park Service

MORTAR, PLASTER AND STUCCO ANALYSIS

A total of 26 mortar, plaster, and stucco samples were removed from five buildings located in Harpers Ferry National Historical Park on August 17, 1990. These samples represent materials from two different groupings of buildings, with Buildings 32, 33, and 33A representing one grouping, and Buildings 34-35 and 34A representing the second. Denver Service Center requested that these two groupings be dealt with separately, but if comparisons existed between the two, that they should be noted. Historical data was drawn from the draft copy of the Historic Structures Report for Package 116, 1865-1910, prepared by Perry G. Fisher in July of 1989.

Twelve samples were removed from the first group of buildings. Two mortar samples were taken from Building 32, and labelled HAFE 32 M01 through HAFE 32 M02; one mortar and two stucco samples were removed from Building 33A, and labelled HAFE 33A M01 through HAFE 33A M03; and five stucco and two interior plaster samples were taken from Building 33, and labelled HAFE 33 M01 through HAFE 33 M07.

Fourteen samples were removed from the second group of buildings. One interior stucco and three mortar samples were taken from Building 34A, and labelled HAFE 34A M01 through HAFE 34A M04; two mortar, three stucco, and one interior plaster samples were removed from Building 34 and labelled HAFE 34 M01 through HAFE 34 M06; and two mortar and two interior plaster samples were taken from Building 35 and labelled HAFE 35 M01 through HAFE 35 M04. It should be noted that Buildings 34 and 35 are currently combined into one structure.

The samples were removed from the site and returned to the Building Conservation Branch of the North Atlantic Region's Cultural Resources Center laboratory for analysis. The sample numbers (the corresponding building numbers are reflected within the sample number), descriptions of their locations, their resultant mixes expressed in Parts/Volume, and their sand types based on comparisons only within this study are listed below (the sand types were labelled based on all 26 samples, so comparisons could be drawn, if necessary, between the two groups of buildings):

Sample No.	Location	Resultant Mix	Sand Type
HAFE 32 M01	W. facade shale pointing, near N. end, mid-section	5 Sand 3 Lime	A
HAFE 32 M02	N. facade scored pointing, bottom section, mid-height, near E. corner	5 Sand 3 Lime	A

Sample No.	Location	Resultant Mix	Sand Type
HAFE 33A M01	W. facade at N. corner, shale pointing	3 Sand 2 Lime	A
HAFE 33A M02	W. facade at N. corner, thin stucco wrapping around corner	2 Sand 1 Lime	B
HAFE 33A M03	Thin stucco on N. wall between Bldgs. 33 and 33A	2 Sand 1 Lime	B
HAFE 33 M01	N. facade, stucco at base of E. doorway	2 Nat. Cement 3 Sand 1 Lime or 1 Sand 1 Lime	A
HAFE 33 M02	S. facade stucco, 1st floor level, bet. door and window near E. corner, outer scored layer	3 Sand 2 Lime (hair)	A
HAFE 33 M03	S. facade stucco, 1st floor level, bet. door and window near E. corner, under scored layer	3 Sand 2 lime (hair)	A
HAFE 33 M04	S. facade stucco at W. corner bet. Bldgs. 33 and 33A (currently attached to 33 but looks like delaminated from 33A)	1 Nat. Cement 2 Sand trace of Lime or 5 Sand 3 Lime	A
HAFE 33 M05	W. facade, 3rd floor level, stucco at S. side of 2nd window from N. corner	2 Sand 1 Lime (hair)	A
HAFE 33 M06	Interior plaster, Room 306, W. wall under N. window behind baseboard	3 Sand 2 Lime (hair & fiber)	A
HAFE 33 M07	Interior plaster, stairwell bet. 3rd and 4th floors, E. wall from between plaster keys	4 Sand 5 Lime (hair & fiber)	A

Sample No.	Location	Resultant Mix	Sand Type
HAFE 34A M01	Interior stucco, E. wall at base of stair, lower rubble section	1 Clay 1.5 Sand 1 Lime (hair)	D
HAFE 34A M02	Interior mortar, 2nd floor, S. wall, upper wall section	2 Sand 1 Lime	A
HAFE 34A M03	Interior mortar, 2nd floor, W. wall, lower wall section	3 Sand 4 Lime	D
HAFE 34A M04	Interior mortar, 3rd floor, E. wall, near N. corner	5 Sand 3 Lime	D
HAFE 34 M01	W. facade, 1st floor level, near N. corner, brick joint	5 Sand 3 Lime	C
HAFE 34 M02	S. facade, 1st floor level, near W. corner stucco	2 Sand 1 Lime (hair)	A
HAFE 34 M03	Rear wing of Bldg. 35, W. facade, top layer of stucco, 1st floor level	2 Sand 1 Lime (hair)	A
HAFE 34 M04	Rear wing of Bldg. 35, W. facade, bottom layer of stucco, 1st floor level	2 Sand 1 Lime (hair)	A
HAFE 34 M05	Room 104, interior plaster, top jamb of W. doorway in S. corner	Gypsum	None
HAFE 34 M06	Room 204, interior mortar under existing plaster, E. wall, former end wall of Bldg. 35	5 Sand 4 Lime	C
HAFE 35 M01	E. facade, 1st floor level, mortar joint	5 Sand 3 Lime	C
HAFE 35 M02	E. facade, 3rd floor level, mortar joint from 1891 addition	2 Sand 1 Lime	C

HAFE 35 M03	Room 102, interior plaster, W. wall over door to Bldg. 34	5 Sand 3 Lime (hair)	C
HAFE 35 M04	Room 102, interior plaster, E. wall	5 Sand 3 Lime (hair)	C

Four different types of sands were found among the 26 samples, with only type "A" being shared between the two building groups. This similarity suggests that only the same sand source was used during various building periods, and does not necessarily indicate that those building periods were contemporary to one another.

Observations and Conclusions

Group I - Buildings 32, 33A, and 33

Documentation suggests that Building 32 was constructed within the decade after the 1870 flood. Both samples removed from the exterior pointing of this structure indicate that their installations are contemporary to one another and could date to the original construction of the building or to some later repointing. Their mixes approximate 5 parts/volume type "A" sand to 3 parts/volume lime. Since portland cement would have been widely used by the beginning of the twentieth century, especially in an area that frequently flooded, the pointing found in this building most likely predates ca. 1900.

Building 33A was constructed in 1888. The one pointing sample (HAFE 33A M01) removed from this structure reflects the same sands and fines as the two samples removed from Building 32, and a similar, but not exactly alike resultant mix. These similarities suggest that the two installations could have been contemporary, and therefore Building 32 could have been repointed ca. 1888 when Building 33A was constructed. This is only a hypothesis, since sample HAFE 33A M01's resultant mix was 3 parts/volume type "A" sand to 2 parts volume lime, and type "A" sand was apparently used through several different building phases among the five standing structures studied.

The remaining two samples removed from Building 33A represent the thin stucco that remains on only sections of the structure. Both of these samples are alike in sands, fines, and resultant mixes, and therefore represent contemporary installations. Because the sands from these two samples are unique to this study, they indicate that this stucco was applied at some time after the initial construction period of the building, and at some time other than the installation of stucco on other buildings within this study. The resultant mix of 2 parts/volume type "B" sand to 1 part/volume lime suggests that the stucco was applied sometime prior to ca. 1900, since it is not a portland cement mix.

The samples removed from the exterior of Building 33 appear to represent a variety of installations, but again all prior to ca. 1900 since no portland cement was found. All of the samples reflect type "A" sand. Samples HAFE 33 M01 and M04 also reflect the same color of fines, neither with resultant hair used as a binder. Since Building 33 was constructed in 1882-83, Building 33A was constructed in 1888, and the buildings were constructed no more than six inches apart, sample HAFE 33 M04 has to represent an installation between that time period, since it was removed from between the buildings.

The texture of the stucco on the front or north facade of the building (or that represented by sample HAFE 33 M01) is very different from the stucco found on other facades, and was probably designed as such, to give the front facade a more refined finish. It is therefore possible that its original mix was purposely different from the mix of the stucco originally applied to other parts of the building. It is therefore also possible that samples HAFE 33 M01 and M04 represent contempory, original installations, dating to 1882-83, even though their mixes are slightly different.

The stucco sample removed from the west facade of the building (HAFE 33 M05) had a minor amount of hair found with the resultant fines, and represented only one layer of stucco. On the other hand, the two samples (HAFE 33 M02 and M03) removed from the exposed south facade of the building each had a great deal of hair found with their respective resultant fines, and represented two layers of stucco. While the fines of the latter two samples were similar in color, they were darker than the fines found in sample M05. By comparing this data, along with the resultant mixes of each sample, it can be concluded that samples M02 and M03 were installed at the same time, with 3 parts/volume sand to 2 parts/volume lime. Sample M05 was installed at a different time, using a ratio of 2 to 1 parts/volume of sand to lime.

Building 33 apparently reflects at least three different installation periods of stucco. While samples HAFE 33 M01 and M04 may represent the original construction period, samples HAFE 33 M02 and M03 represent a second installation period, and sample HAFE 33 M05 represents a third. Unfortunately, there is no way to determine which of the latter two installations came first, except that they both probably occurred sometime prior to ca. 1900.

The results of analysis of the two interior plaster samples reflect similar fines, but have very different mixes. While sample HAFE 33 M06 from the third floor reflects a fairly strong mix of 3 parts/volume sand to 2 parts/volume lime, sample HAFE 33 M07 from the staircase between the third and fourth floor reflects a weaker mix of 4 parts sand to 5 parts lime. The difference in these two mixes suggests that they were installed at different times. If sample M06 represents 1882-3 plaster, then sample M07 represents

a later plaster, possibly installed if and when renovations were made to the fourth floor. More sampling would confirm or deny this hypothesis.

Group II - Buildings 34A and 34-35

Building 34A probably represents at least three building phases and possibly four, based on mortar and stucco analysis. The first or possibly first two phases may be catagorized by samples HAFE 34A M01 and M03. Although their resultant mixes are different, their sands and fines are the same, except that sample M01 reflects hair as a binder while sample M03 does not. Since sample M01 represents an interior stucco in which it was normal to use hair, sample M03 represents a mortar, where hair is less frequently found. Sample M01 also has a clay base, also common in early stuccos, while M03 does not. The similarities and differences between these two samples is not enough to establish that they were contemporary or different installations. However, a mortar sample removed from underneath the stucco at the first floor level would confirm this. Whatever the case, samples M01 and M03 could possibly represent the 1830 original construction period, or sample M01 represents original construction and sample M03 represents 1870 alterations.

Sample HAFE 34A M02 represents the next construction period reflected in the mortar of the upper wall section on the second floor. Its sand, fines, and resultant mix are different from the other three samples removed from the interior of this building. It could reflect documented renovations to the building made in either 1870 or 1891. It is the only sample removed from the building to reflect type "A" sand, while the other three samples reflected type "D" sand.

The remaining sample, HAFE 34A M04, represents the last building phase of the structure. Its sands are like those found in the samples taken from the two lower sections of the building, but its mix is different, and its location is separated from the other two by a separate building phase. The documentation suggests that the upper section of this structure may have been added to in 1891, at the same time that Building 34-35 was enlarged and increased in height. The mortar analysis suggests that it was not part of the same building campaign, since the sand from sample M04 is different from any sand found in the samples taken from the 1891 renovation areas of Building 34-35. However, the second last phase of construction of Building 34A could have been contemporary to the 1891 renovations of Building 34-35, as sample comparisons will prove in the following paragraphs. If these comparisons are accurate, then the most-upper section of Building 34A was probably added between 1891 and ca. 1900.

Building 34-35 represents a continuum of building periods between 1812 and the present, with the majority of construction ending in 1891. Samples HAFE 34 M06 and HAFE 35 M01 are the only samples

that could represent original 1812 mortar. While their sands are the same and their resultant fines and mixes are similar, sample HAFE 34 M06 was such a small sample that it probably was not representative of the area from which it was taken. In addition, sample HAFE 34 M01 was taken from a mortar joint in the west wall of the structure, and reflects the same sand and mix, and similar fines as sample HAFE 35 M01. The sample from the west wall could date no earlier than the documented 1882-83 renovation. All three samples could therefore represent pointing and repointing that occurred in 1882-83, rather than any original 1812 mortar, but the evidence is inconclusive.

Sample HAFE 35 M02 is the only one that could represent the 1891 renovation mortar, when the height of the building was raised. The probable mix at that time was 2 parts/volume type "C" sand to 1 part/volume lime. The similarities between it and a sample from the second last building campaign of Building 34A suggest that the two were done at the same time.

Although the two interior plaster samples from Room 102 (HAFE 35 M03 and M04) reflect the exact same mix, fines, and sand characteristics, suggesting a contemporary installation period, they also show similarities to the 1891 mortar mix used on the building. Even though the plaster mix may be slightly weaker than the mortar mix, which is to be expected, the plaster may also date to the 1891 renovation of the building, when the center hall staircase was constructed to access the rooming house on the upper floors.

Samples HAFE 34 M02, M03, and M04 represent stucco installations at the rear end of the structure. While they all have similar sands, fines, and resultant mixes, sample M02, from the south facade at the west corner of the building, contains fewer fines and a great deal more hair used as a binder. It also represents a single layer of stucco. Since samples M03 and M04 reflect two layers of stucco on the west face of the rear ell of the structure, with M03 being the outer layer, and are alike in all characteristics, these latter two samples represent a single installation period, probably different from that which is represented by sample M02. Since the sands from these three samples are different from those found in the mortar samples, they all may be post-1891 installations.

Sample HAFE 34 M05 was taken from plaster in Room 104. It is gypsum plaster and represents a modern addition.

Similarities Between the Two Building Groups

Only one significant similarity exists between the two building groups. It is found between the two layered stucco samples from Building 34 (HAFE 34 M03 and M04) and the third floor stucco sample found on Building 33 (HAFE 33 M05). While a difference does exist

in application (two layers of stucco versus one), all characteristics between the two groups are exactly the same, suggesting the same installation period, probably post-1891.

Recommendations

Recommendations for repointing, replastering, or restuccoing should be based on the resultant mixes found as a result of this study. Since the philosophy for restoration of these buildings is unknown to this conservator, it would be unprofessional to make a blanket assumption about individual structures. However, if restoration is to be based on the continuum development of these structures, then the results of the analysis, as presented in the previous sections, should be followed. It is often important to add some portland cement to modern mixes meant to replicate lime mortars or stuccos (plasters should be restored using only lime and sand). The best method for producing reproduction mortars or stuccos under this hypothesis is to keep the parts/volume of sand the same, and manipulate the matrix of the other ingredients. Since lime mortars and stuccos were almost exclusively found in this study, only the parts/volume of the lime need be manipulated. The general rule should be to use 1/2 part/volume of portland cement, and the remainder parts/volume should be made up with lime, so that the total parts/volume of historic lime would equal the new combination of portland cement and lime. In all cases, test mixes should be prepared (using white portland cement or combinations of white and gray portland cement), so that texture and color can be compared to the existing mortars and stuccos.

Samples of the four different kinds of sands found in this study are being forwarded with this report. The appropriate sand type should be used with the respective restoration mix, again to insure a proper match.

Documentary Sources Reproduced

Task Directive

TASK DIRECTIVE

Package No. 116
Harpers Ferry National Historical Park
Restoration of Buildings 32, 33, 33A, 34, 34A, 35, & 36

Historic Structure Report, Construction Documents, Construction, Post Construction, Preservation Guides
April 1989

DENVER SERVICE CENTER

RECOMMENDED: Benjamin H. Biderman / for 4/17/89
ASSISTANT MANAGER, EASTERN TEAM, DENVER SERVICE CENTER DATE

CONCURRED:
SUPERINTENDENT, HARPERS FERRY NATIONAL HISTORICAL PARK DATE

CONCURRED: David Wright 4/28/89
MANAGER, HARPERS FERRY CENTER DATE

APPROVED: Terry R. Carlstrom / for 6/6/89
REGIONAL DIRECTOR, NATIONAL CAPITAL REGION DATE

PACKAGE DESCRIPTION

RESOURCES

The resources included in this package and task directive are historic buildings 32, 33, 33A, 34, 34A, 35, and 36 which are all located within one block of the lower town historic district of Harpers Ferry National Historical Park. Buildings 32 through 36 are located on the south side of Shenandoah Street just west of High Street.

PURPOSE OF THE PACKAGE WORK

This package will implement the recommended development actions contained in the approved 1980 Development Concept Plan, the Interpretive Prospectus, and the Environmental Assessment. These actions call for all structures in this package to be used for interpretative purposes on the ground floors with various usages on the upper floors (i.e. park offices, storage, residential, etc.). The exteriors of the structures will be preserved/restored to their nineteenth century appearance.The designs for bulding restoration/rehabilitation will mitigate adverse effects of flooding.

PURPOSE OF TASK DIRECTIVE

This task directive is written to provide an understanding between the various NPS offices for the tasks, responsibilities, and time schedules to accomplish the development objectives for this package.

DESCRIPTION / JUSTIFICATION OF PACKAGE TASKS

A copy of the 10-238, Development/Study Package Proposal for Package 116 is attached.

The first phase of this package is an abbreviated evaluation of the condition and significant features of each structure. The evaluation is undertaken to provide management with information to decide the most appropriate use and treatment for each building.

The second phase of this package are Historic Structure Reports for treatment of historic structures that require major intervention. Historical, archeological, architectural, and engineering research of the buildings will be performed in

accordance with National Park Service (NPS) policies and standards. It will also provide management with additional and sufficient information to implement preservation and rehabilitation of the structures.

The third phase is the production of construction documents, and it is anticipated that the work will be performed by a combination of in-house NPS services and A/E contract.

The fourth phase is the construction work for treatment (rehabilitation/ preservation, etc.) of these structures by a construction contractor and includes construction supervision by DSC personnel.

The fifth phase is Post Construction and will include as - built drawings, and a one year follow up inspection.

The sixth phase is the production of Historic Structures Preservation Guides to direct continuing preservation of each structure.

LEGISLATION/COMPLIANCE

LEGISLATIVE MANDATES

Public Law 386, approved in June, 1944 established Harpers Ferry National Monument for the purpose of commemorating historical events at or near Harpers Ferry. Since that time, legislation has changed the name to Harpers Ferry National Historical Park and made additional boundary changes.

POLICIES AND GUIDELINES DIRECTLY RELATING TO PROJECT

NPS Management Policies
NPS-28, Cultural Resource Management Guidelines
NPS-10, Drawing Format and Drafting Practices Guideline

NATIONAL REGISTER STATUS

Harpers Ferry National Historical Park is included in the National Register of Historic Places as a Historic District and the buildings within this package are all contributing features to the District.

106/11593 COMPLIANCE STATUS

Because Harpers Ferry NHP is included in the National Register of Historic Places, it is protected by Section 106 and 110(f) of the National Historic Preservation Act, as amended, and its implementing regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). Compliance with the appropriate regulations is covered under a Programmatic Memorandum of Agreement which is in effect with the West Virginia State Historic Preservation Officer and covers those actions recommended in the 1980 Development Concept Plan. Any actions proposed in the Historic Structure Reports which deviate from the recommendations of the DCP must be reviewed by the Advisory Council and the West Virginia State Historic Preservation Officer. Documentation of compliance with Section 106 of the National Historic Preservation Act for actions which were recommended in the DCP will be accomplished through the Assessment of Effect (XXX) Form and Process.

NEPA COMPLIANCE STATUS

The work proposed in this package was described in the approved Development Concept Plan and is therefore covered by the finding of no significant impact (FONSI) for the DCP, which was signed by the Regional Director, National Capital Region on February 27, 1979.

PLANNING AND RESEARCH BACKGROUND

The following approved documents that impact the proposed work are:

Assessment of Alternatives	July, 1978
Environmental Review of Alternatives	Febuary, 1979
Development Concept Plan:	March 1980
Interpretive Prospectus:	May 1980
Resource Management Plan:	December 1987
Statement for Management:	January 1986

SCOPE OF PROJECT PHASES

General: The project will be broken down into six phases. Parts of the different phases and tasks will be the responsibilities of various offices including the Denver Service Center (DSC), the Regional Office (NCR) , Harpers Ferry National Historical Park (HAFE),and Harpers Ferry Center (HFC). Co-ordination of tasks will be outlined in the individual project phases.

Abbreviated Evaluation: The abbreviated evaluation will consist of a field investigation by DSC project team. The evaluation will be based on existing drawings and field investigation of the condition and historical integrity of building fabric and spaces. It will include:

- scaled line drawings of all floors of each building and building section(s) indicating floor level relationships.
- a rating of the general fabric condition and historical integrity of the fabric (quality and character) of each space.
- calculations of floor area by room.
- overview of the appropriate codes for possible uses of the buildings.
- estimates of existing floor loading capacities.
- evaluation of which considered uses are most appropriate.

The result of the evalution will be a briefing presentation given to the regional and park managers. A briefing hand-out will be produced to summarize findings and will be available at the meeting. A decision on use and treatment to determine which structures need major intervention will be made by park and regional staff in order for DSC to proceed with the appropriate level of planning , if any.

Historic Structures Report: The Historic Structures Report and Assessment will be prepared in acccordance with NPS-28 to support the proposed use and treatment developed in the course of the Abbreviated Evaluation. As appropriate, the documents will record and analyze all periods of construction, modifications, materials, building techniques, evidence of use, and areas of

deterioration. The report will collect, evaluate, and present historical, archeological, architectural, and engineering data. It will also develop, analyze, and recommend alternative treatments (preservation, stabilization, adaptive restoration) for the structures. The report will contain the Administrative Data Section, the Physical History and Analysis Section-subdivided into Historical, Archeological, and Architectural/Engineering Components...and an Annotated Bibliography as required by NPS-28. Physical investigation will be "Thorough" as described in NPS-28.

The sections of the HSR will consist of and will be the responsibility of the following offices.

- The Administrative Data Section will initially be prepared by the Superintendent and staff for each structure, and finalized by DSC staff.
- The History Data Section will consist of social and building evolution information up to 1989. This section will be prepared by Park historians and will be the responsibilty of the Park and Region.
- The Archeological Data Section will be the responsibility of the Park and Region.This section will document porches and other additions that have since disappeared, as well as changes in building size and configuration. in addition, this package will study outbuildings and the changing landscape of the backyards.Finally, compliance will be provided for any ground-disturbing construction. A management summary will be incorporated into the Architectural Data Section.
- The Architectural Data Section consisting of the physical analysis of building fabric and existing conditions drawings and will be prepared by the Denver Service Center.

The Historic, Archeological, and Architectural Data Sections will be printed as separate documents by the office(s) responsible for that individual task. The Administrative Data Section will be incorporated into the Architectural Data Section as will portions of information from the Historic and Archeological Data Sections.

Construction Documents: The construction documents for all buildings in this package will provide for the construction of the approved recommended treatments as described in the Historic Structure Reports. The drawings and specifications will be prepared under the direction of a Denver Service Center historical architect with assistance/support, as required, by an Architect/Engineer consultant who specializes in the field of historic preservation. The Denver Service Center will be responsible for processing contracts under this package.

Construction: Contracts under this package will be the responsiblity of the Denver Service Center. Project supervisor(s) assigned to the project(s) will have historic preservation experience and will work closely with the project architect(s) that were involved in the planning and construction document phases.The historical architect(s) responsible for research and preparation of the construction documents will oversee the review of submittals, and also be responsible for the technical interpretation of design work, as well as other matters relating to the preservation work. The Contract will be the responsibility of the Contracting Officer at the Denver Service Center.

Post Construction: After construction is completed, the Denver Service Center will provide as-built drawings, microfische, and will also provide a one year follow up inspection to the project.

Historic Structure Preservation Guides: After the appropriate level of planning and construction is accomplished for each structure under this package, a series of guidelines will be produced to direct park maintenance and management in the long range preservation of the structures. At this point in time, this task may be accomplished by the park, the region or DSC personnel, as agreed later.

PROJECT SCHEDULE

Prepare Task Directive (DSC)	April 1989
Phase 1, Evaluation of Buildings 32,33, 33A,34,34A,35,and 36 (DSC)	April 3, 1989 - May 1, 1989
Decision of Planning Requirements (HAFE,NCR)	May 8, 1989
Phase 2, Historic Structure Reports: Historic Data 32,33,33A,34,34A, 35 and 36 (HAFE)	January 3, 1989 - Sept. 15, 1989
Archeological Data Section	May 9, 1989
Complete Fieldwork	December 31,1989
Complete Research Report	Sept. 30, 1990
Management Summary (HAFE)	August 31, 1989
Architectural Data 32,33,33A,34, 34A,35, and 36 (DSC)	Febuary 1, 1989 -Sept. 28,1990
Phase 3, Construction Documents 32,33,33A, 34,34A,35 and 36 (DSC)	January,1991 - Dec. 31,1991
Phase 4, Construction 32,33,33A,34,34A, 35, and 36 (DSC)	April 15, 1992 - April 15,1993
Phase 5, Post Construction 32,33,33A,34,34A 35,and 36 (DSC)	April, 1993 - April, 1994
Phase 6, Preservation Guides 32,33,33A,34, 34A,35, and 36 (To Be Determined)	April, 1993 - Dec. 31, 1993

PROJECT FUNDING FOR DENVER SERVICE CENTER

FY 1989
Type 35, Historic Structure Reports, $300,000.00 available funding.

Based on the work load analysis for Historic Structure Reports to be produced on each structure; and the request for a building evaluation prior to the planning process, the estimated funding required is $750,000.00. This funding would be available over a two year period FY 1989 - FY 1990. The advance planning would be completed on September 28, 1990.A more accurate funding requirement will be developed after the building evaluation phase and a decision by the Park and Region as to how they wish the project to proceed.

FY 1990/1991
Type 36, Construction Documents, $800,000.00 programmed funding.

Based on the work load analysis that anticipates major intervention on each structure, the estimated funding required is $1,000,000.00. This funding would be available over a two year period FY 1991 - FY 1992. If advance planning needs are redefined in FY 1989, the schedule and funding requirements will be adjusted.

FY 1992
Type 91, Construction,$8,000,000.00 gross programmed funding.

Funding requirements will be adjusted based on advance planning documents produced in Phase 1.

FY 1993
Type 39, Preservation Guides, $200,000.00 estimated funding.

Funding for the production of the guidelines will come from Type 91 funds already programed for this package.

PROJECT PERSONNEL

Anthony Donald Eastern Team, DSC	Team Captain - Architecture
Dennis Frye Harpers Ferry NHP	Team Captain - History
Susan Frye Harpers Ferry NHP	Team Captain - Archeology
Dr Paul Shackel Harpers Ferry NHP	Research Archeologist
Deborah Hull Harpers Ferry NHP	Archeology Lab Director
Thomas Fields Eastern Team, DSC	Architect
Steven Doulis Eastern Team, DSC	Architect
Susan Shufelt Eastern Team, DSC	Architect
Krista Pace Harpers Ferry NHP	Park Historical Architect
Donald Campbell Harpers Ferry NHP	Superintendent
To Be Selected Eastern Team, DSC	Engineering (Structural, Mechanical & Electrical)
To Be Selected Eastern Team, DSC	Compliance Specialist (Cultural and Environmental)
To Be Selected Harpers Ferry Center	Interpretive Planning, Historic Furnishings, Etc.

PARK AND REGIONAL CONSULTANTS

Paul Lee Harpers Ferry NHP	Chief of Interpretation
Rebecca Stevens National Capital Region	Regional Historical Architect
Dr. Steven Potter National Capital Region	Regional Archeologist
Gary Scott National Capital Region	Regional Historian
Fred Doyle National Capital Region	Regional Special Populations Coordinator
Kathy Menz National Capital Region	Interpretive Planner
Vernon Smith National Capital Region	Harpers Ferry Coordinator

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

DEVELOPMENT/STUDY PACKAGE PROPOSAL

PACKAGE NO. 116
REVISION NO.

ORG NO	PARK (OR OTHER ORIGINATOR)	DEVELOPED AREA (NAME)	D A CODE	REGION
3850	Harpers Ferry Nat'l. Hist. Park	Park General	PG	NCR

STATE	STATE CODE	COUNTY(IS)	CONGRESSIONAL DISTRICT(S)
West Virginia	WV	Jefferson	02

PACKAGE TITLE: REHAB BLDS 32-35/ SECURITY & PROTECTION

STUDY PACKAGE D
NEW CONSTRUCTION B D
REHABILITATION A X

NEW PACKAGE D
REVISION N

CRITERIA (INSERT X's)	PARK PRIORITY	DATE	REGION PRIORITY	DATE
X X X X	8	6/17/81		

PROGRAM THRUST, STATUS AND OTHER INFORMATION

WILL ADDITIONAL OPERATING FUNDS AND POSITIONS BE NEEDED UPON COMPLETION OF THIS PACKAGE? YES X
(IF 'YES' EXPLAIN NEEDS IN SECTION XI OUTLINE OF PLANNING AND MANAGEMENT REQUIREMENTS) NO O

FULL PACKAGE DESCRIPTION

Exteriors of buildings 034 and 035 will be preserved and restored as they now stand with the first floor interiors used as exhibit spaces and the remaining floors as dorm/apartments for park and training center use. See Pkg. 0117 for site development.

Exterior restoration of buildings 32, 33 with the first floors used for exhibit space and the remaining floors as apartments for National Park Service use. Site development of rear yard for use as craft exhibit area.

PACKAGE JUSTIFICATION/CONSEQUENCES

Buildings 32, 34, and 35 are in such a state of disrepair that effective maintenance and proper utilization is precluded and visitor and employee safety from a collapsing facade or overhang, fire or similar occurance, is an ever present threat.

Building 33 is used as a flood barrier to protect the remaining historic buildings in town. It too requires extensive restoration work.

PLANNING AND MANAGEMENT REQUIREMENTS *(Follow instructions and outline provided in Program Formulation Guideline)*

This package has a direct interrelationship with package numbers 110, 112, 113, 115 and 118. Historic Structures Report will be required. The package further relates to park objective of restoring the park to its mid 19th Century appearance as well as to preserve and maintain the historic structure in order to postpone further deterioration.

ORIGINATOR (Signature and Title)	DATE	CONCURRENCE (Signature of Superintendent or Equivalent Official)	DATE
		David Campbell	4/20/82

APPROVAL (Signature of Regional Director or Equivalent Official) DATE

Outline of Planning & Management Requirements

I. Background & Status

Exteriors of buildings #34 and #35 will be preserved and restored as they now stand with the first floor interiors used as exhibit spaces and the remaining floors as dorm/apartments for park and training center use. See pkg. #117 for site development.

(Continued on page 2 See XI.)

II. Limitation & Influences

A N/A

B N/A

C N/A

D Continuous project

E Interest of Senator Byrd

F Completed

G In progress

H N/A

I 32-33 34-35

J N/A

III. Planning-Design-Construction

A Being programmed

1 Being programmed
2 Being programmed
3 Being programmed

B In progress

C In progress

D N/A

E Electric & water

F N/A

G Unknown

H N/A

IV. Archeology

As needed

V. Historic Architecture

A As needed

B As needed

VI. Museum Exhibits & Audiovisual

A Programmed

B Programmed

C Programmed

D Programmed

E Programmed

F Programmed

VII. Natural Science Resource Problems

A N/A

VIII. Water Resources

N/A

IX. Environmental Documentation

As needed

X. Other Studies Required

As needed

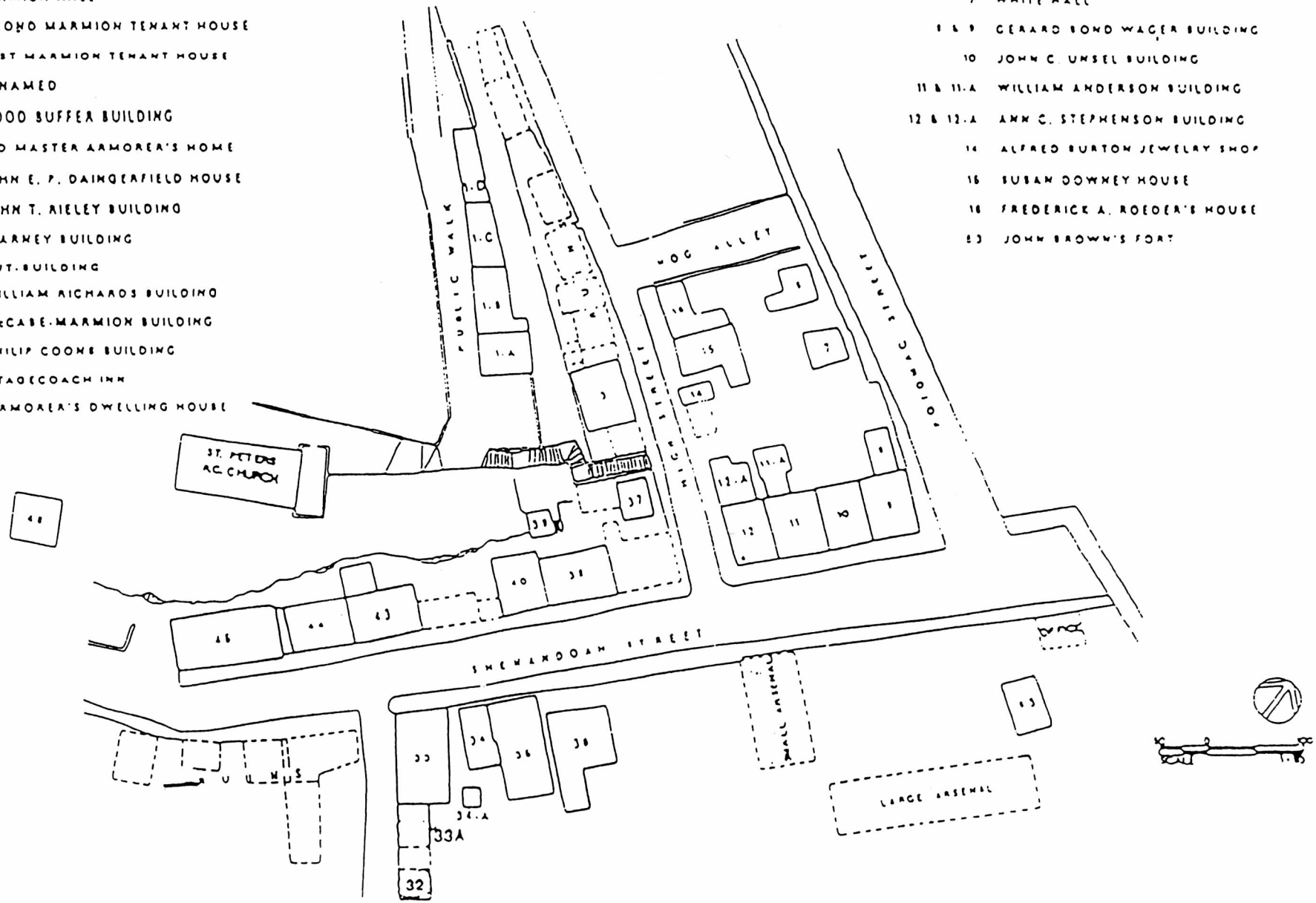
XI. Additional Operating Needs

(Continued from page 1 See I.)
Exterior restoration of buildings 32, 33 with the first floors used for exhibit space and the remaining floors as apartments for National Park Service use. Site development of rear yard for use as craft exhibit area.

NOTE: This form to be attached to 10-238

1-A HARPER HOUSE
1-B MARMION HALL
1-C SECOND MARMION TENANT HOUSE
1-D FIRST MARMION TENANT HOUSE
3 UNNAMED
32 & 33 FLOOD BUFFER BUILDING
34 & 35 34A OLD MASTER ARMOREA'S HOME
36 JOHN E. P. DAINGERFIELD HOUSE
37 JOHN T. RIELEY BUILDING
38 TEARNEY BUILDING
39 OUT-BUILDING
40 WILLIAM RICHARDS BUILDING
43 McCABE-MARMION BUILDING
44 PHILIP COOMB BUILDING
45 STAGECOACH INN
48 ARMOREA'S DWELLING HOUSE

5 FREDERICK A. ROEDER'S STORE
7 WHITE HALL
8 & 9 GERARD BOND WAGER BUILDING
10 JOHN C. UNSEL BUILDING
11 & 11-A WILLIAM ANDERSON BUILDING
12 & 12-A ANN C. STEPHENSON BUILDING
14 ALFRED BURTON JEWELRY SHOP
15 SUSAN DOWNEY HOUSE
16 FREDERICK A. ROEDER'S HOUSE
53 JOHN BROWN'S FORT



EXISTING HISTORIC BUILDINGS IN LOWER TOWN

NATIONAL CAPITAL TEAM

REVISED 3/27/89

Documentary Sources Reproduced

Related Correspondence

United States Department of the Interior

NATIONAL PARK SERVICE
Harpers Ferry Center
HARPERS FERRY, WEST VIRGINIA 25425

IN REPLY REFER TO:
H3019 (HFC-HF)
HAFE

July 20, 1990

Memorandum

To: Regional Director, National Capital Region

From: Chief, Division of Historic Furnishings

Subject: Options for Interpreting Buildings 34/35 and 32 (Package 116), Harpers Ferry NHP

During the last several weeks we have conducted a review of the history of the subject buildings. Attached are the results of this review, followed by the options that we have identified for interpretation through historic furnishings.

We anticipate some discussion regarding the buildings' treatment in upcoming meetings and are requesting that you designate the interpretive treatments by August 10, 1990 so that we can proceed with planning. You may direct any questions to Carol Petravage at FTS 925-6120.

/s/ John P. Brucksch

John P. Brucksch
Acting Chief

Attachment

cc: Assistant Manager, DSC/TEA
Tony Donald, DSC/Falls Church
Dwight Pitcaithley, NCR
George Vasjuta, NCR
Superintendent, HAFE
Linda Finn, HFC-IP

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DENVER SERVICE
EASTERN
FALLS CHURCH

Historical Summary

BUILDINGS 34/35:

1812-1818 A 2-1/2 story brick building with basement kitchen was built by Joseph S. Annin for use as a residence and apothecary. (Snell, Historic Building Report, Part II)

1818-1858 Used as the Master Armorer's Quarters for the Armory. (Snell)

1827 One story 20' x 22' brick addition with slate roof added as kitchen wing. (Snell)

1858-1859 Paymaster Clerk John E. Daingerfield took up residence in November and remained until new Master Armorer's quarters were completed. (Snell)

1859-1861 After the John Brown Raid in 1859, intermittently served as the Recruiting Office and officers' quarters. (11/1859-04/1860 and 02/1861-04/1861.) During the other periods it was probably vacant.

1864 Operated as the Stipes boarding house from at least August 9 to at least December 1864. (Taylor, The James E. Taylor Sketchbook)

1869-1880 Building auctioned by Federal Government and purchased by the minor children of James McGraw. (Fisher, Draft of Historic Structures Report) The family assumed residency and began operation of their store in Spring 1870. Prior to this, for an undetermined period, a milliner, Ann Kirby, and her children resided in the building. In 1880 the McGraw children acquired the deed from the Government and conveyed the title to their father. (Snell)

1882 McGraw family moved to a new structure and made alterrations to the building they vacated. The kitchen wing was taken down, and the salvaged building materials incorporated into a 2-1/2 story brick building the same height and depth as the main structure. The second story balcony may have been extended at this time. (Snell)

1884-1888 The Harpers Ferry Post Office moved into the right half of the renovated structure (Building 34). Frances McDonnell, a bonnet-maker, and her sister may have been boarders in the building. (Snell) M. Cohen & Company, clothiers, began operation in the structure in 1888. (Spirit of Jefferson)

1891-1896 McGraw again renovated his former residence now known as the McGraw Post Office Building by adding a third story to both halves of the building, and adding on a wing to the rear of Building 35. The alteration resulted in two large storerooms and 26-30 boarding rooms. (Spirit of Jefferson, 07/28/1891) By 1894 the storeroom in Building 35 was rented out as a dry goods store. (Sanborn map) I.V. Pentz opened a general store in one of the storerooms in 1896. (Spirit of Jefferson, 11/10/1896)

1897 Property assigned to James M. Mason, Jr. (Fisher)

1901-1928 William Doran purchased the McGraw Post Office Building for $4775 to operate a general store in the lower floors, and a boarding house in the upper floors and rear wing of Building 35. (Jefferson County Deed Book) It is unclear if Doran began his store immediately, as a 1902 map shows a variety store located in the former space of the Post Office. (Sanborn map) By 1907 the entire first story was operated as a general store. (Sanborn map) A 1910 photo documents the Doran General Store in this location. (HAFE photo file) By February 1926, the Doran family had closed their business. The Jefferson Baking Company began operations in their former space a few months later, and in late 1926 Charles Hutchinson opened a dentistry practice in the building, probably on the second floor. (Spirit of Jefferson) By Spring 1928 the Jefferson Baking Company had been sold at public auction. (Spirit of Jefferson, 05/31/28)

1947-1952 Mary Cecilia Doran, and Josephine and John Delauder conveyed 2/3 interest in property to William Doran. (Jefferson County Deed Book) William and Mary Elizabeth Doran sold the property to the State of West Virginia. (Jefferson County Deed Book)

BUILDING 32:

1820-1835	Building appears to have been a stable for the Master Armorer's Quarters, and is shown fronting on Market Street in the southwestern corner of Government Lot 3. (Historic map)
1870-1877	McGraw removed a stable that was swept onto Market Street by the floods. (Fisher) He rebuilt a 16' x 20' ice, carriage & coal house on the old foundations. (Fisher)
1894-1902	The ice & coal house were incorporated into a beer bottling complex built by James C. McGraw. By 1902 it had become a storage area within the bottling plant. (Sanborn maps)
1899	The western portion of Block B, Lot 3 was sold by Special Commissioners for the McGraw chancery case to J.P. Haddox and Ralph and Joseph H. Savage. (Jefferson County Deed Book)
1907	J.P. Haddox and Joseph H. Savage sold the portion of Lot 3 that includes the ice & coal house to Mary Ellen Doran. (Jefferson County Deed Book) The ice & coal house was vacant. By 1912, the Dorans were using the structure as an ice storage area. (Sanborn map)
1922	The structure is noted as a cement warehouse on a fire insurance map. (Sanborn map)
1933-1952	The building was vacant by 1933. (Sanborn map) In 1947, William Doran and Josephine and John Delauder conveyed their 2/3 interest to Mary Cecilia Doran. She sold the property to the State of West Virginia in 1952.

Options for Interpretation

BUILDING 34/35:

1. Furnish Building 34 as an 1860s Provost Marshall's Office and Building 35 as James McGraw's grocery/liquor store in 1859. This approach supplies a military presence on Shenandoah Street enabling the interpretation of the Civil War theme. The furnishing of James McGraw's store associates McGraw with the

block of buildings he later purchased and significantly altered, and allows the interpretation of the themes of 19th century trade and industrialization. However, neither of these establishments existed in this location in the period to be interpreted. Also, the present building is significantly different in size and form from the structure that existed in 1859. The building has been altered from 2-1/2 stories with a one-story offset wing (its appearance in 1859) to a three-story building with rear wing, fronting entirely on Shenandoah Street. Very good documentation exists for items in McGraw's grocery/liquor store, which was located in 1859 on Wager Lot 48. This could be used to furnish the storeroom in the subject location. A partition would have to be installed to delineate the historic 1859 space in Building 35.

2. Furnish to an 1861-64 Recruiting Office on the lower floor with the Stipes boarding house on the second floor. This approach allows the interpretation of a military presence that was actually located in Building 35 during the period of interpretation. The use as a hotel is well documented through James Taylor's account of his stay in the structure, which includes an interior sketch of the room he used. However, as stated above, the size and layout of the present building is significantly different from the 1860s building. Partitions should be installed to delineate 1861 space use in Building 35. Since visitor access to the upper floors may be difficult, all or part of Taylor's room could be installed in Building 34 as a furnishings exhibit, rather than a furnished room.

3. Furnish to the 1882-83 James McGraw grocery/liquor store in the first floor storerooms. This approach enables the interpretation of 19th century industrialization and trade, and the Civil War themes could be interpreted by staff in retrospective. Documentation exists from both his earlier store and from the 1890s estate sale by the son, James C. McGraw, to enable the furnishing of the 1883 business operation that existed within the structure. This option would further enable the interpretation of the rear yard which James McGraw used as part of his coal and grocery businesses. The present building has a layout that is much closer to the 1880s building than to the 1860s building, making the furnishings effort much more authentic.

BUILDING 32:

1. Furnish to the ice, coal, & carriage house built by James McGraw in the 1870s. This approach would entail little architectural impact on the present structure. Construction of a two-story frame shed off the southern wall, facing towards the railroad trestles, would be required to restore Building 32 to its post Civil War appearance.

2. To choose not to interpret Building 32, thus requiring no alterations to the present structure.

HAFE-116.33

United States Department of the Interior

NATIONAL PARK SERVICE
HARPERS FERRY NATIONAL HISTORICAL PARK
P.O. BOX 65
HARPERS FERRY, WEST VIRGINIA 25425

IN REPLY REFER TO:
D18(HAFE)

NOV 30 1990

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1990

Memorandum

To: Chief of Design, Falls Church Branch, Eastern Team, Denver Service Center

From: Superintendent, Harpers Ferry National Historical Park

Subject: Schematic Design for First Floor Buildings 33 & 33A, Package 116

Attached is the schematic design which the park supports for the first floors of Buildings 33 and 33A. This design meets the needs of the Division of Interpretation and Cultural Resource Management and the Division of Natural Resources and Visitor Protection along with respecting the building fabric and spaces of the historic structures.

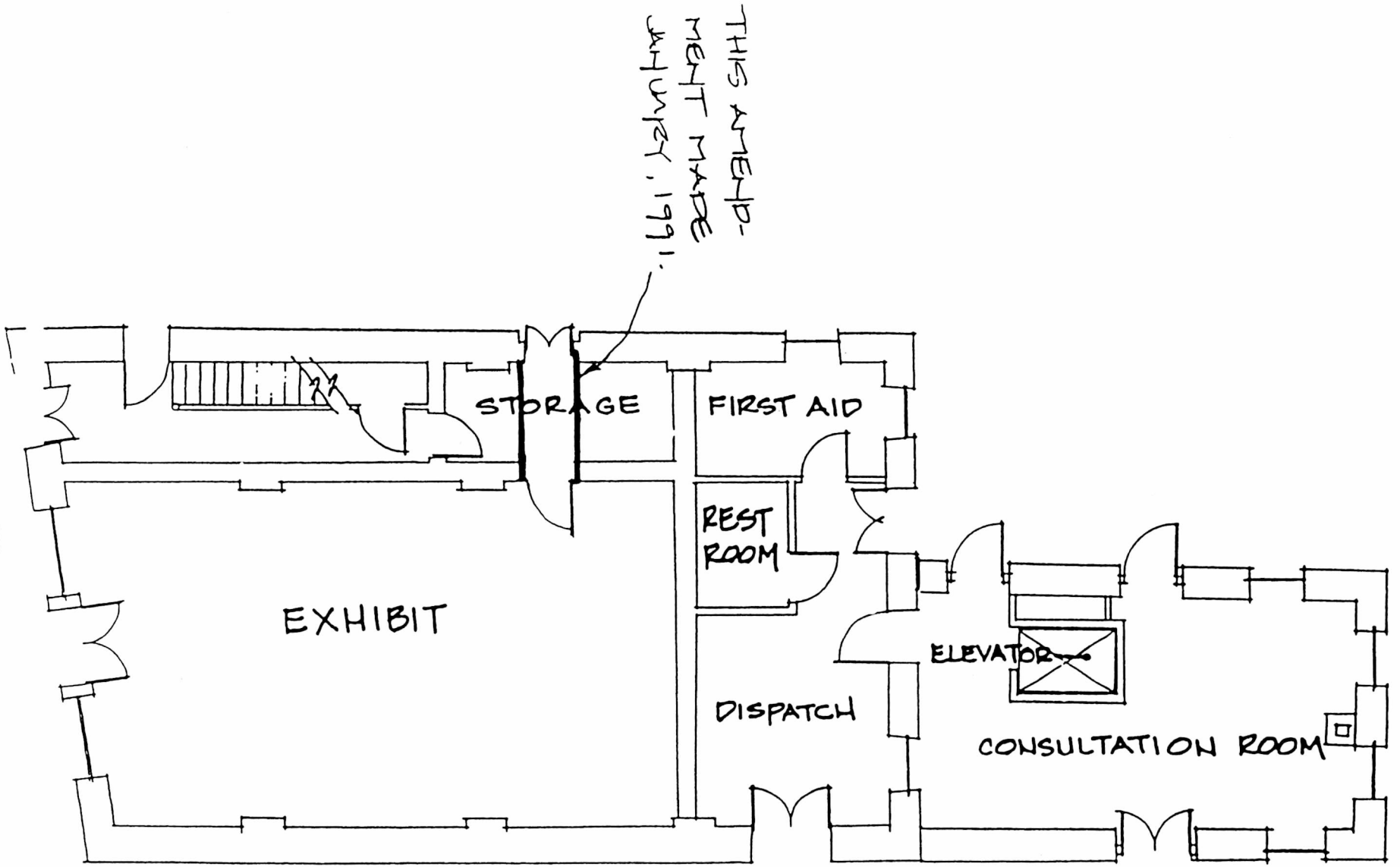
Building 33 will house both an exhibit on Harpers Ferry and visitor related functions of the Division of Natural Resources and Visitor Protection. The scheme allows for high profile access for the public to the Dispatch Officer located directly off of Market Street. A disabled accessible restroom and first aid room are located immediately off of the dispatch area. A storage room for ranger climbing and rescue equipment is accessible from the front stairway corridor.

Building 33A houses a private Consultation Room where rangers can handle briefings, interrogations, and calm families and friends of visitors who may be lost or in trouble. The interior will remain a large open space. The historic finishes are to be restored. The new elevator/lift will be housed within the historic elevator shaft. Lighting, HVAC, and other necessary requirements for this space are to be designed with minimal intrusion on the historic fabric and in a way that makes the historic interior an asset instead of a constraint.

Please develop this schematic design within the other needs of the building program.

Donald W. Campbell

cc:
Regional Director, NCR



BUILDING 33 & 33A SCHEMATIC DESIGN

United States Department of the Interior
NATIONAL PARK SERVICE
DSC-EASTERN TEAM
FALLS CHURCH BRANCH
6245 LEESBURG PIKE, 4TH FLOOR
FALLS CHURCH, VIRGINIA 22044

IN REPLY REFER TO
D52 (DSC-EAF)

MAR 18 1991

Memorandum

To: Files

Through: Chief, Falls Church Branch, Eastern Team, Denver Service Center

From: Chief, Design Section, Falls Church Branch, Eastern Team, Denver Service Center

Reference: Harpers Ferry National Historical Park, Package No. 116, Project Type 35, Rehabilitate Buildings 32 through 36

Subject: Minutes of Meeting on January 16, 1991

The meeting commenced at 10:00 a.m., in Building 9 at Harpers Ferry National Historical Park. The following individuals were in attendance:

Don Campbell, Superintendent, HAFE
Todd Bolton, HAFE
Krista Pace Copeland, HAFE
Maureen DeLay, HAFE
Richard Fox, HAFE
Dennis Frye, HAFE
Susan Frye, HAFE
Cathy Gilbert, HAFE
Dwight Pitcaithley, NCR
Vernon Smith, NCR
Rebecca Stevens, NCR
Carol Petravage, HFC
David Amundson, Oehrlein & Associates
Ellen Pratt Harris, Oehrlein & Associates
Tony Donald, DSC-EAF

The purpose of the meeting was to provide the Architect/Engineer contractor (Oehrlein & Associates) with background data which would impact their work on accessibility and circulation studies for Buildings 32 through 36. The meeting followed the attached agenda.

The park was concerned that the accessibility/circulation studies would conflict with the cultural landscape study presently underway by park staff. It was explained that the A/E studies will work in harmony with the park's p nning, and the A/E work is more relevant to specific quest ons on how the visitor might enter into the buildings and what paths they might follow to those entrances. The cultural landscape study is looking at a much broader picture of the Lower Town area and there should not be a duplication of efforts.

Of specific note; the Shenandoah Street elevation for Package 116 is to maintain its historic character. The grades in the rear yards of this package are to remain at their existing (approximate) level, and the overall appearance of the rear yards will not be designed to interpret any one point in time, but would look towards the late nineteenth centur as a cont cl point to start.

The A/E will be given the latest copies of documents and research relating to Package 116. These include history, archeology, the park's building accessibility study, task directive for the cultural landscape study, proposed floor plan of Building 33, and a copy of the Uniform Federal Accessibility Standards (UFAS). The park also consented to providing laser quality copies of any relevant photographs for the Package 116 complex.

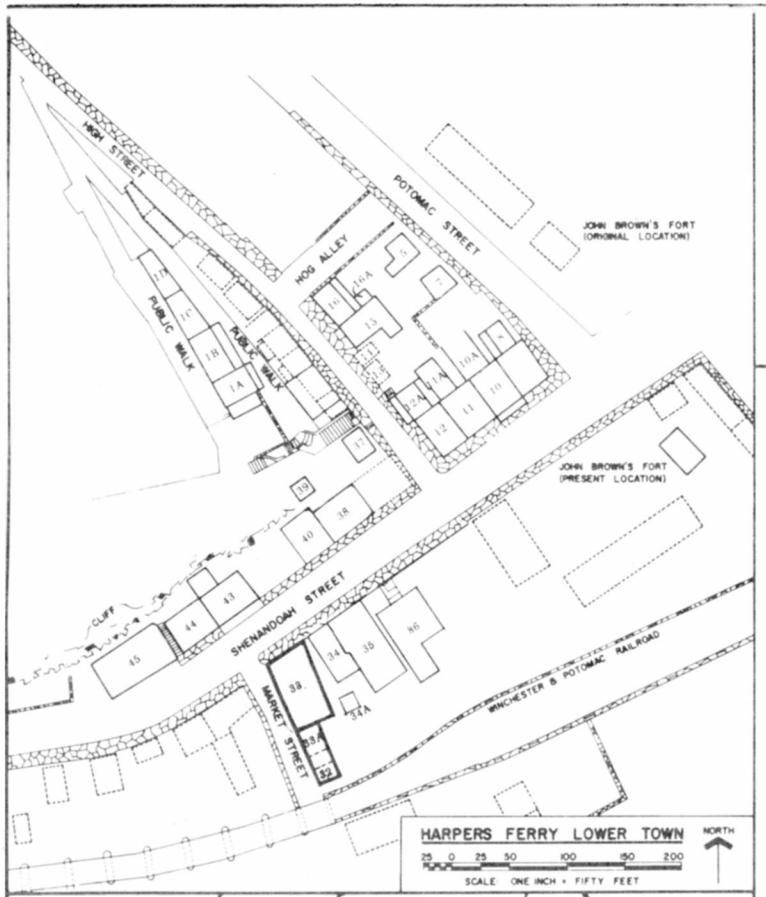
The meeting adjourned at 12:00, with the next presentation by the A/E to be made on February 14, 1991, at 10:00 a.m., at the Falls Church office of the Denver Service Center.

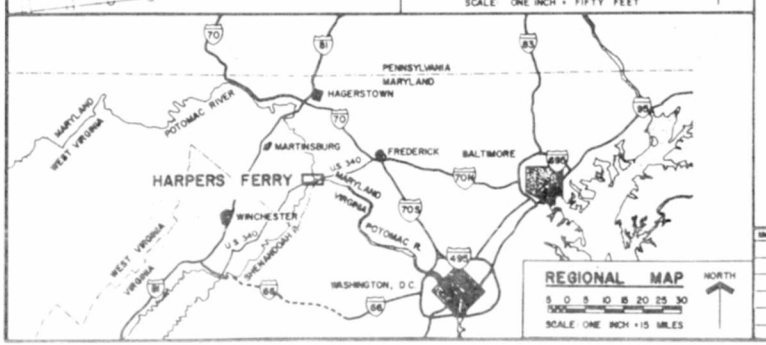
Anthony S. Donald

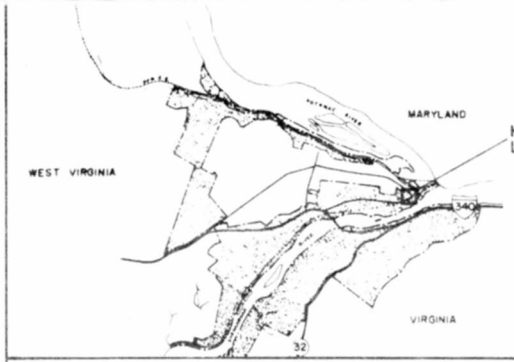
cc: All Meeting Attendees

APPENDIX D

Existing Conditions and Proposed Work Drawings



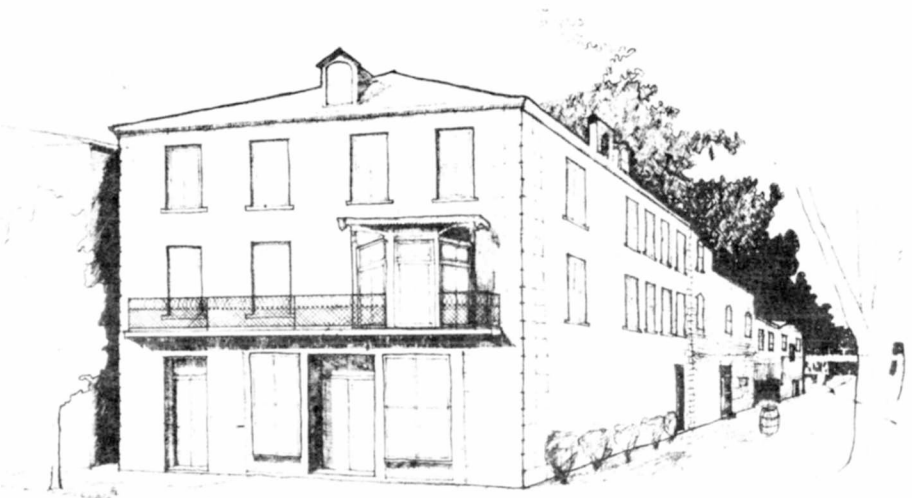




NATIONAL PARK SERVICE
Department of the Interior

HISTORIC STRUCTURES REPORT DRAWINGS

BUILDINGS 32, 33A, AND 33



Harpers Ferry N. H. P.

Mark	Sheet	REVISION	Date	Initial

RECOMMENDED
Assistant Manager — Date
Superintendent — Date
APPROVED
Director — Region — Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DENVER SERVICE CENTER

PREPARED
DESIGNED
DRAWN ASD
CHECKED 6/92
DATE

TITLE OF DRAWING
COVER SHEET
LOCATION WITHIN PARK
LOWER TOWN
NAME OF PARK
HARPERS FERRY NATIONAL HISTORICAL PARK
NCR REGION — JEFFERSON COUNTY — WEST VIRGINIA STATE

DRAWING NO. 305 25024
HFNP PHS 116 1 of 68

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ABBREVIATIONS AND SYMBOLS

AFF	ABOVE FINISHED FLOOR
AG	AT GRADE
BLDG	BUILDING
BLKHD	BULKHEAD
CPT	CARPET
CT	CERAMIC TILE
CLR	CLEAR
COL	COLUMN
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
DK FIN	DARK FINISH
DBL	DOUBLE
DN	DOWN
E	EAST
EXP	EXPOSED
EXIST	EXISTING
EXT	EXTERIOR
FIN	FINISH
FNDTN	FOUNDATION
GYP BD	GYPSUM BOARD
HT	HEIGHT
HC	HOLLOW CORE (WOOD)
HM	HOLLOW METAL
INT	INTERIOR
MAT	MATERIAL
MECH	MECHANICAL
N	NORTH
NE	NORTHEAST
NW	NORTHWEST
NO	NUMBER
OC	ON CENTER
PLYWD	PLYWOOD
R	RISER
RM	ROOM
SHT	SHEET
S	SOUTH
SE	SOUTHEAST
SW	SOUTHWEST
SATC	SUSPENDED ACOUSTICAL TILE CEILING
T & G	TONGUE AND GROOVE
T	TREAD
TYP	TYPICAL
UE	UNDERGROUND ELECTRIC LINES
UT	UNDERGROUND TELEPHONE LINES
W/D	WASHER AND DRYER
W	WEST

@	AT	±	PLUS OR MINUS
℄	CENTER LINE	W/	WITH
Ø	DIAMETER		

AREA OF VISIBLE CRACKS IN PLASTER

AREA OF LOOSE PLASTER

AREA OF EXPOSED WOOD LATH

BRICK (IN SECTION)

CONCRETE OR STUCCO (IN SECTION)

CONCRETE BLOCK WALL (IN SECTION)

STONE (IN SECTION)

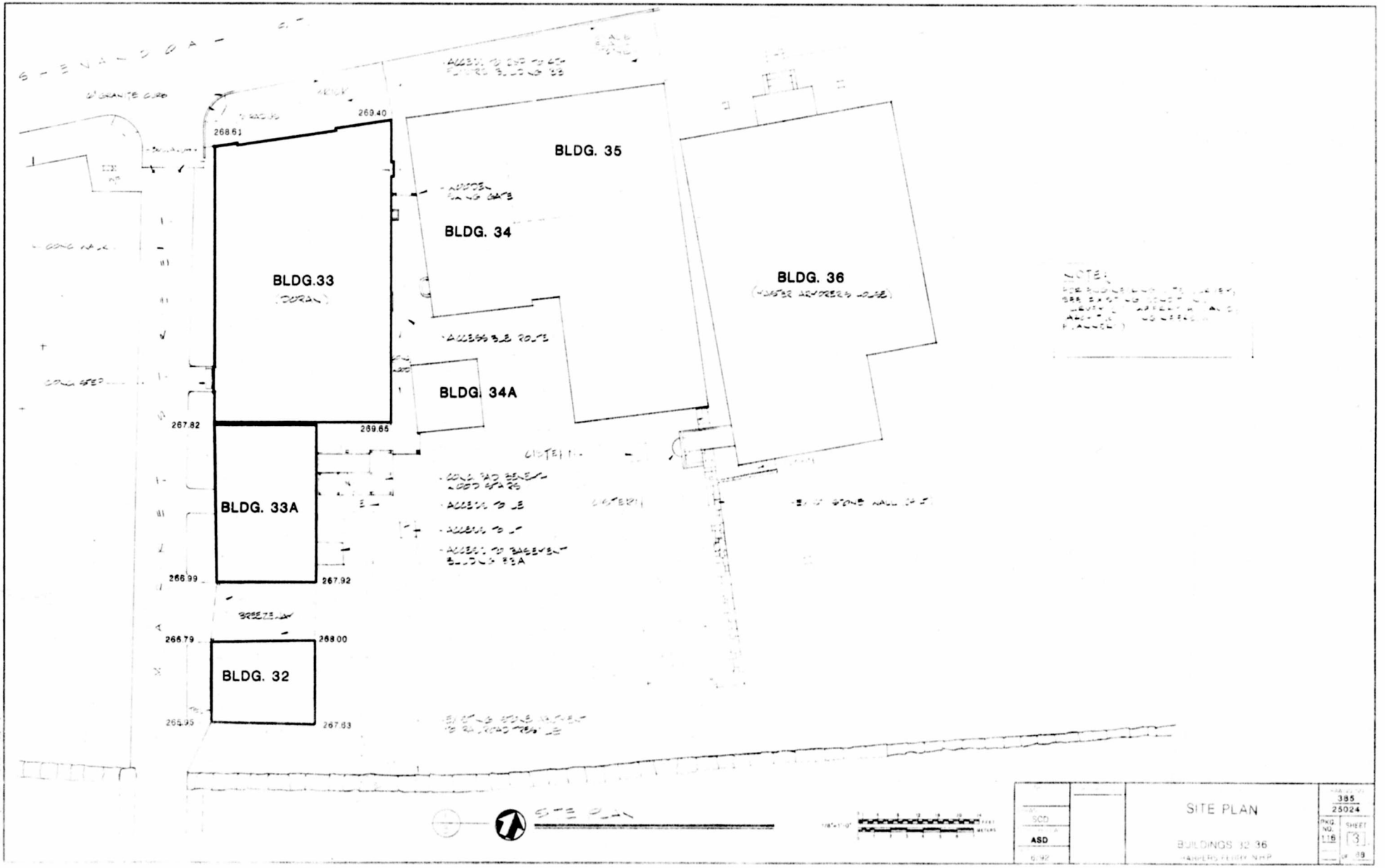
WOOD (IN PLAN AND SECTION)

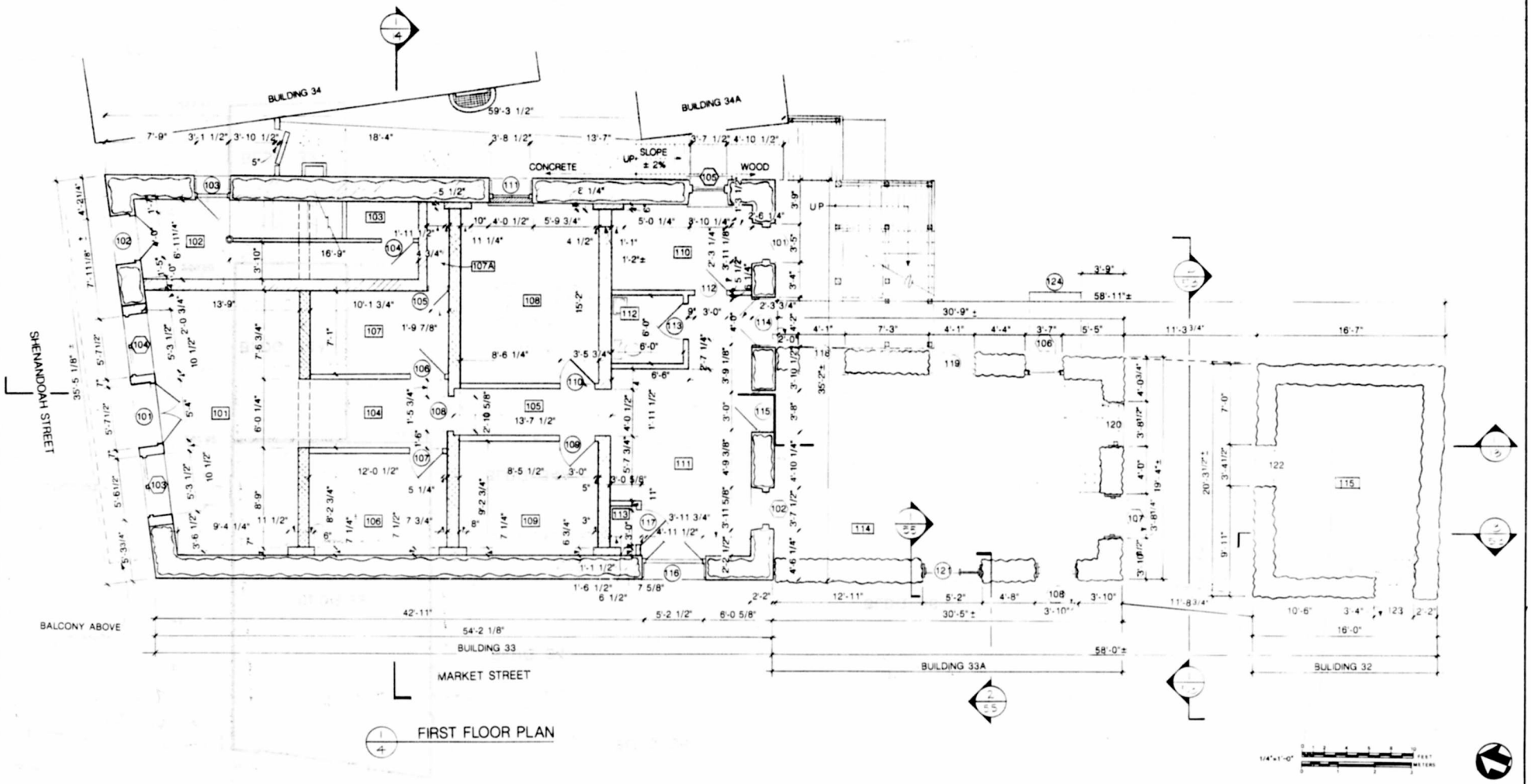
(123) DOOR NUMBER

⟨123⟩ WINDOW NUMBER

[123] ROOM NUMBER

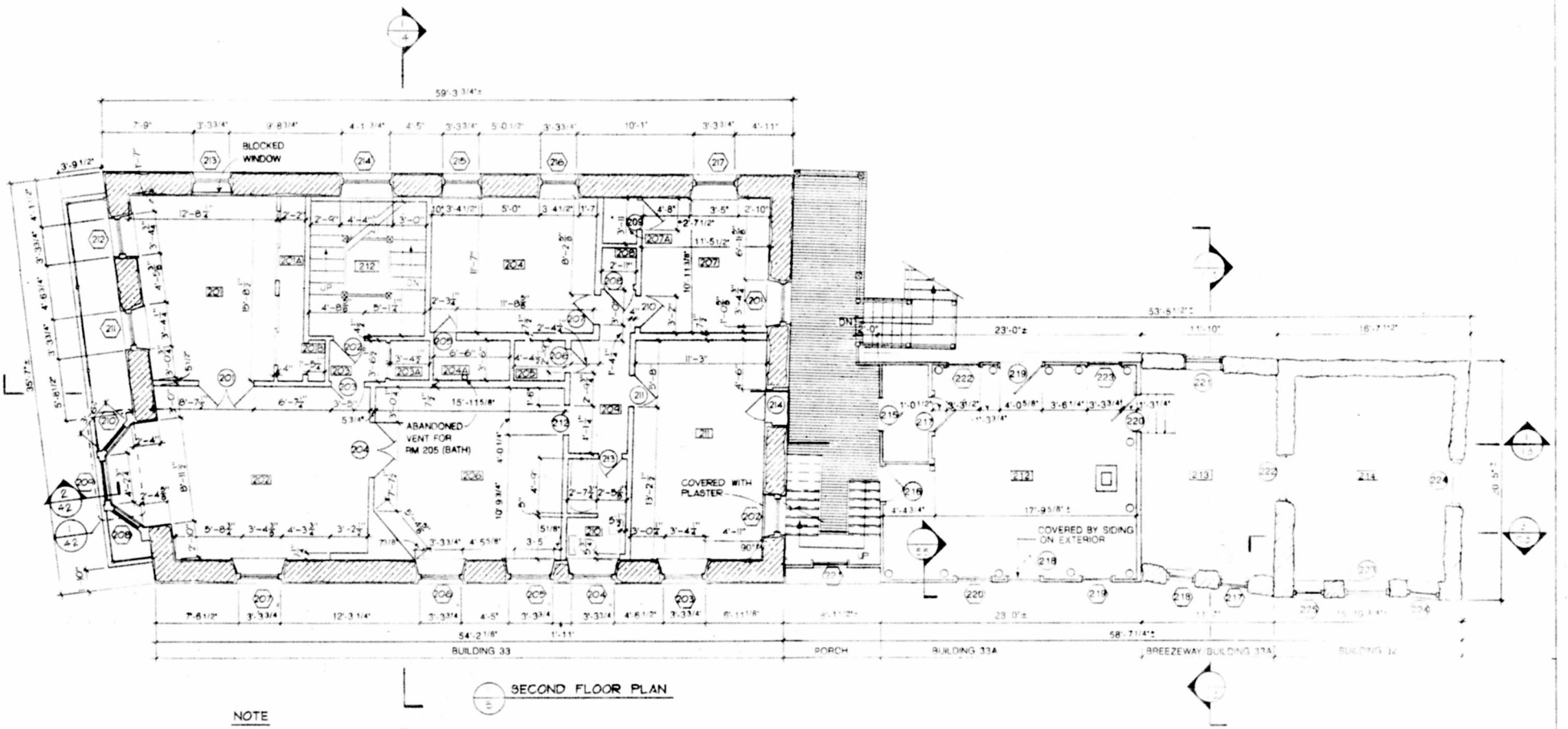
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DRAWN LLW		BUILDINGS 33, 33A, 32	PKG. NO. 116
TECH. REVIEW ASD		HARPERS FERRY N.H.P.	SHEET 2 OF 68
DATE 6/92			


BLDG.33
(DURAN)
BLDG. 35
BLDG. 34
BLDG. 36
(HISTORIC ARCHERY HOUSE)
BLDG. 34A
BLDG. 33A
BLDG. 32
269.40
268.61
267.82
269.65
266.99
267.92
266.79
268.00
265.95
267.63
SITE PLAN
SCD
ASD
SITE PLAN
BUILDINGS 32 36
385
25024
PKG NO. 116
SHEET 3



FIRST FLOOR PLAN

DESIGNED	SUB SHEET NO	TITLE OF SHEET: FIRST FLOOR PLAN BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO 385 25,024
DRAWN LLW/ATT			PKG NO 116
TECH. REVIEW ASD			SHEET 4 OF 58
DATE 6/92			

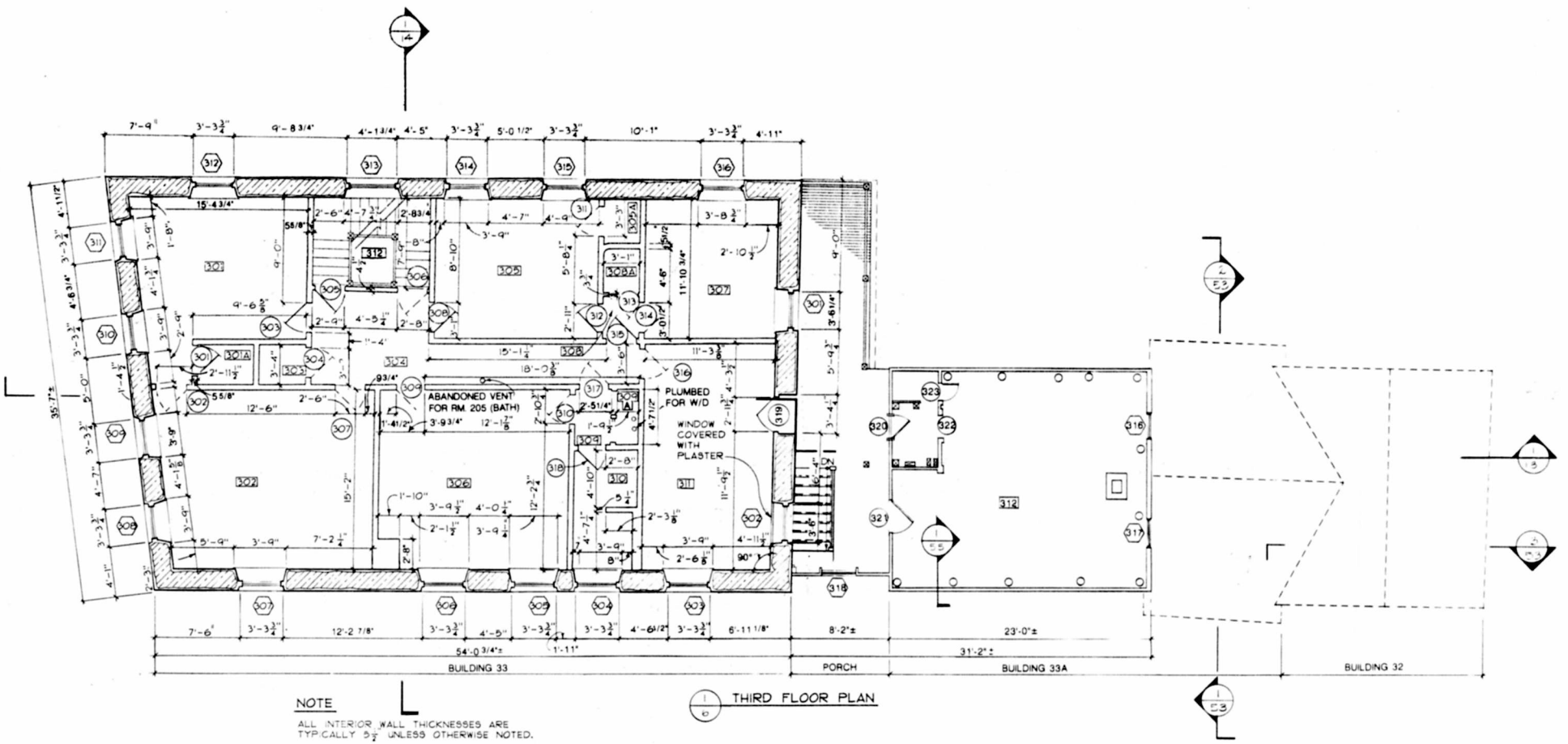


SECOND FLOOR PLAN

NOTE

1. WALLS ARE TYPICALLY 5¾" UNLESS OTHERWISE NOTED.

DESIGNED: ATT M. GROVES		SECOND FLOOR PLAN	DRAWING NO. 385 25,024
DRAWN: ASD		BUILDING 33, 33A, 34	JOB NO. SHEET 5
DATE: 6/92			68



THIRD FLOOR PLAN

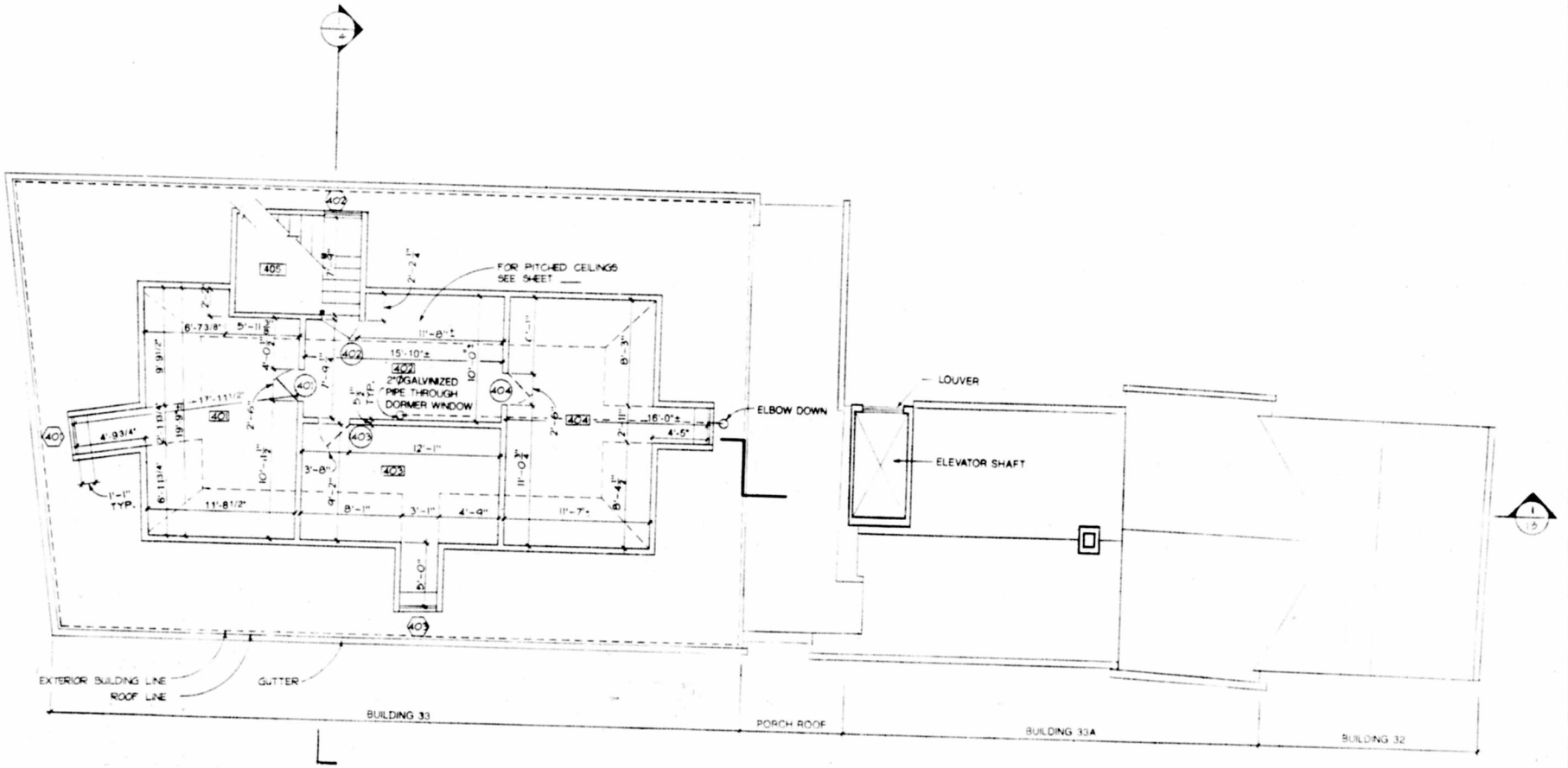
NOTE

ALL INTERIOR WALL THICKNESSES ARE TYPICALLY 5 1/2" UNLESS OTHERWISE NOTED.

SCALE OF FEET

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CADD ATT. ML GROVES		BUILDING 33, 33A, 32	PKG. NO. 116
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DATE 6/92			68

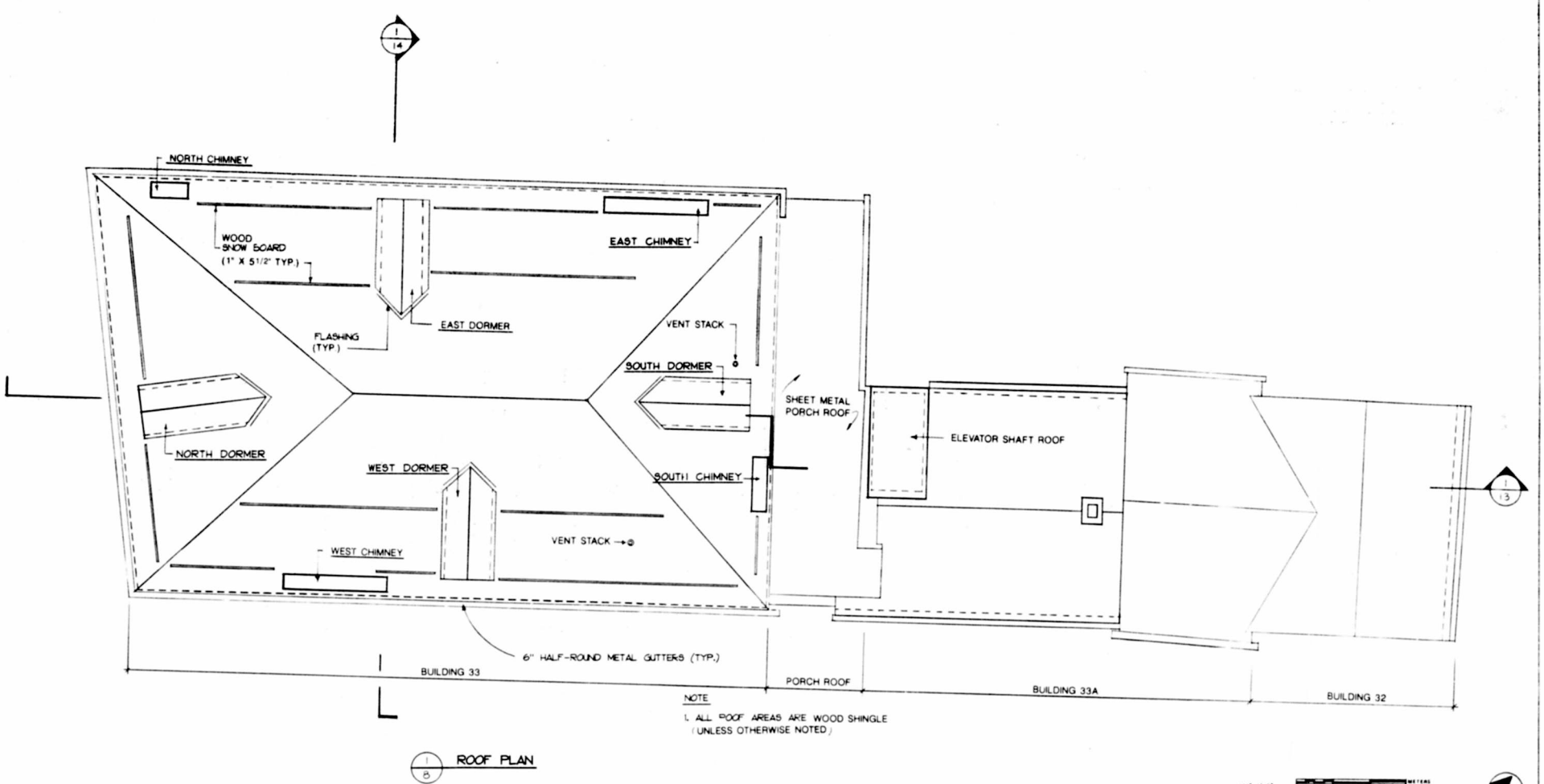
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FOURTH FLOOR PLAN

SCALE OF FEET

DESIGNED		FOURTH FLOOR PLAN ATTIC BUILDING 33, 33A, 32 HARPERS FERRY, W.VA.	PROJECT NO. 385 25,024 PKG NO. SHEET 7
DRAWN J.B. M.L. GROVES TECH. REVIEW ASD DATE 8/92			

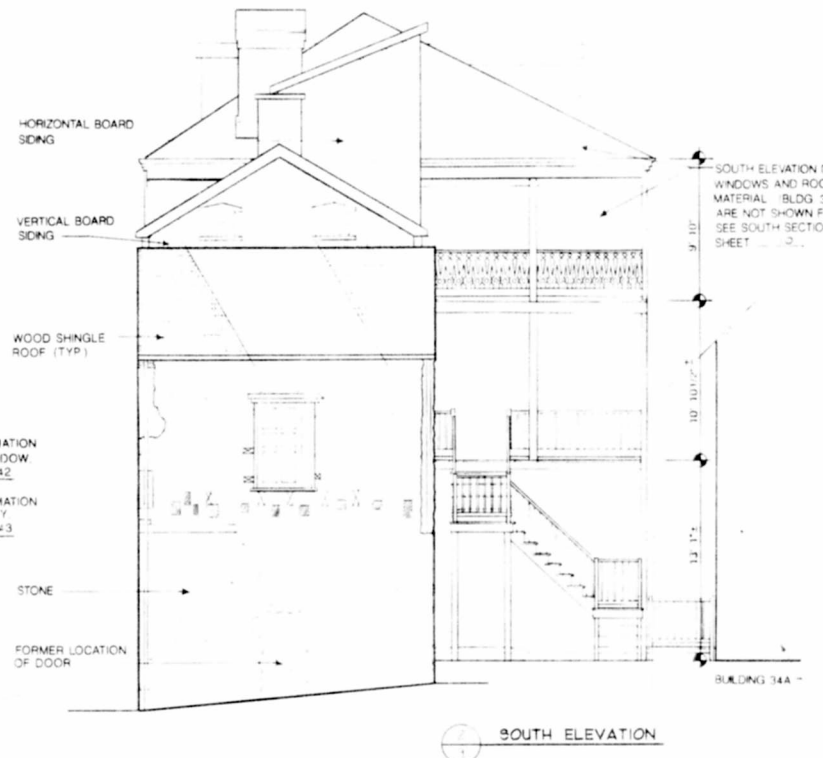


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DATE: 6/92			SHEET 8 of 68

430



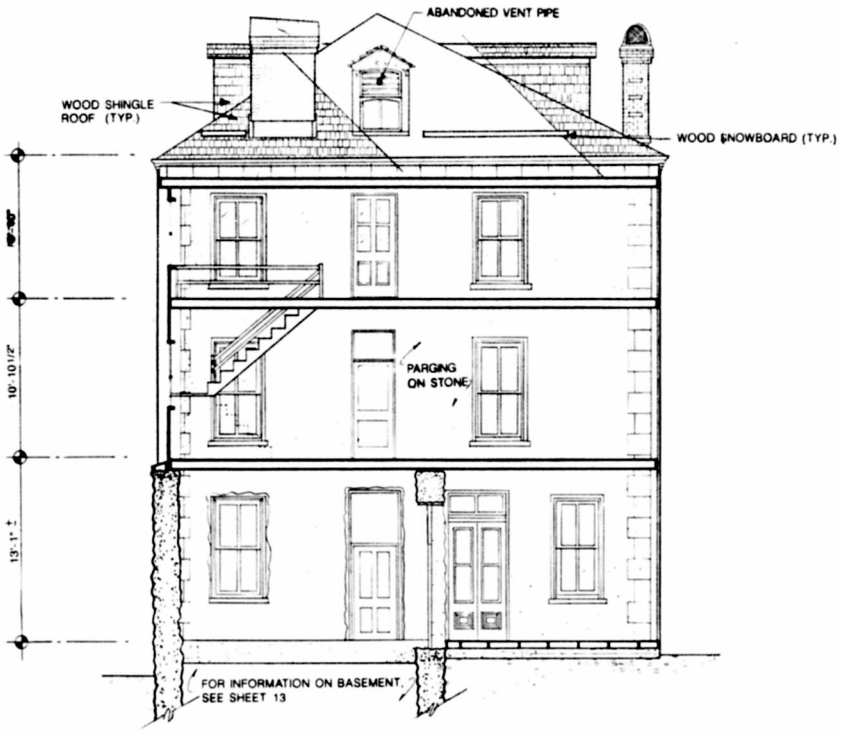
NORTH ELEVATION



SOUTH ELEVATION

SCALE OF FEET

DRAWN: RWD LLW AT ML GROVES		NORTH AND SOUTH ELEVATIONS	DRAWING NO. 385 25,024
TECH REVIEW: ASD		BUILDINGS 33 33A 32	PKG NO. 9 SHEET 9
DATE: 8/92		HARPERS FERRY N.H.P.	OF 88



1/10 SOUTH SECTION/ELEVATION

1/4"=1'-0"

DESIGNED	SUB SHEET NO	TITLE OF SHEET: SOUTH SECTION/ELEVATION BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW			PKG NO 116
TECH. REVIEW: ASD			SHEET 10 OF 68
DATE 6/92			



EAST ELEVATION

SCALE OF FEET

DESIGNED	NEW SHEET NO.	EAST ELEVATION	DRAWING NO. 385 25,024
DRAWN LLW, AT			
M. GROVES		BUILDINGS 33 33A 32	
TECH. REVIEW ASD		HARPERS FERRY N.H.P.	SHEET NO. 11
DATE 6/92			OF SHEETS 68

PROJ/WAT1/MAROVE/ELEV.DG



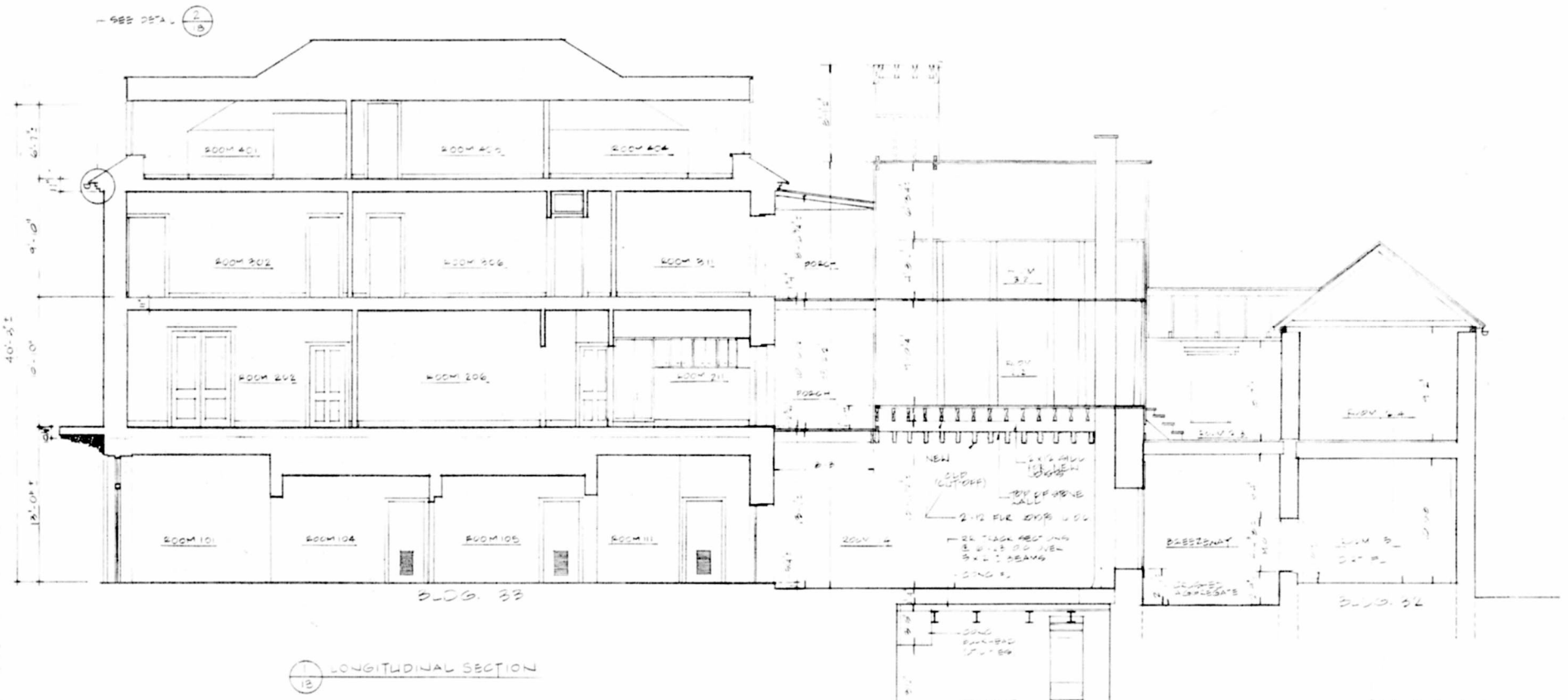
WEST ELEVATION

1/4"=1'-0" METERS 0 4 8

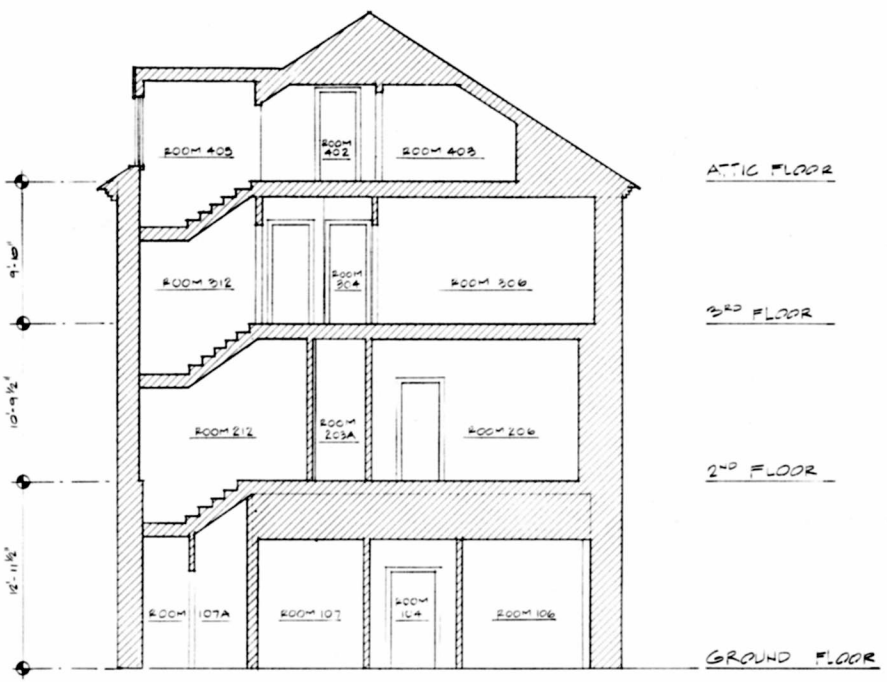
SCALE OF FEET

DESIGNED: RADD LUW/AT; ML GROVES	SUB SHEET NO:	TITLE OF SHEET: WEST ELEVATION BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO: 385/25024; PKG NO: 116; SHEET: 12; 68
TECH REVIEW: ASD			
DATE: 6/92			

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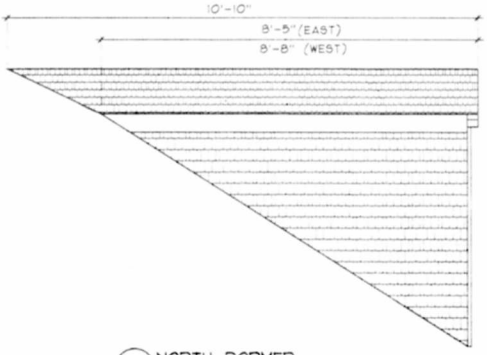
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DATE 6/92			



1/14 TRANSVERSE SECTION

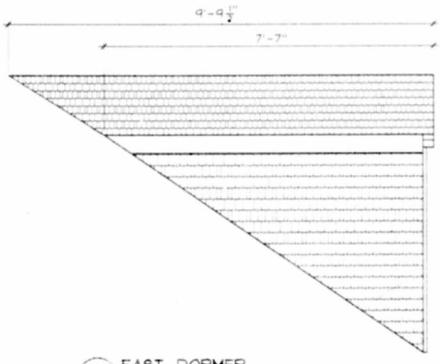
1/4"=1'-0"

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TECH. REVIEW: ASD			SHEET 14 OF 68
DATE: 6/92			



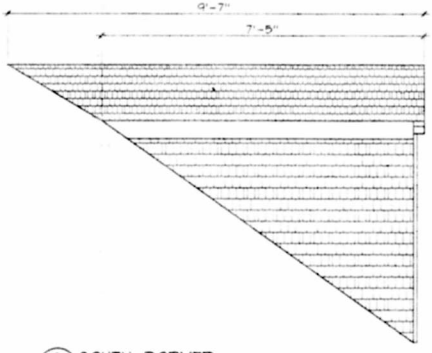
1/2 / 15 NORTH DORMER





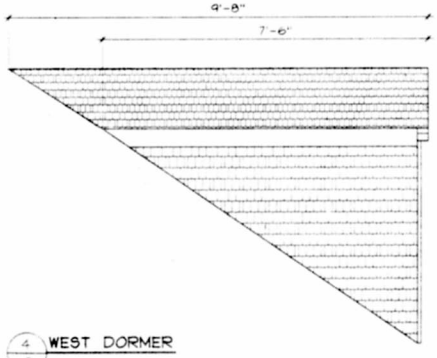
3/4 / 15 EAST DORMER





2 / 4 / 15 SOUTH DORMER





4 / 5 WEST DORMER

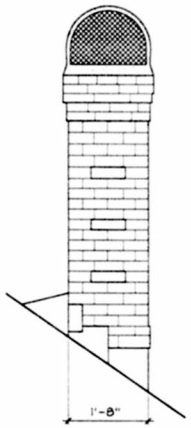


NOTE :
ALL DORMER ROOF AND SIDING MATERIAL IS WOOD SHINGLE

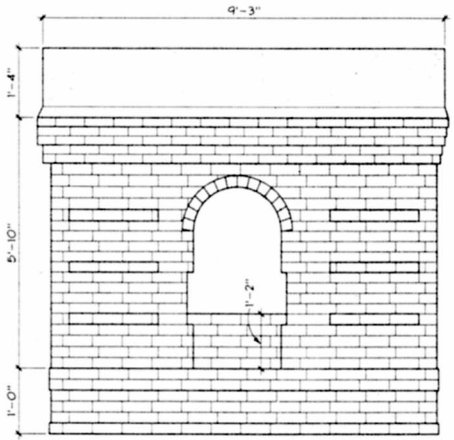


DESIGNED RADD J.B. S. MOORE TECH. REVIEW ASD DATE 6/92	SUB SHEET NO.	DORMER DETAILS BUILDING 33 HARPERS FERRY N.H.P.	HFC NO. 385 25,024 SHEET NO. 15 OF 88

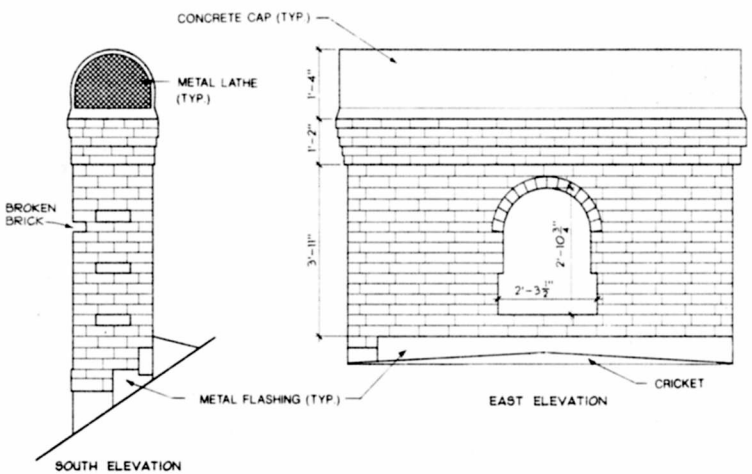
I:\PROJ\HAFE\TSA\ARCH\DORMER_DETAILS.DG



NORTH ELEVATION



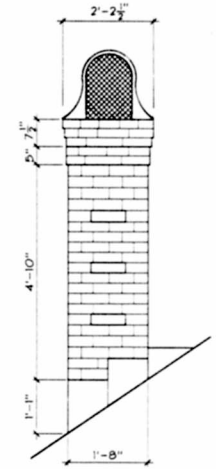
WEST ELEVATION



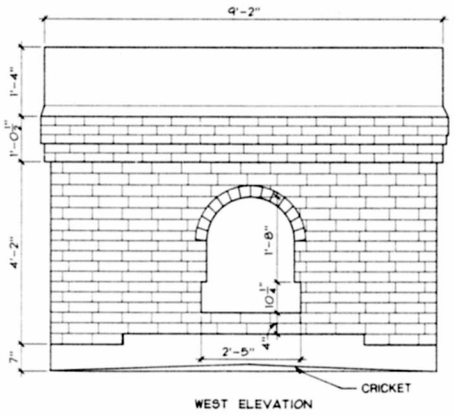
SOUTH ELEVATION

EAST ELEVATION

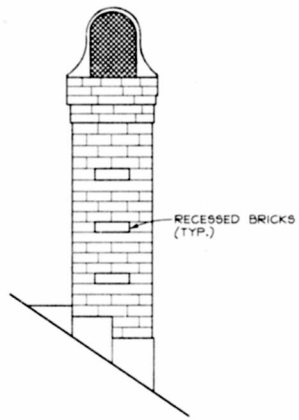
1/16 WEST CHIMNEY



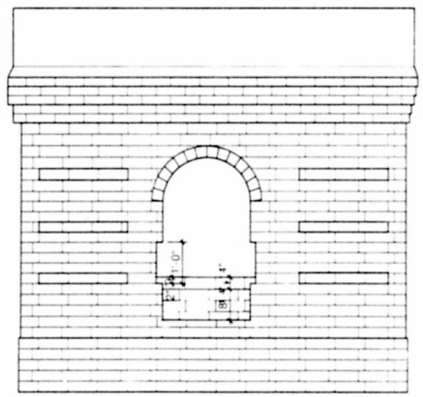
NORTH ELEVATION



WEST ELEVATION



SOUTH ELEVATION



EAST ELEVATION

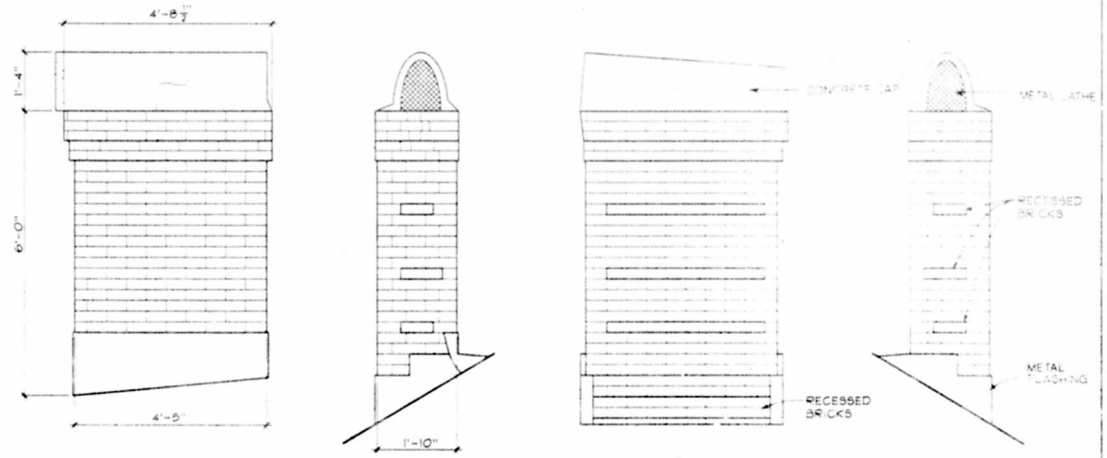
2/16 EAST CHIMNEY



SCALE OF FEET

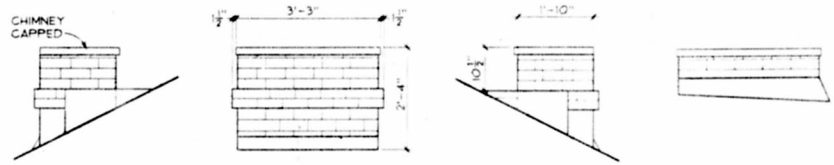
DESIGNED: RADO; ML GROVES	SUB SHEET NO.	TITLE OF SHEET: CHIMNEY ELEVATIONS BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 335 25,024
TECH. REVIEW: ASD			PKG NO. 116
DATE: 6/92			SHEET 16 OF 68

/PROJ/HFE116A/ARCH/CHIM_ELEV.DG



NORTH ELEVATION | EAST ELEVATION | SOUTH ELEVATION | WEST ELEVATION

1/17 SOUTH CHIMNEY



NORTH ELEVATION | EAST ELEVATION | SOUTH ELEVATION | WEST ELEVATION

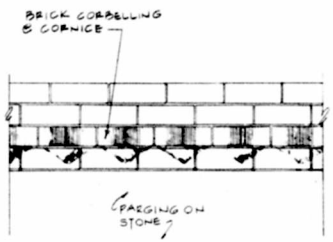
2/17 NORTH CHIMNEY

3/4"=1'-0"

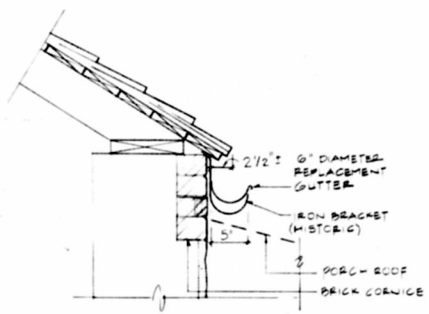
SCALE OF FEET

DESIGNED: ASD; M. GROVES; TECH. REVIEW: ASD; DATE: 6/92	SUB SHEET NO.	CHIMNEY ELEVATIONS BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385/25,024; PKG NO. 15; SHEET 17 OF 68

/PROJ/HAFE15A/ARCH/DRAWLEV.2.DG



1/1B DETAIL @ CORNICE
SCALE: 1 1/2" = 1'-0"

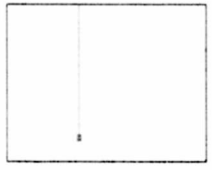


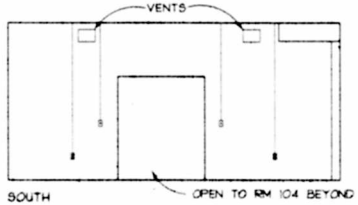
2/1B DETAIL @ GUTTER (BLDG. 33) [TYP.]
SCALE = 1 1/2" = 1'-0"

1-1/2"=1'-0"

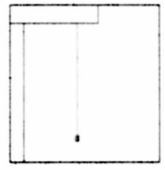
DESIGNED	SUB SHEET NO.	TITLE OF SHEET: ROOF AND CORNICE DETAILS BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 18
DATE: 6/92			OF 58


NORTH

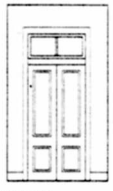

EAST

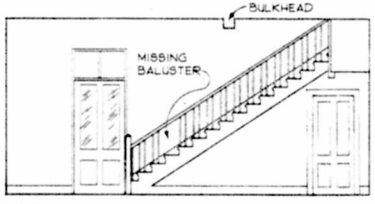


SOUTH

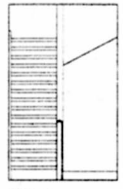

WEST

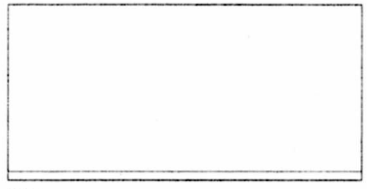
1/19 ROOM 101


NORTH



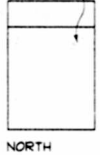
EAST


SOUTH

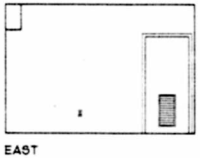

WEST

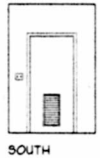
2/19 ROOM 102

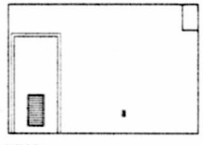
NOTE :
ROOM 103 NOT RECORDED



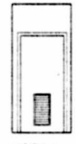
NORTH

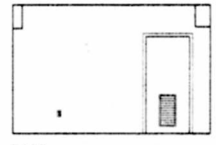

EAST

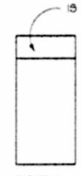

SOUTH


WEST

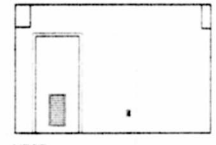
3/19 ROOM 104


NORTH

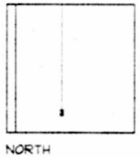

EAST

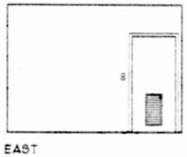


SOUTH

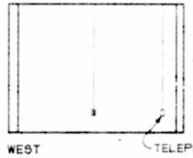

WEST

4/19 ROOM 105


NORTH

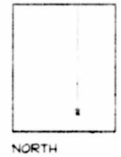

EAST

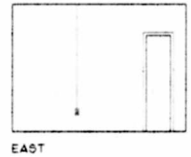

SOUTH



WEST

5/19 ROOM 106


NORTH


EAST


SOUTH

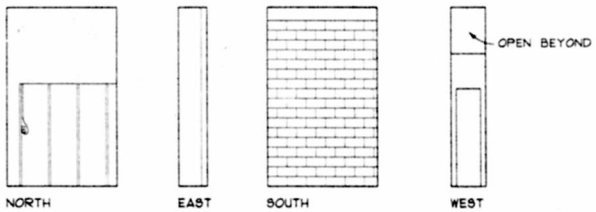


WEST

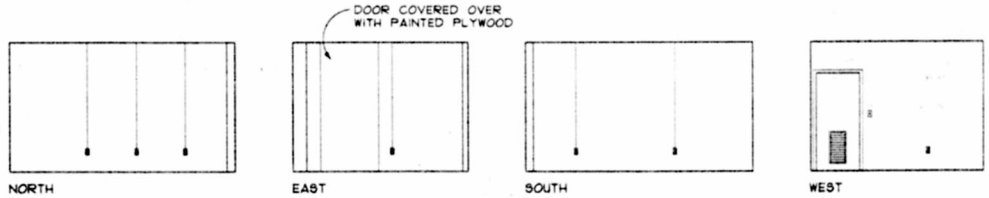
2/19 ROOM 107

DESIGNED: RADD	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS FIRST FLOOR (ROOMS 101-107) BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
M. GROVES			PKG. NO. HFC
TECH. REVIEW: ASD			SHEET 19
DATE: 6/92			OF 88

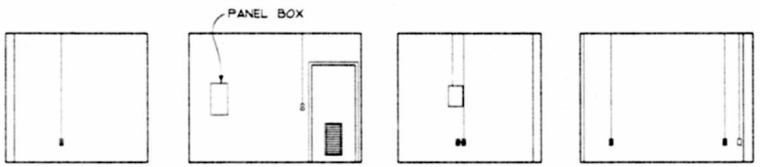
/PROJ/HFC/1992/DGN/INT_ELEV_101.DGN



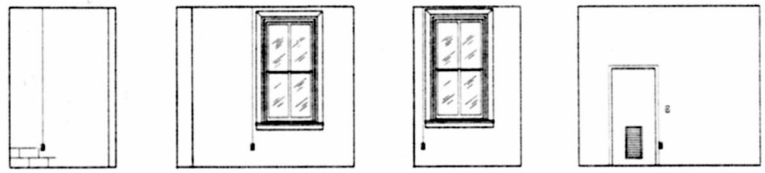
1/20 ROOM 107A



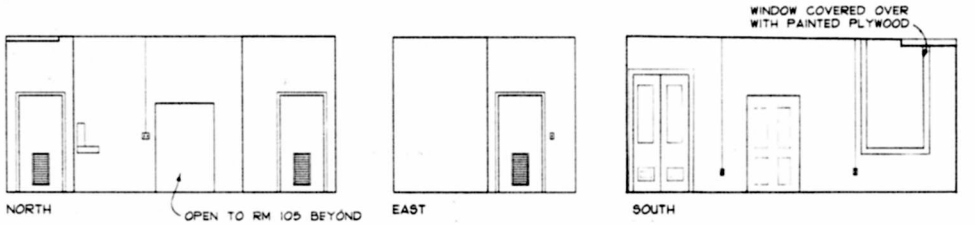
2/20 ROOM 108



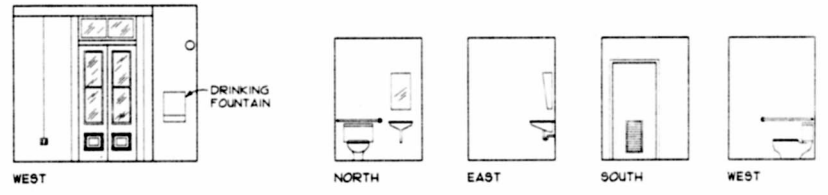
3/20 ROOM 109



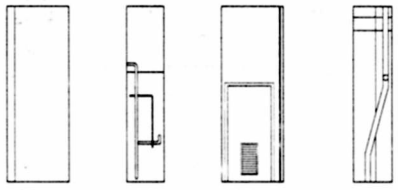
4/20 ROOM 110



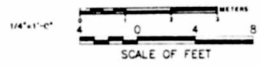
5/20 ROOM 111



6/20 ROOM 112

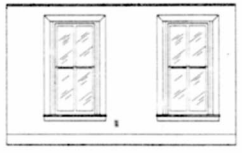


7/20 ROOM 113

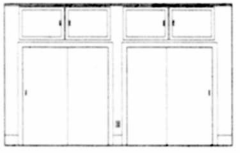


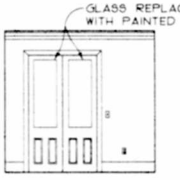
DESIGNED: RADD; ML GROVES; TECH. REVIEW: ASD; DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS FIRST FLOOR (ROOMS 107A-113) BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024; PKG. NO. 126; SHEET 20 OF 68

/PROJ/HAFE113A/MRDI/INT_ELEV_108.DG

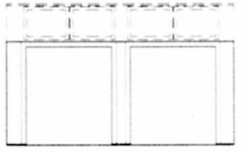




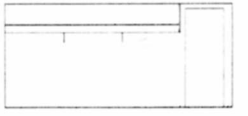




1/21 ROOM 201









2/21 ROOM 201A

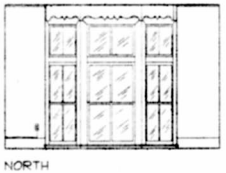


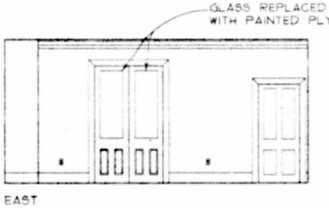


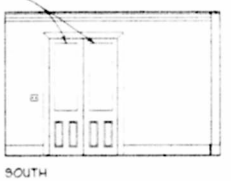




3/21 ROOM 201B



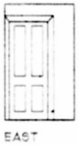


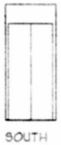


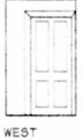


4/2 ROOM 202

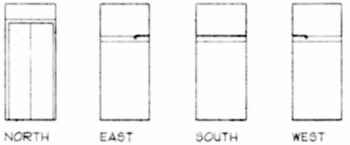






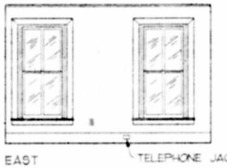


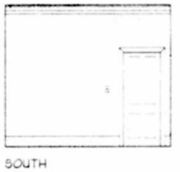
5/21 ROOM 203

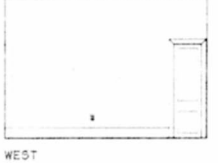


6/21 ROOM 203A

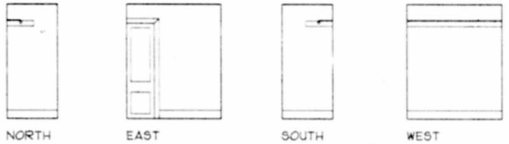




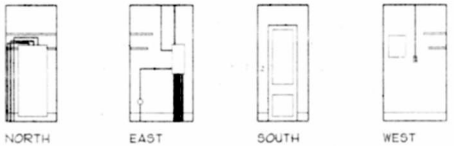




7/21 ROOM 204



8/21 ROOM 204A

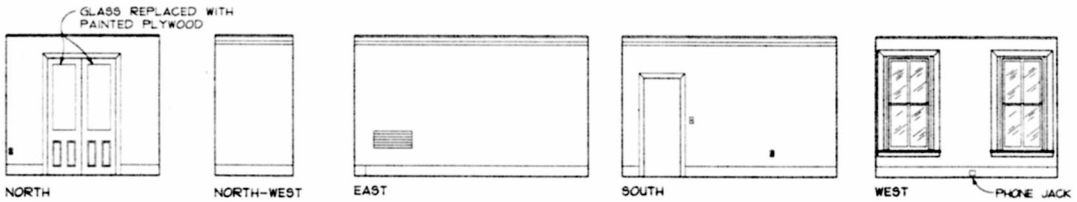


9/21 ROOM 205

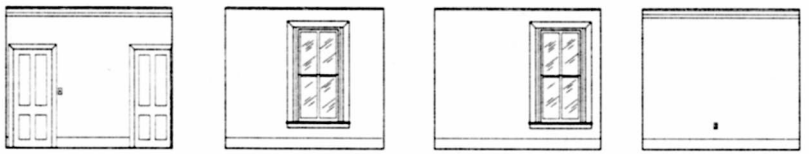


DESIGNED: RDH WRT ML GROVES	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS SECOND FLOOR (ROOMS 201-205) BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
TECH. REVIEW: ASD			PKG. NO. 116
DATE: 6/92			SHEET 21 OF 68

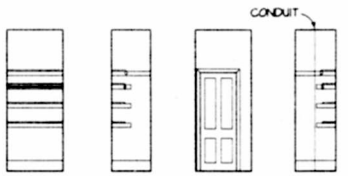
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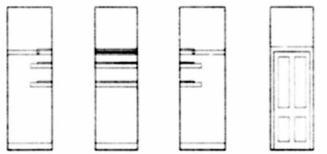
1/22 ROOM 206



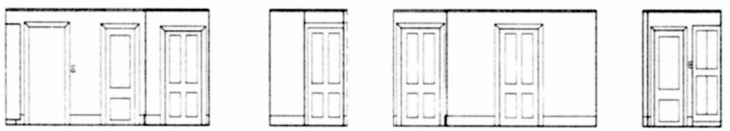
2/22 ROOM 207



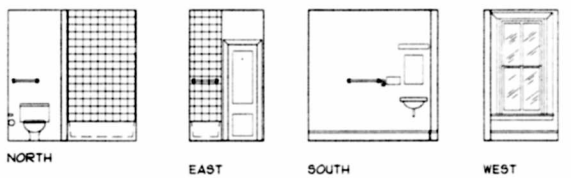
3/22 ROOM 207A



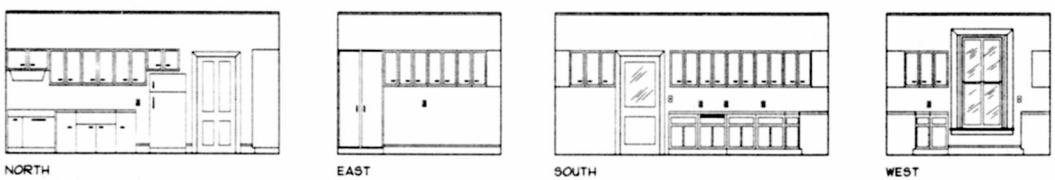
4/22 ROOM 208



5/22 ROOM 209



6/22 ROOM 210



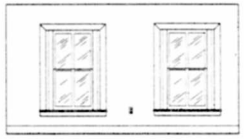
7/22 ROOM 211

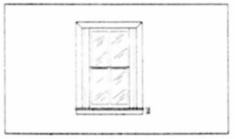
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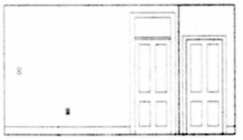
SCALE OF FEET

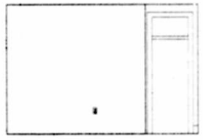
DESIGNED: RTD	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS SECOND FLOOR (ROOMS 206-211) BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
M.L. GROVES			PKG. NO. 116
TECH. REVIEW ASD			SHEET 22
DATE 6/92			OF 68

P:\PKG\HAFE116A\ARCH\INT_ELEV_206-211.DG


NORTH


EAST


SOUTH


WEST

1/23 ROOM 301

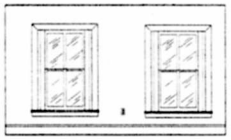

NORTH


EAST


SOUTH

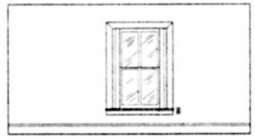

WEST

2/23 ROOM 301A


NORTH


EAST


SOUTH


WEST

3/23 ROOM 302

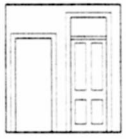

NORTH

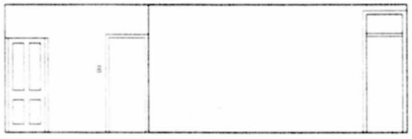

EAST

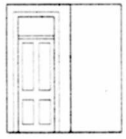

SOUTH

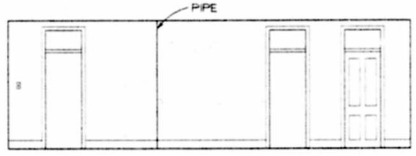

WEST

4/23 ROOM 303


NORTH

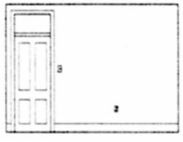

EAST

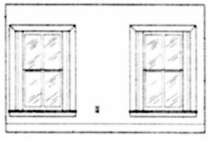

SOUTH

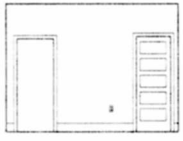


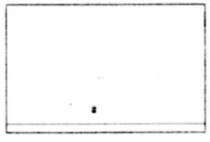
WEST

5/23 ROOM 304

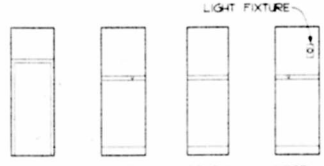

NORTH


EAST


SOUTH


WEST

6/23 ROOM 305

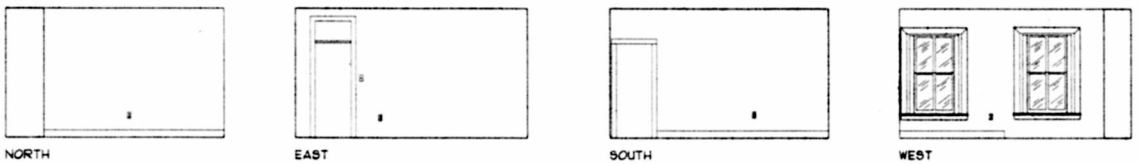


NORTH EAST SOUTH WEST

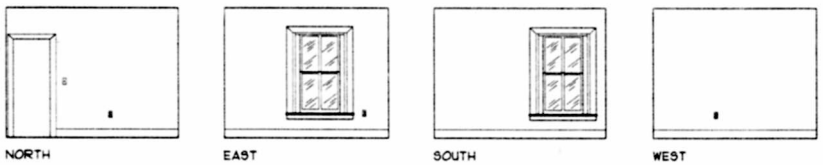
7/23 ROOM 305A

SCALE OF FEET

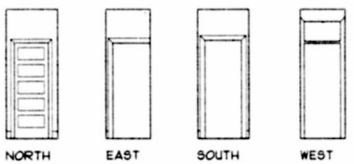
DESIGNED: RJPD	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS THIRD FLOOR (ROOMS 301-305A) BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
M.L. GROVES			PROJ. NO. 1.16
TECH. REVIEW ASD			SHEET 23
DATE 6/92			OF 68



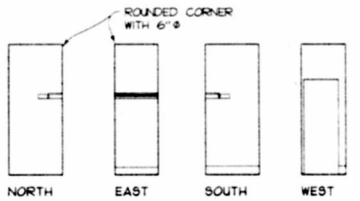
1/24 ROOM 306



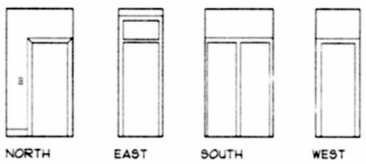
2/24 ROOM 307



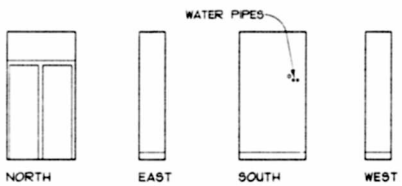
3/24 ROOM 308



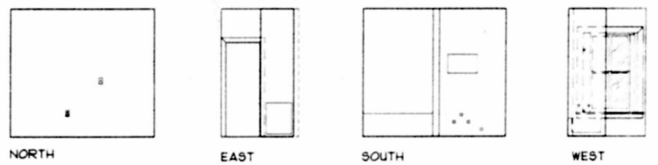
4/23 ROOM 308A



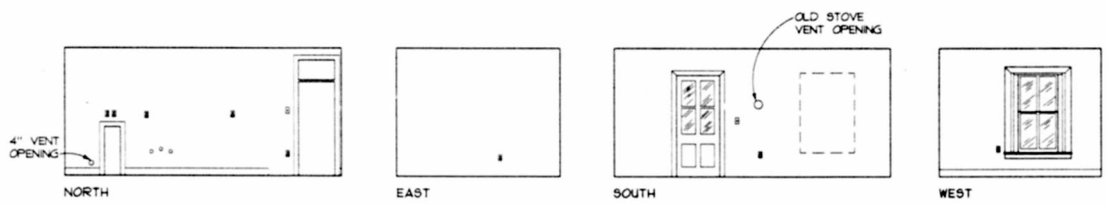
5/24 ROOM 309



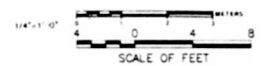
6/24 ROOM 309A



7/24 ROOM 310



8/24 ROOM 311

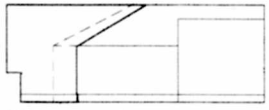


DESIGNED: RADD MLG, W.R.TURNER, TECH. REVIEW ASD, DATE 6/92	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS THIRD FLOOR (ROOMS 306-311) BUILDING 33, HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024; PKG. NO. 116; SHEET 24 OF 68

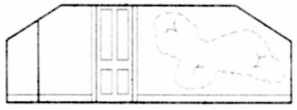
/PROJ/HFE116A/ARCH/INT_ELEV_307.DG



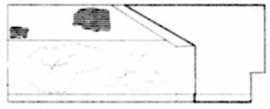
NORTH



EAST



SOUTH

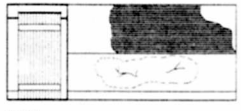


WEST

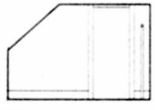
1/25 ROOM 401



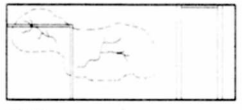
NORTH



EAST

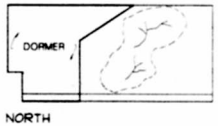


SOUTH

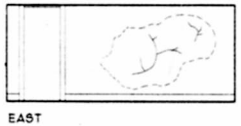


WEST

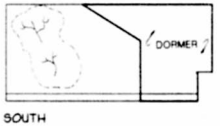
2/25 ROOM 402



NORTH



EAST

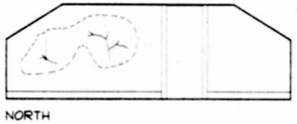


SOUTH

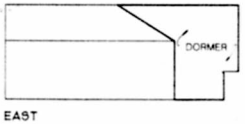


WEST

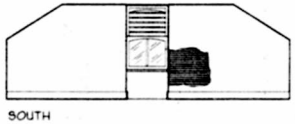
3/24 ROOM 403



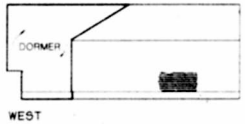
NORTH



EAST



SOUTH

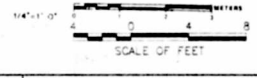


WEST

4/25 ROOM 404

NOTE

PLASTER OVER WOOD LATH IS FAILING ACROSS APPROXIMATELY 50% OF WALL AREA.



DESIGNED J.B.	SUB SHEET NO.	TITLE OF SHEET: INTERIOR ELEVATIONS FOURTH FLOOR	DRAWING NO. 385 25,024
DRAWN J.B.		BUILDING 33	PKG. NO. 116
M.L. GROVES		HARPERS FERRY N.H.P.	SHEET 25
TECH. REVIEW ASD			OF 68
DATE 6/92			

/PROJ/HAFE11BA/ARCH/INT_ELEV_A.DG

ROOM FINISH SCHEDULE

FLOOR	ROOM	FLOOR MAT.	FLOOR FIN.	WALLS NORTH MAT.	WALLS NORTH FIN.	WALLS EAST MAT.	WALLS EAST FIN.	WALLS SOUTH MAT.	WALLS SOUTH FIN.	WALLS WEST MAT.	WALLS WEST FIN.	CEILING MAT.	CEILING FIN.	CEILING HT.	BASE TYPE	BASE NORTH MAT.	BASE NORTH HT.	BASE NORTH FIN.	BASE EAST MAT.	BASE EAST HT.	BASE EAST FIN.	BASE SOUTH MAT.	BASE SOUTH HT.	BASE SOUTH FIN.	BASE WEST MAT.	BASE WEST HT.	BASE WEST FIN.	REMARKS
FIRST FLOOR	101	CONC	CPT	PLASTER/ WOOD	PAINT	PLASTER	PAINT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	10'-8 1/2" ± (VARIES W/ SLOPE)	-	-	-	-	-	-	-	-	-	-	-	-	-	STOREFRONT - NORTH WALL IS WOOD FRAME AND TRIM WITH SINGLE-PANE TEMPERED GLASS, DBL. DOORS WITH TRANSOM. 9'-6" CLG. HT. @ BULKHD.
	102	T & G WOOD	NO FIN.	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	12'-0 3/4" ±	D	WOOD	8" ±	-	WOOD	8" ±	-	WOOD	8" ±	-	WOOD	8" ±	-	BULKHEAD/BOX BEAMS FROM WHICH INCANDESCENT LIGHT FIXTURE IS HUNG AT 11'-5" AFF
	103	T & G WOOD	NO FIN.	OPEN STRINGR	CLR	PLYWOOD	CLR	PLYWOOD	CLR	PLYWOOD	CLR	PLYWOOD	-	8'-0" (BEFORE SLOPE)	-	-	-	-	-	-	-	-	-	-	-	-	-	AREA UNDER STAIRWAY. HIGHEST CEILING POINT = 8'-0"
	104	CONC	CPT	PLASTER/ BULKHD	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	8'-10 3/4" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	
	105	CONC	CPT	GYP BD/ PLASTER	PAINT	GYP BD	PAINT	PLASTER/ BULKHD	PAINT	GYP BD	PAINT	S.A.T.C.	-	8'-10 3/4" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	
	106	CONC	CPT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	8'-10 3/4" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	
	107	CONC	CPT	CMU W/ PLASTER	PAINT	GYP BD	PAINT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	8'-10 3/4" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	
	107A	CONC	-	WOOD/EXP 2X6 FRAME	-	PLASTER	-	CMU	-	GYP BD	-	WOOD/EXP 2X6 JOISTS	-	12'- 5"	-	-	-	-	-	-	-	-	-	-	-	-	-	EXPOSED HISTORIC CONSTRUCTION @ CEILING
	108	CONC	CPT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	8'-10 3/4" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	DOOR NO.111 BOARDED UP FROM INSIDE WITH PLYWOOD PAINTED TO MATCH WALL COLOR. MOTION DETECTION IN THE SOUTHWEST CORNER, WATER DAMAGE & EFFLORSCENCE @ EAST WALL
	109	CONC	CPT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	CMU W/ PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	8'-10 3/4" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	
	110	CONC	CPT	CMU	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	11'-0" ±	-	-	-	-	-	-	-	-	-	-	-	-	-	
	111	CONC	CPT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	10'-8 1/2"	-	-	-	-	-	-	-	-	-	-	-	-	-	OPENS TO ROOM 113. CEILING HT. 10'-4 3/4" @ BULKHEAD OVER WEST WALL
	112	CONC	SHEET VINYL	CMU	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	S.A.T.C.	-	8'-6"	-	-	-	-	-	-	-	-	-	-	-	-	-	NORTH AND WEST WALLS HAVE HANDICAPPED GRAB BARS AT 2'-3 1/2" AFF.
	113	CONC	-	CMU	PAINT	PLASTER	-	PLASTER	PAINT	PLASTER	PAINT	-	-	12'-2"	-	-	-	-	-	-	-	-	-	-	-	-	-	EAST WALL IS FINISHED TO 8'-10"
SECOND FLOOR	201	T & G WOOD	CLR FIN.	GYP BD	PAINT	GYP BD	PAINT	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	9'-8 1/2" ±	A	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	
	201A	T & G WOOD	CLR FIN.	GYP BD	PAINT	GYP BD	PAINT	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	9'-8 1/2"	-	WOOD	1/4" RD	-	WOOD	8"	-	WOOD	8"	PAINT	WOOD	8"	-	NORTH, EAST, AND WEST WALLS HAVE ONLY 1" UNPAINTED QUARTER-ROUND MOULDING
	201B	T & G WOOD	CLR FIN.	GYP BD	PAINT	GYP BD	PAINT	GYP BD	PAINT	PLASTER	PAINT	PLASTER	PAINT	9'-8 1/2"	A	WOOD	8 1/2"	PAINT	WOOD	8 1/2"	PAINT	WOOD	1/4" RD	PAINT	WOOD	8 1/2"	PAINT	
	202	T & G WOOD	CLR FIN.	GYP BD	PAINT	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	GYP BD	PAINT	9'-8" ± (VARIES)	B	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	TOP OF SILL IS 2' AFF (@ BAY WINDOW)
	203	T & G WOOD	CLR FIN.	GYP BD	PAINT	GYP BD	PAINT	GYP BD	PAINT	PLASTER	PAINT	WOOD	PAINT	8'-0" ±	B	WOOD	8"	PAINT	WOOD	8"	PAINT	-	1/4" RD	-	WOOD	8"	PAINT	
	203A	T & G WOOD	CLR FIN.	GYP BD	PAINT	GYP BD	PAINT	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	8'-0"	B	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	
	204	T & G WOOD	CLR FIN.	PLASTER	PAINT	GYP BD	PAINT	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	9'- 7"	B	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	
	204A	T & G WOOD	CLR FIN.	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	8'-0" ±	B	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WALK-IN CLOSET
	205	SHEET VINYL	-	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	8'-0"	B	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	HOT WATER HEATER CLOSET BREAKER BOX ON EAST WALL
	206	T & G WOOD	CLR FIN.	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	GYP BD	PAINT	9'-8 1/2"	B	WOOD	9"	PAINT	WOOD	9"	PAINT	WOOD	9"	PAINT	WOOD	9"	PAINT	
	207	T & G WOOD	CLR FIN.	PLASTER	PAINT	GYP BD	PAINT	GYP BD	PAINT	PLASTER	PAINT	GYP BD	PAINT	9'-8 1/2"	A	WOOD	9"	PAINT	WOOD	9"	PAINT	WOOD	9"	PAINT	WOOD	9"	PAINT	
	207A	T & G WOOD	CLR FIN.	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	9'-8 1/2"	A	WOOD	7"	PAINT	WOOD	7"	PAINT	WOOD	7"	PAINT	WOOD	7"	PAINT	
	208	T & G WOOD	CLR FIN.	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	9'-9 1/2"	B	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	
	209	T & G WOOD	CLR FIN.	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	7'-10 3/4" ±	B	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	WOOD	8"	PAINT	
	210	SHEET VINYL	-	PLASTER/ C.T. @ TUB	PAINT	PLASTER/ C.T. @ TUB	PAINT	PLASTER	PAINT	PLASTER/ C.T. @ TUB	PAINT	PLASTER	PAINT	8'-8" ±	B	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	
	211	VINYL TILE	-	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	GYP BD	PAINT	GYP BD	PAINT	9'-9" ±	B	WOOD	8"	PAINT	WOOD	8 1/2"	PAINT	WOOD	8 1/2"	PAINT	WOOD	8"	PAINT	EXISTING KITCHEN
	212	T&G WOOD	DK FIN.	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	9'-10" ±	E	WOOD	7 1/4"	PAINT	WOOD	7 1/2"	PAINT	WOOD	7 1/4"	PAINT	WOOD	7 1/2"	PAINT	STAIR HALL

GENERAL NOTES

1. ON SECOND FLOOR UNPAINTED 1" QUARTER-ROUND MOULDING IS ADDED TO THE EXISTING BASEBOARD.
2. WOOD CORNICE MOULDING EXISTS IN ALL SECOND FLOOR ROOMS EXCEPT RM. 210 (BATH), SEE SHT. 22

DESIGNED: RADD W.R. TURNER
TECH. REVIEW: ASD
DATE: 6/92
SUB SHEET NO.

TITLE OF SHEET: ROOM FINISH SCHEDULE FIRST AND SECOND FLOORS BUILDING 33 HARPERS FERRY N.H.P.

DRAWING NO. 385 25,024
PKG. NO. 116
SHEET 26
88

448

/PROJ/nat116e/arch/rm_fin_1_2.DD

ROOM FINISH SCHEDULE

FLOOR	ROOM	FLOOR MAT.	FLOOR FIN.	WALLS NORTH MAT.	WALLS NORTH FIN.	WALLS EAST MAT.	WALLS EAST FIN.	WALLS SOUTH MAT.	WALLS SOUTH FIN.	WALLS WEST MAT.	WALLS WEST FIN.	CEILING MAT.	CEILING FIN.	CEILING HT.	TYPE	BASE NORTH MAT.	BASE NORTH HT.	BASE NORTH FIN.	BASE EAST MAT.	BASE EAST HT.	BASE EAST FIN.	BASE SOUTH MAT.	BASE SOUTH HT.	BASE SOUTH FIN.	BASE WEST MAT.	BASE WEST HT.	BASE WEST FIN.	REMARKS
THIRD FLOOR	301	T & G WOOD	STAIN	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	–	PLASTER	–	8'-10"	C	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	–	–	–	WATER DAMAGE @ S.E. CORNER (BELOW CAP @ CHIMNEY)
	301A	T & G WOOD	STAIN	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	8'-10"	C	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	CONVENIENCE SHELVING
	302	T & G WOOD	STAIN	PLASTER	PAINT	PLASTER	–	PLASTER	–	PLASTER	PAINT	PLASTER	–	8'-10"	C	WOOD	7 3/4"	PAINT	WOOD	7 3/4"	PAINT	WOOD	6"	PAINT	WOOD	7 3/4"	PAINT	WATER DAMAGE & S.W. CORNER (BELOW CAP @ CHIMNEY), QUARTER-ROUND IS MISSING, S. WALL BASE MOULDING IS PIECED TOGETHER
	303	T & G WOOD	STAIN	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	8'-10 3/4"	C	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	SERIES OF CRACKS IN PLASTER
	304	T & G WOOD	STAIN	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	8'-9 3/4"	C	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	2"GALVANIZED VENT PIPE @ W. WALL (FL. TO CLG. ABANDONED)
	305	T & G WOOD	STAIN	PLASTER	–	PLASTER	PAINT	PLASTER	–	PLASTER	–	PLASTER	–	8'-10"	C	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	LARGE CRACK @ S. WALL, OVERALL STAINING @ CEILING
	305A	T & G WOOD	STAIN	PLASTER	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	–	8'-10"	C	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	OVERALL STAINING @ CEILING
	306	T & G WOOD	STAIN	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	PAINT	PLASTER	–	8'-10 1/2"	C	WOOD	6"	PAINT	WOOD	6"	–	WOOD	6"	PAINT	WOOD	6"	PAINT	N. WALL PLASTER COVERS CHIMNEY, W. WALL IS IN POOR CONDITION, PART OF W. WALL BASE MOULDING IS MISSING, OVERALL STAINING @ CEILING
	307	T & G WOOD	STAIN	PLASTER	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	–	PLASTER	–	8'-10 1/2"	C	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6 1/2"	PAINT	–	–	–	LARGE CRACKS @ N.E. & S.E. CORNERS, NO BASE MOULDING @ W. WALL, OVERALL STAINING @ CEILING
	308	T & G WOOD	STAIN	PLASTER	PAINT	PLASTER	PAINT	PLASTER	–	PLASTER	PAINT	PLASTER	–	8'-10"	C	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	–	–	–	–	CRACK @ N. WALL OVER DOOR LINTEL
	308A	T & G WOOD	STAIN	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	8'-11 1/2"	C	–	–	–	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	6" RADIUS CURVE (WALL) @ N.E. CORNER, CRACKS AT N.E. CORNER & CEILING, MINOR CRACKING THROUGHOUT
	309	T & G WOOD	STAIN	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	8'-10"	C	–	–	–	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	
	309A	T & G WOOD	STAIN	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	8'-9"	C	WOOD	6"	PAINT	–	–	–	–	–	–	–	–	–	SERIES OF CRACKS @ CEILING, PLUMBED FOR WASHER & DRYER
	310	PLY-WOOD	–	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	PLASTER	–	8'-10"	C	–	–	–	–	–	–	–	–	–	–	–	–	WATER DAMAGE @ PLUMBED S. WALL
	311	T & G WOOD	–	PLASTER	–	PLASTER	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	–	8'-10"	C	WOOD	6"	PAINT	–	–	–	–	–	–	WOOD	6"	PAINT	OVERALL STAINING @ CEILING, CRACKS @ N.W. CORNER & W. WALL, WATER DAMAGE @ S.E. CORNER & CEILING
	312	T & G WOOD	DK STAIN	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	GYP BD	PAINT	PLASTER	PAINT	8'-10 1/2"	E	WOOD	7 1/4"	PAINT	WOOD	7 1/4"	PAINT	WOOD	7 1/4"	PAINT	WOOD	7 1/4"	PAINT	STAIR HALL
FOURTH FLOOR	401	T & G WOOD	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	3'-9" TO 6'-7"	D	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	–	–	–	PLASTER ON WOOD LATHE
	402	T & G WOOD	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	4'-2" TO 6'-7"	D	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	WOOD	6 1/2"	PAINT	–	–	–	PLASTER ON WOOD LATHE
	403	T & G WOOD	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	4'-2" TO 6'-7"	D	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	PLASTER ON WOOD LATHE
	404	T & G WOOD	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	4'-0" TO 6'-7"	D	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	WOOD	6"	PAINT	PLASTER ON WOOD LATHE
	405	T & G WOOD	–	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	PLASTER	PAINT	6'-8 1/2"	E	WOOD	7 1/4"	PAINT	WOOD	7 1/4"	PAINT	WOOD	7 1/4"	PAINT	WOOD	7 1/4"	PAINT	STAIR HALL

GENERAL NOTES

1. ON THE THIRD FLOOR THE ONLY FULLY INTACT MOULDING IS IN ROOM 302.
2. NEW PLASTER IS PULLING AWAY FROM ORIGINAL MATERIAL IN NUMEROUS LOCATIONS @ 3RD FLOOR

DESIGNED: J.B. W.R.TURNER
TECH. REVIEW: ASD
DATE: 6/92

SUB SHEET NO.

TITLE OF SHEET: ROOM FINISH SCHEDULE THIRD AND FOURTH FLOORS BUILDING 33 HARPERS FERRY N.H.P.

DRAWING NO. 385 25,024
PKG. NO. 1/16
SHEET 27 68

449

/PRG/HAFE118A/ARCH/RMFIN_3_4.DG

DOOR SCHEDULE

FLR.	DOOR NO.	DOOR TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	THICKNESS	ARCHITRAVE TYPE	PANEL TYPE	TRAN. TYPE	AA	BB	TRAN. BAR	COMMENTS
1ST	101	A	2'-8±	7'-10±	4 2/8"	1'-11"	4 8/8"	2"-5"	1"-3/4"	2"-5"	7 1/8"	11 5/8"	5"	9 3/4"	5"	2'-6 1/2"	5 5/8"				5 3/4"			2 1/4"		D(INT.) C(EXT.)	B	5'-4 3/8"	2'-2 1/8"	5"	EXTERIOR DOOR
	102	B	2'-0" ±	7'-10 1/2"	4 1/2"	1'-2 1/2"	4 3/8"	4 1/2"	1'-2 3/8"	4 1/2"	4"-1/2"	2 1/2"	8 1/4"	4"	4 1/2"	10"	4 1/2"	4"	4 1/2"	1'-3"	4 1/2"			1 1/4"	4 (INT.)	A	B	4'-0"	1'-8 1/8"	5"	EXTERIOR DOOR ; NO GLAZING @ UPPER PANELS
	103	C	2'-11 1/2"	7'-9 1/2"	5 1/2"	10 1/2"	5"	10 1/2"	4 1/4"	7 1/2"	1'-8"	9"	4'-5"	4"										1 1/4"		E	B	2'-11 5/8"	1'-10"	2 1/2"	EXTERIOR DOOR
	104	H	2'-10"	6'-9 1/4"	4"	10 1/4"	4"	10 3/4"	4 1/2"	8"	1'-7"	8 1/4"	3'-6"	4"										1 3/8"		H					
	105	J	2'-0"	6'-9"	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					1 3/8"							NON-HISTORIC (HC) DOOR NO PANELS
	106	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	107	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	108	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	109	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	110	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	111	B	1'-7 3/4"	7'-9 5/8"	4 1/2"	11 1/2"	4 8/8"	4 1/4"	11 1/2"	4"	9"	1'-1"	9"	4"	4"									1 3/4"		B(EXT.)	B	3'-4"	2'-0 1/2"	4 1/2"	EXTERIOR DOOR (BOARDED UP FROM INSIDE)
	112	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"								4 1/4"						1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	113	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
	114	B	2'-0 1/2"	8'- 1"	2 4/8"	1'-6 1/4"	3 1/4"	2 1/4"	1'-1 1/4"	2 1/4"	2'-4 1/2"	2 1/4"	3 1/2"	4"	2 1/4"	1'-2"	2 1/2"	2 1/2"	2 3/4"	2'-7 1/2"	3 3/4"			2 1/2"	1 (INT.)	B(EXT.) E(INT.)	B	4'-0"	1'-9 1/2"	2 8/8"	EXTERIOR DOOR ; Z=4'-0 1/4"
	115	H	3'-0"	6'-4"	4 1/2"	10 3/4"	5"	10 3/4"	4 3/4"	9"	1'-8"	8"	2'-10"	5"										1 3/4"		K					EXTERIOR DOOR ; Z=4'-11 1/2"
	116	B	2'-6"	7'-9 1/2"	3 3/4"	1'-11"	3 1/4"	5"	1'-8 3/8"	4 1/2"	8 1/4"	2 1/4"	8 1/2"	2 1/2"	2 1/4"	1'-7"	4 1/2"							2 1/2"	1 (INT.)	B	B	4'-11 7/8"	1'-9 1/2"	3"	EXTERIOR DOOR
	117	D	2'-11 3/4"	6'-7"	10 3/4"	1'-2"	11"	6"	2'-2"	3'-11 1/4"														1 3/8"							NON HISTORIC (HM) FRAME AND METAL DOOR
2ND	201	E	2'-4 3/8"	7'-11 1/4"	4 1/2"	1'-7"	4 7/8"	4 1/2"	7 1/8"	5"	6 7/8"	4 7/8"	7 1/4"	1'-8 3/4"	8 3/4"	4'-6"	4 1/2"							1 3/4"	5	F (LOWER) E (UPPER)					
	202	H	2'-7 3/4"	6'-9"	4 3/4"	9 1/2"	4 8/8"	9 1/2"	4 8/8"	8 1/2"	1'-8"	7 8/8"	3'-4"	5 1/2"										1 3/4"	NON HISTORIC (HM)	H					
	203	H	2'-9 3/4"	6'-8 1/2"	4 1/2"	10 8/8"	4 1/2"	10 3/8"	4 1/2"	7"	1'-8 1/4"	8"	3'-5 3/4"	4"											5 (RM. 206 SIDE)	F					
	204	E	2'-4 1/2"	7'-11" ±	4 3/4"	1'-7"	5"	4 1/2"	7"	5"	7"	5"	7 3/8"	1'-8 3/4"	8 3/4"	4'-6 1/8"	4"							1 3/4"	5	F (LOWER) E (UPPER)					
	205	J	1'-10 3/4"	6'-7"	3 3/4"	7"	2'-2 1/4"	7 1/4"	2'-10 3/4"	3 1/2"	2 3/4"	1'-11 1/2"												1 3/8"	6 (RM. 207 SIDE)	M					
	206	J	1'-11 3/4"	6'-7"	4 3/4"	5 1/2"	1'-6"	9"	3'-7"	3 1/2"	1'-11 1/2"													1 3/8"	NON HISTORIC (HM)	G					
	207	H	2'-5 3/4"	6'-4 1/4"	3 1/4"	9 8/8"	4 8/8"	9 1/2"	3 1/2"	6 1/2"	1'-5"	7 8/8"	3'-6"	3 3/4"										1 3/8"	NON HISTORIC (HM)	H					
	208	H	2'-5 3/4"	6'-8 1/4"	4 1/2"	8 3/4"	4 1/2"	8 1/4"	4 1/2"	6 3/4"	1'-8 1/4"	7 3/4"	3'-5 3/4"	3 8/8"										1 3/8"	2 (RM. 209 SIDE)	F (209)					
	209	H	2'-5 8/8"	6'-8 3/4"	4 1/2"	8 8/8"	4 1/2"	8 1/4"	4 1/4"	6 8/8"	1'-8 1/4"	8"	3'-5 1/2"	3 3/4"										1 3/8"	6 (RM. 207 SIDE)	F (207)					
	210	H	2'-7 7/8"	6'-7 1/2"	4 8/8"	9 8/8"	4 1/2"	9 1/4"	6 1/4"	4 8/8"	1'-8 1/4"	8 8/8"	3'-5 1/2"	3 8/8"										1 3/8"	6 (RM. 207 SIDE)	E					
	211	H	2'-5 8/8"	6'-8"	4 1/2"	9 1/4"	4 8/8"	9 1/4"	4 1/4"	7"	1'-8"	8"	3'-5 1/2"	3 1/2"										1 3/8"	1 (RM. 211 SIDE)	F					
	212	*	2'-6"	6'-9"																				1 3/8"	2 (RM. 209 SIDE) 5 (RM. 206 SIDE)						NO DOOR
	213	J	1'-11 1/2"	6'-6"	3 1/2"	1'-4 1/2"	3 1/2"	4"	1'-6"	8 3/4"	3'-7 1/2"	3 3/4"												1 3/8"	NON HISTORIC (HM)	E					
	214	F	2'-8 3/4"	6'-9"	3 3/4"	2'-1 1/4"	3 3/4"	8 3/4"	1'-11"	8"	3'-1 1/4"	4 1/4"												1 3/8"	7 (INT.)						NON HISTORIC (HM)

NOTE :
ALL DOORS SHOULD BE FIELD VERIFIED BEFORE CONSTRUCTION

DESIGNED	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
ARD WR TURNER		DOOR SCHEDULE FIRST AND SECOND FLOOR BUILDING 33 HARPERS FERRY N.H.P.	385 25,024
TECH. REVIEW ASD			PKG. NO. 116
DATE 6/92			SHEET 28 68

/PROJ/HAFE116A/ARCH/DOOR_SCH.DG

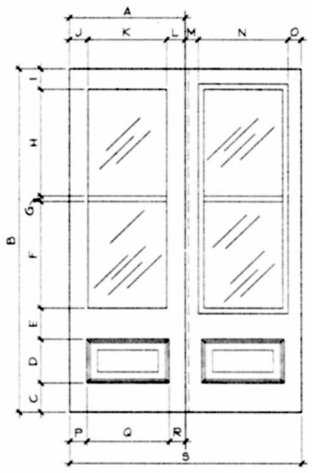
DOOR SCHEDULE

FLR	DOOR NO.	DOOR TYPE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	THICKNESS	ARCHITRAVE TYPE	PANEL TYPE	TRAN. TYPE	AA	BB	TRAN. BAR	COMMENTS
3RD	301	*	2'-5"	6'-5 1/2"																					3						*DOOR MISSING
	302	*	2'-5"	6'-5 1/2																					3			B	2'-6"	1'-3 1/2"	*DOOR MISSING PAINTED PLYWD REPLACES GLASS IN TRANSOM
	303	H	2'-5 7/8"	6'-5"	3 7/8"	9"		3 3/4"	9 1/8"	3 7/8"	7 1/8"	1'-9"	7 1/8"	3'-2 3/8"	3 3/8"									3/8"	3			B	2'-6"	1'-4"	PAINTED PLYWD REPLACES GLASS
	304	*	2'-5"	6'-5 1/2"																											*DOOR MISSING; NON-HIST OPNG (CLOSET DOOR MOVED)
	305	H	2'-6"	6'-6"	3 1/2"	9 1/4"	4"	9 1/2"	3 3/4"	8"	1'-5"	8"	3'-5"	4"										1"							
	306	*	2'-5 1/2"	6'-5"																											*DOOR MISSING; NON-HIST OPNG DOOR
	307	H	2'-5 3/4"	6'-5 7/8"	4"	9"		3 3/4"	9"	4 1/4"	7"	1'-9"	7 1/4"	3'-2 3/8"	3 1/2"									3/8"			B	2'-6"	1'-4 1/8"	PAINTED PLYWD REPLACES GLASS
	308	H	2'-5 7/8"	6'-5"	3 3/4"	9 1/8"		3 3/4"	9"	4"	7"	1'-9"	7 1/8"	3'-2 3/8"	3 1/2"									3/8"	3		B	2'-6"	1'-4 1/4"	PAINTED PLYWD REPLACES GLASS
	309	*	2'-5"	6'-5 1/2"																					3		B	2'-6"	1'-4 1/8"	*DOOR MISSING PAINTED PLYWD REPLACES GLASS IN TRANSOM
	310	*	2'-4 1/2"	6'-4 1/2"																											*DOOR MISSING; NON-HIST OPNG
	311	*	2'-5 1/2"	6'-5"																											*DOOR MISSING; NON-HIST OPNG
	312	G	2'-4 1/2"	6'-6 1/4"	3"	1'-9 3/4"		4"	9"	10"	3 3/4"	10"	3 3/4"	10"	3 3/4"	10"	3 3/4"	10"	4 1/4"					3/8"							NON-HIST OPNG DOOR
	313	*	2'-5"	6'-5"																											*DOOR MISSING
	314	*	2'-5"	6'-5"																											*DOOR MISSING; NON-HIST OPNG
	315	*	2'-5"	6'-5"																					3			B	2'-6"	1'-4 1/4"	NORTH JAMB ARCH. TYPE ALTERED PAINTED PLYWD REPLACES GLASS
	316	*	2'-5"	6'-5"																					3			B	2'-6"	1'-4 1/2"	NO GLASS
	317	*	2'-5"	6'-5"																					3			B	2'-5 1/2"	1'-3 1/2"	*DOOR MISSING PAINTED PLYWD REPLACES GLASS IN TRANSOM
	318	*	2'-3"	6'-5 1/2"																											*DOOR MISSING; NON-HIST OPNG
	319	K	2'-11 3/4"	6'-11 7/8"	4"	11 3/4"		4"	11 1/2"	4 1/2"	8 1/4"	1'-7"	8 1/4"	1'-9 1/8"	1 1/2"	1'-9 1/4"	3 3/4"							3/8"	3 (RM 311 SIDE)						
4TH	401	H	2'-5 7/8"	6'-5 1/2"	4"	9"		4"	8 7/8"	4 1/8"	7"	8 3/4"	7 1/4"	3'-2 3/8"	3 3/4"									1 1/8"	2	L					
	402	I	2'-11 1/4"	5'-11 1/2"	8"	5"	3'-8 1/2"	5"	9"															7/8"							
	403	*	2'-5 1/2"	6'-6"																					2						*DOOR MISSING
	404	*	2'-5 1/2"	6'-6"																					2						*DOOR MISSING

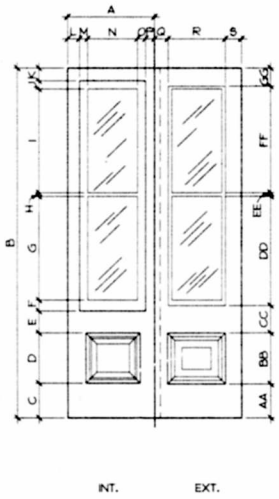
NOTE:
ALL DOORS SHOULD BE FIELD VERIFIED BEFORE CONSTRUCTION

DESIGNED	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
RADD WR TURNER		DOOR SCHEDULE THIRD AND FOURTH FLOORS BUILDING 33 HARPERS FERRY N.H.P.	385 25,024
TECH. REVIEW ASD			PKG. NO. 116 — —
DATE 6/92			SHEET 29 of 68

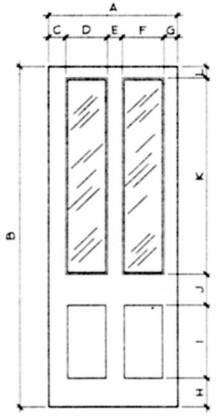
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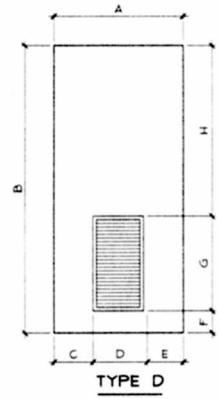
TYPE A



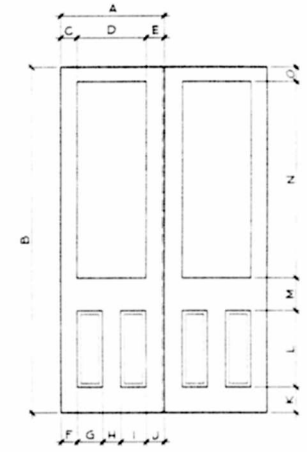
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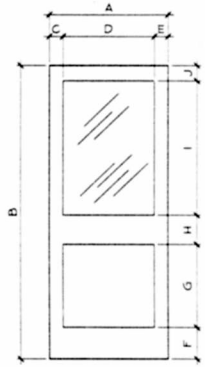
TYPE C



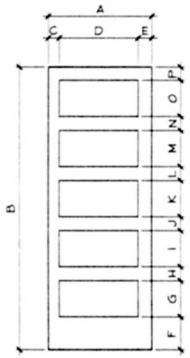
TYPE D



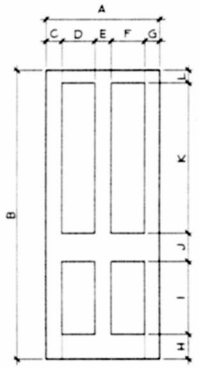
TYPE E



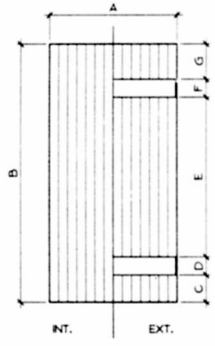
TYPE F



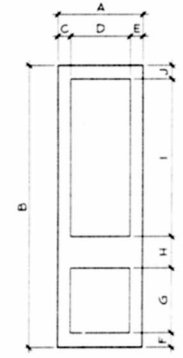
TYPE G



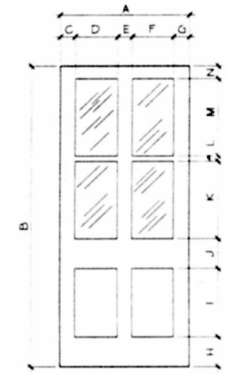
TYPE H



TYPE I



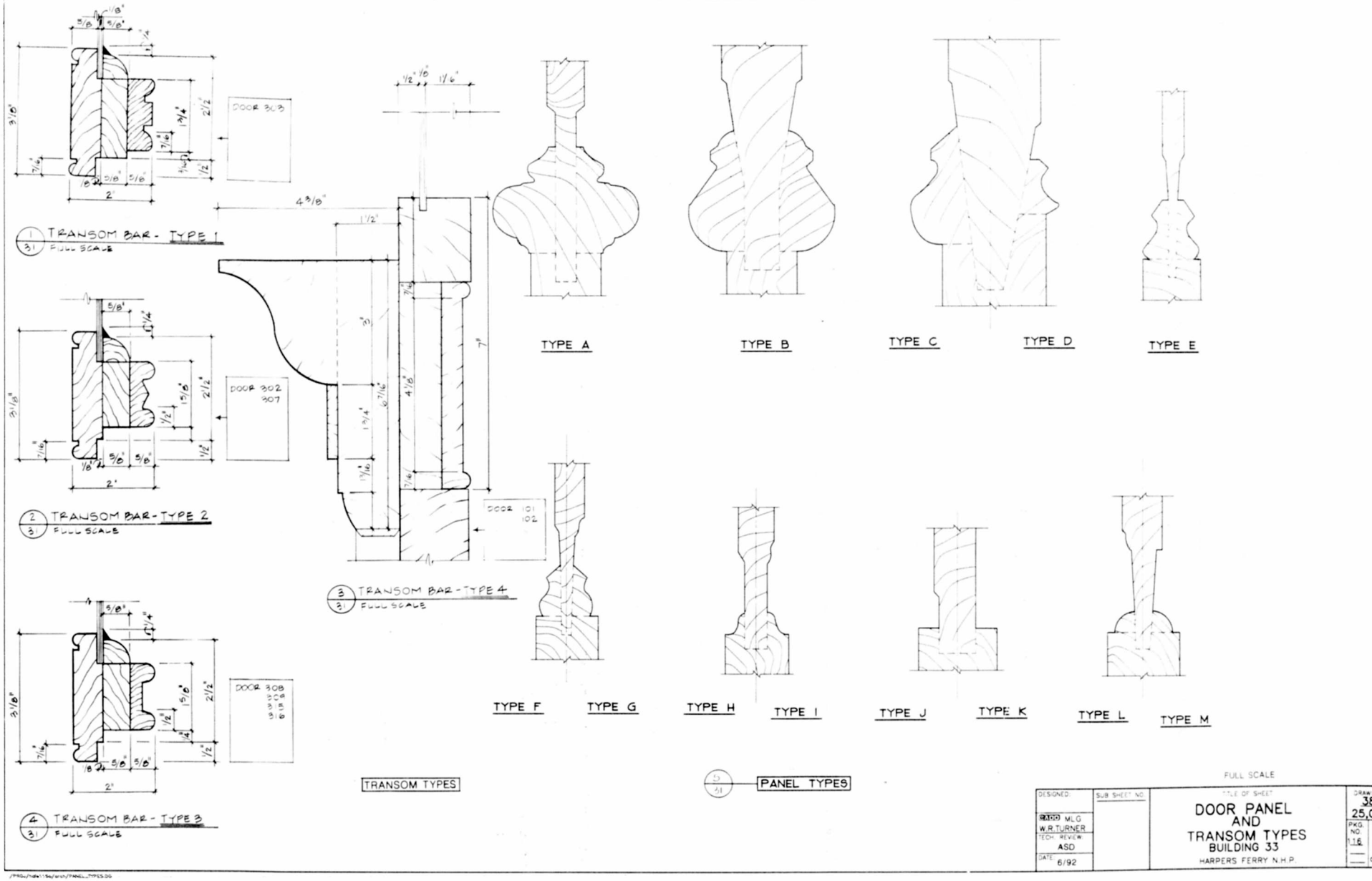
TYPE J



TYPE K

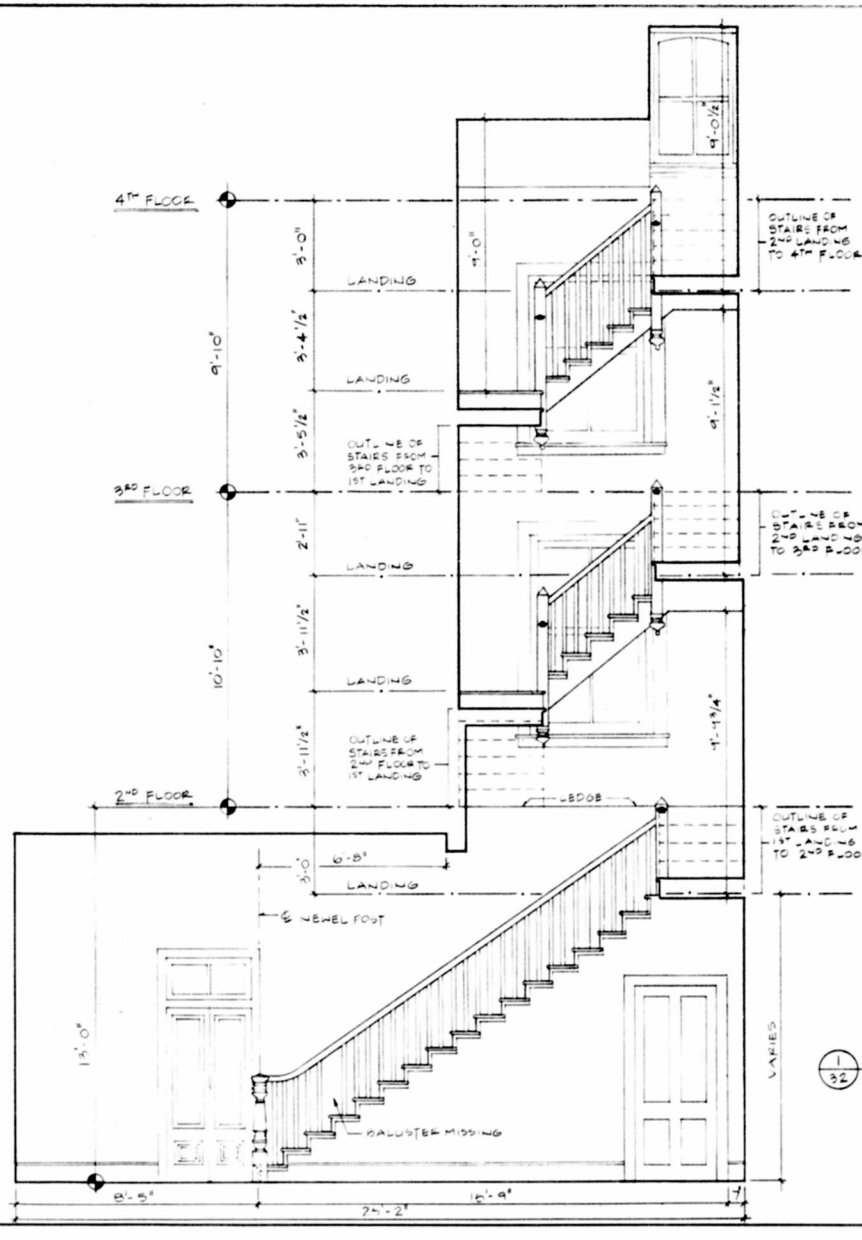
NO SCALE

DESIGNED: RADD ML GROVES; TECH. REVIEW: ASD; DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET: DOOR ELEVATIONS — BUILDING 33, HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024	PKG NO. 1.6 — SHEET 30 OF 88

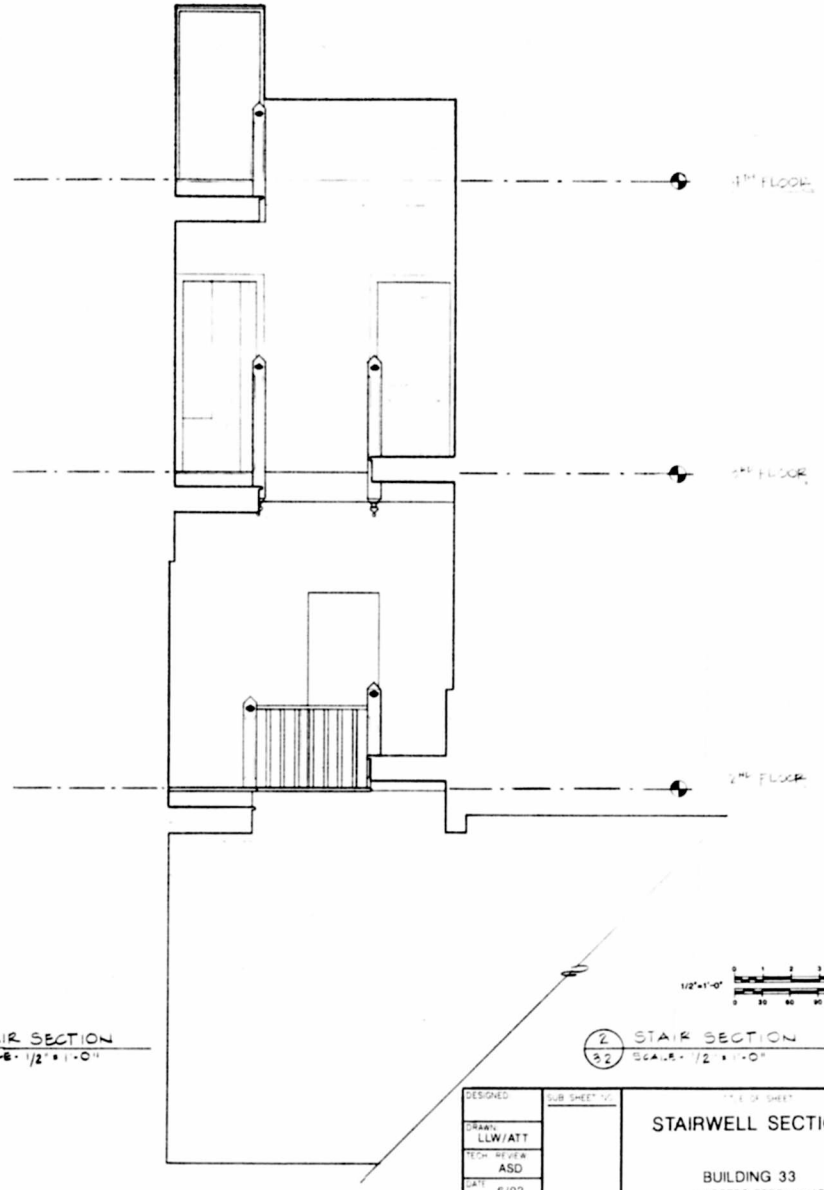


FULL SCALE

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
RADD MLG W.R.TURNER		DOOR PANEL AND TRANSOM TYPES BUILDING 33 HARPERS FERRY N.H.P.	385 25,024
TECH. REVIEW: ASD			PKG. NO. 116 — SHEET 31
DATE: 6/92			— OF 68



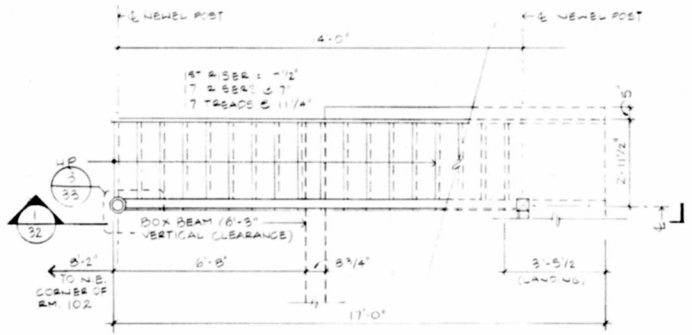
1/32 STAIR SECTION
SCALE: 1/2" = 1'-0"



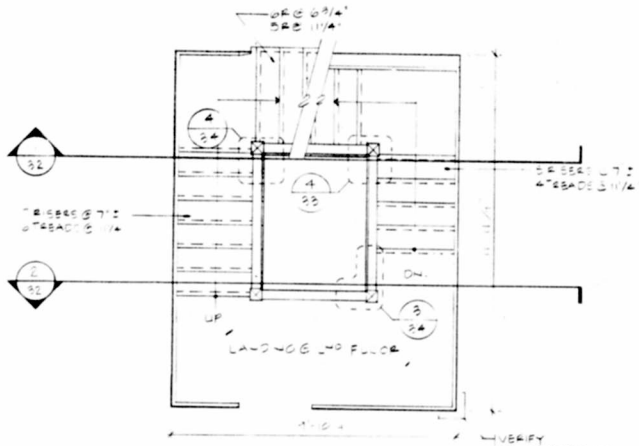
2/32 STAIR SECTION
SCALE: 1/2" = 1'-0"

1/2"=1'-0"

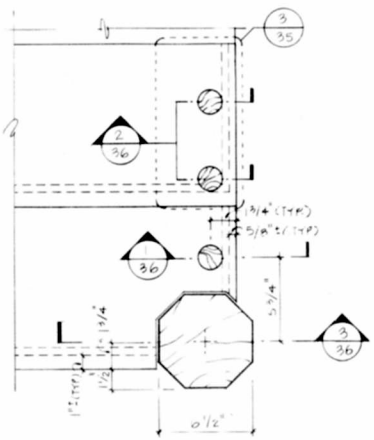
DESIGNED	SUB SHEET NO.	TITLE OF SHEET: STAIRWELL SECTIONS	DRAWING NO. 385 25,024
DRAWN LLW/ATT		BUILDING 33 HARPERS FERRY N.H.P.	PKG. NO. 116
TECH. REVIEW ASD			SHEET 32 OF 68
DATE 6/92			



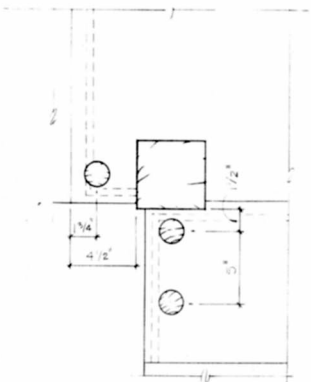
1/33 FIRST FLOOR STAIR PLAN
1/2" = 1'-0"



2/33 SECOND FLOOR STAIR PLAN
1/2" = 1'-0"



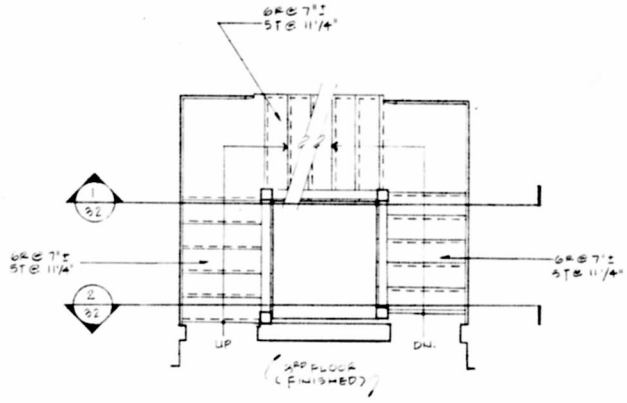
3/33 PLAN DETAIL
3" = 1'-0"



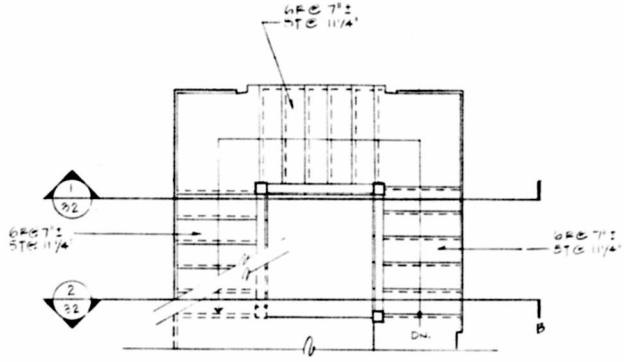
4/33 PLAN DETAIL
3" = 1'-0"

1/2"=1'-0" FEET CM
3"=1'-0" INCHES CM

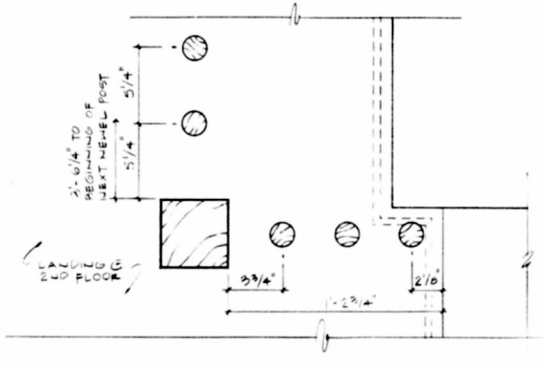
DESIGNED	SUB SHEET NO	TITLE OF SHEET: STAIRWELL PLANS AND DETAILS	DRAWING NO. 385 25,024
DRAWN ATT		BUILDING 33	PKG. NO. 116
TECH. REVIEW ASD		HARPERS FERRY N.H.P.	SHEET 33 OF 88
DATE 6/92			



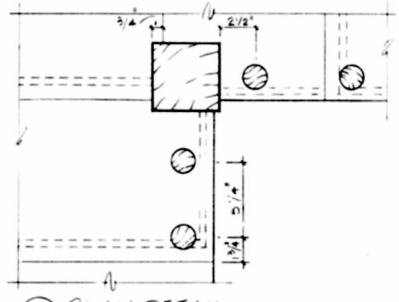
1/24 THIRD FLOOR STAIR PLAN
1/2" = 1'-0"



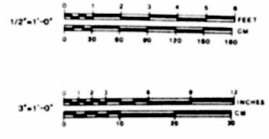
2/24 FOURTH FLOOR STAIR PLAN
1/2" = 1'-0"



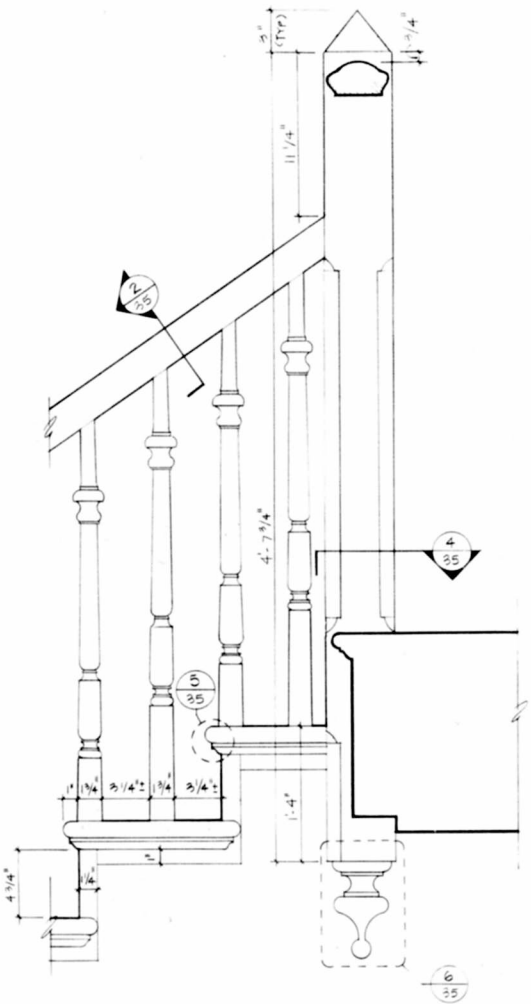
3/24 PLAN DETAIL
3/4" = 1'-0"



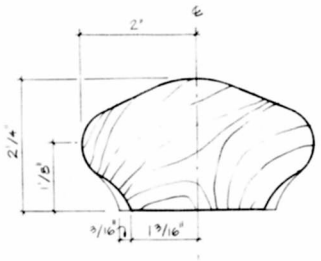
4/24 PLAN DETAIL
3/4" = 1'-0"



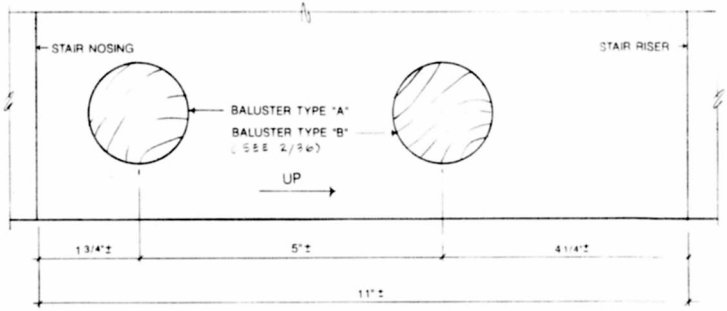
DESIGNED	SUB SHEET NO	TITLE OF SHEET: STAIRWELL PLANS & DETAILS BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN ATT			PKG NO. 116
TECH. REVIEW ASD			SHEET 34 OF 68
DATE 6/92			



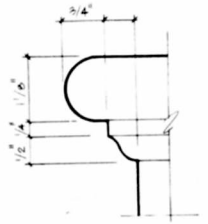
1/35 RAIL/NEWEL POST W/ PENDANT DETAIL (TYP.)
3/4" = 1'-0"



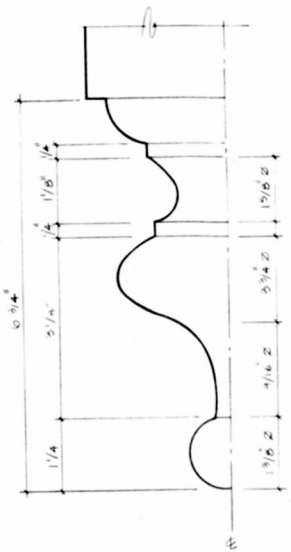
HANDRAIL DETAIL 2/35
FULL SCALE



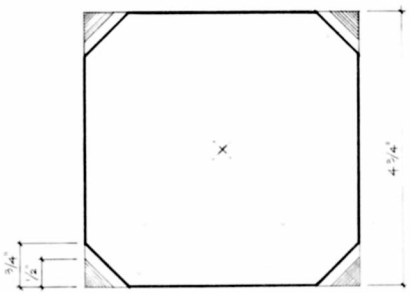
3/35 TYPICAL BALUSTER PLAN
FULL SCALE



5/35 DETAIL @ STAIR NOSING
FULL SCALE



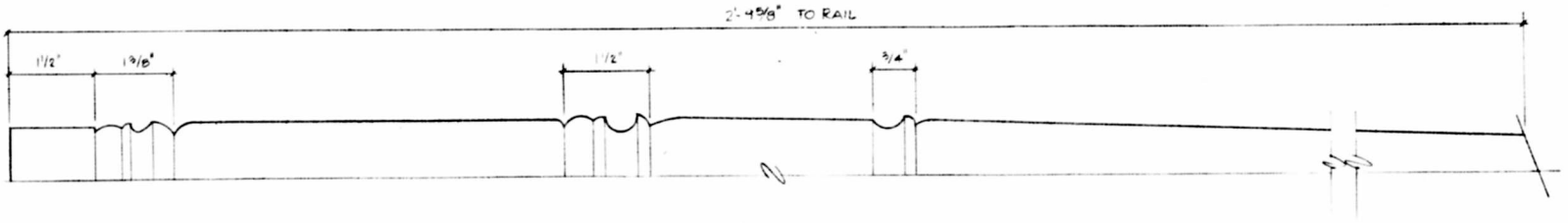
6/35 DETAIL @ DROP PENDANT
FULL SCALE (TYP.)



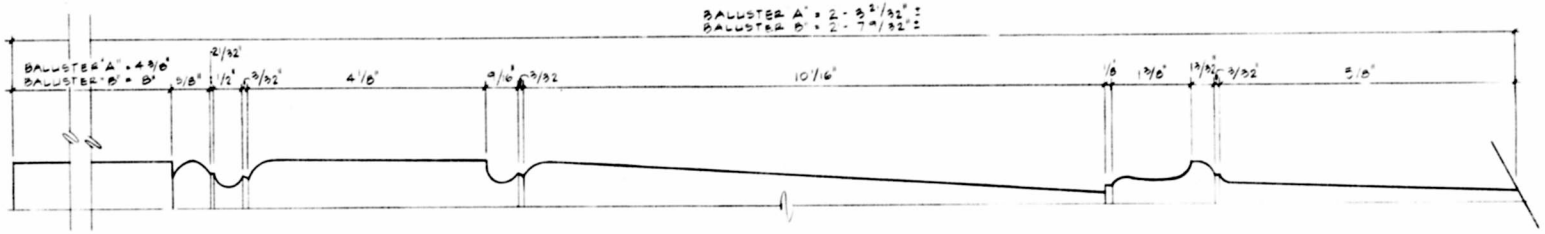
4/35 PLAN - NEWEL POST (TYP.)
FULL SCALE

3"=1'-0"

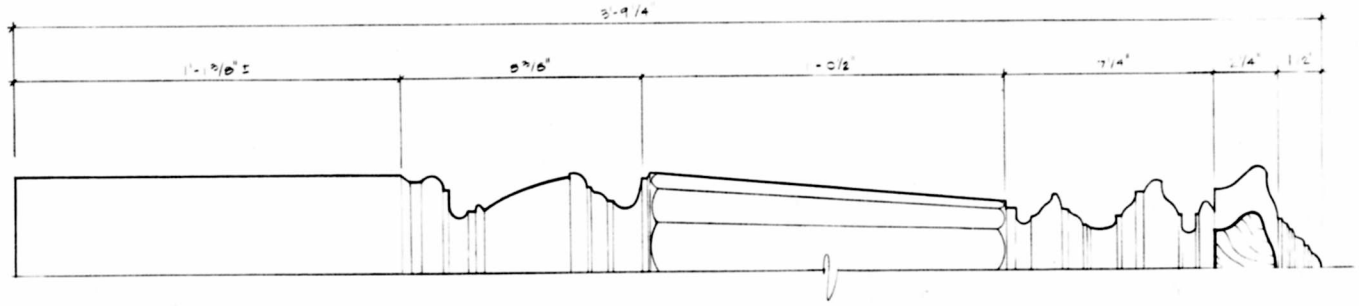
DESIGNED:	SUB SHEET NO.	TITLE OF SHEET: NEWEL POST & HANDRAIL DETAILS BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 35
DATE: 6/92			OF 68



FIRST BALUSTER
@ BASE OF STAIR
(RM. 102)
1/36 FULL SCALE



2/36 BALUSTER @ STAIR (TYP.)
FULL SCALE



3/36 NEWEL POST (RM. 102)
1/2 FULL SCALE

1/2 FULL SCALE

DESIGNED	SUB SHEET NO	TITLE OF SHEET: BALUSTER PROFILES	DRAWING NO. 385 25,024
DRAWN ATT		BUILDING 33 HARPERS FERRY N.H.P.	PKG. NO. 116
TECH. REVIEW ASD			SHEET 36 OF 68
DATE 6/92			

WINDOW SCHEDULE

FLR.	WINDOW NO.	WINDOW TYPE	SASH A	SASH B	ARCHITRAVE TYPE	REMARKS
FIRST FLOOR	101	A	3'-4 1/2"	7'-5 1/2"	1	SILL PULLING AWAY FROM FRAME STOP AND SILL DAMAGE, INOPERABLE
	102	A	3'-4 1/2"	7'-5"	1	BOARDED UP FROM INSIDE WITHIN ARCHITRAVE, SASH COMPLETELY GONE
	103	E	5'-3 3/8"	9'- 2"	-	FIXED
	104	E	5'-3 3/8"	7'- 5 1/2"	-	FIXED
	105	A	3'-4 1/2"	7'-5"		2 LIGHTS CRACKED, SILL DAMAGE, FRAME PULLING AWAY, INOPERABLE
SECOND FLOOR	201	B	2'-10 1/2"	6'-6"	2	ALUMINUM STORM
	202	B	2'-10 1/2"	6'-6"	-	COVERED OVER ON INSIDE
	203	B	2'-10 1/2"	6'-6"	2	CRACKED LIGHT
	204	B	2'-10 1/2"	6'-6"	2	
	205	B	2'-10 1/2"	6'-6"	5	
	206	B	2'-10 1/2"	6'-6"	5	2 LIGHTS CRACKED
	207	B	2'-10 1/2"	6'-6"	5	CRACKED LIGHT
	208	C	2'-7 7/8"	8'-4"	5	CRACKED LIGHT
	209	C	3'-4 3/4"	8'-3 1/2"	5	INOPERABLE
	210	C	2'-7 1/2"	8'-4"	5	CRACKED LIGHT, OPERABLE
	211	B	2'-10 1/2"	6'-6"	5	CRACKED LIGHT
	212	B	2'-10 1/2"	6'-6"	5	2 LIGHTS CRACKED
	213	B			5	COVERED OVER ON INSIDE: NO EVIDENCE OF WINDOW
	214	B	3'-9"	6'-5 1/2"	2	STAIR WINDOW, CRACKED LIGHT
	215	B	2'-10 1/2"	6'-6"	2	CRACKED LIGHT
	216	B	3'-4 1/2"	6'-5 3/8"	2	FRAME FALLING AWAY AT TOP
	217	B	2'-10 1/2"	6'-6"		CRACKED LIGHT

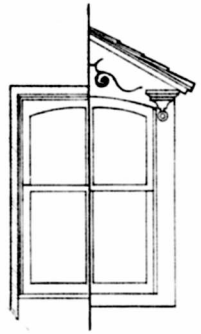
FLR.	WINDOW NO.	WINDOW TYPE	SASH A	SASH B	ARCHITRAVE TYPE	REMARKS
THIRD FLOOR	301	B	2'-10 1/2"	5'-6"	3	BROKEN LIGHT. WATER DAMAGED SILL
	302	B	2'-10 1/2"	5'-6"	3	BRICKED-IN AND PLASTERED OVER
	303	B	2'-10 1/2"	5'-6"	3	SILL AND ARCHITRAVE DAMAGE, BROKEN PULLS. HISTORIC HARDWARE IN PLACE, REPLACEMENT GLASS, BOTTOM PIECE OF SILL MISSING
	304	B	2'-10 1/2"	5'-6"	3	WATER DAMAGED SILL. CRACKED LIGHTS. REPLACEMENT GLASS (ONE LIGHT)
	305	B	2'-10 1/2"	5'-6"	3	BROKEN LIGHT. WATER DAMAGED SASH. HISTORIC HARDWARE IN PLACE
	306	B	2'-10 1/2"	5'-6"	3	REHANG, DAMAGED SASH DAMAGED SASH. FRAME & STOP, STORM MISSING
	307	B	2'-10 1/2"	5'-6"	3	CRACKED LIGHT. DAMAGED SASH. REPLACEMENT GLASS (LOWER LIGHTS)
	308	B	2'-10 1/2"	5'-6"	3	CRACKED LIGHT. DAMAGED SASH. STORM MISSING
	309	B	2'-10 1/2"	5'-6"	3	DAMAGED SILL. HISTORIC HARDWARE IN PLACE. INOPERABLE (SNAPPED ROPE PULLS). REPLACEMENT STOPS
	310	B	2'-10 1/2"	5'-6"	3	DAMAGED SASH
	311	B	2'-10 1/2"	5'-6"	3	CRACKED LIGHT, DAMAGED SASH. SASH PULLING AWAY @ TOP OF FRAME
	312	B	2'-10 1/2"	5'-6"	3	DAMAGED SASH. FRAME. SILL AND STOP. SASH PULLING AWAY @ TOP OF FRAME
	313	B	3'-9"	5'-6"	2 - ABOVE/ 5 - BELOW	STAIR WINDOW, INOPERABLE, DAMAGED SASH
	314	B	2'-10 1/2"	5'-6"	3	DAMAGED SASH. FRAME & STOP, SASH PULLING AWAY @ TOP OF FRAME. REPLACEMENT GLASS (ALL LIGHTS)
	315	B	2'-10 1/2"	5'-6"	3	DAMAGED SASH & SILL. SASH PULLING AWAY @ TOP OF FRAME, REHANG, REPLACEMENT GLASS (ALL LIGHTS)
	316	B	2'-10 1/2"	5'-6"	3	CRACKED LIGHT. DAMAGED SILL. REHANG
FOURTH FLOOR	401	D-4	2'-10 3/4"	4'-7 7/8"	-	DAMAGED SASH & FRAME. FRAME IS PULLING AWAY FROM DORMER WALL. MISSING STOP
	402	D-1	2'-10 3/4"	4'-7 5/8"	-	SILL & DORMER ROTTED. REPLACEMENT FRAME & STOP
	403	D-3	2'-11 1/4"	4'-7 1/2"	-	STRUCTURAL DAMAGE @ DORMER WALL. MILLWORK ROTTED. SILL & DORMER ROTTED SASH DO NOT MEET (LARGE GAP). CRACKED LIGHT
	404	D-2	2'-10 3/4"	4'-7"	-	DAMAGED SASH & FRAME. FRAME IS PULLING AWAY FROM DORMER WALL. REPLACEMENT STOPS. GALVINIZED PIPE PUNCTURING THROUGH LOUVER

NOTES

1. STORM WINDOWS ON SECOND AND THIRD FLOORS MAKE ACCESS TO ACCURATE INFORMATION DIFFICULT. ALL ARE INOPERABLE UNLESS OTHERWISE NOTED, AND MANY ARE DAMAGED.
2. THIRD FLOOR HISTORIC HARDWARE MISSING UNLESS OTHERWISE NOTED.
3. ALL FOURTH FLOOR WINDOWS NEED EXTENSIVE REPAIR.

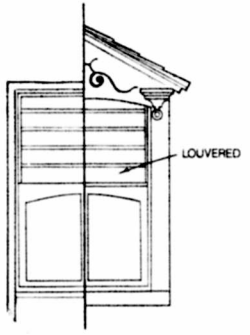
DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
RADD WRT, JB		WINDOW SCHEDULE	385 25,024
TECH. REVIEW: ASD		BUILDING 33 HARPERS FERRY N.H.P.	PKG. NO. 116 SHEET 37
DATE: 6/92			88

/PROJ/HAFE116A/ARCH/WIND_SCH.DG



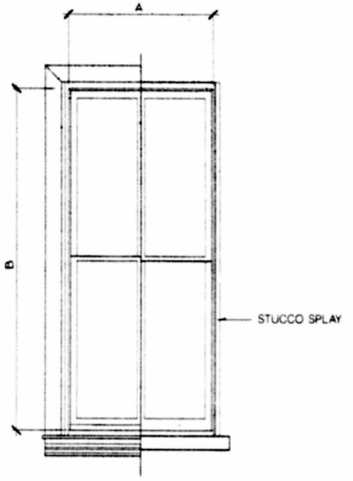
TYPE D-1

INTERIOR EXTERIOR



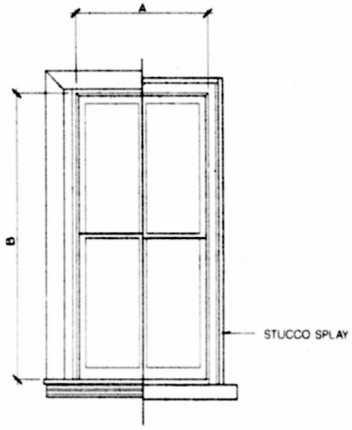
TYPE D-2

INTERIOR EXTERIOR



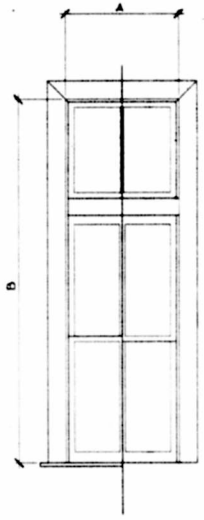
INTERIOR EXTERIOR

(A) WINDOW ELEVATIONS



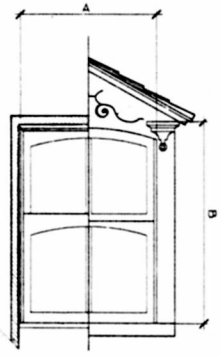
INTERIOR EXTERIOR

(B) WINDOW ELEVATIONS



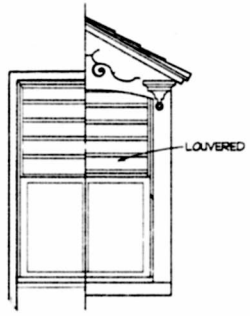
INTERIOR EXTERIOR

(C) WINDOW ELEVATIONS



TYPE D-3

INTERIOR EXTERIOR

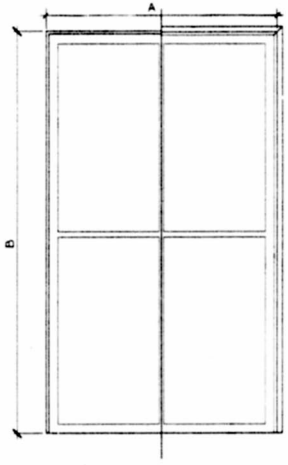


TYPE D-4

INTERIOR EXTERIOR

(D) WINDOW ELEVATIONS

(TYPES 1-4)



INTERIOR EXTERIOR

(E) WINDOW ELEVATIONS

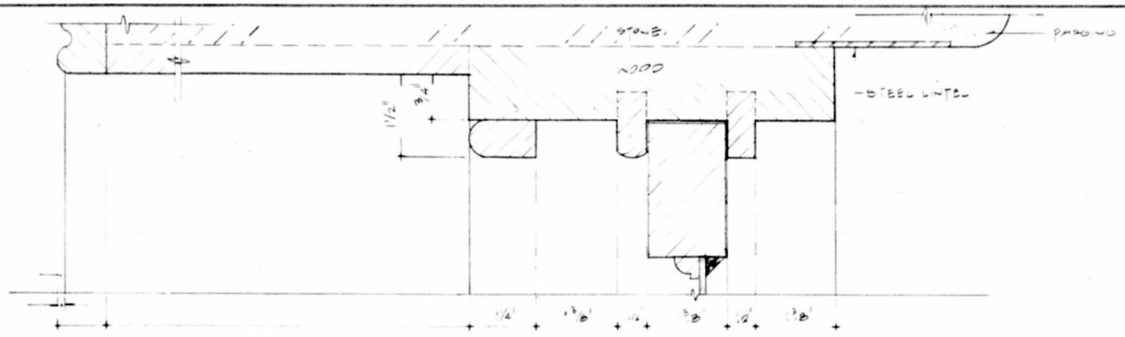
NOTE

A AND B ARE THE HORIZONTAL AND VERTICAL SASH DIMENSION RESPECTIVELY

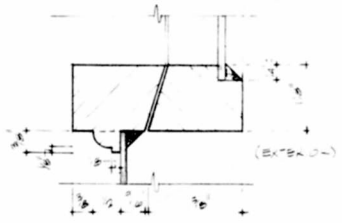
NO SCALE

DESIGNED: RADD LLW, ML GROVES; TECH. REVIEW ASD; DATE 6/92	SUB SHEET NO.	TITLE OF SHEET: WINDOW ELEVATIONS — BUILDING 33, HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024; PKG. NO. 1.16; SHEET 38 OF 68

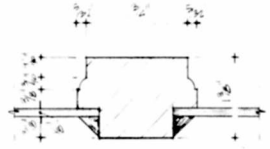
/PROJ/HAFE116A/ARCH/WIND_ELEV_2.DG



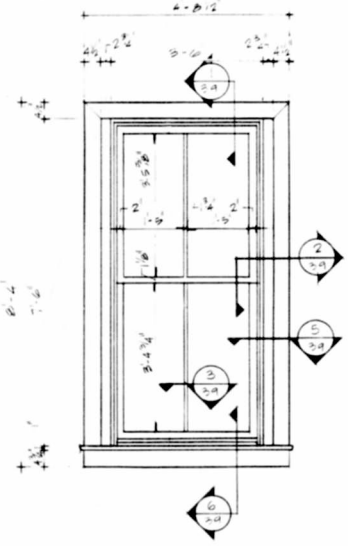
1 / 2.0 1ST FLOOR WINDOW DETAILS HEAD (TYP.)
FULL SCALE



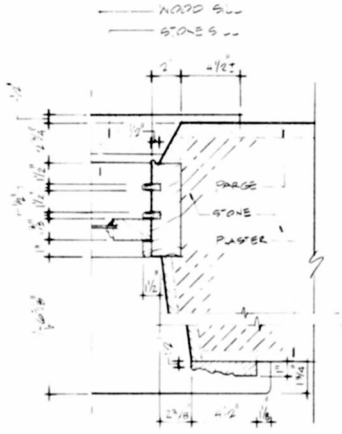
2 / 2.0 1ST FLOOR WINDOW DETAILS MEETING RAIL (TYP)
FULL SCALE



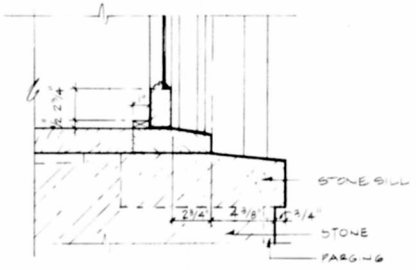
3 / 2.0 1ST FLOOR WINDOW DETAILS MUNTIN (TYP)
FULL SCALE



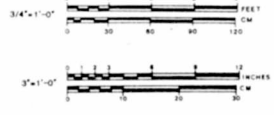
4 / 2.0 WINDOW ELEVATION
SCALE 3/4" = 1'-0"



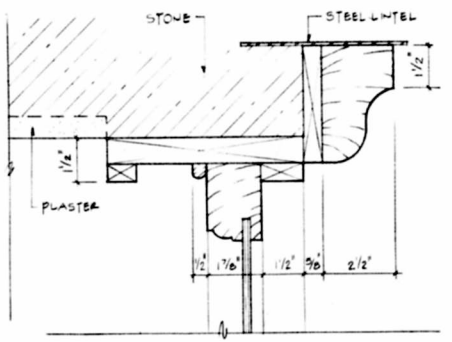
5 / 2.0 1ST FLOOR WINDOW DETAILS JAMB (TYP)
SCALE 3" = 1'-0"



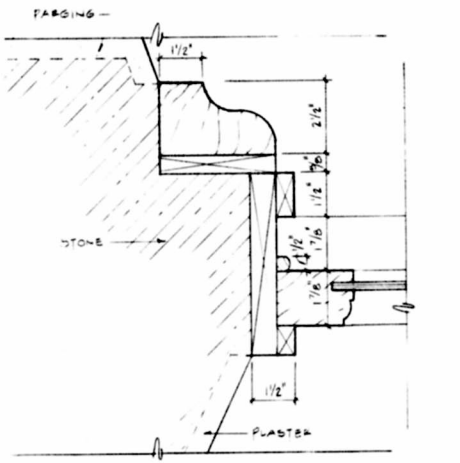
6 / 2.0 1ST FLOOR WINDOW DETAILS SILL (TYP.)
SCALE 3" = 1'-0"



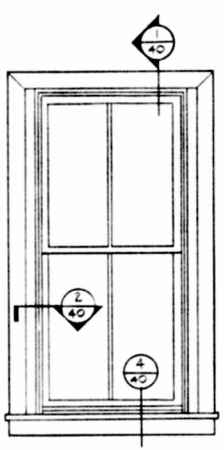
DESIGNED:	SUB SHEET NO.	TITLE OF SHEET: WINDOW DETAILS FIRST FLOOR BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 388 25024
DRAWN: SCD			PKG. NO. 118
TECH. REVIEW: ASD			SHEET 39 OF 68
DATE: 6/92			



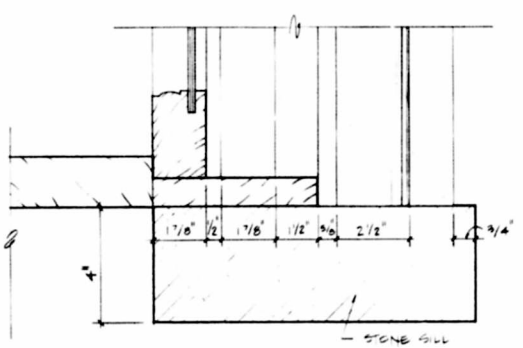
1/40 2ND & 3RD FLOOR WINDOW DETAILS HEAD (TYP.)
1/2 FULL SCALE



2/40 2ND & 3RD FLOOR WINDOW DETAILS JAMB (TYP.)
1/2 FULL SCALE



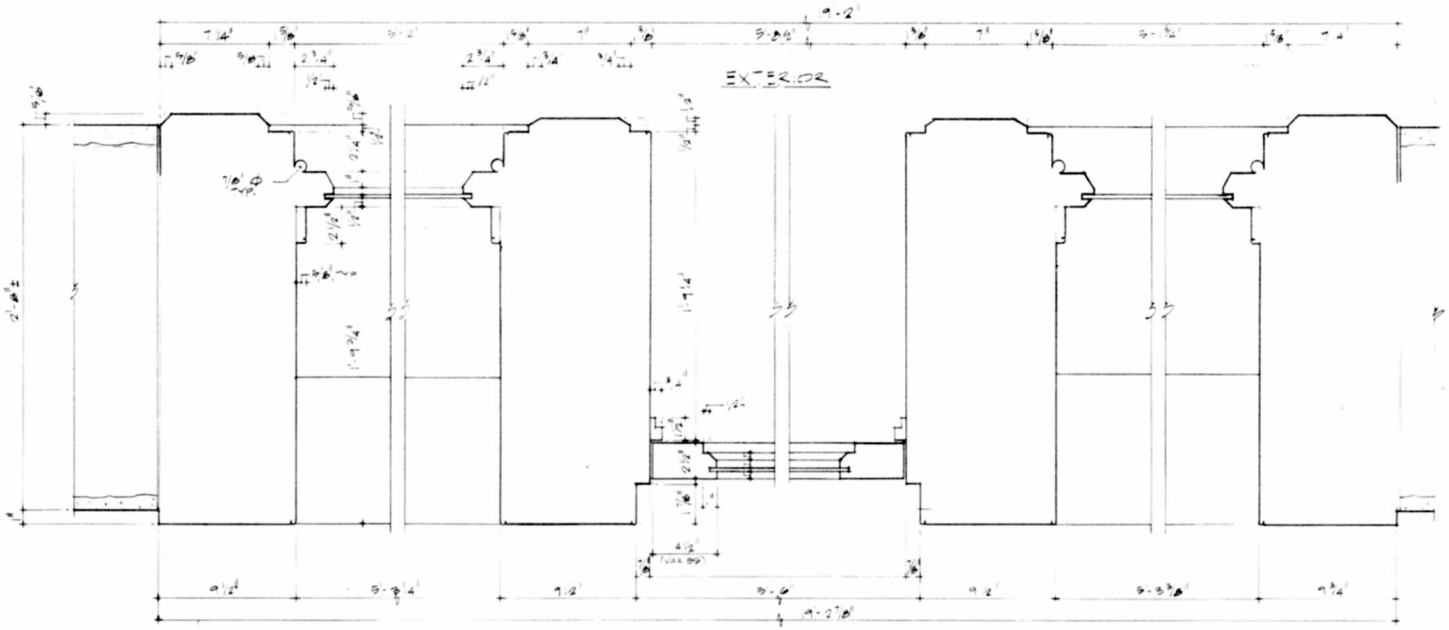
3/40 WINDOW ELEVATION
3/4"=1'-0"



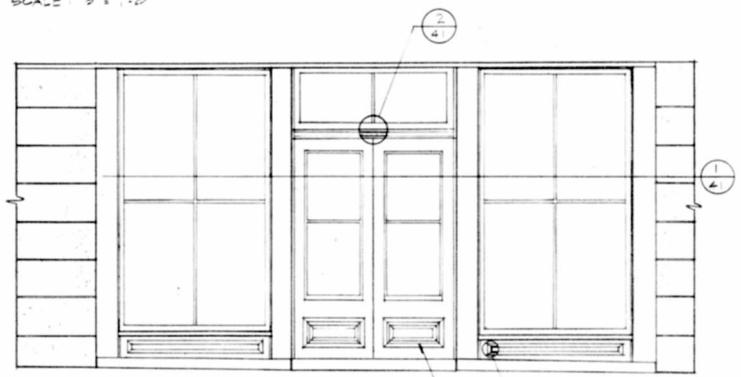
4/40 2ND & 3RD FLOOR WINDOW DETAILS SILL (TYP.)
1/2 FULL SCALE

1/2 FULL SCALE

DESIGNED	SUB SHEET NO	TITLE OF SHEET: WINDOW DETAILS SECOND AND THIRD FLOORS BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO 385 25,024
DRAWN ATT			PKG NO 116 — SHEET 40
TECH. REVIEW ASD			— OF 68
DATE 6/92			

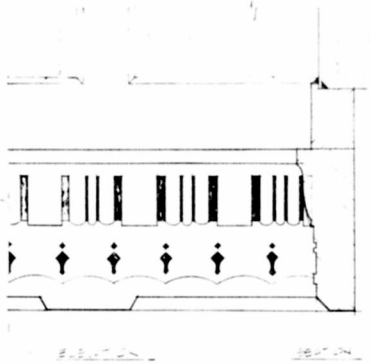


1/4 STOREFRONT JAMBS
SCALE: 3" = 1'-0"

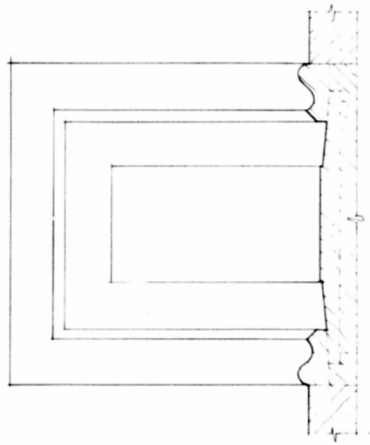


4/4 STOREFRONT ELEVATION
SCALE: 1/2" = 1'-0"

D/3 "2R PANEL" TYPE
SEE SHT. 3/



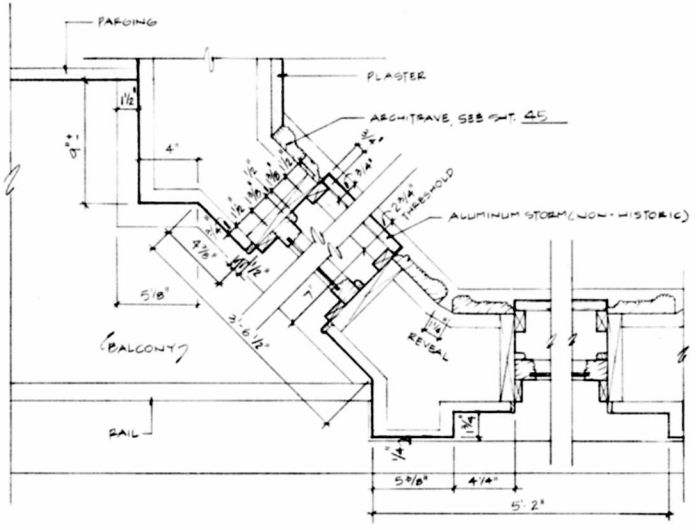
2/4 TRANSOM BAR DETAIL
HALF SCALE



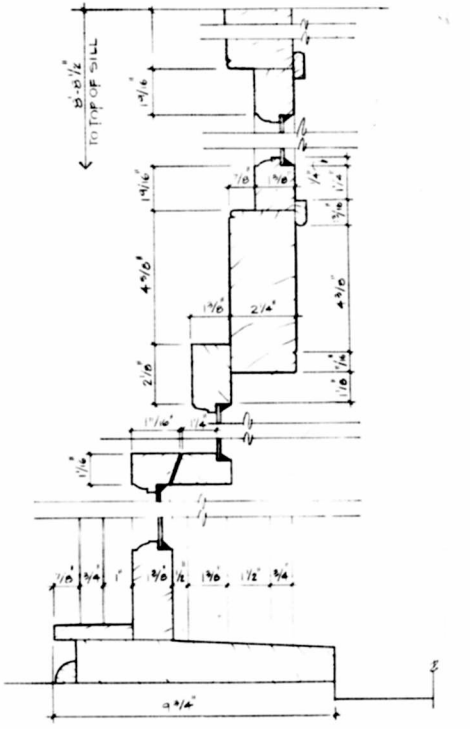
3/4 PANEL DETAIL
FULL SCALE

1/2"=1'-0" FEET CM
3"=1'-0" INCHES CM

DESIGNED	SUB SHEET NO.	TITLE OF SHEET: STOREFRONT DETAILS	DRAWING NO. 385 25024
DRAWN SCD		BUILDING 33 HARPERS FERRY N.H.P.	PKG. NO. 116
TECH. REVIEW ASD			SHEET 41
DATE 6/92			OF 88



1 / 42 BAY WINDOW DETAIL
SCALE: 3" = 1'-0"



2 / 42 SECTION @ BAY WINDOW
1/2 FULL SCALE

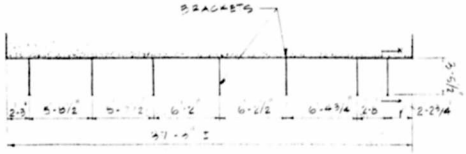
3"=1'-0"

1/2 FULL SCALE

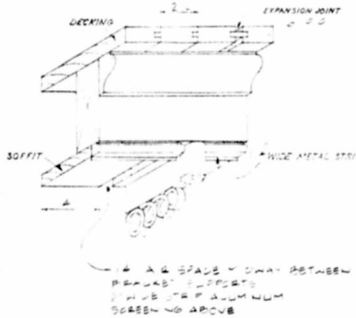
DESIGNED	SUB SHEET NO.	TITLE OF SHEET: BAY WINDOW DETAILS	DRAWING NO. 385 25,024
DRAWN: ATT		BUILDING 33 HARPERS FERRY N.H.P.	PKG. NO.
TECH. REVIEW: ASD			SHEET 42 OF 68
DATE: 6/92			



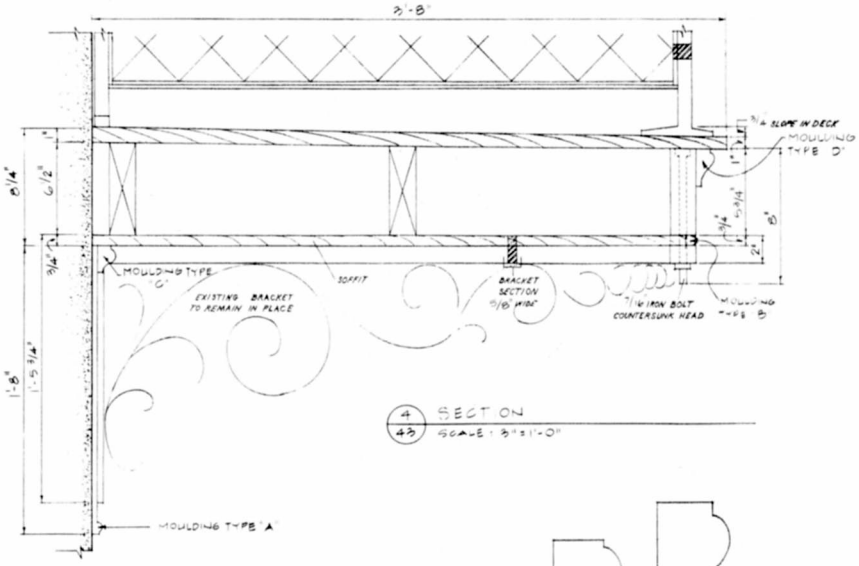
1/43 PLAN (DECKING REMOVED)
SCALE: 3/4" = 1'-0"



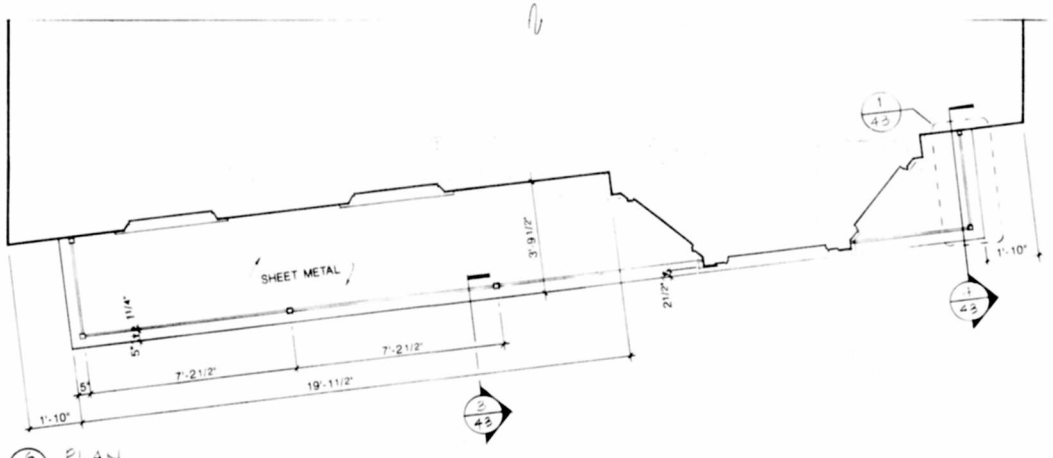
2/43 PLAN (SPACING OF BRACKETS)
SCALE: 3/16" = 1'-0"



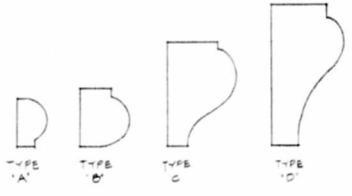
3/43 DETAIL
SCALE: 3" = 1'-0"



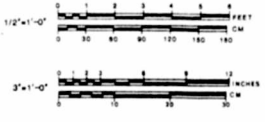
4/43 SECTION
SCALE: 3" = 1'-0"



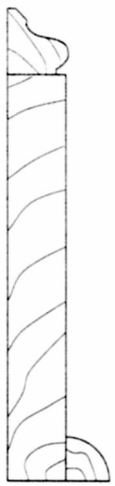
6/43 PLAN
SCALE: 1/2" = 1'-0"



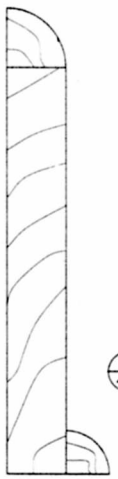
5/43 MOULDING TYPES
FULL SCALE



DESIGNED	SUB SHEET NO.	TITLE OF SHEET: BALCONY DETAILS	DRAWING NO. 385 25,024
DRAWN: AF/ATT		BUILDING 33	PKG. NO. 116
TECH. REVIEW: ASD		HARPERS FERRY N.H.P.	SHEET 43
DATE: 6/92			OF 68



TYPE A



TYPE B



CORNICE MOULDING

SEE GENERAL NOTES ON FINISH SCHEDULE. SHT. 26

(1/44) BASEBOARD TYPES



TYPE 1



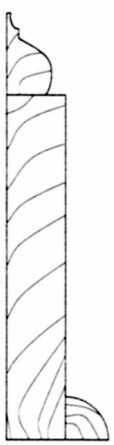
TYPE 2



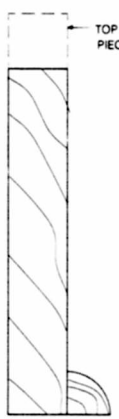
TYPE 3



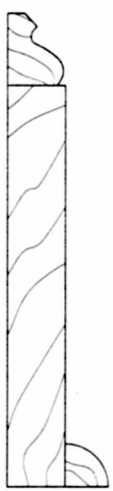
TYPE 4



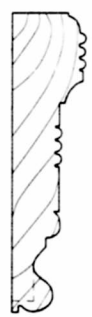
TYPE C



TYPE D



TYPE E



TYPE 5



TYPE 6



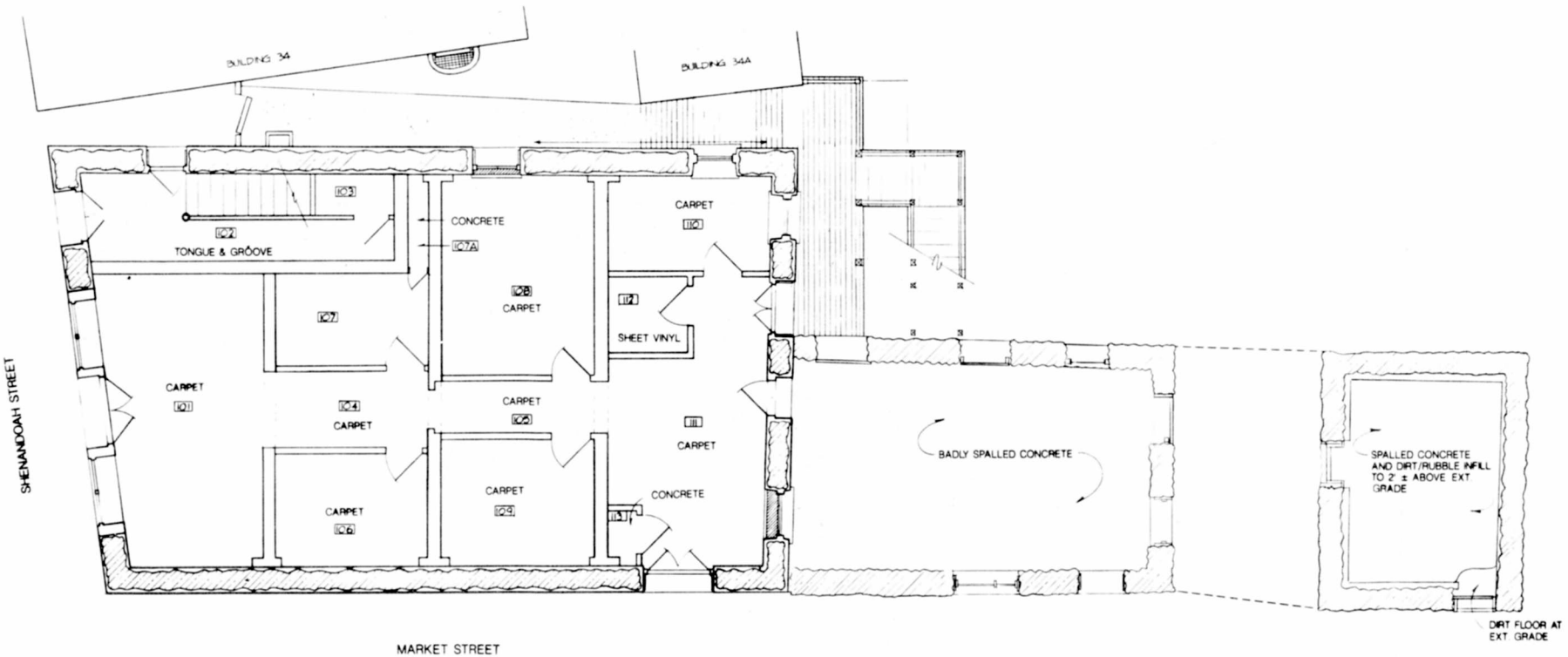
TYPE 7

(2/44) ARCHITRAVE TYPES

FULL SCALE

DESIGNED: RMD / W.R. TURNER; TECH. REVIEW: ASD; DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET: MILLWORK — BUILDING 33, HARPERS FERRY N.H.P.	DRAWING NO. 385 / 25,024; P.O. NO. 16; SHEET 44 OF 88

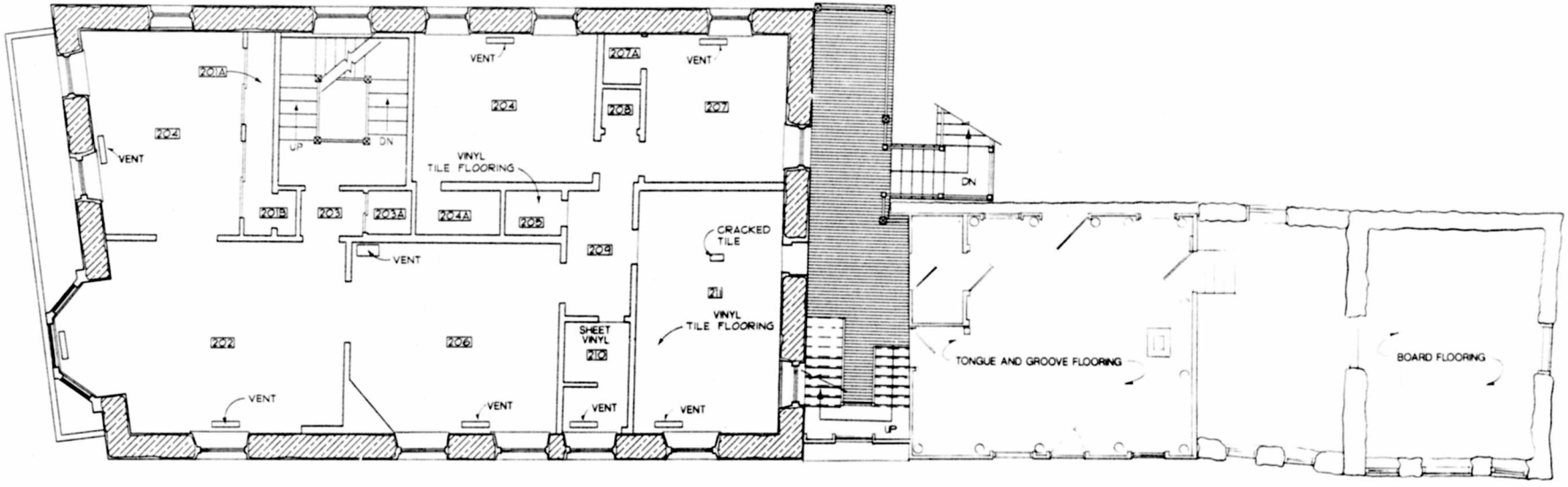
/PROJ/HAFE116A/ARCH/ARCH_TYPES.DG



1/45 FLOOR CONDITION- FIRST FLOOR

1/4"=1'-0"

DESIGNED	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 388 28,084
DRAWN: LLW/ATT		FLOOR CONDITION FIRST FLOOR	PKG NO. 116
TECH. REVIEW: ASD		BUILDING 33 HARPERS FERRY N.H.P.	SHEET 45 OF 88
DATE: 6/92			



1/46 FLOOR CONDITION–SECOND FLOOR

NOTE

1. FLOOR IS GENERALLY IN GOOD CONDITION.
2. FLOORING IS TONGUE & GROOVE UNLESS OTHERWISE NOTED.

1/4"=1'-0"

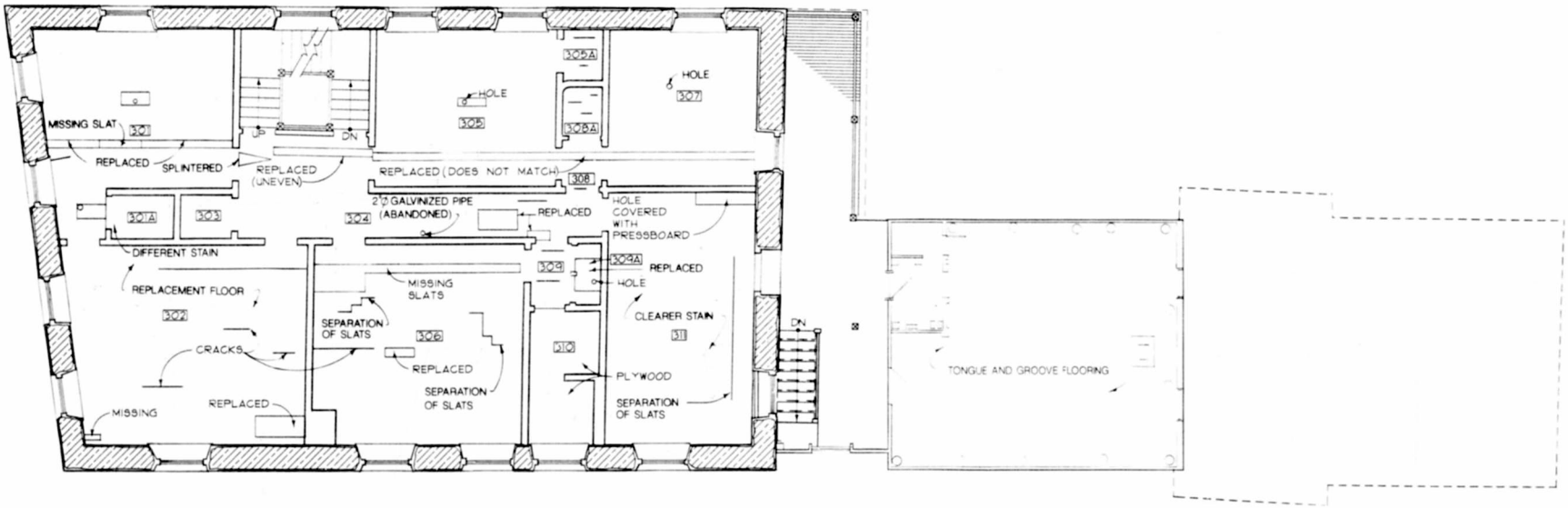
METERS 0 1 2 3

4 0 4 8

SCALE OF FEET

DESIGNED: RADD LLW ML GROVES	SUB SHEET NO.	TITLE OF SHEET: FLOOR CONDITION SECOND FLOOR BUILDING 33 HARPERS FERRY N.H.P.	DRAW NO. NO. 385 25,024
TECH. REVIEW: ASD			PKG NO. 116
DATE: 6/92			SHEET 46

/FRD/HFET1BA/ARCH/FLOOR_REPAIR_2.DG



NOTE

1. FLOORING IS GENERALLY IN FAIR TO POOR CONDITION
2. FLOORING IS TONGUE & GROOVE UNLESS OTHERWISE NOTED
3. THRESHOLDS ARE IN POOR CONDITION WHERE THEY EXIST

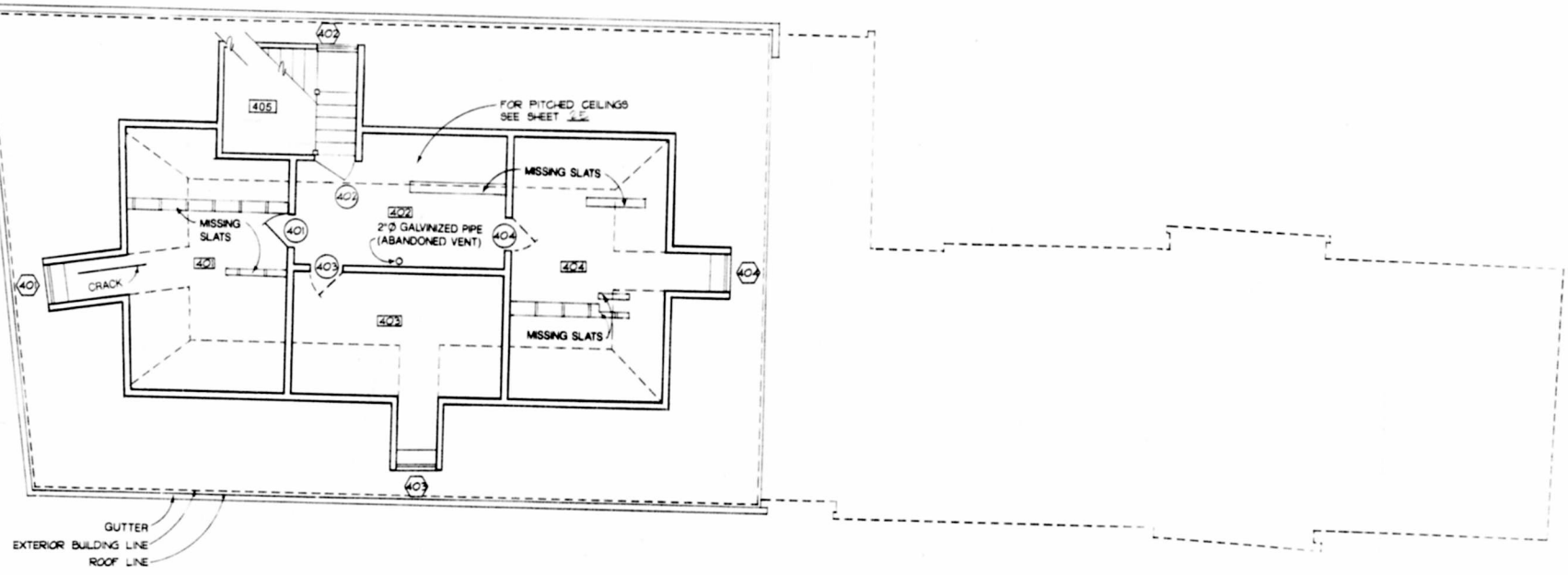
1/47 FLOOR CONDITION - THIRD FLOOR

1/4"=1'-0"

SCALE OF FEET

DESIGNED: RADM LLW, ML GROVES	SUB SHEET NO.	TITLE OF SHEET: FLOOR CONDITION THIRD FLOOR BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
TECH. REVIEW: ASD			PKG. NO. 116
DATE: 6/92			SHEET 47

/PROJ/HAFE116A/ARCH/FLOOR_REPAIR_3.DG



1/48 FLOOR CONDITION - FOURTH FLOOR

NOTE

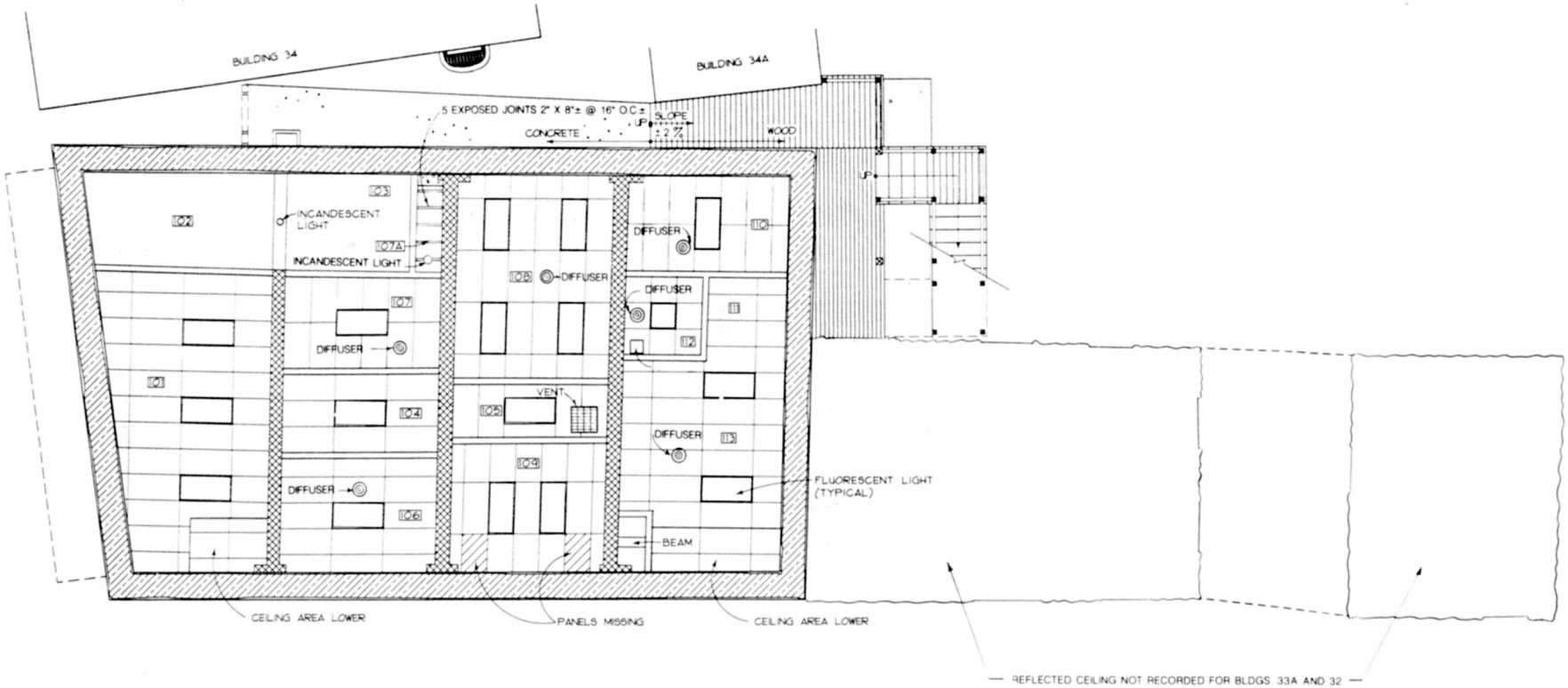
1. FLOORING IS GENERALLY IN POOR CONDITION
2. ALL FLOORING IS TONGUE & GROOVE

1/4"=1'-0"

SCALE OF FEET

DESIGNED: ADD ML GROVES TECH. REVIEW: ASD DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET FLOOR CONDITION FOURTH FLOOR BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024 PKG NO. 1.16 SHEET 48 68

/PROJ/WFE116A/MISC/FLOOR_REPAIR_4.DG



1/49 FIRST FLOOR REFLECTED CEILING PLAN

MARKET STREET

SHENANDOAH STREET

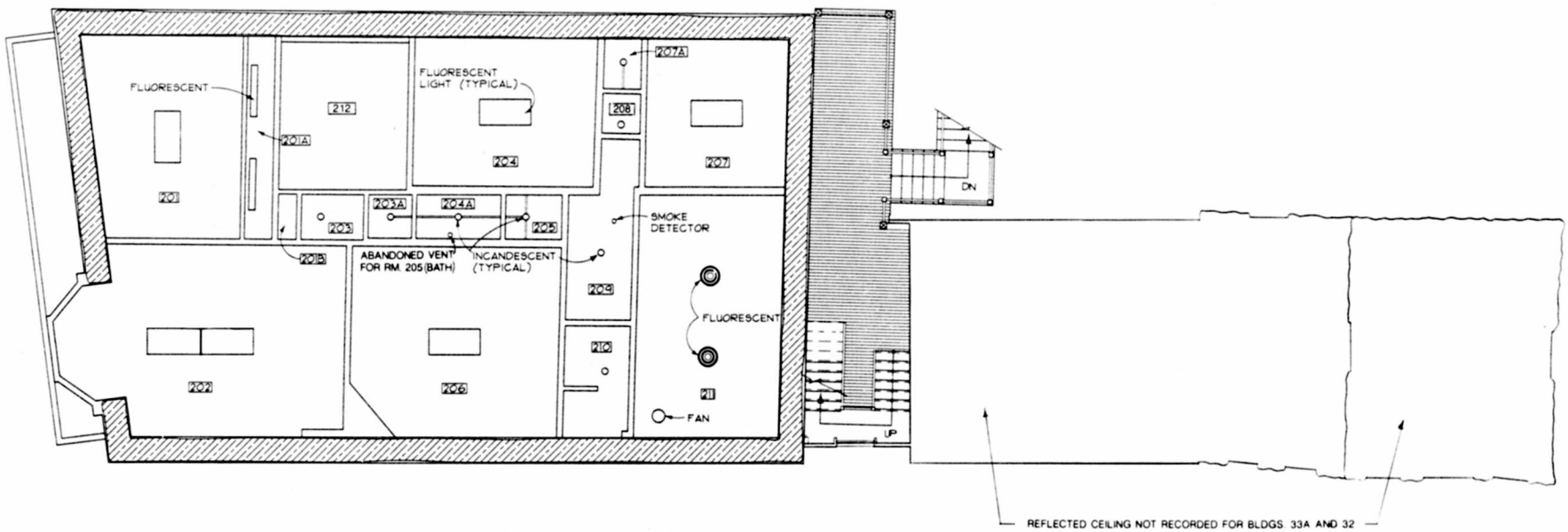
471

1/4"=1'-0"

SCALE OF FEET

DESIGNED: RMD; M.L. GROVES; TECH. REVIEW: ASD; DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET: FIRST FLOOR REFLECTED CEILING PLAN BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024; PKG. NO. 116; SHEET 49

/PROJ/hafe116d/arch/ceiling_plan_1.DG

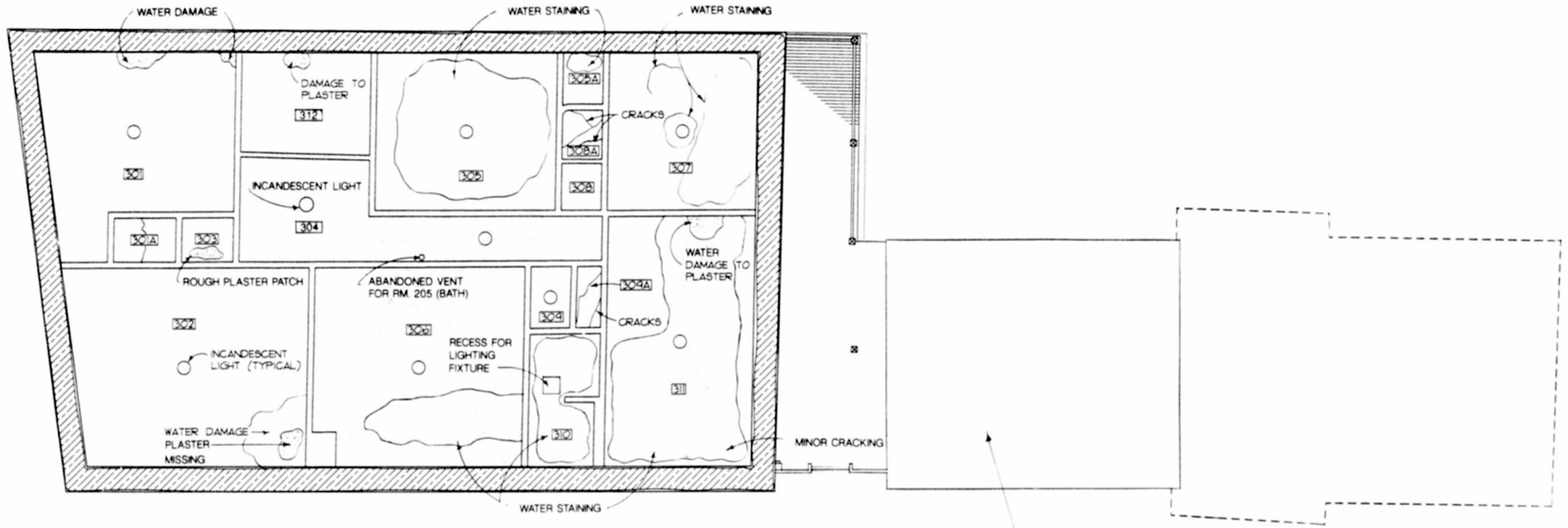


1/50 SECOND FLOOR REFLECTED CEILING PLAN

1/4"=1'-0" METERS 4 0 4 8 SCALE OF FEET

DESIGNED: RADD M. GROVES TECH. REVIEW: ASD DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET: SECOND FLOOR REFLECTED CEILING PLAN BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 PROJ. NO. 25,024 SHEET 50 68

/PROJ/HAFE116A/ARCH/CEILING_PLAN_2.DG



1/51 3RD FLOOR REFLECTED CEILING PLAN

1/4"=1'-0"

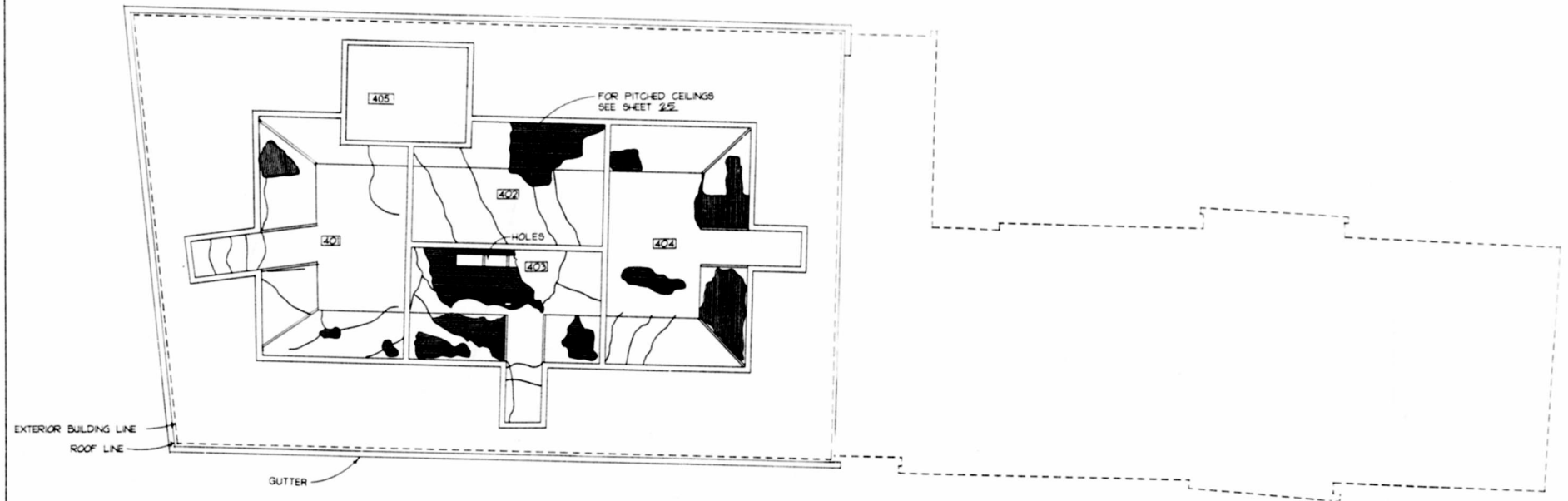
METERS 0 1 2 3

4 0 4 8

SCALE OF FEET

DESIGNED: RDD; ML. GROVES	SUB SHEET NO.	TITLE OF SHEET: THIRD FLOOR REFLECTED CEILING PLAN BUILDING 33 HARPERS FERRY, N.H.P.	DRAWING NO. 385 25,024
TECH. REVIEW: ASD			PKG. NO. 16
DATE: 6/92			SHEET 51 OF 68

/PROJ/HAFE116A/ARCH/CEILING_PLAN_3.DG



1/52 FOURTH FLOOR REFLECTED CEILING

1/4"=1'-0"

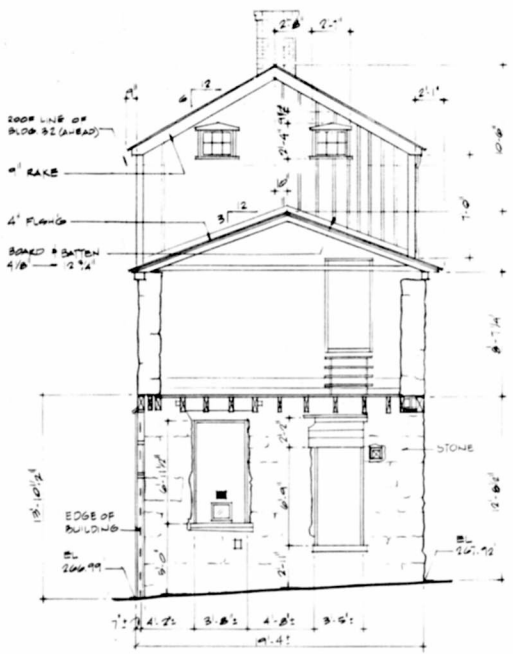
METERS 0 1 2 3

4 0 4 8

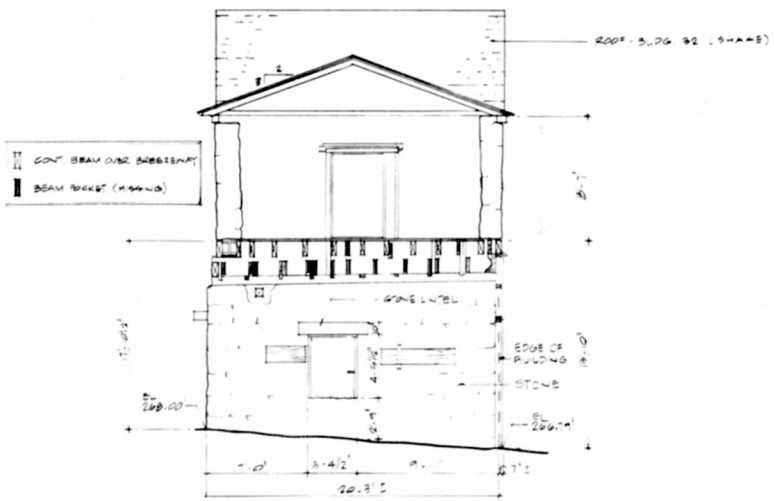
SCALE OF FEET

DESIGNED: 2100 ML GROVES TECH. REVIEW: ASD DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET: FOURTH FLOOR REFLECTED CEILING PLAN BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024 PKG. NO. 116 — — SHEET 52 68

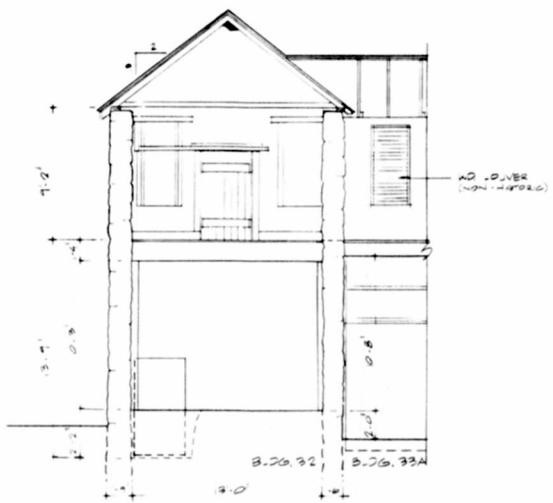
/PROJ/hde116z/arch/ceiling_plan_4.DD



1/53 BUILDING SECTION AT BREEZEWAY
FACING NORTH (BLDG 33A)
SCALE: 1/4" = 1'-0"



2/53 BUILDING SECTION AT BREEZEWAY
FACING SOUTH (BLDG 32)
SCALE: 1/4" = 1'-0"



3/53 SECTION AT BLDG 32
FACING NE
SCALE: 1/4" = 1'-0"

1/4"=1'-0" 0 1 2 3 FEET 0 1 2 3 METERS

DESIGNED	SUB SHEET NO	TITLE OF SHEET: TRANSVERSE SECTIONS/ BUILDING SECTION	DRAWING NO. 385 25024
DRAWN: SCD		BUILDINGS 33A,32 HARPERS FERRY NHP	PKG. NO. 116
TECH. REVIEW: ASD			SHEET 53 OF 68
DATE: 6/92			

U.S. GOVERNMENT PRINTING OFFICE: 1993

DOOR SCHEDULE - BUILDINGS 33A & 32

FLOOR	DOOR NO.	DOOR TYPE	A (IN.)	B (IN.)	C	D	THICKNESS	TRANSOM	COMMENTS
1ST FLOOR	118	*							* DOOR MISSING, NON-HISTORIC FRAME IN PLACE
	119	*	3'-1"						* DOOR MISSING, NO FRAME IN PLACE
	120	1x3 T&G	3'-0 1/2"	6'-4"			1"		
	121	WD. PANEL W/ GLAZING	4'-4 7/8"	6'-8 1/2"			2 1/2"		FORMER TELEPHONE BOOTH (NON-HISTORIC), LOUVER ABOVE
	122	1x3 T&G	3'-4 1/2"	4'-3 1/2"			1"		
	123	1x3 T&G	3'-11 1/2"	6'-6 1/8"			1"		CURRENT TELEPHONE BOOTH (NON-HISTORIC)
	124	T&G	2'-3" (EA. SIDE)	5'-11 7/8"			1 1/2		BASEMENT DOOR (NON-HISTORIC)
2ND FLOOR	215	1x3 T&G	3'-0"	6'-5 1/2"			1"		
	216	1x3 T&G	3'-0"	6'-4 7/8"			1"		
	217	1x3 T&G	2'-11 1/2"	6'-4 1/2"			1"		ELEVATOR DOOR
	218	ROUGH SAWN BD.	2'-0 1/4"	5'-11 3/4"			1"		COVERED BY WOOD SIDING ON EXTERIOR
	219	ROUGH SAWN BD	3'-8 1/2"	5'-11 1/4"			1 1/8"		
	220	ROUGH SAWN BD	2'-0 1/2"	6'-3 7/8"			1"		
	221	1x4 T&G	2'-10 1/2"	5'-9 1/2"			1"		
	222		3'-4 1/2"	5'-11 3/4"					
	223	ROUGH SAWN BD	3'-7 1/2"	6'-1 1/8"			1 1/8"		
	224	PANEL DOOR	3'-1"	5'-11 7/8"			1 1/4"		
3RD FLOOR	320	1x3 T&G	2'-11 1/4"	6'-6"			1"		
	321	1x3 T&G	2'-11 1/4"	6'-6 1/4"			1"		
	322	1x3 T&G	2'-11"	6'-2 3/4"			1"		ELEVATOR DOOR
	323	1x3 T&G	1'-7 7/8"	4'-10 7/8"			1"		

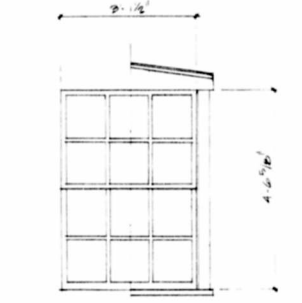
(1/54) DOOR SCHEDULE

WINDOW SCHEDULE - BUILDINGS 33A & 32.

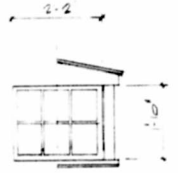
FLOOR	WINDOW NO.	WINDOW TYPE	SASH A	SASH B	COMMENTS
1ST FLOOR	106	I (SIM)	3'-2 1/2"	6'-5"	
	107				
	108	H	3'-9 1/4"	2'-0 1/2"	
2ND FLOOR	217	J (SIM)	2'-5"	5'-9 1/2"	NO LINTEL OR SILL, LOUVER
	218	J (SIM)	2'-5"	5'-9 1/2"	NO LINTEL OR SILL
	219	I	3'-2 1/2"	6'-5"	
	220	I (SIM)	3'-2 1/2"	6'-5"	
	221	F	3'-1 1/2"	4'-6 5/8"	
	222	I (SIM)	3'-2 1/2"	6'-5"	
	223	I (SIM)	3'-2 1/2"	6'-5"	
	224	J	2'-5"	5'-9 1/2"	
	225	J (SIM)	2'-5"	5'-9 1/2"	
3RD FLOOR	316	G	2'-2"	1'-10"	
	317	G (SIM)	2'-2"	1'-10"	
	318	F (SIM)	3'-1 1/2"	4'-6 5/8"	

(2/54) WINDOW SCHEDULE

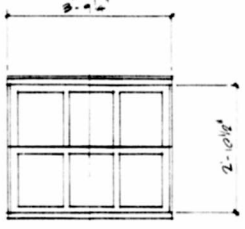
NOTE:
REFER TO NARRATIVE FOR INFORMATION ON BUILDINGS 33A & 32 FINISHES



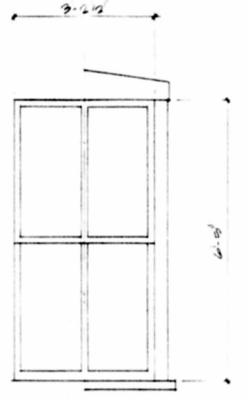
(F) TYPE WINDOW ELEVATION N.T.S



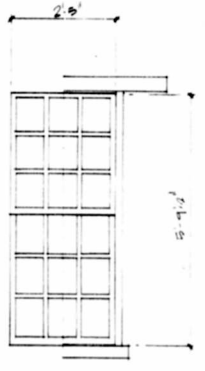
(G) TYPE WINDOW ELEVATION N.T.S



(I) TYPE WINDOW ELEVATION N.T.S



(I) TYPE WINDOW ELEVATION N.T.S

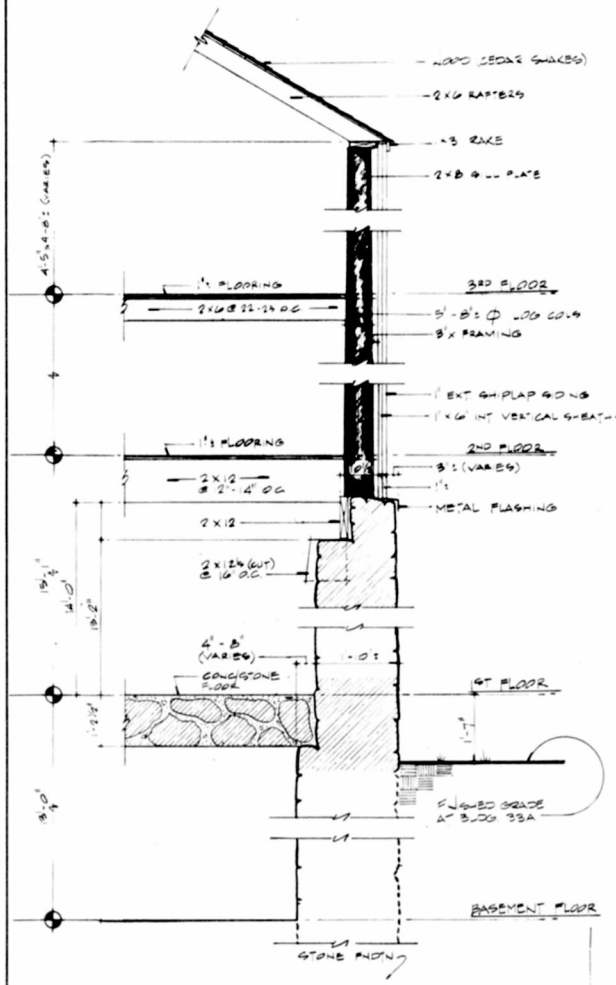


(J) TYPE WINDOW ELEVATION N.T.S

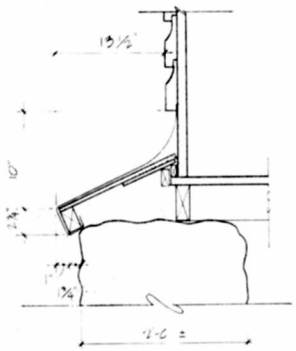
(3/54) WINDOW ELEVATIONS NO SCALE

NO SCALE

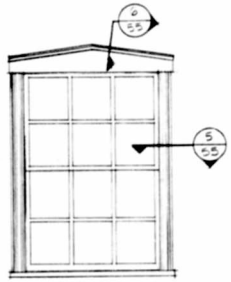
DESIGNED	SUB SHEET NO	TITLE OF SHEET	DRAWING NO
DRAWN ATT		DOOR SCHEDULE WINDOW SCHEDULE WINDOW ELEVATIONS BUILDINGS 33A & 32 HARPERS FERRY N.H.P.	385 25,024
TECH. REVIEW ASD			PKG. NO. 116
DATE 6/92			SHEET 54 OF 88



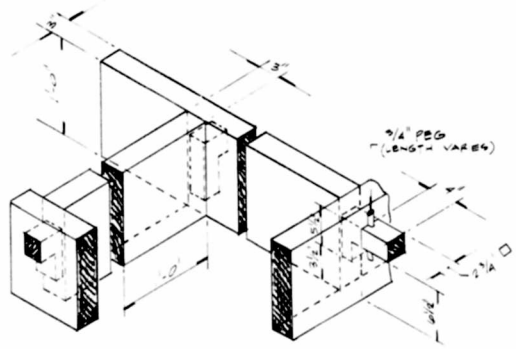
1/55 SECTION THRU BLDG 33A (FACING WEST)
SCALE: 3/4" = 1'-0"



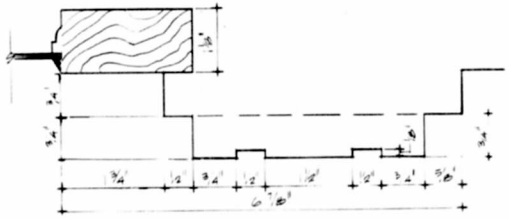
2/55 SECTION
NO SCALE



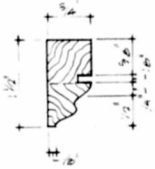
4/55 DETAIL @ WINDOW 3/6/37
NTS



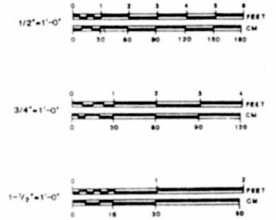
3/55 DETAIL - FLOOR JOISTS @ BASEMENT - 2ND FL. BLDG 33A
SCALE: 1 1/2" = 1'-0"



5/55 DETAIL
FULL SCALE

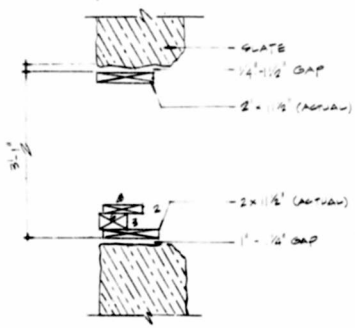


6/55 DETAIL
FULL SCALE

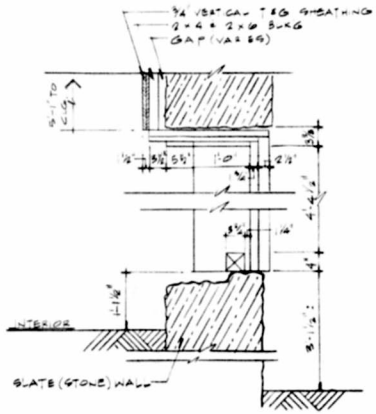


DESIGNED:	SUB SHEET NO.	TITLE OF SHEET: DETAILS BUILDING 33A HARPERS FERRY N.H.P.	DRAWING NO. 385 25084
DRAWN: SCD/LLW			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 55 OF 68
DATE: 6/92			

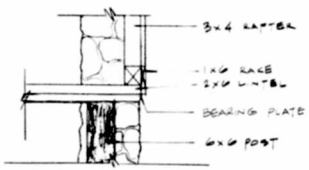
U.S. GOVERNMENT PRINTING OFFICE: 1988 - 179-116



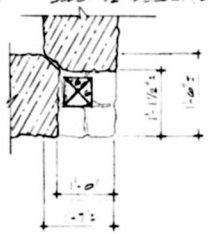
1/50 DOOR JAMB DETAIL
BLDG. 32 SOUTH WALL (2ND FL.)
SCALE: 1" = 1'-0"



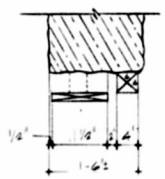
2/50 DOOR JAMB DETAIL
BLDG. 33A, SOUTH WALL (BREEZEWAY)
SCALE: 1" = 1'-0"



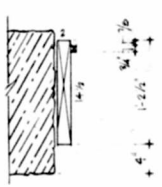
3/50 BEARING PLATE DETAIL
BLDG. 32 SECOND (2ND FL.) SCALE: 1" = 1'-0"



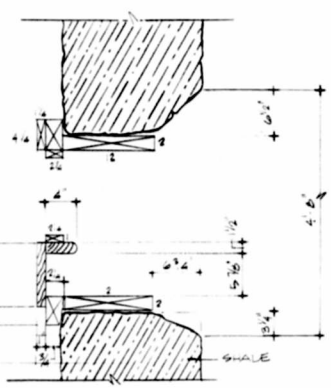
4/50 PLAN DETAIL
BLDG. 32 SECOND (2ND FL.)
SCALE: 1" = 1'-0"



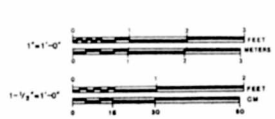
5/50 HEAD DETAIL
BLDG. 32 SOUTH WALL (2ND FL.)
SCALE: 1" = 1'-0"



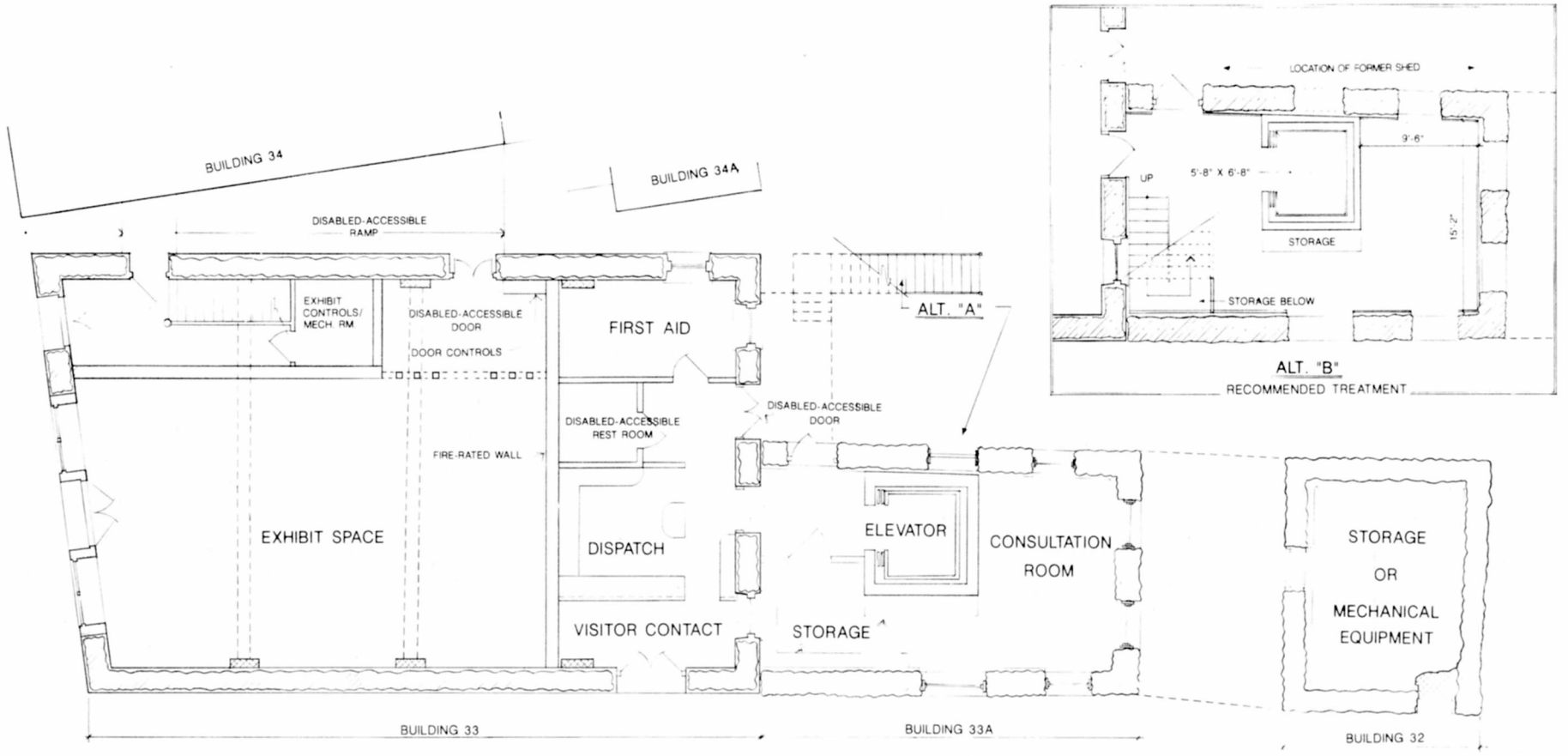
6/50 DOOR JAMB DETAIL
BLDG. 32 EAST WALL (2ND FL.)
SCALE: 1 1/2" = 1'-0"



7/50 DOOR JAMB DETAIL
BLDG. 32 NORTH WALL (2ND FL.)
SCALE: 1 1/2" = 1'-0"



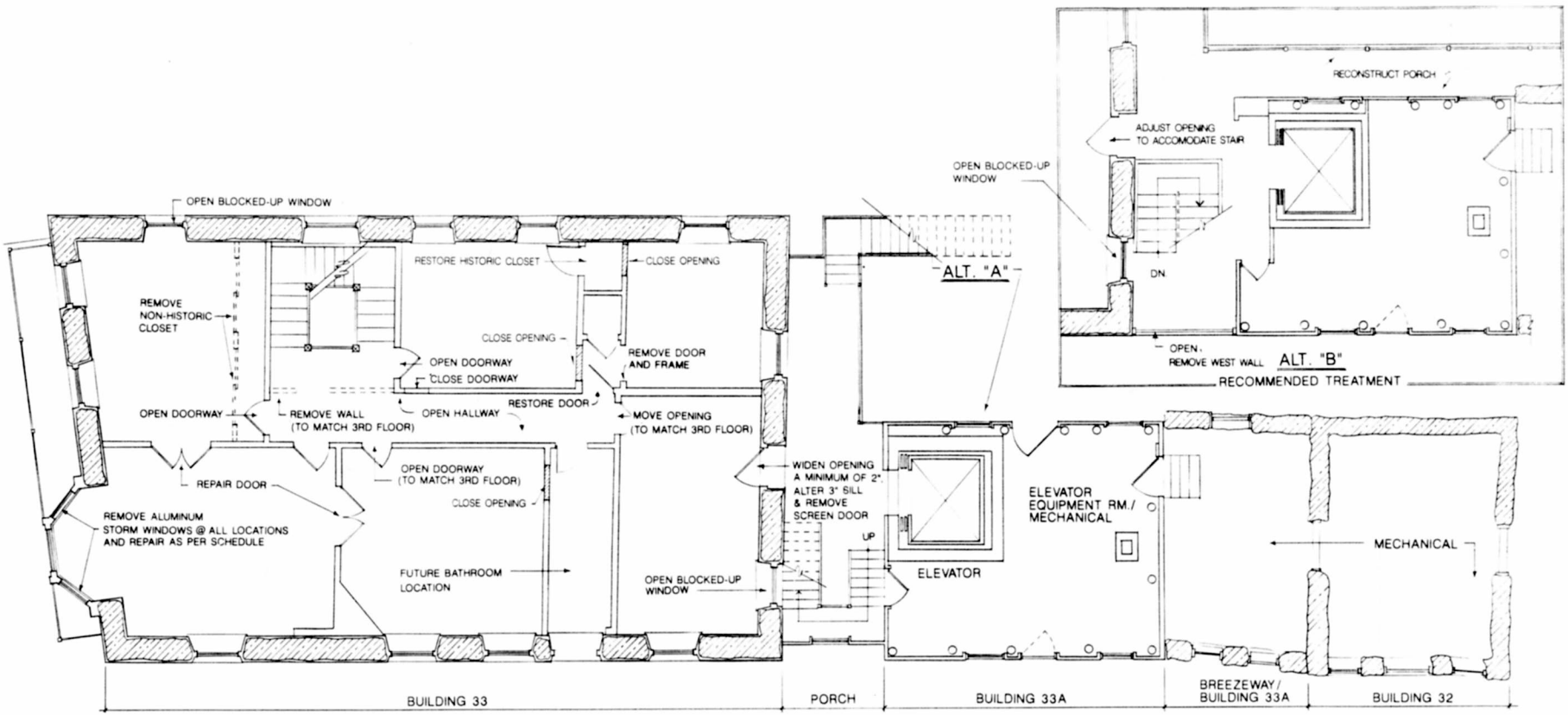
DESIGNED	SUB SHEET NO.	TITLE OF SHEET: MISCELLANEOUS DETAILS	DRAWING NO. 385 25024
DRAWN SCD		BUILDING 33A, 32	PKG. NO. 116
TECH. REVIEW ASD		HARPERS FERRY N.H.P.	SHEET 56 OF 68
DATE 6/92			



1/57 FIRST FLOOR CONCEPT PLAN - ALT. "A" & ALT. "B"

1/4"=1'-0"

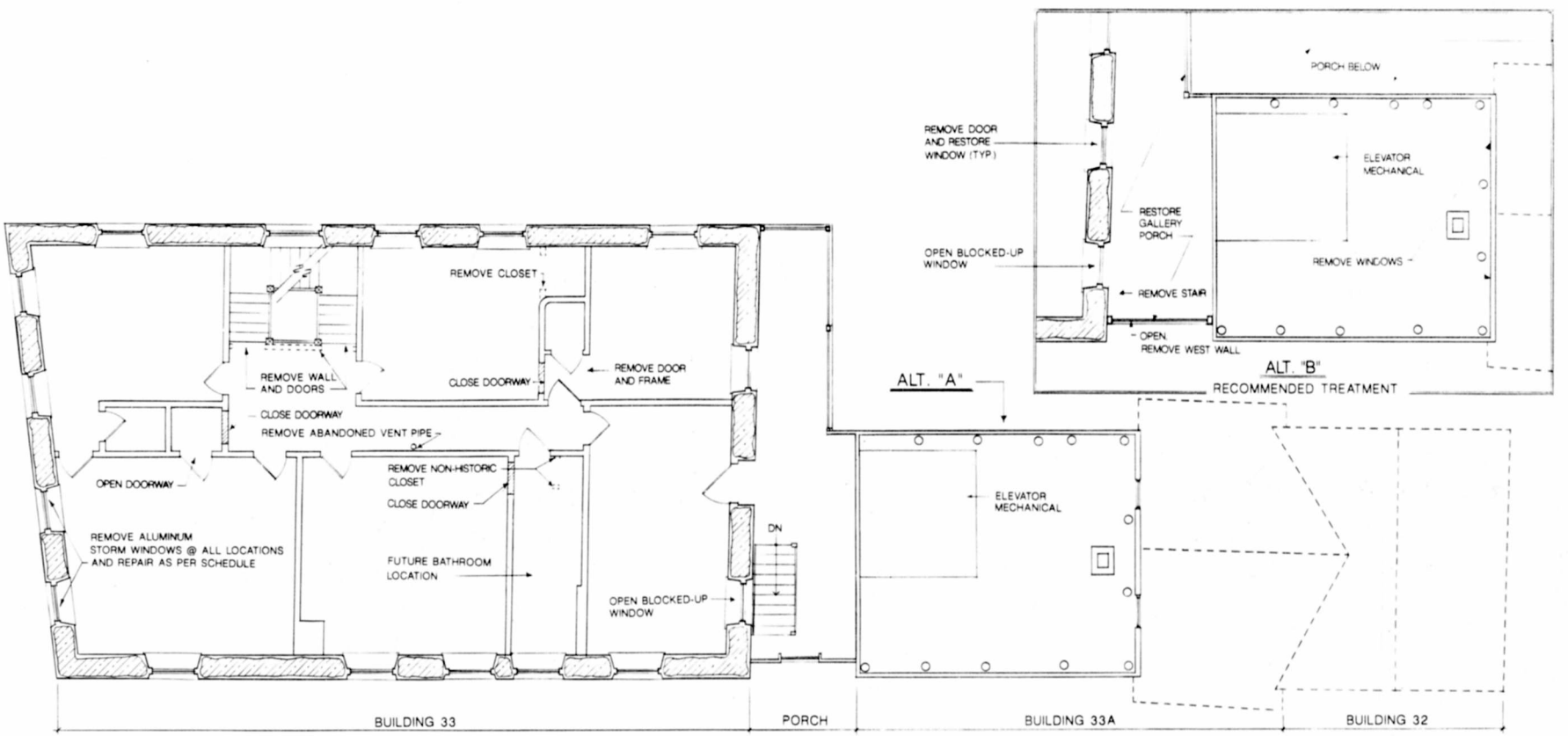
DESIGNED: LLW	SUB SHEET NO.	FIRST FLOOR PLAN (PROPOSED) BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 57
DATE: 6/92			OF 88



1/55 SECOND FLOOR CONCEPT PLAN - ALT. "A" & ALT. "B"

1/4"=1'-0"

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: SECOND FLOOR PLAN (PROPOSED) BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 58 OF 68
DATE: 6/92			



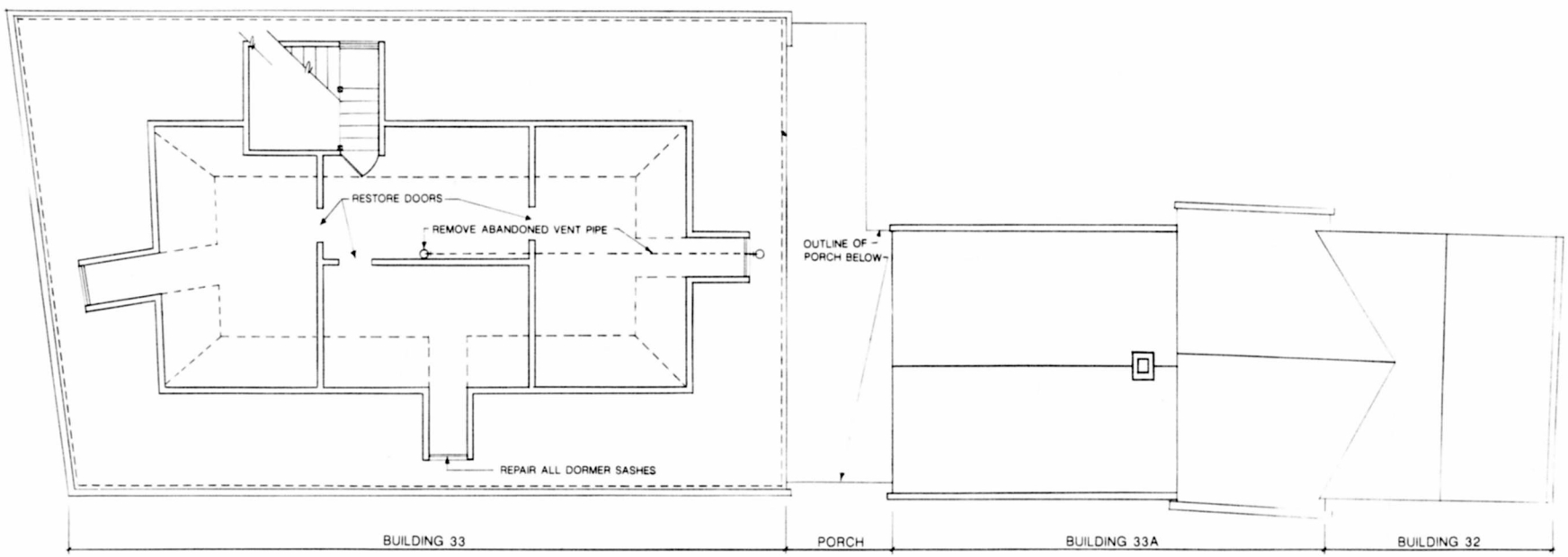
1/54 THIRD FLOOR CONCEPT PLAN - ALT. "A" & "B"

NOTE

3RD FLOOR NOT ACCESSIBLE TO WHEELCHAIRS
REPAIR FLOOR DAMAGE AS PER FLOOR CONDITION PLAN
REPAIR OR REPLACE PLASTER (AS PER SCHEDULE)

1/4"=1'-0"

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: THIRD FLOOR PLAN (PROPOSED) BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 59
DATE: 6/92			OF 68



NOTE
REPAIR FLOOR DAMAGE IN ALL ROOMS
REPAIR OR REPLACE PLASTER IN ALL ROOMS

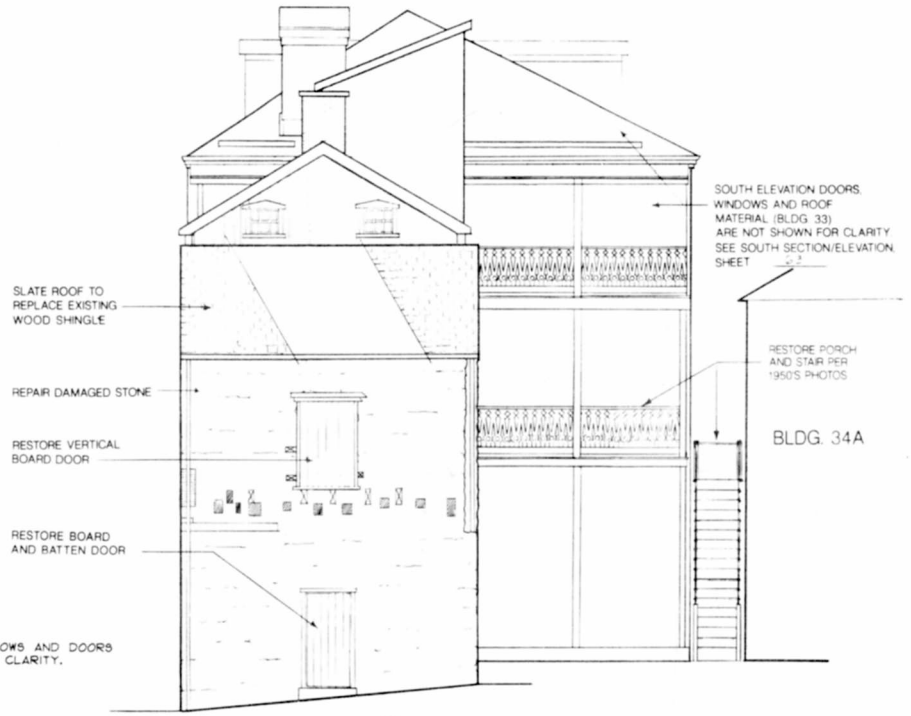
1/60 FOURTH FLOOR CONCEPT PLAN - ALT. "A" & "B"

1/4"=1'-0"

DESIGNED LLW	SUB SHEET NO.	TITLE OF SHEET: FOURTH FLOOR PLAN (PROPOSED) BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN ATT			PKG. NO. 116
TECH. REVIEW ASD			SHEET 60
DATE 6/92			OF 68



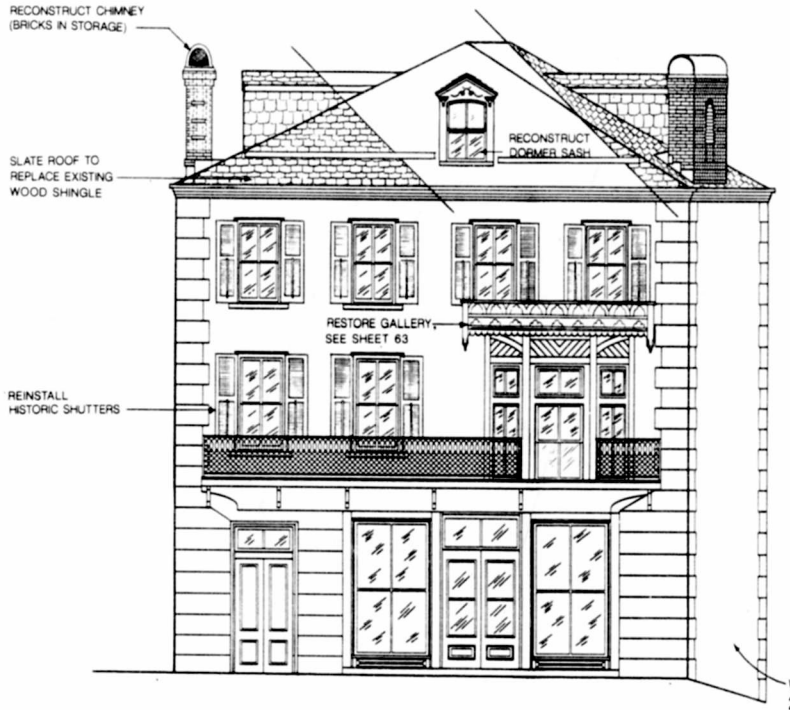
1/61 NORTH ELEVATION



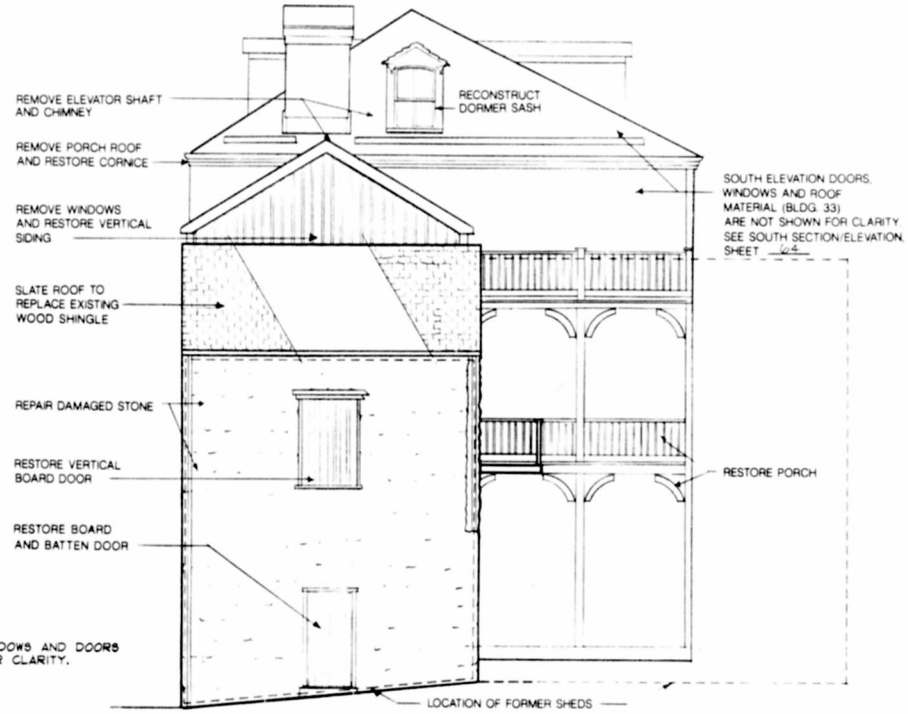
2/61 SOUTH ELEVATION

1/4"=1'-0"

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: NORTH AND SOUTH ELEVATIONS (PROPOSED) ALT. "A" BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ATT.			PKG. NO. 116
TECH. REVIEW: 6/92			SHEET 61
DATE: ASD			OF 68



1/62 NORTH ELEVATION



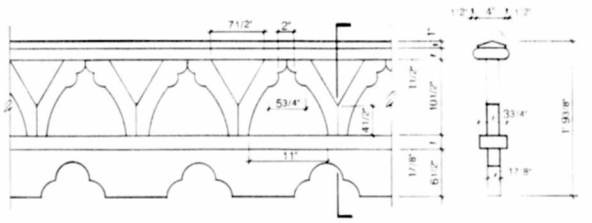
2/64 SOUTH ELEVATION

1/4"=1'-0"

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: NORTH AND SOUTH ELEVATIONS (PROPOSED) ALT. "B" BUILDINGS 33,33A,32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ATT			PKG. NO. 116 SHEET 62
TECH. REVIEW: ASD			OF 68
DATE: 6/92			

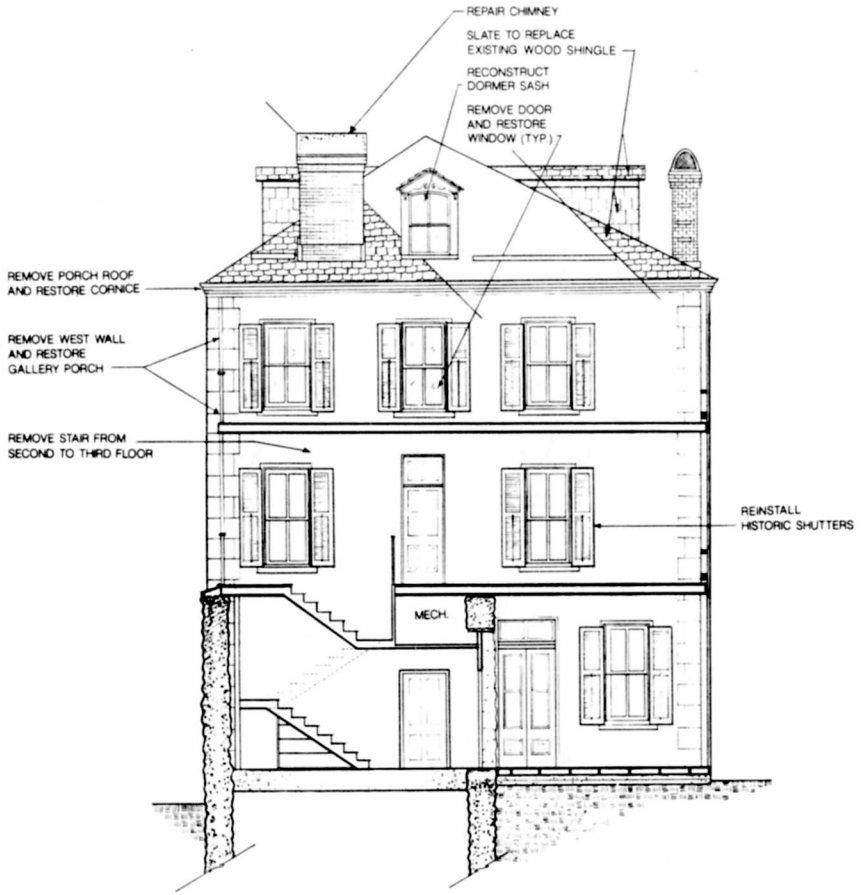


1/63 SOUTH SECTION/ELEVATION

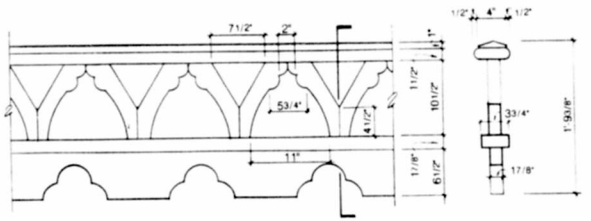


2/63 GALLERY RAIL DETAIL (NORTH ELEV.)
SCALE 1 1/2" = 1'-0"

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: SOUTH SECTION/ ELEVATION AND DETAILS (PROPOSED) ALT "A" BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 63
DATE: 6/92			OF 68



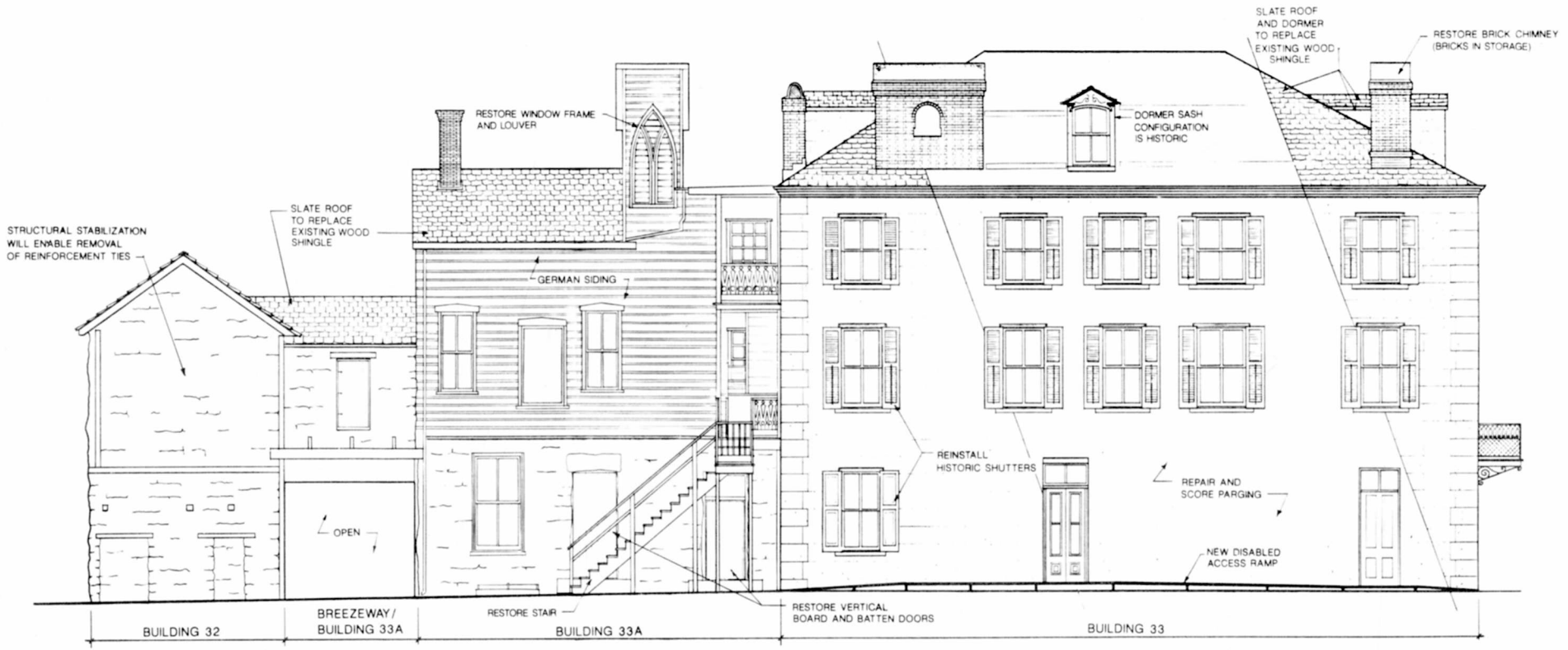
1/64 SOUTH SECTION/ELEVATION



2/64 GALLERY RAIL DETAIL (NORTH ELEV.)
SCALE: 11/2" = 1'-0"

1/4"=1'-0"

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: SOUTH SECTION / ELEVATION (PROPOSED) ALT. "B" BUILDING 33 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 64
DATE: 6/92			OF 68



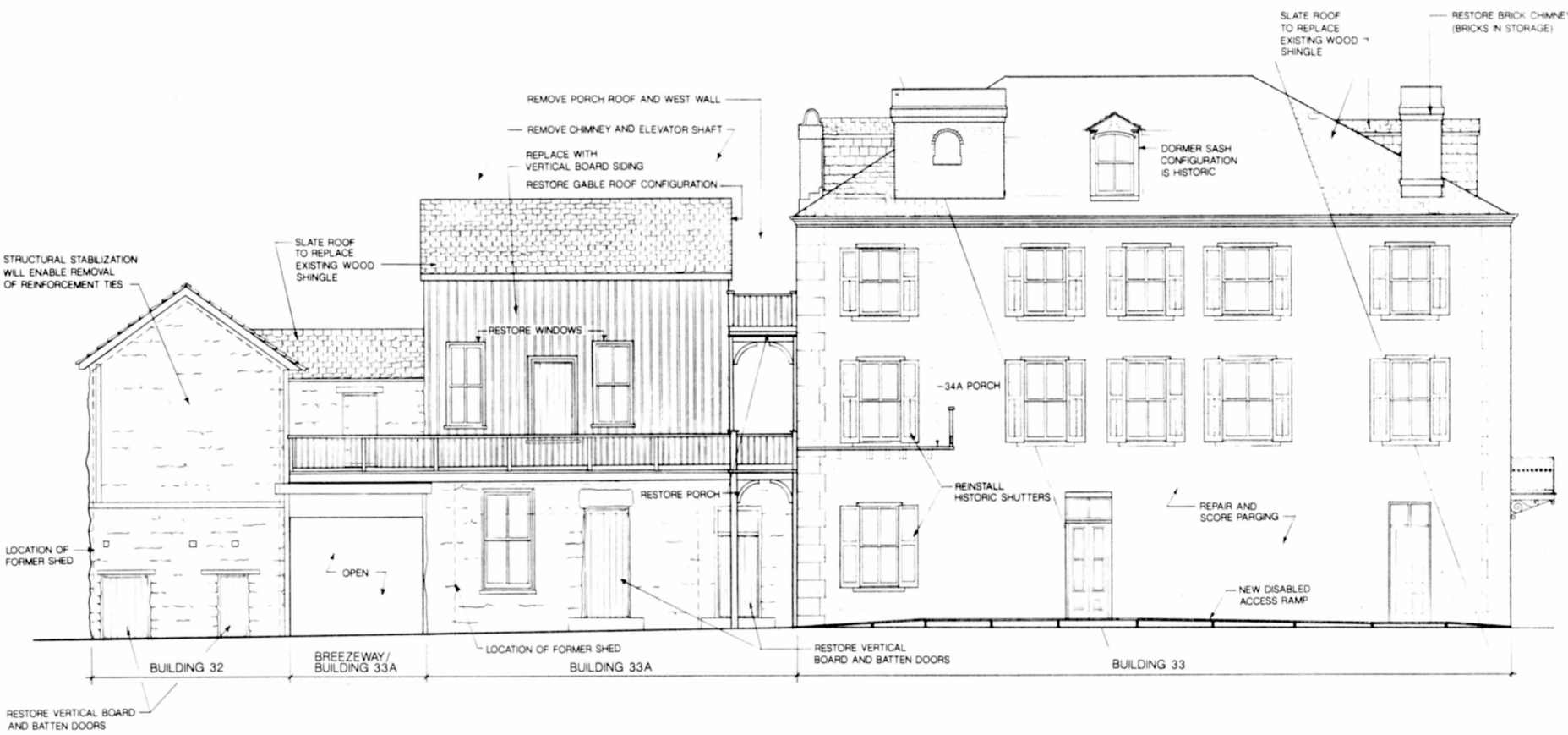
1/65 EAST ELEVATION

1/4"=1'-0"

4 0 4 8

SCALE OF FEET

DESIGNED: LLW	SUB SHEET NO	TITLE OF SHEET: EAST ELEVATION (PROPOSED) ALT. "A" BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 65
DATE: 6/92			OF 68



1/66 EAST ELEVATION

1/4"=1'-0" 4 0 4 METERS

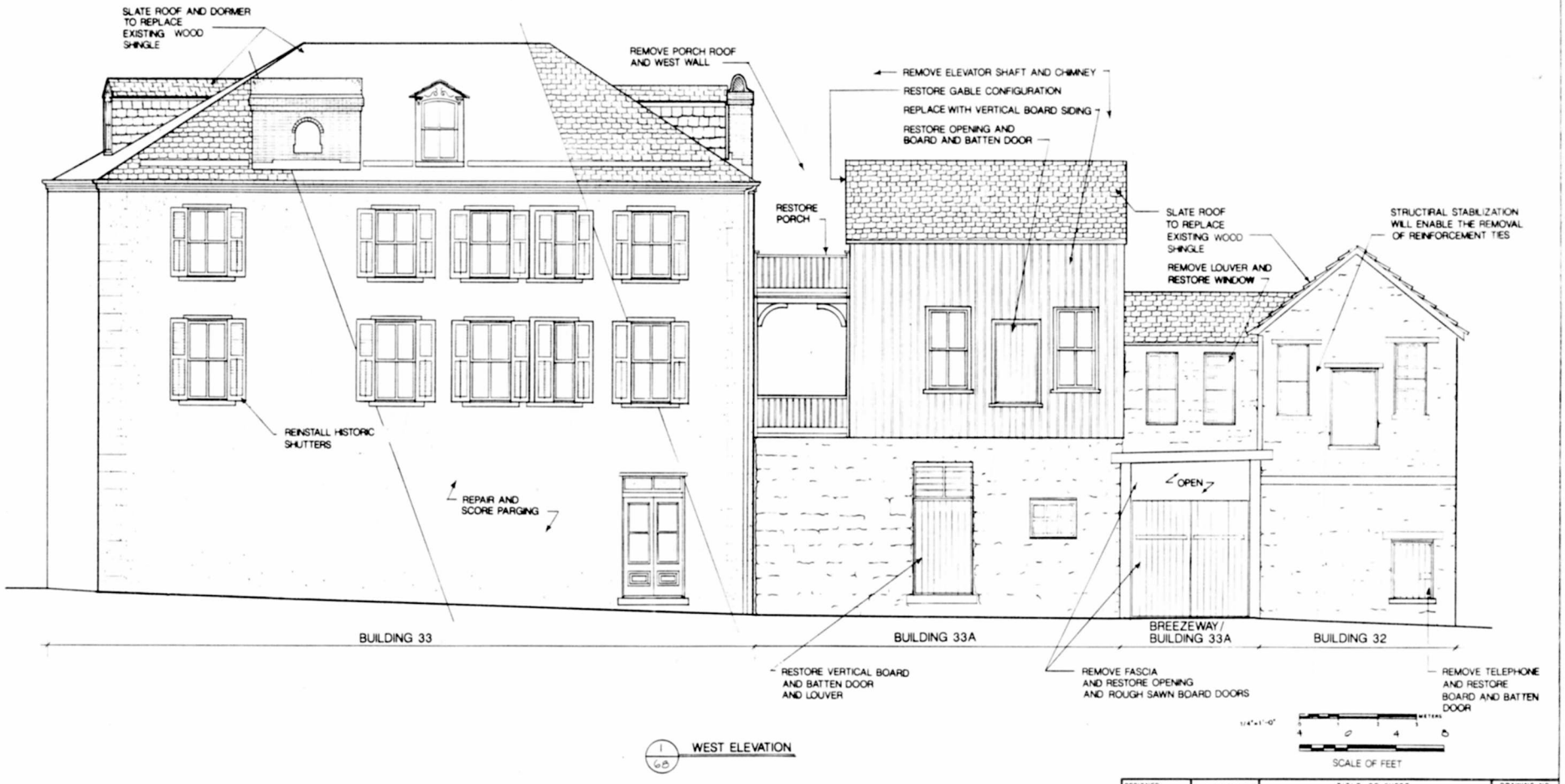
SCALE OF FEET

DESIGNED: LLW	SUB SHEET NO	TITLE OF SHEET: EAST ELEVATION (PROPOSED) ALT. "B" BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024 385
DRAWN: LLW/ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 66 OF 68
DATE: 6/92			



1/67 WEST ELEVATION

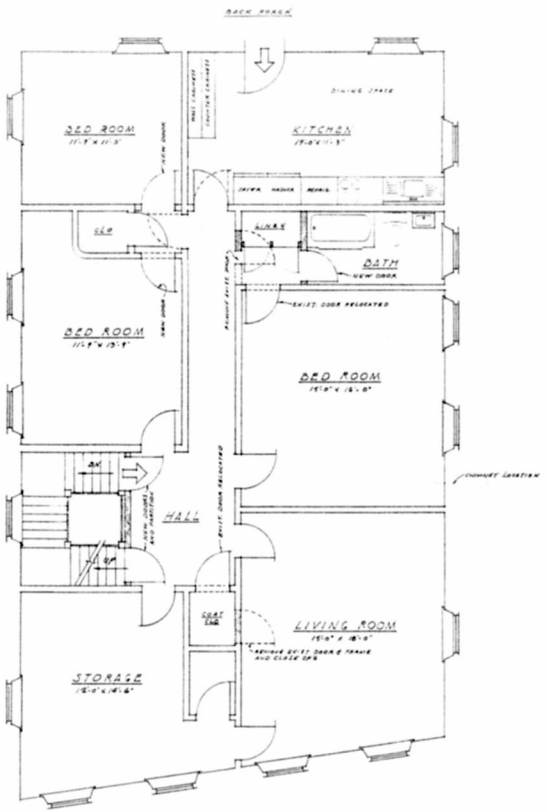
DESIGNED: LLW DRAWN: LLW/ATT TECH. REVIEW: ASD DATE: 6/92	SUB SHEET NO.	TITLE OF SHEET WEST ELEVATION (PROPOSED) ALT. "A" BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024 PKG. NO. 116 SHEET 67 OF 68



1/68 WEST ELEVATION

DESIGNED: LLW	SUB SHEET NO.	TITLE OF SHEET: WEST ELEVATION (PROPOSED) ALT. "B" BUILDINGS 33, 33A, 32 HARPERS FERRY N.H.P.	DRAWING NO. 385 25,024
DRAWN: LLW/ATT			PKG. NO. 116
TECH. REVIEW: ASD			SHEET 68 OF 68
DATE: 6/92			

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THIRD FLOOR PLAN
SCALE 1/4"=1'-0"
CEILING HEIGHT 9'-0"

ORIENTATION

REVIEWED

OPERATIONS
REGION
WASHINGTON

INTERP.
REGION
WASHINGTON

COOP. ACTV.
REGION
WASHINGTON

DES. & CONST.
W.A. STERN
A.
E.
L.A.
WASHINGTON
A.
E.
L.A.

OTHER

PREPARED
TOLLEY & FRALEY
DESIGNED
FRALEY
DRAWN
CHECKED

REVISED
DATE INITIAL

RECOMMENDED
DATE
APPROVED

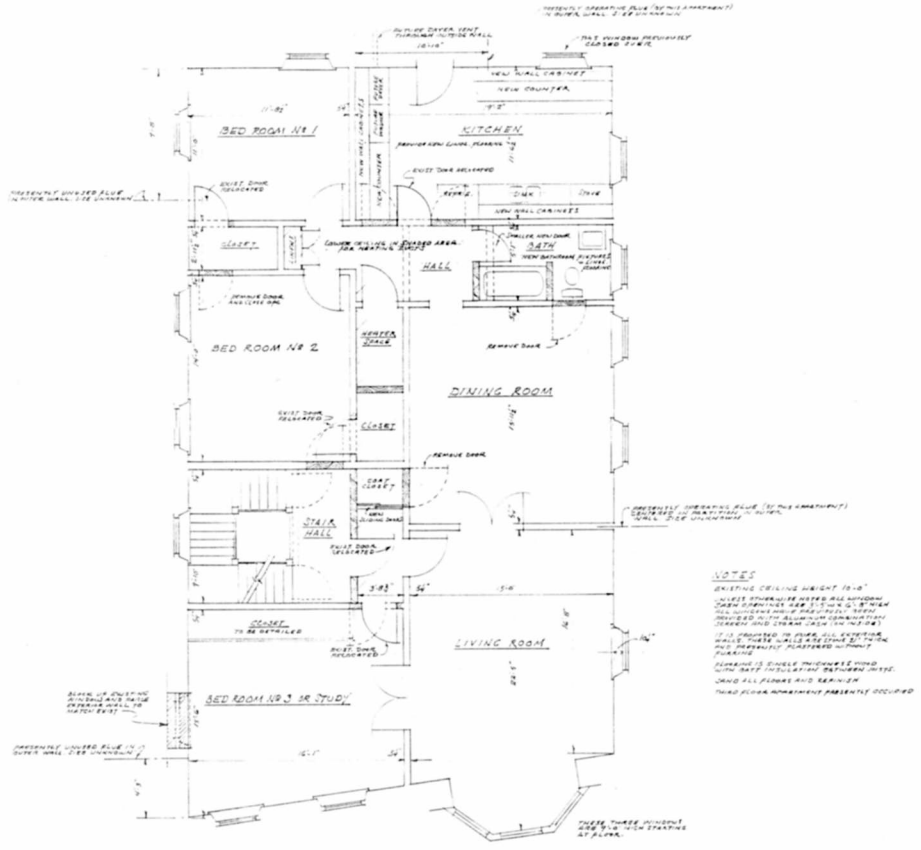
SCALE AS DATED

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF DESIGN AND CONSTRUCTION
PREPARED BY FIELD OFFICE

PROPOSED SKETCH PLAN FOR EMPLOYEES' QUARTERS
TITLE OF DRAWING
MINIDOKA UNIT
LOCATION OF MAIN AREA
HARBERS AREA - JEROME - IDAHO
NAME OF AREA

REGION FIVE
PCP
SHEET OF
DRAWING NO. NDSP-3074
DATE 8-47

BASIC DATA FIELD DIMENSIONS - FEBRUARY 6, 1947



SECOND FLOOR PLAN

SCALE 1/4"=1'-0"

NOTES

EXISTING CEILING HEIGHT 10'-8"

INSERT OTHER SIZE METER ALL WINDOW SASH OPENINGS ARE 3'-5" WIDE X 5'-8" HIGH ALL WINDOWS HAVE PREVIOUSLY BEEN PROVIDED WITH ALUMINUM COMBINATION SCREEN AND STORM SASH (IN 1938)

IT IS PROPOSED TO PAINT ALL EXTERIOR WALLS THAT SHALL REMAIN (SINCE 1) METAL AND PREVIOUSLY PLASTERED WITHOUT PAINTING

FLOORING IS SINGLE THICKNESS YDING WITH BATT INSULATION BETWEEN JOISTS

SAND ALL FLOORS AND REFINISH

THIRD FLOOR APARTMENT PRESENTLY OCCUPIED

ORIENTATION

SCALE	MARK	DESCRIPTION OF REVISION	DATE	INITIAL
1/4"		REVISED		

RECOMMENDED

APPROVED

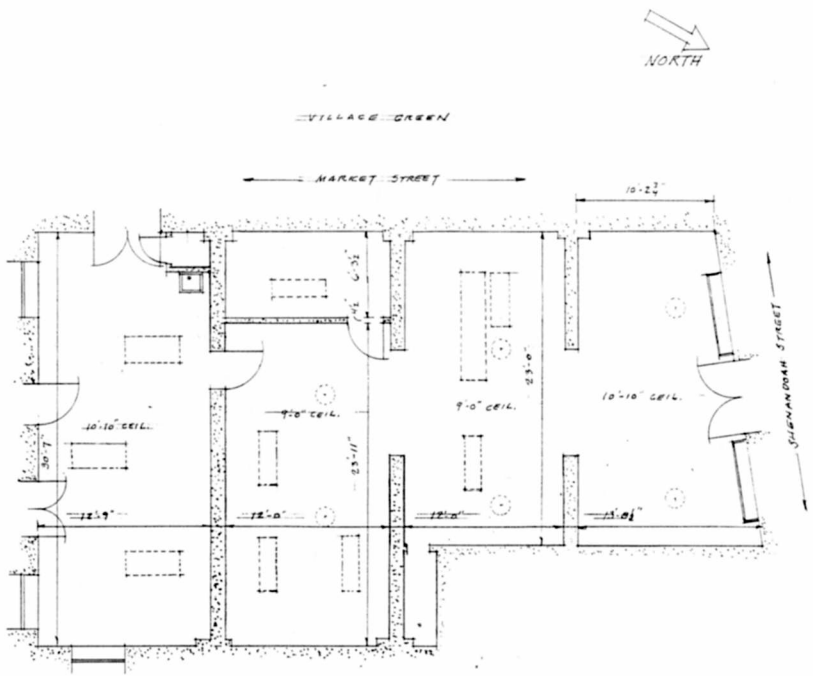
UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DIVISION OF EFFICIENCY AND CONSTRUCTION
PREPARED BY
TITLE

REMODELING OF OFFICERS' QUARTERS
TITLE OF DRAWING
BUILDING # 44
LOCATION WITHIN PARK
HARPERS FERRY W. VA.
NAME OF PARK

PREPARED
DESIGNED EVANSEN
DRAWN
CHECKED

REGION FIVE
PCP NO. 9-42
SHEET 1 OF 1
DRAWING NO. HAF-NR 152
DATE 1-29

BASIC DATA



PREPARED	DRAWING NO.
DESIGNED	
DRAWN	PROJ. PKG. SHEET
CHECKED	OF
DATE	

U.S. Department of the Interior
Mission Statement

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally-owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.





Publication services were provided by the Graphics Office of the Eastern Team - Falls Church Branch, Denver Service Center

Document D-106 / December 1994