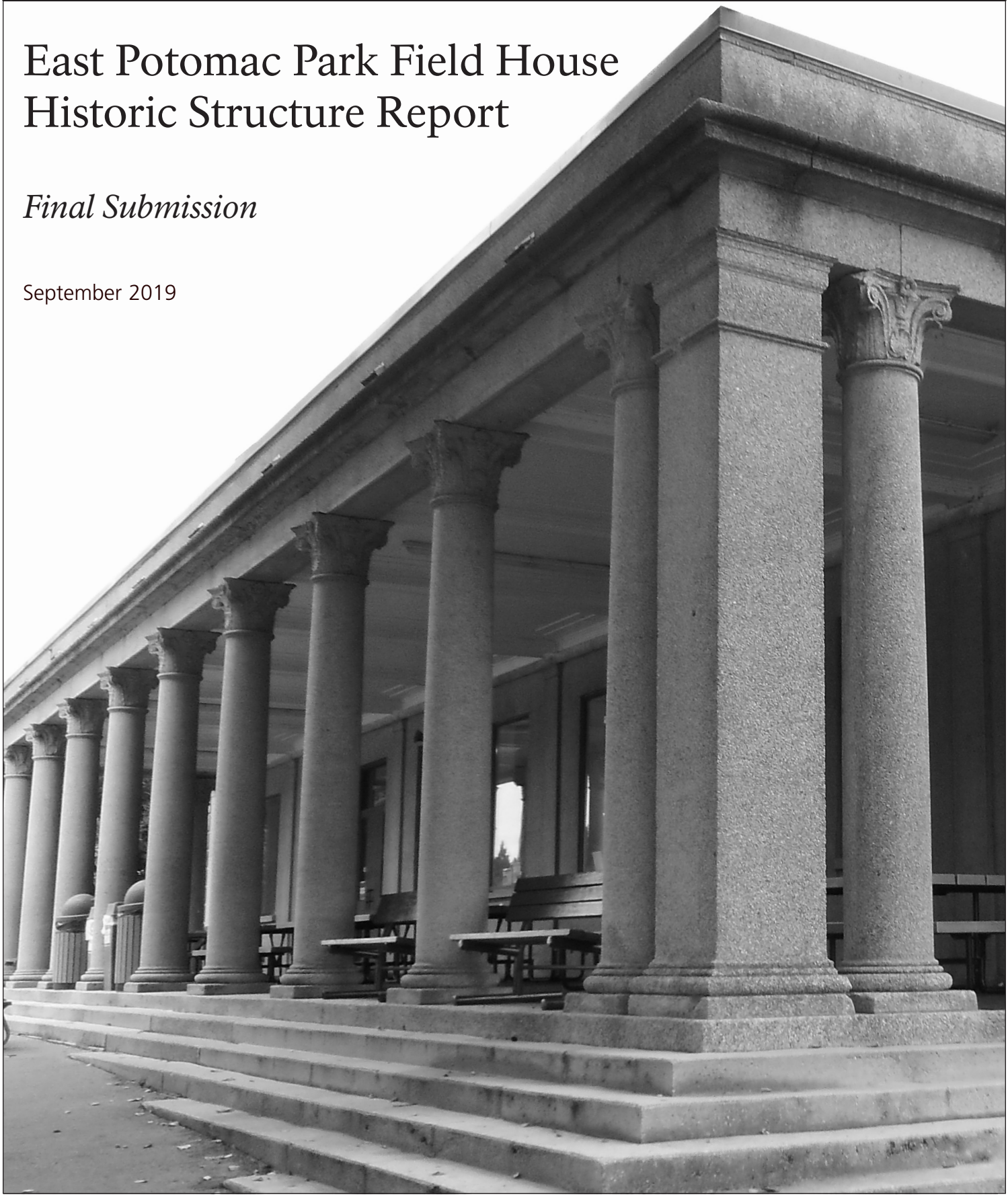
National Park Service
US Department of the Interior

National Mall and Memorial Parks
Washington, DC

East Potomac Park Field House Historic Structure Report

Final Submission

September 2019





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National Park Service Mission Statement: The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

Cover: East Potomac Park Field House, South Building, South Elevation (Beyer Blinder Belle [BBB] 2018)

East Potomac Park Field House
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Executive Summary

The purpose of the Historic Structure Report (HSR) for the Field House at East Potomac Park is to provide documentary, graphic, and physical information about the building's history and existing conditions. The HSR serves as a guide and planning tool to determine the appropriate methods of treatment for the repair, restoration, and reuse of the historic building.

Introduction

The National Park Service (NPS), National Capital Region developed this HSR to provide recommended treatments for the North and South Buildings that comprise the East Potomac Park Field House. The property is within NPS National Mall and Memorial Parks (NAMA) and is located on Hains Point, a man-made island recaptured from the Potomac River between 1871 and 1880. The Field House was constructed from 1917 to 1920 in the neoclassical design of architect Horace Peaslee and it features exposed aggregate concrete by sculptor John J. Earley.

In 2019, the US Park Police (USPP) will vacate the North Building, which it has occupied since 1979, relocating to a newly-constructed headquarters building north of the Field House. This presents an opportunity to reuse the North Building. The concessionaire's lease on the South Building will also expire in the coming years. While the South Building is intended to continue supporting the golf course, upcoming changes present an opportunity to reconsider the long term plans for the South Building.

The recommended treatments, upon implementation, will repair and rehabilitate the Field House so that the North Building may be reused for a new purpose and the South Building may continue to function as the golf course clubhouse.

The East Potomac Park Field House is located within and contributes to the East and West Potomac Parks Historic District, listed in the National Register of Historic Places.

Existing Condition

The Field House is in fair condition overall, exhibiting deterioration in varying stages. Many original or historic features have been removed and replaced with non-sympathetic elements such as replacement aluminum windows and steel doors. Water ingress poses the most immediate threat to the buildings and cracking of the historic exterior aggregate concrete is prolific on both buildings, due largely to temperature effects, moisture infiltration and corrosion, localized settlement, and inappropriate repairs. These cracks are difficult to repair successfully and will require a qualified architectural conservator.

The buildings are rare examples of the work of sculptor John J. Earley, a master of concrete. The exposed aggregate concrete on the exterior of the Field House is its most character-defining feature.

While the building retains a high level of integrity and significance, there have been numerous insensitive repairs to the exposed aggregate concrete over the building's 100 year history. Matching this material is very difficult and requires a qualified architectural conservator.

Scope and Objectives

The HSR for the Field House includes the following elements:

- Project Overview – Administrative information;
- Context, Chronology, and Physical Description – A brief historical background, architectural description, chronology of development, and identification of character-defining features;
- Condition Assessment – Architectural fabric survey and assessment, summary of conditions ratings; and
- Recommended Treatments – Recommendations for treatment to meet the stated goals for repair and reuse of the North Building.

This report was completed by a project team that included architects and architectural historians (Beyer Blinder Belle Architects & Planners), structural engineers (Robert Silman Associates), MEP engineers (James Posey Associates), and cost estimators (CCS). The team conducted documentation, survey, and a condition assessment of the Field House during several field visits to East Potomac Park. The character-defining features of the buildings were determined through the field surveys and referencing NPS Preservation Brief #17, *Architectural Character: Identifying the Visual Aspects of Historic Character as an Aid to Preserving Their Character.*

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

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

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

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

Methodology

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

Research

Many secondary reference documents provided by NPS—including National Register nomination forms, Cultural Landscape Inventories, Historic

American Buildings Surveys, and Historic Resource Studies—were reviewed. These materials provided background on the history and development of East and West Potomac Parks and provided information about the construction and chronology of the Field House. Desktop research was also conducted to identify additional images and photographs to supplement the secondary reference documents.

Condition Assessment

The project team made two site visits to record and photograph existing conditions. The team closely examined the construction of the buildings, looking for clues that inform the building chronology and indicate changes over time. To record the buildings' existing conditions, deficiencies were mapped on building plans and elevations.

Historic Structure Report

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

The extent of the repair and replacement recommendations of certain building elements or features are related to the condition and deficiency ratings. Those elements that are in poor condition and have critical deficiencies that require immediate attention typically require some level of replacement or reconstruction. All recommendations for the rehabilitation of the Field House are recorded in Part 1, Chapter 3 (Physical Description) and Part 2, Chapter 1 (Alternative Use). A description and recommendation is given for each building feature (as derived from the ASTM Uniformat II) in the Physical Description chapter.

The overall goal of the project is to provide treatment recommendations, based on the specific conditions of the Field House, that allow NPS to select treatment options in order to rehabilitate this property.

Recommendations for Treatment and Use

Rehabilitation is recommended as the preferred treatment option for the interior and exterior of both the North and South Buildings.

The preferred use of the North Building is as administrative offices and a training facility. The preferred use of the South Building is to remain as a concessionaire-leased golf course support facility.

Project Participants

National Park Service, National Capital Region

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Administrative Data

Preferred Structure Name:	East Potomac Park Field House at Hains Point, North and South Buildings
Other Structure Name:	East Potomac Park Field House, East and West Wings; US Park Police D-1 Substation; East Potomac Park Golf Course Clubhouse
Address:	972 Ohio Drive SW, Washington, DC 20024
Park:	East Potomac Park
NPS Region:	National Capital Region
Administrative Unit:	National Mall and Memorial Parks
Structure State:	Washington, DC
Date of Construction:	1917-1920
Current Use:	US Park Police Substation; Golf Course Clubhouse
Status:	Contributing structure within the National Register-listed East and West Potomac Parks Historic District.
National Historic Landmark:	No
Significance:	Was the first feature of the 1916 plan for the recreational development of East Potomac Park to be implemented, and is a recreational feature of long-standing, continuous use; architecturally significant as the result of collaboration between architect Horace W. Peaslee and sculptor John J. Earley.

Materials Glossary

Aggregate: Granular material, such as sand or gravel, used with a cementing binder to produce either concrete or mortar. Aggregates are the major constituent of concrete, making up 60% to 70% of its volume. Aggregates are divided into two size categories: fine and coarse. Most fine aggregates are sand and contain particles smaller than 3/8 inches (10 mm). Coarse aggregates may be either gravel or crushed materials, with particles larger than about 1/4 inches (6 mm).[1]

Concrete: Building material composed of cement (in the early 20th century, typically portland cement), aggregate (such as sand and/or gravel), and water.

Stucco: A type of exterior plaster applied as a two- or three-part coating directly onto masonry, wood or metal lath, or to a log or wood frame structure. Early 20th century stucco was typically composed of portland cement and lime.

Earley Process: Method of producing uniform exposed aggregate concrete and stucco in a predetermined color and texture. The concrete mixture comprised step-graded (or gap-graded) aggregate with the coarse aggregate (pebbles) pieces measuring ten times the diameter of the fine aggregate (sand) particles. The step-grading prevented random clumping of the aggregate, resulting in a uniform texture. The surface color was determined largely by the color of the coarse aggregate and the cement mix, which were chosen carefully. With both cast concrete and stucco, the surface was wire brushed before fully set, thereby fully exposing the coarse aggregate. It could then be treated with a weak acid to bring out the natural color of the aggregate if desired.[2]

Exposed Aggregate Concrete: The general term for concrete that is wire brushed before fully set to remove the outer layer of cement and expose the coarse aggregate. Specific examples of exposed aggregate concrete at the Field House are described below:

- **Cast in Place Exposed Aggregate Concrete:** Concrete mixture as specified in the Earley Process that is packed into a mold in its intended final location. The mold was removed and the concrete was wire brushed before fully set, thereby exposing the coarse aggregate. ***At Field House:*** base, steps at porticoes, window wells



Figure i: Cast in place exposed aggregate concrete at portico steps, South Building

- **Exposed Aggregate Concrete Stucco:** Stucco composed of portland cement, aggregate, and water as specified in the Earley Process. Additional water is added to the mixture, which is then applied with a trowel to building



Figure ii: Exposed aggregate concrete stucco at exterior walls and engaged pilasters, North Building

1 "Topics in Concrete: Aggregate," American Concrete Institute, https://www.concrete.org/topicsinconcrete/topicdetail/aggregate.
2 Earley, John J. Method of Producing a Predetermined Color Effect in Concrete and Stucco. US 1376748, United States Patent and Trademark Office, May 3 1921.

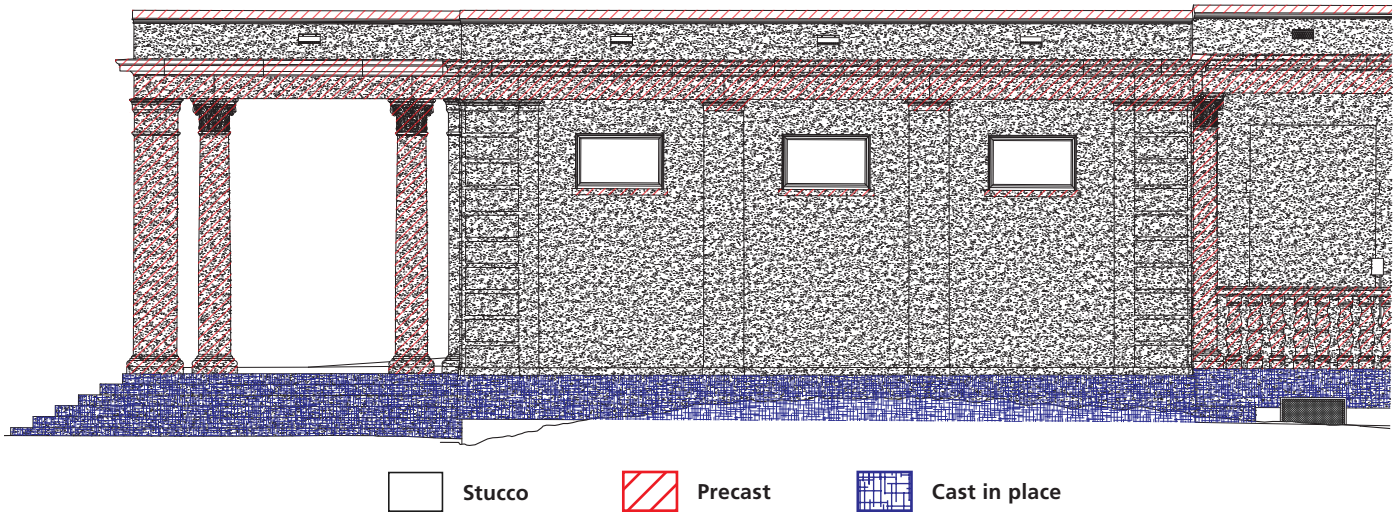
structures such as masonry or metal lath. The stucco is wire brushed before fully set, thereby exposing the coarse aggregate.
At Field House: exterior walls (on terra cotta tile masonry), decorative quoining, engaged pilasters

- **Precast Exposed Aggregate Concrete:** Concrete mixture as specified in the Earley Process that is packed into a mold off site. Molds were made of gypsum or other plastic and lined with a protective waterproof membrane (typically metal foil or oilcloth) so that one mold could be reused many times to produce identical elements. Earley patented this mold with a liner.[3] The mold was removed and the concrete was wire brushed before fully set, thereby exposing the coarse aggregate.
At Field House: columns, capitals, balustrades



Figure iii: Precast exposed aggregate concrete at columns, capitals, and balustrade, South Building

Diagram of Typical Concrete Application Locations



3 Earley, John J. Mold. US 1412392, United States Patent and Trademark Office, April 11 1922.

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1 DEVELOPMENTAL HISTORY

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Chapter 1: Historical Background and Context



Figure 1: Oblique view looking west showing South (left) and North (right) Buildings; no longer extant pool and pool house shown at top left (DC OCTO 2015)

https://oblique.sanborn.com/dcocto_new/?ll=38.874934,-77.027046&zoom=20

Two recent publications— *Links to the Past: A Historic Resource Study of National Park Service Golf Courses in the District of Columbia* by Patti Kuhn Babin (NPS) and the Historic American Buildings Survey (HABS) historical report for the Field House—expertly detail the history and evolution of the East Potomac Park Golf Course Field House. These documents provided a thorough historical background and context from which to develop recommendations. This section is adapted from these reports, as well as the Cultural Landscape Inventory and National Register Nomination for East Potomac Park.

Introduction

The East Potomac Park Field House comprises two independent structures—the only portions of a planned field house for the sports complex at Hains Point to be completed—dating from 1917 to 1920. Referred to as the North and South Buildings, the structures have mirrored L-shaped footprints and rise one story above partially-exposed full basements. The structural framing is of terra cotta tile and the exterior features exposed aggregate concrete. The exposed concrete, designed and constructed by the John J. Earley Company, is a combination of precast, cast in place, and stucco.

East Potomac Park Golf Course, located within the National Mall and Memorial Parks, encompasses approximately 220 acres on an island in Southwest Washington, DC, that is bounded by the Potomac River on the west and the Washington Channel on the east. Ohio Drive borders the course on its east and west sides and Buckeye Drive forms the northern boundary. Along the southern end of the course is Hains Point,

the tip of the island. East Potomac Park Golf Course consists of one eighteen-hole course (Blue Course, Par 72, 6,599 yards), a nine-hole beginner course (Red Course, Par 27, 1,142 yards), a nine-hole executive course (White Course, Par 33, 2,420 yards), and an eighteen-hole miniature golf course. All the courses were initially constructed between 1917 and 1931. The course also has a 100-stall driving range, three practice putting greens, and a three-hole practice course. Since 1921, a concessionaire has managed the operation of the golf course, held through various contracts first by Severine G. Leoffler and later Golf Course Specialists, Inc., who has managed the course since 1983.

Creation of East Potomac Park

East Potomac Park was created from the swampy marshland of the reclaimed Potomac River flats in the late 19th century. The reclamation project sought to address the siltation of the river, unclogging the flow of the tidal river to enable commercial traffic on the waterway. Improvement efforts began in 1857 with the publication of a report by civil engineer Alfred Landon Rives, who proposed the replacement of the river's Long Bridge (where the 14th Street bridges are today) and the reclamation of the mud flats along the shoals of the Washington Channel.[1] By the late 1860s, sediment accumulation in the Potomac River was so severe that Congress appropriated $50,000 to improve the river between the Long Bridge and Georgetown, and the first phase of the project was underway by 1871, as seen in Figure 2.[2] By 1882, over 240,000 cubic yards of material had been dredged and dumped on the Potomac Flats, resulting in a new land mass above the water line, as seen in Figure 3. Subsequent plans and dredging campaigns conducted throughout the 1880s and 1890s would focus on transforming the new Potomac Flats landscape into usable terrain.[3]

The reclamation of the Potomac Flats coincided with a new movement to create green space in Washington, DC. The idea of utilizing the reclaimed land for recreation emerged as early as 1900, as seen in the drawing in Figure 4 showing proposed areas for tennis, football, polo, and other activities. The 1902 publication of the McMillan Plan further bolstered the efforts to design recreational infrastructure for the Federal city. The final plan devoted an entire chapter to the newly-created Washington embankment and Potomac Park, which spanned 739 acres by this time.[4] The island between the Washington Channel and the Potomac River offered a blank slate for recreational green space, and by 1911, reclamation was complete, and the new East Potomac Park was transferred to the Office of Public Buildings and Grounds the following year.

Creation of The East Potomac Park Golf Course

Although the McMillan Plan did not specify which recreational uses should be incorporated into East Potomac Park, the idea of a golf course on the island emerged in 1911 and was incorporated into park plans by 1914.[5] In October 1915, the officer in charge of DC's Public Buildings and Grounds, Colonel Harts, presented an initial plan for the development of East Potomac Park as a public recreation ground in front of the Commission of Fine Arts.[6]

In 1917, park officials hired former U.S. amateur golf champion, and renowned golf course ar-

1 Gordon S. Chappell, "East and West Potomac Parks: A History," Historic Resource Study (Denver, Colorado: National Park Service, 1973), 8–9.
2 Chappell, 17.
3 Chappell, 29–30.
4 Charles Moore, ed., *The Improvement of the Park System of the District of Columbia* (US Government Printing Office, 1902), 117, 164.
5 *Evening Star*, March 23, 1913.
6 Patti Kuhn Babin, "Links to the Past: A Historic Resource Study of National Park Service Golf Courses in the District of Columbia," (Washington, DC: National Park Service, 2018), 32.



Figure 2: Reclamation of the Potomac Flats, ca. 1871 (Smithsonian)

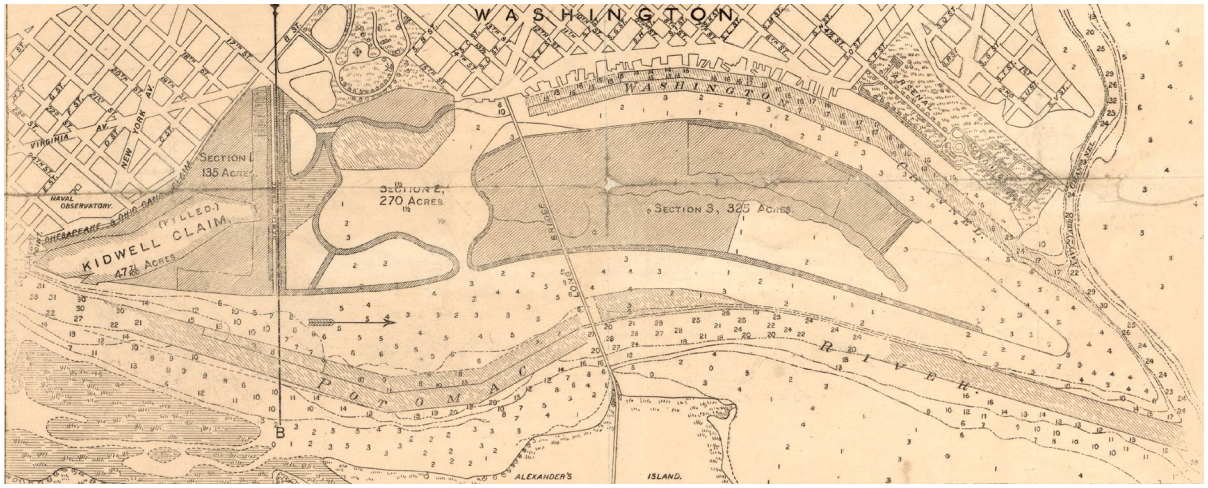


Figure 3: Progress of the Reclamation of the Potomac Flats, ca. 1880 (Library of Congress)

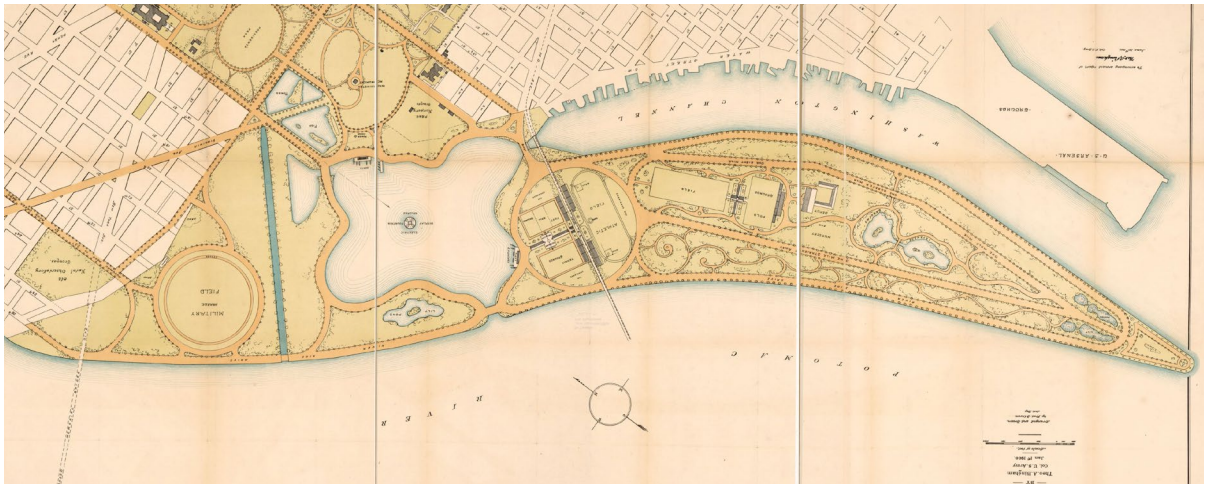


Figure 4: Study for the Establishment and Use of Potomac Park, 1900 (Library of Congress)

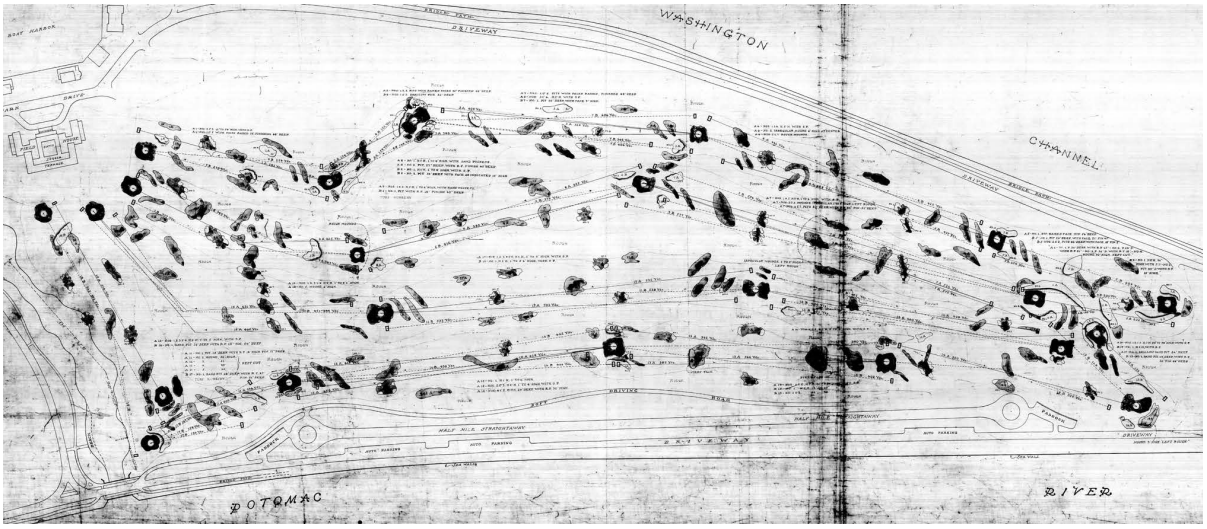


Figure 5: Design for the Blue Course at East Potomac Park by Walter Travis, 1917 (CLI)

chitect, Walter J. Travis to design a course for East Potomac Park. Inspired by the landscape's proximity to the Washington Channel and the Potomac River, Travis designed a traditional links-style course with a reversible progression of play. Construction of the initial 9-hole course began in the spring of 1917, and by June 1920 (after a halt for World War I), the first nine holes, referred to as the A-C Course, and two wings of the Field House were complete.[7] The back nine, called the B-D Course and also designed by Travis, was completed by June 1923.[8]

Federal Golf Courses in the District of Columbia

East Potomac Park Golf Course is one of three golf courses under the authority of the National Capital Region of the National Park Service. The three courses—East Potomac Park Golf Course, Rock Creek Golf Course, and Langston Golf Course—are all located in the District of Columbia. Between 1917 and 1948, the Federal government built seven public golf courses and three miniature golf courses on Federal land in the District of Columbia, a testament to the rise in the popularity of the sport of golf and the demand for public golf courses for those who could not afford private memberships to exclusive golf clubs in the early decades of the 20th century. While reflecting the nationwide trend of public golf, the courses also illustrate the effort of cities across the country to provide active or organized recreation facilities in public parks in the early 20th century, a trend that was not ignored by the Federal government despite its somewhat complicated role in the development of recreation areas in the District of Columbia.

The majority of the public golf courses in the District of Columbia were built during an era known as the Golden Age of Golf, a period beginning in the 1910s and ending around the Great Depression that produced some of the most innovative and influential courses in the United States.[9] The popularity of the sport increased in this era as did the number of courses, which grew from around 750 in 1916 to nearly 6,000 in 1930.[10] The architects of the District of Columbia's public golf courses, including Walter J. Travis and William S. Flynn, were some of the most noted golf architects of their time, illustrating the importance of the courses as well as the design philosophies instituted during golf's Golden Age.

7 *Washington Post*, April 21, 1917; *Evening Star,* May 20, 1918.
8 *Washington Post*, April 15, 1923.
9 Cultural Landscape Foundation, "Landmark Period," http://tclf.org/category/designed-landscape-types/golf-course/landmark-period; Geoff Shackelford, *The Golden Age of Golf Design* (Chelsea, Michigan: Sleeping Bear Press, 1999), 3.
10 Shackelford, 2–3.

Designers

Architect: Horace Peaslee (1884–1959)

Architect/landscape architect Horace Whittier Peaslee Jr. of the Office of Public Buildings and Grounds designed the Field House as a neoclassical building that also incorporated landscape features, illustrating his background in landscape architecture.

Over his career of more than 50 years in Washington, DC, Horace Peaslee made significant contributions in the fields of architecture, landscape architecture, urban planning, and historic preservation that fundamentally shaped the appearance and development of the city. Peaslee received his Bachelor's degree in architecture with a minor in landscape architecture from Cornell University in 1910. In 1911, Peaslee followed his mentor and former professor, George Burnap, to Washington, DC. Both took jobs at the Office of Buildings and Grounds.

When Burnap left the Office of Public Buildings and Grounds in 1917 to return to private practice, Peaslee replaced him as architect in charge of design and remained in this position for the next 18 years. In his positions as landscape architect and architect, Peaslee designed the Field House at the East Potomac Park Golf Course and many other notable projects in the District of Columbia including Meridian Hill Park, "the crowning achievement of Peaslee's career and one of the country's most artistically notable urban parks."[11]

In addition to his responsibilities at the Office of Public Buildings and Grounds, Peaslee was also actively involved in several professional and civic affairs that had a great impact on the built environment in Washington, DC. Concurrently with his position at the Office of Public Buildings and Grounds, Peaslee operated his own private practice, which he maintained for the next 40 years. Peaslee also helped organize the Committee of 100 on the Federal City in 1921, a local citizen's group concerned with planning, parks, and design. The following year Peaslee established the Architects Advisory Committee (AAC) to review the design of buildings for building permit applicants. Operating for 10 years, the AAC became a model for similar design review bodies in other cities. In 1936 Peaslee was named a Fellow of the American Institute of Architects and was noted for "a distinguished record in the interest of civil and national government, years of effort for the institute's welfare, often at personal sacrifice."[12]

Sculptor: John J. Earley (1881-1945)

A fifth generation sculptor, John Joseph Earley became an apprentice in his father's studio in Rosslyn, Virginia, at the age of 17 and assumed control of the Earley Studio in 1906 after his father's death. The studio originally focused on stone ornamental sculpture, but under the direction of Earley and his associate Basil Taylor, the studio shifted its focus to plaster and stucco work. Between 1911 and 1914 Earley became interested in experiments being conducted by the Bureau of Standards on the problems associated with Portland cement applied over metal lath. Earley's experiments with the Bureau of Standards coincided with his work with the Office of Public Buildings and Grounds at Meridian Hill Park, where he experimented with a method of creating decorative exposed-aggregate concrete, a process that he later patented in 1921 and became the basis for the concrete work produced at the Earley Studio.[13]

Earley began work at East Potomac Park shortly after starting work on Meridian Hill Park; the concrete aggregate finishes were similar for both

11 Kim Williams, "Staff Report for Historic Preservation Review Board Historic Landmark Case No. 15-15," July 23, 2015.
12 Williams; Architrave P.C. Architects, "Meridian Hill Park Cultural Landscape Report, Volume 1" (National Park Service, 2001), A2-7, A2-8.
13 Aument, "Experimentation in Concrete," 17–18.

sites. In 1920, the East Potomac Park Field House was featured in a presentation entitled "New Developments in Surface-Treated Concrete and Stucco" given at the American Concrete Institute's annual convention by John J. Earley and J.C. Pearson. Pearson and Earley were both on the Advisory Committee of the Bureau of Standard's Stucco Investigation and on the Committee on Treatment of Concrete Surfaces of the American Concrete Institute. Earley's work at the East Potomac Park Field House, Meridian Hill Park, and other locations were described in detail, explaining his method and experiments in his process.[14]

Earley's method produced uniform exposed aggregate concrete and stucco in predetermined colors and textures. The concrete mixture comprised step-graded (or gap-graded) aggregate with the coarse aggregate (pebbles) measuring ten times the diameter of the fine aggregate (sand) particles. The step-grading prevented random clumping of the aggregate, resulting in a uniform texture. With both cast concrete and stucco, the surface was wire brushed before fully set, thereby exposing the coarse aggregate that lay in a plane about 1/16 inches below. The surface color was determined largely by the color of the coarse aggregate and the cement mix, which were chosen carefully. After brushing, the surface could also be treated with a weak acid to bring out the natural color of the aggregate if desired.[15]

Earley used this process, patented in 1921 as the "Earley Process," to create a wide range of products including murals, walls, and entire buildings like the wings of the Field House. He continued to develop the process, culminating in works like the Parthenon replica in Nashville, Tennessee; Edison Monument in Menlo Park, New Jersey; and Bahá'í House of Worship in Wilmette, Illinois.

Significance

The East Potomac Park Field House contributes to the East and West Potomac Parks Historic District, based on National Register Criterion A in the area of Entertainment/Recreation and Criterion C in the area of Architecture. The Field House was the first feature of the 1916 plan for the recreational development of East Potomac Park to be implemented, and it is a recreational feature of long-standing, continuous use. The Field House buildings remain the anchor of the spatial organization of the East Potomac Park Golf Course cultural landscape. The South Building (concessions), in particular, serves as the center point of all three extant courses, which comprise a total of 36 holes. Additionally, a miniature golf course also constructed by Earley is located east of the North Building. Although the layout and progression of play have changed several times in the 20th century, this arrangement of 36 holes to the north, west, and south of the Field House is generally consistent with the spatial organization during the historic period. The integrity is further reinforced in the extant cultural landscape by the ongoing spatial relationship with the Washington Channel to the east and the Potomac River to the west.[16]

While never fully executed, the East Potomac Park Field House is architecturally significant as part of the collaborative effort of Public Buildings and Grounds architect Horace W. Peaslee and local sculptor John J. Earley. The design of the Field House illustrates Peaslee's balanced neoclassical design with exterior facade finishes executed by Earley's studio. Using exposed aggregate concrete in three different construction method applications, Earley was able to create a uniform appearance. The building walls, including engaged pilasters and quoins, are of terra cotta tile finished with exposed aggregate concrete stucco;

14 American Concrete Institute, *Proceedings of the Sixteenth Annual Convention*, 77–82.
15 Earley, John J. Method of Producing a Predetermined Color Effect in Concrete and Stucco. US 1376748, United States Patent and Trademark Office, May 3 1921.
16 Shannon Garrison and Molly Lester, "East Potomac Golf Course: Cultural Landscape Inventory" (National Park Service, 2017), 85.

the columns, capitals, window and door sills, cornices, parapet caps, and balustrades are precast aggregate concrete elements of identical finish; and cast-in-place concrete slabs and beams are seamlessly integrated in the composition of the facades. (See "Materials Glossary" on page xii for more details on application methods)

In particular, the building illustrates Earley's experimentation with the development of his "step gradation" process in concrete and stucco, which is also illustrated in Peaslee's masterpiece Meridian Hill Park, begun just before the Field House. Earley proffered East Potomac Park as an example of his "improved method," which he patented in 1921. It allowed a greater variety of color and texture in stucco than any known process at that time.[17] Few changes have been made to the exterior of the Field House since its construction, with the exception of the replacement of original wood windows and doors, the enlargement of some original window openings, and the addition of doors, including doors at the basement that required some changes of grading. Thus, the Field House retains sufficient integrity to convey its significant association as a work of Peaslee and Earley.[18]

17 US Patent 1,376,748, May 3, 1931.
18 Babin, "Links to the Past," 305.

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Chapter 2: Chronology of Development and Use

The East Potomac Park Field House was constructed from 1917 to 1920. While the building interiors have been significantly altered since their original construction, the building exteriors remain largely intact. This chapter details the original design, construction, and subsequent alterations to the North and South Buildings of the Field House.

Initial Design: 1917

The Field House was designed in 1917 as a five-part structure reminiscent of a Renaissance palazzo, seen in a preliminary study for the Field House and recreational facilities at East Potomac Park in Figure 6. The Field House featured a U-shaped plan oriented towards the Washington Channel to the east. At its center was a rectangular block with an interior courtyard. This was flanked by hyphens and pavilions. Plans and elevations are shown in Figure 7, Figure 14, and Figure 15.

Plans show the center block containing a large assembly room on one side and cafeteria with counter and table service on the other. Connecting the two sections and the centerpiece of the building was a square-shaped open courtyard surrounded by an arched colonnaded loggia. In the courtyard's center was a round reflecting pool, gravel walks, and formal landscaping.

Identical L-shaped wings on each side of the main block held men's locker room and women's locker room facilities and featured large, open porches with Corinthian columns that lined the side elevations of the wings.[19]

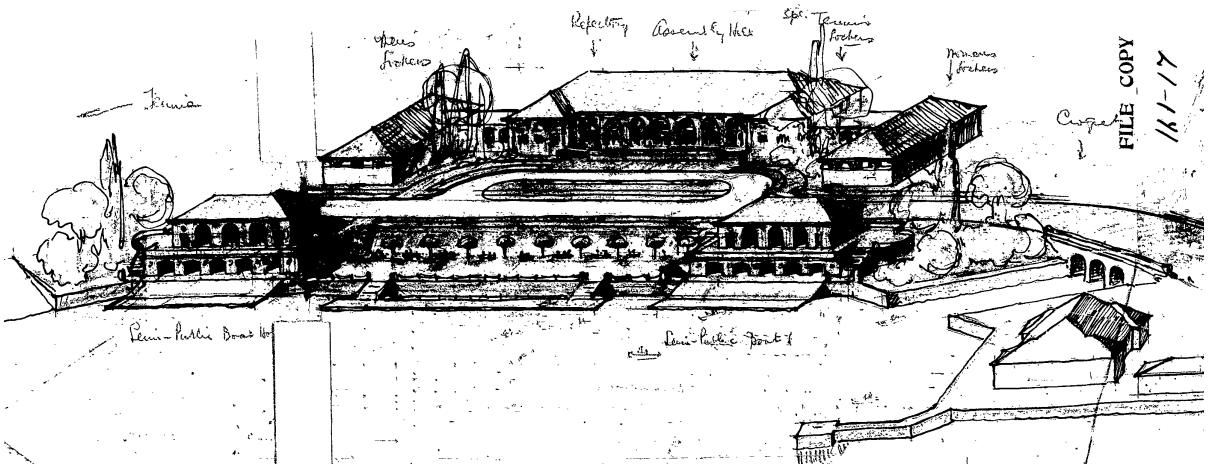


Figure 6: Preliminary Study for East Potomac Park, ca. 1917 (NPS ETIC)

19 Office of Public Buildings and Grounds, Various Plans of the Field House, 1917, drawings, National Park Service, National Capital Region, Land Resources Program Center Map Database.

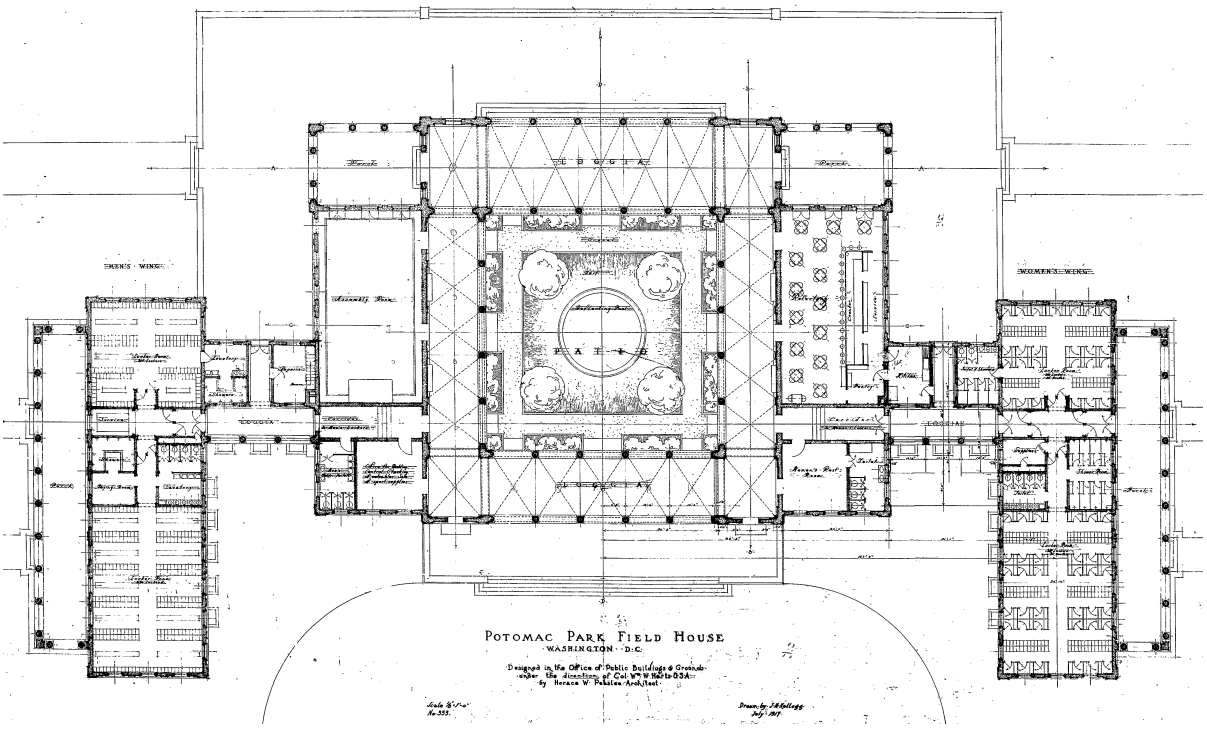


Figure 7: Plan of Field House with Center Block, July 1917 (NPS ETIC)

The north pavilion and hyphen functioned as the women's wing, including lockers and bathrooms as well as a porch along the entire north side. The hyphen featured a porch on the east, indented as the passage between the central pavilion and the wing. It also included a kitchen to support the cafeteria and another bathroom to support the wing. The south pavilion and hyphen functioned as the men's wing, including lockers and bathrooms with a similar porch, a shower room, and a storage room.

Construction: 1917-1920

The East Potomac Park Field House was constructed under the auspices of the Offices of Public Works and Grounds, under the direction of Colonel William W. Harts.

The total estimate for the Field House was $200,000 and the Office of Public Buildings and Grounds received a $50,000 appropriation for fiscal year 1917 and another identical appropriation for fiscal year 1918. The A.C. Moses Construction Company of Washington, DC, was awarded the construction contract. They in turn contracted with John J. Earley to finish the structure.[20]

805/126926 6 OF 22

The construction of the two wings containing the locker rooms was around 50 percent complete by the end of the fiscal year 1918.[21] Due to lack of funding, however, the central building and courtyard were never constructed.

As planned, the entire complex was constructed of concrete and terra cotta tile set on a cast in place concrete slab. John J. Earley, noted concrete sculptor and inventor, designed the construction method employed in the Field House, wherein the terra cotta tile was covered by a combination of exposed aggregate concrete stucco and precast exposed aggregate concrete ornamentation.

Since the central building was never constructed, the wings (referred to hereafter as the North and

20 An estimate from the A.C. Moses Construction Company, who was contracted to build the Field House, indicates that Earley was contracted to construct many of the architectural details of the Field House including the porch ceilings panels, columns, architrave, and columns at an estimated cost of around $18,000, A.C. Moses Construction Co. to Office of Public Buildings and Grounds, 18 September 1918, Record Group 42, Entry 311, Box 10, National Archives, Washington, DC.

21 US Army, *Report of the Chief of Engineers* (1918), 1931.



Figure 8: South Building looking NW, 1920 (*Park International*)

South Buildings) consolidated the functions of the unbuilt main block. The North Building held the women's locker rooms, offices, and storage rooms on the main floor and laundry facilities and additional storage in the basement. The South Building had a dining room, lunch counter, men's locker rooms, and a golf professional shop on the first floor. The kitchen, pantry, and cold storage were located in the basement.[22] See selected drawings, largely reflective of final construction, in Figure 16 through Figure 25.

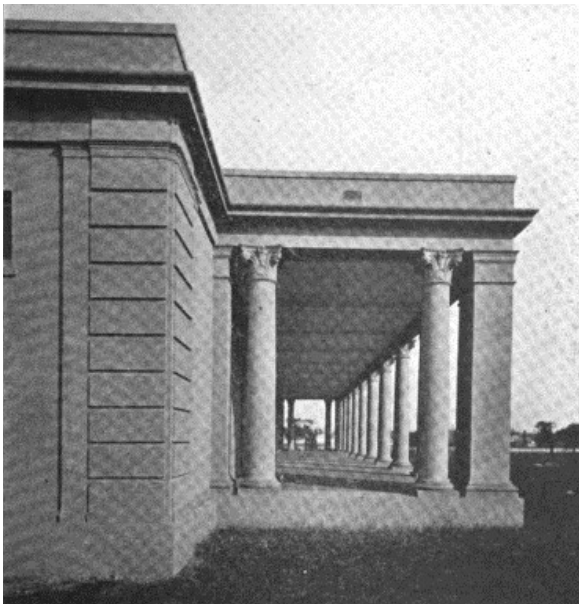


Figure 9: South Building looking east, 1920 (*Park International*)

Circulation features around the Field House were minimal. The buildings were planted in the landscape, with few sidewalks or pathways around them to mitigate the transition from building to landscape. This was likely due to the expectation that the center portion of the building would be constructed in the near future and a holistic landscape plan would be implemented.

The original high punched rectangular windows were typically 4' wide by 2'-6" tall eight-light, wood frame hopper windows (see Figure 10, Figure 11, and Figure 12). Since the building was intended to house locker rooms, the window sills were set approximately 8' from the floor level to ensure privacy. Doors were wood panel and glass with multi-light wood transoms, as seen on the far right in Figure 11.

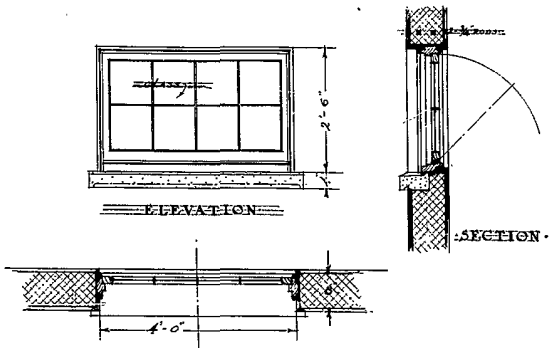
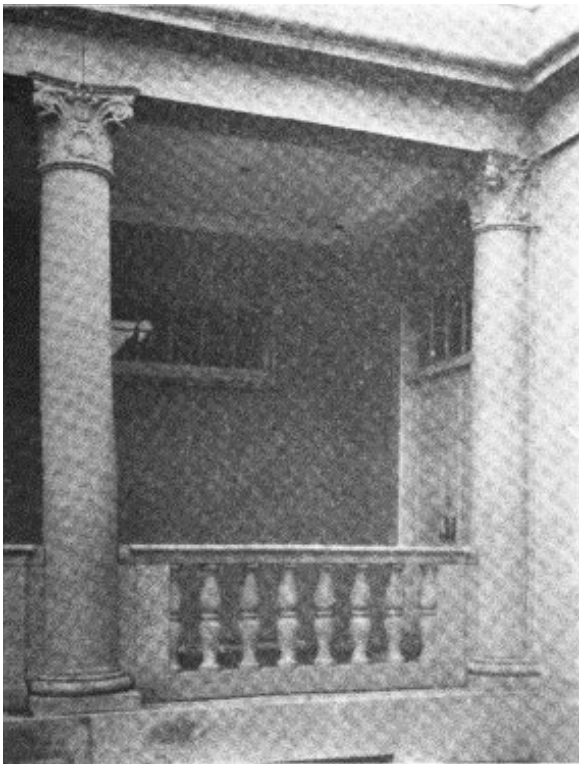


Figure 10: Detail of typical wood window, May 1917 (NPS)

22 Bobeczko and Robinson, "NR Nomination," 76.



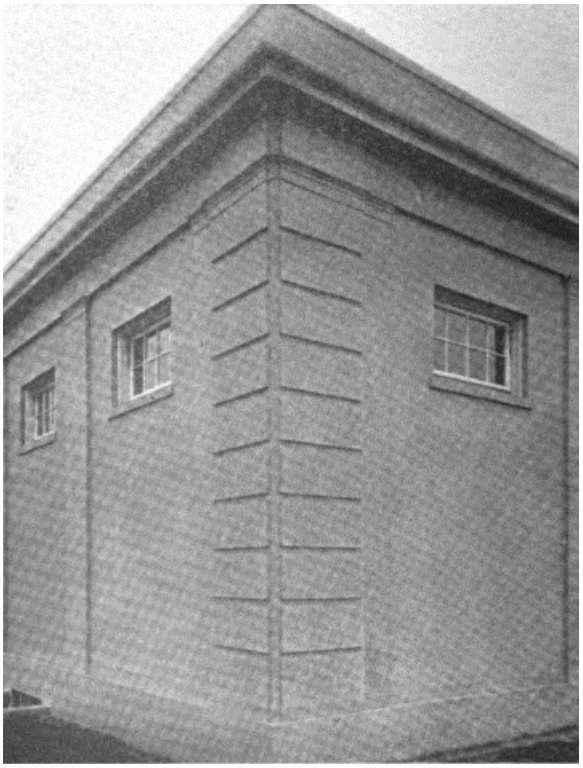


Figure 11: [Left] North Building, south portico looking NW, 1920 (*Park International*)

Figure 12: [Right] North Building, southeast corner looking NW, 1920 (*Park International*)



Figure 13: Mrs. Virginia Riter, Mrs. EM Alison, and Mrs. Helen Rutan at the Golf Course, 1923. West Elevation of North Building Looking East (Library of Congress)

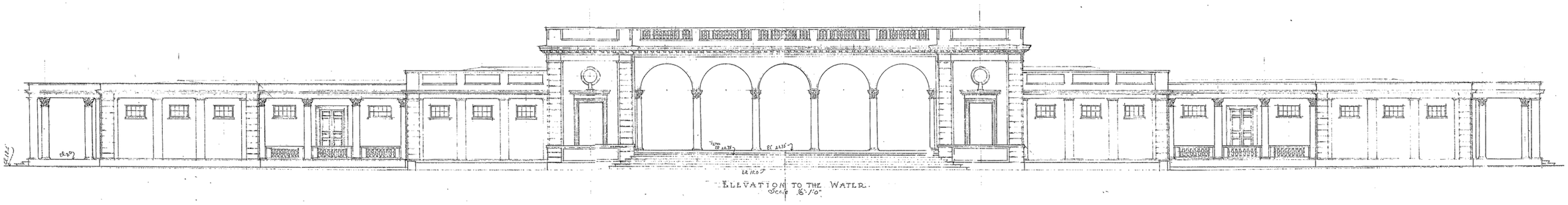


Figure 14: Elevation of Field House "To the Water" (West Elevation), May 1917 (NPS ETIC)

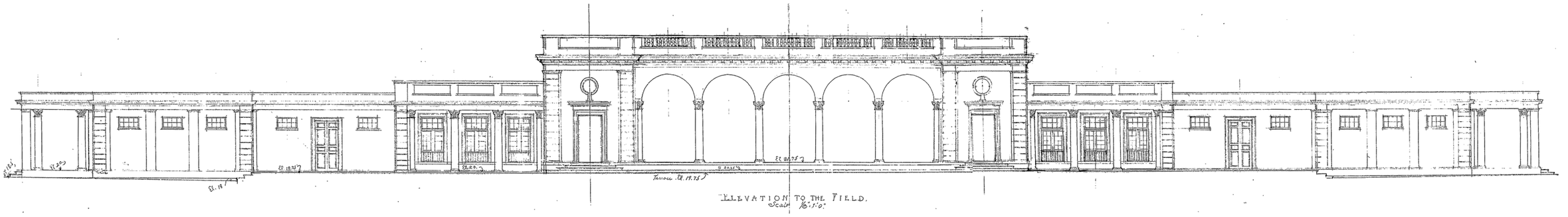


Figure 15: Elevation of Field House "To the Field" (East Elevation), May 1917 (NPS ETIC)

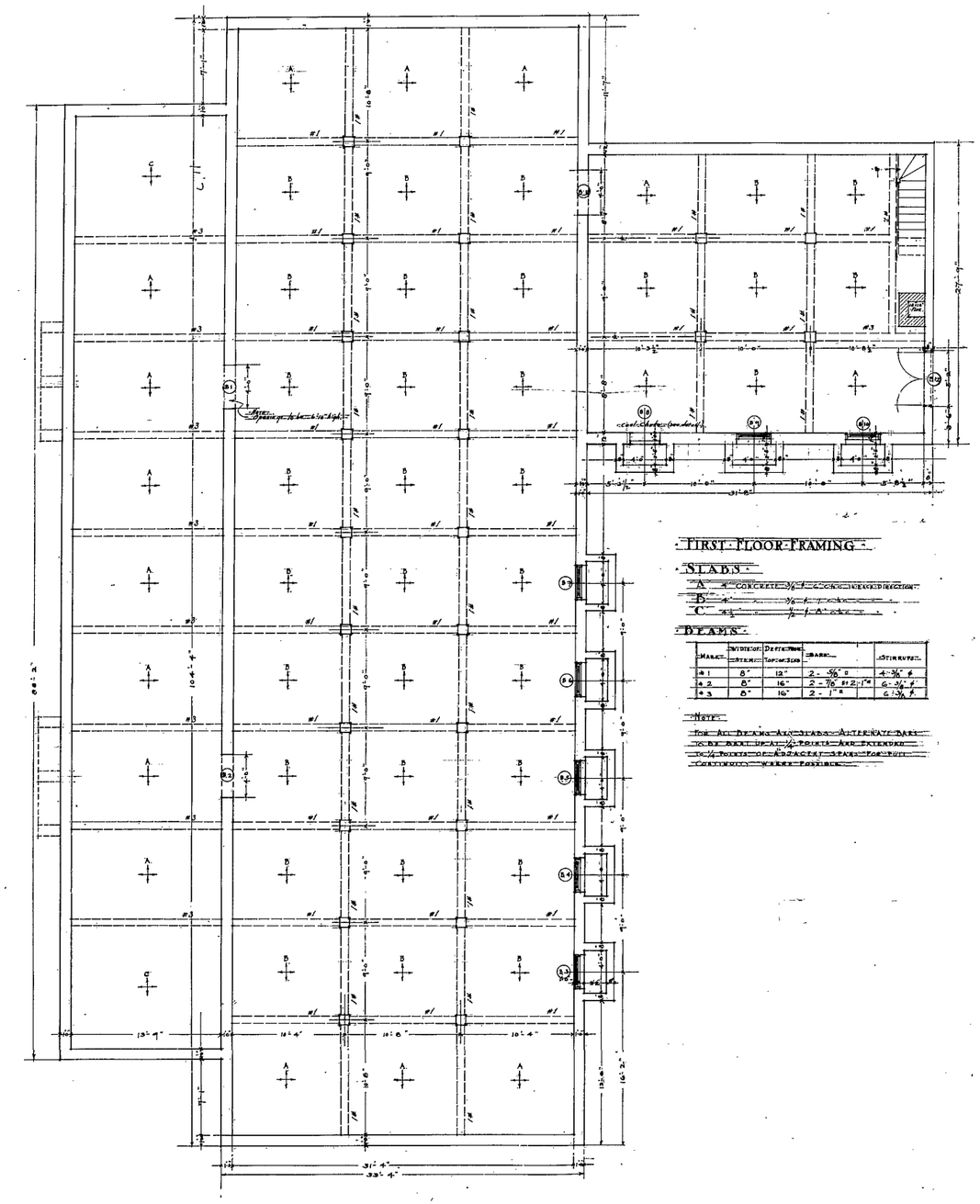


Figure 16: Basement Plan Men's Wing (South Building), May 1917 (NPS)

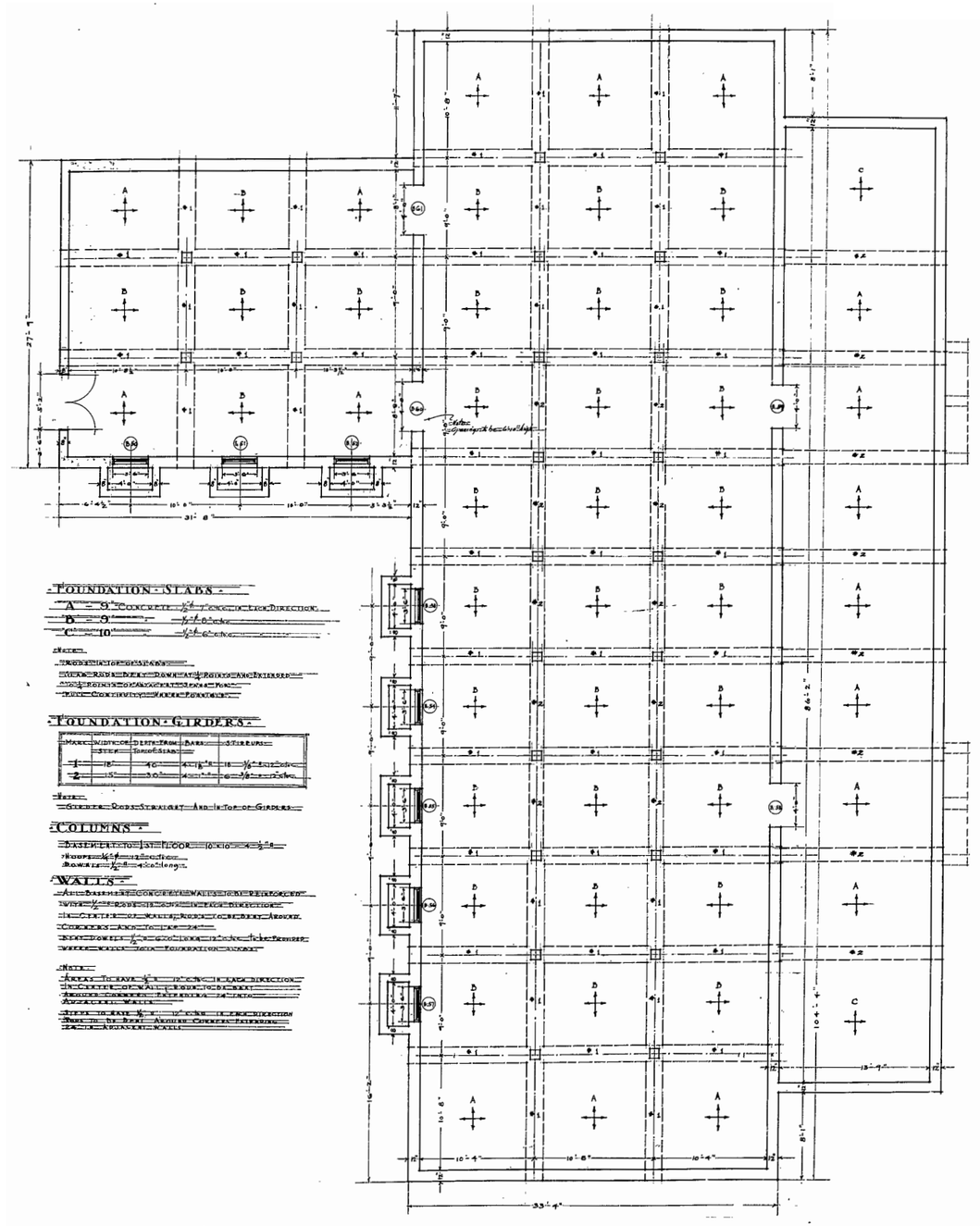


Figure 17: Basement Plan Women's Wing (North Building), May 1917 (NPS)

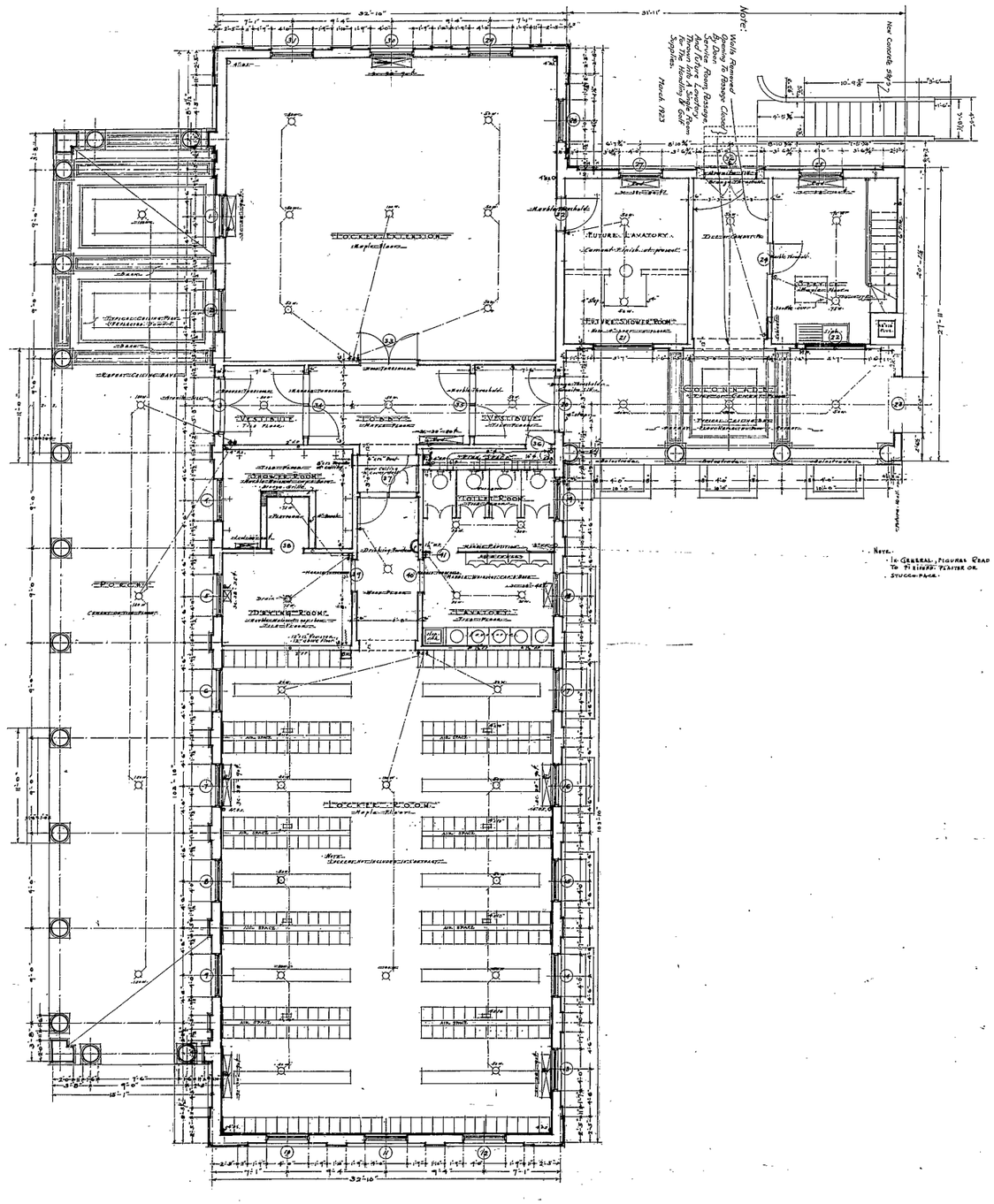


Figure 18: First Floor Plan Men's Wing (South Building), May 1917 (NPS)

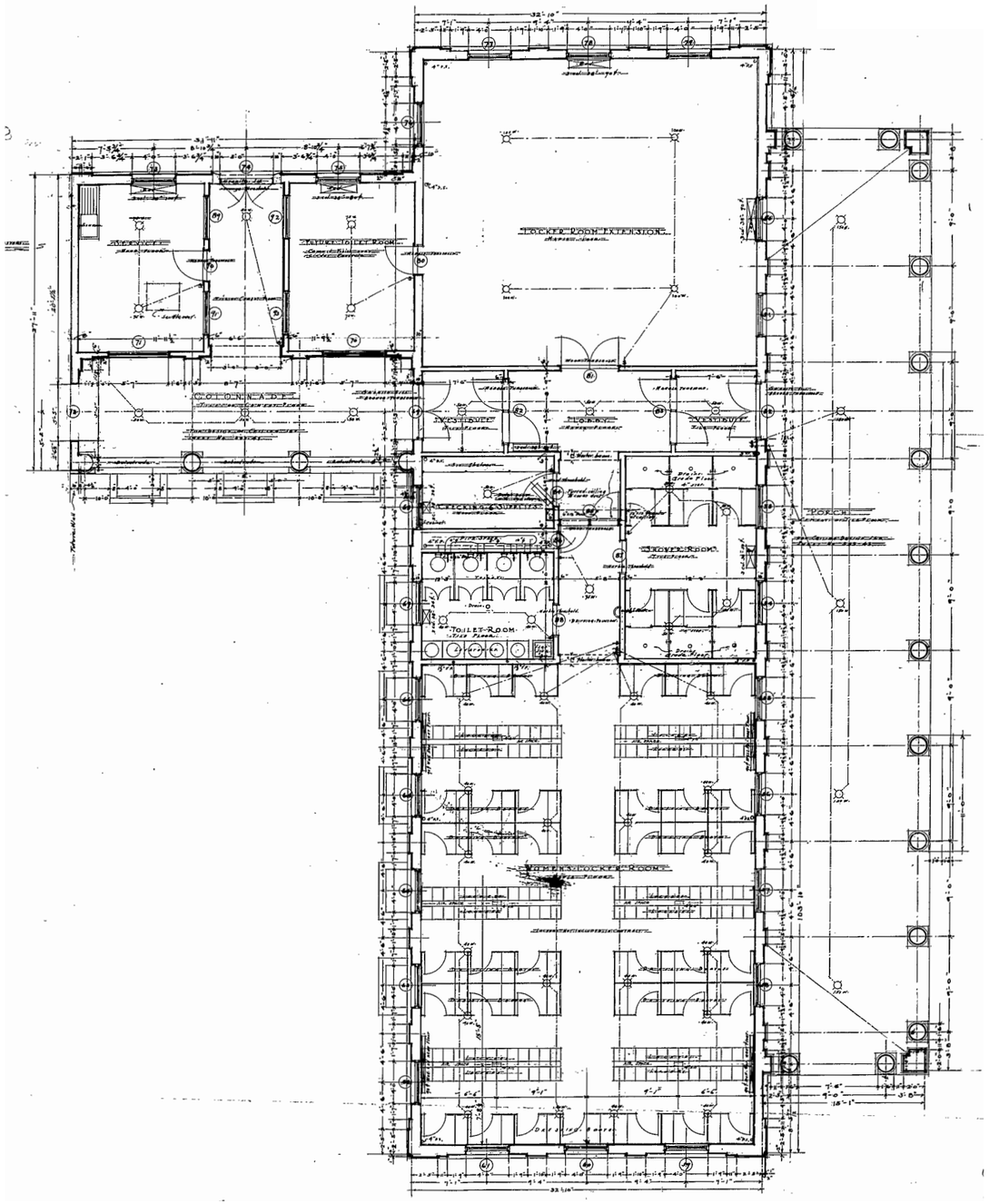


Figure 19: First Floor Plan Women's Wing (North Building), May 1917 (NPS)

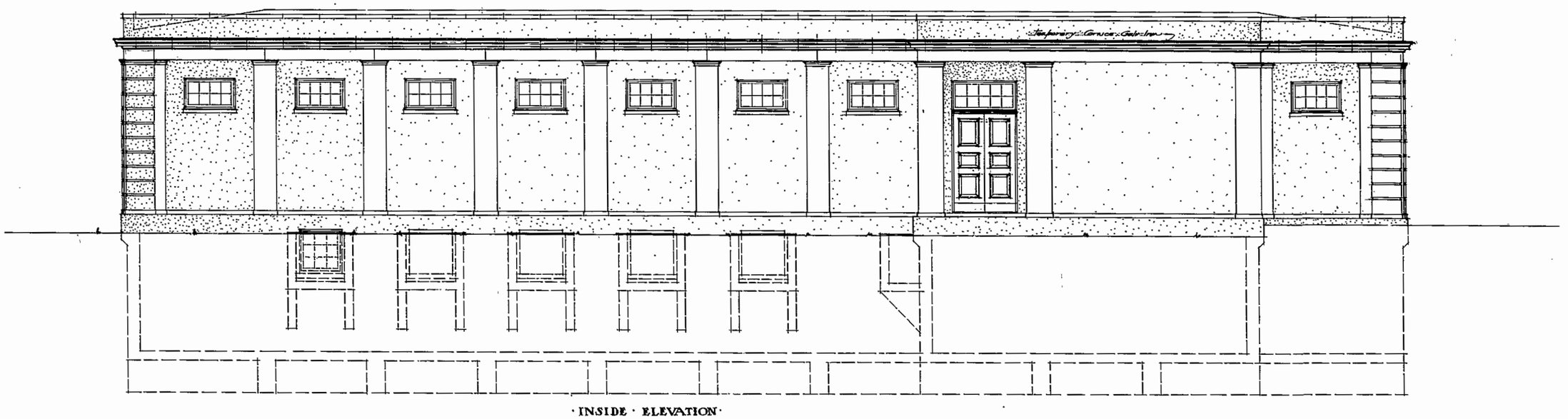


Figure 20: Inside Elevation, May 1917 (NPS)

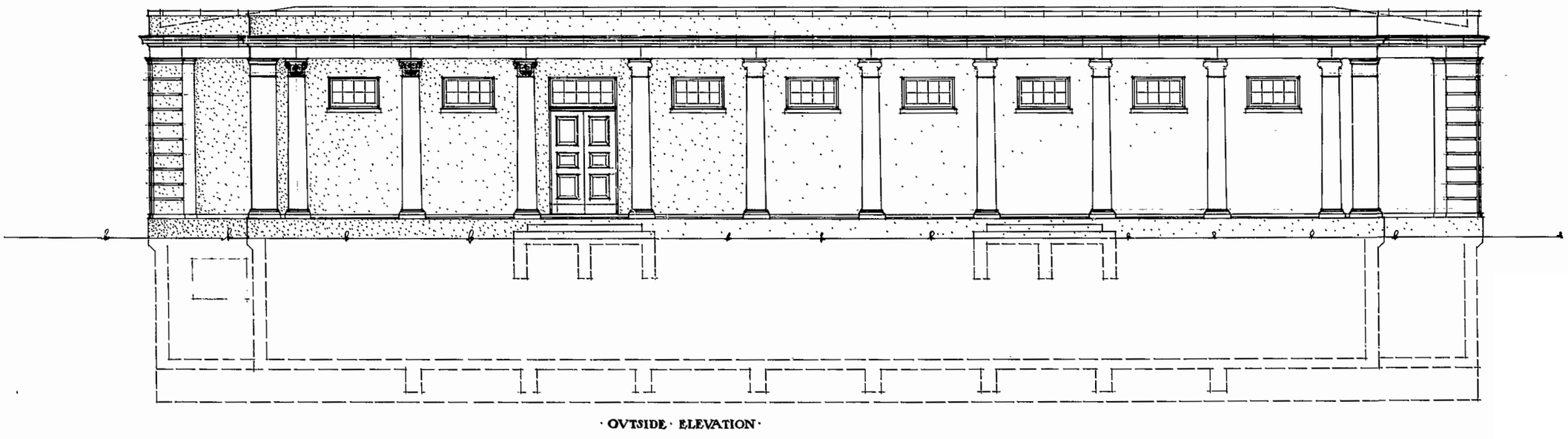


Figure 21: Outside Elevation, May 1917 (NPS)

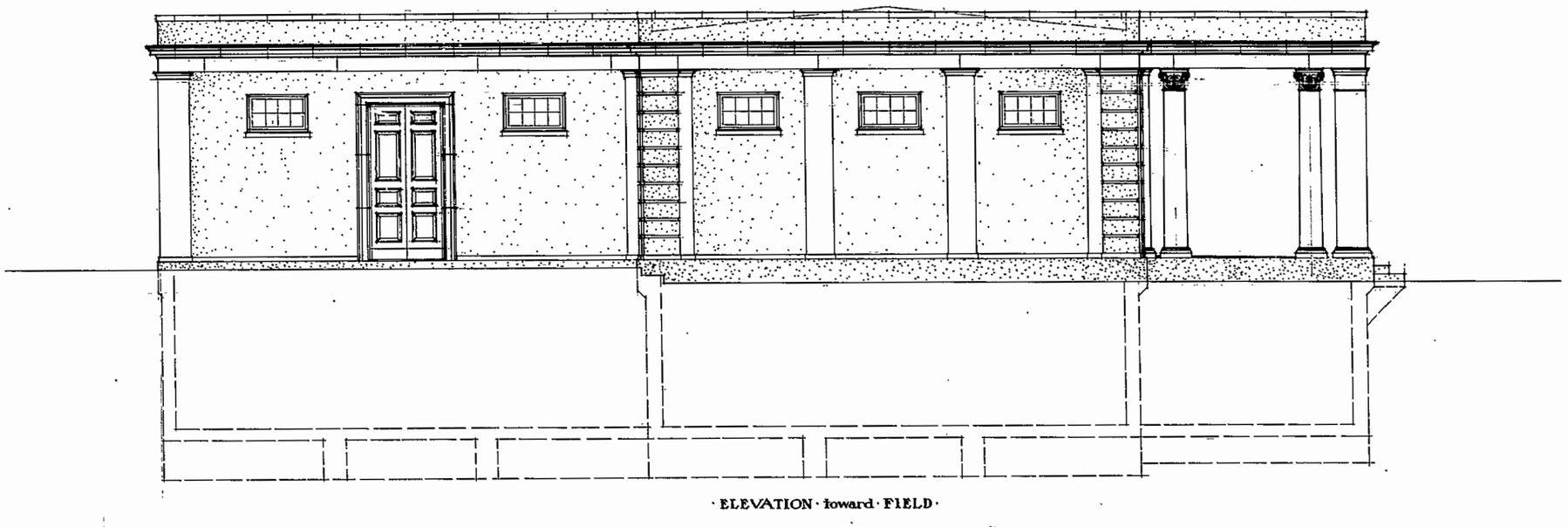


Figure 22: Elevation Toward Field (East Elevation), May 1917 (NPS)

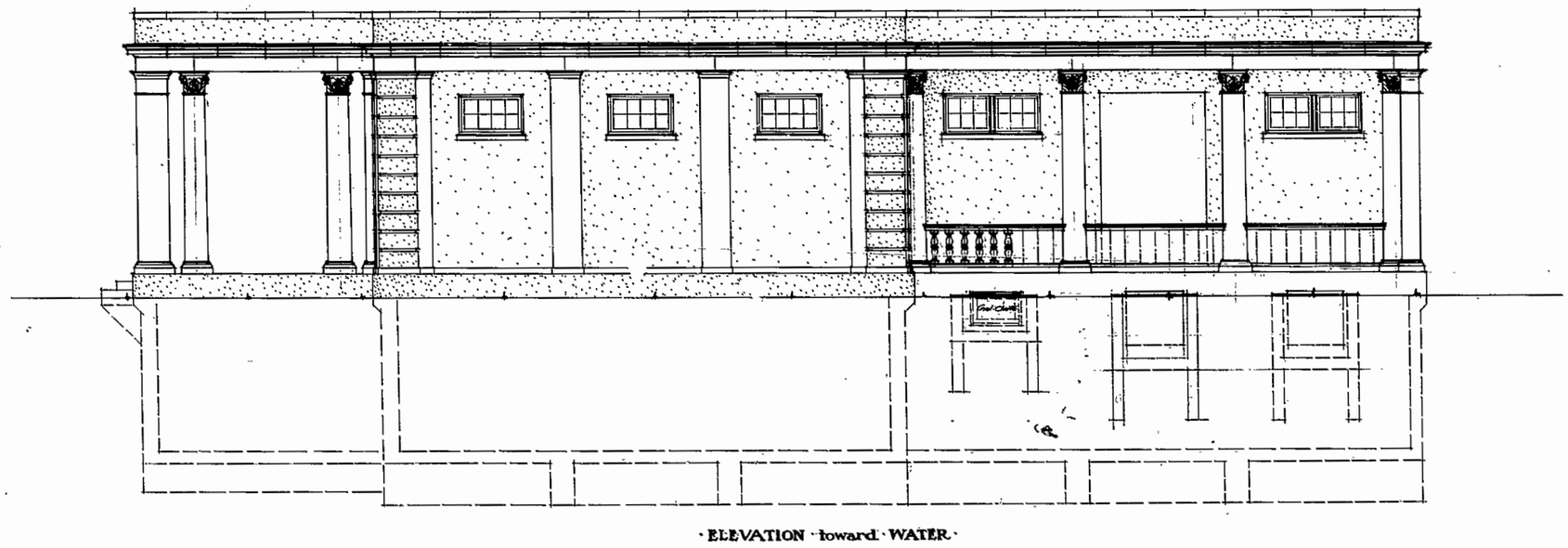


Figure 23: Elevation Toward Water (West Elevation), May 1917 (NPS)

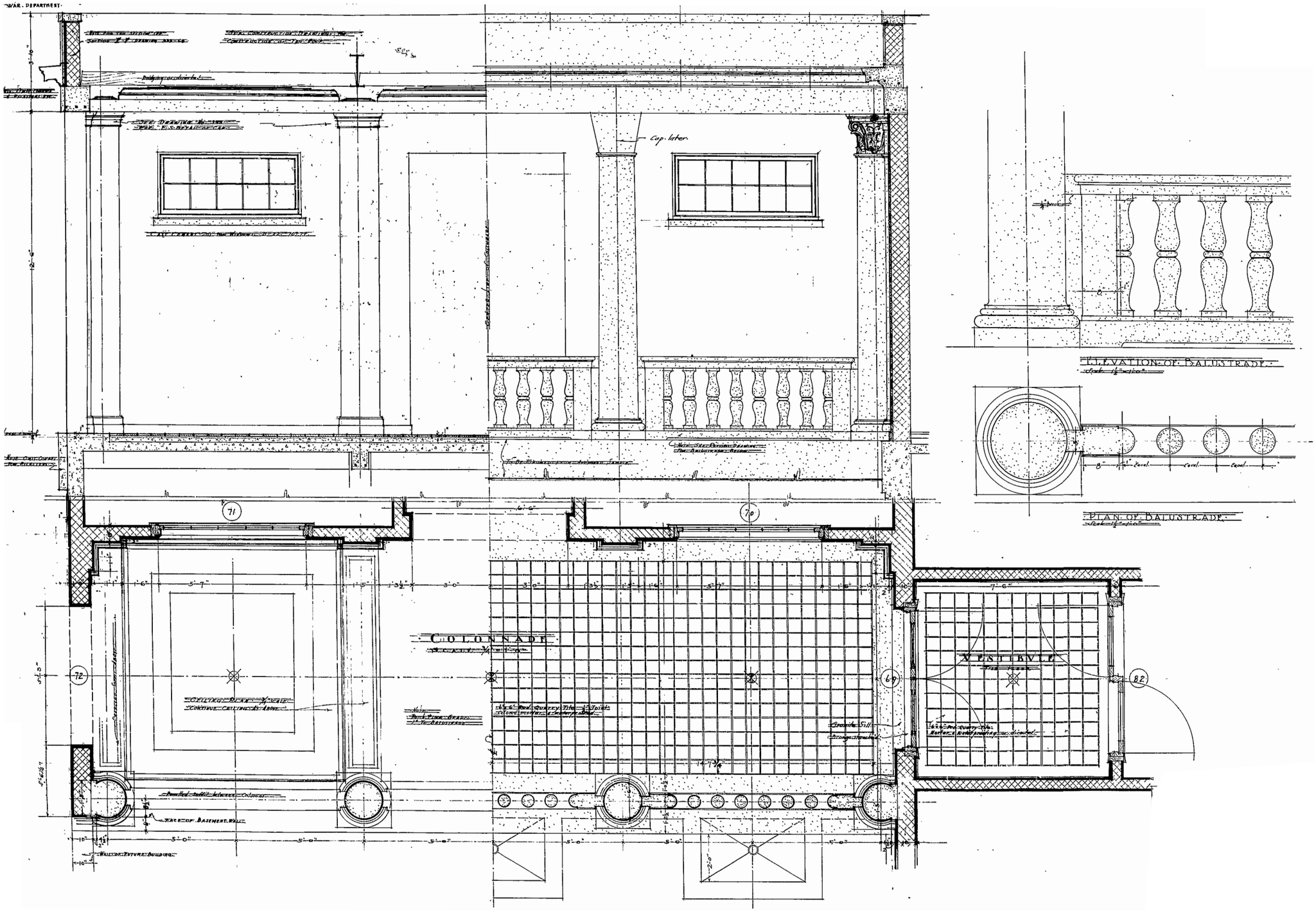


Figure 24: Details of Colonnade, August 1917 (NPS)

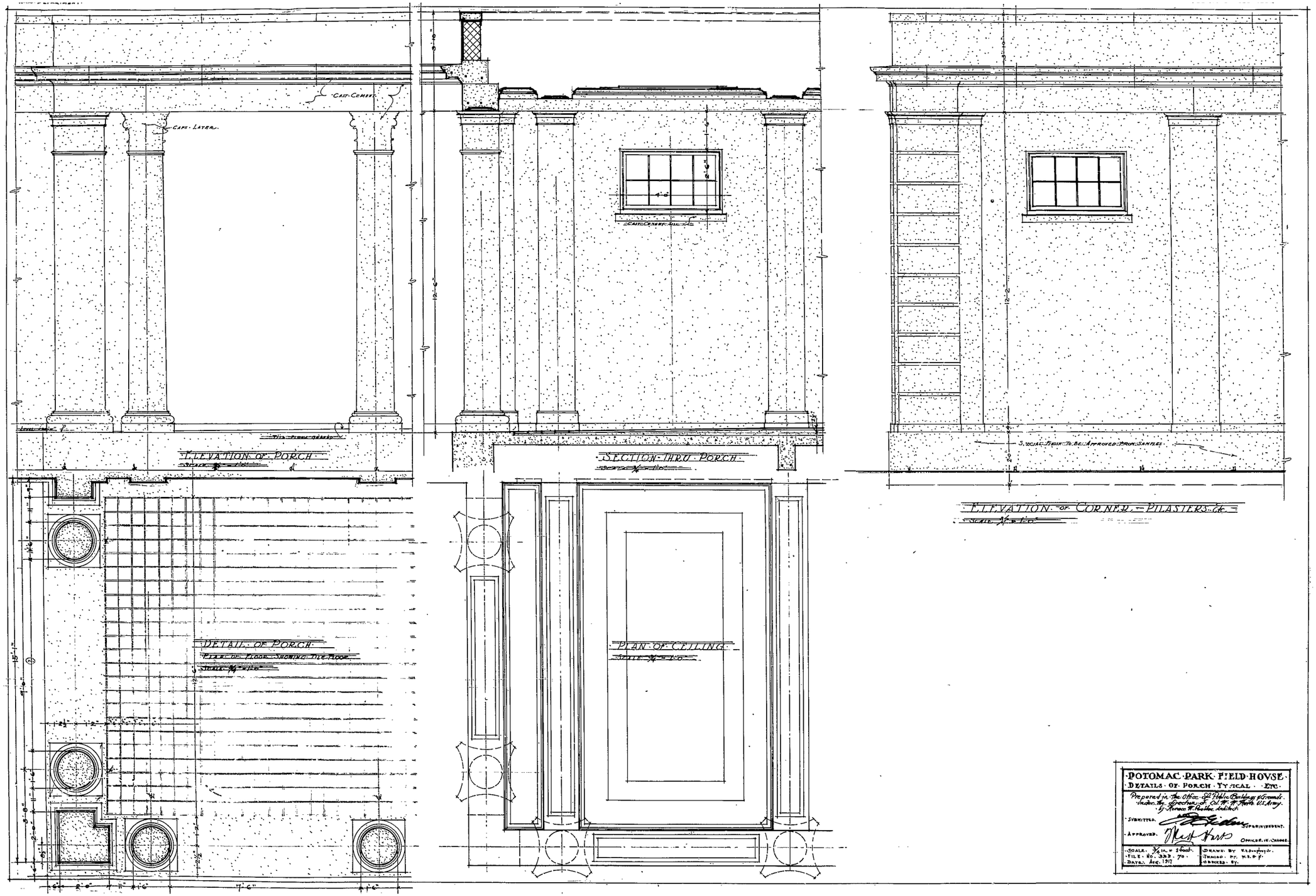


Figure 25: Details of Porch, Typical, August 1917 (NPS)

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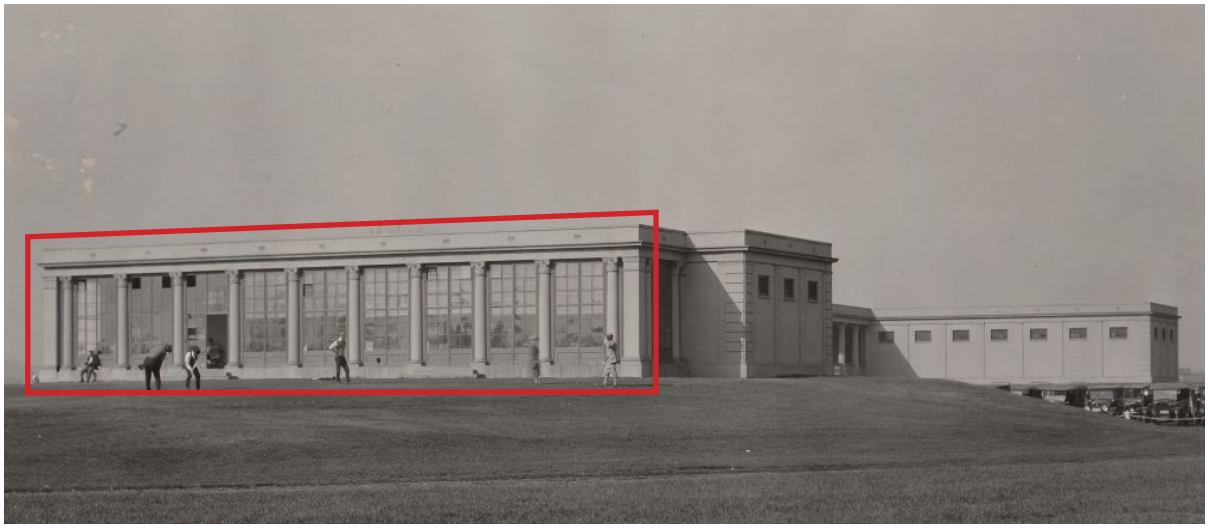


Figure 26: North (background) and South Building (foreground) looking NW, November 1920. Windows outlined in red (NARA)

The first nine holes of the reversible golf course and the Field House buildings were completed and opened to the public on July 8, 1920.[23]

While absent from plans, photographs of the Field House from its completion in 1920 indicate that the open portico on the South Building facing the golf course was enclosed by large wood-frame windows visible in Figure 26, Figure 27, and Figure 28. Additionally, evenly-spaced vents centered on each bay punctuate the parapet; however, these vents were not included in any drawings.



Figure 27: Three Women in Uniform Holding Golf Clubs; South Portico of South Building looking North, June 1923 (Library of Congress)

Building Alterations

Accommodating the Pool: 1936-1937

In 1936, any hopes of completing the center portion of the Field House were dashed when the Public Works Administration (PWA) began construction of the East Potomac Park Municipal Swimming Pool, located immediately west of the Field House buildings (see plan in Figure 29). It was one of six pools approved by Congress in 1929.[24] Meeting Olympic requirements at 164 feet long and 65 feet wide, the East Potomac Park pool was the largest of the swimming pools in the District and cost $131,440 to build.



Figure 28: Unlabeled Photo Showing Golfer in Front of South Building, June 1923 (Library of Congress)

As part of the construction, both buildings of the Field House were remodeled to include basement

23 "Long Drive Today Opens Public Golf Course in District," *Evening Star*, July 8, 1920.
24 Bobeczko and Robinson, 81.

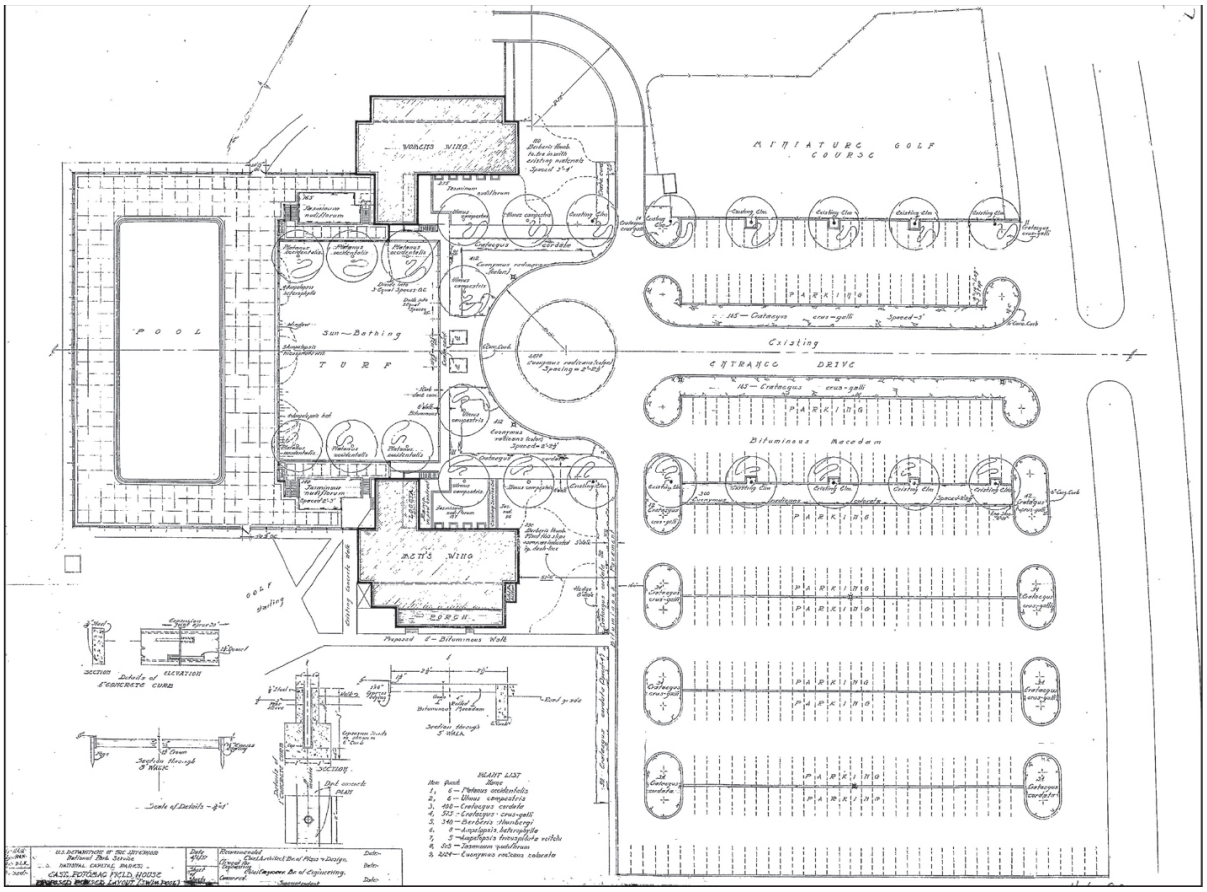


Figure 29: Proposed pool layout, 1937 (NPS)

dressing rooms for the swimming pool and the basement was partially excavated to facilitate access.[25] The flat parcel of land between the two Field House wings, originally reserved for the center courtyard and loggias, was transformed into grassy sunbathing area.[26] Photos of the pool and Field House are presented in Figure 31 through Figure 35.



Figure 30: Interior of South Building showing the expanded front portico, 1964 (NPS)

After the pool was built, operation of the two wings was shared by the Leoffler Company—the concessionaire that operated the golf course—and the Welfare and Recreational Association of Public Buildings and Grounds, the concessionaire that operated the swimming pool.

By 1942, as seen in Figure 30 (interior) and Figure 35 (exterior), a lean-to had been built on the south elevation of the South Building, enclosing an area south of the portico and enlarging the seating area in the dining room.

25 Bobeczko and Robinson, 76.
26 "Official Opens Pool With Dive," Washington Post, 6 June 1937:1; Bobeczko and Robinson, *East and West Potomac Park Historic District*, 52-53.





Figure 31: [Left} People Waiting to Enter Pool and Parking Lot East of Field House, looking NE, 1942 (Library of Congress)

Figure 32: [Right] Bathing Beach and South Elevation of North Building, Looking NE, 1942 (Library of Congress)





Figure 33: [Left] Pool and West Elevation of South Building, Looking SE, 1942 (Library of Congress)

Figure 34: [Right] Pool Deck and NW Corner of South Building, Looking SE, 1942 (Library of Congress)



Figure 35: Pool and West Elevation of South Building, Looking SE Showing Lean-To on South Portico, 1942 (Library of Congress)

At this time, a network of sidewalks and paths was formalized around the Field House, providing circulation from the Field House to the practice putting greens, the miniature golf course, and the driving range. These circulation features were generally arranged in a rectilinear plan, extending on both sides of the Field House buildings and connecting the parking lot to the Field House and the swimming pool (see Figure 29 and Figure 31).

Changes in Use: 1970s

After several years of deteriorating conditions, the National Park Service commissioned a survey of the course conditions in the 1970s.[27] In 1977, the space in the Field House basements occupied by locker rooms was vacated after the DC Department of Recreation constructed a bathhouse on the open land between the two Field House buildings previously used as a sunbathing lawn.

The Field House was renovated from 1977 to 1979. On the South Building, the lean-to addition to the portico was removed, upgrades were made to the food and concessions area, and a new pro shop and concessionaire's office was created. The project cost $165,000 and provided year-round dining inside and additional outdoor dining underneath the portico.[28]

The North Building was converted to the District One Sub-station for the US Park Police (see plans in Figure 40).[29] Nearly all interior partition walls and finishes were replaced at this time, and it is assumed that the window openings were enlarged and replacement aluminum windows and steel doors installed at this time as well. Photographs from the dedication ceremony on September 28, 1979 are shown in Figure 36 through Figure 39.



Figure 36: [Left] Speaker at Dedication of the USPP Substation, 1978 (USPP)



Figure 37: [Right] Audience at Dedication of the USPP Substation, 1978 (USPP)



Figure 38: [Left] New Parking Lot and Paving, 1978 (USPP)



Figure 39: [Right] North Elevation and New Paving, 1978 (USPP)

27 Garrison and Lester, "Cultural Landscape Inventory," 4.
28 Garrison and Lester, 64–65.
29 Real Property Files, US Department of the Interior, National Park Service, National Capital Region, Washington, DC.

The parking lot was also expanded and an additional parking lot was constructed north of the North Building (see plan in Figure 41). The grading and walkways around the North Building were altered in conjunction with the parking lot construction: new stairs and walkways connected from the parking lot up to the north elevation of the building (see Figure 38 and Figure 39) and a driveway was constructed perpendicular to the east elevation, providing access to a new double-leaf steel door at the basement.

By the 1980s, as the number of features and structures on the site grew to include the new driving range building and additional practice putting greens, the network of sidewalks became less rigidly rectilinear. Instead, new paths curved to connect features in the most direct ways possible, rather than adhering to a geometric footprint. This network of sidewalks remained consistent through the end of the 20th century. At some point in the 1990s, curvilinear concrete retaining walls were inserted along the curvilinear sidewalks in front of the Field House, enclosing the planting beds adjacent to the Field House and associated circulation features.[30]

Recent Changes: 2000-Present

According to drawings provided by NPS, the interior of the South Building was renovated and most of the interior partitions and finishes were replaced in 2003. Drawings of the interior configuration of the South Building in 2017 are provided on the following pages.

The interior layout of the North Building was surveyed in 2010 and those existing condition drawings are provided as well.

The entire East Potomac Park pool complex (pool, dressing rooms, etc.) was demolished in 2018. It was in poor condition. The District of Columbia is replacing it with a new Olympic-sized pool with associated facilities, which is due to open in the summer of 2020.

30 Dewberry & Davis, "Existing Conditions Survey: East Potomac Park" (Washington, DC: National Park Service, 1993).

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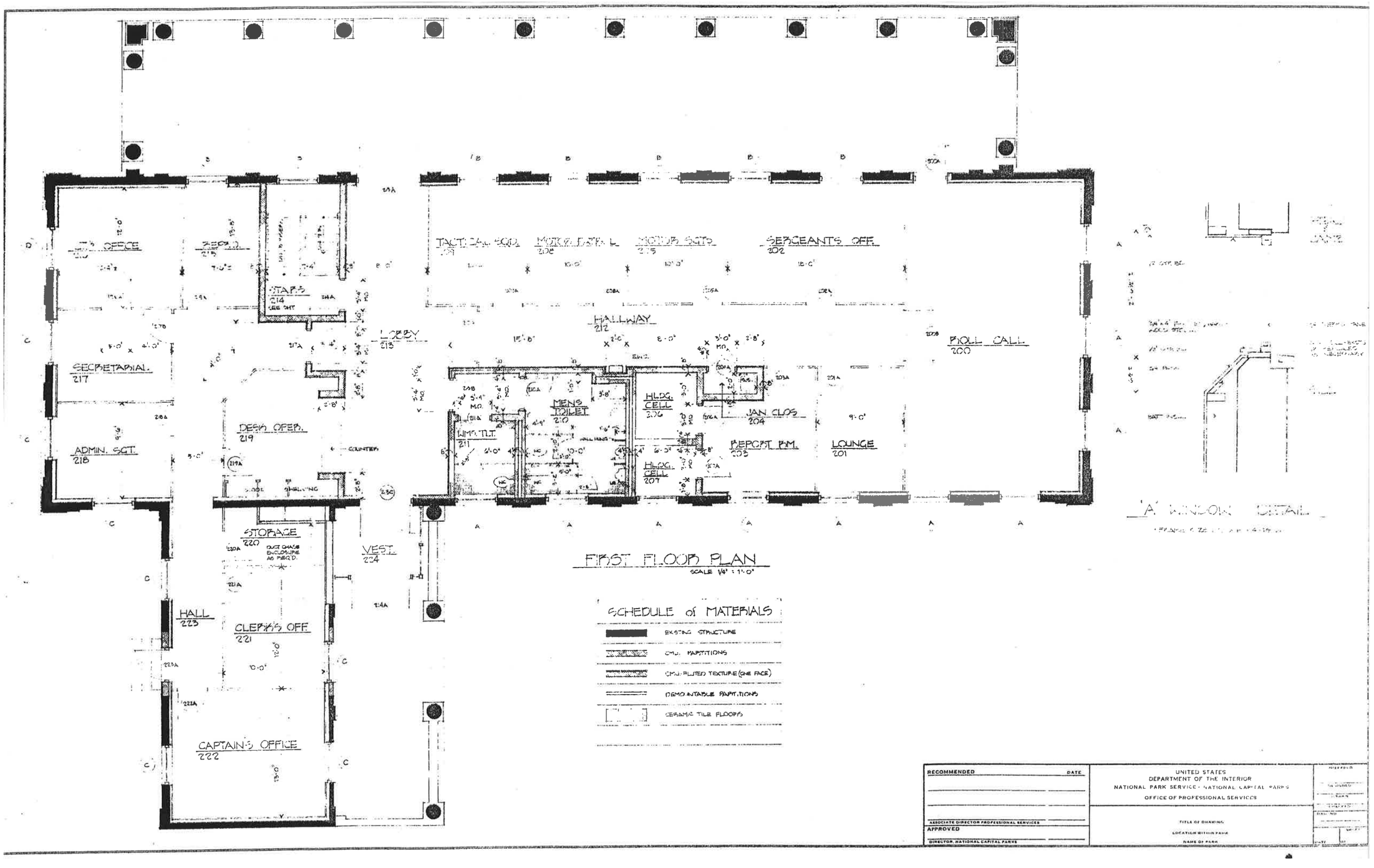


Figure 40: First Floor Plan for North Building, 1978 (NPS)

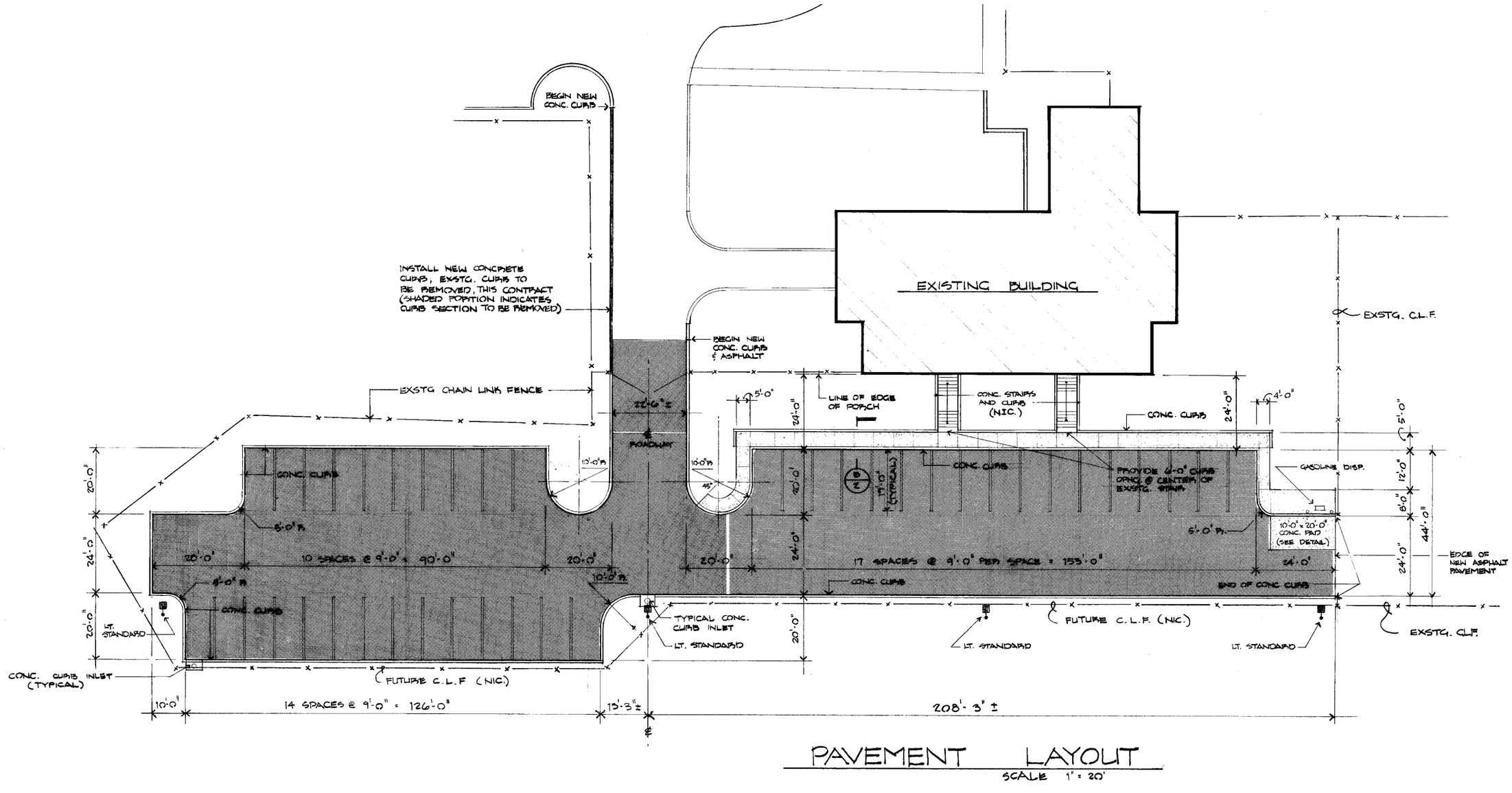
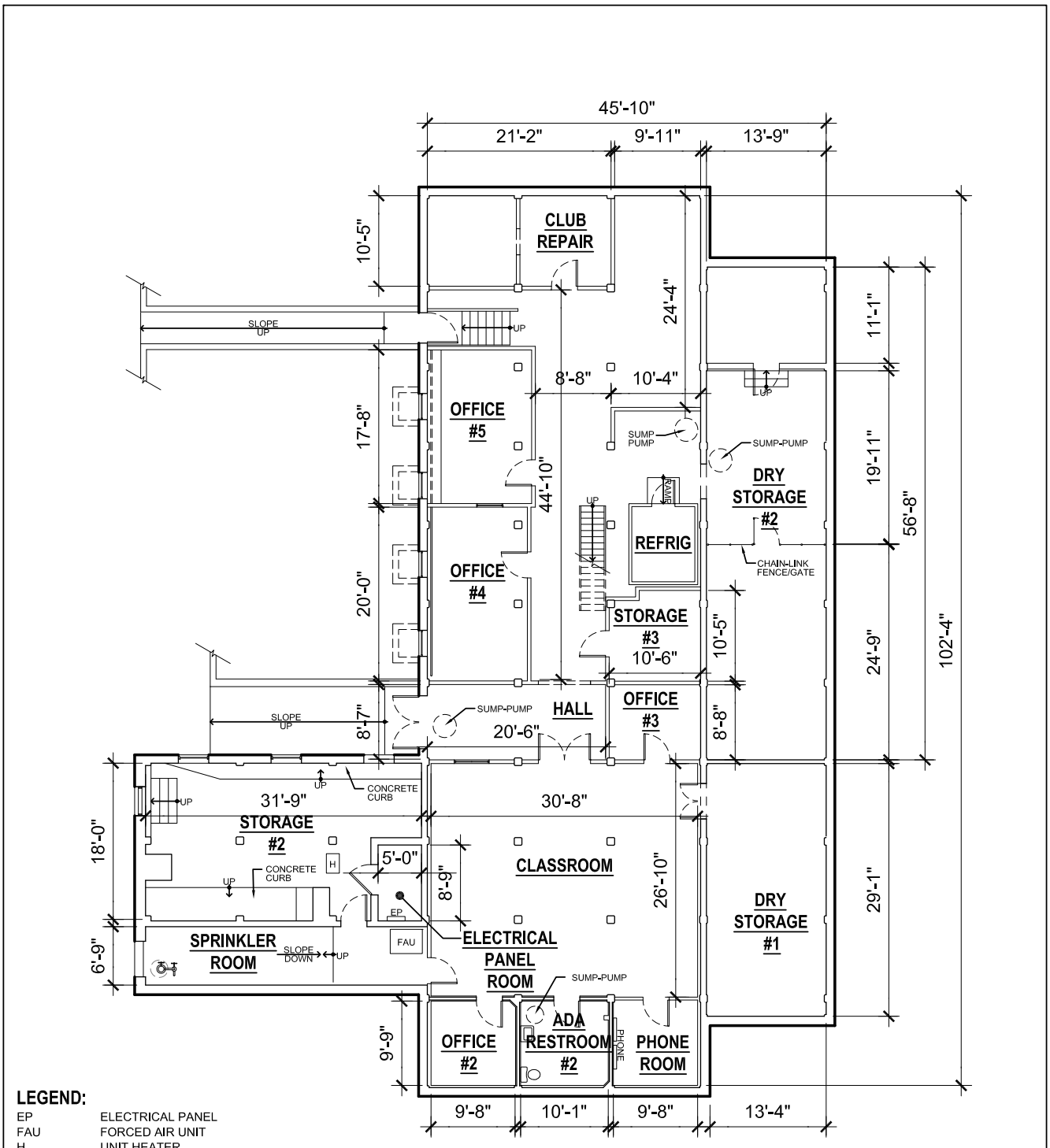


Figure 41: Pavement Layout for North Building, 1978 (NPS)



LEGEND:

EP	ELECTRICAL PANEL
FAU	FORCED AIR UNIT
H	UNIT HEATER

(BASEMENT)

GROUND FLOOR

0 8' 16' 32'

N

PROJECT NORTH

N

TRUE NORTH

CONDITION ASSESSMENT
JANUARY 24, 2017

UNITED STATES
DEPARTMENT OF THE INTERIOR

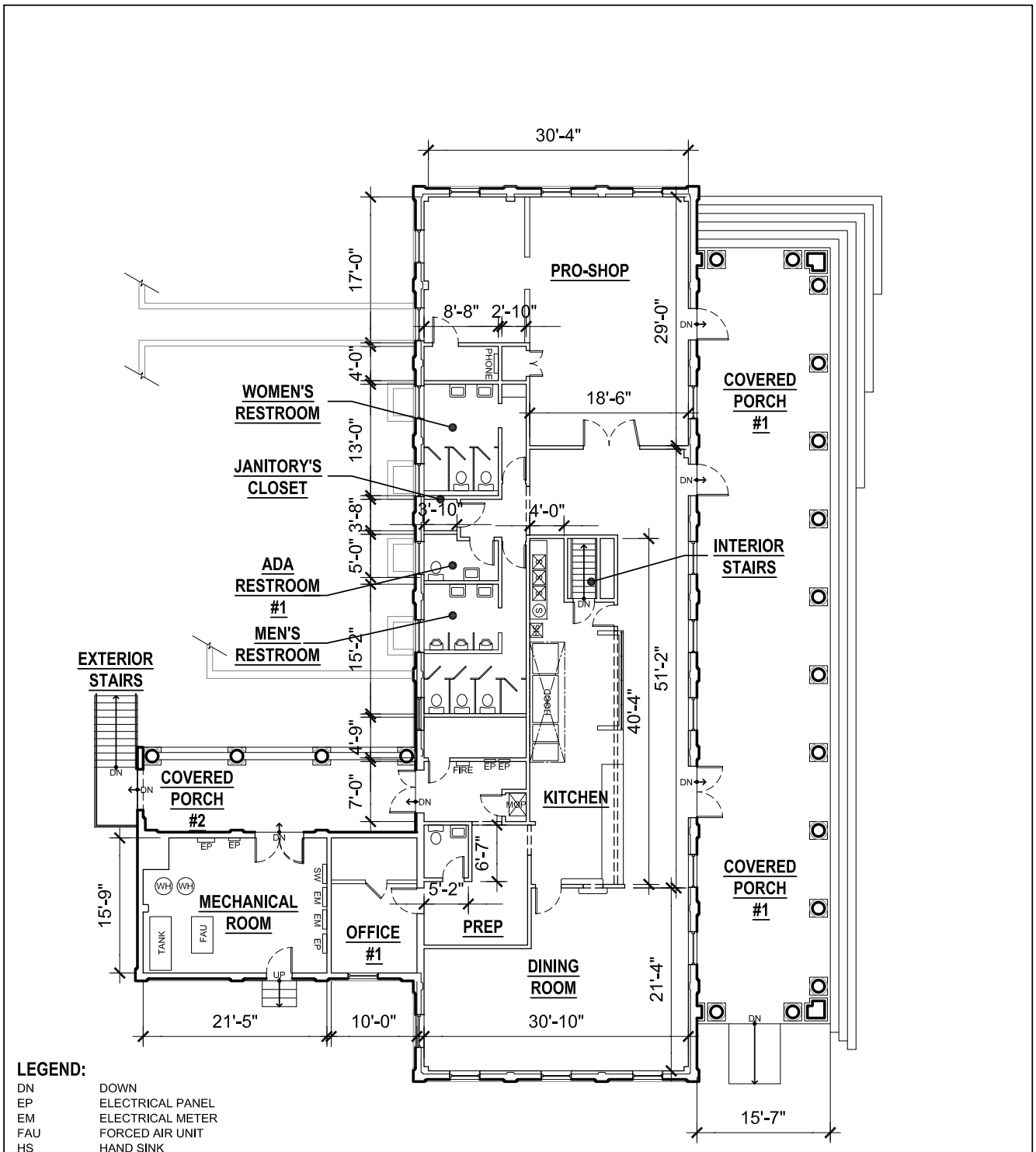
NATIONAL PARK SERVICE
NATIONAL MALL AND MEMORIAL

TITLE OF PROJECT
PRO SHOP
CONCESSION I.D. NO.
NACC001
LOCATION WITHIN PARK
NAMA - EAST POTOMAC
NAME OF PARK
EAST POTOMAC GOLF COURSE
REGION: NATIONAL CAPITAL
COUNTY: WASHINGTON D.C.
STATE: –

DRAWING NO. ———
FMSS NO. 88692
SHEET 1 OF 3

Jan 24, 2017 - 11:51am

BASIC DATA: NAMA_88692_PRO SHOP.dwg



LEGEND:

DN	DOWN
EP	ELECTRICAL PANEL
EM	ELECTRICAL METER
FAU	FORCED AIR UNIT
HS	HAND SINK
S	SINK
SW	SWITCH GEAR
WH	WATER HEATER

0 8' 16' 32'

FIRST FLOOR

N

PROJECT NORTH

N

TRUE NORTH

Jan 24, 2017 - 11:50am

CONDITION ASSESSMENT
JANUARY 24, 2017

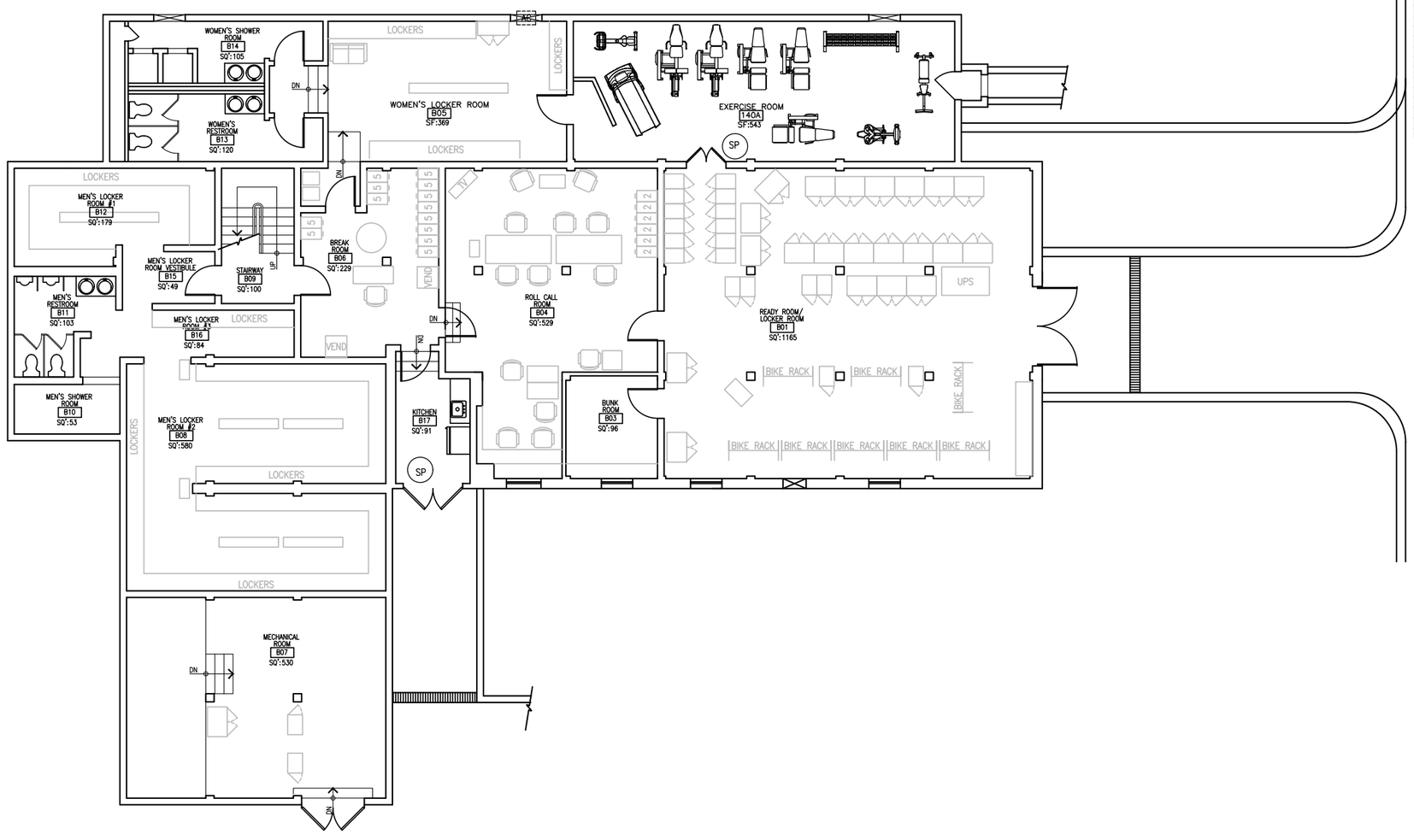
UNITED STATES
DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE
NATIONAL MALL AND MEMORIAL

TITLE OF PROJECT
PRO SHOP
CONCESSION I.D. NO.
NACC001
LOCATION WITHIN PARK
NAMA - EAST POTOMAC
NAME OF PARK
EAST POTOMAC GOLF COURSE
REGION: NATIONAL CAPITAL
COUNTY: WASHINGTON D.C.
STATE: –

DRAWING NO. ———
FMSS NO. 88692
SHEET 2 OF 3

BASIC DATA: NAMA_88692_PRO SHOP.dwg



1 A6.01 FLOOR PLAN
SCALE (A)

US PARK POLICE D1 SUBSTATION – BASEMENT SUMMARY

ROOM #	ROOM NAME	SQ. FT.	FT
B01	READY ROOM/ LOCKER ROOM	1165	
B02	EXERCISE ROOM	543	
B03	BUNK ROOM	96	
B04	ROLL CALL ROOM	529	
B05	WOMEN'S LOCKER ROOM	369	
B06	BREAK ROOM	229	
B08	MENS LOCKER ROOM #2	580	
B10	MEN'S SHOWER ROOM	53	
B11	MEN'S RESTROOM	103	
B12	MEN'S LOCKER ROOM #1	179	
B13	WOMEN'S RESTROOM	120	
B14	WOMEN'S SHOWER ROOM	105	
B15	MEN'S LOCKER ROOM VESTIBULE	49	
B16	MEN'S LOCKER ROOM #3	84	
B17	KITCHEN	91	
	SUBTOTAL (SF)	4295	
B07	MECHANICAL ROOM	530	
	SUBTOTAL (SF)	530	
B09	STAIRWAY	100	
	SUBTOTAL (SF)	100	
	STRUCTURE & MISC.	629	
	SUBTOTAL (NSF)	4295	
	TOTAL (GSF)	5554	

FOOTNOTE:
1. F.T. = FULL TIME. ALL OCCUPIED POSITIONS ASSUMED TO BE FULL TIME POSITIONS AT THIS INITIAL EXISTING CONDITIONS DOCUMENTATION PHASE. EMPLOYEE COUNTS WILL BE CONFIRMED IN FUTURE PHASES OF THE PRE-PLANNING STUDY.

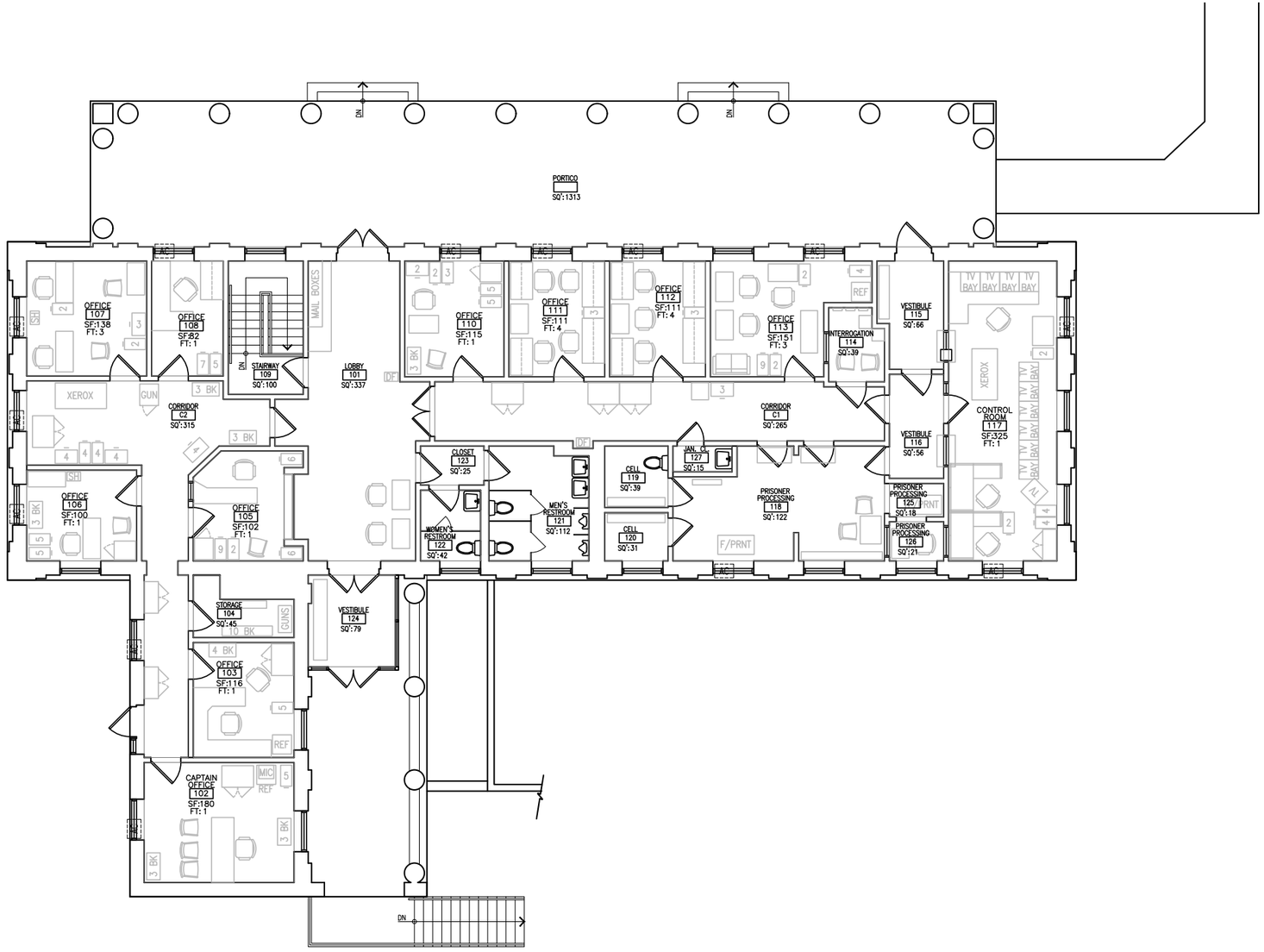
GENERAL NOTES:

1. THIS EXISTING CONDITIONS BUILDING PLAN WAS COMPLETED USING NPS-PROVIDED DOCUMENTATION IN COMBINATION WITH FIELD OBSERVATIONS COMPLETED ON NOV., 4, 2009, NOV. 14, 2009, NOV. 15, 2009, AND DEC. 4, 2010.
2. EXISTING FURNISHINGS INVENTORIES ARE DIAGRAMMATIC AND REPRESENT CONDITIONS OBSERVED ON FIELD SURVEY DATES (LISTED ABOVE).
3. ALL DIMENSIONS SHOULD BE VERIFIED BEFORE ANY WORK IS DONE.

SCALE (A) 4 0 4 8 12
SCALE OF FEET

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
BBB	A6.01	EXISTING CONDITIONS BASEMENT FLOOR PLAN USPP D-1 SUBSTATION	———
CADD: MPB/JLK		NPS-NATIONAL CAPITAL REGION (NCR) PRE-PLANNING STUDY FOR NCR CAMPUS	PMIS/PKG NO. 108793
TECH. REVIEW:			SHEET 17 OF 19
DATE: 3/12/10			

3/6/10 18:46 JKALTWASSER R17 J:\6108.00 - NPS TERM CONTRACT - TASK 19 - OHD DRIVE\6108.00 - DRAWINGS\PPD1-US PARK POLICE D1 SUBSTATION\USPP D1 BASEMENT.DWG XREFS: USPP D1 MAINLDWG;



1 A6.02 1ST FLOOR PLAN
SCALE (A)

US PARK POLICE D1 SUBSTATION – 1ST FLOOR SUMMARY

ROOM #	ROOM NAME	SQ. FT.	FT
101	LOBBY	337	
102	CAPTAIN'S OFFICE	180	1
103	OFFICE	116	1
104	STORAGE	45	
105	OFFICE	102	1
106	OFFICE	100	1
107	OFFICE	138	3
108	OFFICE	82	1
110	OFFICE	115	1
111	OFFICE	111	4
112	OFFICE	111	4
113	OFFICE	151	3
114	INTERROGATION	39	
117	CONTROL ROOM	325	3
118	PRISONER PROCESSING	122	
119	CELL	39	
120	CELL	31	
123	CLOSET	25	
125	PRISONER PROCESSING	18	
126	PRISONER PROCESSING	21	
	SUBTOTAL (SF)	2208	23
121	MEN'S RESTROOM	112	
122	WOMEN'S RESTROOM	42	
127	JAN. CL.	15	
	SUBTOTAL (SF)	169	
109	STAIRWAY	100	
115	VESTIBULE	66	
116	VESTIBULE	56	
124	VESTIBULE	79	
C1	CORRIDOR	265	
C2	CORRIDOR	315	
	SUBTOTAL (SF)	881	
	STRUCTURE & MISC.	913	
	SUBTOTAL (NSF)	2208	
	TOTAL (GSF)	4171	

FOOTNOTE:
1. F.T. = FULL TIME. ALL OCCUPIED POSITIONS ASSUMED TO BE FULL TIME POSITIONS AT THIS INITIAL EXISTING CONDITIONS DOCUMENTATION PHASE. EMPLOYEE COUNTS WILL BE CONFIRMED IN FUTURE PHASES OF THE PRE–PLANNING STUDY.

GENERAL NOTES:

1. THIS EXISTING CONDITIONS BUILDING PLAN WAS COMPLETED USING NPS–PROVIDED DOCUMENTATION IN COMBINATION WITH FIELD OBSERVATIONS COMPLETED ON NOV., 4, 2009, NOV. 14, 2009, NOV. 15, 2009, AND DEC. 4, 2010.
2. EXISTING FURNISHINGS INVENTORIES ARE DIAGRAMMATIC AND REPRESENT CONDITIONS OBSERVED ON FIELD SURVEY DATES (LISTED ABOVE).
3. ALL DIMENSIONS SHOULD BE VERIFIED BEFORE ANY WORK IS DONE.

(FIRST FLOOR)

SCALE (A) 4 0 4 8 12
SCALE OF FEET

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
BBB	A6.02	EXISTING CONDITIONS ~~BASEMENT~~ FLOOR PLAN USPP D–1 SUBSTATION	———
CADD: MPB/JLK		NPS–NATIONAL CAPITAL REGION (NCR) PRE–PLANNING STUDY FOR NCR CAMPUS	PMIS/PKG NO. 108793
TECH. REVIEW:			SHEET 18 OF 19
DATE: 3/12/10			

3/6/10 18:46 JKALTWASSER R17 J:\6108.00 - NPS TERM CONTRACT - TASK 19 - DWD DRIVE\6108.00 - DRAWINGS\VP01-US PARK POLICE D1 SUBSTATION\USPP D1 MAIN.DWG XREFS: USPP D1.DWG;

DCOCTO

Chapter 3: Physical Description

Flight date: April 1, 2015

The following section provides a physical description of the existing conditions of the building's exterior. Character-defining features and materials are also identified.



Figure 42: Oblique view looking west showing South (left) and North (right) Buildings; pool and pool house demolished in 2018 shown at top left (DC OCTO 2015)

https://oblique.sanborn.com/dcocto_new/?ll=38.874934,-77.027046&zoom=20

Architectural and Photographic Documentation

The scope of work for this project included documentation of the North and South Building exteriors and surrounding landscape. For each of the documented areas, a physical description and photographs are included in the report. Unless otherwise noted, all photographs were taken by the authors in October 2018. Draft measured drawings prepared by the Historic American Buildings Survey (HABS October 2018) are included with each section, supporting the descriptions and photographs of the areas they document.

North and South Buildings: Physical Description

The North and South Buildings of the Field House are paired, mirrored L-shaped buildings. Banked into the landscape, they are one story high from their formal approaches (the north elevation of the North Building and the south elevation of the South Building), and two stories from their simpler rear elevations (Figure 42).

The structural concrete buildings sit on poured concrete foundations and feature full, partially-exposed basements. The steel and wood-framed roof structure is capped with modified bitumen rolled asphalt membrane roofs with projecting precast aggregate cornices concrete parapets. The parapet is pierced by evenly-spaced rectangular vents centered on each bay. The walls



Figure 43: Aerial view of North Building showing excavated areas in red (Google Maps base image, edited by Silman 2018)

are constructed of terra cotta tile and are clad in field-applied large-grain aggregate concrete stucco (referred to as "stucco"). Precast columns, sills, and cornices match the stucco seamlessly in color and texture. Definitions of the concrete application methods are located in the Materials Glossary on page xii. A diagram showing the locations of the concrete application types is located in the Materials Glossary and is repeated in Figure 46. The buildings are highly detailed with a high base, corner quoins, engaged pilasters, and a detailed cornice, all composed of exposed aggregate concrete. Both buildings have a history of insensitive repairs to the exposed aggregate concrete cladding.

North Building: Site

Multiple areas surrounding the North Building have been excavated since its original construction, depicted in red in Figure 43. Ramps down into the basement have been excavated along the east elevation, exposing the foundation walls and three basement windows. On original drawings, these three windows were shown as areaways.

At the seventh bay from the east on the south elevation, a retaining wall holds back the sloping lawn and the basement is fully exposed. A sloping concrete walkway leads to a replacement double-leaf steel door (Figure 44).

The east elevation basement is exposed at the central bay and a narrow driveway leads to a



Figure 44: Basement double-door and sloping concrete pathway with retaining wall along the North Building's south elevation



Figure 45: East elevation basement double-door and sloping concrete pathway with parged retaining walls on either side

replacement double-leaf steel door with blind transom. The driveway is bordered on both sides by parged concrete retaining walls with metal handrails above (Figure 45).

Per existing drawings, the ramp leading to the basement doors was excavated before 1978, and the adjacent area to the north was excavated sometime after 1978.

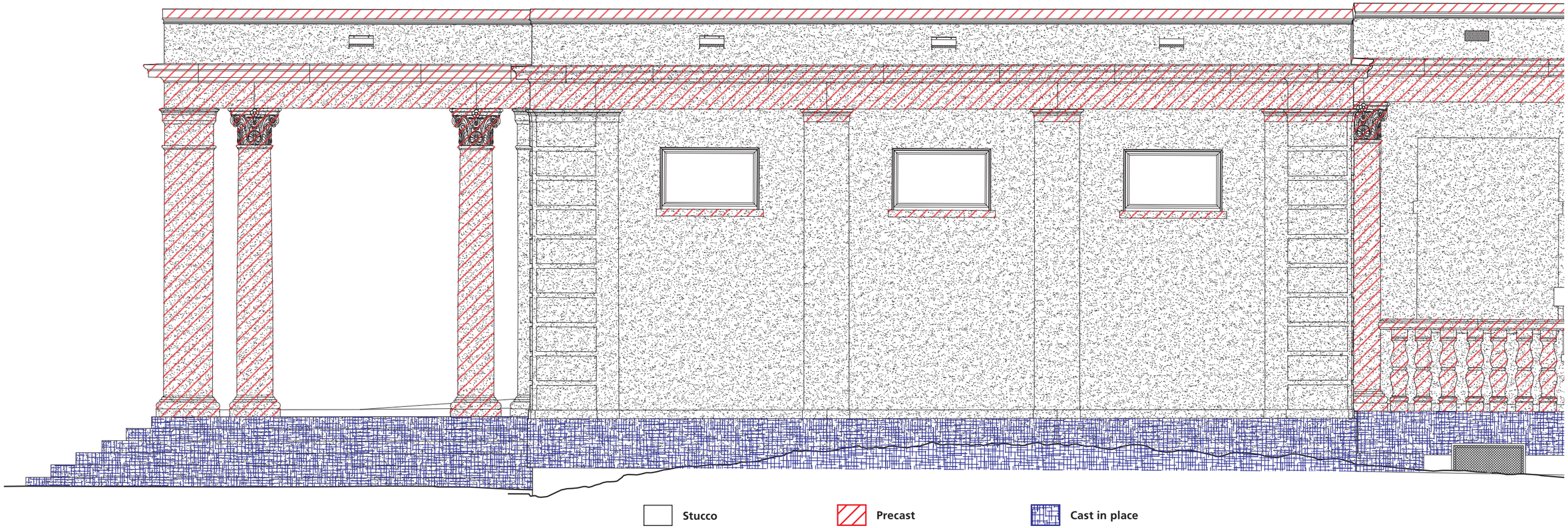


Figure 46: South Building, portion of east elevation showing various exposed aggregate concrete applications. The exterior walls, decorative quoining, and engaged pilasters are exposed aggregate concrete stucco on terracotta tile masonry. The columns, capitals, balusters, and cornices are precast exposed aggregate concrete. The base, steps and porticoes, and window wells are cast in place exposed aggregate concrete. This elevation is representative of the precast elements for all elevations. (Base: HABS 2018)

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North Building: Facade

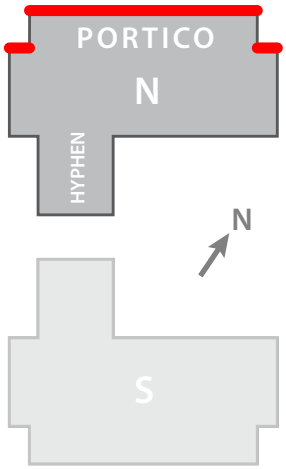




Figure 47: North Building, Facade (north elevation) looking south

The formal approach to the North Building is located on the north elevation (Figure 47). The facade is nine bays wide and features a portico that spans nearly full width of the elevation. The portico is one story high by one bay deep and the roof is supported by 10 precast aggregate concrete columns capped by elaborate Corinthian capitals (Figure 47). L-shaped pilasters support the roof at the corners. The roof of the portico is within the same plane as the main block roof and continues the cornice and parapet of the main block. The parapet is punctuated by rectangular vents with aluminum hoods centered on each bay. The portico floor slab is finished with 6"x6" square, red, unglazed clay tile (quarry tile), as specified in the original drawings. The original plaster coffer ornamentation of the portico ceiling has been removed and a cementitious material has been applied to the flat concrete ceiling (Figure 49). Stucco quoins decorate the corners of all elevations.

The main entrance is located at the third bay from the west end of the facade. The entryway originally held a double-leaf paneled wood door with a 10-light wood hopper transom; this has been replaced by a double-leaf steel door with lights and a single-light metal transom (Figure 48). Fenestration consists of eight openings flanked by stucco engaged pilasters. The fenestration pattern has been altered from its original configuration, which featured eight high rectangular punched openings holding eight-light wood hopper windows with precast concrete sills (Figure 50). All windows have been enlarged by lowering the precast sills to accommodate two-light aluminum windows with a fixed upper light and a lower awning light. The original window opening in the east end bay has been enlarged to accommodate a single-leaf steel door with a single-light transom above.



Figure 48: North Building, Detail of aggregate concrete Corinthian columns and main entrance



Figure 49: North Building, portico ceiling

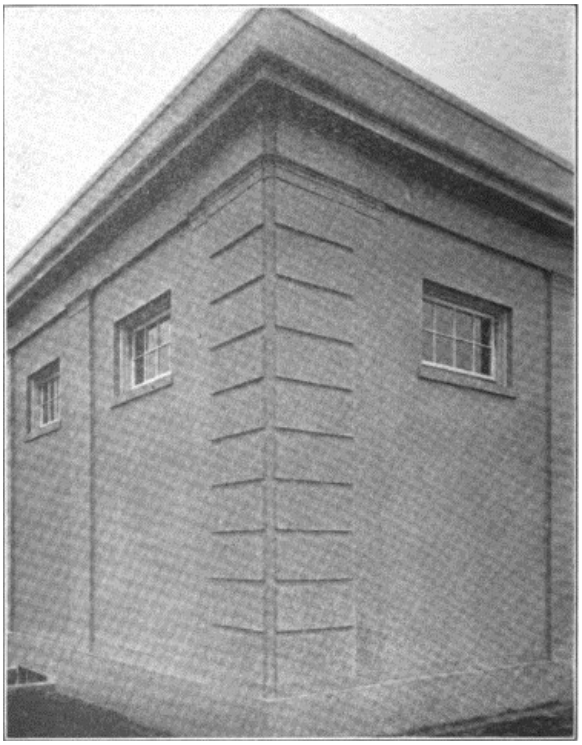


Figure 50: Example of original eight-light awning windows in high punched openings (ACI 1920)

North Building: South Elevation

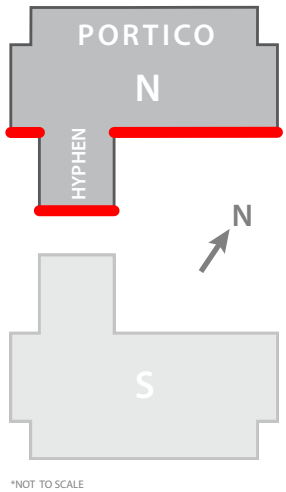




Figure 51: North Building, South elevation looking northwest

The rear (south) elevation of the North Building is 10 bays wide and features seven high rectangular punched openings with projecting concrete sills (Figure 51 and Figure 52). While the openings' size have not been altered, the original eight-light wood hopper windows have been replaced with single-light aluminum awning windows. The windows are flanked by concrete engaged pilasters. Below the water table sit rectangular concrete areaways similar in width to the windows above (Figure 52). In the seventh bay from the east, a retaining wall holds back the sloping lawn and the basement is fully exposed. A sloping concrete walkway leads to a replacement double-leaf steel door.

To the west of the double door to the basement, a one-bay hyphen projects at a perpendicular



Figure 52: North Building, South elevation high punched windows with areaways below

angle from the main block. The hyphen was originally intended to connect the North wing to the planned central field house pavilion. The hyphen's south elevation was intended to directly abut the main field house pavilion and is faced with smooth concrete parging. Non-original concrete stairs with metal pipe handrails (ca. 1930) project from the south elevation of the hyphen, providing access from the basement level to the raised loggia on the first floor (Figure 53). An open rectangular doorway in the east bay of the first floor leads to the loggia. Beneath the stair landing, the hyphen's elevation is parged with concrete and a double-leaf steel door with a blind one-light transom provides access to the mechanical room.

Through the loggia on the first floor, a non-original metal-frame glass vestibule, added to accommodate the programmatic needs of the Park Police, provides access to a double-leaf replacement steel door with single-light blind transom (Figure 54). The historic coffered plaster ceiling is still extant in this loggia.

To the west of the hyphen, the westernmost bay of the south elevation holds an enlarged window opening with a replacement aluminum window; this was originally the same size as the high punched openings that still exist on the east side of the hyphen (Figure 55).



Figure 53: North Building, Non-original concrete stairs to loggia at east elevation



Figure 54: North Building, South elevation looking north through loggia



Figure 55: North Building, South and west elevations looking northeast from across pool construction site

North Building: East Elevation

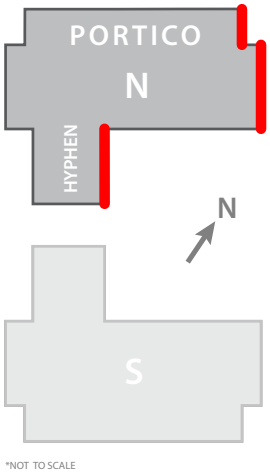




Figure 56: North Building, East elevation looking west

The east elevation of the North Building's main block features three bays with replacement aluminum windows set in original high punched openings flanked by engaged pilasters and decorative quoining at the corners (Figure 56). The basement is exposed in the central bay and holds a replacement double-leaf steel door with blind transom.

The east elevation of the perpendicular hyphen features a loggia three bays wide by one bay deep. The roof of the loggia is supported by four precast Corinthian columns identical to those on the facade. The columns are spanned by precast concrete balustrades (Figure 57). The loggia ceiling is finished with shallow decorative plaster coffers dating to the original design.

All original openings on the east elevation of the hyphen have been altered. In the southern bays, there are two non-original, enlarged aluminum windows; the northern bay opening has been



Figure 57: North Building, East elevation loggia looking west

infilled. The glass entry vestibule on the south elevation directly abuts this bay.

At the hyphen's basement level, the concrete is parged below the water table. The elevation is pierced by three evenly-spaced square openings that have blind panels or metal louvers.

North Building: West Elevation

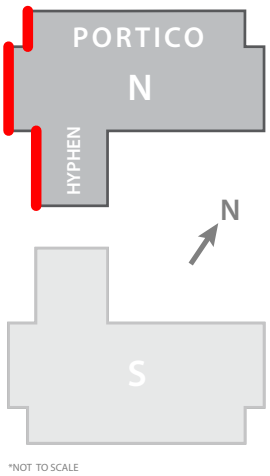




Figure 58: North Building, West elevation looking southeast

The west elevation of the main block is three bays wide with three enlarged replacement aluminum windows flanked by engaged pilasters (Figure 58).

The west elevation of the hyphen is also three bays wide (Figure 59). The central bay holds a door opening with a cast concrete surround. The doorway was originally open and led to a breezeway. The opening is now infilled with a single-leaf steel door with a full-height sidelight and single-light transom (Figure 59). A short flight of concrete steps with a metal handrail leads to the entryway. Flanking the center bay are window openings that originally mimicked the high punched rectangular shape of the rest of the building. The sills have been lowered and window openings have been elongated to accommodate two-light aluminum windows, the bottom light of which are operable awning windows.



Figure 59: North Building, South portion of west elevation looking southeast



Figure 60: North Building, Roof looking west

North Building: Roof

The building features a low sloped roof with nearly flat roof over the main portico (Figure 60). The roof features a low parapet that is punctuated by rectangular attic vents centered on each bay. The parapet is capped with precast concrete units covered with long panels of sheet copper. At the roof side, the parapet is covered with flashing. The roof is covered with a modified bitumen rolled asphalt membrane and features internal drains. Several vents penetrate the roof (Figure 60).

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South Building: Site

Two areas surrounding the South Building have been excavated since its original construction, depicted in red in Figure 61. At the seventh bay from the east on the north elevation, a retaining wall holds back the sloping lawn and the basement is fully exposed (Figure 62). A sloping concrete walkway leads to a replacement double-leaf steel door. Additionally, a perpendicular pathway is cut to the basement level in the second bay from the east, where an opening holds a replacement single-leaf steel door with a blind transom (Figure 63).

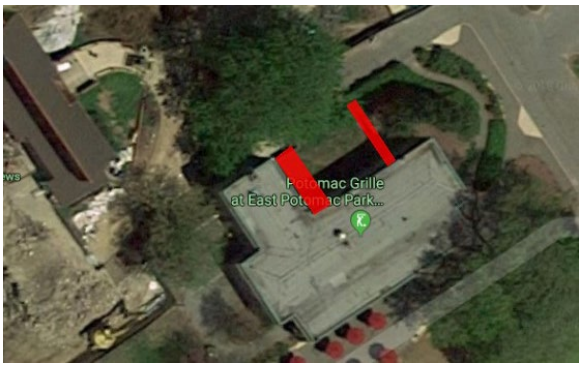


Figure 61: Aerial view showing excavated areas in red (Google Maps base image, edited by Silman 2018)



Figure 62: South Building, North elevation looking south



Figure 63: South Building, North elevation looking south



Figure 64: South Building, Southeast corner of building looking northwest



Figure 65: South Building, South portion of west elevation looking northeast across golf green

South Building: Facade

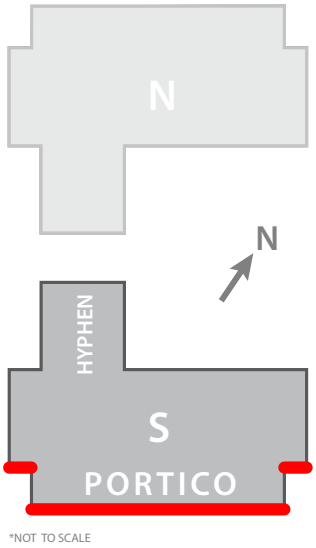




Figure 66: South Building, Facade (south elevation) looking north



Figure 67: South Building, Southeast corner looking northwest



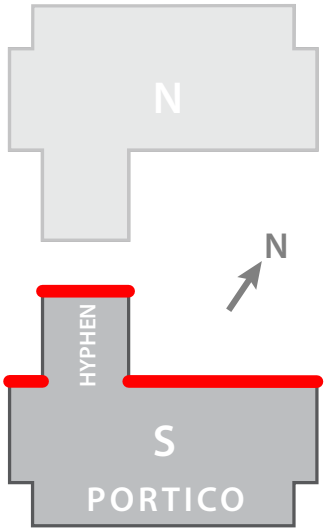
Figure 68: South Building, Looking east through portico on south elevation

The formal approach to the South Building is located on the south elevation (Figure 66). The facade is nine bays wide and features a portico that spans nearly the full width of the elevation. The portico is one story high by one bay deep and the roof is supported by 10 precast aggregate concrete columns capped by elaborate Corinthian capitals. L-shaped pilasters support the roof at the corners (Figure 67). The roof of the portico is within the same plane as the main block roof and continues the cornice and parapet of the main block. The parapet is punctuated by rectangular vents with aluminum hoods centered on each bay. The portico floor slab is finished with 6"x6" square, red, unglazed clay tile (quarry tile), as specified in the original drawings. The portico ceiling is ornamented with original shallow molded plaster coffers (Figure 68). Aggregate concrete quoins decorate the corners of all elevations.

The main entrance is located in the third bay from the west end of the facade. The entryway originally held a double-leaf paneled wood door with a 10-light wood hopper transom; this has been replaced by a double-leaf steel door with lights and a single-light metal transom. Fenestration consists of eight openings flanked by stucco engaged pilasters. The fenestration pattern has

been altered from its original configuration, which featured eight high rectangular punched openings holding eight-light wood hopper windows with precast concrete sills. All windows have been enlarged by lowering the precast sills to accommodate one-light, fixed aluminum windows. The original window in the third bay from the east end has been removed and the opening enlarged to accommodate a single-leaf metal-frame glass door with a single-light transom above. In the easternmost end bay, the original window was similarly removed and the opening enlarged to hold a single-leaf steel door with one light and a one-light transom.

South Building: North Elevation



*NOT TO SCALE



Figure 69: South Building, North elevation looking southwest

The rear (north) elevation of the South Building is 10 bays wide and features seven high rectangular punched openings with projecting concrete sills (Figure 69). While the openings' size have not been altered, the original eight-light wood hopper windows have been replaced with single-light aluminum awning windows. The windows are flanked by concrete engaged pilasters. Below the water table sit rectangular concrete areaways similar in width to the windows above. A perpendicular pathway bordered by concrete retaining walls is cut to the basement level in the second bay from the east, where an opening holds a replacement single-leaf steel door. In the seventh bay from the east, a retaining wall holds back the sloping lawn and the basement is fully exposed. A sloping concrete walkway leads to a replacement double-leaf steel door (Figure 71).

To the west of the double door to the basement, a one-bay hyphen projects at a perpendicular angle from the main block. The hyphen was originally intended to connect the South Building to the planned central Field House pavilion. It is faced with smooth concrete parging on the north elevation and was intended to directly abut the main Field House pavilion. Concrete stairs with metal pipe handrails project from the north elevation of the hyphen, providing access from the basement level to the raised loggia on the first story (Figure 70). An open rectangular doorway in the east bay of the first story leads to the loggia.

Beneath the stair landing, the hyphen's elevation is parged with concrete and a former door opening has been infilled and a recessed space now holds an Air Conditioning (AC) condensing unit.



Figure 70: South Building, East and north elevations of the loggia with concrete stairs

Through the loggia on the first floor, the main block holds a double-leaf replacement steel door with single-light blind transom (Figure 72).

To the west of the hyphen, the westernmost bay of the north elevation holds an enlarged window opening with a replacement aluminum window; this was originally the same size as the high punched openings that still exist on the east side of the hyphen.

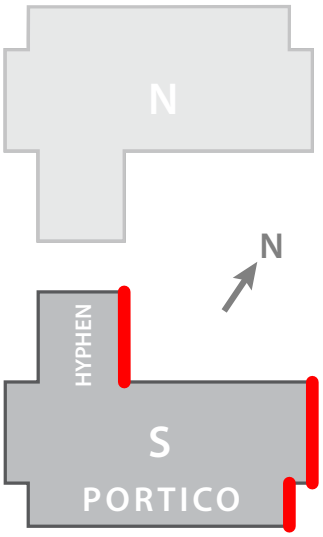


Figure 71: South Building, North elevation sloping concrete pathway to basement door



Figure 72: South Building, North elevation door at loggia

South Building: East Elevation



The east elevation of the South Building's main block features three bays with replacement aluminum windows set in original high punched openings flanked by engaged pilasters (Figure 73).

The east elevation of the perpendicular hyphen features a loggia measuring three bays wide by one bay deep. The roof of the loggia is supported by four Corinthian columns identical to those on the facade. The columns are spanned by precast concrete balustrades (Figure 74). The loggia ceiling is finished with shallow decorative plaster coffers dating to the original design.

All original openings on the east elevation of the hyphen have been altered. In the center bay, the original rectangular breezeway opening is now infilled with a double-leaf flat steel door with an oversized blind transom (Figure 75). The bays flanking this door opening to the north and south, formerly holding high punched window openings, have been infilled entirely with modern stucco, bringing the elevation flush with the engaged pilasters.

At the hyphen's basement level, the concrete is parged below the water table. The elevation is pierced by three evenly-spaced square openings that have blind panels or metal louvers.



Figure 73: South Building, East elevation looking southwest

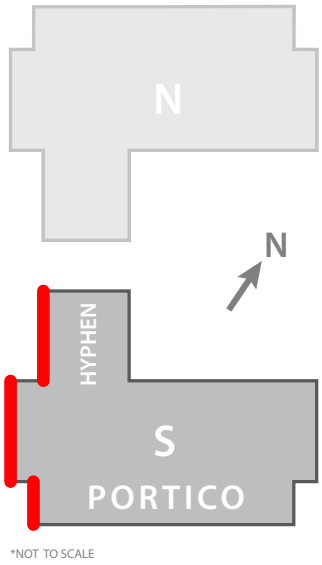


Figure 74: South Building, East elevation looking west to loggia



Figure 75: South Building, East elevation door at loggia

South Building: West Elevation



The west elevation of the main block is three bays wide with three enlarged replacement aluminum windows flanked by engaged pilasters and decorative quoining at the corners (Figure 76).

The west elevation of the hyphen is also three bays wide. The central bay holds a door opening with a cast concrete surround. The doorway was originally open and led to a breezeway. The opening now features a small single-leaf steel door with grille surrounded by a large patch of concrete that infills the surround (Figure 77). A short flight of concrete steps with a metal handrail leads to the entryway. To the north of the central entryway, a high punched rectangular window opening has been infilled with smooth concrete; its projecting aggregate sill is still extant. In the southern bay of the hyphen's west elevation is a non-original elongated window opening with non-original single-light aluminum window identical to the window openings on the south and west elevations of the main block.



Figure 76: South Building, West elevation looking east



Figure 77: South Building, North portion of west elevation looking northeast

South Building: Roof

The building features a low sloped roof with a nearly flat roof over the main portico. The roof features a low parapet that is punctuated by rectangular attic vents centered on each bay (Figure 77). The parapet is capped with precast concrete units covered with long panels of sheet copper. At the roof side, the parapet is covered with flashing (Figure 78). The roof is covered with a modified bitumen rolled asphalt membrane and features internal drains. Several vents and a brick chimney penetrate the roof. Several flood lights are also installed at the perimeter of the roof.



Figure 78: South Building, Roof looking west

Field House Structural Description

The North and South Buildings of the Field House are constructed of concrete foundations, concrete floor structures, terra cotta and concrete exterior walls, and steel and wood-framed roof structures. The following structural description relies on a combination of the original 1917 drawings and conditions observed in October 2018. The buildings have been modified multiple times, but most of the structure is original. The structure has been modified in a few locations, including the construction of new interior stairs and enlarged exterior openings.

Foundations

Per original drawings, the foundation system consists of two-way concrete framed slabs on grade, a grid of deep grade beams, and reinforced concrete walls (Figure 79). The sizes of foundation elements could not be confirmed, but original drawings note that the foundation beams (noted as girders) are 18 inches wide by 40 inches deep or 15 inches wide by 30 inches deep. Foundation slabs on grade are 9 inches to 10 inches thick. Foundation walls are typically 12 inches in thickness (Figure 80).

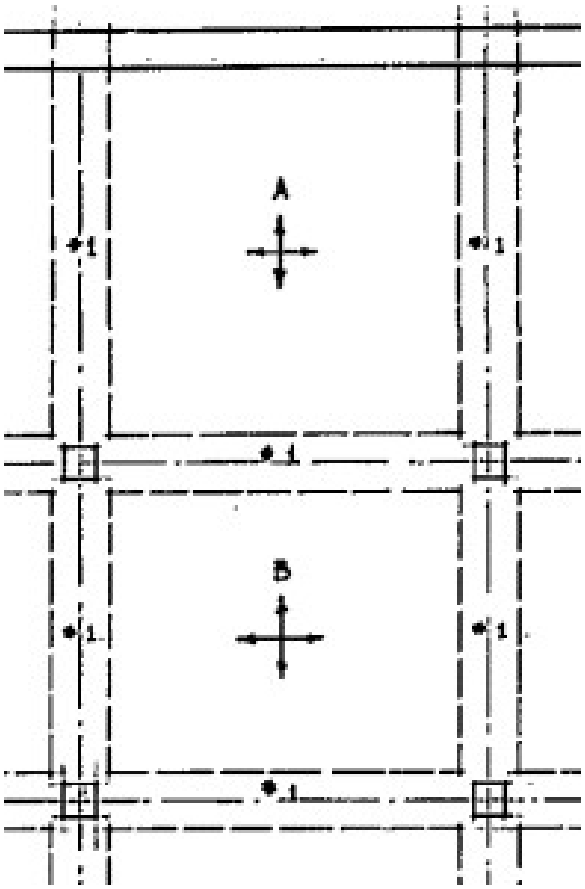


Figure 79: Excerpt from 1917 drawings depicting foundation beams



Figure 80: North Building, Exposed foundation wall at southwest corner of hyphen



Figure 81: South Building, Drainage below portico

Multiple areas surrounding the building have been excavated since the original construction. Significant excavation has occurred at the North Building, providing additional ramp access to the basement and paved concrete at the east side. Per existing drawings, the ramps leading to the basement doors were excavated before 1978. The adjacent area to the north was excavated sometime after 1978.

At the South Building, a walkway leading to a basement door was added on the north elevation at the second bay from the east. The buildings have several sump pits, including pits in the mechanical room and gym of the North Building (estimated to be at least 10 years old) and below the portico of the South Building (age unknown; see Figure 81). Although sump pits are shown on original drawings, the noted locations do not match the current condition.

Floor Framing

Floor framing comprises two-way concrete slabs framing to concrete beams and concrete columns (Figure 82). Much of the first-floor framing was visible from the basement areas, which corroborates the original drawings.

First floor slabs are 4 to 4 1/2 inches thick. The concrete beams are typically 12 inches or 16 inches deep, including the depth of the floor slab. Reinforcement of slabs and beams is noted on original 1917 drawings. Slabs are reinforced with bars measuring 3/8 to 1/2 inches in diameter, spaced 6 to 8 inches on center. Columns are spaced between 9'-0" and 10'-8" on center throughout the buildings, with slightly smaller bays within the hyphens. Columns are typically 10 inches square. Beams within end bays frame to piers embedded in the concrete walls, about 3 inches proud of the wall face. The piers are not noted on the 1917 plans. Underneath the portico, floor framing comprises two-way slabs framing to beams and concrete walls. A concrete wall separates the main portion of the basement from the portico basement. Beams supporting the portico floor portion span between concrete walls (Figure 83).



Figure 82: North Building, Column and first floor beams in basement weight room

The floor framing has been modified for interior stair openings. The original plans included only one narrow interior stair in the South Building, located at the south end of the hyphen. This stair opening has since been infilled, but the concrete

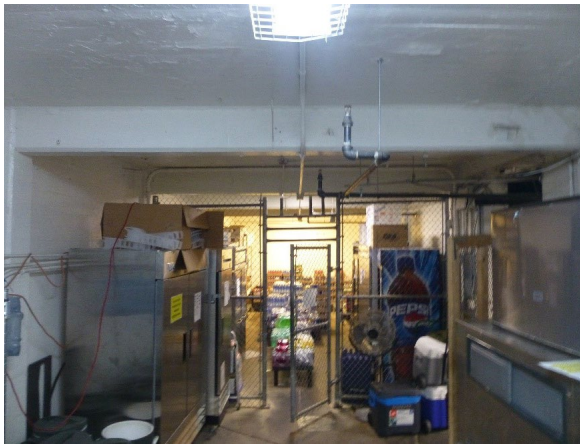


Figure 83: South Building, Portico structure from basement below

beams framing the opening remain. A central stair was added in the South Building sometime before 2003. This steel stair has only one run and is supported on the basement slab and a beam above (Figure 84).

In the North Building, the floor framing has been modified for an interior stair opening, as the original design did not include interior stairs. A new steel-pan and concrete stair has been added just inside the portico (Figure 85). The stair was constructed in 1978 and is supported on CMU walls.

The interior framing has been heavily modified over time. Because the roof is assumed to span over the entire width of the building, the reconfiguration of interior partitions has little impact on the building structure, especially at the first floor. Partitions are CMU or cold-formed steel framing and are assumed to be non-load bearing. The roof structure, including any bearing on partition walls, could not be viewed due to the presence of hung ceilings, insulation, and mechanical equipment.

Roof Framing

Much of the roof framing could not be viewed due to access constraints and the presence of insulation and ductwork. In the North Building, existing acoustical ceiling tiles were lifted in three locations and, in all locations, framing was hidden behind insulation.



Figure 84: South Building, Interior central stair from basement

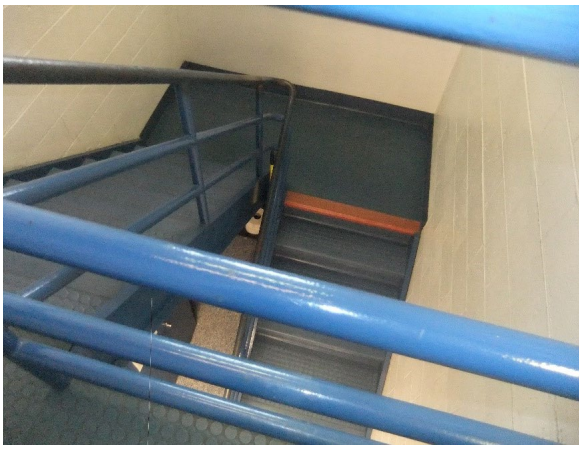


Figure 85: North Building, Interior central stair from first floor looking down



Figure 86: South Building, Roof framing visible

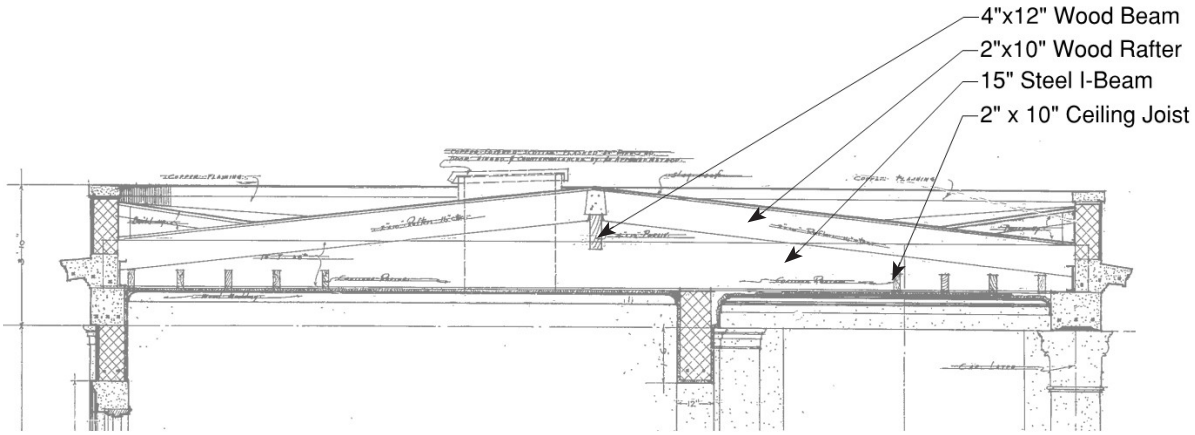


Figure 87: Annotated roof framing section cut east-west through hyphen (Base: 1917 Drawing)

In the South Building, the ceiling was lifted in one central area in the main block. In this location, steel beams were visible in the approximate configuration noted on original drawings, though framing sizes could not be measured (Figure 86). It is unknown whether the wood framing has been replaced. The wood ceiling joists visible above the drop ceiling may be a remnant of the building's original plaster ceiling, given the lath pattern in the remaining paint.

The slight slope of the roof matches the drainage plan in original drawings, also indicating that the roof framing may be original to the building (Figure 78). Accordingly, the current configuration is assumed to match the configuration noted on original drawings. To confirm the assumed roof structure noted on original drawings, the insulation and hung ceilings of both buildings should be removed to uncover the structure. As an alternative, probes could be opened to view a representative area of the roof structure. Roof structure material and bearing conditions (original wood and steel or re-framed sections) would need to be uncovered.

The roof structure noted on original 1917 drawings includes 15-inch steel I-beams that span across the full width of the building. The steel beams are supported on the exterior walls and are spaced about 9 feet apart. The bottom flange of the steel beam originally supported 2-inch x



Figure 88: South Building, Chimney

6-inch ceiling joists spaced 16 inches on center; however, this ceiling structure has since been replaced or hidden behind the current drop ceilings or furred drywall ceilings. The top flange of the beam supports a 4-inch x 12-inch wood beam (actual dimensions) spanning the opposite direction along the roof ridge. Rafters measuring 2 inches x 10 inches (actual dimensions) spaced 16 inches on center span between the wood beam and 8-inch channels along the exterior walls ( ). The original drawings also note a short brick chimney at the South Building, extending 2 feet above the roof

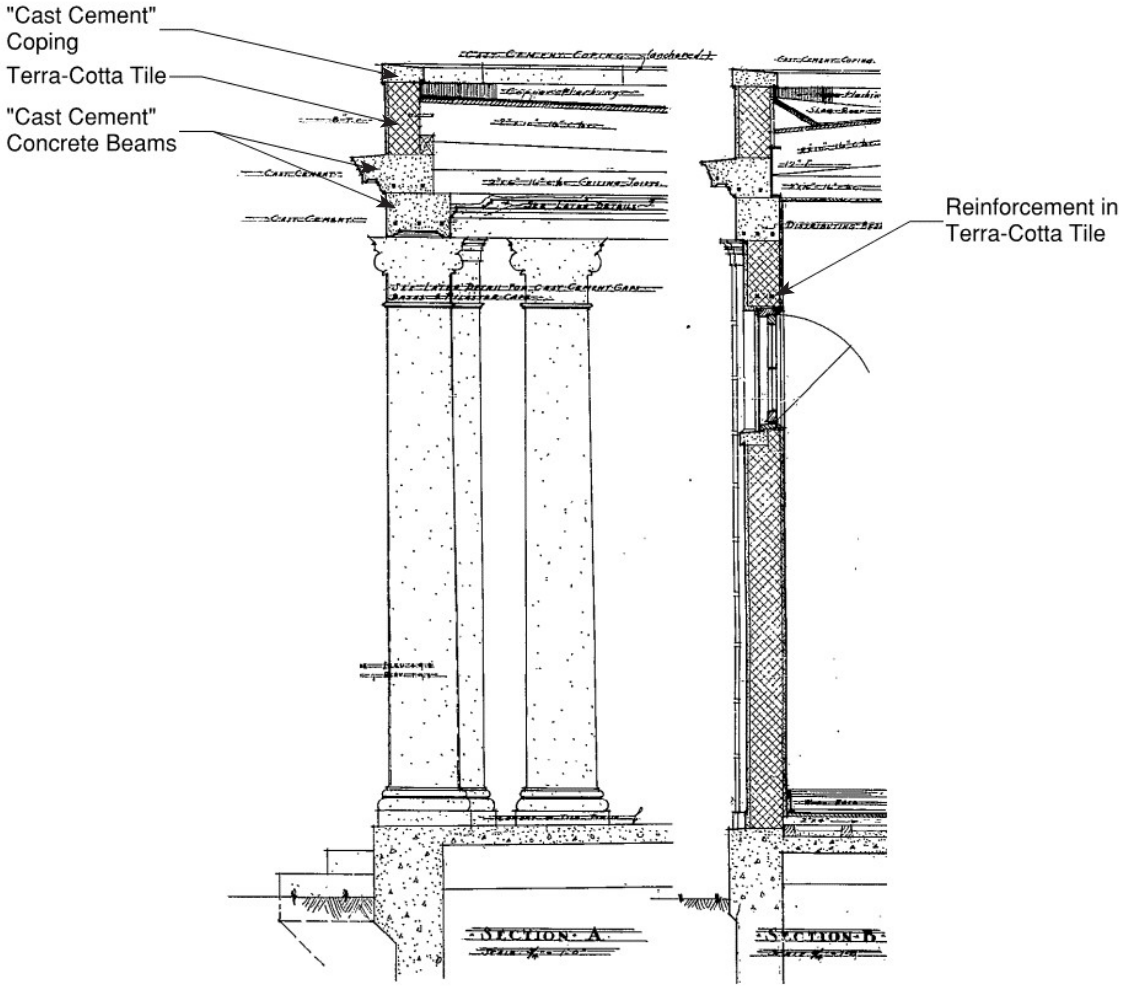


Figure 89: Annotated wall and portico sections (Base: 1917 Drawing)

level. This chimney is still extant at the South Building (Figure 88).

At the portico, the roof framing comprises wood rafters spanning between the exterior wall and concrete beams around the perimeter of the portico. The perimeter beams are supported on the ornamental concrete columns below. The reinforcement details between the concrete columns, capitals, and concrete beams are unknown.

Exterior Walls

Exterior walls are reinforced concrete at the basement level and terra cotta tile at the first floor. Per original drawings, the basement walls are reinforced with steel bars placed 12-inches on-center horizontally and vertically. The first floor wall assembly is 8-inch or 12-inch terra cotta blocks with an exterior coating of stucco and an interior coating of plaster. The thickness of the stucco is unknown but is noted as less than 2 inches on original drawings (Figure 89). All elevations are coated with the exposed aggregate material except for the end of each hyphen, where the buildings were intended to connect to the central field house pavilion. These elevations are parged. The full depth of terra cotta tile was not visible from any locations on the exterior or interior of the building, but the drawings suggest that the tile cells are at least partially grouted and reinforcing bars were added through tiles above the windows.

At the top and bottom of the terra cotta tile walls, reinforced concrete bond beams bound the perimeter of the building, noted as “cast-cement” at the top of the building. The roof is bounded

by a cornice and short stuccoed terra cotta block parapet with concrete coping. Per original drawings, the base for the terra cotta walls is formed by a section of the foundation wall, corbeled to be wider around grade (Figure 89). Both the basement and first floor walls were constructed without expansion joints, exacerbating cracking caused by minor settlement and temperature and shrinkage effects over time.

The entrance portico is supported on large concrete columns with detailed cast capitals. At the hyphen portion, the building also features a secondary loggia with concrete columns, cast capitals, and a cast concrete balustrade.

The window and door configurations have been significantly modified over time. All window openings within the porticoes have been enlarged by lowering the precast sills, and other openings have been selectively enlarged or infilled. At the North Building, one original window opening on the north elevation has been expanded into a doorway. At the South Building, two original window openings on the south elevation have been enlarged to accommodate doors.

Lateral System

The lateral force-resisting system is primarily the exterior walls and foundation walls, including terra cotta walls above grade and reinforced concrete walls below grade. Reinforced concrete beams within the wall assembly also contribute to the lateral system, though the connection between terra cotta masonry walls and the beams is unknown. The exterior walls are in fair condition. Following the 2011 earthquake, NPS documented cracking at the North Building, primarily at the corner quoins and surrounding openings. The cracks have been repaired.

North and South Buildings: Character-Defining Features

The Field House buildings' character-defining features have been identified based on the significance and known chronology of the building. The following list was developed using the guidance provided in *NPS Preservation Brief 17: Architectural Character - Identifying the Visual Aspects of Historic Buildings as an Aid to Preserving Their Character.*

The character-defining features identified in this section are organized by theme or category. It includes features that reflect Horace W. Peaslee's and John J. Earley's architectural and sculptural styles and appearance during the period of significance (1917-1920). The Field House buildings were designed in the Neoclassical Style and the building exteriors retain a high degree of integrity. Loss of or alterations to character-defining features would negatively impact the integrity of the buildings and diminish their architectural significance.

Shape and Mass

- L-shaped footprint
- Single story construction with full, partially-exposed basement
- Long colonnaded porticoes
- Perpendicular hyphens

Setting and Orientation

- Mirrored, symmetrical placement
- Location within East Potomac Park
- Recreational setting on Hains Point
- Orientation to the Washington Channel and East Potomac Park Golf Course
- Visibility of the Washington, DC skyline and monuments, including the Washington Monument

Materials

- Exposed large-aggregate concrete (precast, cast in place, and stucco applications)
- Terra cotta
- Structural poured concrete
- Square red quarry tile
- Plaster coffered ceilings in porticoes and loggias
- Copper flashing

Construction Methods

- Precast exposed aggregate concrete
- Cast in place exposed aggregate concrete
- Exposed aggregate concrete stucco
- Openings
- Rectangular punched clerestory window openings

Ornamentation

- Rhythmic concrete engaged pilasters
- Precast concrete columns and pilasters
- Precast concrete Corinthian capitals
- Precast concrete balusters in east porticoes
- Concrete quoins at corners
- Precast projecting cornice
- Continuous concrete parapet

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Chapter 4: Condition Assessment

This chapter provides an assessment of the condition of the North and South Buildings of the Field House. The building interiors have been altered significantly over time and little historic fabric remains of the building interiors; therefore, this description focuses mainly on the building exteriors. This chapter describes the existing conditions of the architectural fabric as of October 2018. It identifies areas and types of deterioration exhibited by the building's architectural, structural, electrical, and mechanical features, as categorized in the ASTM Uniformat II building element master list. The North Building is addressed in its totality first, followed by the South Building. A condition rating and deficiency rating is provided for each element. Additionally, a written description of the observed conditions of the building materials and elements is provided. The chapter also provides recommendations for material and feature repairs. Refer to Part 2, Chapter 2 for discussion of the treatment philosophy of the two buildings.

Summary

The existing condition of the two Field Houses is a function of the original design and materials of construction, subsequent alterations and repairs, and maintenance over the years. The two buildings have been in continuous use and exhibit conditions typical of other of structures built in the early 20th century with similar materials.

The most significant feature of the buildings, the exposed aggregate concrete-finished exterior, is in fair condition. The exterior envelope exhibits many localized instances of damage, including spalls, bursting due to steel reinforcement corrosion, and various types and sizes of cracks. The more detailed exposed aggregate concrete ornamentation, such as the cornice, has experienced significant weathering. The condition of windows and doors ranges from poor to good; most are not original and should be replaced, while the few original windows should be restored and retrofitted with storm windows to improve the thermal characteristics of the exterior envelope. The building roof coverings are in fair condition but are reaching the end of their lives.

Most of the original structure meets building code requirements for minimum roof live and snow loads and was observed to be in fair to good condition. Some reinforcing of sections of the portico floor will be required.

Most of the interior partitions and features are not original and are in fair or good condition. The building systems' condition varies, with some systems that can be retained and maintained while others will need to be replaced entirely.

The site is in fair condition, but is very susceptible to floods. The site will require regrading and drainage improvements to minimize damage from flooding that is expected to increase in the future. Accessibility requirements must be met at both buildings, but especially at the North Building.

Condition Assessment Standard Definitions

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

Qualitative Condition Ratings:

GOOD

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

FAIR

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

POOR

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

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

Minor – Short-Term/Long-Term Priority

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

Serious – Immediate/Short-Term Priority

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

Critical – Immediate Priority

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

Not Rated

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

Preliminary Structural Analysis

A preliminary structural analysis was conducted to gauge the existing capacities of the first floor and roof. Approximate live load and snow load capacities were calculated for the existing roof elements, including the steel beams, wood beams, and wood rafters. Live load capacities were also calculated for the first floor concrete slabs and beams. Analysis of the roof structure utilized Allowable Stress Design (ASD) procedures, and analysis of the concrete floor structures utilized modern Load Resistance Factor Design (LRFD) procedures. The building has not been analyzed for seismic. The analysis assumes the configurations, spacings, and dimensions noted on original 1917 drawings.

Analysis Results

A preliminary structural analysis shows that most of the existing concrete floor structure has capacity for an 80-psf (pounds per square-foot) live load. The larger end bays have a significantly lower live load capacity of 40-psf, shown in red on the diagram in Figure 90. Within the exterior portico, all bays have capacity for a 100-psf live load, except for the end bays with a 60-psf live load capacity. First-floor beams would not require reinforcement for 100-psf live loading. Depending on the extent of future alterations and any changes in occupancy, areas with 40-psf capacity may need to be locally reinforced to meet code requirements.

Most of the original roof structure meets building code requirements for minimum roof live and snow loads. Rafters and steel beams were calculated to have some minimal additional capacity, for the governing 30-psf snow load in addition to dead load. The existing wood beam along the roof ridges is at capacity with current loading requirements.

Material Properties

The following material properties were assumed for analysis of the existing structure:

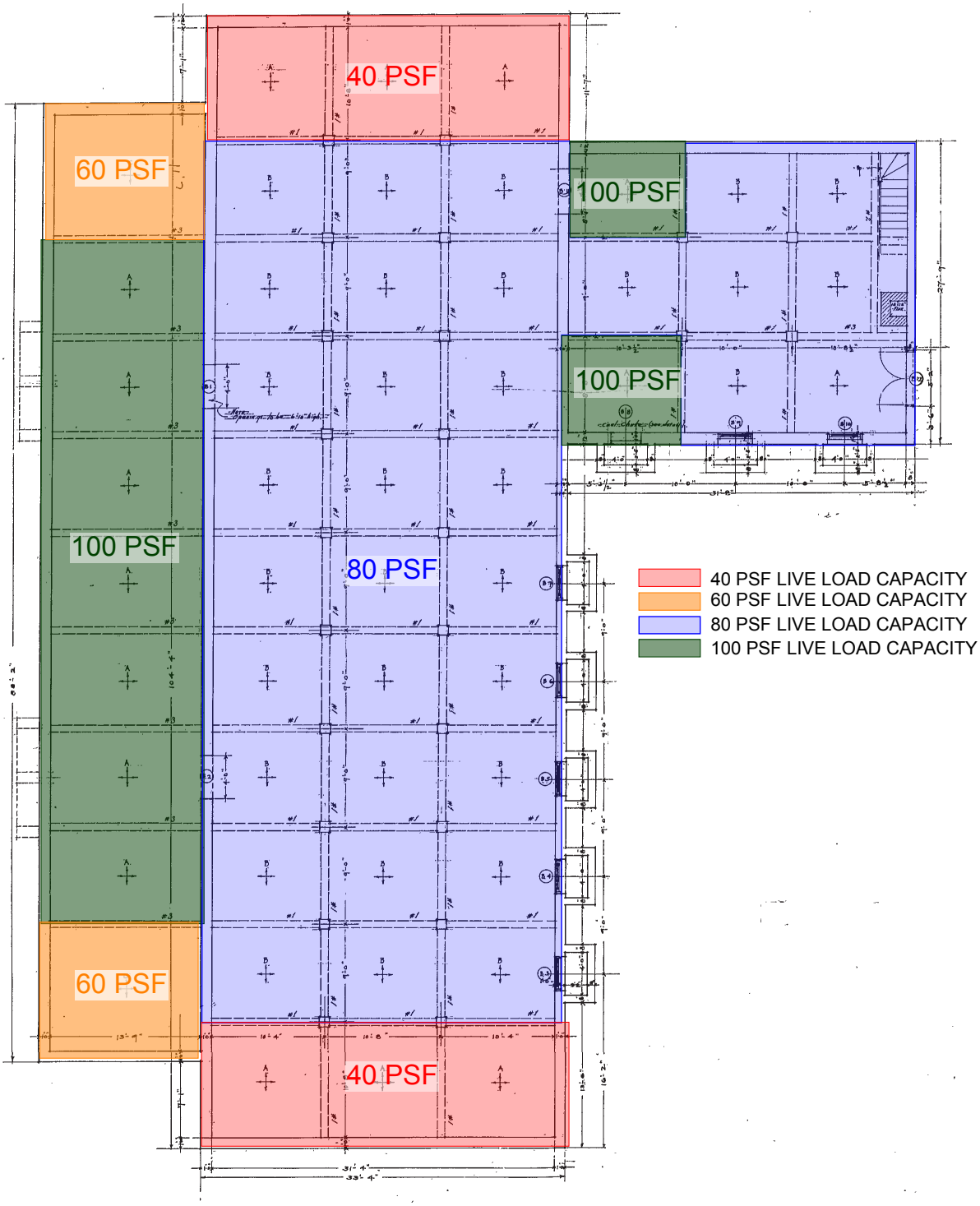
Concrete		
	Typical Compressive Strength	f'_c = 2000 psi
	Typical Yield Strength of Reinforcing Steel	f_y = 33 ksi
Steel		
	Typical Yield Strength	f_y = 27 ksi
Wood		
	Assumed Wood Species	*Southern Pine No. 1*
	Allowable Bending Stresses:	
	4” x 12” Beams	F_b = 1000 psi
	2” x 10” Rafters	F_b = 1050 psi

Design Loads

The following loads were assumed for analysis of the existing structure, governed by the International Building Code and the DC Building Code Supplement:

Typical Load Type	*Minimum Load*
Dead Loads	
Roof Dead Load (including self-weight of structure)	35 psf
First Floor Dead Load (including self-weight and finishes)	85 psf
Roof Live Load	20 psf
Minimum Snow Load*	30 psf

**Preliminary snow load analysis does not analyze drift effects.*



TYPICAL FIRST FLOOR STRUCTURE: ALLOWABLE LIVE LOAD DIAGRAM

Figure 30: Typical First Floor Structure, Allowable Live Load Diagram

ASTM Uniformat II Building Feature Master List–Condition Assessment Ratings

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

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

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

North Building— A10 and A20: Substructure Foundations and Basement Construction

Condition:	**Fair**	**A1010 Standard Foundations**
Deficiency:	**Serious**	**A2020 Basement Walls**

Treatment Recommendation: Address drainage problems surrounding building, patch spalls in exposed basement walls and door thresholds, repair large cracks using compatible cementitious injection grout

A1010 Standard Foundations

Description and Conditions: Per original drawings, foundations of the North Building are deep concrete grade beams and two-way slabs on grade spanning between grade beams. Drawings indicate that the foundation slabs are between 9 and 10 inches in thickness. An opening has been cut through the basement slab for a sump pit, centrally located within the current weight room. The below-grade foundations were not visible, but are assumed to be in fair condition, due to the absence of any major settlement issues above grade. The present occupants, US Park Police, noted that the buildings have previously flooded and are prone to water infiltration issues relating to poor drainage surrounding the buildings. During 2018 field surveys, standing water was observed in the basement near an existing sump, suggesting that the equipment or drain lines require repair or maintenance. During the October 2018 field survey, the basement entrances were sandbagged to prevent additional water infiltration (Figure 91).



Figure 91: North Building, Sandbags piled at the top of the eastern ramp to prevent water ingress at the basement level

Recommendations: In order to prevent further deterioration of foundation elements, the building's drainage system should be updated to minimize flooding of the basement. Site drainage can be improved by various of methods. The site can be locally regraded to create a positive slope away from the building, including eliminating the sloped ramps to the basement. All existing interior basement drains or sumps, exterior site drainage, and the rain gutter system should be investigated, maintained, or repaired to move rainwater away from the buildings. If site drainage cannot be repaired or is determined to be inadequate, a new foundation drainage system, such as a French drain, could be installed. Installation of a French drain would require the area around the entire perimeter of the building to be excavated to the bottom of the foundation elevation. While drainage interventions are being planned and implemented, the buildings should be visually monitored for any additional substructure cracking that may indicate foundation settlement issues.

A2020 Basement Walls

Description and Conditions: The basement walls of the North Building are reinforced concrete, typically 12 inches in thickness. A concrete wall separates the basement beneath the main block and the basement below the portico. Several areas surrounding the North Building have been excavated to provide access directly to the basement, including a significant excavation at the east elevation and along the east wall of the hyphen. At these locations, reinforced concrete walls are exposed, and openings have been cut through the basement walls. In locations where the original

concrete was removed, the doors frame into CMU or glazed brick surrounds. Where the basement walls are exposed, the structure is generally in fair condition; however, site walls adjacent to the basement walls are in poor condition (see *G2040 Site Development - Retaining Walls*). In a few localized areas, spalling and cracking is evident at the previously excavated basement walls, such as the upper portions of the basement wall at the hyphen.

Recommendations: Along the exposed hyphen basement wall and the mechanical room door threshold, spalling and cracking should be repaired with appropriate concrete patches. Cracks larger than hairline cracking should be repaired with compatible cementitious injection grout. For cost estimating purposes, it can be assumed that 20 square feet will require concrete patching, and 5 linear feet will require grouting repair. Possibly insert temporary flood gates to block water ingress at the top of ramps.

North Building— B10 Superstructure - Floor Construction

Condition:	**Fair**	**B1010-01 Floor Construction - First Floor**
Deficiency:	**Minor**	

Treatment Recommendation: Repair concrete spalls; monitor visible hairline cracking

B1010-01 Floor Construction - First Floor

Description: The first-floor structure of the North Building comprises two-way concrete slabs framing to concrete beams and the foundation walls. The beams are supported on a regular grid of concrete columns, spaced roughly 9'-0" to 10'-8" on-center. Beams within the end bays frame to piers embedded in the concrete walls, about 3 inches proud of the wall face. The floor slabs are typically 4 inches or 4 ½ inches in thickness, and concrete beams are typically 12 inches or 16 inches deep.

Floor framing that could be viewed from below is typically in good condition, though most of the first-floor framing was hidden above a drop ceiling or below floor finishes. The floor structure has not been significantly modified, except for a stair opening just inside the north portico entrance. Limited temperature and shrinkage cracking was observed at the underside of the slab within the basement gym (Figure 92). The first-floor structure was also visible in the mechanical room, located in the basement of the hyphen. A spall in the central bay of the hyphen has exposed rebar at the underside of the slab (Figure 93).

Recommendations: Localized areas of spalling should be repaired with appropriate structural concrete patches to protect the existing reinforcement. At visible spalls, the rebar displayed minor corrosion. If severe corrosion is found in areas where the slab could not be viewed during the site survey, the concrete repairs should account for the loss of slab strength. For cost estimating purposes, it can be assumed that 10 square feet will require patching. The limited temperature and shrinkage cracking (approximately 20 linear feet) observed in the weight room should be visually monitored for expansion or change.

If future building projects require a change in occupancy of the building, some portions of the first-floor slab would require reinforcement for loading over 40-psf. The extent of required reinforcement should be coordinated with NPS's plans for the buildings. No reinforcement is included in the cost estimate.



Figure 92: North Building, Temperature and shrinkage cracking in main portion of North Building



Figure 93: North Building, Slab spall at the central bay of hyphen

North Building—B20 Exterior Enclosure

Condition:	**Poor**	**B2010**	**Exterior Walls**
Deficiency:	**Serious**	**B2012**	**Parapets**
		B2015	**Handrails (Balusters)**

Treatment Recommendation: Repair exposed aggregate concrete stucco and repair and replace precast pieces depending on the condition and deficiency rating

B2010 Exterior Walls and B2012 Parapets

Description: The first floor exterior walls and the roof parapet walls are constructed of exposed aggregate concrete stucco applied to terra cotta tile masonry. Other architectural features, such as the porch columns and capitals, balusters, window sills, door moldings, and the cornices are constructed of precast exposed aggregate concrete with steel reinforcement (Figure 94). The basement walls are finished with parging on the concrete walls. The south elevation of the south hyphen is also covered in parging; this wall was to become an internal wall when the central section of the Field House was added. The first floor exterior walls are accented by engaged pilasters at each bay and quoins at the building's corners (Figure 95). The walls do not feature control or expansion joints.

Conditions: The stucco is in poor to fair condition, exhibiting many cracks and areas of spalling where the concrete has cracked, allowing for water penetration, and areas with bursting or chipping (Figure 96). Cracks are most evident at the corners of the building along the quoining details, at the base of the first floor, and at the cornice and parapet (Figure 97). In some areas, especially at the parapet, cracks have been patched, and some of the previous repairs have failed. Some of the cracks are indicative of structural and thermal movement while others are caused by the corrosion of steel rebar within precast elements. Cracking is exacerbated by the building's lack of expansion joints.

The cornice is constructed with 4 1/2-foot long sections of precast concrete (also described as units) with mortar joints. The cornice projects approximately 1 foot from the wall and is in poor to fair condition. Many of the precast units are severely eroded and chipped leading to a loss of profile (Figure 98). The skyward-facing part of the cornice has experienced erosion resulting in surface pitting, where water then sits and is ab-



Figure 94: North Building, North elevation



Figure 95: North Building, East elevation; many hairline cracks were observed at the base, quoins, frieze above the engaged pilasters, cornice, and parapet



Figure 96: North Building, cracking and bursting at an engaged pilaster base resulting in a spall



Figure 98: North Building, loss of profile at the north elevation cornice due to spalling



Figure 97: North Building, Crack runs along the quoining on the north elevation



Figure 99: North Building, Erosion and bursting of the precast concrete column capital due to iron jacking from the corroded metal reinforcement

sorbed deeper into the unit. Many of the joints between the cornice units require repointing and many areas exhibit significant biological growth.

Other precast elements such as the columns and balusters at the loggia handrail are in poor to fair condition. The column capitals exhibit erosion, affecting the fine architectural details, and in many cases the steel rebar is exposed (Figure 99). The soffit of the entablature and cornice above the column capitals also exhibit cracks of various thicknesses. There is a history of insensitive repairs to the exposed aggregate concrete cladding, especially where the window openings have been enlarged, predominately along the north and west elevations. The areas surrounding the altered window openings have been patched in an inconsistent and often incompatible manner in many locations. In some cases, the color does not



Figure 100: North Building, Typical concrete patching surrounding building window

match, and several have debonded from the surrounding stucco (Figure 100).

The smooth concrete parging at the basement walls below the east loggia is in fair condition, exhibiting some hairline cracks and biological growth (Figure 101). Larger cracks and spalls occur at the soffit where the wall of the first floor loggia returns at the basement level (Figure 102). Other areas of parging have debonded from the surface and are missing pieces (Figure 103). The south elevation of the south hyphen also exhibits cracking and some discoloration (Figure 104).

Like other construction materials, concrete deteriorates over time and with exposure to the environment. The primary causes of deterioration are usually related to the freezing and thawing of absorbed or entrapped moisture, corrosion of steel reinforcement, as well as problems with the quality of the original materials and the method of construction. The corrosion of steel can commence if chloride ions are present at the steel surface or if the steel is no longer protected by the alkaline nature of the concrete, due to carbonation - a process in which concrete reacts with atmospheric carbon dioxide and sulfur dioxide resulting in gradual neutralizing of the alkalinity from the surface inwards. The rate of carbonation varies, but typically reaches an average of half-an-



Figure 101: North Building, East elevation loggia and basement exterior walls accessed by areaway



Figure 102: North Building, Spall due to cracking and bursting below the east elevation loggia where the wall returns at the basement level

inch of depth in concrete over 100 years old. At the North Building, where the concrete has burst and the steel is exposed, the coverage seems very thin, less than 1 inch. With additional climate exposure, it is possible that more concrete will begin to spall.

Recommendations: NPS should consider undertaking nondestructive tests to determine the location and depth of the reinforcement, as well as the extent of distress. The results, combined with an evaluation of carbonation, could inform if addi-



Figure 103: North Building, East elevation of hyphen at basement level; cracks and water infiltration have resulted in debonding and chipping of the parged surface

tional protective measures should be considered to minimize further corrosion and spalling of the concrete by reducing the rate of carbonation in areas with thin concrete coverage over the steel reinforcement or reducing the potential for chloride ions reaching the steel. Such treatments might consist of localized protective coatings or realization of the concrete. Laboratory testing is also recommended to determine the properties of the concrete and better select materials compatible with the original cast-in-place as well as precast concrete and stucco. Refer to Probes and Material Testing for additional recommendations for testing.

Repairs to the stucco and precast concrete with exposed aggregate pieces will require a variety of treatment methods. Hairline cracks may be injected with an appropriate consolidant material to prevent water infiltration and the expansion of the crack. Larger cracks should be repaired with restoration mortars and may require pinning, if determined to be structural cracks. Cracking and



Figure 104: North Building, Hyphen's south elevation

spalls caused by the corrosion of the steel rebar should be addressed by cleaning and treating the rebar before the patch repair is made.

Several balusters should be replaced with precast forms made to match the original. Many of the precast cornice pieces may also require replacement due to their severe loss of profile, spalling, or cracks. To minimize additional deterioration of the cornice, a copper cap should be installed that would be minimally visible from ground but will shed the water and protect the cornice from becoming saturated with water.

For cost estimating purposes it can be assumed that 75 square feet of the precast concrete will require patching, and 200 linear feet of cracking will require repair. The patches are mostly less than 1 square foot, including patches at decorative features, such as the column capitals. Provisions should also be made for 10 pin anchors for stabilizing the existing structure, including the several sections of the cornice. If NPS would like to reverse existing inappropriate patching, the walls will require significant re-patching and repair.

Any repair or restoration of the distinctive exposed aggregate concrete will require the expertise of a qualified architectural conservator. Implementing the repairs will require a highly skilled contractor with experience in undertaking such sensitive concrete repairs. Patching of stuc-

co, cast-in-place and precast concrete will require careful visual matching of mortar color, aggregate color, and aggregate size. The aggregate appears to be the same Potomac River gravel used at Meridian Hill Park. Successful replication of the historic concrete and stucco finish will require testing of the existing materials, development of multiple concrete mixtures with various proportions, and multiple mockups to determine the repair method that will result in the desired uniform appearance, using selectively graded aggregate similar to the original construction. The repair methods should be selected to minimize the removal of the original material while providing a sound substrate for durable repairs, following a similar strategy NPS pursued when repairing the Earley concrete at Meridian Hill Park. When repairing stucco, any exposed steel reinforcing should be cleaned and treated.

The original mortar should be tested and the new mortar selected appropriately to match the composition and color of the original stucco. All the joints between the precast elements of the walls should be repointed.

Areas with severe soiling and severe biological growth should be cleaned. In addition, a general cleaning of all facades is recommended in order to achieve a uniform look after all repairs are installed. Testing trials should be undertaken to select the most appropriate cleaning methods for each of the conditions to be removed that will not introduce salts into the concrete and lead to additional damage.

The parging applied at the basement level should be further inspected for debonding. Sections that have debonded and chipped should be removed and replaced with matching material. For cost estimating purposes, 20 sf should be included for replacement of the parging. High-permeability coating systems may be appropriate and acceptable at the parging.

B2015 Handrails

Description and Conditions: The balusters at the east elevation loggia have cracks and spalls, especially at their base where the rebar is exposed and rusted (Figure 105). The horizontal rail, including the joints between sections, is in good condition. The joint between the rail and the balusters is opened at several locations, mostly at balusters where the bases are in good condition (Figure 108). The railing system is fairly robust so even with some failure at the balusters, the system meets the code mandated requirements for railing loads; however, the configuration allows for the passing between balusters of a sphere larger than 4-inch diameter in the area below 34 inches in height. In the case of a large renovation, a variance might be needed to address this non-conformance.

The metal railings at the stair leading to the hyphen loggia (Figure 106) and the door on the west elevation (Figure 107) do not meet the requirements for guardrail height.

Recommendations: Replace all metal railings with a system that meets IBC. Undertake concrete repairs as required at the existing post anchoring locations.



Figure 108: North Building, Railing and balusters at east loggia showing open joints between rail and balusters



Figure 106: North Building, Non-compliant metal railing at stairs to hyphen on south elevation



Figure 105: North Building, Spalls at base of balusters due to bursting from corroded metal reinforcement



Figure 107: North Building, Non-compliant metal railing at stairs on west elevation

North Building—B1019 Other Floor Construction

Condition:	**Good**	**B1019**	**Portico and Loggia Floors**
Deficiency:	**Minor**		

Treatment Recommendation: Repoint joints surrounding tiles where mortar is missing or deteriorated

B1019 Portico and Loggia Floors

Description and Conditions: The exterior of the building features a large colonnaded portico that extends almost the entire length of the north elevation. A smaller colonnaded loggia is located on the east elevation of the hyphen, which was originally intended to connect to the unrealized central pavilion, connecting the North and South Buildings. The portico and loggia feature quarry tile floors set in concrete. The floor has been altered at the north end of the east loggia to form a ramp providing access to the south door and glazed vestibule (Figure 109). The floors are generally in good condition though the tiles and mortar at the north portico exhibit a bit more weathering and some of the joints require repointing (Figure 110).

Recommendations: Repoint the joints surrounding the tiles that exhibit missing or deteriorated mortar.



Figure 109: North Building, East elevation loggia tile floor, the ramp at the far end is an alteration



Figure 110: North Building, North portico tile floor requires repointing in some areas

North Building—B1029 Other Roof Systems

Condition:	**Fair**	**B1029**	**Portico and Loggia Ceiling**
Deficiency:	**Serious**		

Treatment Recommendation: Remove paint and coatings, repair cracks, and recoat with appropriate breathable finish; possibly restore plaster coffers in north portico

B1029 Portico and Loggia Ceiling

Description and Conditions: The original plaster coffered ceiling of the north portico has been removed and the flat concrete is finished with a cementitious coating (Figure 111). Large sections of the coating are peeling and have revealed more layers of peeling paint (Figure 112). The east loggia ceiling is ornamented by shallow plaster coffers. The ceiling is in fair condition. A layer of paint is cracked and peeling to reveal portions of the concrete supports, which also exhibit small cracks below (Figure 113).

Recommendations: The layers of paint and cementitious coating should be removed on the north portico. Possibly restore original coffered plaster ceiling as seen at the South Building. In both the north portico and the east elevation loggia, the ceiling should be recoated with an appropriate paint finish and all the surfaces should be appropriately prepared to receive the new coating system. Hairline cracks in the concrete ceiling may be injected with an appropriate consolidant material and the ceiling should be recoated with an appropriate breathable finish.



Figure 111: North Building, North portico ceiling



Figure 112: North Building, North portico ceiling; textured stucco is peeling in places to reveal water damage and additional layers of peeling paint



Figure 113: North Building, East elevation loggia ceiling; textured stucco is peeling in places to reveal water damage and additional layers of peeling paint

North Building—B20 Exterior Enclosure

Condition:	**Good**	**B2020**	**Exterior Windows**
Deficiency:	**Minor**		

Treatment Recommendation: Continue with regular maintenance and monitoring

B2020 Exterior Windows

Description: The original first floor windows were wood and had a hopper sash with 2x4 divided lights; the only exception was two pair of windows along the south porch, that were hoppers with 2x3 divided lights. The original basement windows had a hopper configuration with 3x3 divided lights. On the two floors, the windows have slightly different moldings.

All windows were replaced during the building's 1978-79 renovation. The high window openings along the south and east elevations are original; however, the window openings on the west and north elevations were expanded to accommodate larger windows (Figure 114 and Figure 115). The stucco was cut to enlarge the window openings, requiring many patches and repairs which are not aesthetically compatible with the adjacent historic surfaces. In many cases, the color does not match, and some of the patches have debonded from the surrounding stucco (Figure 116). Along the south porch, the center bay window was installed at the location of a former door opening. In the same area, two pair of original hopper windows were replaced with large aluminum two-pane windows.



Figure 114: North Building, High windows at the south elevation

The high metal-framed windows are replacement awning windows while the larger two-pane windows feature a fixed top pane and a lower awning pane. In many cases, the awning pane is open to fit the air-conditioning units and have been sealed with Plexiglas. All the replacement aluminum windows have insulated glass. However, because of their age (>40 years), the insulating value of the windows is expected to be minimal. While the longevity of the insulated glass units (IGUs) varies, most IGUs have an average lifespan of only 30-40 years; therefore, the windows at the North Building are at the end of their life cycle.

At the basement level, most windows feature a cast in place concrete window well, topped with a non-historic steel grille. At the hyphen, where the south ramp was added, three original window wells were eliminated; one of the three windows was removed and the opening was infilled with masonry, and louvers were installed at the two other basement windows on the east side of the hyphen. In other areas of the basement, some of the openings at the window wells are infilled with glass block (Figure 117). None of the original interior trim at the windows remains (Figure 118).

Conditions and Recommendations: The windows do not show signs of failure and are in good condition; however, because of the limited life span of IGUs, all aluminum windows should be replaced with more compatible units. New windows should be made of wood. Aluminum cladding at the exterior is acceptable on secondary elevations but cladding should be avoided for



Figure 115: North Building, West elevation; Air-conditioner units are present at many windows



Figure 116: North Building, South elevation; concrete patching is present surrounding many of the building's windows

windows within the portico on the north elevation.

Mechanical system improvements should be considered to eliminate the need for window air-conditioning units. Depending on the use and the historic treatment adopted for the project, the infilled windows should be reopened and new units installed. The awning windows should be replaced with windows with the original 2x8 light configuration. The large windows should be replaced with windows that are more compatible with the original windows. Use the long windows intended for the center pavilion as a guide for enlarged openings. If the south ramp is eliminated and the area infilled, the three window wells should be reconstructed.

Repairs of the exterior masonry surrounding the windows and of the window sills are discussed in Section B2010 in this report.



Figure 117: North Building, infilled windows at basement level



Figure 118: North Building, original window opening on the first floor, view from interior

North Building—B20 Exterior Enclosure

Condition:	**Good to Poor**	**B2030**	**Exterior Doors**
Deficiency:	**Serious**		

Treatment Recommendation: Replace doors on the south and east elevations that exhibit corrosion with code compliant doors. Make code compliant upgrades to doors on the north and west elevations.

B2030 Exterior Doors

Description and Conditions: The North Building features a number of non-historic steel doors. The double and single doors on the north elevation feature glass panels and are topped with glass transoms. They have a raised threshold and are not ABAAS compliant (Figure 119). At the south elevation, the main entry double door is accessed via a small non-original glazed vestibule that features full glass double doors (Figure 120). The west elevation door features a sidelight and transom. Originally, there was no door and the opening provided direct access to the loggia on the east elevation. The concrete precast door surround that framed the west door opening is still present (Figure 121).

All first floor doors are in fair to good condition; however, they are not historically compatible with the original design.



Figure 120: North Building, South elevation main floor entry vestibule



Figure 119: North Building, North elevation; double door is in good condition but is not ABAAS compliant



Figure 121: North Building, West elevation; door is in need of repair

At the basement level, at the south elevation, there are two pairs of double steel doors topped with blind transoms. A similar pair is located at the basement level on the east elevation. These doors are frequently flooded and exhibit corrosion (Figure 122).

At the basement level, one of the original door openings was infilled, but the adjacent ceramic tile at the jambs survives.

Recommendation: Two pairs of steel double doors at the basement level that exhibit corrosion should be replaced. The third pair should be removed and the opening infilled, as part of the plan to reduce flooding and infill one of the non-historic ramps. The main floor doors at the west, north, and south elevations should be replaced with code compliant, energy efficient doors that replicate the original design (wood stile and railed doors with raised panels or/and glass) and are more compatible with this historic building overall. Where breezeways have been infilled, install a new door system that includes glazed transom and sidelights to replicate historic design. The original drawings show hopper sash with 5 over 2 lights in the transoms above exterior double doors at the north and south facades.

The vestibule at the south elevation should be removed as it is a recent addition that alters the historic configuration of the original construction. For energy conservation, the design of the interior layout for future use should consider an interior vestibule.



Figure 122: North Building, South elevation; door at the hyphen is in poor condition and experiences water infiltration due to flooding

North Building—B30 Roofing

Condition:	**Fair**	**B1020**	**Roof Construction**
Deficiency:	**Serious**	**B3010**	**Roof Coverings**

Treatment Recommendation: Replace bitumen membrane roof; repair copper flashing that is loose or requires repair at seams.

B1020 Roof Construction

Description: From the interior, the roof structure of the North Building could not be viewed above insulation and ductwork. Due to the fair condition of the ceiling and roof beams, the roof structure is assumed to be in fair condition. Some hairline and fine cracking was visible around the perimeter roof beams and of the parapet walls near the corner of the building. See *B2010 Exterior Enclosure*. From above, drainage and ponding issues were apparent, suggesting that the roof structure could be affected by localized moisture infiltration.

Recommendations: The roof structure should be evaluated with probes or partial removal of insulation during any upcoming building projects. Any areas of localized moisture infiltration should be patched. If the roof structure has rotted or corroded due to moisture infiltration, the structure should be repaired by reinforcement or replacement.

A preliminary structural analysis shows that most of the original roof structure should not require reinforcement to meet minimum snow and roof loads as determined by the building code. Before reinforcement details are developed, the existing configuration of the roof structure should be confirmed.

B3010 Roofing

Description: The North Building has a modified bitumen rolled asphalt membrane roof with a low sloped central section and a flat area over the main portico on the north elevation (Figure 123). The roof was most recently replaced in 1995, and it features a low parapet with a copper cap and stamped copper through-wall flashing. Small rectangular attic vents with hoods pierce the parapet, centered onto the bays.



Figure 123: North Building, View of roof looking northeast. Note water ponding adjacent to the roof drain.

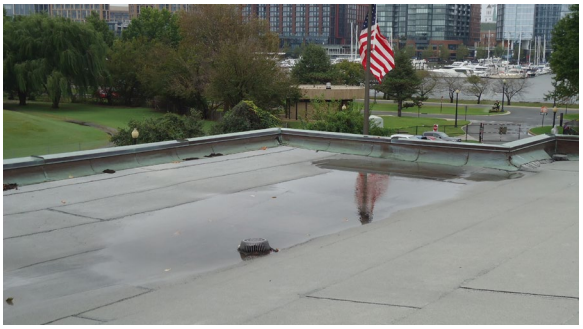


Figure 124: North Building, View of roof looking south

The roof has multiple drains located mostly along the perimeter, with some drains located along the interface between the building and the portico (Figure 124). There are multiple penetrations from mechanical, electrical and plumbing systems. The current roof has no access from the interior of the building but an earlier hatch from the space now housing mechanical equipment might have been enclosed.

Conditions: The roof is in fair condition, but the roofing material is at the end of its life. The bituminous material is crazed and cracked, especially at the seams (Figure 125). In some areas, ponding occurs where the slope leading to the drain is not adequate (Figure 124) or is blocked by debris (Figure 127). This occurs at the central drain above the main portico, and along the roof perimeter where there is a significant accretion of soil, leaves, and debris. In addition, some of the existing flashing does not comply with the installation guidelines. The roof vent is in fair condition and features a metal cap with stamped copper flashing. The sealant used at the flashing seams is in poor condition and should be replaced (Figure 126).



Figure 126: North Building, Roof vent and flashing



Figure 127: North Building, Stamped copper flashing and copper cap at roof parapet; soil and leaves have accumulated in many areas

Recommendations: The North Building's bitumen membrane roof as well as all the flashing should be replaced. The copper cap at the parapet is not original, and is in good condition, but it will need to be removed in the process of roof replacement. New drains should be installed at the same time of the roof replacement and any unused penetrations should be capped below the roof.



Figure 125: North Building, Roof membrane exhibits crazing due to UV damage



Figure 128: North Building, Penetration of roof membrane for mast

North Building—D20 Plumbing: Fixtures

Condition:	**Good**	**D2010-00**	**Basement Plumbing Fixtures**
Deficiency:	**Minor**	**D2010-01**	**First Floor Plumbing Fixtures**

Treatment Recommendation: Clean and perform routine maintenance.

D2010-00 Plumbing Fixtures—Basement

Description and Condition: Plumbing fixtures in the basement include wall- and floor-mounted water closets, wall-mounted urinals, wall- and counter-mounted lavatories, and individual and gang showers. These fixtures are not historic and are in good condition (Figure 129 and Figure 130).

Recommendations: Routine maintenance should be sufficient to maintain the fixtures' current condition while the building operates under its current function. If the building programming changes, it is not likely to be cost effective to retain the fixtures for reinstallation in a new space.

D2010-01 Plumbing Fixtures—First Floor

Description and Condition: Plumbing fixtures on the first floor include floor-mounted tank-type water closets, wall-mounted urinals, wall-mounted lavatories, and a stainless-steel floor-mounted water closet for the holding cell. These fixtures appeared to be in good condition. The only fixture that is in a state of disrepair is the mop sink; this fixture is dirty and difficult to access. Associated piping is also dirty, though it has been installed plumb and level.

Recommendations: Routine maintenance should be sufficient to maintain the fixtures' current condition while the building operates under its current function. If the building programming changes, it is not likely to be cost effective to retain the fixtures for reinstallation in a new space.



Figure 129: North Building, Typical sink in basement



Figure 130: North Building, Typical toilet on first floor

North Building—D20 Plumbing: Domestic Water Equipment and Piping

Condition:	**Poor**	**D2021**	**Cold Water Service**
Deficiency:	**Serious**	**D2022**	**Hot Water Service**
		D2023	**Domestic Water Supply Equipment**

Treatment Recommendation: Replace domestic water booster pump, domestic water heating, and all domestic water system insulation; install expansion tank; provide routine maintenance for piping.

D2021, D2022 Cold and Hot Water Service

Description and Condition: Domestic water piping enters the building in the mechanical room beneath the exterior stairs. A 3-inch diameter pipe is fed from that space to the water heater (Figure 131) and the various plumbing fixtures throughout the building. A means of backflow prevention was not visible, but an isolation valve was provided at the entrance piping. Domestic water pipe is rarely visible in the building; it generally appeared to be in fair condition, although unidentified grime has accumulated on the exterior wall of the exposed piping in the mechanical room. Additionally, the visible domestic water piping was not fully insulated, and the limited insulation provided was in poor condition.

Recommendations: The domestic water distribution piping is likely to remain in suitable condition to serve the existing building needs if provided with continued routine maintenance. However, much of the distribution piping was not insulated, and the visible insulation was in a state of disrepair. It should be replaced throughout to provide a continuous vapor barrier along the length of the domestic water piping. If the building program is altered, it is feasible that the existing piping (with new insulation) may be reused. However, it should be noted that altering the program may require that a method of backflow prevention be provided.



Figure 131: North Building, Domestic water heater



Figure 132: North Building, Domestic water booster pump

D2010-10 Domestic Water Equipment

Description and Condition: Domestic water is pumped from the mechanical room beneath the exterior stairs to the building fixtures. The pump is a Lancaster centrifugal pump, sized for 200 gallons per minute and 325 feet of head (Figure 132). Domestic hot water is supplied to the building via a Rheem 120 gallon storage-type electric water heater.

No domestic water expansion tank was visible at the time of the site visit. Water system volume changes with temperature; expansion tanks allow the system to maintain pressure in distribution piping when the volume of water increases. Without an expansion tank, system pressure may exceed piping and fitting pressure rating limits and cause a rupture in the distribution.

Recommendations: The domestic water heater and booster pump are currently functional but are both beyond their typical operational lifespan. The pump manufacturer estimates that the pump is upwards of forty years old, though the precise install date is unknown. The domestic water heater was installed in March 2001. The likelihood of equipment failure increases with age, and both should be replaced as a result. The domestic water heater in particular is a hazard, as it is sufficiently aged that it may fail or rupture.

If it is anticipated that the building will be vacant for some time, the domestic water system should be fully drained, and the domestic water heater should be decommissioned.

North Building—D20 Plumbing: Sanitary Waste and Rainwater Drainage Piping

Condition:	**Poor**	**D2031**	**Sanitary Waste Piping**
Deficiency:	**Critical**	**D2032**	**Vent Piping and Equipment**
Equipment		**D2034**	**Sanitary Waste**
		D2041	**Pipe and Fittings**
		D2032	**Vent Piping and Equipment**

Treatment Recommendation: Continue routine maintenance of roof drainage system; install secondary drainage system; install additional foundation drainage or replace foundation drainage system. In case of full building rehabilitation, install new primary and secondary roof drains.

D2031, D2032, D2034 Sanitary Waste Piping, Vent Piping, and Sanitary Waste Equipment

Description and Condition: Little of the sanitary system was visible at the time of the site visit. Generally, the system appears to function without error. The holding cell, however, has a persistent odor. It contains a stainless-steel water closet, and the space's odor implies that this fixture and/or the space is not vented, drained, or exhausted properly.

Recommendations: Sanitary piping, vent piping, and accessories serving this space should be investigated for deficiencies and to determine the cause of the odor.

D2041, D2043 Rainwater Piping and Equipment

Description and Condition: Building roof drains collect stormwater and carry it down through the building and out through either side of the Fitness Room (Figure 133). The presence of a secondary drainage system is not evident. Secondary drainage is typically required and recommended in the event that primary roof drains become clogged or cannot accommodate rainfall.

The removal of groundwater, however, is a significant deficiency in the existing building. The basement frequently floods during periods of high ground water or heavy rainfall, presenting a variety of risks and issues for National Park Police personnel and the building itself (Figure 134).

Recommendations: Continued routine maintenance should be sufficient to keep the roof drainage system operational. However, if the building will be vacant for some time, the addition of a secondary drainage system is recommended prior to fully closing the building. If the building is redeveloped and a new roof is provided, new roof drains (primary and secondary) should be installed. The primary and secondary piping (if the latter is installed) may remain, though the sys-



Figure 133: North Building, Stormwater piping in fitness room

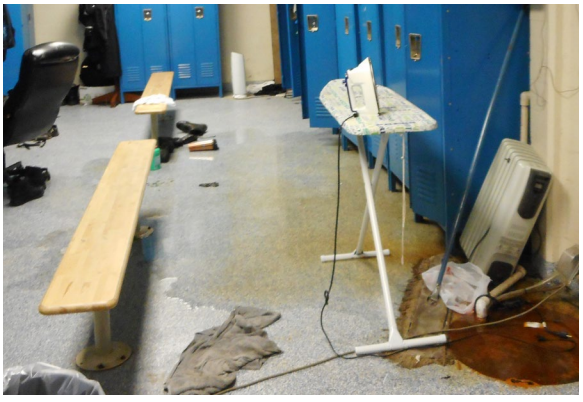


Figure 134: North Building, Standing water in basement

tems should be investigated at that time to verify they have remained in good condition.

Additional foundation drainage or an entirely new foundation drainage system is needed to mitigate the flooding issue on the basement. As with the secondary drainage system installation, if it is expected that the building will be vacant for some time, it is recommended that the foundation drainage issue be solved prior to closing the building.



Figure 135: North Building, roof drain

North Building—D30 HVAC: Heating and Cooling Generating Systems

Condition:	**Poor**	**D3020**	**Heating Generating Systems**
Deficiency:	**Critical**	**D3030**	**Cooling Generating Systems**

Treatment Recommendation: Replace supplemental space conditioning equipment.

D3020 Heating Generating Systems

Description and Condition: Two companion Nordyne heat pumps utilize R410a refrigerant in their refrigeration cycles to provide centralized heating and cooling to the building. The units were installed in December of 2010, so they are approximately halfway through their anticipated lifespan. They are currently in good condition, and routine maintenance and cleaning is likely to be sufficient for full functionality. These units are further discussed in the section below, D3030 – Cooling Generating Systems.

Test results indicate that the heat pumps each have a nominal heating capacity of 70MBH of heat at 17°F outdoor air temperature. This heating system has been supplemented by miscellaneous unitary equipment throughout the building. Multi-stage duct-mounted electric reheat coils are distributed throughout the supply ductwork. Wall-mounted unit heaters serve the restrooms, and propeller-type unit heaters serve the mechanical room and fitness area. Various offices contain small plug-in heaters supplied by the occupants. The unit heaters appear aged and are likely approaching their typical lifespan. The electric reheat coils, in contrast, appear to be in good condition and are only halfway through their anticipated lifespan.

The heat pumps and duct-mounted reheat coils are likely to remain in fair condition with continued routine maintenance, but they are apparently insufficient for the building operation. Supplemental heating equipment is in poor condition and should be replaced. The propeller unit heater in the mechanical room is of particular concern; if it fails, the domestic water may freeze and the associated uninsulated piping may burst.



Figure 136: North Building, Supplemental R-22 Air Conditioner



Figure 137: North Building, Supplemental R-22 Air Conditioner

Recommendations: An analysis should be completed to determine if the heat pumps and reheat coils are sufficiently sized to serve the new spaces without supplemental equipment. If additional equipment would be required, then it is recommended to replace the heat pumps with a single centralized system that can adequately serve the spaces. This would aid in simplifying building maintenance, operation, and controls.

In general, any new or modified mechanical equipment and ductwork should be strategically installed to maintain and maximize the historic fabric, especially walls. Exterior equipment should also be limited to minimize impact on the landscape.

If it is anticipated that the building will be vacant for some time, the mechanical heating systems should remain in use to mitigate the possibility of moisture build-up. It is recommended that prior to closing the building, a careful study be performed to determine the likely causes of possible moisture infiltration (if any).

While the building is vacant, mechanical equipment should be regularly maintained to ensure consistent operation. Heating setpoints may be set lower but should not drop below 50°F in the winter. Prior to closing the building, the ventilation system should be tested to ensure it is fully operational. The Nordyne heat pumps (indoor and outdoor components) should be extensively cleaned; coils should be rinsed thoroughly, filters should be replaced, refrigerant charge should be checked, bearings should be lubricated, and fans should be rebalanced. Supplemental heating equipment that is not operational should be replaced. The functional unitary heaters throughout the building may remain, but each should be thoroughly cleaned of lint and dust.

Routine maintenance for all equipment should take place as recommended by the manufacturer.

D3030 Cooling Generating Systems

Description and Condition: As noted in the previous section, two companion Nordyne heat pumps utilize R410a refrigerant in their refrigeration cycles to provide centralized heating and cooling to the building. They appear to be single-zone controlled, and operation is determined by a programmable thermostat in the west office wing. The units and thermostat are in good condition and are approximately halfway through their anticipated lifespan. Maintenance and cleaning will likely sustain their condition.

Test results indicate that the heat pumps each have a net cooling capacity of 116MBH at 95°F outdoor air temperature. This appears to be insufficient for the building, as numerous spaces are provided with supplemental through-wall or Sanyo split system air conditioners (Figure 138). The window air conditioning units differ in manufacturer and in age, though nearly all appear



Figure 138: North Building, Supplemental Sanyo split system air conditioner



Figure 139: North Building, Supplemental window air conditioning units

worn and in varying states of disrepair (Figure 139). Some are no longer functional but are still in place. The Sanyo split system indoor units are wall- or ceiling-mounted, and the outdoor units are mounted on grade south of the building (Figure 136 and Figure 137). Though these Sanyo units vary in capacity, each appear to utilize R-22 refrigerant. Per the 1987 Montreal Protocol, R-22 has been found to contribute to ozone depletion and production thereof is scheduled to be completely phased out by 2020.

Recommendations: Components of these systems must be disposed of per the requirements of Section 608 of the Clean Air Act and the EPA's Safe Disposal Requirements, and any remaining R-22 should be sent to an EPA-certified refrigerant reclaimer in order to be reclaimed or destroyed.

With continued routine maintenance, the heat pumps are likely to remain in fair condition, but they are not adequately sized to serve the existing building. An analysis should be completed to determine if the heat pumps are sufficiently sized to serve the new spaces without supplemental equipment. If additional equipment would be required, then it is recommended to replace the heat pumps with a single centralized system that can adequately serve the spaces. This would aid in simplifying building maintenance, operation, and controls.

In general, any new or modified mechanical equipment and ductwork should be strategically installed to maintain and maximize the historic fabric, especially walls. Exterior equipment should also be limited to minimize impact on the landscape.

If it is anticipated that the building will be vacant for some time, the mechanical cooling systems should remain in use to mitigate the possibility of moisture build-up. It is recommended that prior to closing the building, a careful study be performed to determine the likely causes of possible moisture infiltration (if any).

While the building is vacant, mechanical equipment should be regularly maintained to ensure consistent operation. Cooling setpoints may be set higher but should not exceed 80°F in the summer. Prior to closing the building, the ventilation system should be tested to ensure it is fully operational. The Nordyne heat pumps (indoor and outdoor components) should be extensively cleaned as indicated in the previous section D3020 Heating Generation Systems. The ductless split systems and window units may remain, but all should also be thoroughly cleaned. Filters should be replaced if necessary, the units' coils, fans, and drain piping should be cleaned of all dust, rust, and debris.

Routine maintenance for all equipment should take place as recommended by the manufacturer.

North Building—D30 HVAC: Distribution Systems

Condition:	**Good**	**D3041**	**Distribution Systems**
Deficiency:	**Minor**	**D3042**	**Exhaust Ventilation Systems**

Treatment Recommendation: Remove extended damper adjusters, replace diffusers if ceiling is replaced or removed, remove and replace roof-mounted exhaust fan.

D3041 Air Distribution Systems

Description and Condition: Supply and return air ductwork is generally routed in the building's ceiling plenum, though some is exposed in the basement's locker room spaces. The ductwork appeared to be in good condition, as was its insulation. Diffusers were in fair condition; they are functional, but many could benefit from additional cleaning. Some diffusers have been installed with extended damper adjuster rods (Figure 140), which are largely unused by the occupants and have therefore become obstructions.



Figure 140: North Building, Diffuser with damper adjuster rod

Ventilation air is provided via louvers in the mechanical room wall. Insulated ductwork directs the ventilation air to the return portion of the air handling unit. The building is generally odor-free and appears to be properly pressurized. As such, it is anticipated that sufficient ventilation air is currently provided to meet space requirements. The ventilation air louver and associated duct routing are in good condition, and typical maintenance should be sufficient for the system to function properly.

Recommendations: For spaces in which the ceiling is replaced or removed, the diffusers should be replaced as well. It is recommended that the extended damper adjusters be removed regardless of program changes.

If it is anticipated that the building will be vacant for some time, the air distribution system should be extensively cleaned prior to closing the building. The duct system (including diffusers) should be inspected for leaks and then vacuumed and sanitized.

D3042 Exhaust Ventilation Distribution

Description and Condition: The building's exhaust needs appear to be served by a single roof-mounted, 1/4-HP, downblast, centrifugal fan. No other mechanical means of exhaust were visible. The fan is operational, but it appears aged. Visible exhaust ductwork appeared to be in good condition, and the locker rooms and restroom areas were generally odor-free, indicating that sufficient airflow is exhausted from these spaces. The locker rooms are also equipped with propeller fans at the windows, but they were not operational at the time of the site visit. The holding cell, however, requires additional exhaust air to remove a perpetual odor. The exhaust fan is in fair condition (Figure 141), but it is anticipated that it is at least 15 years old. Roof-mounted centrifugal fans, with routine maintenance, are expected to last 20-25 years.



Figure 141: North Building, Exhaust fan on roof

Recommendations: As the fan is in passable but not pristine condition and it is nearing the end of its typical lifespan, it does not appear worthwhile to retain the fan for use in another building or re-programmed space.

If the building is expected to be vacant for some time, it is recommended that the fan be tested to ensure it is fully operational. Once its functionality is confirmed, it (and the remainder of the exhaust system components) should be thoroughly cleaned.

North Building—D40 Fire Protection

Condition:	**N/A**	**D4010**	**Sprinklers**
Deficiency:	**N/A**	**D4090**	**Wet Chemical Suppression**

Treatment Recommendation: Provide a fire protection system for the renovated building if required by the Authority Having Jurisdiction.

D40 Fire Protection Systems

Description and Condition: The North Building does not currently have an automatic sprinkler and fire protection system.

Recommendations: If required by the Authority Having Jurisdiction, provide a fire protection system for the renovated or reprogrammed North Building. The most likely location for a new fire protection system service entrance and backflow prevention assembly is the mechanical room beneath the exterior stairs.

North Building—D50 Electrical: Electrical Service and Distribution

Condition:	**Poor**	**D5010**	**Electrical Service & Distribution**
Deficiency:	**Critical**	**D5091**	**Grounding Systems**

Treatment Recommendation: Replace electrical service equipment an obsolete equipment outside the main electrical room.



Figure 142: North Building, Main electrical room



Figure 143: North Building, Main electrical room panel with missing cover exposing people to live busbars

D5010 Electrical Service & Distribution

Description and Condition: The main electrical room is located in the basement and has been flooded repeatedly (Figure 142). Exposed cables not in conduit lie on the floor. The main panels are obsolete. Parts of the covers are missing, exposing workers to live busbars (Figure 143). Working clearances are inadequate and many enclosures are rusting. None of the equipment is labeled for arc flash hazard as required by OSHA.

Power panels outside the main electrical room are in better condition than the main panels. Nonetheless, the panels are, for the most part, obsolete. Some panels are missing filler plates, exposing energized busbars. Panels are scattered throughout the building on an ad-hoc basis. No panels have OSHA-required arc flash hazard labels. Many panels are located in closets with inadequate working clearances, in violation of the National Electrical Code (Figure 144).

Recommendations: When the building is repurposed, the current main electrical room should be abandoned, as it is prone to flooding. A new electrical room located above grade will better serve the needs of the facility. All panels are recommended for replacement. One or two code-compliant dedicated electrical rooms will ease future maintenance.

If the building is expected to be vacant for some time, the existing electrical service should be de-energized to minimize hazards.



Figure 144: North Building, Electrical panel located in the broom closet

A new, simple electrical service should be installed in the first floor, supplying any interim HVAC systems and the minimum number of lighting circuits necessary.

D5091 Grounding Systems

Description and Condition: The team was unable to observe the full grounding electrode system. When the main service equipment is replaced, the grounding system will have to be redone as well. Therefore, the facility grounding system received the same rating as the electrical service.

If the building is expected to be vacant for some time, the interim electrical service should be grounded as if it were permanent-bonded to existing water piping and earthed via ground rods.

North Building—D50 Electrical: Lighting and Branch Wiring

Condition:	**Fair**	**D5021**	**Branch Wiring Devices**
Deficiency:	**Minor**	**D5022**	**Lighting Equipment**

Treatment Recommendation: Modernize systems if building is repurposed. Replace lighting and controls with LED luminaires, motion detectors and daylighting harvesting systems.

D5021 Branch Wiring Devices

Description and Condition: Receptacles and branch circuits for the most part comply with the National Electrical Code. Some deficiencies, e.g. conduits separated from junction boxes, should be addressed immediately (Figure 145). Overall, however, the circuits are operating safely. Some of the receptacles are at the end of their service life. Typical maintenance will be sufficient to keep these systems operational. However, the quantity of receptacles is insufficient to meet the needs of the occupants, and there were many "outlet extender" devices and plug strips present. The exterior receptacles have spring-held flip covers, which no longer meet code as the receptacles cannot be safely used when it is raining. These covers can be replaced with extra-duty "in-use" covers.

D5022 Lighting Equipment

Description and Condition: The existing fluorescent lighting and manual controls are operational but many are obsolete (Figure 146). As time passes, replacement parts will become more difficult to obtain.

Recommendations: While at the end of service life, and not up to current standards, the building's branch circuits, receptacles, lighting, and controls are adequate to current programming. Any repurposing of the building should include modernization of these systems as obtaining parts to keep them functioning in their current state will become more and more difficult. If the facility continues in its current use, replacement of lighting and controls with LED luminaires, motion detectors, and daylight harvesting systems to reduce energy costs is recommended.



Figure 145: North Building, Separating conduit



Figure 146: North Building, Obsolete fluorescent luminaire

North Building—D60 Communications

Condition:	**Good**	**D5033**	**Telephone Systems**
Deficiency:	**Minor**	**D5039**	**Local Area Networks**

Treatment Recommendation: Replace servers, switches, and other equipment if the building is repurposed.

D5033 and D5039 Telephone Systems and Local Area Networks

Description and Condition: As the headquarters for the United States Park Police, National Capital Region, the building's information technology (IT) infrastructure is well-maintained, although the IT closet does not meet Telecommunications Industry Association (TIA) standards (Figure 147). In its current programming, the building is well-served by the IT infrastructure. A Verizon communication service enters the building through the basement gymnasium, then goes west through the basement before terminating in a main distribution frame (MDF) room, located on the first floor near the west end. The MDF room also serves as the central LAN room. It is an unfinished closet without a ceiling and appears to be a repurposed space, not originally designed to hold communication equipment. Telephone and LAN cables are running loose above the ceilings to outlets distributed throughout the building. Some of the cables are concealed in walls, other cable runs are exposed. Currently, the telephone and LAN systems are in good working order and need only ordinary maintenance; however, any major renovation of the building should include an all-new communications infrastructure from the service entrance to the outlet, for ease of future maintenance.



Figure 147: North Building, IT closet

Recommendations: Should the building be repurposed, servers, switches, and other equipment appropriate to the new programming should replace the current equipment.

North Building—D70 Electrical - Security

Condition:	**Fair**	**D5037**	**Fire Alarm Systems**
Deficiency:	**Minor**	**D5038**	**Security and Detection Systems**

Treatment Recommendation: Service fire alarm and security system clocks. Replace systems if building is repurposed.

D5037 Fire Alarm Systems

Description and Condition: A Silent Knight fire alarm system (manufactured by Honeywell) provides fire detection and alarm for the building (Figure 148). Smoke detectors, including duct-mounted ones, are scattered throughout the building in relevant locations. Strobes and horn strobes provide the alarm function. The system clock is incorrect, meaning the automated event log is incorrect; this issue can be addressed during routine maintenance. Should the building's programming change, the system can be repurposed or replaced as appropriate.



Figure 148: North Building, Fire alarm panel

D5038 Security and Detection Systems

Description and Condition: A MAXSYS security panel (manufactured by Digital Security Controls, a brand of Tyco Security Products) coordinates card readers, electric locks, and request-to-exit sensors (Figure 149). The system's keypad is located at the main entrance. The system clock displays an incorrect time, meaning that the automated event log will be incorrect (Figure 150). Additional access control protects a



Figure 149: North Building, Magnetic locks at main entrance



Figure 150: North Building, Security panel



Figure 151: North Building, Surveillance control room monitors



Figure 152: North Building, Ceiling in lock-up facility with camera in corner

highly-secure holding facility for people arrested in the park. Should the building be repurposed, then the level of access control and intrusion detection should be modified to one appropriate to the new programming.

Security cameras monitor the perimeter of the building. A control room for the Park Police displays and records video from these cameras as well as from cameras throughout the National Capital Region (Figure 151). The Park Police operate a two-cell holding facility; interior cameras keep occupants under continual surveillance (Figure 152). If the building is repurposed it is unlikely that these systems will still be needed.

Recommendations: In its current use, the building is continuously occupied by police. Therefore, the effectiveness of the alarm systems is of less concern than it would be for other programming. The times indicated on the fire alarm and security system clocks is wrong, indicating the need for service.

North Building—G20 Site Improvements

Condition:	**Fair**	**G20**	**Site Improvements**
Deficiency:	**Minor**		

Treatment Recommendation: Significant site work and landscaping required for reuse of the building. Coordinate with the Cultural Landscape Report and implement the landscaping and other site recommendations from that report.

G20 Site Improvements

Description and Condition: The North Building is accessible via two entrance driveways extending west from Ohio Drive (Figure 153).

A southern public driveway extending west into the site from Ohio Drive bifurcates a large public parking area (Figure 153). From the northwest corner of the public parking area, a narrow, asphalt-paved pedestrian alley leads to the stair at the south entrance (Figure 154).

The most direct access to the building is via a private, gated driveway northeast of the building. This north driveway leads to a small double-loaded asphalt parking area running parallel with the north elevation of the North Building. The north entrance to the building can be accessed from this parking lot via a concrete ramp (Figure 156) or a series of steps (Figure 157). The concrete ramp is in poor condition. At its center point, a perpendicular driveway connects this north parking lot to the main public parking area to the south and is bordered by a gate (Figure 158).



Figure 153: Oblique aerial view looking west showing North Building outlined in red and surrounding site. (DC OCTO 2015)



Figure 154: North Building, view looking west toward the south entrance



Figure 155: North Building, view looking west, note trees on the south side of the building

The landscaping includes low height bushes, as well as mature trees in the vicinity of the building (Figure 155 and Figure 158). The area adjacent to the north facade is sloped toward the sidewalk and covered with grass. No furnishings were noted on site.

The pavement is in fair condition and the existing limited vegetation is well maintained.

Recommendations: A complete site rehabilitation should be included as part of the project to rehabilitate the building for a new use. The non-historic ramps to the basement should be removed and the area infilled to minimize the potential for flooding. The site rehabilitation project should include the site recommendations in the Cultural Landscape Report, including any mitigation measures for site flooding.



Figure 156: North Building, view looking southwest showing accessible ramp



Figure 157: North Building, view looking east along the north side of the building



Figure 158: North Building, view looking east, not large tree and narrow alley on the west side of the building

North Building— G2040 Site Development - Retaining Walls

Condition:	**Poor**	**G2042 Retaining Walls**
Deficiency:	**Critical**	

Treatment Recommendation: Remove site walls and ramps infill site.

G2042 Retaining Walls

Description and Conditions: Four concrete retaining walls have been added to the site. Two walls frame the basement entrance on the east elevation while another is located at the ramp on the east side of the portico. The fourth wall is located on the south side, adjacent to the ramp allowing access into the basement. The site walls are in very poor condition, including significant spalling, biological growth, efflorescence, and loss of both cementitious binder and the concrete aggregate (Figure 159 and Figure 160).

Recommendations: Site drainage should be updated to avoid additional flooding, especially around previously-excavated areas bounded by site walls.

NPS has expressed a preference to remove the non-historic retaining walls and infill the site, to minimize potential for flooding. If the configuration needs to be retained for future occupancy, the site walls with biological growth and efflorescence should be cleaned. Where the site walls have significantly deteriorated (such as the ramp walls along the east elevation), the walls should be replaced.



Figure 159: North Building, Site walls are in poor condition



Figure 160: North Building, Site walls exhibit efflorescence, cracks, and spalling

North Building— G30 Site Mechanical Utilities - Fuel Distribution

Condition:	**Fair**	**G3060**	**Fuel Distribution**
Deficiency:	**Minor**		

Treatment Recommendation: Replace system if building is repurposed.

G3060 Fuel Distribution

Description and Condition: A Veeder-Root TLS-350R control panel monitors the underground fuel tanks used by the fleet of Park Police vehicles (Figure 161). At each of our visits, the panel displayed a fuel alarm. Either the panel is displaying a false alarm or the alarm is routinely ignored. If the facility continues in its present use, or if new programming continues to require a fuel station, then the panel should be put into good operating condition.

Recommendations: The fuel oil monitoring system indicated a fault that had not been addressed, meaning that either the system is indicating a false condition or that it is being ignored. Should the facility be repurposed, it will be simpler to replace these systems with ones appropriate to the new use than to modify the existing systems.



Figure 161: North Building, Veeder-Root Alarm

North Building—G40 Electric Site Improvements - Site Lighting

Condition:	**Fair**	**G4050**	**Site Lighting**
Deficiency:	**Minor**		

Treatment Recommendation: Carry out routine maintenance, standardize light pole designs.

G4050 Site Lighting

Description and Condition: A miscellaneous assortment of building-mounted floodlights and pole-mounted Washington globe luminaires illuminate the area around the building. While the Washington globes (also known as acorn globes) have a consistent appearance (Figure 162), the types of shaft supporting them vary widely from the typical Washington shaft to simple tubes of different materials (Figure 162 through Figure 164). The luminaires use metal-halide technology, which is obsolete.

Recommendations: Routine maintenance will keep the site lighting operational. Using the standard Washington Upright poles with Washington globe luminaire(s) will allow NPS to standardize the site lighting incrementally as resources permit.

If the building is expected to be vacant for some time, the existing site lighting should be connected to the interim electrical service.



Figure 162: North Building, Washington globe atop Washington casing and rigid steel conduit shaft



Figure 163: North Building, Washington Upright Pole with Washington globe luminaire



Figure 164: North Building, Washington globe atop conduit shaft

North Building—G40 Electrical - Site Emergency Power Generation

Condition:	**Good**	**G4091**	**Site Emergency Power Generation**
Deficiency:	**Minor**		

Treatment Recommendation: Carry out routine cleaning and maintenance to maintain the systems' current condition. Evaluate systems if building program changes.

G4091 Site Emergency Power Generation

Description and Condition: A Kohler diesel generator provides emergency and standby power to the building. Fidelity Power Systems has an ongoing maintenance contract to service the generator. The generator's 400-ampere, 120/208-volt main circuit breaker provides ample power for the building's current use and is probably oversized for potential alternative uses (Figure 165).

A Mitsubishi 2033C series uninterruptible power supply (UPS) is located in the basement gym, below the Park Police control room on the first floor (Figure 166). The UPS is elevated, protecting it from flooding. In the building's current function, the UPS requires only routine service. Depending on future use of the building, the UPS could be repurposed or eliminated; if repurposed, it should be in a utility space and not a gym.

A Kohler automatic transfer switch located on the side of the building facing the generator controls the generator (Figure 167). Should utility power fail, the transfer switch will start the generator, then transfer the emergency panel from the utility source to the generator. When utility power is restored, the transfer switch connects the emergency panel back to the utility source, and then shuts down the generator.

Recommendations: The facility power generation systems are in good condition for the existing building needs. Routine cleaning and maintenance should be sufficient to maintain the systems' current condition. However, if the building's programming changes, the appropriateness of these systems to the building's new purpose should be evaluated.



Figure 165: North Building, generator





Figure 166: [Left] North Building, Uninterruptible power supply (UPS)

Figure 167: [Right] North Building, Kohler automatic transfer switch

South Building—Substructure: A10 Foundations and A20 Basement Construction

Condition:	**Poor**	**A1010**	**Standard Foundations**
Deficiency:	**Critical**	**A2020**	**Basement Walls**

Treatment Recommendation: Monitor foundation for settlement; engage geotechnical engineer to determine if foundation reinforcement or soil improvements are required; stabilize and repair basement and hyphen walls; repair cracks in east basement wall of hyphen.

A1010 Standard Foundations

Like the North Building, the foundations of the South Building are deep concrete grade beams and two-way slabs on grade spanning between grade beams. Two areas surrounding the South Building have been excavated; a wide ramp along the east side of the hyphen and a narrow path leading to a door at the north elevation. The foundations are assumed to be in fair condition, except for the northeast corner of the hyphen, which is in poor condition and a critical concern. Although the foundations were not visible, cracking along the walls of the hyphen suggests that the foundation has settled in this area, exacerbated by previous excavation of the adjacent area.

The settlement has caused significant cracking above the foundation wall and at the hyphen's connection to the main block. The corner settlement and severe deterioration of the hyphen occurs only at the South Building, suggesting that the settlement is related to local soil conditions as opposed to a global design deficiency.



Figure 168: South Building, South Building, South end of east foundation wall at hyphen

The exact cause of the moisture issues in the building basement is unknown, though it is likely a combination of flooding and a high water table. The basements of both buildings have flooded recently, but no active moisture inundation was observed during the October site visits. In general, the basement level slabs are in fair condition and do not show signs of damage from hydrostatic pressure.

Recommendations: The cracking observed at the hyphen and north elevation of the South Building could be attributed to localized settlement related to site erosion, but the exact cause is unknown. The installation of an adequate site drainage system will help to mitigate future moisture inundation issues due to groundwater and flooding. Future building projects should include a geotechnical study to determine the water table elevations at both buildings. This corner of the foundation should be monitored for further settlement by the installation of crack monitors, and the basement and hyphen walls should be stabilized and repaired. See *A2010 Basement Walls*, *B2010-05 Exterior Walls – Hyphen, North*, *B2010-06 Exterior Walls – Hyphen East* for repair recommendations.

Like the North Building, the drainage system should also be updated to protect the building from flooding and damage to the foundations.

A2020 Basement Walls

The basement walls of the South Building are reinforced concrete, typically 12 inches in thickness, and have been partially exposed by prior excavation. The most significant cracking at both field houses was found at the hyphen of the South Building along the excavated basement-access ramp (Figure 168 and Figure 169). The basement wall displays significant cracking, with cracks larger than 1 inch in width. The current coating has also delaminated from the concrete surface near the northwest corner of the hyphen. The estimated length of the cracking is approximately 40 linear feet along the foundation wall, all of which will need to be repaired using a compatible cementitious injection grout and/or the installation of pin anchors to stitch and stabilize the wall. See *B2010-06 Exterior Walls – Hyphen East* for repairs of the wall above.



Figure 169: South Building, North end of east foundation wall at hyphen

At other elevations, the basement walls are hidden below grade. As observed from the interior of the building, these walls are generally in fair condition with some areas of staining and water damage such as the northwest corner of the hyphen.

Recommendations: Repair basement walls using pin anchors and a compatible cementitious injection grout to stitch and stabilize the wall.

South Building—B10 Superstructure: Floor Construction

Condition:	**Fair/Poor**	**B1010-01**	**Floor Construction - First Floor**
Deficiency:	**Minor/Serious**		

Treatment Recommendation: Patch spalls in concrete slab; repair cracking using a compatible cementitious injection grout; infill any unused mechanical penetrations.

B1010-01 First Floor Construction

Like the North Building, the first floor of the South Building comprises two-way concrete slabs framing to concrete beams, columns, and basement walls. The first-floor structure has not been significantly modified, except for a centrally-located stair opening. In the South Building, a large portion of the floor framing was visible from the basement but has been painted black, obscuring any spalling or hairline cracking. Areas that have been painted black appear to be in good condition, with some areas of failing paint. The first-floor structure was also visible in the storage room in the basement of the hyphen, below the mechanical room. A large mechanical penetration has been cut through the slab in the northernmost bay, and the surrounding structure is in poor condition (Figure 170). Like the North Building, the first floor slab is also spalling in the central bay of the hyphen, exacerbated by mechanical penetrations and post-installed anchors for hangers (Figure 171).



Figure 170: South Building, Mechanical penetration in mechanical room floor



Figure 171: South Building, Slab spall in central bay of hyphen

Recommendations: Spalled areas and cracks in beams, specifically within the hyphen basement storage room, should be repaired with appropriate concrete patching techniques. Where necessary, the patching should take into account the loss of slab strength due to existing mechanical penetrations and corroded reinforcement. For cost estimating purposes, it can be assumed that 30 square feet of first floor slab and 20 linear feet of beam length will require repair.

If future building projects require a change in occupancy of the field houses, some portions of the first-floor slab would require reinforcement for loading over 40-psf. Additional loadings can be found in Table 3 on page . The extent of required reinforcement should be coordinated with NPS's plans for the buildings.

South Building—B10 and B30: Roof Construction and Covering

Condition:	**Poor**	**B1020**	**Roof Construction**
Deficiency:	**Serious**	**B3010**	**Roof Coverings**

Treatment Recommendation: Investigate roof structure through probes or partial removal of insulation; replace roof covering; replace drains and flashing; repair cracked bricks and repoint deteriorated masonry joints; and install new chimney cap.

B1020 Roof Construction

Description and Conditions: Most of the roof framing was not visible during the October field survey, but a limited view of beams within the South Building indicates that the roof configuration likely matches the configuration shown on original drawings. It is unknown if the wood framing has been replaced. A limited view of the roof beams in the South Building indicates that the steel is in fair condition, without evidence of corrosion or significant deflection. Some horizontal cracking was visible at the concrete beams of the roof level along the perimeter of the building (Figure 172).

Like the North Building, drainage issues are apparent from above. See *B3010 – Roof Covering* for more information on the asphalt membrane. Due to the condition of the roof membrane, it is possible that the roof structure has deteriorated in some areas because of water infiltration. In future investigation and construction projects, the roof structure should be evaluated for water damage and patched accordingly.



Figure 172: South Building, Cracking at perimeter roof beams

A preliminary structural analysis shows that most of the original roof structure should not require reinforcement for minimum snow and roof live loads, as determined by the building code. The purlin beam supporting the roof rafters in the main portion of the building may require some reinforcement for minimum gravity loads. Before reinforcement details are progressed, the existing configuration of the roof structure should be confirmed.

B3010 Roof Coverings

Description and Conditions: The South Building has a modified bitumen rolled asphalt membrane roof with a low sloped central section and a flat area over the main portico (Figure 173). The roof features a low parapet with a copper cap and stamped copper thruwall flashing. The roof has many drains located mostly along the perimeter. The storm system runs through internal drains. There are many penetrations from the plumbing and mechanical systems, as well as an original brick chimney. The current roof has no access from the interior of the building but it appears that an earlier hatch from the space, now housing mechanical equipment, might have been enclosed (Figure 174).

The roof is in fair to poor condition. The roofing material appears to be at the end of its life, with many crazed areas of bituminous material; some areas are patched (Figure 175). In many areas near the drains there is significant accretion of soil, leaves, and debris and staining of the membrane, all signs that the water does not drain well (Figure 176). Some of the existing flashing does not comply with current installation guidelines.



Figure 173: South Building, View of roof looking



Figure 174: South Building, Looking Southeast at potential former hatch capped when new vent was installed



Figure 175: South Building, Roof looking east



Figure 176: South Building, Roof looking southeast

The brick and joints of the original chimney are in good condition. One brick is cracked and a few joints debonded (Figure 177). The chimney does not have a cap, nor is the masonry parged. The top row of bricks has eroded and exhibits some biological growth.

Recommendations: The South Building's membrane roof should be replaced. The copper flashing and the drains should also be replaced. The masonry chimney should be made weather tight: for cost estimating purposes, approximately 25 linear feet of joints should be repointed and one linear foot of cracks at the bricks repaired. A new chimney cap should be installed. The copper cap at the parapet is not original, and is in good condition, but it will need to be removed in the process of roof replacement. New drains should be installed in conjunction with the roof replacement and any unnecessary penetrations should be capped below the roof.



Figure 177: South Building, Chimney looking South

South Building—B20 Exterior Enclosure

Condition:	**Poor**	**B2010**	**Exterior Walls**
Deficiency:	**Critical**	**B2012**	**Parapets**
		B2015	**Handrails (Balusters)**

Treatment Recommendation: Repair stucco and repair and replace precast pieces depending on the level of condition and deficiency; closely monitor cracking at hyphen; repoint all joints between the precast concrete features; and infill unused mechanical penetrations.

B2010 Exterior Walls and B2012 Parapets

Description: The first floor exterior walls and the roof parapet walls are constructed with stucco applied on terra cotta walls. Other exterior features, such as the porch columns and capitals, balusters, window sills, door moldings, and the cornices are precast concrete. The basement walls are finished with parging on concrete walls.

The exterior walls are accented by engaged pilasters at each bay and quoins at the building's corners (Figure 178). Based on the steel rebar observed during the survey, it seems that areas with thicker stucco were reinforced. The walls do not feature control or expansion joints.

Conditions: The concrete aggregate finish is in fair condition, exhibiting many cracks and spalls. Spalling occurs most often at areas where the stucco is thickest, and at precast elements, e.g. the decorative profile at capitals and above the quoining shown (Figure 179). The spalling at the precast elements is discussed later in this section.

The stucco finish exhibits cracking on all the facades. Cracks typically range from hairline (less than 1/32") to 1/4" in width. At the northeast corner of the hyphen, larger 1" cracks were observed. Several large cracks were observed at the corners of the building or near wall openings and are indicative of movement or settlement (Figure 180 and Figure 182). Some of the previous crack repairs have failed (Figure 181). Other cracks are much smaller, and run both vertically and horizontally caused by minor structural movement and temperature and shrinkage effects. Cracking can also be attributed to corrosion of embedded steel reinforcement in precast elements and localized stress concentrations caused by poor patch installation or modification of openings. Cracking is also exacerbated by the lack of expansion joints throughout, seen at the concentration of cracks



Figure 178: South Building, East elevation



Figure 179: South Building, Detail at southeast corner showing large spalls at stucco quoins and precast horizontal profile above quoin



Figure 180: South Building, Detail at southeast corner—note large crack in stucco finish



Figure 181: South Building, Detail at south elevation showing failed crack repair



Figure 182: South Building, Detail at window opening, south elevation



Figure 183: South Building, Detail showing long horizontal crack along the east elevation



Figure 184: South Building, Detail showing long vertical crack along the west elevation



Figure 185: South Building, Detail showing long vertical crack between an engaged pilaster and the adjacent wall along the south elevation



Figure 186: South Building, Detail showing hairline cracks below window on south elevation



Figure 187: South Building, Detail showing hairline cracks at engaged pilaster at intersection between main section of building and South hyphen

near quoining and corners of the building (Figure 183 and Figure 184). There are many cracks at the intersection between the engaged pilasters and the wall, including at the engaged pilasters along the south elevations that are protected by the portico (Figure 185). The walls also feature many hairline cracks (less than 1/16 of an inch); most of the hairline cracks at the stucco occur along the south elevation (Figure 186). Many hairline cracks were observed at the engaged pilasters at the corner between the main section of the building and the South hyphen (Figure 187).

The cornice is constructed with 4 1/2-foot long sections of precast concrete (also described as units) with mortar joints. The cornice projects approximately 1 foot from the wall and is in poor to fair condition. Many of the precast units are severely eroded and chipped leading to a loss of profile (Figure 188). Others exhibit significant spalls due to steel corrosion, mostly at the lower part of the unit (Figure 189). The skyward-facing part of the cornice has experienced erosion because the flat surface does not shed water, which then sits and is absorbed deeper into the unit. Cracks and spalls are also found at the units below the cornice. In some cases, previous repairs are failing (Figure 190). Many of the joints between the cornice units are entirely open (Figure 180 and Figure 183). In the southwest corner, the building movement has resulted in dislocation of the cornice as well as the precast unit from the course below (Figure 191); temporary repairs with a bituminous material have been implemented to prevent additional water from entering the structure. Large sections of the cornice exhibit significant biological growth (Figure 190 and Figure 191).

The precast units at the base of the first floor are generally in fair to good condition, with a few cracks, spalls, and incipient spalls, particularly at the top of the units (Figure 192). There is cracking between the precast units and the stucco finish above (Figure 193).



Figure 188: South Building, Detail of erosion at cornice



Figure 191: South Building, Detail of dislocation at the southwest corner, cracks at the parapet and spalls at the unit below the cornice



Figure 189: South Building, Detail spalling at the cornice in the hyphen area—note open joint at the cornice and the unit below



Figure 192: South Building, Detail of spalling and incipient spalling at the base of first floor, south elevation



Figure 190: South Building, Detail of failed repairs at the precast unit below the cornice, east elevation—note significant biological growth at the cornice



Figure 193: South Building, Detail of spalling and cracking between the precast base of first floor and the stucco finish above



Figure 194: South Building, Detail of spalling and cracking at hyphen column



Figure 195: South Building, Detail at the base of column showing failed joints



Figure 196: South Building, Detail of plant growing at hyphen balustrade joints—note wetting pattern below balustrade



Figure 197: South Building, Detail of severely spalled window sill, south elevation



Figure 198: South Building, Detail at basement of hyphen showing severely cracked window sill and cracked and detached stucco



Figure 199: South Building, Detail at west elevation, showing unsympathetic scarred concrete infill and severely spalled door molding

The columns at the main portico as well as the hyphen are in fair to good condition, exhibiting small spalls and erosion (Figure 194). Some of the bases exhibit spalling (Figure 195); some have been repaired and the repairs are failing or are not appropriate because of color or texture. Various metal inserts are present on the shafts of the columns (Figure 195). The balustrade at the east portico is in good condition, exhibiting a few cracks and at the base of the balusters. The joints between the balusters and the floor have failed and several plants have taken root in the joints (Figure 196).

Several of the original precast concrete window sills at the first floor are completely disintegrated, particularly on the South side of the building (Figure 197). The basement window sills have a smooth texture; one of them is in very poor condition (Figure 198). On the south side, the window sills are not original and are in fair condition.

The top section of the original door molding on the west elevation is in poor condition, with a very large spall (Figure 199); the remainder of the molding is in good condition. Some of the joints between the cast pieces that form the surround are open. A portion of the opening has been infilled with unsympathetic scarred concrete.

The parging at the basement walls of the hyphen is in very poor condition, with significant cracking and detachment from the wall (Figure 198).

Recommendations: Cracks at the hyphen of the South Building should be monitored to understand if the large cracks are actively widening. Given the appearance of staining and presence of previous repairs, the cracking does not appear to be new. However, adjacent active construction and recent de-watering efforts could cause additional settlement and worsen existing cracking. Crack monitors should be installed at the cracks over 1/2" in width. Large cracks and spalling of the exterior concrete stucco walls should be repaired with a compatible cementitious injection grout; the spalls at the precast concrete features should be patched. Some of the cracked/spalled precast concrete sections will require pinning in place. If NPS does not plan to restore the exterior walls to an earlier appearance, only localized repairs should be required to remedy cracks and spalls. For cost estimating purposes it can be assumed that 125 square feet will require patching, with most of the patches smaller than 1 square foot, and 250 linear feet of cracking will require repair. Provisions should also be made for 10 pin anchors for stabilizing the existing structure, including the several sections of the cornice. All the joints between the precast elements of the walls should be repointed. Lead weather caps set in sealant should be installed at the skyward facing joints at the cornice.

The unsympathetic scarred concrete infill of a portion of the door opening on the west elevation (Figure 199), the infill of one original window on the same elevation, as well as the infill at the openings at the breezeway should be removed and replicas of the original window and door should be installed to fill the openings.

If NPS would like to restore previous inappropriate patching or restore historic windows, the walls will require significant additional re-patching and repair. Additionally, in case of a full exterior restoration, features such as the profile over the door at the west elevation will need to be recast and installed with anchors. Given the significance of the exterior walls, no additional cutting of openings should be undertaken.

Any repair or restoration of the distinctive exposed aggregate concrete will require the expertise of a qualified architectural conservator. Implementing the repairs will require a highly skilled contractor with experience in undertaking such sensitive concrete repairs. Patching of stucco and precast concrete will require careful visual matching of mortar color, aggregate color,

and aggregate size. It appears the aggregate is the same Potomac River gravel used at Meridian Hill Park. The Potomac River aggregate is no longer available, aggregate of similar appearance will need to be sourced from elsewhere. Successful replication of the historic concrete and stucco finish will require testing of the existing materials, development of multiple concrete mixtures with various proportions, and multiple mockups to determine the repair method that will result in the desired outcome. The repair methods should be selected to minimize the removal of the original material while providing a sound substrate for durable repairs, following a similar strategy NPS pursued when repairing the Earley concrete at Meridian Hill Park.

Areas with severe soiling and severe biological growth should be cleaned. In addition, a general cleaning of all facades is recommended in order to achieve a uniform look after all repairs are installed. Testing trials should be undertaken to select the most appropriate cleaning methods for each of the conditions to be removed that will not introduce salts into the concrete and lead to additional damage.

The deteriorated parging applied at the basement level should be repaired or replaced with matching material. For cost estimating purposes, 20 sf should be included for replacement of the concrete stucco and 50 sf should be included for reattachment to the substrate. An additional 30 sf of crack repairs are necessary at the north wall of the stairs leading to the hyphen. High-permeability coating systems may be appropriate and acceptable at the parging.

B2015 Handrails

Description and Conditions: The railing at the three bays of the portico of the hyphen consists of a precast railing supported on precast balusters. The horizontal railings are in good condition, with minor spalls (Figure 200); the joints between adjacent sections of the railing and between the



Figure 200: South Building, Detail of railing at north portico, note spalling at railing and failed sealant at joint



Figure 201: South Building, Detail of non-compliant metal railing at steps to north portico

railing and the columns have sealant; many of the sealant joints have failed. The balusters are generally in good condition, much better than the balusters at the North Building. Some of the joints between the balusters and the bases are failing and in some instances, vegetation is growing from those joints. The railing meets the code requirements for guardrails but the configuration allows for the passing between balusters of a sphere larger than 4-inch diameter in the area below 34 inches in height. In the case of a large

renovation, a variance might be needed to address this non-conformance.

The metal rail at the stair leading to the north portico (Figure 201) does not meet the requirements for guardrail height.

Recommendations: Replace metal railing at stairs to north portico with a system that meets IBC.

South Building—B1019 Other Floor Construction

Condition:	**Fair**	**B1019**	**Portico and Loggia Floors**
Deficiency:	**Serious**		

Treatment Recommendation: Repoint deteriorated or missing mortar joints and replace tiles that are cracked, broken, missing, or covered in concrete

B1019 Portico and Loggia Floors

Description and Conditions: The exterior of the building features a large colonnaded portico that extends almost the entire length of the south elevation. A smaller colonnaded loggia appears on the east elevation of the hyphen, which was originally intended to connect to the unrealized central pavilion, connecting the North and South Buildings. The portico and loggia feature quarry tile floors set in concrete surrounded by a border of exposed aggregate concrete, which is in line with the columns and balustrade of the portico and loggia, respectively.

The south portico floor is currently covered and protected by a rubber mat. Only the first row of tile closest to the south wall is visible (Figure 202). The condition of the floor tile is unknown; however, the concrete border and portico stairs do exhibit hairline and larger cracks (Figure 203).





Figure 202: [Left] South Building, South portico tile floor is mostly covered with a rubber mat

Figure 203: [Right] South Building, South portico concrete border and stairs exhibit cracking

The east loggia floor is in fair condition. Several tiles are cracked and have come loose (Figure 204). Others have been patched or covered with inappropriate concrete (Figure 205). The mortar joints also exhibit weathering and require re-pointing.

Recommendations: Repoint deteriorated or missing mortar joints and replace tiles that are cracked, broken, missing, or covered in concrete.



Figure 204: South Building, Some tiles at the east loggia are broken and have become loose



Figure 205: South Building, Some tiles at the east loggia are covered or are patched with concrete

South Building—B1029 Other Roof Systems

Condition:	**Fair**	**B1029**	**Portico and Loggia Ceiling**
Deficiency:	**Serious**		

Treatment Recommendation: Repair plaster and repaint all surfaces.

B1029 Portico and Loggia Ceiling

Description and Conditions: The South portico features a coffered painted plaster ceiling set on metal lath (Figure 206). Overall the ceiling is in fair condition but has several areas of missing plaster. The ceiling has an uneven texture, which is the likely result of peeling plaster that was painted (Figure 207). The east loggia ceiling is similarly constructed and features many areas of peeling and crazing paint (Figure 208 and Figure 209).

Recommendations: Any hairline cracks in the plaster ceiling may be injected with an appropriate consolidant material; missing pieces of plaster should be patched. The ceiling should be recoated with an appropriate paint finish and all the surfaces should be appropriately prepared to receive the new coating system. More compatible lighting fixtures should also be installed.



Figure 206: South Building, South portico looking east

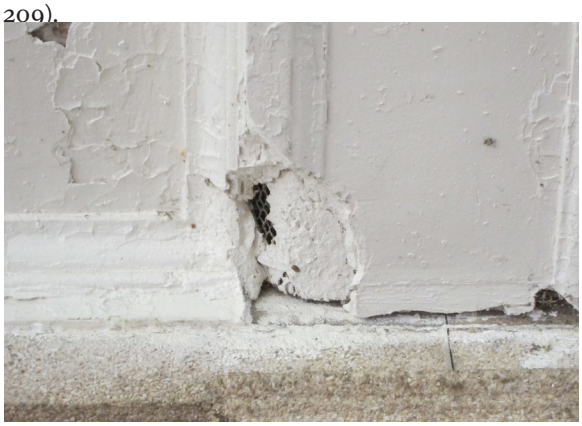


Figure 207: South Building, South portico plaster ceiling exhibits missing pieces and peeling paint



Figure 208: South Building, East loggia



Figure 209: South Building, East loggia plaster ceiling exhibits cracked and peeling paint

South Building—B20 Exterior Enclosure: Windows

Condition:	**Good**	**B2020**	**Exterior Windows**
Deficiency:	**Minor**		

Treatment Recommendation: Replace all non-original windows. Retain original frames and sash at basement level and install exterior screens. Recast the missing concrete sills.

B2020 Exterior Windows

Description and Conditions: Many of the building's windows are not original, having been replaced with brown aluminum frame insulated glass units. Several of the high window openings along the south and east elevations were replaced in their original openings (Figure 210). The window openings on the west and south elevations, however, were expanded to accommodate larger windows. A few of the original windows at the basement level retain their original wood frames and trim, although the original dividing muntins were removed and the glass was replaced (Figure 211).

The aluminum frame windows are in generally good condition; however, they are more than 40 years old, which is more than the typical life cycle of an insulated glass unit. The elongated brown aluminum windows are incompatible with the historic building.

Several of the original precast concrete window sills, particularly those on the south side of the building, have fully deteriorated and are missing, likely from erosion, cracking, and bursting (Figure 212).

At many of the window openings, the stucco that was cut to enlarge the opening was repaired in a manner that was not aesthetically compatible with the adjacent historic surfaces. In many cases the color does not match, and some of the patches have debonded from the surrounding stucco (Figure 213).

Recommendations: While the aluminum frame insulated glass windows are in good condition functionally, they are incompatible and greatly compromise the building's historic integrity, and they are at the end of their life cycle. These windows and the non-historic awning units should be replaced with windows that match the historic ones—reference original drawings and photos. New windows should be made of wood; aluminum clad at exterior is acceptable, although at portico, where windows are protected and most viewed, cladding should be avoided. The original remaining wood frames and sashes should be retained.



Figure 210: South Building, High windows on south elevation



Figure 211: South Building, Wood frame and sash window at the basement level



Figure 212: South Building, South elevation window with a missing precast window sill





Figure 213: South Building, South elevation windows that were expanded; the stucco patch repair surrounding the window has debonded.

Exterior storm windows should be installed at the window wells.

The exterior masonry surrounding the windows should be repaired, especially at windows where the surrounding stucco lintels are missing or have patches that have cracked or are debonded. In these cases, a more sympathetic patch, matching the original in composition and color should be made. The two missing sills on the north elevation should be recast to minimize the amount of water penetrating the concrete stucco walls.

South Building—B20 Exterior Enclosure: Doors

Condition:	**Fair**	**B2030**	**Exterior Doors**
Deficiency:	**Minor**		

Treatment Recommendation: Regular maintenance and monitoring.

B2030 Exterior Doors

Description and Conditions: The South Building features many different types of doors, including single and double metal framed steel doors, metal framed glazed doors with transoms, and single and double steel doors with textured metal panels, glazed panels, and transoms. The doors on the south elevation are generally in good condition although some of the detail and texture on the metal panels of the main entry double door has been lost due to over-painting. There is also some damage to the textured metal panel of the left door at the lower right corner (Figure 214). The single metal framed glazed door on the south elevation is in good condition, however, there are incompatible stucco patch repairs surrounding the opening. The single metal framed steel door with grille panel, located on the west elevation, is in fair condition. Surrounding the door is a large patch of concrete that infills the molded surround which originally distinguished the open walkway through the central bay of the hyphen (Figure 215).

The double steel door at the basement level of the south elevation is set within a preexisting metal frame that exhibits peeling paint and some corrosion (Figure 216). This is an area that is frequently flooded and more prone to corrosion. The double steel door at the loggia of the east elevation is in good condition.

Recommendations: The doors are not original and should be replaced when the exterior of the building is repaired. Remove infill at the west hyphen door. Replacement steel doors should replicate the configuration of the original doors and be more compatible with this historic building overall.



Figure 214: South Building, South elevation main entry door



Figure 215: [Left] South Building, West elevation door surrounded by infill concrete

Figure 216: [Right] South Building, South elevation basement level door

South Building—D20 Plumbing: Fixtures

Condition:	**Good**	**D2010-00**	**Basement Plumbing Fixtures**
Deficiency:	**Minor**	**D2010-01**	**First Floor Plumbing Fixtures**

Treatment Recommendation: Clean and perform routine maintenance.

D2010-00 Plumbing Fixtures—Basement

Description and Condition: Plumbing fixtures in the basement are limited to a single floor-mounted tank-type water closet and wall-mounted lavatory. These fixtures appeared to be in good condition.

Recommendations: Routine maintenance should be sufficient to maintain the fixtures' current condition while the building operates under its current function.



Figure 217: South Building, Restroom on first floor

D2010-01 Plumbing Fixtures—First Floor

Description and Condition: Plumbing fixtures on the first floor include restroom fixtures and kitchen equipment. The restrooms contain floor-mounted water closets, wall-mounted urinals, wall-mounted lavatories and a mop sink (Figure 217). The kitchen includes a handwashing sink and a three-compartment sink with a supplemental basin and disposal unit. Each fixture appeared to be in good condition, and routine maintenance and cleaning should be sufficient to maintain that status.

Recommendations: Routine maintenance should be sufficient to maintain the fixtures' current condition while the building operates under its current function.

South Building—D20 Plumbing: Domestic Water Equipment and Piping

Condition:	**Fair**	**D2021**	**Cold Water Service**
Deficiency:	**Critical**	**D2022**	**Hot Water Service**
		D2023	**Domestic Water Equipment**

Treatment Recommendation: Clean and perform routine maintenance; install exterior wall louvers; repair and reinsulate domestic water piping assembly.

D2021 and D2022 Cold and Hot Water Service

Description and Condition: Domestic hot water is supplied to the building via a gas-fired 50-gallon, State Select water heater with a 40 MBH gas input load. The water heater is vented through the mechanical room roof and terminates a few feet above the roof level with vent cap; this appears to be in compliance with the manufacturer's requirements. It is anticipated that indoor air is used for combustion, as louvers through the exterior walls were not visible at the time of the site visit. This arrangement is permissible if the water heater is installed in an "unconfined space." This is defined as a space larger than 50ft^3 for each 1,000 BTUh of gas input for equipment in the space. At this time the total gas input value cannot be verified.

The domestic water heater has an input 40MBH capacity, but the gas-fired, duct-mounted heater input MBH is unknown. Unfortunately, it is likely the duct-mounted heater exceeds the input MBH that would allow for the mechanical room to be considered an unconfined space. Therefore, it is recommended that louvers be provided to ensure the gas-fired equipment receives adequate combustion air. The louvers may be provided to other interior spaces or through exterior walls. If exterior wall louvers are used, supplemental heat and electrical heat-tracing will be required to ensure freeze protection for the existing systems in the space. Insufficient combustion air may lead to premature equipment failure or even backdrafting, the induction of harmful equipment flue gases into the mechanical space.



Figure 218: South Building, Domestic water heater

The domestic water system also includes a small expansion tank, which appears to be adequately sized for the system. Indicators that the tank is too small would be a system relief valve repeatedly leaking or pipe corrosion due to air entrainment into the system. Neither condition was observed at the time of the site visit.

No booster pump was visible at the time of the site visit, indicating that city pressure is sufficient for the building's needs.

The domestic water heater was constructed in January of 2016 and is in good condition. It is assumed that the associated vent piping and expansion tank were constructed in the same time frame.

Recommendations: Routine maintenance and cleaning should be sufficient to maintain the equipment's satisfactory condition.

D2023 Domestic Water Equipment

Description and Condition: Domestic water piping enters the building in the basement. A 2 1/2-inch diameter pipe is fed from that space to the water heater and to the various plumbing fixtures throughout the building. The entrance piping and accessories appeared filthy and aged; valve handwheels are broken and the insulation was worn and cracked. Downstream domestic water piping and insulation, however, is generally in good condition.

Recommendations: With continued routine maintenance, the domestic water distribution piping is likely to remain in suitable condition to serve the existing building needs. However, the incoming domestic water piping assembly should be repaired and reinsulated as required.



Figure 219: South Building, Water meter

South Building—D20 Plumbing: Sanitary Waste and Rainwater Drainage Piping

Condition:	**Fair**	**D2030**	**Sanitary Waste**
Deficiency:	**Serious**	**D2040**	**Rainwater Drainage**

Treatment Recommendation: Continue routine maintenance of sanitary and stormwater piping and equipment; replace sanitary sump pump.

D2030 Sanitary Waste Piping and Equipment

Description and Condition: The building sanitary system appears to function without error. The kitchen's three-compartment sink drains through a grease interceptor before being routed to the main sanitary system.

The basement restroom is served by a sump pump, which is presumed to be manufactured by Zoeller. Though there were not issues visible during the site visit, water stains on the floor indicate that the pump may have malfunctioned in the past. It is estimated that the pump was installed in 2003; if so, it is past its typical life expectancy of ten years.



Figure 220: South Building, Sink on first floor

Piping visible in the basement appeared to be sufficiently supported and maintained. Generally, the sanitary and grease interceptor systems appear to be sufficiently sized for the existing building needs and in good condition. The sump pump, however, should be replaced. If it is younger than ten years, then it may remain if full functionality can be confirmed.

Recommendations: Sanitary piping and equipment are largely in good condition. Routine maintenance and cleaning should be sufficient for continued operation. The sanitary sump pump appears to have failed in the past and may be aged; if so, it should be replaced.

D2040 Rainwater Drainage Piping and Equipment

Description and Condition: Building roof drains collect rainwater and route it down through and out the west wall of the building. The presence of a secondary draining system is not evident. Secondary drainage is typically required and recommended in the event that primary roof drains become clogged or cannot accommodate the rainfall.

Recommendations: Continued routine maintenance should be sufficient to keep the roof drainage system operational. Additionally, a secondary drainage system should be provided.

South Building—D20 Other Plumbing Systems

Condition:	**Fair**	**D2091**	**Gas Distribution**
Deficiency:	**Minor**		

Treatment Recommendation: Clean and maintain gas systems; relocate meter to more accessible location.

D2091 Gas Distribution

Description and Condition: The building's 2-inch diameter gas main enters the building through the north mechanical room wall. It is routed to the domestic water heater, duct-mounted reheat coil, and miscellaneous kitchen equipment. The gas meter is concealed by greenery on the exterior wall of the mechanical room. The gas piping was in good condition throughout, but the local utility may require the gas meter be more easily accessible if the building is renovated.

Recommendations: Routine maintenance and cleaning should be sufficient for continued operation, but the local utility may require the meter be made more readily accessible.

South Building—D30 HVAC: Heating and Cooling Generating Systems

Condition:	**Poor**	**D3020**	**Heating Generating Systems**
Deficiency:	**Critical**	**D3030**	**Cooling Generating Systems**

Treatment Recommendation: Replace first floor air-handling unit, duct-mounted heating coil, and aged propeller unit heaters.

D3020 Heating Generating Systems

Description and Condition: The building's first floor is heated via a Reznor gas-fired duct-mounted heating coil downstream of a McQuay air handling unit. The age and capacity of the heater was not able to be determined, but existing conditions drawings indicate that the heater is at least fifteen years old. It appeared to be in fair condition, but at that age it is likely to fail. The first floor mechanical room itself is conditioned by an aged propeller unit heater. It is recommended this be replaced with a new heater, as its failure may cause the domestic water to freeze and the associated piping may burst.

The basement level is conditioned (heating and cooling) by a Trane heat pump air handling unit that utilizes R-410a refrigerant. The estimated heating capacity of the unit is 55MBH. The Trane unit was manufactured in June of 2014, so it is well within its typical lifespan of 15-20 years.

Recommendations: The space conditioning equipment serving the first floor is in fair condition, but the various units are aged and may fail as a result. The air-handling unit, duct-mounted heating coil, and aged propeller unit heaters should be replaced. Conversely, the air-cooled chiller serving the first floor is in good condition and routine maintenance should be sufficient for continued operation. The basement heat pump is in good condition, and only routine maintenance and cleaning is required for full functionality.



Figure 221: South Building, Basement air handling unit

D3030 Cooling Generating Systems

Description and Condition: The building's first floor is cooled by a McQuay air handling unit and companion air-cooled chiller. The air handling unit was constructed in 1977 and is therefore well past its typical lifespan. Due to the age of the equipment, the manufacturer's records no longer include additional information such as cooling capacity, water flowrates, and airflows. Ceiling fans have been installed on the first floor for supplemental space conditioning, so there may be insufficient circulation or airflow. The unit appears to be single-zone controlled, and operation is determined by a programmable thermostat in the main concessions area.

The McQuay chiller is younger and in better condition. It is a 20-ton unit that was installed in 2010, and it is therefore within its anticipated lifespan of approximately 20 years. Factory documentation indicates that the fluid is cooled from 60°F down to 42°F. The chiller utilizes R407C refrigerant, which is atypical. Local stock and certified recharging professionals may be harder to find than a more common refrigerant, which would be recommended for future equipment if the option is available.

Once cooled, the fluid is pumped between the chiller and air handling unit via an inline pump that resides in the mechanical room. It appears that excess water is stored in a large tank at the north wall of the mechanical room. System make-up water is provided from the domestic water system through a backflow preventer and second storage tank.

As noted in the previous section, the basement level is conditioned by a Trane heat pump air handling unit that utilizes R-410a refrigerant. The estimated cooling capacity of the unit is just under 60MBH. The unit appears to be single-zone controlled, and operation is determined by a programmable thermostat in the open area adjacent to the mechanical space. The Trane unit was



Figure 222: South Building, First floor air handling unit



Figure 223: South Building, Air cooled chiller

manufactured in June of 2014, so it is within its typical lifespan of 15-20 years.

Recommendations: The cooling generating system serving the first floor is largely in a state of disrepair and should be replaced. The air handling unit is currently functioning, but it is well past its typical lifespan and may soon fail. There is limited evidence of leakage on the floor, indicating that the chilled water storage tank is in sufficient condition for its function. However, the tank does appear aged, and it is largely obscured by its insulation, which is in very poor condition. The chiller, in contrast, is newer and well-maintained; is therefore likely to operate successfully for at least another ten years.

For future projects in this building, locating new mechanical equipment on lower or basement levels should be avoided. Additionally, suspending

or significantly elevating new mechanical equipment is not recommended for this building, as it may pose risks to the building structure and to the equipment itself.

Raising or relocating existing equipment is also not recommended. Considering the existing equipment's current state of disrepair, raising it may cause operations issues. It is recommended that the existing equipment be kept in place if it is retained for future use.

South Building—D30 HVAC: Distribution Systems

Condition:	**Fair**	**D3041**	**Air Distribution Systems**
Deficiency:	**Minor**	**D3042**	**Exhaust Ventilation Systems**
		D3045	**Chilled Water Distribution**

Treatment Recommendation: Replace general exhaust fan; replace chilled water piping in mechanical room.

D3041 Air Distribution Systems

Description and Condition: On the first floor, supply and return air ductwork is generally routed in the building's ceiling plenum. Where visible in the mechanical room, the ductwork and its insulation appeared to be in good condition. Ductwork on the basement is exposed and painted black; it appeared to be in good condition, but it was occasionally dirty and would benefit from additional cleaning or repainting.

Ventilation air is provided to the McQuay air handling unit via a louver in the mechanical room wall. Insulated ductwork directs the ventilation air to the return portion of the air handling unit. On the basement level, ventilation air is routed from a louver in a storage room wall via round insulated ductwork to the return portion of the Trane heat pump. The building is generally odor-free and appears to be properly pressurized. As such, it appears that air ventilation is adequate to meet space requirements, though airflow must be measured to verify if there is adequate ventilation to meet current code requirements.

D3042 Exhaust Ventilation Systems

Description and Condition: The building has two exhaust fans. General exhaust needs (restrooms, janitor's closet, etc.) are served by a single roof-mounted, downblast, centrifugal fan. These areas were generally odor-free, indicating that sufficient airflow is exhausted from these spaces. The second roof-mounted fan is also a downblast, centrifugal model. It likely serves the kitchen hood, and it is located beside what is likely a makeup air intake. This intake duct is quite rusty, but it is likely fully functional.



Figure 224: South Building, General exhaust fan on roof



Figure 225: South Building, Kitchen exhaust fan and intake duct on roof

The general exhaust fan appears operational, but based on archived manufacturer's catalogs, it is estimated to be over 35 years old. With routine maintenance, roof-mounted centrifugal fans are expected to last 20-25 years. In contrast, the kitchen exhaust fan appears to be newer and in good working order. With routine maintenance and cleaning, it is anticipated that this fan can continue to be in use. The kitchen intake also appears to be in working order, but it would benefit from additional cleaning.

Recommendations: Ventilation air is generally in good condition, though the kitchen intake was badly rusted and requires additional cleaning or maintenance. The kitchen exhaust fan is in good condition and may remain so with routine maintenance and cleaning. In contrast, replacement is recommended for the general exhaust fan due to its age.

D3045 Chilled Water Distribution

Description and Condition: Chilled water piping is routed between the chiller and the air handling unit on the first floor. Exterior piping was well-insulated and supported. Interior piping was well-supported, but the insulation appeared aged and was occasionally incomplete. Refrigerant piping is routed between the Trane heat pump's indoor and outdoor units; this piping was simply installed and insulated well.

Recommendations: The building's ductwork and insulation appeared to be in good condition. Routine cleaning and maintenance should be sufficient to sustain its current condition. Chilled water piping within the mechanical room requires repair, though exterior chilled water piping and basement-level refrigerant piping have been installed and insulated well.

South Building—D40 Fire Protection

Condition:	**Good**	**D4010**	**Sprinklers**
Deficiency:	**Minor**	**D4090**	**Wet Chemical Suppression**

Treatment Recommendation: Clean and maintain fire protection system.

D40 Fire Protection Systems

Description and Condition: A 6"-inch diameter water supply line was recently installed in the basement for the fire protection system. A 4-inch diameter double-check backflow preventer and fire supply main are routed in the basement mechanical room to serve both levels and the fire department connection on the building's exterior wall. Sprinkler coverage appears to be consistent throughout. Spaces without a ceiling are provided with upright-type sprinklers, and spaces with ceilings contain pendent-type sprinkler heads with cover plates.



Figure 226: South Building, Fire entrance service piping and backflow prevention

The kitchen hood is equipped with an Ansul R-102 wet chemical fire suppression system. The fire extinguishing agent tank and associated stainless steel enclosure is located adjacent to the janitor's closet, in the space north of the kitchen. Piping is routed from the tank to discharge nozzles within the kitchen hood.

Recommendations: Both the sprinkler and Ansul fire protection systems appear to be in good condition, and routine maintenance and cleaning should be sufficient to keep them so. The Authority Having Jurisdiction (AHJ), NPS National Capital Region, should confirm if the site is compliant for future projects.

South Building—D50 Electrical: Service and Distribution

Condition:	**Fair**	**D5010**	**Electrical Service & Distribution**
Deficiency:	**Serious**	**D5090**	**Grounding Systems**

Treatment Recommendation: Replace all electrical equipment.

D5010 Electrical Service & Distribution

Description and Condition: The main electrical room is located above grade. The space is also used to store facility equipment in violation of the National Electrical Code. The building's main switch is an 800-ampere bolted pressure contact switch manufactured by Boltswitch of Crystal Lake, Illinois. The equipment is obsolete and beyond its service life. None of the panels in the main electrical room have the OSHA-required arc flash hazard labels. One panel's door is used to stow an active garden hose.



Figure 227: South Building, Electric panel and hose

Panels are scattered throughout the building on an ad-hoc basis. No panels have OSHA-required arc flash hazard labels. Many panels are without adequate working clearances, in violation of the National Electrical Code. Some panels are rusting and most are obsolete.

Recommendations: These deficiencies do not present an immediate danger, but replacing the electrical service equipment should be a high priority for future projects. A project to replace the panels and install the new panels in one or two dedicated electrical closets is recommended.



Figure 228: South Building, Main electric panel and brooms

D5090 Grounding Systems

Description and Condition: The project team was unable to observe the full grounding electrode system. When the main service equipment is replaced, the grounding system will have to be replaced as well. Therefore, the facility grounding system was given the same rating as the electrical service.

Recommendations: Replace grounding system when main service equipment is replaced.



Figure 229: South Building, Rusting exterior branch circuit panel

South Building—D50 Electrical: Lighting and Branch Wiring

Condition:	**Fair**	**D5021**	**Branch Wiring Devices**
Deficiency:	**Minor**	**D5022**	**Lighting Equipment**

Treatment Recommendation: Replace spring-held flip covers with extra-duty "in-use" covers on exterior receptacles; replace lighting and controls with LED luminaires, motion detectors, and daylight harvesting systems.

D5021 Branch Wiring Devices

Description and Condition: Receptacles and branch circuits for the most part comply with the National Electrical Code. There are an adequate number of receptacles, and no "outlet extenders" were visible. Typical maintenance will be sufficient to keep these systems operational. The exterior receptacles have spring-held flip covers, which no longer meet code as the receptacles cannot be safely used when it is raining. These covers can be replaced with extra-duty "in-use" covers.



Figure 230: South Building, Outdoor receptacle

Recommendations: While at the end of service life, and not up to current standards, the building's branch circuits, receptacles, and controls are adequate to current programming. Any repurposing of the building should include modernization of these systems, as obtaining parts to keep them functioning in their current state will become more and more difficult.

D5022 Lighting Equipment

Description and Condition: The existing fluorescent lighting and manual controls are operational. As time passes, replacement parts will become more difficult to obtain.



Figure 231: South Building, Obsolete parabolic fluorescent luminaires

Recommendations: Replacing lighting and controls with LED luminaires, motion detectors, and daylight harvesting systems to reduce energy costs is recommended. The light fixtures at the portico should be replaced with more compatible fixtures.

South Building—D50 Communications and Security

Condition:	**Good**	**D5033**	**Telephone Systems**
Deficiency:	**Minor**	**D5039**	**Local Area Networks**

Treatment Recommendation: Bring communications systems up to current standards.

D5033 and D5039 Telephone Systems and Local Area Networks

Description and Condition: The building's IT equipment is located in a basement room originally used for "club repair". This room was not accessible during our survey. A working television monitor and sound system in the dining room on the first floor were observed. The golf store and the restaurant's point of sale terminals were functional.

There are exposed cabling and jacks in the South Building. The quality of the data and voice cabling installation varies and it is obvious that the system has grown in an ad-hoc manner over the years. Facility staff relies on the communications infrastructure for their commercial operations and therefore it is kept in working condition.

It is apparent that the existing systems are working, even if the installation is not consistent with best practices.

Recommendations: If the building continues in its current programming, then the communications infrastructure should be brought into compliance with current standards as resources permit. If the building changes use, then it will be more cost-effective to replace the communications infrastructure than to attempt to salvage and reuse it.



Figure 232: South Building, Exposed telecom cable

South Building—D50 Electronic Safety and Security

Condition:	**Good**	**D5037**	**Fire Alarm Systems**
Deficiency:	**Minor**	**D5038**	**Security and Detection Systems**

Treatment Recommendation: Continue routine maintenance.

D5037 and D5038 Fire Alarm Systems and Security and Detection Systems

Description and Condition: The building does not have an electronic access control system. One motion detector in the dining room was observed. Given the proximity of the United States Park Police, the existing system appears adequate to meet the facility's needs.

A Silent Knight fire alarm system (manufactured by Honeywell) provides fire detection and alarm for the building. Smoke detectors are scattered throughout the building in relevant locations. Flow and tamper switches monitor the fire suppression ("sprinkler") system. Strobes and horn strobes provide the alarm function. The system clock is forty minutes off, meaning the automated event log is incorrect; this issue can be addressed during routine maintenance.

Recommendations: Continue performing any routine maintenance. When the US Park Police vacates the offices in the North Building, the South Building's security needs should be re-evaluated and its electronic security systems upgraded appropriately.



Figure 233: South Building, Door contacts



Figure 234: South Building, Fire alarm panel

South Building—G20 Site Improvements

Condition:	**Fair**	**G20**	**Site Improvements**
Deficiency:	**Minor**		

Treatment Recommendation: Continue routine maintenance. Coordinate with the Cultural Landscape Report and implement the landscaping and other site recommendations from that report.

G20 Site Improvements

Description and Condition: The South Building is accessible via a driveway extending west from Ohio Drive (Figure 235). The driveway bifurcates a large public parking area located east of the building. From the western edge of the parking lot, several narrow, asphalt-paved pedestrian walkways reach the building (Figure 236). Several of the sidewalks are bordered by low height retaining walls or curbs (Figure 237). The sidewalks have been altered to install accessibility compliant ramps.

Other than wooden tables and benches on the south side of the building, no furnishings were noted on site.

The landscaping includes low height bushes, roses, and other low height plants, as well as mature trees in the vicinity of the building (Figure 237 and Figure 238). The area adjacent to the north facade is sloped toward the sidewalk and covered with grass (Figure 239). On this side, two ramps were cut in the embankment to allow access to the basement. None of the two accesses is original and the low elevation of the entrances allows



Figure 235: Oblique aerial view looking west showing South Building outlined in red and surrounding site. (DC OCTO 2015)



Figure 236: South Building, Pedestrian access from driveway and parking lot, looking west



Figure 237: South Building, Pedestrian access from driveway and parking lot, looking west



Figure 238: South Building, Pedestrian access in front of the building, looking northeast



Figure 239: South Building, Grassy area along the north facade, looking northwest

for flooding of the basement in case the site is flooded.

The pavements are in good condition. The vegetation is well maintained but some of the large trees are too close to the building.

Recommendations: Continue performing routine maintenance of the pavements and vegetation. Remove non-historic ramps to the basement and infill the area to minimize the potential for flooding. Construct site drainage.

Coordinate with the Cultural Landscape Report and implement the landscaping and other site recommendations from that report, including any mitigation measures for site flooding.

South Building—G20 Site Improvements: Retaining Walls

Condition:	**Poor**	**G2042**	**Retaining Walls**
Deficiency:	**Critical**		

Treatment Recommendation: Repair site walls. In the future, remove non-historic site walls and infill site.

G2042 Retaining Walls

Site elements surrounding the building are in poor condition, including ample biological growth, efflorescence, and concrete spalling. Biological growth is especially evident at the concrete retaining walls leading to the single door along the north elevation (Figure 240 and Figure 241).

There is evidence of settlement at this side of the site such as cracking and spalling where the site walls meet the main block of the building (Figure 241). Cracking in the site walls could be related to the building movement observed at the hyphen walls. See *A2020 Basement Walls*. Further damage can be mitigated by installing adequate drainage and making the site more resilient against moisture inundation (flood gates, grading, or further study of water table elevations).

Recommendations: Site walls should be cleaned to remove biological growth and staining. In areas where the site walls have spalled, the concrete should be patched. Large cracks can be stabilized and repaired with a compatible cementitious injection grout.

If feasible for the current occupancy, the non-historic site walls along the ramps should be removed and the site infilled to minimize the potential for flooding of the basement.



Figure 240: South Building, Biological growth at retaining wall



Figure 241: South Building, Spalling at connection between retaining wall and building

South Building—G40 Electric Site Improvements: Site Lighting

Condition:	**Fair**	**G4020**	**Site Lighting**
Deficiency:	**Minor**		

Treatment Recommendation: Replace floodlights with LED luminaires.

G4020 Site Lighting

Description and Condition: Floodlights on the roof illuminate the area around the building. As the golf course is not open at night, these lights are used for security only. The floodlights use metal-halide technology, which is obsolete. Routine maintenance will keep the site lighting operational. Under current programming, they are sufficient.

Recommendations: Continue performing any routine maintenance; however, replacement of the floodlights with LED luminaires as resources permit is recommended.



Figure 242: South Building, Floodlight on roof



2 TREATMENT AND USE

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Chapter 1: Alternatives for Treatment and Use

This chapter presents alternatives for treatment and use for the Field House buildings. The analysis addresses the adequacy of each alternative in terms of impact on historic materials, effect on historic character, compliance with NPS policy, and other management objectives. It presents a recommended course of action and specific recommendations for alternative-specific preservation treatments.

Introduction

The USPP has occupied the North Building since 1979. Later this year, the USPP will vacate the building and relocate to a newly-constructed headquarters building north of the Field House. This presents an opportunity for the reuse of the North Building.

The concessionaire's lease on the South Building will also expire in the coming years. While it is intended that the South Building will continue to support the golf course, upcoming changes present an opportunity to reconsider the long-term plans for the South Building. NPS expects that the South Building will remain a retail and commercial space.

The following uses are considered as potential compatible options for the North Building:

- *Alternative A:* NPS Conference Center
- *Alternative B:* NPS Offices
- *Alternative C:* Retail

Period of Significance

The Period of Significance for both the North and South Building is defined as 1917-1920, the years of construction. The two buildings are architecturally significant as part of the collaborative effort of Public Buildings and Grounds architect Horace W. Peaslee and local sculptor John J. Earley. The buildings are especially significant as illustrations of Earley's experimentation with the development of a "step gradation" process in concrete and stucco that resulted in beautiful, exposed aggregate surfaces of cast in place and precast concrete, and stucco that have the same uniform appearance, with the color and texture of the surfaces resulting from the uniformly distributed aggregate.

The Field House buildings are also significant as the anchors of the spatial organization of the East Potomac Park Golf Course.

Given the design of the two buildings as part of a larger complex and the significance of the exterior of the structures, the same treatment should apply to the exterior of both structures and the entirety of the site.

Treatment Options

The Secretary of the Interior offers four categories of treatment for historic structures: preservation, restoration, rehabilitation, and reconstruction. They are defined as follows:

> *Preservation*: "the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Preservation focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time."
>
> *Restoration*: "the act or process of accurately depicting the form, features, and character of features from other periods in its history and reconstruction of missing features from the restoration period. Restoration is undertaken to depict a property at a particular period of time in its history."
>
> *Rehabilitation*: "the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural or architectural values. Rehabilitation acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character."
>
> *Reconstruction*: "the act or process of depicting, by means of new construction, the form, features and detailing of a non-surviving site, landscape, building, structure or object for the purpose of replicating its appearance at a specific period of time and in its historic location."

The following assessment of treatment options was made for the exterior of the two buildings:

> ***1. Preservation*** is a possible alternative treatment for both the North and South Building exteriors because of the architectural significance of the building exterior. Under this treatment, none of the character-defining features would be altered. Necessary repairs would be made to match the historic materials and the gentlest physical treatments adopted. No repairable materials would be replaced. Previous incompatible or non-sympathetic alterations to the exterior, such as enlarged windows and non-sympathetic doors, would remain.
>
> There are very few original interior features and finishes in either the South or the North Buildings; therefore, Preservation of the interior would not be an appropriate alternate treatment.
>
> Under the Preservation treatment option, the North Building would be mothballed in anticipation of converting it to a new use. The South Building interior would remain unchanged.
>
> ***2. Restoration*** of the Field House to the period of significance (1917-1920) is a possible treatment alternative. Significant alterations would be required to restore the exterior of the structures to their original configurations, including: replacement of the current enlarged windows with the smaller windows; infill of several of the non-original door openings that have been added over the years; replacement of all doors to match the original doors; and regrading of the site. While restoring the original configuration of the elevations would result in a historic resource interpreted to the period of significance, this treatment would present limitations to the potential use of the buildings. These limitations range from meeting safety requirements mandated by building codes—e.g. more doors are necessary than were included in the original structures—to difficulty in finding uses that would function well with limited natural light. If the windows

were reverted to their original small, high, punched condition, for example—the buildings were originally designed as locker rooms, featuring only the high punched windows to ensure privacy—there would be a severe lack of natural light. While the exterior of the two structures retains a high degree of integrity and remains highly significant, the design team does not recommend Restoration because of the associated limitations for future use. The best method of preservation for historic buildings is finding a good steward to maintain them; therefore, creating a desirable, leasable, user-friendly space is more beneficial than restoring the building exteriors to their original appearance. Moreover, the two buildings should receive the same treatment. If Restoration is be selected for the North Building, the South Building would also have to be restored. The potential to return the South Building to its original use is discussed in the following section.

*3. **Rehabilitation*** is an alternative treatment that would allow for the greatest flexibility in selecting a use. The selected use should minimize requirements for alterations of the exterior facades and replacement of exterior finishes and character-defining features. Under the Rehabilitation treatment option, the character of the buildings and their relationship with each other and the site would be retained, but certain alterations would be allowed. Any alterations should be undertaken in such manner that, if removed in the future, the essential form and integrity of the historic property would be unimpaired.

Under this treatment, non-historic features such as doors and windows would be replaced with features that replicate the original design more closely. New features are to be more sympathetic to the historic character of the buildings. Any non-historic openings that are not needed for access or life safety could be removed and the openings infilled with material matching the original. Rehabilitation would allow for replacement of some of the non-historic materials such as roofing or systems that are not character-defining, and installation of more efficient, higher-performing systems and materials that would enhance the overall performance of the building. This treatment option allows for retention of non-historic features that were previously added to improve the performance of the original design, such as the copper cap at the roof parapet.

Because of the extensive interior alterations and the fact that both buildings' current uses are not original, the most viable treatment for the interior of both buildings is Rehabilitation. The current non-sympathetic interiors could be removed and replaced with modern interior finishes compatible with the historic buildings that would allow for a safer environment and more energy efficient operation of the buildings.

Alternatives for Use

The alternative uses outlined in the following section include some initial assumptions about economic viability but have not been evaluated in detail. An economic viability assessment is recommended to assist in determining the highest and best uses for the buildings.

The location of the site is a key determining factors in selecting an alternative use. The site is located toward the south end of East Potomac Park, on Hains Point, and is accessible primarily by road via Ohio Drive SW. The DC Circulator bus provides the closest public transportation to the site. The Circulator stop at the Jefferson Memorial, approximately 0.9 miles away, is the nearest bus stop. The nearest metro is the L'Enfant Plaza Station, approximately 1.1 miles away.

In 2017, a dock was created for use by a free water taxi, the Wharf Jitney. The Jitney provides daily

service from April through November and weekend and holiday service in March and December. This service enhances connectivity to the Wharf development across the Washington Channel. The dock is directly across Ohio Drive from the Field House complex. In addition, bike share stations are nearby and this area is very active for cycling.

The North Building is currently served by a parking lot on the north side, with more than 50 vehicular parking spaces. Additional parking is available to the east of the Field House in the parking lot that is shared with users of the Golf Course, the South Building, and the East Potomac Park Pool.

The park is a popular spot for various athletic activities as well as fishing. Local residents are the most common patrons of the park. The District and NPS are exploring alternatives to enhance the park and public access to Hains Point, including connecting it via a pedestrian bridge to the Southwest Waterfront in Washington, DC. The likelihood of implementation of these projects, however, is unknown.

The site is within a flood zone on land bordered by the Potomac River and the Washington Channel. While upgrades, including the infill of some of the basement level doors and regrading of the site, as recommended in the following section, may alleviate some of the inundation, the risk of flooding remains high. Therefore, reuse of the buildings for critical mission facilities, storage, or museum collections is not recommended. Neither childcare nor healthcare facility use is recommended, as the specific code requirements would have a significant impact on the building exterior.

South Building: Alternative Uses

Two alternative uses for the South Building have been developed. A third alternative, to return the structure to its original use with locker rooms, showers, and restrooms, was explored but was ruled out. The two alternatives are described below.

Alternative S-A: No Action

The current use of the building as a cafeteria and pro shop serving the adjacent golf course would be retained. This would allow for retaining and repairing the original exterior features, as well as various interior upgrades if desired by the tenant.

Alternative S-B:

Continue to lease the building but convert it into another use, such as retail or office. Refer to the following discussion of alternative uses for the North Building.

North Building: Alternative Uses

NPS has deemed the following uses acceptable for the building:

- Event space for government functions with public access;
- Shared training spaces for NPS National Capital Region and NAMA;
- National Mall and Memorial Parks Headquarters staff offices;
- Park or partner use; and
- Leased space for public events.

The discussion below identifies three broad use categories.

Alternative N-A: Conference Center

The North Building could be used as a conference center and could house event spaces for government functions that are open to the public. The building could also be leased as meeting or training space for professional or educational events.

Alternative N-B: Offices and NPS Training Center

The North Building could be considered for use as offices. The space could be used as offices

by NPS for National Mall and Memorial Parks (NAMA) staff or other NPS personnel. The building could have a few training spaces that could be shared by NPS National Capital Region and NAMA.

Alternative N-C: Retail

The North Building could be considered for use as retail space or spaces. This could include one or multiple commercial tenants that would have a long-term lease.

Mothballing

Since the current occupant is expected to vacate the North Building in the immediate future, it is likely that until a new use is selected and funding for the project appropriated, NPS will need to mothball the building for the duration of vacancy to minimize the extent of deterioration and prevent damage from vandalism. This report can serve as the necessary documentation for the building. The extent of mothballing will depend on how often the building is expected to be toured and have public around, including the reopening of the adjacent pool, anticipated for summer 2020.

One of the most important measures is to prevent water entering the basement in the event of flooding by installing sand bags in front of the ramps to the basement and ensuring the building is well ventilated. The large exterior windows should be protected by installing plywood on the interior side to minimize any attachments to the historic concrete and minimize the perception of abandonment.

While the building is vacant, mechanical equipment should be regularly maintained to ensure consistent operation. Heating setpoints should not drop below 50°F in the winter and cooling setpoints should not exceed 80°F. Prior to closing the building, the ventilation system should be tested to ensure it is fully operational.

During mothballing, conditions will need to be monitored periodically to confirm that the implemented measures are appropriate and no significant deterioration and damage is occurring. Refer to "NPS Preservation Brief 31 - Mothballing Historic Buildings" for additional information regarding mothballing of historic buildings and the periodic maintenance activities recommended during the period a historic structure remains mothballed.

Requirements for Ultimate Treatment and Use

The discussion below is mainly provided for selection of a compatible use for the North Building. While the applicable laws and regulations, as well as the structural requirements, are the same for the two buildings, their existing configurations, such as location of egress doors, vary slightly. Therefore, specific sections such as egress are only applicable to the North Building; the same level of analysis for the South Building is beyond the scope of this report.

Federally owned buildings are generally exempt from state and local code requirements in fire protection; however, in accordance with 40 USC 3312, each building constructed or altered by a Federal agency must be constructed or altered, to the maximum extent feasible, in compliance with one of the nationally recognized model building codes and with other nationally recognized codes. Leased buildings are subject to local code requirements and inspection.

NPS adheres to the following code requirements:

- IBC 2018 (International Building Code) with Appendices
- NFPA 101 Life Safety Code when IBC silent
- IEBC 2018 (International Existing Building Code) with Appendices
- NFPA 70 (National Electrical Code)

Other applicable standards include:

- 2015 Architectural Barriers Act Accessibility Standards (ABAAS)
- ASCE 7-16 (American Society of Civil Engineers) Minimum Design Loads for Buildings and Other Structures
- Secretary of the Interior's Standards for the Treatment of Historic Properties (for buildings listed in or determined eligible for listing in the National Register of Historic Places)

For the purposes of this report, it is assumed that jurisdiction is given to local code, any National Park Service recommended code, ABAAS, and the principals of Universal Design. NCR Authority Having Jurisdiction (AHJ) should be consulted on code issues.

The following code analysis is based on the 2013 District of Columbia Construction Codes Supplement, Title 12 DCMR, Subtitles A through L (12 DCMR) that has adopted 11 of the 2012 ICC Codes and the 2011 NFPA 70 (National Electrical Code) with changes, deletions, and/or additions. Under the 2012 IEBC, for buildings classified by the Federal, state, or local government as historic, exceptions could be authorized by the code official under certain circumstances, where compliance with code provisions would be damaging to the contributing historic features.

The interior of both buildings have been heavily modified and no longer retain their integrity. The extent of work required for any of the proposed uses would classify as Level 3 Alterations, wherein the work area exceeds 50 percent of the building area. Level 3 Alterations have the most stringent requirements, including those applicable for new construction.

Building Height, Area, and Type of Construction

The two existing buildings are each one story plus basement measuring 25 feet from the lowest sidewalk to the top of the roof parapet. The main block is approximately 107 feet long and 34 feet wide. The first floor is approximately 4,870 net square feet (5,765 net square feet including porticoes). The basement level is approximately 5,785 square feet.

The exterior walls are constructed of structural terra cotta tiles faced with exposed aggregate concrete stucco; a few walls are finished with parging. The structural frame is concrete, as is the slab between basement and first floor. The roof framing is wood construction of sizes that do not qualify as heavy timber. There are no other structures within 30 feet of the buildings.

Under IBC, the fire-resistance rating type is II-B: the exterior walls and the structural framework are of non-combustible materials, and the roof is

Table 1: Uses, Occupant Load, and Allowable Number of Stories /Area

Use /Existing Building 2 story 5,785 max net per story, 11,550sf total gross	Stories for Type II-B	Area for Type II-B, per story	Occupant Load Factor for means of egress/total occupants
Occupancy A-3 (Assembly): auditorium with no permanent seating, exhibition, lecture hall	2	9,500	15 net/ anticipated net area: 9,000sf, 600
Occupancy B (Business)	4	23,000	100 gross/116
M (Mercantile)/ Retail	4	12,500	30 gross/grade level' 60 gross all other/193+97=290

combustible (IBC Table 601). Based on this classification, the IBC allows for a maximum building height of 55 feet regardless of the group occupancy, much greater than the height of the Field House buildings at 25 feet.

Under the strictest group occupancy (High Hazard H-1 and H-2: that pose explosive or deflagration, or accelerated burning hazards), the maximum area limitation is 7,000 square feet of building area per story (much less than the Field House); for H and I (Institutional: hospital and medical care type facilities) group occupancy, the code allows only one story above grade; for all other occupancies, the code allows two or three stories (Table 503). Section 504.2 of IBC states that a building protected throughout with an approved automatic sprinkler system will permit an augmentation of the specified values of Table 503 by increasing the maximum height with an additional 20 feet and the maximum number of stories by one. Even without a full sprinkler system, the Field House meets the area, height, and story requirements for all occupancies except High Hazard and Institutional. Currently the South Building is sprinklered but there is no sprinkler system in the North Building. All three potential uses (Assembly [A-3], Business [B], and Mercantile [M]) could be housed in the existing building (see Table 1 for comparison).

For the purposes of this report, the analysis in the next sections is based on conditions in the North Building.

Egress

The North Building has multiple doors on both the basement and first floor. On the first floor, there are two exterior double doors on the north and south elevations, and two single doors: one

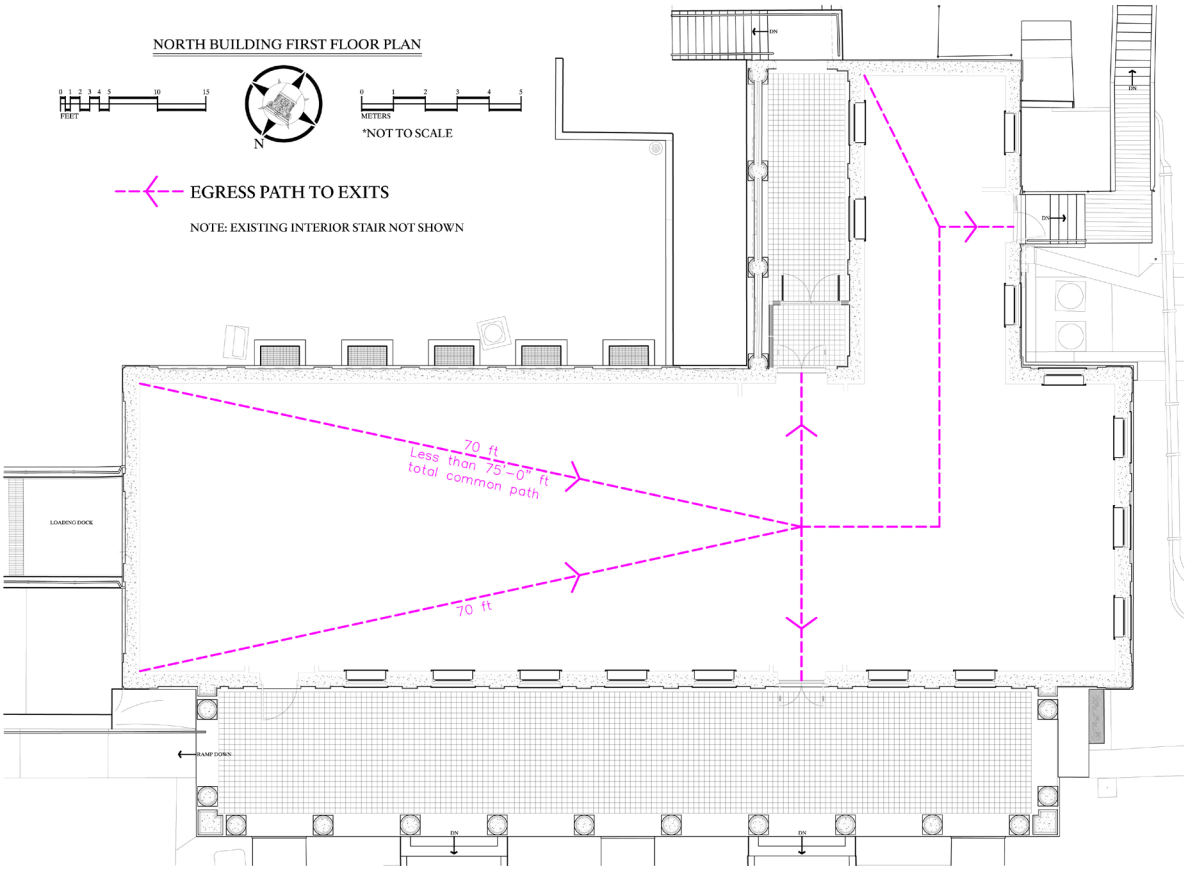


Figure 243: North Building, First Floor Plan showing potential egress paths (existing interior stair not shown). Note that the non-historic single door on the large portico side is not necessary as an egress.

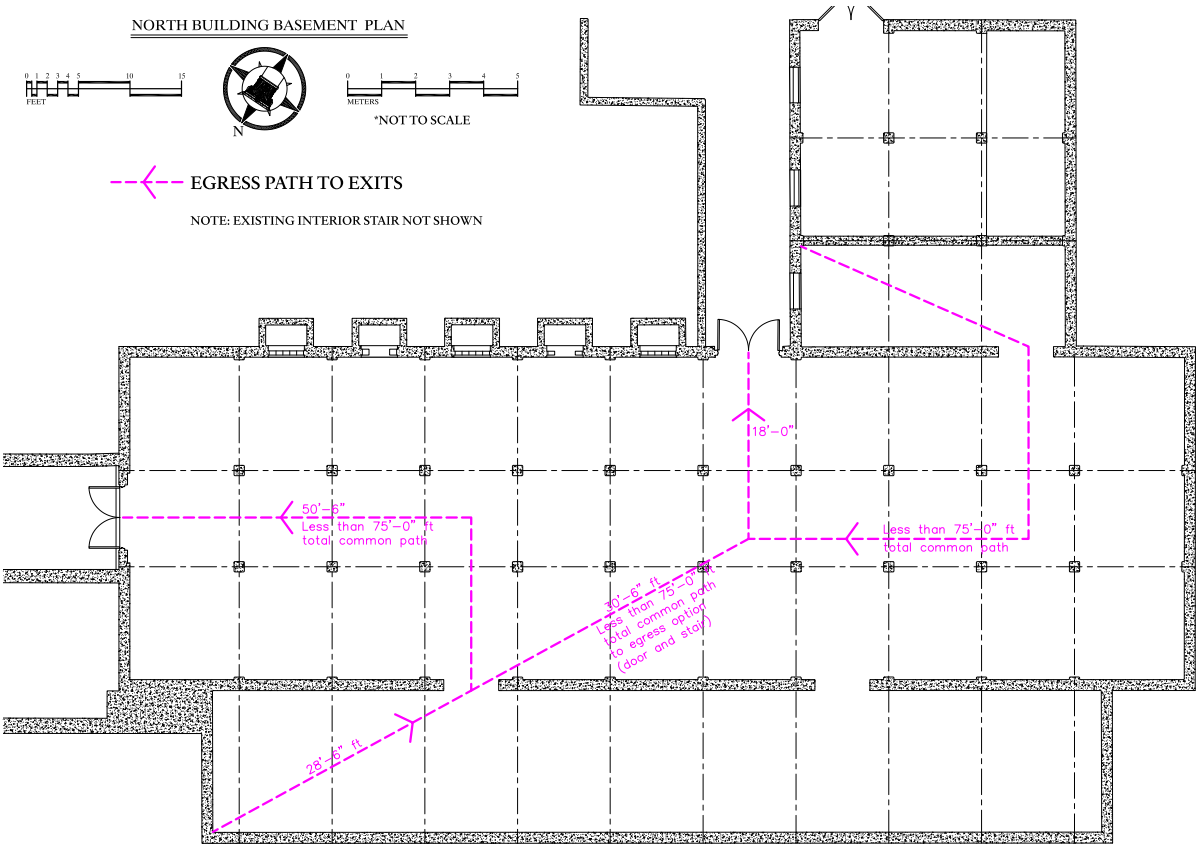


Figure 244: North Building, Basement level Plan showing potential egress paths (existing interior stair and partitions not shown). Note that one of the non-historic double doors is not necessary as an egress and could be infilled to minimize flooding risk. Specific door to be altered depends on the location of the stair to the first floor (existing to remain or new) and the potential use. If both ramps are to be eliminated and the areas infilled to minimize flooding, the occupancy of the basement should be limited.

on the north and one on the west elevation. The two double doors are non-historic doors in original openings; the single door on the north elevation is not original, and the single door on the west elevation is a replacement steel door in an opening that originally had a pair of doors.

Currently, the common path of exit access travel from any corner of the building to an egress door is less than 75 feet. Other than for an occupancy H, this falls well within IBC's requirements for common path of egress travel for buildings with more than 30 occupants (IBC Table 1014.3). If the occupant load was less than 30, the common path of exit access travel could be up to 100 feet. Because of their location and the separation requirements between means of egress, all of the existing doors would need to remain.

The code requires that the doors be sized to allow safe egress of the building occupants and requires that the number of occupants be calculated based on the function of the space and the occupant load factor for that particular function. Assembly use with standing space requires the most stringent occupant load factor: 5 net square feet per occupant, requiring a minimum of 195 inches of total clear width of egresses (974 occupants/0.2=195 inches). The existing doors have a total width of 182 inches, which provides exit capacity for 920 persons. If double doors were to be installed in the original opening, the egress capacity would meet the requirements for the most stringent occupancy (202 inches). The non-historic single door opening at the portico on the north side is not required for egress and could be returned to a window opening as in the original design. Also, the egress capacity is different if the building were to be fitted with an automatic fully sprinklered system, in which case the required width is 0.2 inch per occupant.

There are two double doors at the basement level: one on the south elevation and one on the east elevation. Combined, they have 136 inches width, allowing for egress of 906 occupants. The common path of exit access travel from any corner of the building to an egress door is less than 75 feet, and code compliant for all uses other than H. All exits need new code-compliant signage and lighting. Pathways will need to be kept clear and signed. If any of the basement doors will be eliminated to minimize flooding, the occupancy of the basement might need to be limited.

The existing stairway is not historic. The treads are 39 inches wide, less than the minimum 48 inches between handrails required by code (48 inches clear width are not required if the building is equipped with an automatic sprinkler system). The height of the risers varies between 7-3/4 inches and 8 inches, more variance than allowed by the code. The existing handrails do not meet the code requirements. If public spaces are to be located in the basement, the stair should be replaced with a new stair that will meet the current IBC.

The interior partitions, ceilings, and floor finishes are not historic. All new partitions, ceilings, and floor finishes should be designed to meet separation and egress code requirements.

The egress path at the west door is not compliant, as the landing is not at the same level as the building floor. The exterior steps are higher than permitted by code on an egress path and the railing (not historic) is not compliant. The steps and railings at the south entrance are also not compliant. The two doors on the north elevation do not open at grade, as there is a small change in elevation. The basement features several changes in elevation and the spaces are not anticipated to be accessible.

Minimum Plumbing Fixtures

The first floor currently has one female restroom containing one water closet and one lavatory, and one male restroom containing two water closets, two urinals, and two lavatories. Additional facilities, including showers, are located on the basement level. The building does not have drinking fountains.

For other proposed uses, the number of required plumbing fixtures varies (see Table 2). Any new use would require additional fixtures.

Table 2: Minimum Plumbing Fixture Requirements

Use	Water Closets Male	Water Closets Female	Lavatories	Drinking Fountains	Service Sink
Occupancy A-3 (Assembly): Auditorium with no permanent seating, exhibition, lecture hall Min 600 occupants	1 per 125/ Min 3	1 per 165/ Min 5	1 per 200/ Min 3	1 per 500/ Min 2	1
Occupancy B (Business): Min 116 occupants	1 per 25 for the first 50/ 1 per 50 for the remainder exceeding 50		1 per 40 for the first 80/ 1 per 80 for the remainder exceeding 80	1 per 100	1
M (Mercantile)/ Retail: Min 290 occupants	1 per 500/ Min 1 unisex		1 per 750/ Min 1	1 per 1,000/ Min 1	1

Accessibility

General architectural provisions that are ABAAS requirements include:

- Accessible Route: at least one accessible route shall be provided within the site from accessible parking spaces and accessible passenger loading zones, public streets, and sidewalks
- Toilet Facilities: at least one toilet facility for men and at least one toilet facility for women
- Drinking Fountain: at least one accessible drinking fountain

Access from Street/Accessible Route (North Building)

The existing exterior ramp at the North Building allows access to the first floor but does not meet the requirements for slope, length before a landing, and railings. The existing ramp should be replaced with a new ramp that complies with the ABAAS requirements. Both doors at the north portico have a minimum 6 inch step to enter the building; the small temporary metal ramp at the east door does not meet code or the ABAAS requirement. The access at one of the two doors should be modified and a section of the portico altered to allow the permanent installation of an accessible ramp.

Any new uses must comply with parity in use so that if spaces on the basement level are not accessible, then comparable accessible use spaces must be provided on the first floor.

Stair Width

See Egress summary above. If public spaces are to be located in the basement, the stair in the North Building should be replaced with a new stair that meets the current IBC.

Door Widths

There are no remaining original exterior doors or frames in North Building. On the first floor, the replacement steel doors are in original openings. All existing exterior steel doors should be replaced with doors that are more sympathetic with the original historic configuration (wood, raised panel doors) and meet the accessibility requirements as well as new building code energy requirements. The partition layout should allow for required clearances around the door openings.

Door Hardware

There is no extant historic door hardware in the North Building. Any new hardware should comply with the code requirements.

Clear Path Widths

All partitions will be new and should comply with the code requirements as well as ABAAS requirements for clearances at door openings and turning radius where required.

Toilet Facilities

The current restrooms do not meet ABAAS requirements. The future interior layout should include new code- and ABAAS-compliant facilities. The new design should include at least the minimum code-required accessible facilities.

Elevator

There is no elevator in the North Building. None of the new potential uses will require an elevator, as long as the main public spaces are located on the first floor and there are no spaces on the basement level that are required to be accessible. Installing an elevator in the building, given the potential for flooding, is not recommended. If an elevator is required, it should be pitless, given the water table.

Energy Conservation and Sustainability

Any new use would require new mechanical systems complying with current energy codes. Additional analysis is required to determine if the existing mechanical system is sufficiently sized to serve the potential uses without supplemental equipment. If additional equipment is required,

replacement of the entire system with a single centralized system is recommended. This would simplify building maintenance, operation, and controls and any new equipment will be more energy efficient.

A comprehensive study should be performed to determine if adding insulation at the exterior walls in order to reduce the size of the mechanical system could result in damage to the masonry wall and the historically significant stucco because of condensation within the walls.

To meet the stringent mandated energy requirements, sustainability measures should be implemented. A photo-voltaic system could be installed on the roof, provided that the panels are set back from the parapet wall and are not visible from the ground. However, the low height of the parapets limits the potential configuration of the panels and a study should be undertaken to confirm the feasibility of the installation without visual impact.

Resilience to Natural Hazards

For the purposes of this report, resilience is defined as "the ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies."[31] Emergencies are natural phenomena such as windstorms, floods, earthquakes, or other hazards. As noted earlier in the report, the site on Hains Point is prone to flooding. According to the United States Geological Survey (USGS) map, the site is slightly above the ten foot elevation. NPS notes that approximately 80 percent of the park lies within the 100-year floodplain; the tidal range at Hains Point is about three feet. The road to access the site as well as parking lies in the 100-year flood plain (Figure 214). A "100-year floodplain" or "100-year flood" describes an area or event subject to a 1% probability of a certain size flood occurring in any given year.

Executive Order 11988, "Floodplain Management," requires federal agencies to evaluate the likely impacts of actions in floodplains, avoid



Figure 245: FEMA National Flood Hazard Layer Maps showing that sections of the two buildings are in Zone AE (area subject to inundation by the 1-percent-annual-chance event- 100-year flood) and sections in Zone X (area to 0.2-percent-annual-chance flood hazard)

31 Presidential Policy Directive (PPD) 8 (PPD-8 2011).

"adverse impacts associated with the occupancy and modification of floodplains, and avoid direct and indirect support of floodplain development wherever there is a practicable alternative." Director's Order 77-2: Floodplain Management and the Procedural Manual 77-2: Floodplain Management provide NPS policies and procedures for complying with Executive Order 11988. Executive Orders 11988 and 13690 and Director's Order 77-2 direct the National Park Service to examine ways to avoid, as much as possible, the short- and long-term, adverse impacts associated with occupancy, modification, or destruction of floodplains and to avoid indirect support of development and new construction in such areas where a practicable alternative can be considered. In the case of the two existing buildings, not investing in projects that would result in their reuse is not a viable alternative, because of their historic significance.

In the event of flood and lack of site access, the least suitable use is office, which requires daily access for all employees, followed by retail. While office workers might be allowed to telework during a flood event, retail will need to be shut down. The use least impacted would be the conference center, assuming events could be rescheduled.

The main (first) floor of the building is elevated above the ground several feet. However, the basement is below grade and alterations of the original site, including construction of ramps to access the basement directly from the exterior, have increased the potential for water entering the basement. Removing the ramps, infilling non-original basement doors, and regrading the site will increase the resilience of the building to flooding. Since the entire island is artificial, having been built up from Potomac dredging material after 1880, the regrading will not require archaeology.

Table 3: Design Live Loads per IBC and ASCE 7-10

Potential Use	Design Live Load	Extent of Reinforcement Required to Meet Live Load Requirements
Assembly Loading	100 psf	All areas except for non-end bays of exterior portico and select bays within hyphen*
Retail Stores (First Floor)	100 psf	All areas except for non-end bays of exterior portico and select bays within hyphen*
Dining Rooms and Restaurants	100 psf	All areas except for non-end bays of exterior portico and select bays within hyphen*
Light Storage Warehouses	125 psf	All areas
Offices	50 psf + 15 psf for partitions	End bays of interior space, End bays of exterior portico
Residential Occupancies: Private Rooms	40 psf	None
Classrooms	40 psf	None
Roof Live Load	20 psf	None

*Section 1607.3 of the DC supplement to the IBC (Title 12 DCMR) includes a provision for the code official to authorize a 30% reduction of the specified minimum live loads for buildings erected before July 1, 1925. If such a reduction were to be authorized by the code official, some interior areas with a calculated 80-psf live load capacity may not require reinforcement. As of the 50% HSR deliverable, feasibility of gaining this exemption has not been explored.

Mechanical equipment, if located in the basement, should be elevated above the anticipated level of flooding.

Structural

If future building projects include a change in occupancy of the, the existing structure will need to be updated to meet current IBC and IEBC requirements. A preliminary structural analysis shows that most of the existing concrete floor structure has capacity for an 80-psf live load. The larger end bays have a significantly lower live load capacity of 40-psf. Within the exterior portico, all bays have capacity for a 100-psf live load, except for the end bays with a 60-psf live load capacity. First-floor beams would not require reinforcement for 100-psf live loading.

Most of the original roof structure meets building code requirements for minimum roof live and snow loads. Rafters and steel beams appear to have some minimal additional capacity for the governing 30-psf snow load in addition to dead load. The existing wood beam along the roof ridges is at capacity with current loading requirements.

Depending on NPS's desired future use of the building and any changes in occupancy, portions of the first-floor slab might require reinforcement to meet minimum live load requirements. Potential design live loads for the North Building are included in Table 3.

Probes and Material Testing

NPS may wish to authorize probes and material testing to further investigate the material properties and configuration of structural elements. Probes and testing would allow NPS to understand the accuracy of the existing drawings and any unknown conditions. Information gathered would help guide recommendations for future repairs.

The following types of probe openings and material testing are recommended:

1. Exterior wall probe including samples of the stucco finish
2. Interior floor probes including at least two concrete cores from the first floor slabs
3. Roof probes including sampling of the wood rafters

Because the structure is fairly consistent, there is flexibility in the sample locations.

For the exterior wall, the drawings indicate the walls are terra cotta block with a stucco coating. In the wall sections, the stucco is about two inches in thickness. It would be useful to take a sample for petrographic and chloride analysis, which will indicate the condition and composition of the material to help pinpoint potential causes of deterioration. Additionally, some material testing labs will return the processed aggregate which could be helpful in specifying a repair mix. The prepared sample size would need to be coordinated with the testing lab and ideally would include the terra cotta substrate behind.

It is recommended that two concrete cores (size to be coordinated with lab) be drilled through the first floor slabs; one for petrographic/chloride analysis and another for compressive strength testing.

The cores would be taken from two different locations. Ideally, the concrete cores could be drilled in locations where the concrete is already in poor condition. At the locations of these cores, the adjacent concrete would be chipped away to expose the steel bars. These probes would determine the placement, size, and condition of reinforcement. During the October field survey, two concrete cores were seen in the basement hyphen storage room, currently propping up shelves. If it can be confirmed that these cores were taken from the floor slab above, these could be used as material samples for testing.

Roof probes or improved access to the attic spaces should also be provided so that the materials and member sizes of the roof structure of both buildings can be confirmed. This would include a probe into the roof membrane from above or the partial removal of insulation from below to expose the roof rafters and beam (if extant). While exposed, NPS may also wish to send samples of the wood roof structure (if extant) for wood species identification.

Chapter 2: Ultimate Treatment and Use

Introduction

The previous chapter discussed potential treatment and use alternatives. On the buildings' interiors, Rehabilitation is the preferred treatment, given past interventions and the minimal extent of historic fabric. For the exterior treatment, Preservation, Restoration, and Rehabilitation were evaluated. Various uses were also discussed for the two buildings. This chapter proposes an ultimate treatment that takes into consideration the requirements for life safety, accessibility, energy conservation, structural, and resilience to natural disasters for the uses noted in the previous chapter in combination with the potential treatments. The ultimate decision for the selection of the use lies with NPS. At the time of this report's preparation, the NPS preferred use is as NPS Offices and Training Rooms.

The team recommends the same ultimate treatment for both buildings: Rehabilitation for both the exterior envelope and interior spaces. This chapter includes detailed recommendations for rehabilitating both buildings.

North Building: Ultimate Treatment

Rehabilitation of the exterior of the North Building will include removal of non-character-defining features (such as ramps to the basement and the glass entry vestibule). The treatment will retain and repair in place all character-defining features to the greatest extent feasible, such as the cast in place and precast exposed aggregate concrete; the replacement of these features will be limited to sections that are deteriorated beyond repair.

Non-sympathetic features, such as non-original doors and windows, should be replaced with ones that either replicate the originals or have a compatible configuration. All compatible windows should be wood. In the high punched openings, windows should replicate the original eight-light wood awnings. In the enlarged window openings, the team should discuss compatible solutions. Compatible windows may include an eight-light wood awning window to mimic the size of the original openings with 12 over 12 or 1 over 1 double hung wood sash or jalousie windows below.

The interior of the building will be rehabilitated to accommodate the proposed use, NPS Offices and Training Rooms, with minimal impact to historic fabric since the original finishes are no longer extant. When installing new systems, impact to the original materials should be minimized, with no new penetrations of the exterior elevations.

Several material tests are recommended to validate the structural capacity and identify any potential hazardous materials.

Table 4 below includes specific recommendations and identifies the potential impact on historic fabric as well as the benefits of performing the proposed work for each recommendation.

Table 4: North Building - Recommendations

North Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
A10 and A20: Substructure Foundations and Basement Construction		
Repair cracks larger than hairline with a compatible cementitious injection grout. Repair concrete spalls with concrete patches.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Construct new foundation drainage to mitigate the flooding issue in the basement and improve the structural stability of the foundations.	Minimal, construction of new foundation drain will allow access to exterior of the basement walls and potential repairs.	Minimize potential for basement flooding and minimize future settlement of the foundations.
B10 Superstructure		
Repaired concrete spalls with appropriate structural concrete patches to protect the existing reinforcement.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Reinforce first-floor slab to allow a new occupancy.	Reinforcement to be designed as non-intrusive as possible, although work might be irreversible.	Actual reinforcement depends on use—office use will require the least intervention, while other uses will require full floor reinforcement.
Monitor visually the limited temperature and shrinkage cracking observed in the weight room for expansion or change.	None.	Allow better understanding of conditions and prevent further deterioration of historic materials.
Repoint the joints surrounding the tiles that exhibit missing or deteriorated mortar. Replace tiles in kind.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Restore original coffered plaster ceiling as seen at the South Building.	None, repair remaining historic fabric.	Return feature to Period of Significance configuration.
B20 Exterior Enclosure		
Repair stucco and precast exposed aggregate concrete such as window sills and door surrounds. Exposed aggregate concrete (stucco and precast) should be replaced with a similar mix of aggregate, concrete paste, and should follow original profile. Replace cast-in-place concrete. Repair and replace sections of parging.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Repoint all the joints between the precast concrete elements.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Clean severe soiling and severe biological growth. Clean all areas where patching is required, to achieve a good match between patches and the original materials.	Return to good condition.	Correct maintenance deficiencies.

North Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Replace all metal railings with railings that meet IBC.	None, railings are not historic.	Correct building code deficiencies.
Replace all small awning window units with windows that are replicas of the original hoppers. Replace the large windows with windows are compatible with the original. Upgrade mechanical system to ensure an interior environment that will not require mechanical window units. Remove louvers at basement level and replace them with windows if the new mechanical system for the new use allows it. Retain glass block at basement windows, unless a specific use of the basement requires their replacement.	Minimal, as none of the windows is historic. However, in the process of removal, care should be taken to minimize any impact to adjacent tile masonry and stucco finish.	Installing more compatible and higher quality windows will improve the appearance of these character-defining features of the building and improve the thermal performance of the existing building envelope.
Replace all but one of the exterior doors. The new doors at the first floor should match the original door configuration. The doors that are not in original door openings should be replaced with doors compatible with the original design but clearly different than the originals to eliminate the potential for creating a false sense of history.	None of the doors is historic. Minimal impact on adjacent historic fabric.	Return character-defining features to appearance during Period of Significance. Enhance the energy performance of the historic envelope.
Remove basement door and infill opening at the south elevation ramp.	Return to original configuration.	Eliminating the ramp and door and regrading the site will reduce the potential for flooding.
Remove existing glass vestibule.	Vestibule is not historic. Return entry to original configuration.	The new interior layout should provide a configuration that will minimize energy loss at the exterior openings. Vestibule was documented recently as part of HABS.
B30 Roofing		
Evaluate the roof structure with probes to confirm configuration and condition. Some sections of the roof might require reinforcement.	If reinforcement is found to be needed, it should be designed as non-intrusive as possible, although work might be irreversible.	Strengthen original roof framing.
Replace the modified bitumen rolled asphalt membrane roof, all flashing at penetrations and the roof drains. Remove and replace existing non-historic parapet wall copper cap flashing.	Minimal impact on historic fabric.	Will enhance the longevity of the structure.
C10 Interior Construction		

North Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Remove interior partitions as required for the new use. Construct new partitions as required for the new use.	No effect on historic fabric on main floor as all original partitions already removed.	Allows for efficient use of the interior space.
C20 Stairs		
Retain interior stair, if required for the new use. Install new code compliant railings.	No effect on historic fabric as the stair dates to 1970s.	Allows for efficient use of the interior space.
C30 Interior Finishes		
Remove and construct new interior finishes as required for the new use.	While removing some of the finishes, remnants original finishes might be encountered.	Document any of the original finishes, if encountered, and retain them.
Test finishes for hazardous materials.	None.	Ensure that the structure does not pose health hazards.
D20 Plumbing		
Remove all existing plumbing fixtures and install new ones as required for the new use of space.	None, as these fixtures and the adjacent finishes are not historic.	Work to comply with building codes and Rehabilitation standards.
Install insulation and a continuous vapor barrier along the length of the domestic water piping.	None.	Improve building operations.
Install backflow prevention as required for the new use of space	None.	Improve building operations.
Replace existing domestic water heater and booster pump.	None.	Improve building operations.
Investigate existing sanitary piping, vent piping, and accessories serving for deficiencies and to determine the cause of the odor.	None.	Improve building operations.
D30 HVAC: Heating and Cooling Generating Systems		
Replace supplemental space conditioning equipment.	None.	Improve building operations.
Replace all diffusers and remove the extended damper adjusters regardless of program changes.	None.	Improve building operations.
Remove and replace roof-mounted exhaust fan.	None.	Improve building operations.
D40 Fire Protection		

North Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Provide a fire protection system for the renovated building.	The system will have minimal impact on the historic fabric, as it will be mostly limited to the interior spaces that do not retain original features or finishes.	This is not required by code but could be required by the Authority Having Jurisdiction to prevent destruction of this highly significant structure.
D50 Electrical: Electrical Service and Distribution		
Replace electrical service equipment and obsolete equipment outside the main electrical room.	None.	Improve building operations.
During the mothballing of the structure, ground the interim electrical service to existing water piping and earthed via ground rods.	None.	Maintain building safe.
Replace lighting and controls with LED luminaires, motion detectors and daylighting harvesting systems as required for the new use.	Minimal for exterior devises to be anchored to the existing exterior materials.	Improve building operations.
D60 Communications		
Replace servers, switches, and other equipment as required for the new use.	None.	Improve building operations.
D70 Electrical - Security		
Replace fire alarm and security systems.	No effect on historic fabric	Improve building operations and safety.
G20 Site Improvements		
Remove existing accessibility ramp and construct new ramp and other improvements for accessibility.	No effect on historic fabric.	Constructing new ramp will improve accessibility to the historic structure.
Remove retaining walls at the non-historic east ramp. Infill site.	No effect on historic fabric as the walls are not original.	Infilling the site will restore the original configuration and mitigate the risk of flooding the basement level.
Remove walls and ramp at the south elevation and infill and regrade site. Infill area on the north side of the east ramp.	Removal of site walls will expose some of the foundation and will allow for repairs.	Return to original configuration. Minimize potential for flooding at the basement level.
Replace metal rails at existing exterior stairs.	No effect on historic fabric as the railings are not original.	Work to comply with building codes and Rehabilitation standards.
Coordinate with the ongoing Cultural Landscape Report to implement landscaping upgrades for the entire complex.	None.	All recommended treatments to be based on Rehabilitation Standards.
G30 Site Mechanical Utilities - Fuel Distribution		

North Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Replace fuel distribution system.	No effect on historic fabric, no new penetrations of the exterior envelope.	Improve building operations.
G40 Electrical: Site Lighting and Site Emergency Power Generation		
Carry out routine maintenance, standardize light pole designs.	None.	Improve appearance of site.
Prepare a comprehensive site plan to specify site features.	None.	Document all potential features. Coordinate with Cultural Resource Landscape report.
Carry out routine cleaning and maintenance to maintain the site emergency power generation systems' current condition. Evaluate systems during design for the new program for need of any potential upgrade.	None.	Maintain building safe.
G90 Building Site Drainage		
Construct new drainage to mitigate the flooding issue in the basement and improve the structural stability of the foundations.	No impact.	Minimize potential for basement flooding and minimize future settlement of the foundations.

South Building: Ultimate Treatment

The Rehabilitation of the exterior of the South Building will retain and repair in place character-defining features to the greatest extent feasible, such as the cast in place and precast exposed aggregate concrete and stucco; the replacement of these features will be limited to sections that are deteriorated beyond repair.

Character-defining features that are no longer extant, such as doors and windows, should be replaced with ones that either replicate the originals or have compatible configurations.

No change of use is anticipated and no immediate work on the interior of the South Building is proposed.

Table 5 below includes specific recommendations, identifying the potential impact on historic fabric and the benefits of performing the proposed work.

Table 5: South Building - Recommendations

South Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
A10 and A20: Substructure Foundations and Basement Construction		
Monitor foundation for settlement; engage geotechnical engineer to determine if foundation reinforcement or soil improvements are required.	If reinforcement is needed, repairs will impact historic fabric. Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Stabilize and repair basement and hyphen walls; repair cracks in east basement wall of hyphen.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Construct new foundation drainage to mitigate the flooding issue in the basement and improve the structural stability of the foundations.	Minimal, construction of new foundation drain will allow access to exterior of the basement walls and potential repairs.	Minimize potential for basement flooding and minimize future settlement of the foundations.
B10 Superstructure		
Repair concrete spalls with appropriate structural concrete patches to protect the existing reinforcement. Repair cracking using a compatible cementitious injection grout; infill any unused mechanical penetrations.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Investigate roof structure through probes or partial removal of insulation. Reinforce the purlin beam supporting the roof rafters in the main portion of the building if investigation concludes that it requires some reinforcement to meet minimum gravity loads. The testing should be done in conjunction with the roof replacement.	If reinforcement is found to be needed, it should be designed as non-intrusive as possible, although work might be irreversible.	Strengthen original roof framing.

South Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Repoint deteriorated or missing mortar joints. Replace any cracked, broken, missing, or concrete-covered quarry tiles at the portico and loggia floors with in-kind replacement.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Repair plaster at Portico and Loggia ceilings. Refinish all ceilings.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
B20 Exterior Enclosure		
Repair stucco and precast exposed aggregate concrete such as window sills and door surrounds. Exposed aggregate concrete (stucco and precast) should be replaced with a similar mix of aggregate, concrete paste, and should follow original profile. Replace cast-in-place concrete. Repair and replace sections of parging.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Repoint all the joints between the precast concrete elements.	Repair historic fabric, return to good condition.	Correct maintenance deficiencies.
Infill unused mechanical penetrations with material similar to the historic exposed aggregate concrete so that it matches adjacent materials.	Repair original historic fabric.	Return to original configuration.
Clean severe soiling and severe biological growth. Clean all areas where patching is required, to achieve a good match between patches and the original materials.	Return to good condition.	Correct maintenance deficiencies.
Replace metal railings at north portico stair with railings that meet IBC.	None, railings are not historic.	Correct building code deficiencies.
Replace all small aluminum frame awning window units with windows that replicate the original hoppers. Replace the large aluminum frame windows with windows compatible with the original. Retain in place, repair and refinish historic wood sash and frames and install exterior storms.	Minimal, as none of the windows is historic. However, in the process of removal care should be taken to minimize any impact to adjacent tile masonry and stucco finish.	Installing more compatible and better quality windows will improve the appearance of these character-defining features of the building and improve the thermal performance of the existing building envelope.
Replace all exterior doors. The new doors at the first floor should match the original door configuration. The doors that are not in original door openings should be replaced with doors compatible with the original design but clearly different than the originals to eliminate the potential for creating a false sense of history.	None of the doors is historic. Minimal impact on adjacent historic fabric.	Return character-defining features to appearance during Period of Significance. Enhance the energy performance of the historic envelope.
B30 Roofing		
Replace the modified bitumen rolled asphalt membrane roof, all flashing at penetrations, and drains. Remove and replace existing non-historic parapet wall copper cap flashing.	Minimal impact on historic fabric.	Will enhance the longevity of the structure.

South Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Repoint brick masonry chimney and replace cracked bricks.	None.	Correct maintenance deficiencies.
Install new chimney cap.	None.	Correct maintenance deficiencies.
C10 Interior Construction		
No changes at this time, retain existing use.	Not applicable.	Not applicable.
C20 Stairs		
A new code analysis and potential upgrades of the existing stair to the basement are required for any changes in occupancy or significant alterations to the building.	The existing stair dates is not historic.	Replacing the stair will enhance the life safety of the occupants.
C30 Interior Finishes		
No changes at this time; retain existing finishes, particularly the original glazed tile at the basement.	None.	None.
Test finishes for hazardous materials.	None.	Ensure that the structure does not pose health hazards.
D20 Plumbing		
Clean and perform routine maintenance of existing plumbing fixtures.	None, as these fixtures and the adjacent finishes are not historic.	Work to comply with building codes and Rehabilitation standards.
Clean and perform routine maintenance for the domestic water equipment. Install exterior wall louvers. Repair and reinsulate domestic water piping assembly.	None.	Correct maintenance deficiencies.
Continue routine maintenance of sanitary and stormwater piping and equipment.	None.	Maintain building.
Replace existing sanitary sump pump.	None.	Correct maintenance deficiencies.
Clean and maintain gas systems; relocate meter to more accessible location.	None.	Correct maintenance and other deficiencies.
D30 HVAC: Heating and Cooling Generating Systems		
Replace first floor air-handling unit, duct-mounted heating coil, and aged propeller unit heaters.	None.	Correct maintenance deficiencies.
D40 Fire Protection		
Clean and maintain fire protection system.	None.	Correct maintenance deficiencies.
D50 Electrical: Electrical Service and Distribution		
Replace the electrical service equipment. Install the new panels in one or two dedicated electrical closets.	None.	Correct maintenance deficiencies. Improve operations.
Install new facility grounding system with the same rating as the electrical service.	None.	Correct maintenance deficiencies.

South Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
Replace spring-held flip covers with extra-duty "in-use" covers on exterior receptacles; replace lighting and controls with LED luminaires, motion detectors, and daylight harvesting systems.	None.	Correct maintenance deficiencies. Improve operations.
D60 Communications		
Bring communications infrastructure into compliance with current standards.	None.	Correct maintenance deficiencies.
D70 Electrical - Security		
Upgrade fire alarm and security systems.	No effect on historic fabric	Correct maintenance deficiencies.
G20 Site Improvements		
Remove biological growth and staining of site retaining walls. Patch site walls. For long term, remove retaining walls and infill site to reconstruct the original configuration.	Minimal effect.	Correct maintenance deficiencies.
Construct flood gate at the existing non-historic ramp. Alternatively, remove ramp, infill site and regrade. Conduct code analysis to determine if door need to remain for egress purposes.	No effect on historic fabric as the walls are not original.	Constructing flood gates will mitigate the risk of flooding the basement level.
Replace metal rails at existing exterior stairs.	No effect on historic fabric as the railings are not original.	Work to comply with building codes and Rehabilitation standards.
Coordinate with the new cultural landscape report to implement landscaping upgrades for the entire complex.	None.	All recommended treatments to be based on the SOI Standards for Rehabilitation.
G30 Site Mechanical Utilities - Fuel Distribution		
Replace fuel distribution system.	No effect on historic fabric, no new penetrations of the exterior envelope.	Correct maintenance deficiencies.
G40 Electrical: Site Lighting and Site Emergency Power Generation		
Replace roof floodlights with LED luminaires.	None.	Improve site lighting and save energy.
Prepare a comprehensive site plan to specify site features.	None.	Document all potential features. Coordinate with Cultural Resource Landscape report.
Carry out routine cleaning and maintenance to maintain the site emergency power generation systems' current condition. Evaluate systems during design for the new program for need of any potential upgrade.	None.	Correct maintenance deficiencies.

South Building		
Recommended Treatment	**Potential Effect On Historic Fabric**	**Mitigating Measures and Benefits**
G90 Building Site Drainage		
Construct new drainage to mitigate the flooding issue in the basement and improve the structural stability of the foundations.	No impact.	Minimize potential for basement flooding and minimize future settlement of the foundations.

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APPENDICES

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Appendix A: Recommended Probes and Material Testing

Probes and Material Testing

Several probes and material tests are recommended to minimize risks associated with unknown existing conditions in anticipation of a construction project. The probes fall into three categories:

- Safety of the building - Identification of Structural configuration and properties of structural elements and materials
- Aesthetic of the building - Identification of materials to establish compatible repair materials
- Health and safety of workers during construction and of building occupants - Identification of hazardous materials that might cause delays if only uncovered during construction

Probes and testing would allow NPS to understand the accuracy of the existing drawings and any unknown conditions. All probes are recommended to be taken from the North Building; however, the information gathered would help guide recommendations for future repairs of both buildings.

The following types of probe openings and material testing are recommended:

1. Exterior wall probe including samples of the stucco finish
2. Interior floor probes including at least two concrete cores from the first floor slabs
3. Roof probes including sampling of the wood rafters

Because the structure is fairly consistent, there is flexibility in the sample locations.

For the exterior wall, the drawings indicate the walls are terra cotta block with a stucco coating. In the wall sections, the stucco is about two inches in thickness. It would be useful to take a sample for petrographic and chloride analysis, which will indicate the condition and composition of the material to help pinpoint potential causes of deterioration. Additionally, some material testing labs will return the processed aggregate which could be helpful in specifying a repair mix. The prepared sample size would need to be coordinated with the testing lab and ideally would include the terra cotta substrate behind.

It is recommended that two concrete cores (size to be coordinated with lab) be drilled through the first-floor slabs: one for petrographic/chloride analysis and another for compressive strength testing.

The cores would be taken from two different locations. Ideally, the concrete cores could be drilled in locations where the concrete is already in poor condition. At the locations of these cores,

the adjacent concrete would be chipped away to expose the steel bars. These probes would determine the placement, size, and condition of reinforcement. During the October 2018 field survey, two concrete cores were seen in the basement hyphen storage room, currently propping up shelves. If it can be confirmed that these cores were taken from the floor slab above, these could be used as material samples for testing.

Roof probes or improved access to the attic spaces should also be provided so that the materials and member sizes of the roof structure of both buildings can be confirmed. This would include a probe into the roof membrane from above or the partial removal of insulation from below to expose the roof rafters and beam (if extant). While exposed, NPS may also wish to send samples of the wood roof structure (if extant) for wood species identification.

Hazardous Materials

A hazardous material analysis study should be commissioned to identify any potential hazardous materials such us asbestos, lead-based paint, mercury, polychlorinated biphenyls (PCBs), and universal waste.

Asbestos is a naturally occurring mineral. It is distinguished from other minerals by the fact that its crystals form long, thin fibers. Asbestos-containing materials became more widely available after the late 1800's. One of the most common uses of asbestos was in thermal system insulation (TSI) for numerous high-temperature applications (e.g., boilers and pipes). Because of its unique properties of fire resistance, high tensile strength, poor heat and electrical conductivity, and resistance to chemical deterioration, asbestos was also added to various building materials such as vermiculight, sand, cellulose fibers, gypsum, concrete, vinyl, and asphalt to improve strength and fire resistance.

Widespread use of lead in paints, primers, shellacs, and varnishes for buildings began in the late 1800's, becoming commonplace during the period from 1920 to 1960. Lead was added to oil-based paint for three reasons: as a color pigment, to add durability and corrosion control, and as a drying agent. Use of lead in residential paint began to decline in the 1950's as latex paints and titanium pigments began to replace oil-based paints and lead pigments.

Other hazardous materials such as mercury and PCBs should be tested. Mercury could occur in an array of paints, electrical devices, fluorescent lamps, as well as piping for the plumbing system. PCBs are a class of halogenated organic chemicals clear to pale yellow, odorless and tasteless, highly viscous liquids with a high resistance to chemical degradation. PCBs were widely used as dielectric (insulating) and cooling fluids in transformers, capacitors, and electric motors. PCBs were also added to paints, caulks, and other building products to improve plasticity, durability, and chemical resistance.

The collection of all samples of suspicious materials should be conductive using non-destructive and/or limited destructive methods.

Other Testing

Additional tests should be performed during the design of the rehabilitation projects, including cleaning tests for the removal of soiling and biological growth from the exterior wall surfaces.