

X. APPENDICES

Appendix A

Typical Floorplans for the Rehabilitation of Buildings, List of Character-defining Features, and Critical Building Repair Issues



Lieutenant's Quarters

First Floor

Constructed:
 Building type:
 Gross Floor Area:

1838-1898
 Masonry

ranges from 7,420sf
 to 10,043sf



Proposed Alterations



Existing Conditions



Lieutenant's Quarters

Second Floor

Constructed:
Building type:
Gross Floor Area:
1895-1899
Masonry
ranges from 7,420sf
to 10,044sf



Existing Conditions



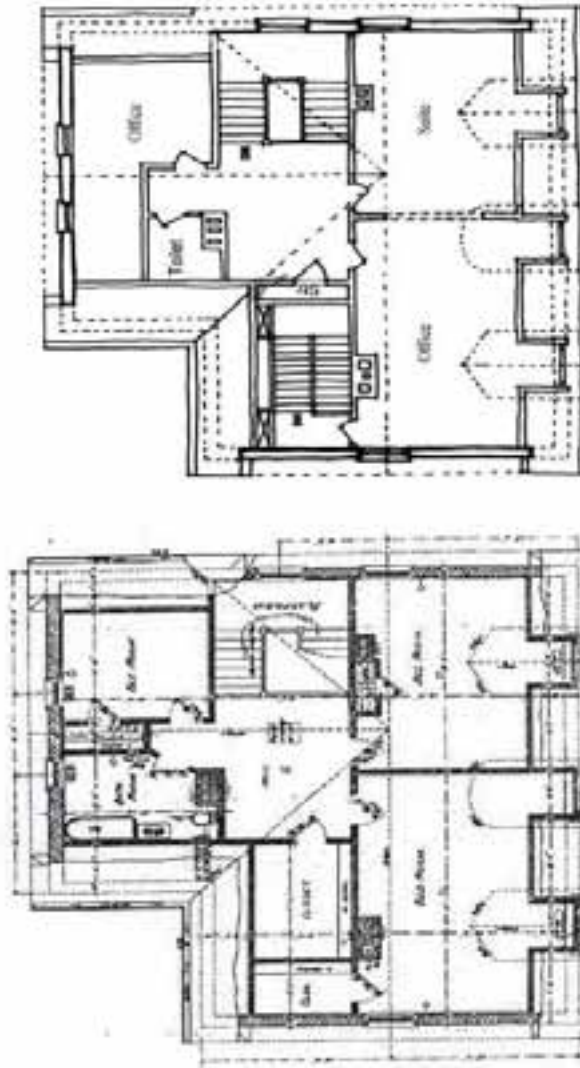
Proposed Alterations



Lieutenant's Quarters

Third Floor
 Constructed
 Building Type
 Gross Floor Area

1995-1999
 Masonry
 ranges from 7,420sf
 to 10,344sf

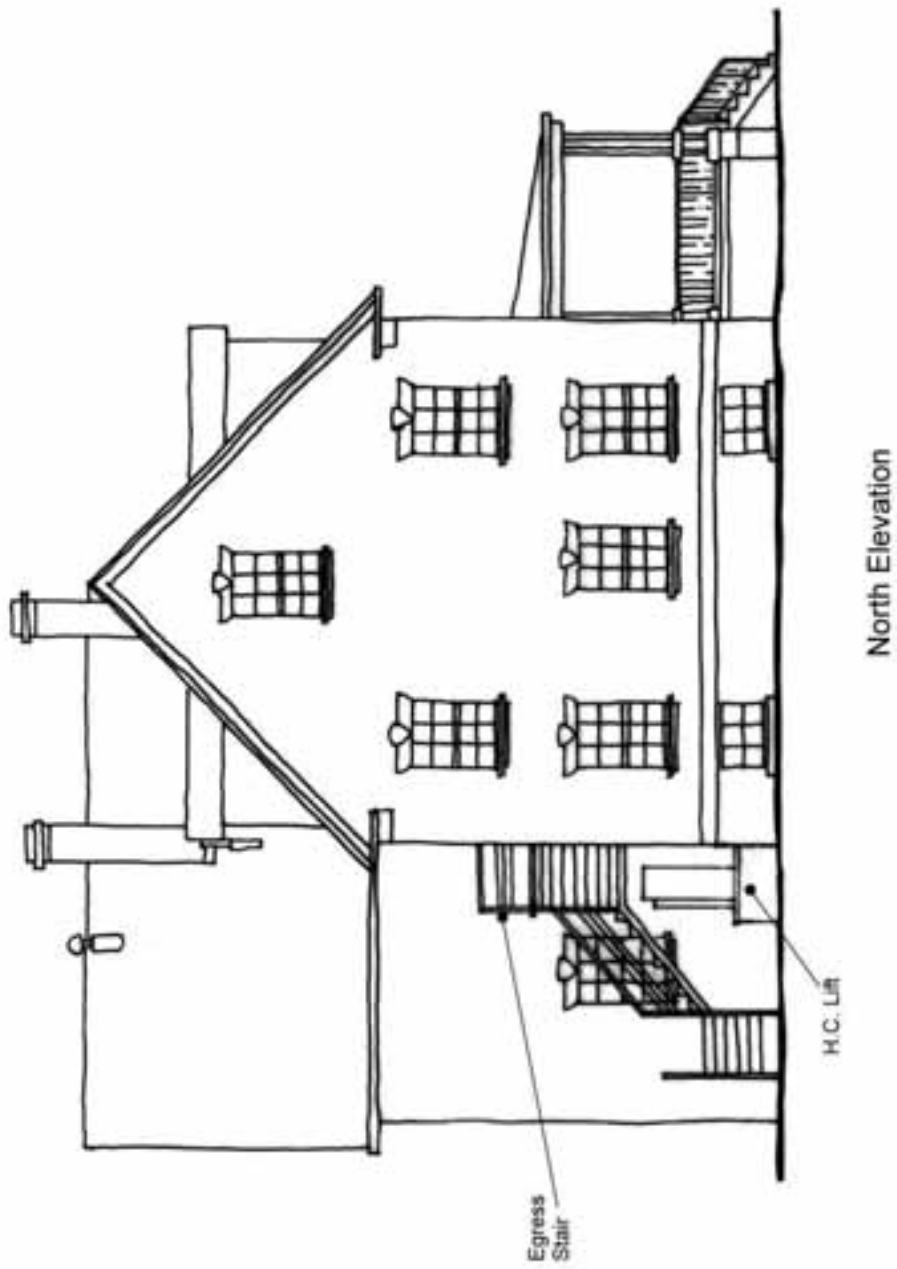


Existing Conditions

Proposed Alterations



Lieutenant's Quarters

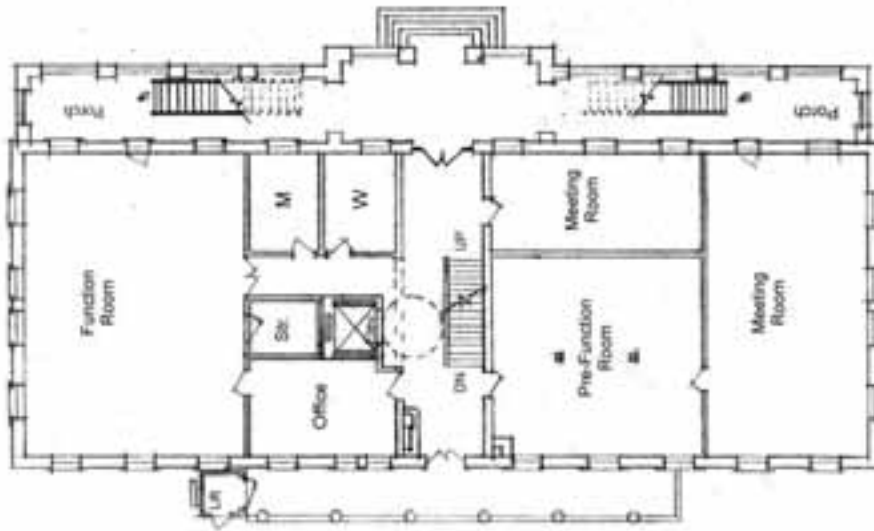




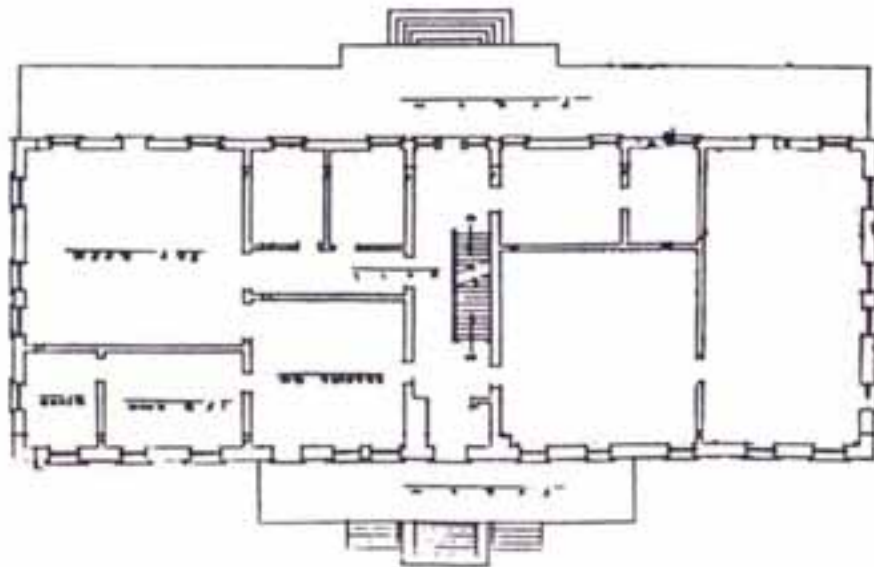
Barracks
Buildings 23 and 24

First Floor
Scheme A
Exterior Egress Stair

Constructed:
Building type:
Gross Floor Area:
1899
Masonry
17,116sf



Proposed Alterations



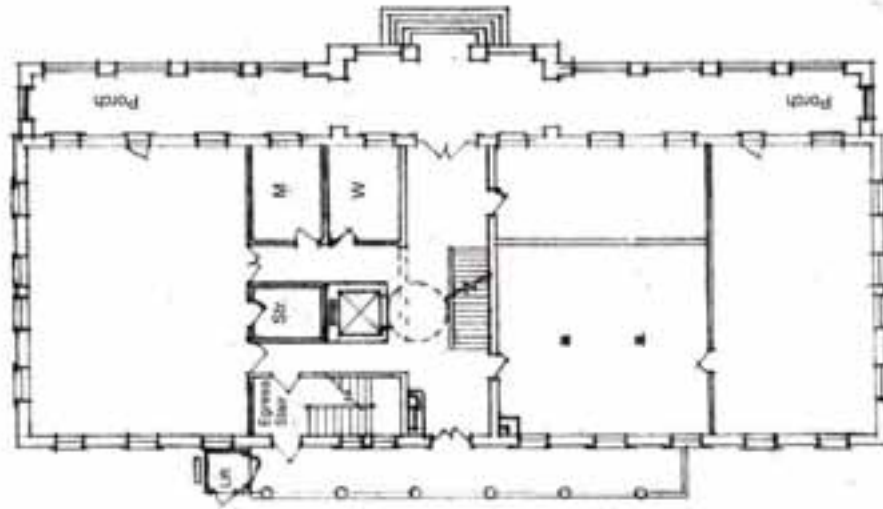
Existing Conditions



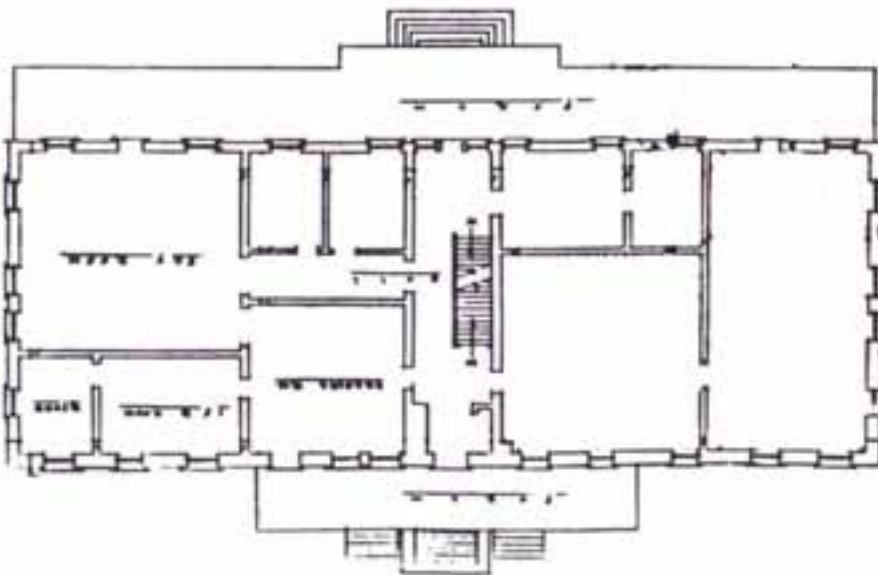
Barracks
Buildings 23 and 24

First Floor
Scheme B
Interior Egress Stair

Constructed:
Building Type:
Gross Floor Area:
1899
Masonry
17,116sf



Proposed Alterations



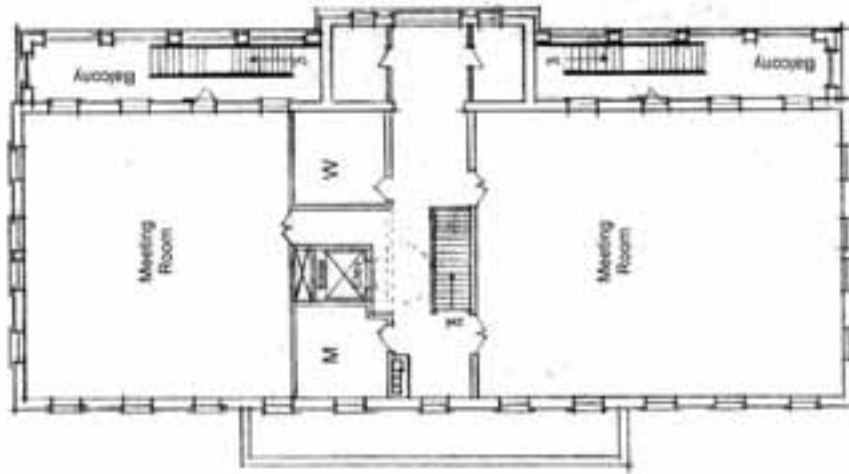
Existing Conditions



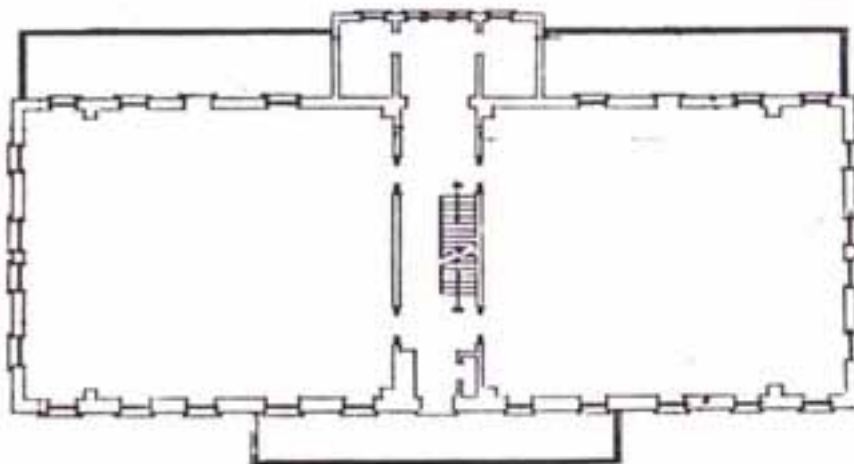
Barracks
Buildings 23 and 24

Second Floor
Scheme A
Exterior Egress Stair

Constructed:
Building Type: Masonry
Gross Floor Area: 1899
17,116sf



Proposed Alterations



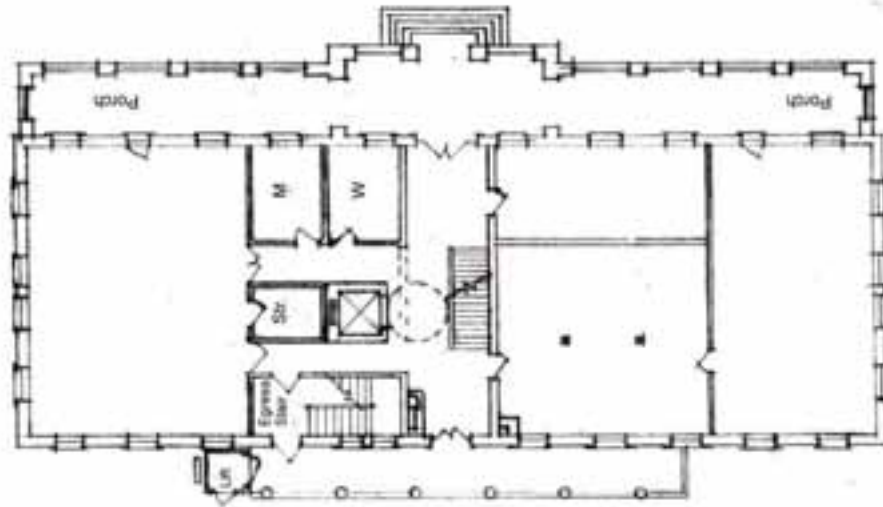
Existing Conditions



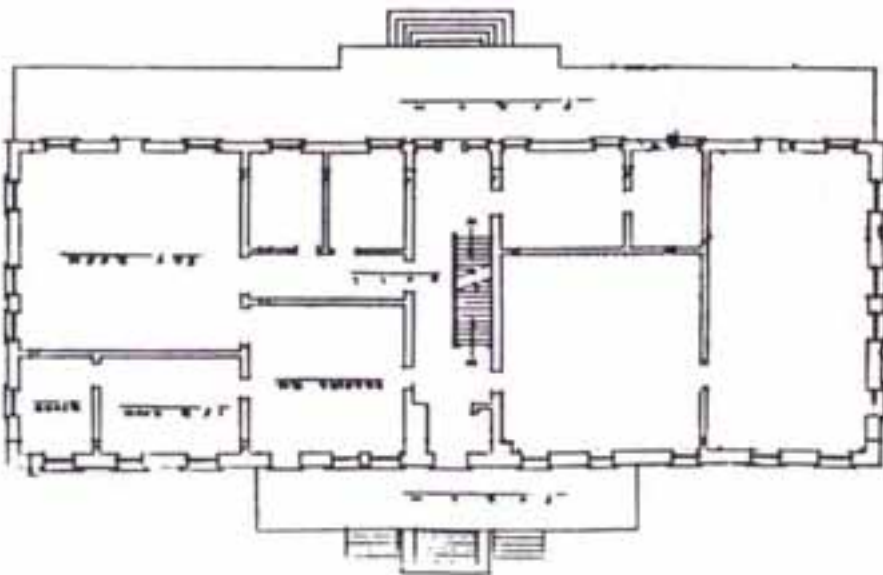
Barracks
Buildings 23 and 24

First Floor
Scheme B
Interior Egress Stair

Constructed:
Building Type:
Gross Floor Area:
1899
Masonry
17,116sf



Proposed Alterations



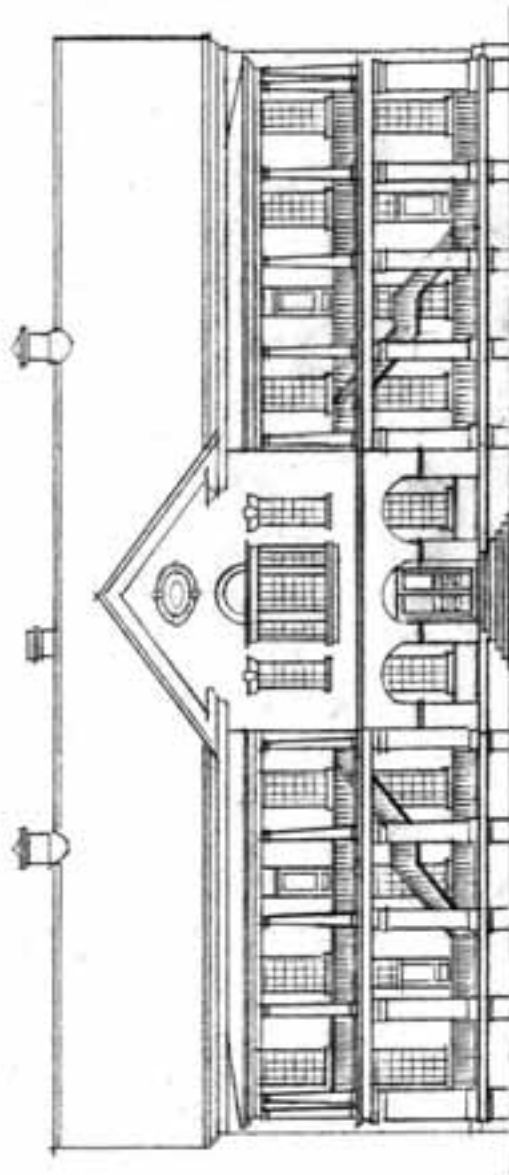
Existing Conditions



Barracks
Buildings 23 and 24

Scheme A
West Elevation

Constructed:
Building type:
Masonry
Gross Floor Area:
1899
17,115sf



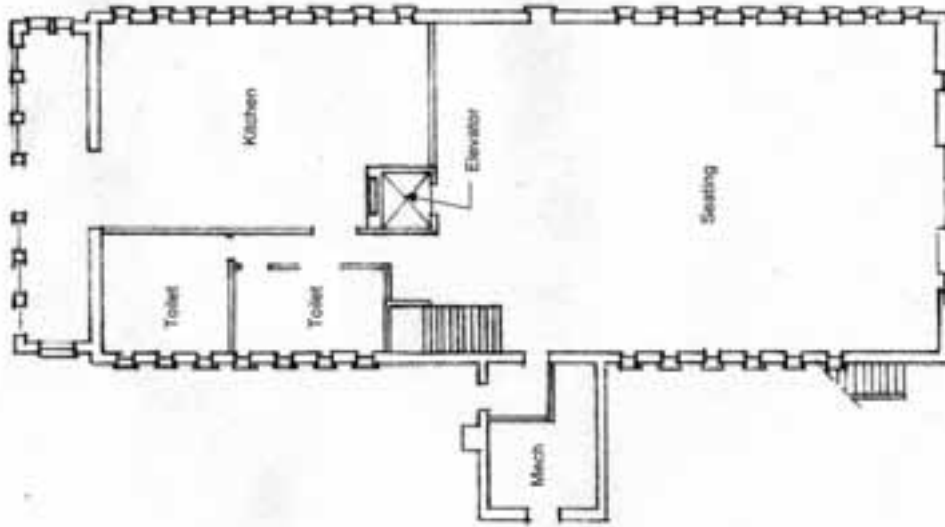
Proposed Elevation
viewed from Parade Grounds



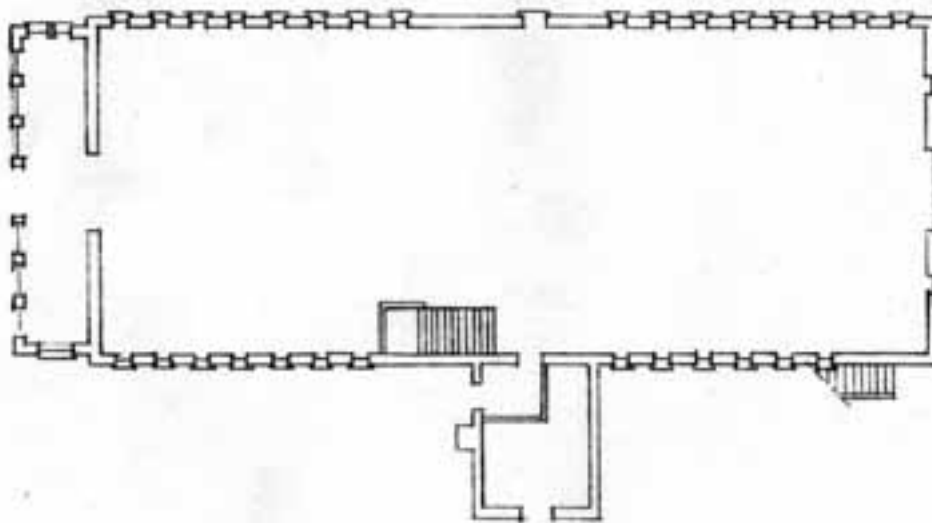
**Mule Barn
Building 36**

First Floor

Constructed:
Building Type:
Gross Floor Area:
1899
Masonry
7629 sf



Proposed Conditions



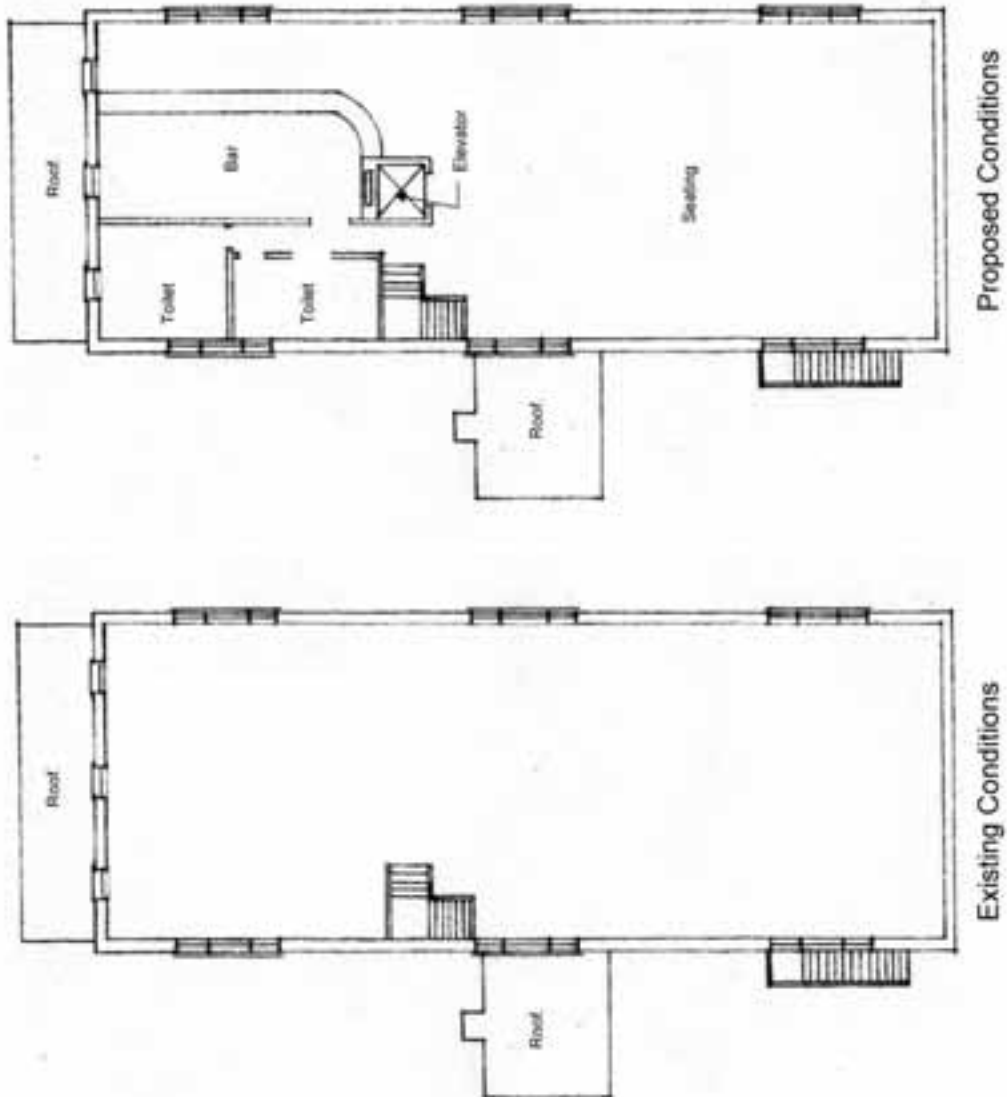
Existing Conditions



Mule Barn
Building 36

Second Floor

Constructed:
Building Type:
Gross Floor Area:
1899
Masonry
70,629 sf

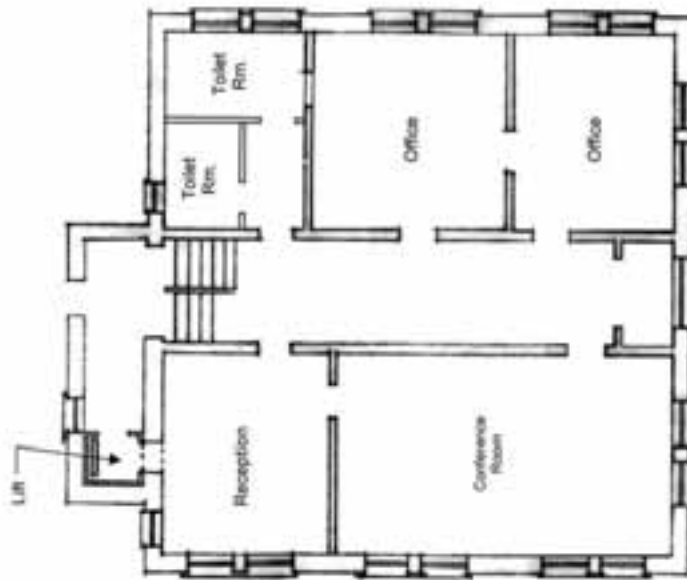




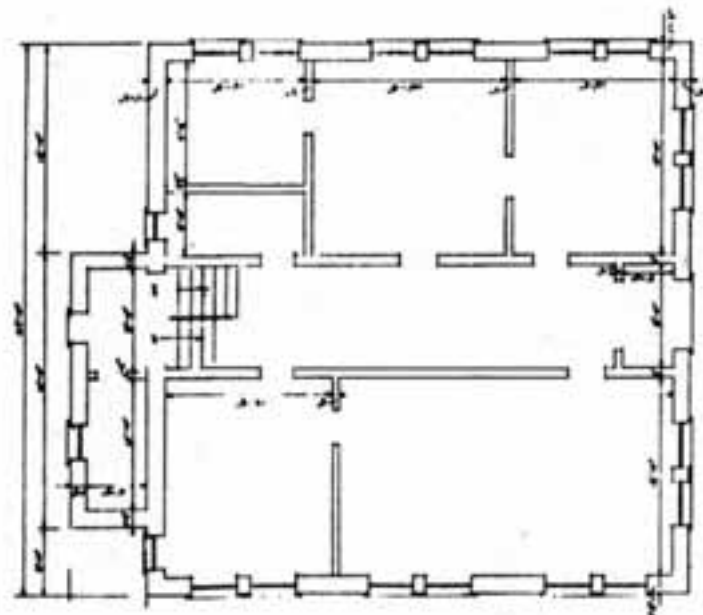
Post Headquarters
Building 26

First Floor

Constructed:
Building Type:
Gross Floor Area:
1999
Masonry
5390 sf



Proposed Alterations



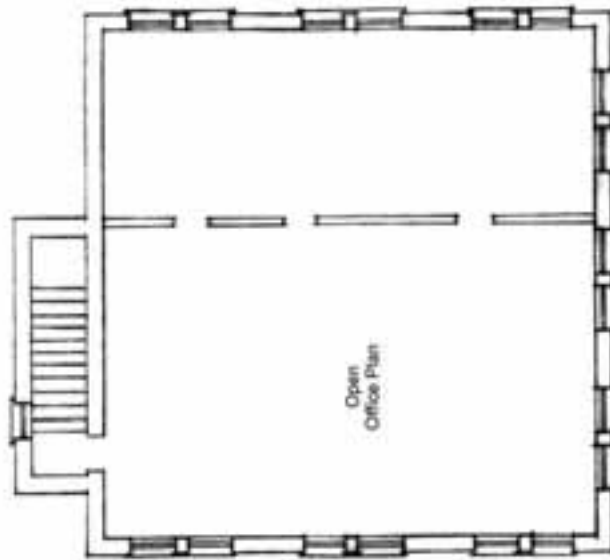
Existing Conditions



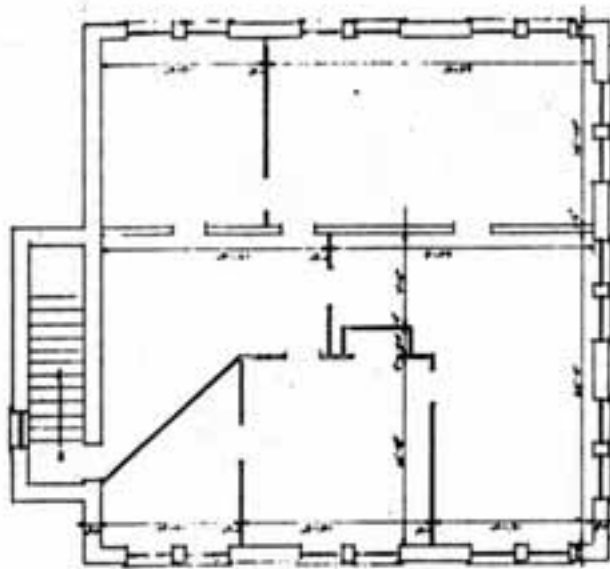
Post Headquarters
Building 26

Second Floor

Constructed:
Building Type:
Gross Floor Area:
1999
Masonry
5390 sf



Proposed Alterations



Existing Conditions

Officer's Club: Building 114



Constructed: 1878
Building Type: Wood Frame
Gross Floor Area: 23,616 SF
Number of stories: Three stories and basement

Special Considerations

One of the oldest buildings on Sandy Hook, the Officers' Club also is one of the most architecturally distinct, designed in the Second Empire style. The building was originally red brick and was later painted yellow to match Fort Hancock. The additions on the east side include a bar and a dining room, added in the 1940s. Although these additions are stylistically incompatible with the buildings exterior and have a negative impact on the exterior of this 1870's structure, the interior of these additions add to the character of the club. Vacant for some time, the building is seriously deteriorated, every attempt should be made to retain interior character defining features; these interiors are perhaps the finest at Fort Hancock.

Character-Defining Features

Interior

- First floor plan
- Pressed tin ceilings
- Wood panel doors, french doors, and sliding pocket doors
- Wood wall paneling, plaster cornice molding on first floor
- Wood window and door trim
- Wood flooring on first floor, in diagonal strip parquetry
- Grand staircase with wood railings, banisters and newel posts
- Mantels and fireplace surrounds
- Decorative radiators
- Tall ceilings on the first floor.

Exterior

- Brick and stone walls, stone sills and banding. Stone window lintels with brackets
- Wood windows, especially bay window over front door and curved bay window on second floor west wall
- Wood doors
- Mansard roof form, including curved top dormers, and decorative trim
- Wide eave with decorative brackets
- Wrapping front porch with porte-cochere, including columns, railings and trim
- Tall, thin proportions of windows and porch columns

Landscape Characteristics

- Informal landscape of grass and trees in outlying yard
- Garden-like placement of trees within open lawn rather than confined to edges of road
- Central concrete walk to front door flanked by ornamental shrubs
- Placement of ornamental shrubs confined to edges of walks or perimeter of building
- Shepherd's crook lighting standards typical of the historic Proving Ground area
- Concrete barbecue terrace and barbecue pit

Post Chapel: Building 35



Constructed: 1941
Building Type: Wood Frame
Gross Floor Area: 3277 SF
Number of stories: One story

Special Considerations

Constructed in wood with lapped siding, the exterior of the Chapel is much different today than from the early days of its use. The original wood siding has been covered with cement asbestos siding. The steeple was removed in 1975 to alleviate structural problems. Each of these original features should be restored.

On the interior the entrance hall leads to the main room, which is a one-story space open to the roof trusses above. A raised platform is located at the west end. Wood paneling and “church” type light fixtures adorn the space. The NPS has used the building for lectures, meetings and events.

Character-Defining Features

Interior

- Wood trusses and exposed wood roof decking
- Stage/Altar with arched proscenium opening
- Hardwood floors
- Pine wainscoting in auditorium
- Balcony/choir loft (closed in at a later date)

Exterior

- Overall building volume
- Tall wood windows with amber glass

Landscape Characteristics

- Landscape plantings at perimeter of building foundation and following walkways

Post Theater: Building 67



Constructed: 1933
Building Type: Masonry
Gross Floor Area: 6151 SF
Number of stories: One story

Special Considerations

Located on Hartshorne Drive the theatre is still used today for meetings, lectures and for small theatrical productions. In 2000, the NPS completed the restoration of the entrance façade. The inappropriate vestibule was removed, the original entrance canopy repaired and interior ADA upgrades completed. Additional exterior repairs including the repair of the severe rust jacking at the front corners of the building need to be completed. The rehabilitation of the interior finishes and furnishings remain to be completed.

Character-Defining Features

Interior

- Main volume of auditorium with raked seating.
- Curved plaster ceiling with cornice molding.
- Shallow stage with arched proscenium opening
- Lobby including architectural millwork, french doors with mirrored glass, and shallow arched plaster ceiling.
- Decorative radiators
- Retain Reostat equipment and sound system for display only
- Seating and seat backs. Add padding and new covers to seats

Exterior

- Overall building volume
- Corner pilasters with stone or cast-stone capitals
- Arched door and window openings with keystones
- Lunette window in front gable
- Marquee supported by thick chains anchored to building face

Landscape Characteristics

- Minimal decorative landscaping
- Concrete steps at building front

Instruction Building/Warehouse: Building 124



Constructed: 1880
Building Type: Masonry
Gross Floor Area: 3845 SF
Number of stories: One story

Special Considerations

This one story, red brick industrial building was constructed for the Proving Ground. The slate roof was removed and replaced with asphalt shingles by the NPS. The two level interior has wonderful light filled spaces. The southeast room has a terrazzo floor and white glazed brick walls. The building is currently used by the NPS for storage.

Character-Defining Features

Interior

- In west area, open ceilings with exposed wood roof decking and steel trusses
- For east area, dropped ceiling
- Glazed white brick in southeast corner
- Terrazzo floor

Exterior

- Simple long building form
- Simple roof form without overhanging eaves
- Specialized brick work; corbels, pilaster, and low arches over windows, especially at gable ends
- Wood divided-light windows, stacked units
- Wood doors with X-bracing and vertical grooved boards

Landscape Characteristics

- Landscape characteristics typical of all service buildings on site
- Ornamental landscape plantings not used—grass or groundcovers only

Motor Shop: Building 125



Constructed: 1907
Building Type: Masonry
Gross Floor Area: 11,694 SF
Number of stories: One story

Special Considerations

Constructed in red brick, this building for the Proving Ground has a wonderful second story rectangular space with remnants of its earlier industrial use still intact. The overhead steel trusses and gantries remain. The building has some of the few remaining sections of railroad track still at Fort Hancock. The addition at the southeast corner is in poor condition, its east wall and roof is beginning to collapse. The building is currently used for vehicle storage by the NPS.

Character-Defining Features

Interior

- Big open interior volumes
- Overhead steel gantries and trusses
- Steel rail sections embedded in floors

Exterior

- Long building forms in parallel arrangement
- Specialized brick work; corbels, pilasters, and low arches over windows, especially at gable ends
- Large doors
- Wood divided-light windows, stacked units
- Simple roof form without overhanging eaves
- Slate roof
- Roof top ventilators

Landscape Characteristics

- Landscape characteristics typical of all service buildings on site
- Ornamental landscape plantings not used—grass or groundcovers only

**Lieutenant's Quarters: Buildings 2,3,4,5,6,7,8,16,17; Captain's Quarters: Buildings 9,10,11,13,14,15;
Commanding Officer's Quarters: Building 12**



Constructed: 1898-1899
Building Type: Masonry
Gross Floor Area: Ranges from 7420SF–10,044 SF
Number of stories: Two stories, basement and finished attic

Special Considerations

Constructed in buff colored brick, these buildings were originally designed to house officers stationed at Ft. Hancock. For many years a number of these buildings were leased in the summer to non-profit agencies for a variety of uses.

The Officer's Quarters exhibit some of the most developed architectural details found at Sandy Hook, and as such, these buildings warrant special attention. The high level of design and the restrained use of Colonial Revival detailing which characterize most of the Fort Hancock buildings are especially refined in these residences. Because they are essentially uniform in appearance, and are located side-by-side, changes that significantly alter the appearance of one building will have an adverse effect on the entire row. A standardized design for new features such as ADA compliant access should be repeated for each building. Garages, which were added after the original construction should be repaired, not demolished.

Character-Defining Features

Interior

- Configuration of floor plans
- Stair hall, railings, banisters, and stair assembly on first and second floors. Open main stairwell
- Fireplaces on first and second floors
- Wood floors
 - Millwork and cabinetry original to the residence, including baseboards, door and window trim, wood doors and picture mouldings
- Wood wainscot in bathrooms [#11 & 12]
- Pressed tin ceilings
- Radiators

Exterior

- Brick and stone walls, stone sills and banding
- Open front porches, including columns, pedestals, railings, and decorative trim
- Wood windows, wood doors
- Roof form, including dormers, rake returns
- Decorative sheet metal eave and rake trim
- Wood gutters

Landscape Characteristics

- Placement of shade trees confined to edges of roads
- Variable foundation planting in front of bayside porch
- Personalized gardening space confined to within 4 feet of building
- "Island" garden beds not used
- Concrete front walkway/Bluestone walkways
- Lighting fixtures placed at edges of roads
- Unobstructed views from porches to the bay

Officer's Quarters: Buildings 21



Constructed: 1939
Building Type: Masonry
Gross Floor Area: 5715 SF
Number of Stories: Two stories and basement

Special Considerations

Residence 21 is an anomaly in Officers' Row, because it was not constructed in the initial 1898-1899 building campaign, but was added in 1939. It is stylistically unrelated to its neighbors, and is a duplex rather than a single residence. This gap in the Row was originally left to allow views between a small lighthouse, which stood on the west side of Hartshorne Drive, and Sandy Hook Light.

The enclosed side porches on both units are in poor condition, and were constructed using incompatible materials and design.

Character-Defining Features

Interior

- Millwork, including mantelpiece and built-in cabinets
- Stair case assembly, including railing
- Transoms over interior doors

Exterior

- Horizontal brick volume with minimal detailing, pronounced brick quoins
- Stone window sills
- Large classical door surrounds in wood
- Front stoop with decorative metal railing
- Hipped roof with slate shingles, no overhang, and small dormers on front

Landscape Characteristics

- (same as for Officers' Row)

Post Headquarters, Building 26



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 5390 SF
Number of stories: Two stories, basement

Special Considerations

Designed to house offices for Fort Hancock, until recently the building was used for the NPS offices.

Constructed in the predominant buff colored brick, the building is located in a prominent location at the north end of the Parade Grounds.

Alterations including installations of hung ceilings and new gypsum partitions were installed to accommodate the NPS offices. These alterations hide some original finishes including pressed tin ceilings.

Character-Defining Features

Interior

- Original wood doors, door and window trim, where remaining
- Stair and railing
- Pressed tin ceiling on first floor

Exterior

- Brick and stone walls, stone sills and banding
- Gable end walls with distinctive double chimneys, corbelled projections, terracotta cap
- Wood windows, especially the half-round windows in the gable end walls and the lunette windows at the attic story
- Front door, including fanlight and sidelights
- Roof form
 - Front porch, including columns, railings and trim is a later alteration. Retain or reconstruct original porch with balustrade
- Slate roof

Landscape Characteristics

- Landscape characteristics similar to that of Officers' Row Residences
- Landscape plantings limited to perimeter of building foundation

Bachelor Officer's Quarters: Building 27



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 10,303 SF
Number of stories: Three stories, basement

Special Considerations

Once a grand building sited at the north end of the parade ground, this buff colored brick building is now in need of restoration. The exterior brick is failing; cracks and missing bricks are evident. The interior has been altered with little of the original plan or details remaining.

Character-Defining Features

Interior

- Stair rail and banister
- Some original millwork, such as mantelpieces and built-in cabinets in dining room and pantry
- First floor plan that can be seen through the alterations should be restored.
- First floor paneled doors
- Radiators

Exterior

- Brick and stonewalls, stone sills and banding
- Round bay windows
- Wood windows, wood doors, front lights and sidelights
- Decorative sheet metal eave and rake trim
 - Front porch, including columns, railings and trim is a later alteration. The existing porch should be retained or original porch with balustrade reconstructed.

Landscape Characteristics

- (Same as for Building 26)

Barracks: Buildings 23 and 24



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 17,116 SF
Number of stories: Two story, basement and finished attic

Special Considerations

Constructed to house men in dormitory style, the Barracks Buildings have been vacant for many years. These buildings are exceptionally fine examples of the use of Colonial Revival architecture for military uses, and show a greater level of finish and detail than is usually found at an army base. Particularly noteworthy is the use of terra cotta elements, used to greatest effect on the Palladian windows centered on the projecting central bay. Two sections of two-story porch framed this central bay, which unfortunately are no longer standing. The bottom story of the porches was supported by square brick piers or pilasters (still standing), with simple Doric columns on the second story. The balustraded railings were cast iron.

In 1989, the deteriorated two-story front porches were removed from the barracks because they posed a safety hazard. The brick piers were capped and stabilized. Building 23 has lost most of the integrity of its interior due to fire and water damage. Rake returns have been boxed out in wood in several locations. Rake returns should be replaced with new metal returns compatible with the decorative metal rake detailing.

Character-Defining Features

Interior (These pertain to Building 24 only)

- Staircases, railings banisters
- Pressed tin ceilings
- Cast iron columns
- Wood recessed-panel doors, some with divided light transoms above
- Wood trim around original doors, especially trim including dentilated cap molding
- Chair rail, wood wainscoting in stair hall
- Original plan configuration, especially open barracks on second floor
- Decorative cast iron radiators

Exterior [These pertain to buildings 23 and 24 unless noted otherwise]

- Brick and stone walls, stone sills and banding
- Wood windows
- Main entry door (for Building 24 only)
- Secondary doors with 28-light fixed glass
- Roof form, including decorative sheet metal eaves and rake trim
- Central entrance bay, with three open arches forming an open “loggia”
- Rusticated brick banding at main entry
- Terra cotta details in central Palladian window and elliptical window in gable ends
- Limestone steps cascading from central arched opening
- Cast iron balustrades in railings
- Roof top ventilators
- Porches.

Landscape Characteristics

- Simplified and uniform foundation plantings from building to building.
- Geometric arrangement of concrete sidewalks.
- Curved brick walkway on west façade of barracks.
- Plantings located at perimeter of quadrangles between mess halls rather than in center.

Mess Halls: Buildings 56, 57



Constructed: 1905
Building Type: Masonry
Gross Floor Area: 6676 SF
Number of stories: One story, basement and unfinished attic

Special Considerations

The Mess Halls were added six years after the barracks were constructed, after it was found that the mess halls and kitchens originally included within the barracks were too small. Architecturally, they pick up on the Palladian references found in the Barracks and are seamlessly integrated into the earlier building complex. Yet their scaled back detailing make it clear they are subservient structures. The spaces created between the Mess Halls and Barracks are well defined and have a comfortable human scale.

The exteriors of the buildings are in generally good condition. The rear porch on Building 57 should be rebuilt. The buildings are currently vacant.

Character-Defining Features

Interior

- Pressed tin ceilings, where extant
- Wood trim around doors and windows in all public rooms
- Original base moulding and chair rail where present
- Decorative radiators

Exterior

- Brick and stonewalls, stone sills and banding
- Wood windows
- Main entry doors with divided light transom
- Secondary door with 28-light window
- Roof form, including dormers, rake returns
- Decorative sheet metal eave and rake trim
- Front and rear porches including columns, railings and trim
- Roof top ventilators

Landscape Characteristics

- Simplified and uniform foundation plantings from building to building
- Geometric arrangement of concrete sidewalks
- Curved brick walkway on west façade of barracks
- Plantings located at perimeter of quadrangles between mess halls rather than in center
- Stone areaways
- Stone walkways

Mule Barn: Building 36



Constructed: 1899
Building Type: Masonry
Gross Floor Area: 7629 SF
Number of stories: Two stories

Special Considerations

The Mule Barn is highly distinctive and expresses its original function in its design. Constructed in the predominant buff colored brick the building served as a stable for many years. In 1940's the Army used the building for many purposes including a barracks, NCO club and a mess hall. It was during this period that the dormers were added. After the army left Fort Hancock the Mule Barn was used by NJ Department of Corrections as a youth facility workshop. The NPS returned the building to its original use and again used the building as a stable. Currently the building is vacant.

The ground floor has been modified to such an extent that most original finishes and features are missing. There

Character-Defining Features

Interior

- Finishes on second floor are the only historical materials remaining
- Plaster walls and ceiling with softwood strip flooring
- Wood columns
- Wood stairs and stair railing

Exterior

- Brick and stonewalls, stone sills and banding
- Small window openings with arched lintels set deeply into walls; wood windows
- Roof form with rake returns, also including dormers, sided with wood clapboard
- Roof top ventilators

Landscape Characteristics

Landscape characteristics typical of all service oriented buildings on site

- Ornamental landscape plantings not used—grass or groundcover only

Two Family NCO Quarters: Building 80



Constructed: 1911
Building Type: Masonry
Gross Floor Area: 2,342
Number of Stories: Two stories

Special Considerations

Constructed in buff colored brick by the Army, this two-family house has been used by the Army, the Coast Guard and the NPS for housing. Currently the building is vacant. Alterations to the interior have been numerous and little original fabric remains. The exterior is in good condition; alterations to the porches have been completed.

Character Defining Features

Interior

- Retains some baseboard (wood)
- Original window trim
- Some original door trim
- Original stair and banister
- Radiators

Exterior

- Brick walls and stone sills.
- Wood windows and doors.
- Porches

Landscape Characteristics

- Landscape planting limited to perimeter of building foundation.
- Foundation planting facing street required.

Bakery: Building 33



Constructed: 1898
Building Type: Masonry
Gross Floor Area: 2740 SF
Number of stories: One story

Special Considerations

The one story buff colored brick building was designed and used as a bakery for the post. Today the building is vacant. Portions of the original bread ovens still remain in place on the interior, including the front face of the oven made of glazed brick with steel doors. Despite the deteriorated state of most of the oven, portions of the oven should be retained.

Character-Defining Features

Interior

- Wood beaded-board ceilings, where extant
- Light wells leading to clerestory on roof
- Glazed brick oven, remaining in part
- Unadorned utilitarian finishes

Exterior

- Brick and stonewalls, stone sills and banding
- Wood windows, wood doors
- Roof form, including cupola
- Decorative rafter tails

Landscape Characteristics

- Landscape characteristics typical of all service buildings on site
- Ornamental landscape plantings not used—groundcover only

Post Exchange/Gymnasium: Building 70



Constructed: 1909
Building Type: Masonry
Gross Floor Area: 8747 SF
Number of stories: Two stories, including finished basement

Special Considerations

Building 70 is a unique structure at Fort Hancock with a high level of architectural detail. The Craftsman style detailing of the wood members at the porch and roof overhangs is an unusual departure from the Colonial Revival detailing normally found at the Fort. This building also has fine Classical Revival details, especially the tall, arched windows. The shed addition on the rear is not historic. The basement level bowling alley fittings and finishes are from the 1960s, but the bowling alley function is original to the building, which served as the post gymnasium until 1942. Today the building is vacant.

Character-Defining Features

Interior

- Entry hall and 2 rooms on either side of entry retain original features
- Pressed tin ceilings, where they exist
- Window and door trim, including some remaining transoms over doors. Doors are non-historic

Exterior

- Brick and stonewalls, stone sills and banding
- Wood windows, especially tall, arched windows with raised panels below
- Roof form, including dormers
- Decorative rafter tails on porch, main roof and dormers
- Front porch, including brackets and decorative framing
- Railings at porch are original pipe and bulb rail
- Roof top ventilators

Landscape Characteristics

- Landscape plantings limited to perimeter of building foundation
- Foundation planting facing street required—typical to that of barracks/mess halls

Gas Station: Building 60



Constructed: 1936 and 1939
Building Type: Masonry
Gross Floor Area: 1325 SF
Number of stories: One story

Special Considerations

Located east of the Post Exchange, Building 53 was constructed to replace an earlier frame structure. In 1939, a yellow brick two bay addition was constructed. The building is currently vacant.

Character-Defining Features

Interior

- Pressed tin ceilings in entrance/office
- Wood window trim
- Operable glass transom over front door
- Painted brick wall finishes
- Light fixtures in garage bays
- Radiators

Exterior

- Brick and stonewalls, stone sills and banding
- Porte-cochere and gas-pump island
- Wood windows, and steel casements (indicating different construction dates)
- Skylights in roof over service bays
- Slate roof
- Design of overhead door infill to reflect original design and use

Landscape Characteristics

- Utilitarian landscape devoid of planting

YMCA and Gymnasium: Building 40



Constructed: 1901/1942
Building Type: Masonry
Gross Floor Area: 18,890 SF
Number of stories: Two stories, basement and finished attic

Special Considerations

Funded in part by a donation from the YMCA, the building was designed to house reading, recreation and correspondence rooms. Its location on a site overlooking the parade ground just north of the Barracks buildings was the cause of many debates and a delay in its construction. The first and second floors of the interior bear little resemblance to the original design. The third floor however, retains much if not all of the original fabric.

The gymnasium addition was constructed in 1942 to the north of the main building. Its two story interior space with an elevated seating area remains intact. The gymnasium remains in use today.

Character-Defining Features

Interior

- Some original window trim remains in older section (1901)
- Gymnasium wood trusses supporting roof, with exposed wood decking
- Glazed block lower wall section
- Gallery with metal pipe rail
- Terrazzo floor
- 3rd floor plan
- Stair and railing in 1901 section

Exterior

- Brick and stonewalls, stone sills and banding
- Entrance door with lunette transom, and adjoining arched windows
- Roof form, including dormers, and wood entablature with built-in gutters
- Front porch, including columns, railings and trim
- Large double-hung gym windows
- Metal railing at entry porch

Landscape Characteristics

- Landscape plantings limited to perimeter of building foundation
- Foundation planting facing street required—typical to that of barracks/mess halls

Based on past experience, there are certain building repair issues that are frequently found at Fort Hancock. What follows is a set of general repair strategies for some of the most common building deficiencies found at Fort Hancock:

BRICK, STONE AND MORTAR

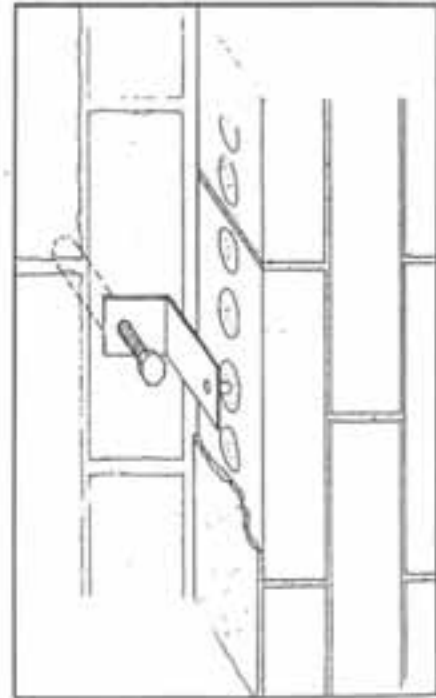
Fort Hancock and the Warehouse area of the Proving Ground Warehouses contain different types of masonry, and different types of deterioration. For the brick Warehouse buildings, the deterioration of mortar joints must be corrected by raking the joints to remove the old mortar and then repointing the joints with new mortar. For buildings of this age, it is usually necessary to use a soft, lime-based mortar. Repointing with modern cement mortars will cause more damage than it will correct, because it is extremely hard and the brick is comparatively soft. For Fort Hancock's buff brick buildings, the brick is extremely hard, so repointing can be done with a harder mortar. However, the thin "butter joints" will necessitate hand raking and repointing. Stone foundations walls may also require repointing to repair failed masonry joints. As in any repointing project, the type of mortar must be compatible with the existing mortar and the stone.

Efflorescence, or the white residue seen on the face of the brick, is evidence of mortar deterioration or salts leeching out of the mortar and brick. This problem is usually caused by water damage to the brick wall. Correcting the source of the water infiltration, either at the coping or parapet, or at a leaking roof, is frequently the first step in repairing the problem. If it is a result of the mortar washing out of the joints, repointing is the solution.

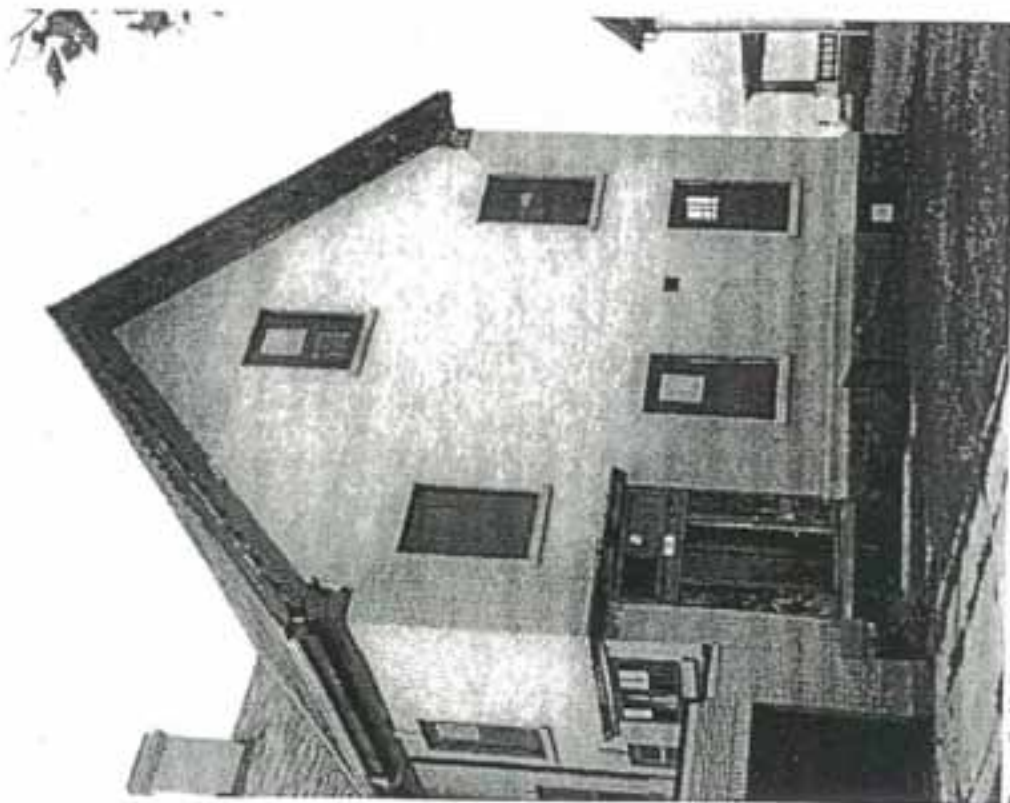
An unusual problem has existed in the past at Fort Hancock related to the buff brick. This brick is a veneer layer, and in some cases is detached from the back-up brick, and is bowing out. The veneer layer is not attached to the back-up brick layer using any anchors to tie the two together, but instead, the buff brick sits on horizontal shelves created in the back-up wall. In 1992, the NPS corrected the problem in the most severe cases on Officer's Row by taking down the walls where the veneer brick had become detached, and rebuilt the buff brick wall using a brick anchor which tied it to the back-up wall.

LINTEL REPLACEMENT

Steel lintels and other structural pieces embedded in brick walls are prone to "rust jacking", a situation where water infiltrates the brick wall, and corrodes the steel. The swelling that is caused by the corrosion jacks the bricks out of alignment, which then further breaks up mortar joints and allows more water to enter the wall cavity. Where this has happened, it is often necessary to remove both the bricks and the corroded lintel. Replacement of new steel lintels is best done using stainless steel or, if that is not feasible, regular steel that has a sturdy rust-proof, water repellent coating.



Detail of brick anchor used to repair walls at Officer's Row.



East wall of Building 10, which was rebuilt using new anchoring system. New brick and replacement steel in linings.

ROOF REPLACEMENT

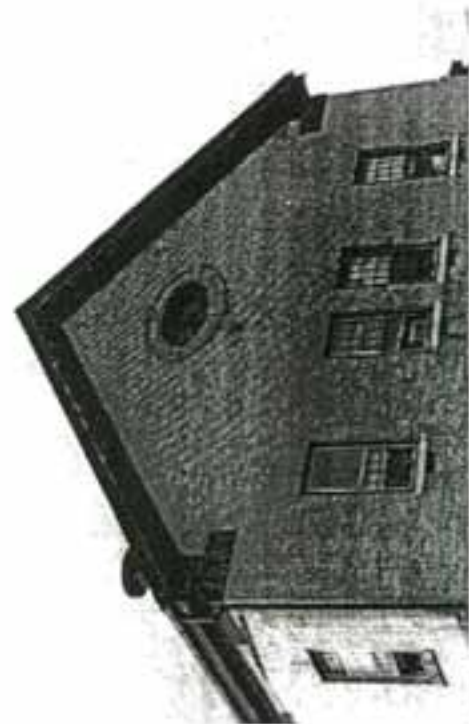
There is a mixture of slate and asphalt roof shingles, and standing seam sheet metal roofs in the Fort Hancock Historic District. Some roofs, in part or total, may need to be replaced. Retention of the historic roofs is an NPS goal, and every reasonable effort should be made to repair rather than replace a historic roofing material. If replacement is the only option for a roof, care should be given to select substitute materials that are compatible with historic materials. In the case of selecting asphalt roof shingles, Park management has selected a type and color shingle to be used by lessees. This information will be provided by the park.

GUTTERS AND DOWNSPOUTS

Gutters and downspouts are the first defense against water damage, and their repair and maintenance should be a priority. Most of the original gutters and downspouts are copper, and whenever possible, they should be repaired in place. Corroded areas should be patched, and damaged sections replaced. Substitution with aluminum sections will not, in most cases, be acceptable, because this modern gutter and downspout materials are different sizes and profiles. Substitutions using improperly sized gutter is evident at the Barracks, and on many of the Officer's Row houses.

BUILT-IN GUTTERS AND FLASHING

Flashing materials should also match the existing materials, which in most cases are copper. This includes valley and chimney flashing. Many of the built-in gutters at roof eaves that were original to the Fort Hancock buildings have been covered over, (especially on Officer's Row and the Barracks) and surface mounted metal gutters have been added. Reconstructing the absent built-in gutter, following the original appearance, is the preferred course of action. Retaining the original appeared gutter may be acceptable in some cases. However, installation of a new surface mounted gutter will require custom fabrication to fill the space and provide adequate drainage.



Roof rakes and gutters require attention on many Fort Hancock buildings.

TRIM AND MOLDING

Applied wood and metal trim and moldings must be replaced in damaged sections. At Fort Hancock, the characteristic formed metal rake and eave moldings on the major Parade Ground buildings are important to preserve. In cases where the majority of the sheet metal moldings are extant, repairs and insertion of missing components is the correct procedure. Where the moldings are missing entirely, substitute materials may be used, if they adequately replicate the historic molding. Rake returns, which have been modified from their original appearance, should be restored using the historic molding.

CHIMNEYS

Chimneys will be retained in most cases. To do so will require repointing, and sometimes rebuilding failed sections of brick. Exceptions to this will be addressed on an as-needed basis. Usually, the chimneys will be capped.

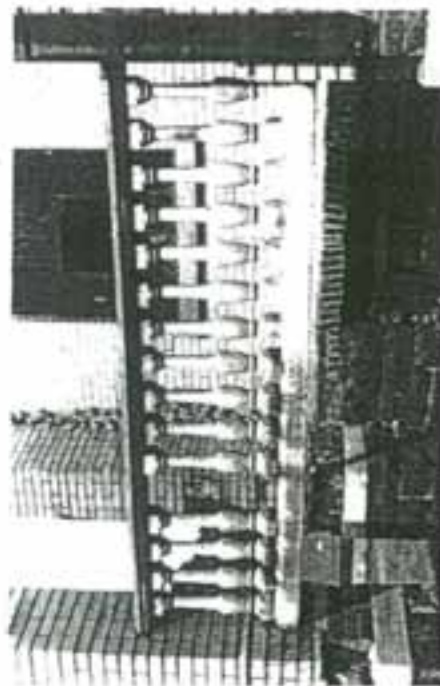
WINDOWS AND DOORS

The historic wood windows and doors on buildings in the Fort Hancock Historic District are important character-defining features and should be retained. This includes front door assemblies composed of fixed glass elements like fan lights, transoms, and side lights. In most cases, repairs can be made on these doors and windows to make them operational and serviceable. In cases where windows are missing or in extremely bad condition, new windows are permitted, as long as they match the historic window in size and appearance. True divided-light windows are required. Double paned glass is permitted in new windows, but windows will have to match the mullion and muntin sizes of the historic window sash. Storm windows may be added to improve energy efficiency, but the storm window unit must be mounted on the inside of the window, facing the building interior. Window screens can also be included in the storm window assembly. Storm doors are permitted as long as they are sufficiently compatible with the rest of the building. The NPS will provide product information for approved types.

PORCHES

Porches are prevalent in all areas of the Fort Hancock Historic District and are a character-defining feature. Their repair and maintenance should be factored in to any rehabilitation proposal. Because the porches contain so much architectural detail, in the form of columns, railings, and balustrades, loss of any of these pieces would have a negative impact on the buildings. Repairing in place, and selective replacement of damaged elements, are preferred to replacement of entire components. Wood consolidation and dutchman patching are recommended procedures to correct damaged wood. Substitute materials may be used to replace damaged elements as long as they match the original in size, profile and detail. For example, many of the railings are made up of cast iron balustrades, which would be very expensive to replace. A modern replacement balustrade may be cast from the original, thereby copying its size and shape.

Enclosing open porches may be allowed in certain areas of the park. For Officer's Row enclosing porches with insect screen is the only allowable enclosure. Frame work to support screen must sit behind columns & railings and designed to be as inconspicuous as possible.



Cast iron balconies still exist on some barracks' porches.

In the case of Residence 21 on Officer's Row, which is not one of the original 19th century officer's residences, building has enclosed side porches which are currently enclosed using incompatible materials. These enclosures may be replaced with a more compatible enclosing system.

The NPS removed the two story porches on the Fort Hancock Barracks buildings in the late 1980's because they had become a safety hazard. Rear porches were also removed. Photographs were taken prior to their removal, and certain components were salvaged and stored, which can be used as models for new components. It is the desire of the NPS to have the porches rebuilt. Replicating the original porch is desirable, although modifications may be necessary in order to incorporate emergency egress stairs from the second floors. Substitute materials may be used, if the design is copied from the original components.

PAINT COLORS

The NPS has recently completed an analysis of historic paint colors. Lessees will be required to follow the Paint Color Guidelines which will be provided upon request. Paint colors are based on readily available paint brands.

LEAD PAINT

It is safe to assume that whenever paint stripping, scraping or sanding is planned, that the paint being removed contains lead. This is true for paint chips that have already fallen off. Therefore, cleanup of the interiors and the preparation for repainting must be done in accordance with EPA and OSHA procedures for handling lead-containing materials. The lead paint must be abated by a licensed abatement contractor, the dust, chips and residue properly contained, and the waste disposed of at a licensed disposal facility.

GARAGES ON OFFICER'S ROW

Although these structures are in poor condition, they should be retained. Replacing steel lintels is necessary in many cases, as well as roof replacement. Replacement of missing wood doors is necessary in many cases. New garage doors must conform to the type of door on Building 12 or another compatible design as approved by the Park.

CEMENT ASBESTOS SIDING

Many of the frame structures on Sandy Hook have been totally or partially re-sided using cement asbestos siding. This siding was installed over horizontal board siding. The NPS requires that the siding be removed, in order to return the buildings to their historical appearance. This is especially necessary if the asbestos siding is damaged, or if rehabilitation plans call for large areas of disruption or cutting of this siding. This removal must be done by a licensed hazardous waste demolition firm.

ELECTRICAL, PLUMBING, AND TELEPHONE

Most of the buildings' mechanical systems will require upgrading to bring them into code compliance and serviceable operation, and to meet the needs of the new user groups. Removal is preferred over abandonment in place. Placement of exterior components, such as electric service panels, must be submitted to the NPS for review, in order to minimize their visibility.

HEATING, VENTILATION AND AIR CONDITIONING

In general, the buildings that are currently unoccupied no longer have operable heating systems. Buried fuel tanks have mostly been removed. Hot water radiators and the supply and return piping are usually intact in each building, but they are often in deteriorated condition. Repairing and reusing the existing radiator system should be considered as an option, but in most cases, furnaces and boilers must be replaced. New energy efficient heating systems may be considered. Fuel tanks must be located in the basements with the mechanical equipment, wherever that is possible. Above-ground storage tanks are not permitted except in special cases.

Window air-conditioners are not permitted. Central air-conditioning is preferred by the NPS. The location of interior ductwork and piping shall be designed in such a way as to avoid destroying character-defining features within the building's interior. Exterior equipment, such as condenser units, should be unobtrusively located close to the building.

ADDITIONAL INFORMATION

The National Park Service's Preservation Assistance Division publishes two technical resources which will provide lessees with additional information on building repairs. These are *Preservation Briefs* and *Preservation Tech Notes*; both publications contain case studies and technical information on how to treat historic materials and solve common problems with historic building systems and materials. The NPS staff at Sandy Hook can provide information on obtaining these publications. In addition, they will provide a technical manual to prospective lessees specific to the Fort Hancock Historic District, which will include recommended products, treatments, materials and color schemes which are pre-approved for use at Fort Hancock.

Appendix B

Secretary of the Interior's
Standards for the Treatment of Historic Properties:
Standards for Rehabilitation

Standards for Rehabilitation

Rehabilitation is defined as 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.

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to property that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity or deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.
10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Appendix C

Inventory of Existing Parking Spaces at Sandy Hook

**INVENTORY OF EXISTING PARKING SPACES
AT SANDY HOOK**

(December 1999)

PARKING AREA or BUILDING LOCATION	NUMBER OF SPACES	NOTES
BEACH & BAYSIDE PARKING:		
Beach Area B	337	Public use
Beach Area C	297	Public use
Beach Area D	703	Public use
Visitor Center (Spermaceti Cove)	25	Public use
Beach Area E	744	Public use
Ranger Station	12	Public use
Nike Launch Site	30	Public use
Fishing Beach	25	Public use
Horseshoe Cove	34	Public use
Group Campground	20	Public use
Gunnison Beach	787	Public use
North Beach	341	Public use
Proving Grounds/North Beach	165	Public use
Nine Gun Field	650	Public use
NPS Fee Collection Operations	15	NPS operations
NPS Ranger Station Operations	13	NPS operations
NPS Maintenance Operations	8	NPS operations
NPS Residences outside Ft Hancock (Buildings 33, 340 & 600)	12	NPS operations
BEACH & BAYSIDE TOTAL:	4218	4170 Public; 48 NPS operations

PARKING AREA or BUILDING LOCATION	NUMBER OF SPACES	NOTES
FORT HANCOCK PARKING:		
Guardian Park	27	Public use
South Parade Ground	38	Public use
Fort Hancock	90	Public use
Brookdale/Lighthouse Area	40	Public use
Mast Campus	35	Coop partner use
Howard Marine Lab	92	Coop partner use
NJ Marine Sciences Consortium	3	Coop partner use
Officers Row	49	Public use
Mess Hall (B57)	6	Public use
Mess Hall (B58)	6	Public use
Post Headquarters/Athletic Field	25	Public use
Post Theater	28	Public use
Post Chapel/Auditorium	68	Public use
Officers Club	7	Public use
Education Center	30	Public use
South Bragg Garden	8	Public use
Battery Potter	17	Public use
NPS Visitor Protection Operations	30	NPS operations
NPS Fire Department Operations	24	NPS operations
NPS Maintenance Operations	20	NPS operations
NPS Administration (Bldg.104 & 108)	13	NPS operations
NPS Fort Hancock Residences (Buildings 29, 30, 41, 52, 64, 66, 71, 72, 73, 75, 144 & 145)	52	NPS operations
FORT HANCOCK TOTAL:	708	568 public (includes 130 partner use); 139 NPS operations
BEACH & BAYSIDE TOTAL:	4218	4170 Public; 48 NPS operations
SANDY HOOK TOTAL:	4926	4738 public use; 187 NPS operations

Appendix D

Guidelines for the Replacement of Historic Trees and Building Foundation Plantings

Guidelines for the Replacement of Historic Trees and Foundation Plantings

The replacement of missing historic trees and shrubs would follow these guidelines:

- Plants must be a desirable part of the landscape, contributing either to historic character or to adaptive use.
- Plants must be known to have existed in the area of proposed actions during the period of historical significance, or plants must be known to have been used commonly in the local or regional area during the period of significance.
- The distribution of these plants in the park must be controllable and pose no threat to the native vegetation of surrounding natural zones.
- Additional guidelines for the replacement of plant materials include the following:
- The overall effect of a planting design would be guided by historic designs in terms of form, size, and distribution of individual plants. Some deviation from these historic designs is permitted, if required by adaptive use.
- No plant material would be on the NPS or State of New Jersey lists of disruptive pests.
- Plant material would be known to succeed in the harsh seashore environment of Sandy Hook.
- Materials would be low maintenance.
- Replacement of non-historic trees is not permitted.
- Missing historic trees would be replaced in-kind (with some exceptions), and in their historic location.
- This replacement program would be phased, based on funding availability, and would follow the direction specified in the park's specimen tree preservation maintenance guide. In summary, missing trees would be replaced in the following priority order: specimen trees (defined as trees with the highest level of value based on historical associations with other landscape features, aesthetic qualities, or unusualness); the allee along Hartshorne Drive; around the flagpole; the allee along Canfield Drive between Kearny Road and South Bragg Drive; around the perimeter of the Parade Ground; around the perimeter of the Athletic Field; those removed due to senescence or safety hazard.
- *Populus alba* would NOT be replaced in-kind. It would be replaced by a combination of: *Celtis laevigata* "All Seasons", *Celtis laevigata x occidentalis* "Magnifica", *Platanus x acerifolia* "Columbia" or "Liberty", *Ulmus Americana* "Valley Forge" or "Homestead", *Acer pseudoplatanus*.
- Less than half of the original *Pinus nigras* around the flagpole still exist; and those that do suffer from diplodia. Missing *nigras* would be replaced in-kind. When these are well established, the remaining diseased *nigras* would be replaced.
- *Acer platanoides* would not be replaced in-kind. It would be replaced with *Acer rubrum*.
- The palette of plant materials for foundation planting is in preparation, and would reflect the criteria above.