



DRAFT

Historic Preservation Design Guidelines for the

Fort Monmouth Historic Resources

in the Boroughs of Eatontown and Oceanport, NJ



Prepared for **The Fort Monmouth Economic Revitalization Authority** by

Phillips Preiss Grygiel LLC | Planning & Real Estate Consultants

March 2015

Table of Contents

Chapter 1 Introduction	1
Chapter 2 The History of Fort Monmouth	5
Chapter 3 List of Contributing Buildings	7
Chapter 4 Design Guidelines	13
Plan and Road System	15
Field, Company and Commanding Officers' Quarters ("Russel/Allen Housing")	19
Four-Family Apartment Buildings ("Russel/Carty Housing")	27
Bachelor Officers' Quarters	35
Non-Commissioned Officers' Two-Family Quarters ("Gosselin Housing")	41
Enlisted Men's Barracks ("Barker Circle")	51
Institutional Buildings: Russel Hall	55
Community Support Buildings	59
Gibbs Hall and Swimming Pool at Suneagles Golf Club	63
New Construction and Additions to Contributing Buildings	65
Appropriate and Inappropriate Treatments and Landscaping	67
Chapter 5 Glossary	71
Appendices	75



Chapter I

Introduction and Statutory Authority

1. Purpose of the Historic Preservation Design Guidelines

A. What Are the Historic Resources at Fort Monmouth?

Fort Monmouth is a former installation of the Department of the United States Army (the “Army”) located in the Boroughs of Tinton Falls, Eatontown and Oceanport in Monmouth County, New Jersey. In 2005, the Defense Base Closure and Realignment (BRAC) Commission selected Fort Monmouth for closure which occurred on September 15, 2011.

In October 2009, the Army and the New Jersey State Historic Preservation Officer (SHPO) arrived at a Programmatic Agreement which identified certain Fort properties as historic resources eligible for listing on the National Register of Historic Places maintained by the Secretary of the Interior (see Appendix A). Many of these resources were included in the subsequent listing of the Fort Monmouth Historic District to the National Register of Historic Places which is located on the Main Post in the Borough of Oceanport. The Programmatic Agreement also identified historic resources required for preservation in the Charles Wood Area in the Borough of Eatontown, NJ.

The Land Use Rules for Fort Monmouth (N.J.A.C. 19:31C-3 et seq.) specify that the historic buildings and resources identified in the Programmatic Agreement are required for preservation.

In December 2013, architectural historians, Patti Kuhn and Sarah Groesbeck of The Louis Berger Group, Inc. submitted a National Register of Historic Places Registration Form for the Fort Monmouth Historic District in Oceanport. Although the nomination form listed contributing and non-contributing buildings that are largely consistent with those historic resources in Oceanport listed in the Programmatic Agreement, the buildings and resources listed in each are not identical.

B. What Are the Historic Preservation Design Guidelines?

These Historic Preservation Design Guidelines convey recommendations on renovations, restorations, and new additions to Fort Monmouth’s contributing historic resources listed in the Programmatic Agreement and the National Register of Historic Places Registration Form. These guidelines also encompass the construction of new buildings within the boundaries of the Fort Monmouth Historic District.

Design guidelines enable a general understanding of historic preservation principles and standards to allow for the retention of the historic character of Fort Monmouth’s historic resources which are vulnerable to inappropriate alterations and demolition.

C. Who Uses the Historic Preservation Design Guidelines?

The Historic Preservation Design Guidelines are intended for use by the Fort Monmouth Economic Revitalization Authority (FMERA) staff and the Fort Monmouth Historical Preservation Advisory Committee (HPAC) and will provide uniformity and predictability. The HPAC is the exclusive historic preservation commission for Fort Monmouth and, as such, reviews projects involving “Buildings Required for Preservation” and “Select Historic Properties” listed in the Programmatic Agreement. The guidelines are the criteria by which HPAC will review applications and provide recommendations and reports regarding the appropriateness of proposed work on such buildings and historic properties. The guidelines further provide a basis for FMERA staff to make informed, consistent recommendations and reports in the Mandatory Conceptual Review about proposed new construction and alterations to buildings and sites listed in the Programmatic Agreement and projects within the boundaries of the Fort’s historic district. The results of HPAC’s and staff’s reviews and reports under these guidelines comprise recommendations and are advisory.

There is also the expectation that the guidelines will be used by property owners, architects, designers, builders, developers in making decisions about renovations, restoration, and new construction projects that will affect individual buildings and sites listed in the Programmatic Agreement and the overall historic character of the Fort Monmouth Historic District.

D. What Property and Buildings does the Historic Preservation Design Guidelines Encompass?

The Historic Preservation Design Guidelines addresses the buildings required for preservation and select historic properties listed in the Programmatic Agreement as well as the Fort Monmouth Historic District.



2. Authority for Historic Preservation Design Review

A. The Historical Preservation Advisory Committee

The Fort Monmouth Economic Revitalization Authority (FMERA) established pursuant to N.J.S.A. 52:271-18 et seq. is the entity charged with implementing the Fort Monmouth Reuse and Redevelopment Plan, the plan for the redevelopment and revitalization of the Fort Monmouth. The Historical Preservation Advisory Committee (HPAC) is the exclusive historic preservation commission, as established pursuant to section 21 of P.L.1985, c. 516 (N.J.S.A. 40:55D-107), for all land use matters and approvals within the Fort Monmouth Project Area.

B. Mandatory Conceptual Review Process

Development projects on the Fort must undergo Mandatory Conceptual Review (MCR) pursuant to N.J.A.C. 19:31C-3.20. As required pursuant to N.J.A.C. 19:31C-3.20(d)2, FMERA shall provide to the HPAC for its review a copy of each application for MCR that involves buildings required for preservation or select historic properties as identified in the Programmatic Agreement. The HPAC shall review the proposed project for consistency with the requirements of the Programmatic Agreement and any applicable preservation covenants required thereunder. The results of the HPAC's review may be incorporated in a resolution of the committee or in the committee's minutes, or in a written report of the committee, at the committee's discretion. The HPAC's review shall constitute part of and be coordinated with the timing of FMERA's MCR process so that the results and report thereof, if any, may be included or incorporated into the written report of the results of the Authority's mandatory conceptual review.

C. Building Permits, Certificates of Occupancy

As required by N.J.A.C. 19:31C-3.19(e)2, the code official of the host municipality shall refer to FMERA for review by the HPAC all applications for building permits involving properties identified in the Programmatic Agreement as buildings required for preservation or select historic properties, where the Authority mandatory conceptual review and site plan approval by the planning board are not required.



FMERA shall report the results of the HPAC review of such permit application in writing to the host municipality code official who submitted the request for review, within 45 days of FMERA's receipt of the request. Failure of HPAC to render a report within the 45-day period shall be deemed to constitute a report in favor of issuance of the permit and without the recommendation of conditions to the permit.



3. Secretary of the Interiors Standards for Rehabilitation

The Historic Preservation Design Guidelines includes recommendations consistent with those utilized and promoted by the National Park Service known as The Secretary of the Interior's Standards for Rehabilitation ("The Secretary's Standards"). The Secretary's Standards form the basis for design guidelines in hundreds of historic districts in towns and cities across the country. America's historic preservation commissions rely on these standards to ensure uniformity in the process of rehabilitation. As the Secretary of the Interior notes, the standards "are only regulatory for projects receiving federal grant-in-aid funds; otherwise the Secretary's Standards are intended only as general guidance for work on any historic building." The Secretary's Standards do not offer specific answers for each site or building, but they do provide a philosophical framework for treatment of historic properties, and for the Historic Preservation Design Guidelines herein. Use of the Secretary's Standards for Rehabilitation benefits property owners who seek to utilize federal funds or tax credits. The Standards for Rehabilitation are cited below.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall 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 architectural elements from other buildings, shall not be undertaken.
4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.
5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities, and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall 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.



Chapter II

History of Fort Monmouth and its Historic Resources

1. Location of Fort Monmouth

Fort Monmouth is located near the eastern shore of New Jersey within the Coastal Region of Monmouth County. Fort Monmouth is located approximately 55 miles south of Manhattan, New York, 80 miles northeast of Philadelphia, Pennsylvania and 40 miles east of Trenton, New Jersey. Fort Monmouth occupies approximately 1,126 acres of land and is contained within three host municipalities, the Boroughs of Tinton Falls, Eatontown and Oceanport.

2. Brief History of Fort Monmouth

The Fort has been a significant presence in Monmouth County since its establishment in 1917. Prior to this time, the site was home to Monmouth Park Race Track (1870-1893), one of the foremost American racetracks of the late 19th century. After being abandoned due to New Jersey's ban on horse betting, the United States Army began leasing the land from a private owner in 1917 and purchased the land in 1919. Fort Monmouth's original name was Camp Little Silver and was later renamed Camp Alfred Vail. The Fort was established as a direct response to the United States' entry into World War I and the need for troops trained in communications support provided by the Signal Corps. Those trained at Camp Alfred Vail provided crucial support to troops overseas during World War I. At that time, the Fort also became the location of the Radio Laboratory, devoted to the problems of wireless communication. After World War I, Fort Monmouth continued as the primary headquarters of the Signal Corps and was the site of the Signal Corps School and the Signal Corps Laboratories. In 1925, the installation was granted permanent status and was renamed Fort Monmouth in honor of the soldiers of the American Revolution who died in the battle of Monmouth Court House.

The first permanent structure at Fort Monmouth, the barracks building on Barker Circle, was built in 1928. The construction of additional facilities to house various communications technologies and laboratories occurred shortly thereafter. Many communication technological breakthroughs occurred at Fort Monmouth throughout its history. The Army disbanded the technical services and established the Electronics Command (ECOM) at Fort Monmouth in 1962; this Communications and Electronics Command (CECOM) predecessor was charged with managing signal research, development and logistics support.

Additional functions followed, including the 754th Ordnance Company that trains police, fire, and public officials in explosive ordnance disposal and bomb threat search techniques; the United States Military Academy Preparatory School (USMAPS); the US Army Chaplain Center and School; and the 513th Military Intelligence Group.

Before its closing was announced by the Defense Base Closure and Realignment (BRAC) Commission in 2005, Fort Monmouth was home to the Communications-Electronics Lifecycle Management Command (CECOM LCMC). Major organizations that were located at the Fort include the CECOM LCMC, the Program Executive Office for Command, Control and Communications Tactical (PEO C3T) and the Program Executive Office for Intelligence, Electronic Warfare and Sensors (PEO IEWS). These organizations, together with the Program Executive Office for Enterprise Information Systems (PEO EIS) and the Communications, Engineering, Research and Development Center (CERDEC) are known as Team Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (Team C4ISR).

Despite aggressive state and local lobbying, the BRAC commission approved the Department of Defense recommendation to close Fort Monmouth and realign CECOM LCMC elements at Fort Monmouth to Aberdeen Proving Ground, Maryland. In 2006, Governor Jon Corzine signed into law the Fort Monmouth Economic Revitalization Planning Authority Act, which established the Fort Monmouth Revitalization Planning Authority (FMERPA) to plan for the redevelopment of Fort Monmouth. In 2008, FMERPA submitted a comprehensive conversion and revitalization plan for Fort Monmouth, known as the Fort Monmouth Reuse and Redevelopment Plan ("Reuse Plan"), and a homeless assistance submission to the United States Department of Defense and the United States Department of Housing and Urban Development, which were approved on June 16, 2011. The Reuse Plan constitutes the plan for the redevelopment of Fort Monmouth, to be implemented by the Fort Monmouth Economic Revitalization Authority (FMERA).

A final closure ceremony was held on September 15, 2011.

A. Fort Monmouth Historic District

Location

The Fort Monmouth Historic District is located on the Main Post of Fort Monmouth and contains buildings required for preservation and select historic properties that are listed in the Programmatic Agreement. The district is roughly bounded by Allen Avenue in the north; Oceanport Avenue in the east; and Malterer Avenue in the West. The southern boundary is the south of the buildings that line Gosselin Avenue.

Period of Significance (1927-1940)

The historic district consists of the core buildings erected after World War I for the Signal Corps, which first established the military post in 1917 as Camp Alfred Vail. The buildings were built between 1927 and 1940 to the specifications established by the Army Quartermaster Corps for Army posts. The district consists of buildings and structures, including institutional buildings constructed for Signal Corps activities as well as residential buildings for commissioned and non-commissioned officers.

The district is arranged on a symmetrical east/west axis that accentuates its military use. Following the planning guidelines of the Quartermaster Corps, Fort Monmouth features areas defined by hierarchy and use that are interspersed with open space. Its plan is centered on a large rectangular parade ground that is the nucleus of the historic district. On the east end of the parade ground is Russel Hall, the command garrison headquarters built in 1936, which marked the end of the 10-year permanent construction program at Fort Monmouth. The officers' residences are situated in rows north and south of the parade ground, and a circle of larger barracks sits in the east corner of the district. Additional institutional buildings are located adjacent to the parade ground, emphasizing its purpose as the nucleus of the district. A small number of buildings have been added to the district since 1940. There are both contributing and non-contributing buildings in the district. The symmetrical, orderly design of the campus, interspersed with open space, and mature landscaping and predominantly Colonial Revival-style architecture is illustrative of the design aesthetic of the Quartermaster Corps for the improvement of Army posts between World War I and World War II.

Only a small number of buildings have been added to the Fort Monmouth Historic District outside of the period of significance (1927-1940). In addition, the overall plan and individual buildings and structures have undergone few changes, giving the district a high level of integrity.

B. Historic Resources in the Charles Wood Area

Location

The Programmatic Agreement identified historic resources in the Charles Wood Area in the Borough of Eatontown. The resources are located in an area roughly bounded by Tinton Avenue, Maxwell Road, and Lowther Drive.

Period of Significance (1926-1940)

The historic resources in the Charles Wood Area relate to the Suneagles Country Club designed by A.W. Tillinghast. Gibbs Hall (Building 2000), a 1926, Tudor Revival style golf clubhouse and the accompanying swimming pool (Building 2020) are located on the golf course. Per the Programmatic Agreement, select areas of the golf course shall receive archeological preservation covenants. Both Gibbs Hall and the swimming pool retain a high level of integrity from the period of significance (1926-1940).

Chapter III

List of Contributing Buildings

The following is an inventory of resources located within the Fort Monmouth Historic District boundaries in Oceanport, NJ and the historic resources identified in the Charles Wood Area of Eatontown, NJ. The inventory indicates which of the historic resources are required for preservation in the Programmatic Agreement and the Land Use Rules (N.J.A.C. 19:31C-3 et seq.). Additionally, the inventory indicates which resources have been considered either contributing or non-contributing based upon the nomination form for the historic district on the National Register of Historic Places.

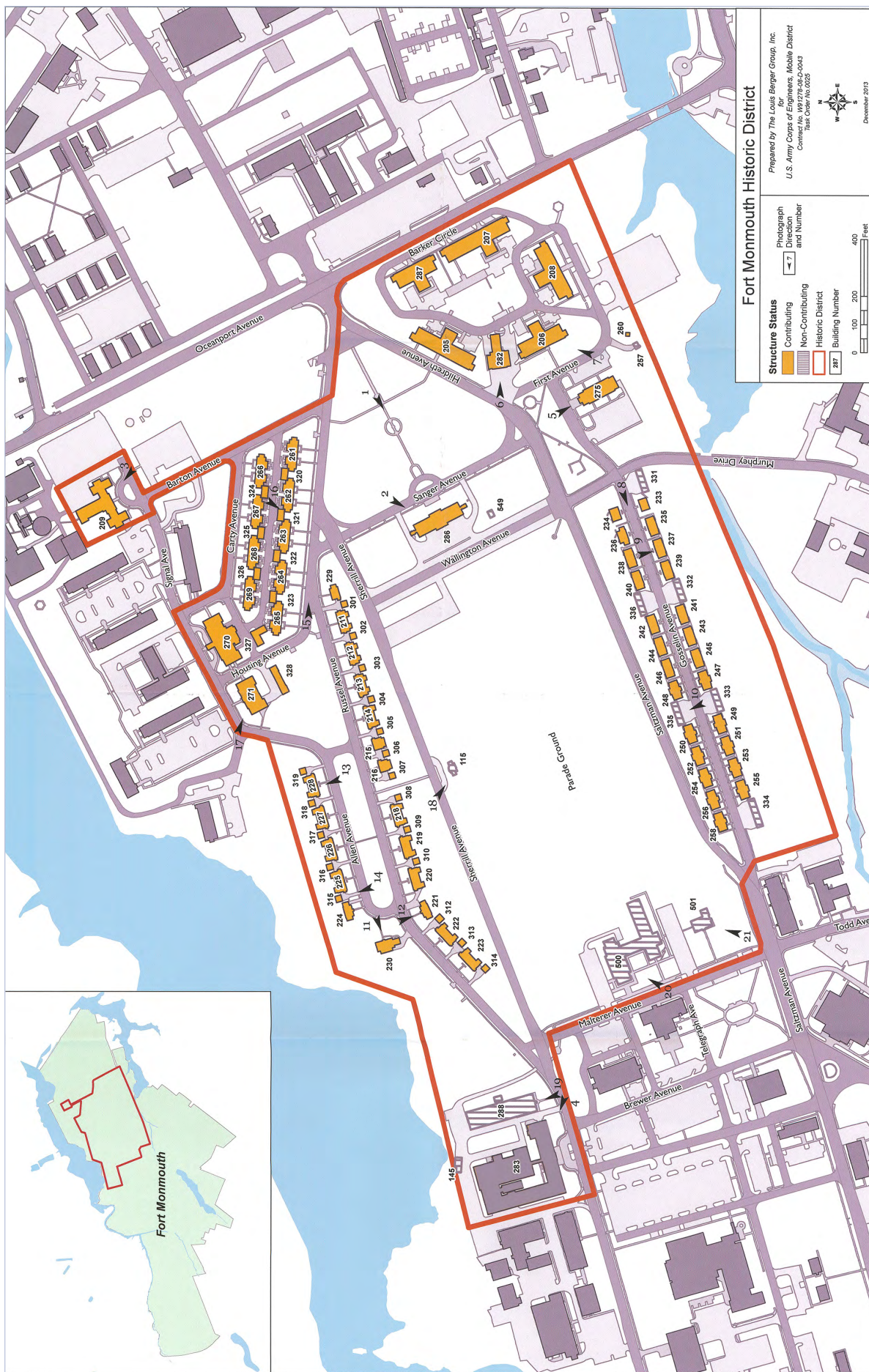
Fort Monmouth Historic District

Building No.	Historic Use	Resource Type	Contributing/Non-Contributing in the National Register Nomination Form	Required for Preservation in the Programmatic Agreement and Land Use Rules
115	World War II Memorial	Structure	Contributing	X
145	Instruction Building	Building	Non-Contributing	
205	Barracks	Building	Contributing	
206	Barracks	Building	Contributing	X
207	Barracks	Building	Contributing	X
208	Barracks	Building	Contributing	X
209	Allison Hall	Building	Contributing	X
211	Quarters	Building	Contributing	X
212	Quarters	Building	Contributing	X
213	Quarters	Building	Contributing	X
214	Quarters	Building	Contributing	X
215	Quarters	Building	Contributing	X
216	Quarters	Building	Contributing	X
218	Quarters	Building	Contributing	X
219	Quarters	Building	Contributing	X
220	Quarters	Building	Contributing	X
221	Quarters	Building	Contributing	X
222	Quarters	Building	Contributing	X
223	Quarters	Building	Contributing	X
224	Quarters	Building	Contributing	X
225	Quarters	Building	Contributing	X
226	Quarters	Building	Contributing	X
227	Quarters	Building	Contributing	X
228	Quarters	Building	Contributing	X
229	Quarters	Building	Contributing	X
230	Quarters	Building	Contributing	X
233	Quarters	Building	Contributing	X

Continued on page 8

Building No.	Historic Use	Resource Type	Contributing/Non-Contributing in the National Register Nomination Form	Required for Preservation in the Programatic Agreement and Land Use Rules
234	Quarters	Building	Contributing	X
235	Quarters	Building	Contributing	X
236	Quarters	Building	Contributing	X
237	Quarters	Building	Contributing	X
238	Quarters	Building	Contributing	X
239	Quarters	Building	Contributing	X
240	Quarters	Building	Contributing	X
241	Quarters	Building	Contributing	X
242	Quarters	Building	Contributing	X
243	Quarters	Building	Contributing	X
244	Quarters	Building	Contributing	X
245	Quarters	Building	Contributing	X
246	Quarters	Building	Contributing	X
247	Quarters	Building	Contributing	X
248	Quarters	Building	Contributing	X
249	Quarters	Building	Contributing	X
250	Quarters	Building	Contributing	X
251	Quarters	Building	Contributing	X
252	Quarters	Building	Contributing	X
253	Quarters	Building	Contributing	X
254	Quarters	Building	Contributing	X
255	Quarters	Building	Contributing	X
256	Quarters	Building	Contributing	X
257	Utility Building	Building	Non-Contributing	
258	Quarters	Building	Contributing	X
260	Sewage Lift Station	Building	Contributing	X
261	Quarters	Building	Contributing	X
262	Quarters	Building	Contributing	X
263	Quarters	Building	Contributing	X
264	Quarters	Building	Contributing	X
265	Quarters	Building	Contributing	X
266	Quarters	Building	Contributing	X
267	Quarters	Building	Contributing	X
268	Quarters	Building	Contributing	X
269	Quarters	Building	Contributing	X
270	Quarters	Building	Contributing	X
271	Quarters	Building	Contributing	X
275	Museum	Building	Contributing	X
282	Fire House	Building	Contributing	X
283	Squier Hall	Building	Contributing	
286	Russel Hall	Building	Contributing	X
287	Barracks	Building	Contributing	X
288	Administration Building	Building	Non-Contributing	
301	Garage	Building	Contributing	X
302	Garage	Building	Contributing	X

Continued on page 10



Map prepared by the Louis Berger Group, Inc., for U.S. Army Corps of Engineers, December 2013

Building No.	Historic Use	Resource Type	Contributing/Non-Contributing in the National Register Nomination Form	Required for Preservation in the Programatic Agreement and Land Use Rules
303	Garage	Building	Contributing	X
304	Garage	Building	Contributing	X
305	Garage	Building	Contributing	X
306	Garage	Building	Contributing	X
307	Garage	Building	Contributing	X
308	Garage	Building	Contributing	X
309	Garage	Building	Contributing	X
310	Garage	Building	Contributing	X
312	Garage	Building	Contributing	X
313	Garage	Building	Contributing	X
314	Garage	Building	Contributing	X
315	Garage	Building	Contributing	X
316	Garage	Building	Contributing	X
317	Garage	Building	Contributing	X
318	Garage	Building	Contributing	X
319	Garage	Building	Contributing	X
320	Garage	Building	Contributing	X
321	Garage	Building	Contributing	X
322	Garage	Building	Contributing	X
323	Garage	Building	Contributing	X
324	Garage	Building	Contributing	X
325	Garage	Building	Contributing	X
326	Garage	Building	Contributing	X
327	Garage	Building	Contributing	X
328	Garage	Building	Contributing	X
331	Garage	Building	Non-Contributing	
332	Garage	Building	Non-Contributing	
333	Garage	Building	Non-Contributing	
334	Garage	Building	Non-Contributing	
335	Garage	Building	Non-Contributing	
336	Garage	Building	Non-Contributing	
500	Post Chapel	Building	Non-Contributing	
501	Health Care Building	Building	Non-Contributing	
549	Power Plant	Building	Non-Contributing	
	Parade Ground	Site	Contributing	X
	Russel Avenue	Structure	Contributing	
	Hildreth Avenue	Structure	Contributing	
	Gosselin Avenue	Structure	Contributing	
	Allen/Signal Avenues	Structure	Contributing	
	Sangar Avenue	Structure	Contributing	
	Carty Avenue	Structure	Contributing	
	Barton Avenue	Structure	Contributing	
	Housing Avenue	Structure	Contributing	
	First Avenue/Barker Circle	Structure	Non-Contributing	
	Wallington Avenue	Structure	Non-Contributing	
	Saltzman Avenue	Structure	Non-Contributing	
	Sherrill Avenue	Structure	Non-Contributing	



Map prepared by EDAW, Inc.: Fort Monmouth Reuse and Redevelopment Plan, August 2008

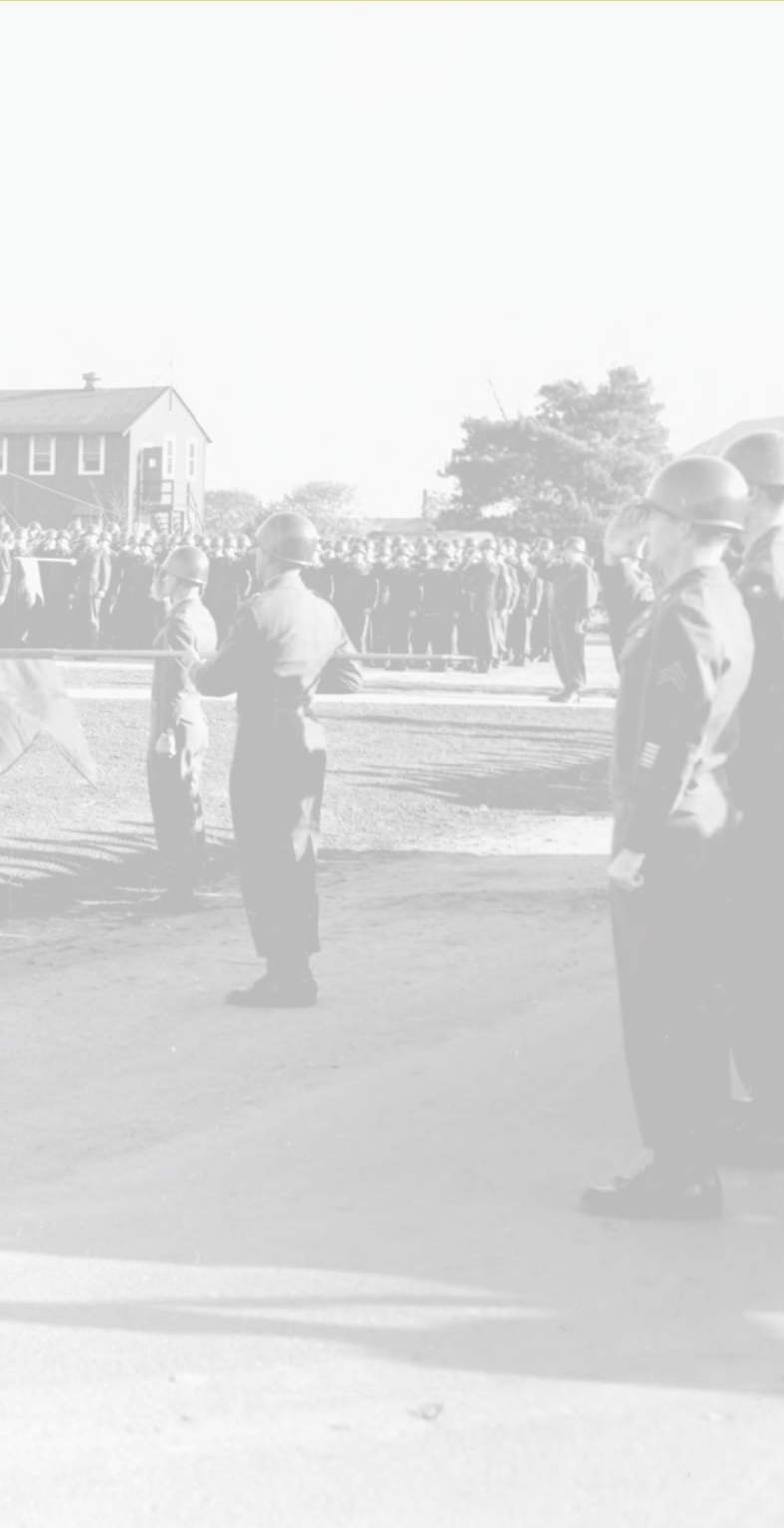
Historic Resources in Camp Charles Wood Area

Building No.	Historic Use	Resource Type	Contributing/Non-Contributing in the National Register Nomination Form	Required for Preservation in the Programatic Agreement and Land Use Rules
2000	Gibbs Hall: Officers Open Dining Room at Suneagles Golf Club	Structure	N/A	X
2020	Swimming pool at Suneagles Golf Club	Structure	N/A	X



Chapter IV

Design Guidelines



Chapter II provided a brief history of Fort Monmouth and identified the period of significance for the Fort Monmouth Historic District in Oceanport and the historic resources located in the Charles Wood Area of Eatontown, i.e., 1926-1940. Chapter III listed the historic resources which are considered contributing to the historic character of Fort Monmouth.

This chapter highlights the architectural features of the contributing resources present during the period of significance and provides design guidelines intended to preserve them. The chapter is divided by land use (i.e., the plan and road system, institutional, community support buildings, etc.) and residential neighborhoods (i.e., the Field and Company Officers' Quarters, Student Officers' Four-Family Apartment Buildings, Bachelor Officers' Quarters, Enlisted Men's Barracks, and Non-Commissioned Officer's Housing Area). There are also guidelines for new construction in the historic district, as well as additions and alterations to contributing historic resources. Additionally, there are guidelines for demolition, relocation and mothballing of contributing buildings. Finally, there are photo representations of appropriate and inappropriate treatments of historic resources.

The guidelines are the criteria by which HPAC will review applications and provide advisory recommendations and reports regarding the appropriateness of proposed work on "Buildings Required for Preservation" and "Select Historic Properties" designated in the Programmatic Agreement. The guidelines further provide a basis for FMERA staff to make informed, consistent recommendations and reports in the Mandatory Conceptual Review about proposed new construction and alterations to buildings and sites listed in the Programmatic Agreement and projects within the historic district.

It should be noted that within the guidelines, the words "shall" or "must" means that FMERA staff and the HPAC will consider such guidelines mandatory, whereas FMERA staff and the HPAC will consider the words "may" or "should" as permissive and as a framework on which property owners should base the design of proposed work that will be evaluated on a case-by-case basis.



Plan and Road System

1927-1941



History

The Fort Monmouth Historic District is arranged on a symmetrical east/west axis that accentuates its military use. Fort Monmouth followed the planning guidelines of the Quartermaster Corps. The arrangement of buildings around a central parade ground, the grouping of buildings by their purpose, and the use of curvilinear streets and green space are all characteristic of planning methods advocated by the Quartermaster Corps. The Parade Ground functioned not only as a parade ground but also provided a central organizing feature for the post with sweeping views of the main buildings and residential areas.

The Quartermaster Corps designs for permanent military installations post World War I called for main thoroughfares to be broad and direct with easy gradients and secondary streets following the natural topography. Allowing secondary streets to follow the natural contours of the land reduced grading costs and gave the streets a quality that was a more attractive, domestic quality. Generally, the buildings on the post were to be situated to take advantage of the views provided by the large open green of the Parade Ground.

Although the plan and road system of Fort Monmouth essentially remain intact, alterations have occurred since 1940 as the installation expanded. Between 1940 and 1941, wide avenues were erected to border the Parade Ground: Sherrill on the north, Saltzman on the south, Malterer on the west, and Wallington on the east. In 1952, a World War II memorial was erected on the north side of the Parade Ground along Sherrill Avenue. A Post Chapel and a Healthcare Building (both non-contributing historic resources) were constructed in 1962 and 1969, respectively, on the west end of the Parade Ground along Malterer Avenue. Several parking areas located in the historic district were built after 1940, including parking areas flanking Wallington Avenue west of Russel Hall, a parking area located along the west side of Kaplan Hall, and parking areas on the north side of the Post Chapel and Healthcare Building.

Historic Features

The below features provide locational details for parks and streets which contribute to the Fort Monmouth Historic District's historical significance. The features listed are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

The Parade Ground

The Parade Ground, also known as Greely Field, is the centerpiece of historic plan of Fort Monmouth. It is an open, grassy, rectangular area bordered by Wallington Avenue on the east, Saltzman Avenue on the south, Malterer Avenue on the west, and Sherrill Avenue on the north. It marks the location of the nineteenth-century Monmouth Park Race Track. It served as a functional area for military activity. It also divides the district by use. Commissioned Officers' Quarters stand on the north side of the Parade Ground, and Non-Commissioned Officers' Quarters are located on the south side.

The World War II Memorial (Building 115) is located on the north side of the Parade Ground. The memorial is a one-story memorial dedicated to the Signal Corps members who gave their lives during World War II.

Cowan Park

To the west of the Parade Ground fronting the main entrance to the historic district off Oceanport Avenue is a triangular shaped green known as Cowan Park. Cowan Park is sometimes considered part of the Parade Ground. Cowan Park is formed by Russel Avenue on the northeast, Hildreth Avenue on the southeast, and Sanger Avenue on the west. A flagpole stands in the center of the park and is encircled by a concrete sidewalk. A memorial plaque dedicated to Colonel Arthur S. Cown is located in front of this flagpole. Russel Hall stands prominently on the west end of the park.

Gosselin Avenue

Gosselin Avenue stands on the south side of the Parade Ground and was designed as the primary southern thoroughfare and part of the Noncommissioned Officers' Quarters area. On its eastern end it connects with First Avenue, west of the Enlisted Men's Barracks.

Allen Avenue/Signal Avenue

Allen Avenue lines the north side of Voris Park and is part of the original design for the Field and Company Officers' Quarters area. The road continues northeast along the north side of the Bachelor Officers' Quarters (Buildings 270 and 271) and Allison Hall, where it becomes Signal Avenue.

Sanger Avenue

Sanger Avenue forms the southwest side of Cowan Park. The road was designed primarily to provide access to Russel Hall, which stands prominently on its southwest side.

Carty Avenue

Carty Avenue travels northwest-southeast from Barton Avenue. Along its southwest side stands a row of four-family apartments that are part of the Commissioned Officers' Area.

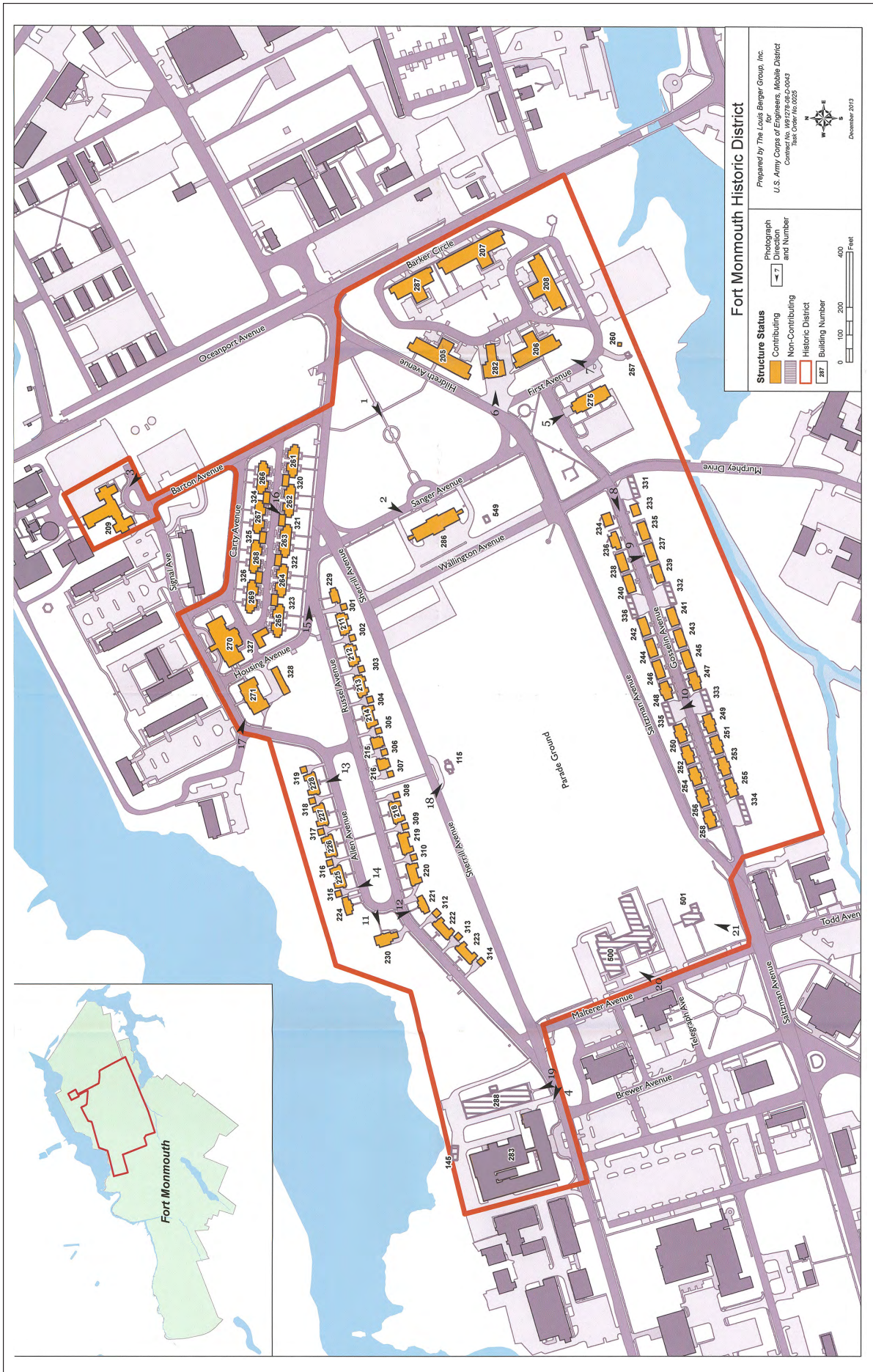
Barton Avenue

Barton Avenue branches off of Russel Avenue on the north side of Cowan Park and leads northwest to Allison Hall.

Housing Avenue

Housing Avenue connects Russel Avenue with Allen Avenue in the Commissioned Officers' area and runs between the Bachelor Officers' Quarters.





Design Guidelines

Landscaping, Siting and Streetscape

- The existing locations, dimensions, alignment, and configuration of contributing streets should be maintained to the extent practicable
- Existing mature trees should be maintained and new ones provided where appropriate
- No new permanent structures shall be placed on the Parade Ground or Cowan Park

Streetlights

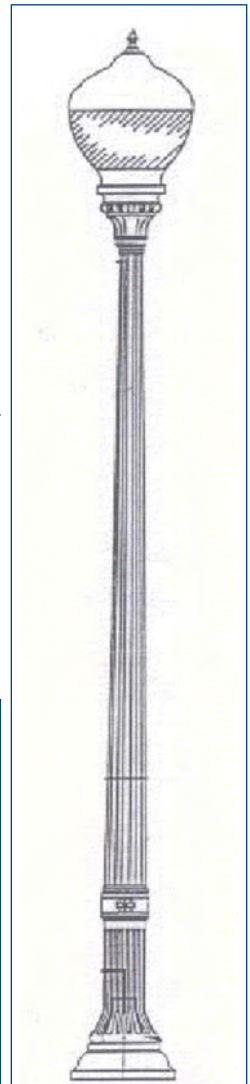
- Existing streetlighting should be preserved and upgraded where possible. Where not possible, Ornate Acorn Style Post Top Luminaire as detailed in the Jersey Central Power and Light Municipal Lighting Handbook (January 2012) is a suitable substitute.

Street/Park Benches

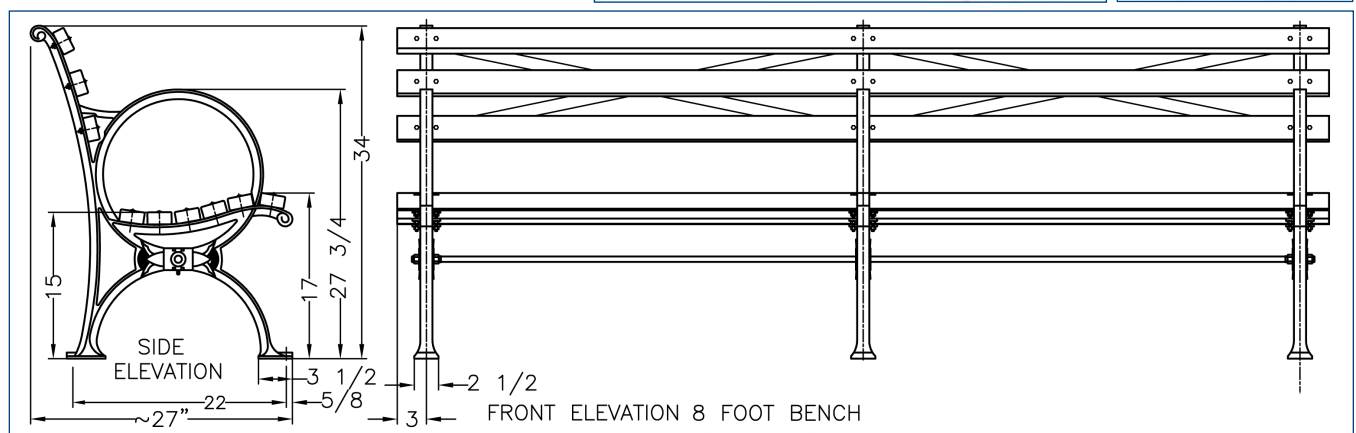
- If original historic park/street benches are present, they should be preserved and repaired. Where not possible a suitable substitute is the World's Fair Bench (models 6737, 6737C, 6737D, 6737E) available from Kenneth Lynch and Sons.

Street Signs

- The Fort Monmouth Historic District should have street signage that is distinctive from the street signage outside of the historic district. Such signage may take the form of a sign topper and/or different signage colors subject to municipal and County approval. If possible, black lettering on a white background are the preferred colors for the signs.



Far right: Ornate Acorn Style Post Top Luminaire
Right and bottom: 6737 Worlds Fair Bench



Fort Monmouth Historic District

Field, Company and Commanding Officers' Quarters ("Russel/Allen Housing")

Residential Buildings 211-216, 218-230; Garage Buildings 301-310, 312-319 | Style: Colonial Revival

Residential Buildings: 1927-1936; Garage Buildings: 1927-1935

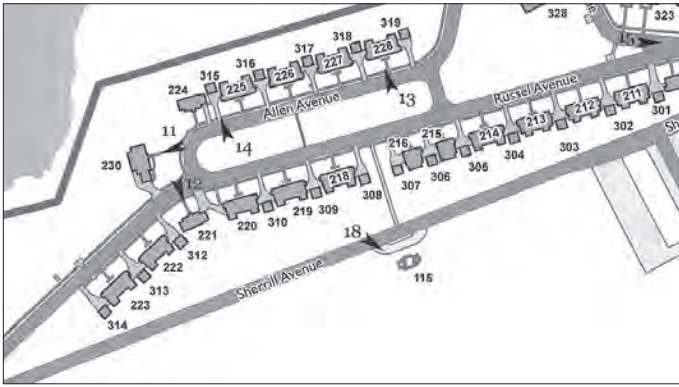


History

These one- and two-family dwellings are located along Russel and Allen Avenues. The officers' dwellings were built with the houses facing a central open space, Voris Park. Construction began in 1927 and ended in 1936. The houses consist of single-family dwellings for field officers, and two-family dwellings for company officers. The commanding officer's residence stands on the west end of the park at the intersection of Allen and Russel Avenues, giving it an imposing presence in the housing area.

The thirteen two-family dwellings were built in three phases: Buildings 211-213 were completed in 1927; Buildings 214, 218, 219, and 225-228 in 1932; and Buildings 220, 222, and 223 in 1935. The five single-family houses for field officers were built between 1931 and 1934. Buildings 215, 216 and 229 were completed in 1931. Buildings 221 and 224 were built in 1934. The Commanding Officer's Quarters (Building 230) was completed in 1936. The garages are also located on Russel and Allen Avenue between the Field and Company Officers' Quarters. The garages are identical in size, material and style and were constructed between 1927 and 1935.

The Army Quartermaster Corps planned the streets to take advantage of the existing topography. The buildings were oriented toward the curvilinear streets facing a central park. The existing vegetation was intended to provide privacy to the officers' quarters. Few alterations have been made to the buildings constructed by the Army Quartermaster Corps, and changes, for the most part, have been minor such as replacement windows. White privacy fencing has been installed on each property extending from the garage to the side façade of the residences.



Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Built to standardized plans of the Quartermaster Corps with ample setbacks from the roads
- Colonial Revival-style forms and architectural detailing
- Building heights:
 - o The Company Officers' dwellings are two and one half stories
 - o The Field Officers' dwellings are two stories
 - o The Commanding Officer's Quarters is two and one-half stories
 - o The garages are one-story buildings
- The Company Officers' dwellings and two Field Officers' dwellings (Buildings 215 and 216) are rectangular in shape
- Three Field Officers' dwellings (Buildings 221, 224 and 229) have a main rectangular wing, as well smaller east and west wings
 - o Building 221: east one-story brick wing is an attached garage; west one-story brick wing is an enclosed porch
 - o Building 224: east one-story brick wing is an enclosed porch; west one-story brick wing is an attached garage
 - o Building 229: east two-story enclosed porch constructed of brick on the first story and wood frame on the second story with wood pilasters and panels; west one-story brick wing
- The Commanding Officer's Quarters (Building 230) has a rectangular footprint with a one-and-one half story attached garage on the south side

Landscaping, Siting and Streetscape

- Curvilinear streets respect the existing topography
- Residences oriented toward the streets facing a central open space, Voris Park
- Vegetation in terms of mature trees were intended to provide privacy to the officers' quarters
- Concrete sidewalks along the street separated from the roadway by a strip of grass landscaping
- Concrete communal driveways
- Street trees planted on grass strip between sidewalk and curb





- Various evergreen species of foundation planted along the front and side facades of each building
- Buildings uniformly setback from street frontage
- Concrete walkway from the curb of the street frontage to the main entrances.
- Grass lawns on front and side yards

Roof

- Form:
 - o Two Field Officers' dwellings have hipped roofs (Building 215-216)
 - o Company Officers' dwellings have hipped roofs
 - o The main wing and the east and west wings of three Field Officers' dwellings have side gabled roofs (Buildings 221, 224 and 229)
 - o The Commanding Officer's Quarters (Building 230) and attached garage have a side-gabled roof. The center three bays has a closed pediment
 - o Garages have pyramidal roofs
- Asphalt shingles on both residences and garages
- Rooflines are ornamented with either ogee cornices or overhanging eaves with carved wood brackets. Commanding Officer's Quarters has a dentil cornice
- Copper flashing, half-round gutters and downspouts onto concrete splashblock on both residences and garages

Chimneys

- Company Officers' dwellings have interior center chimneys
- Two of the Field Officers' dwellings (Buildings 215-216) have exterior side chimneys
- The main wing on three Company Officers' dwellings (Buildings 221, 224 and 229) are flanked by interior-end brick chimneys
- The Commanding Officer's Quarters have four exterior-end brick chimneys with corbelled caps

Cladding

- Five course American bond brick veneer
- Residences and garages have solid concrete foundations
- Wood board siding on upper story of porch on Building 229
- Wood trim windows



Entrances

- The main entrances have concrete stairs with metal railings and balusters
- Doors are 6-panel wood some have two top glass panels
- Storm doors are metal
- Main entrances:
 - o The Company Officers' residences have side hall main entrances consisting of single-leaf wood-paneled doors with wood pedimented door surrounds
 - o Two of the Field Officers' residences (Buildings 215 and 216) have centered main entrances consisting of single-leaf wood-paneled doors with wood pedimented door surrounds
 - o Two of the Field Officers' residences (Buildings 221 and 224) have centered main entrance sheltered by a pedimented portico supported by Tuscan columns
 - o One Field Officers' residence (Building 229) has a centered main entrance ornamented by a segmental arched pediment with Tuscan pilasters
 - o The Commanding Officer's Quarters (Building 230) has a center double-leaf wood-paneled main entrance door sheltered by a wood portico featuring paired Tuscan columns, a dentil cornice, and a wood balustrade. The door has sidelights and a transom window
- Each Field and Company Officers' residence has a side entrance covered by a wood-frame latticed porch with wood posts and a half-hipped roof

- Standalone garages have two metal roll-up vehicular doors.
- Additional entrances on the main facades of Field Officers' and Commanding Officer's dwellings:
 - Building 221: east one-story brick attached garage has a roll-up garage door and single-leaf door on its main elevation with a fabric awning
 - Building 224: west one-story brick attached garage has a roll-up garage door and single-leaf door on its main elevation
 - Building 229: west one-story brick wing has a single-leaf door on its west elevation
 - The Commanding Officer's Quarters (Building 230) has a wood portico over a second entrance on the garage façade
- The standalone garage doors are 20-pane with two lite panels.



Windows

- Symmetrical fenestration
 - Company Officers' dwellings are eight bays wide
 - Two Field Officers' dwellings are three bays wide (Buildings 215-216)
 - Three Field Officers' dwellings are five bays wide (Buildings 221, 224 and 229)
 - Commanding Officer's Quarters is seven bays wide; the center three bays project slightly from the façade and are capped with a closed denticulated pediment
- Windows are six-over-six double-hung windows with concrete sills and jack-arched lintels; the lintels of the ground floor windows on the main facade of the Commanding Officer's Quarters has concrete keystones
- Dormer shape:
 - Hipped roof overhangs with dentil cornice holding either 12 pane casement windows or louvered wood vents
 - Pedimented dormers holding 12 pane casement windows
- Number of dormers:
 - Company Officers' dwellings have four dormers
 - Two of the Field Officers' dwellings (Building 215-216) have no dormers
 - Two of the Field Officers' dwellings (Buildings 221 and 224) have three dormers on the main wing
 - One of the Field Officers' dwellings (Building 229) has two dormers
 - Commanding Officer's Quarters (Building 230) has two gabled dormers on the main elevation and the pediment is lit by an oval casement window with a brick header surround and concrete keystones
- Additional fenestration on the wings of Field Officers' and





Commanding Officer's dwellings:

- o Building 221: east one-story brick attached garage has a pedimented wall dormer with a 12 pane casement window; west one-story brick enclosed porch has a 10 pane casement window in the upper sash and one-pane awning window in the lower sash
- o Building 224: east one-story brick enclosed porch has a 10 pane casement window in the upper sash and one-pane awning window in the lower sash; west brick garage has a pedimented wall dormer with a 12-pane casement window
- o Building 229: east two-story enclosed porch has a paired 10-pane casement window in the upper sash and one-light awning window in the lower sash on the ground floor, and the second story has a six-over-six double hung window; west one-story brick wing has 8-pane casement window
- o Commanding Officers' Quarters (Building 230): the garage is fenestrated by six-over-six pane windows and gabled wall dormers holding six-over-six pane windows.

Ornaments

- One flag holder on door surround of main entrance
- Black metal street number digits attached to door surround of main entrance
- Black metal mailboxes affixed to brick adjacent to main entrance
- Main entrance outdoor lighting fixtures consist of one carriage light. The fixture is typically located centered above the door frame on single family homes; and on the outer door surrounds on two family homes.



Design Guidelines

Landscaping, Siting and Streetscape

- Views of Voris Park from the residences should not be obstructed
- No fences shall be permitted in the front yards. Existing vinyl fencing extending from the garage buildings to the side facades of residences are permitted to remain so long as they are white and comply with the walls and fence regulations of the Fort Monmouth Land Use Rules
- Sheds and other accessory storage structures should be located in rear yards
- Walkways to main entrances should be maintained and repaired as necessary with four foot wide concrete pavers
- Shrubs and other year-round landscaping should be encouraged to be planted to shield foundation walls and front stoops. Such landscaping shall be drought tolerant and installed in a bed of mulch in accordance with Rutgers Cooperative Home Extension Guidelines and Professional Nurseryman's Association for location
- Front and side yards should be maintained as grass lawns
- HVAC systems, ground mounted renewable energy systems, satellite dishes, antennae or other telecommunications equipment shall be located in rear yards only and shall be screened in accordance with the Land Use Rules.

Roof

- The original roof form on the street fronting façades (i.e., Russel and Allen Avenues) including shape, line, pitch and overhang shall be retained, protected and repaired
- Replacement roofs on contributing buildings or on additions to contributing buildings should replicate the original pitch, design and materials
- Reroofing of the non-porch areas shall be done with asphalt shingles so long as they match the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details
- Ventilation or mechanical equipment including exhaust fans and/or attic fans, satellite dishes, renewable energy systems or other telecommunications equipment should be placed on those portions of the roof not visible from either Russel or Allen Avenues
- Copper flashing, gutters and downspouts shall be retained and repaired as required. Replacements shall be of copper and match the existing material in size, shape, texture and color

Chimneys

- Historic chimneys shall be preserved
- Brick on chimneys should be repointed as required. Replacement brick shall be installed with the same bonding and



coursing pattern of existing brick chimney

- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible

Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible
- Wood cornices and trim should be retained and repaired as necessary. Any repairs or replacement wood should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Cement board siding (such as hardiplank) is an acceptable alternative. Cement board siding is preferred over vinyl or aluminum. The substitute material should match the historic material in size, color and finish



- Where wood cornice or trim has been replaced with vinyl trim, the replacement of the vinyl trim with wood is encouraged. Replacement of vinyl cornices or trim with vinyl or cement board siding (such as hardiplank) is also acceptable so long as it matches the remainder of the cornice or trim in material, dimension, spacing, composition, texture, pattern, design and details

Entrances

- Wood entrance doors shall be retained and repaired as necessary. Damaged doors shall be replaced with six paneled solid wood doors with top two glass panels. Entrance doors shall be white
- The size, shape and location of existing main entrances visible from the public street shall be retained and not moved
- Wood-frame latticed porch shall be retained and repaired as necessary. Any repairs or replacement wood should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Cement board is an acceptable alternative so long as the replacement material matches the existing materials in texture, pattern, design and color
- Concrete stoops shall be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing
- Storm doors shall be white

Windows

- The original pattern of fenestration and muntin configuration on the front and side facades shall be retained. New window openings shall not be permitted on the front or side facades
- Replacement of vinyl sash windows with wood sash windows is encouraged. However, replacement with vinyl windows is also acceptable so long as it matches the other windows on the front and side facades in material, composition, and details. Where wood window units remain,

replacement or repair shall be wood

- Window frames and muntins shall be painted white
- Window screens shall be full panel, black mesh
- Stone sills that are damaged or deteriorated shall be replaced. Replacement sills shall be installed matching the original sill in material, composition, size, shape, texture and color

Ornaments

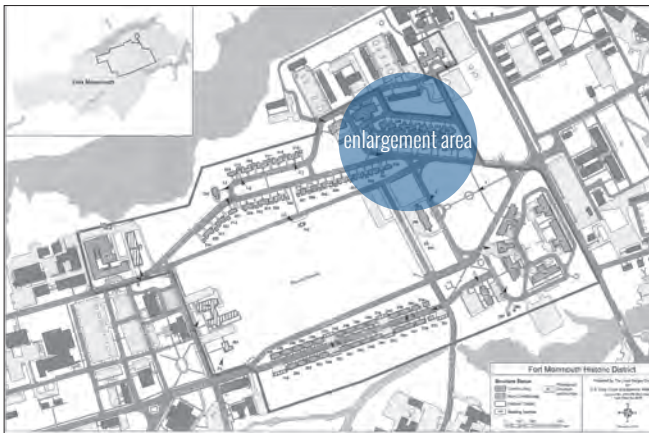
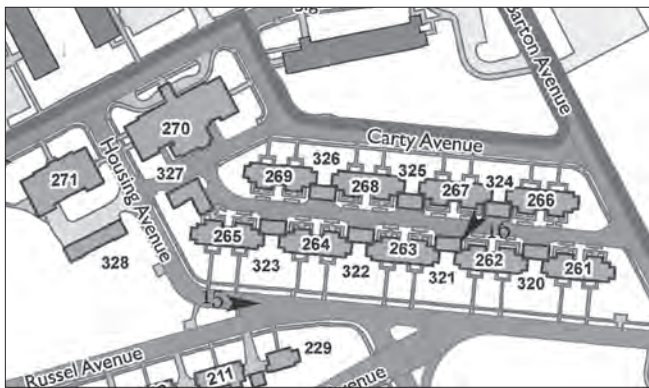
- Wrought iron railings shall be retained, repainted and repaired as necessary. Replacement railings shall be wrought iron painted black
- Street numbering shall be cast metal, four inch black stroke, mounted on the entablature of portico above outside brick column
- Black metal mailboxes shall be retained. Replacement mailboxes should be mounted so as to not damage historic masonry. Anchor bolts should be set in the mortar joints, not bricks
- There shall be no up-lighting, either on plantings or structures
- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.

Fort Monmouth Historic District

Four-Family Apartment Buildings (“Russel/Carty Housing”)

Residential Buildings 261-269 | Garage Buildings 320-327 | Style: Colonial Revival

Residential Buildings: 1929-1932 | Garage Buildings: 1934



History

Nine four-family apartment buildings for Commissioned Officers were built adjacent to Russel Hall between 1929 and 1932 for student officers and their families. The location was ideal for the student officers who attended classes at Russel Hall. The houses were situated on two streets: Russel and Carty Avenues with a center service alley for access to the adjacent garages. Buildings 266-269 face northeast on Carty Avenue; and Buildings 261-265 face southwest on Russel Avenue. Four-car garages are located behind the apartments and are accessible from an alley. The garages were constructed in 1934 and emphasize the growing importance of the automobile.

Few alterations have been made to the buildings constructed by the Army Quartermaster Corps, and changes, for the most part, have been minor, such as replacement windows and balustrades. The roofs facing the service alley have been altered from their original six dormer side gabled roofs. Four of the dormer windows have been removed and replaced with a brick, two story, two bay wide front gabled addition including entry door.

1. Buildings 261-263 and 269 were completed in 1930; Buildings 264, 267-268 were completed in 1931; Buildings 265-266 were completed in 1932. Buildings 320-327 were completed in 1934.



Circa 1936

Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Each residential building has a rectangular footprint
- Each residential building is two and one-half stories
- The four-family dwellings appear as mirrored twin houses but each side has two entrances with an apartment on each floor
- All of the residential buildings are identical
- The garage buildings are single story rectangular structures except for Building 327 which is L-shaped

Landscaping, Siting and Streetscape

- Concrete sidewalks along the street on which the building fronts (i.e., either Carty Avenue or Russel Avenue) separated from the roadway by a strip of grass landscaping.
- Street trees planted on grass strip between sidewalk and curb
- Various evergreen species of foundation planted along the front and side facades of each building
- Buildings uniformly setback from street frontage. Garages front on service alley. The rear elevations of the garage are setback further from the street frontage than the front façade of each building
- Concrete walkway from the curb of the street frontage to the main entrances.
- Grass lawns on front and side yards

Roof

- Residences have side gabled roofs
- Garages have hipped roofs
- Asphalt shingles on both residences and garages
- Wood fascia with trim on both residences and garages
- Copper flashing, half-round gutters and downspouts onto concrete splashblock on both residences and garages

Chimneys

- Interior brick chimneys with concrete chimney caps

Cladding

- Five course American bond brick veneer
- Wood board siding and trim on porches



Circa 1932

Main Entrances

- Paired central entrances located in the third and eighth bay consisting of paired single-leaf doors sheltered by a flat roofed portico with three brick Doric columns supporting a simple wood entablature on top of which is a wood balustrade
- Each portico has a brick foundation and a poured concrete floor and concrete stair on each side
- The stairs and porch are lined with metal railings and balusters
- Doors are 6-panel wood with top two glass panels
- A transom lite spans the length of each doorway
- Storm doors are metal
- The garage doors are 20-pane, metal pull-up doors with two lite panes. The doors face the service alley. All of the garages are four bays wide. However, Building 327 has 3 bays facing the service alley and five bays facing Carty Avenue

Circa 1934

Windows

- Symmetrical fenestration
- Ten-bays wide. Buildings appear as double five-bay central hall dwellings. Above the two entrance porticos and in the center of the second story are paired windows. The remainder are single windows
- Six-over-six, double hung windows
- Front façades have flat jack-arched brick lintels and concrete sills on both stories
- Each building has six hipped dormers on front façade which are six-over-six double-hung windows
- The side facades each have an arched window on the top story above the side porches. The window consists of an arched lite above a nine pane window. A brick relieving arch forms a lintel and there is a concrete sill
- The garages have four six-over-six, double hung windows on the rear facades which are visible from the main road frontages (i.e., Russel and Carty Avenues). The windows have flat jack-arched brick lintels and concrete sills

Porches

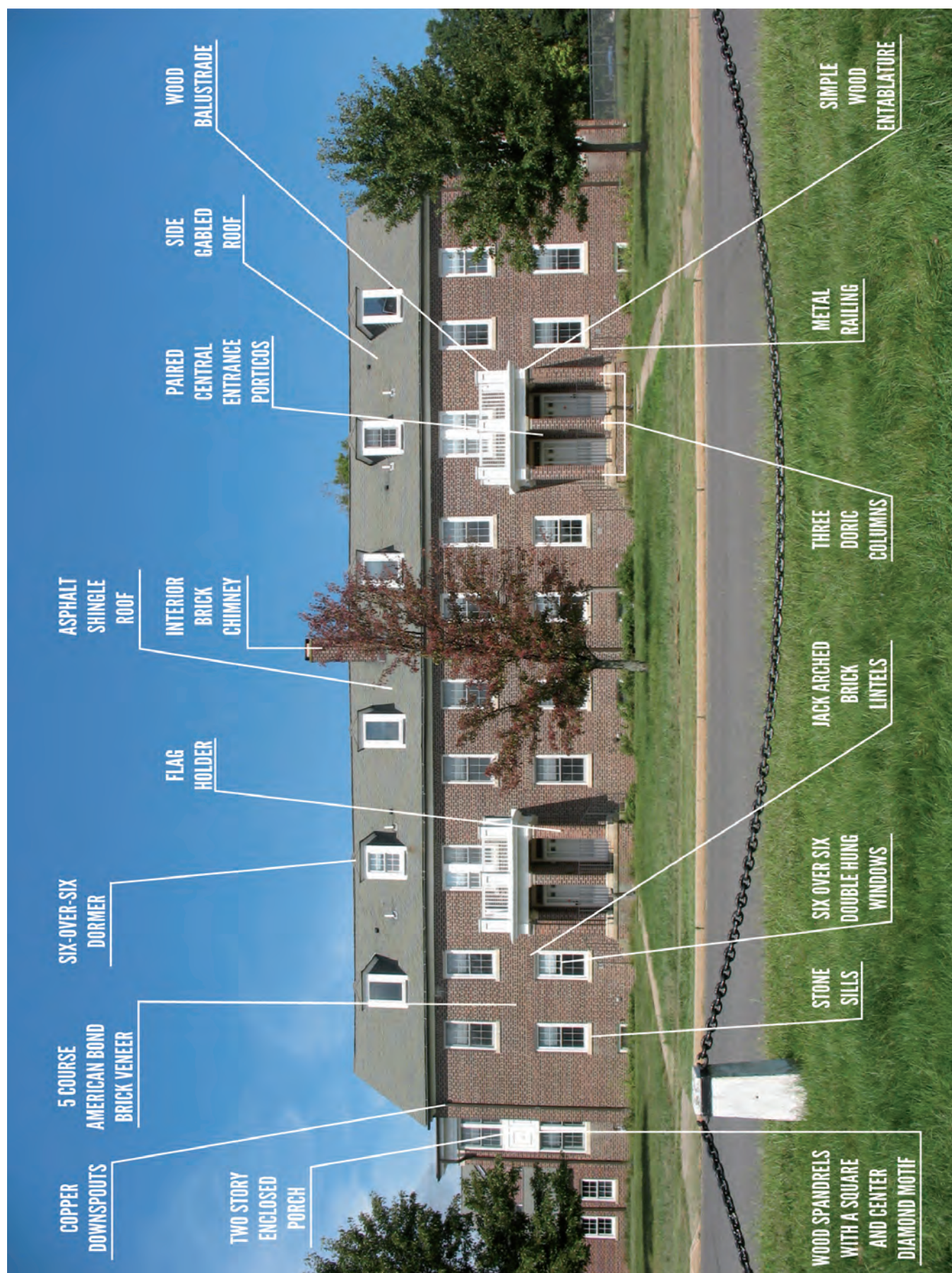
- A two-story enclosed porch is located on the side elevations
- Porches are constructed of brick and enclosed with six-over-six replacement windows with a concrete sill
- Wood spandrels with a square and center diamond motif separate the windows on the first and second stories of the porches
- Copper roofing on porches with a wood cornice

Chimneys

- Five course American bond brick interior chimney located in the center of the building

Ornaments

- One flag holder on portico column for each entrance
- Black metal street number digits attached to entablature of portico above outside brick column
- Black metal mailboxes affixed to brick separating wall of portico adjacent to each front entrance
- Portico lights are recessed behind entablature so as to not be visible from the street



Design Guidelines



Landscaping, Siting and Streetscape

- Walkways to main entrances should be maintained and repaired as necessary with four foot wide concrete pavers
- Shrubs and other year-round landscaping should be encouraged to be planted to shield foundation walls and front stoops. Such landscaping shall be drought tolerant and installed in a bed of mulch in accordance with Rutgers Cooperative Home Extension Guidelines and Professional Nurseryman's Association for location
- Existing maple trees, though not original, should be maintained and replaced in kind as required
- Front and side yards should be maintained as grass lawns
- No fences shall be permitted in the front or side yards
- HVAC systems, ground mounted renewable energy systems, satellite dishes, antennae or other telecommunications equipment shall be located in rear yards only and shall be screened in accordance with the Land Use Rules.



Roof

- The original roof form on the street fronting façades (i.e., Russel and Carty Avenues) including shape, line, pitch and overhang shall be retained, protected and repaired
- Replacement roofs on contributing buildings or on additions to contributing buildings should replicate the original pitch, design and materials
- Reroofing of the non-porch areas shall be done with asphalt shingles so long as it matches the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details. Reroofing of the porch areas should use the same copper material as existing or a material similar in texture, color and composition as the existing roofing material
- Ventilation or mechanical equipment including exhaust fans and/or attic fans, satellite dishes, renewable energy systems or other telecommunications equipment should be placed on those portions of the roof not visible from either Russel or Carty Avenues
- Copper flashing, gutters and downspouts shall be retained and repaired as required. Replacements shall be of copper and match the existing material in size, shape, texture and color

Chimneys

- Historic chimneys shall be preserved
- Brick on chimneys should be repointed as required. Replacement brick shall be installed with the same bonding and coursing pattern of existing brick chimney
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible

Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible
- Wood siding and trim should be retained and repaired as necessary. Any repairs or replacement of wood siding or trim should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Wood siding and trim shall be white. Fiber cement board siding (such as hardiplank) is an acceptable alternative. Fiber cement board siding is preferred over vinyl or aluminum. The substitute material should match the historic material in size, color and finish
- Where wood trim has been replaced with vinyl trim, the replacement of the vinyl trim with wood is encouraged. Replacement of vinyl trim with cellular PVC trim or fiber cement trim is also acceptable so long as it matches the remainder of the trim in material, dimension, spacing, composition, texture, pattern, design and details

Main Entrances

- Wood entrance doors shall be retained and repaired as necessary. Damaged doors shall be replaced with six paneled solid wood doors with top two glass panels. Entrance doors shall be white
- The size, shape and location of existing main entrances visible from the public street shall be retained and not moved
- Wood portico entablature and balustrade shall be retained and repaired as necessary. Any repairs or replacement of the entablature or balustrade should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Fiber cement or cellular PVC are acceptable alternatives so long as the replacement material matches the existing materials in texture, pattern, design and color
- Concrete stoops shall be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing
- Transom windows shall be retained and repaired as necessary. Reglazing is preferred over replacement. However, if reglazing is not possible, replacement windows shall be clear glass. Fanlight windows shall not be covered up
- Storm doors shall be white





Windows

- The original pattern of fenestration and muntin configuration on the front and side facades shall be retained. New window openings shall not be permitted on the front or side façades
- Replacement of vinyl sash windows with wood six-sash windows is encouraged. However, replacement with vinyl windows is also acceptable so long as it matches the other windows on the front and side facades in material, composition, and details. Where wood window units remain, replacement or repair shall be wood
- Window frames and muntins shall be painted white
- Window screens shall be full panel, black mesh
- Stone sills that are damaged or deteriorated shall be replaced. Replacement sills shall be installed matching the original sill in material, composition, size, shape, texture and color

Porches

- The existing shape, dimensions, materials and details of the existing enclosed porches shall be retained

Ornaments

- Wrought iron railings shall be retained, repainted and repaired as necessary. Replacement railings shall be wrought iron painted black
- Street numbering shall be cast metal, four inch black stroke, mounted on the entablature of portico above outside brick column
- The location of existing portico lighting fixtures should be retained. Replacement portico lighting fixtures should be installed so as not to be visible from the street frontage
- Black metal mailboxes shall be retained. Replacement mailboxes should be mounted so as to not damage historic masonry. Anchor bolts should be set in the mortar joints, not bricks
- There shall be no up-lighting, either on plantings or structures



Fort Monmouth Historic District

Bachelor Officers' Quarters

Buildings 270 and 271 | Style: Colonial Revival | 1929-1931



History

The Bachelor Officer's Quarters stand on the south side of Allen Avenue and face north. Building 270 is the larger of the two buildings and was built in 1929. Building 271 followed in 1931. Building 270 was known as Scriven Hall and Building 271 was known as Gardner Hall.

Among the alterations on the buildings include enclosing the porch on Building 270; replacement of the original porch balustrade on both buildings; replacement of windows; and the construction of a paved curvilinear driveway from Allen Avenue to Building 270 including a porte-cochere drop-off.

Circa 1932





Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Colonial Revival-style forms and architectural detailing
- The buildings are two stories
- H-shaped footprints; Building 270 has a rectangular, rear one-story wing

Landscaping, Siting and Streetscape

- Buildings front on Allen Avenue; the west elevation of Building 271 also faces Allen Avenue, the east elevation faces Housing Avenue, the south elevation abuts open space; the west elevation of Building 270 faces Housing Avenue, the east elevation faces Bennet Avenue; and the south elevation faces Carty Avenue
- Buildings are setback from the roadways with grassy lawn areas between the buildings and the roadways
- Concrete sidewalks along the street separated from the roadway by a strip of grass landscaping
- Various evergreen species of foundation planted along the front and side facades of each building
- Mature deciduous trees located in the lawn areas surrounding the buildings

- Concrete walkway from the curb of the street frontage to the entrances on Allen, Housing and Bennet Avenues

Roof

- Hipped roofs
- Asphalt shingles
- Rooflines ornamented with overhanging eaves and wood brackets

Chimneys

- Each building has an interior brick chimney

Cladding

- Five course American bond brick veneer
- Wood trim windows
- Wood porch details

Entrances

- The main entrances have concrete stairs with metal railings and balusters
- Main entrances:
 - o One-story, one-bay portico projects from the center of the façade and has brick Tuscan columns supporting a flat roof with a wooden ogee cornice
 - o Portico shelters the main entrance of the building that holds a double wood paneled door with six lights. Pan- eled sidelights with six lights flank the door and multi- light transoms are located above the sidelights and door



- Side entrances:
 - o One-story one-bay portico with brick Tuscan columns and a wood balustrade shelters secondary entrances on the east and west elevations of the buildings. Brick screen walls enclose the porticos on their side elevations
 - o Porticos hold a single wooden door. Paneled sidelights with three lights flank the door and multi-light transoms are located above the sidelights and door
 - o Above the porticos is a single-leaf door with brick and limestone segmental arched fanlight and three-light paneled sidelights

Windows

- Building 270 is nine-bays wide; Building 271 is seven-bays wide
- Fenestration:
 - o Main elevation is predominantly six-over-six pane double hung windows
 - o Side elevations have nine-over-nine pane double hung windows on the ground floor and six-over-six pane double hung windows on the second story
 - o Windows have concrete sills and jack-arched lintels, some with concrete keystones
- Dormer windows:
 - o Three hipped dormers pierce the roof of the front façade of Building 270; one hipped dormer pierce the roof of the front façade of Building 271. Dormer roofs have overhanging eaves with wood brackets
 - o Dormer windows on Building 270 are six-over-six double hung windows; dormer windows on Building 271 are two-over-two casement windows



Porches

- One story porch lines the front facades of both buildings
- The porches have brick Tuscan posts with wood trim and a wooden balustrade

Ornaments

- Outdoor lighting fixtures are recessed so as not to be visible from the street.

Design Guidelines



Landscaping, Siting and Streetscape

- No fences should be permitted in the front or side yards
- Front and side yards should be maintained as grass lawns
- HVAC systems, ground mounted renewable energy systems, satellite dishes, antennae or other telecommunications equipment shall be located in rear yards only and shall be screened in accordance with the Land Use Rules.

Roof

- The original roof form on the street fronting façades including shape, line, pitch and overhang shall be retained, protected and repaired
 - Replacement roofs on contributing buildings or on additions to contributing buildings should replicate the original pitch, design and materials
 - Reroofing of the non-porch areas shall be done with asphalt shingles so long as it matches the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details
 - Ventilation or mechanical equipment including exhaust fans and/or attic fans, satellite dishes, renewable energy systems or other telecommunications equipment should be placed on those portions of the roof not visible from either Russel or Allen Avenues
- Copper flashing, gutters and downspouts shall be retained and repaired as required. Replacements shall be of copper and match the existing material in size, shape, texture and color

Chimneys

- Historic chimneys shall be preserved
- Brick on chimneys should be repointed as required. Replacement brick shall be installed with the same bonding and coursing pattern of existing brick chimney
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible

Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible



- Wood cornices and trim should be retained and repaired as necessary. Any repairs or replacement wood should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Cement board siding (such as hardiplank) is an acceptable alternative. Cement board siding is preferred over vinyl or aluminum. The substitute material should match the historic material in size, color and finish
- Where wood cornice or trim has been replaced with vinyl trim, the replacement of the vinyl trim with wood is encouraged. Replacement of vinyl cornices or trim with vinyl or cement board siding (such as hardiplank) is also acceptable so long as it matches the remainder of the cornice or trim in material, dimension, spacing, composition, texture, pattern, design and details

Entrances

- Wood entrance doors shall be retained and repaired as necessary. Damaged doors shall be replaced with six paneled solid wood doors with top two glass panels. Entrance doors shall be white
- The size, shape and location of existing main entrances visible from the public street shall be retained and not moved
- Wood-frame latticed porch shall be retained and repaired as necessary. Any repairs or replacement wood should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Hardiplank is an acceptable alternatives so long as the replacement material matches the existing materials in texture, pattern, design and color
- Concrete stoops shall be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing
- Storm doors shall be white





Windows

- The original pattern of fenestration and muntin configuration on the front and side facades shall be retained. New window openings shall not be permitted on the front or side façades
- Replacement of vinyl sash windows with wood sash windows is encouraged. However, replacement with vinyl windows is also acceptable so long as it matches the other windows on the front and side facades in material, composition, and details. Where wood window units remain, replacement or repair shall be wood
- Window frames and muntins shall be painted white
- Window screens shall be full panel, black mesh
- Stone sills that are damaged or deteriorated shall be replaced. Replacement sills shall be installed matching the original sill in material, composition, size, shape, texture and color

Ornaments

- Wrought iron railings shall be retained, repainted and repaired as necessary. Replacement railings shall be wrought iron painted black
- There shall be no up-lighting, either on plantings or structures
- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.

Fort Monmouth Historic District

Non-Commissioned Officers' Two-Family Quarters ("Gosselin Housing")

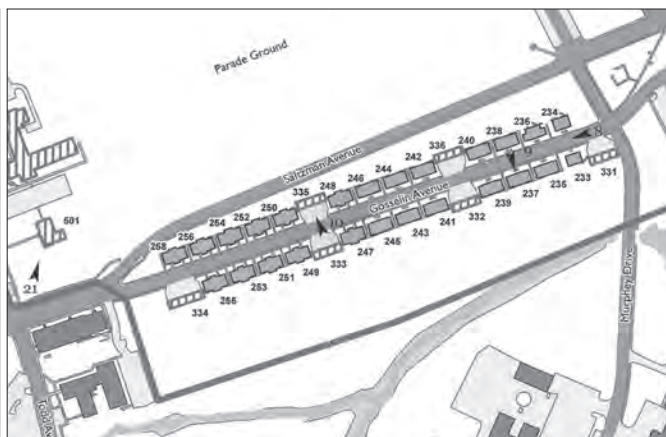
Residential Buildings 233-256, 258; Garage Buildings 331-336 | Style: Colonial Revival | 1927-1934



History

As stipulated by the Quartermaster Corps, Non-Commissioned Officers' Quarters (NCO's) were two-story twin houses. The NCO area of Fort Monmouth consists of 25 twin dwellings that line Gosselin Avenue to the south side of the parade ground. Six garages are interspersed between the houses and are accessible from Gosselin Avenue. Construction began on the dwellings in 1927 and continued through 1934. The first dwellings were built on the east end of Gosselin Avenue and progressed westward. The Colonial Revival Style form and details of the dwellings are illustrative of the standard plans of the Quartermaster Corps.

Few alterations have been made to the buildings constructed by the Army Quartermaster Corps, and changes, for the most part, have been minor, such as replacement windows and infilled porches. In the last 20 years, the Army updated with sheetrock wall, trim work, vinyl replacement windows, dimensional asphalt roofs to mimic slate, and enclosed side porches.





Wood-frame garages (Buildings 331-336) were built for the Non-Commissioned Officers' Quarters in 1934. Four garages are located on the south side of Gosselin Avenue, one between every four houses. Two garages are located on the north side of the street, between Buildings 240 and 242 and between 248 and 250. The garages are slightly back from the houses. The garages are one-story and are eight or 10 bays wide. They have been covered in vinyl siding and vinyl roll-up doors.

Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Colonial Revival style
- Rectangular footprint
- Center entrances on main elevation with symmetrical fenestration
- Two stories in height with basement

Landscaping, Siting and Streetscape

- Buildings uniformly setback from Gosselin Avenue at a distance of 20 feet.
- Concrete sidewalk along both sides of the street separated from the roadway by a strip of grass landscaping.
- Concrete walkway from the curb of Gosselin Avenue to the main entrances.



- Grass lawns on front, side and rear yards
- Shrubs and other landscaping planted to provide year-round screening of foundation walls and entranceway steps
- Street trees on Gosselin Avenue
- Street lights on Gosselin Avenue

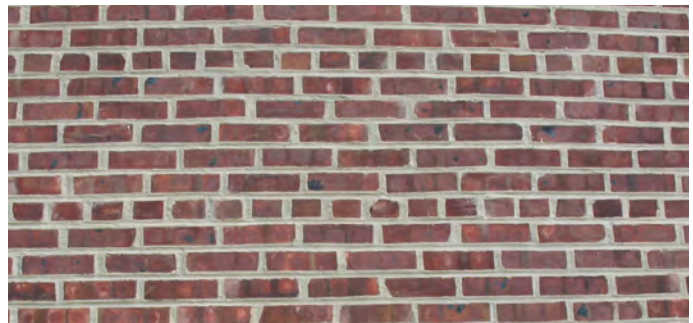


Roof

- Houses are hipped or gabled roof; garages are hipped roof
- Overhanging eaves ornamented by wood brackets or wood ogee cornice
- Slate shingle roofs
- Copper flashing, half-round gutters and downspouts terminating at concrete splashblock

Cladding

- Five course American bond brick veneer on houses
- Poured concrete foundations
- Wood board siding and trim on porches
- Wood board siding on garages





Main Entrances

- Varying Colonial Revival-style center entrances with door surrounds:
 - Buildings 233, 234, 239, 240, 245, 246: Colonial Revival-style wood door surrounds with Tuscan pilasters, a plain frieze, an ogee cornice, and a four light transom.
 - Building 235, 236, 237, 238, 241, 242, 243: a semicircular pediment with a sunburst motif in the tympanum.
 - Buildings 247-250, 255-256: a one-story two-bay wood-frame portico with a flat roof projects from the center of the dwelling and contains the main entrances to the dwellings. The portico features two six-over-six vinyl-sash windows on the main elevation and a single-leaf door on each of its side elevations. The bay is ornamented with Tuscan pilasters, a plain frieze, and an ogee cornice.
 - Buildings 251-254, 258: a flat-roofed, one-story two-bay brick portico projects from the center of each dwelling and contains the main entrances. The portico has two-double-leaf wood-paneled doors with eight lights on the main elevation and a single-leaf wood-paneled door on its side elevations. All four door openings are capped with semicircular-arched openings with fanlights
- Doors are 6-panel wood with top two glass panels
- Door trim is wood
- Storm doors are metal
- Poured concrete front stoops with wrought iron railing with molded cap.



Windows

- Symmetrical fenestration
- Six over six, double-hung wood sash
- Four-bay wide
- Paired windows on the first story and single windows on the second story
- Windows have wood frames and stone sills
- Above the entrance doors and in the center of the second story are two narrow casement windows
- Exterior screen windows

Porches

- Most buildings have one or two-story screened-in porch on the side elevations constructed of wood framing with corner pilasters, or brick first floors with wood frame second floors. The porch walls are clad with clapboard and have decorative pilasters trimming the corners. A small number of the dwellings were built with one-story brick sun porches.
- Rear concrete porch decks with wrought iron railings.

Chimneys

- Five course American bond brick internal end chimneys
- Concrete chimney crown



Ornaments

- Black metal street number digits
- Black metal mailboxes affixed to brick facades adjacent to front entrances
- Main entrance outdoor lighting fixtures consist of one carriage light located on the outer door surrounds. On buildings with closed portico entrances the outdoor light fixture is located on the main façade.



Design Guidelines



Landscaping, Siting and Streetscape

- Walkways to main entrances should be maintained and repaired as necessary with four foot wide concrete pavers that match existing materials, color and texture.
- Shrubs and other year-round landscaping should be encouraged to be planted to shield foundation walls and front stoops. Such landscaping shall be drought tolerant and installed in a bed of mulch in accordance with Rutgers Cooperative Home Extension Guidelines and Professional Nurseryman's Association for location.
- Street trees should be encouraged to be planted within the planted median between the sidewalk and the street.
- Front and side yards shall be maintained as grass lawns.
- No fences shall be permitted in the front or side yards.
- HVAC systems, ground mounted renewable energy systems, satellite dishes, antennae or other telecommunications equipment shall be located in rear yards only and shall be screened in accordance with the Land Use Rules.



Roof

- The original roof form including shape, line, pitch and overhang shall be retained, protected and repaired.
- Replacement roofs on contributing buildings or on additions to contributing buildings shall replicate the original pitch, design and materials.
- Asphalt shingles have replaced the original slate roof tiles. Replacement of asphalt shingles with slate roof tiles is encouraged. However, replacement with asphalt shingles is also acceptable so long as it matches the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details. If patching a roof, match existing materials.





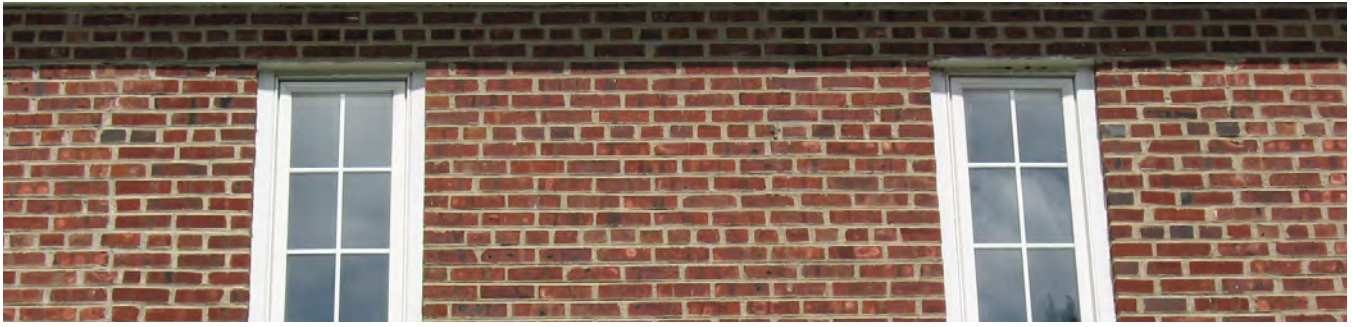
- Wood cornices and roof brackets shall be retained and repaired as necessary. Any repairs or replacement of cornices should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood.
- Ventilation or mechanical equipment including exhaust fans and/or attic fans, satellite dishes, renewable energy systems or other telecommunications equipment shall be placed on those portions of the roof not visible from Gosselin Avenue.
- Copper flashing, gutters and downspouts shall be retained and repaired as required. Replacements shall be of copper and match the existing material in size, shape, texture and color.

Chimneys

- Historic chimneys shall be preserved.
- Bricks on chimney shall be repointed as required. Bricks that are damaged, spalled, or deteriorated shall be replaced. Replacement brick shall be installed with the same bonding and coursing pattern of existing brick chimney. (Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate.)
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible.

Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced.
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. (Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate.)
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible.
- Wood siding and trim should be retained and repaired as necessary. Any repairs or replacement of wood siding or trim should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Wood siding and trim shall be white. Fiber cement board siding (such as hardiplank) is an acceptable alternative. Fiber cement board siding is preferred over vinyl or aluminum. The substitute material should match the historic material in size, color and finish
- Where wood trim has been replaced with vinyl trim, the replacement of the vinyl trim with wood is encouraged. Replacement of vinyl trim with cellular PVC trim or fiber cement trim is also acceptable so long as it matches the remainder of the trim in material, dimension, spacing, composition, texture, pattern, design and details
- Poured concrete foundations should be parged as necessary.

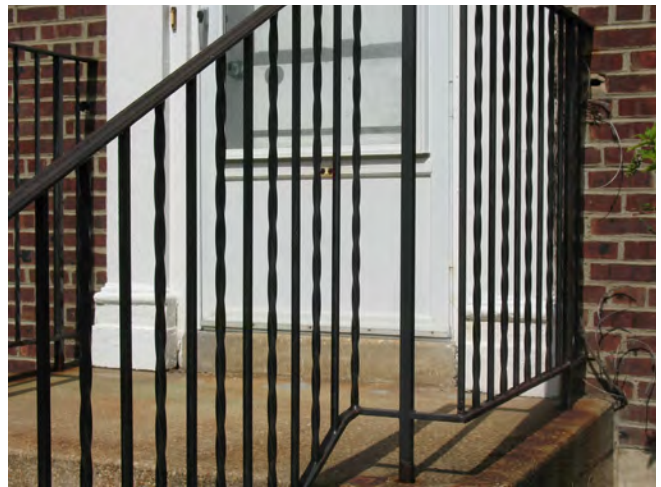


Main Entrances

- Wood entrance doors shall be retained and repaired as necessary. Damaged doors shall be replaced with six paneled solid wood doors with top two glass panels. Entrance doors shall be white.
- The size, shape and location of existing main entrances visible from the public street shall be retained and not moved.
- Molded wood door trim shall be retained and repaired as necessary. Any repairs or replacement of the wood trim should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood.
- Concrete stoops shall be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing.
- Fanlight, French door and transom windows shall be retained and repaired as necessary. Reglazing is preferred over replacement. However, if reglazing is not possible, replacement windows shall be clear glass. Fanlight, French door and transom windows shall not be covered up.
- Storm doors shall be white, 3/4 light panel style.
- Coal chute hatches shall be painted white.

Windows

- The original pattern of fenestration and muntin configuration on the front and side facades shall be retained. Where the pattern has been altered, restoration to the original fenestration pattern is encouraged. New window openings shall not be permitted on the front or side façades.
- Wood frame windows have been mostly replaced with one-over-one vinyl-sash windows with snap-in six over six vinyl muntins. Replacement of vinyl sash windows with wood six-sash windows is encouraged. However, replacement with vinyl windows is also acceptable so long as it matches the other windows on the front and side facades in material, configuration, and details. Where wood window units remain, replacement or repair should be wood.
- Window frames and muntins shall be painted white.
- Window screens shall be full panel, black mesh.
- Stone sills that are damaged or deteriorated shall be replaced. Replacement sills shall be installed matching the original sill in material, size, shape, texture and color.



Porches

- Most screened in porches have been enclosed with six over six double-hung sash windows. Replacement or repair of windows shall match the existing in color, composition and material.
- Replacement of porches where porches previously existed is encouraged.

Ornaments

- Wrought iron railings shall be retained, repainted and repaired as necessary. Replacement railings shall be wrought iron painted black.
- Street numbering shall be cast metal, four inch black stroke, mounted on the white wood trim surrounding the main entrances.
- Black metal mailboxes shall be retained. Replacement mailboxes should be mounted so as to not damage historic masonry. Anchor bolts should be set in the mortar joints, not bricks.
- There shall be no up-lighting, either on plantings or structures.
- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.



Fort Monmouth Historic District

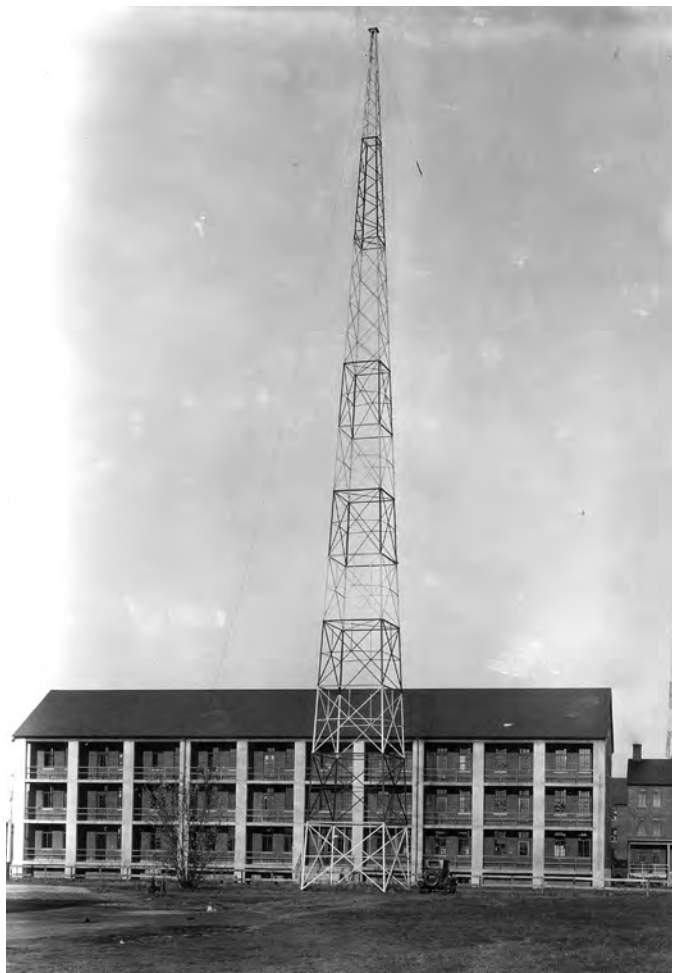
Enlisted Men's Barracks ("Barker Circle")

Buildings: 205-208 and 287 | Style: Colonial Revival

Buildings 205-208: 1927; Building 287: 1940

History

The first permanent construction efforts at Fort Monmouth began in 1927 with the construction of barracks. Construction on the barracks began in February 1927 and by October four barracks (Buildings 205-208) stood on the southeast side of the Parade Ground along a circular drive known as Barker Circle. The barracks varied slightly in size but were all three-story rectangular buildings following Quartermaster Corps plans. The Quartermaster Corps found that the three-story height was "not only economical in construction" but "convenient and easy of administration." The buildings were designed to house one company each, with a combined capacity of 805 men. In 1934 Building 207 was enlarged on its north end to accommodate the Army band. A fifth barracked was added to the group in 1940 (Building 287) but is similar in design and construction to the 1927 barracks. Among the alterations on the buildings include replacement windows, doors, roofing and the construction of concrete stairwells pierced by vertical one-light fixed windows which flank the main blocks of the buildings.





Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Colonial Revival-style forms and architectural detailing
- Three stories
- T-shaped footprint formed from a rectangular main block and a rear projecting wing

Landscaping, Siting and Streetscape

- Arranged in a circular configuration along a circle drive (Barker Circle). The center of the circle drive creates an open area used as a recreation area for residents.

Roof

- Side gable
- Slate shingles (now covered in asphalt shingles)

Cladding

- Concrete block clad in stretcher-bond brick
- Solid concrete foundations with concrete watertables

Entrances

- Main entrances are on the primary façades
- Double-leaf metal doors with one-light sidelights and transoms
- A centered concrete stair with a metal balustrade and railing leads to the main entrances



Windows

- Symmetrically placed windows hold three-light metal windows. Upper sashes hold fixed panes and the lower sashes are awning.
- Concrete sills
- Solider brick lintels
- Semicircular openings are located in the gable ends of the main block
- Bays:
 - o Building 205 is 14 bays wide
 - o Building 206 is 10 bays wide
 - o Building 207 is 15 bays wide
 - o Building 208 is 12 bays wide
 - o Building 287 is 9 bays wide

Chimneys

- Interior-end brick chimney located on each of the rear wings

Porches

- Three story concrete porches front each of the buildings and are sheltered by the buildings' primary roof
- Each building has a one-story rear shed porch with concrete posts and balustrades attached to the side elevation of the wing

Design Guidelines



Landscaping, Siting and Streetscape

- The original configuration around the circular drive (Barker Circle) should be preserved

Roof

- The original roof form on the street fronting façades should be retained
- Reroofing shall be done with asphalt shingles so long as it matches the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details



Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible

Entrances

- The size, shape and location of existing main entrances visible from the public street should be retained
- Concrete entrance steps should be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing

Windows

- The original pattern of fenestration on the front and side facades should be retained

Porches

- Posts and ballustrades should be retained and repaired as necessary with poured concrete of the same color, texture and composition as the existing porch

Ornaments

- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.

Fort Monmouth Historic District

Institutional Buildings: Russel Hall

Building 286 | Style: Art Deco | 1936



History

Following the guidelines of the Quartermaster Corps, the institutional or public buildings of Fort Monmouth were located near open spaced and had adequate parking. Russel Hall (Building 286), built as the command headquarters in 1936, serves as the centerpiece of the district and stands prominently facing the main entrance to the installation. In addition to being the command headquarters, Russel Hall was also a classroom building for the Signal Corps School. Philadelphia architect, Harry Sternfeld worked with the Quartermaster Corps Office of Construction, in the design of the building. The Art Deco building displays a shift from the Colonial Revival style that dominates the majority of the buildings built by the Quartermaster Corps on Fort Monmouth between 1927 and 1940.

Few alterations have been made to the buildings constructed by the Army Quartermaster Corps, and changes, for the most part, have been minor such as enclosing brick stairwells that are located on the side elevation of the wings and the replacement of original windows.



Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Rectangular footprint
- Four story main five bay main block flanked by three-story wings

Landscaping, Siting and Streetscape

- Building fronts on Sanger Avenue and Cowan Park
- Features prominently in the Fort Monmouth Historic District given its location at entrance to fort from Oceanport Avenue and also as the eastern terminus of the Parade Ground

Roof

- Flat parapet roof
- A frieze of soldier bricks and a cornice of brick bands decorate the wings on all frontages



Cladding

- Limestone clad raised basement
- Five course American bond brick veneer
- Main block façade projects slightly from the wings and features an Indiana limestone frontispiece.
- Decorative brick spandrels separate the first, second and third stories of the building's wings and entire rear facade

Entrances

- Main block façade projects slightly from the wings and features an Indiana limestone frontispiece. Flanking the centered main entrance are limestone reliefs depicting the Signal Corps in the Civil War and World War I. Below the parapet is a limestone relief of the Great Seal of the United States
- Granite steps lead up to the main entrance, which consists of two double-leaf polished metal doors. Above the doors is a large multi-light transom with two circular metal plaques bearing the insignia of the Signal Corp and the Signal Corps School

Windows

- Five-bay main block
- The main frontispiece has one-over-one metal sash windows on second and third stories
- The building's wings are fenestrated by paired one-over-one metal sash windows

Design Guidelines

Landscaping, Siting and Streetscape

- Views of the Parade Ground and Cowan Park from Russel Hall should be maintained and not be obstructed by permanent construction or landscaping. Additional landscaping should be restricted to the side yards fronting on Sherrill and Saltzman Avenues

Roof

- The original roof form shall be retained, protected and repaired
- Rooftop appurtenances shall be completely screened from street view on all sides using materials that are complementary to the materials and design of the building below.

Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible
- Limestone details and cladding shall be retained and repaired as necessary. Any repairs or replacement shall be limestone of the same composition, size, shape, texture and color as the original limestone

Entrances

- Limestone details and cladding shall be retained and repaired as necessary. Any repairs or replacement shall be limestone of the same composition, size, shape, texture and color as the original limestone
- Metal entrance doors shall be retained and repaired as necessary. Any replacement doors shall match the existing doors in material, size, shape, texture and color
- The size, shape and location of existing main entrances visible from the public street shall be retained and not moved
- Concrete stoops shall be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing

Windows

- The original pattern of fenestration shall be retained on all facades. New window openings shall not be permitted on any facades
- The windows have all be replaced with metal vinyl sash windows. Future replacement of windows with metal vinyl windows is acceptable

Ornaments

- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.

Fort Monmouth Historic District

Community Support Buildings

Allison Hall (Building 209); Kaplan Hall (Building 275); Fire Station and Guard House (Building 282) | Style: Colonial Revival

Allison Hall: 1928; Kaplan Hall: 1933; Fire Station and Guard House: 1935



History

The Community Support Buildings: Allison Hall (Building 209), the former hospital; Kaplan Hall (Building 275), the former theater; and the Fire Station and Guard House (Building 282) are all located in prominent locations facing the Parade Ground or large expanses of open space. These characteristics, along with the building plans, were designed to the specifications of the Quartermaster Corps.

Allison Hall was one of the first buildings constructed on Fort Monmouth under the Army's permanent building campaign. Allison Hall faces south toward Signal Avenue. The building was constructed in two phases: the main block and the east wing were completed in April 1928, and the west wing and rear wing were completed in 1934.

Kaplan Hall stands on the south side of Gosselin Avenue, east of the Non-Commissioned Officers' Quarters, and faces north. Typical of Army posts, the theater was located near the barracks, which stand directly to the east of the theater. The building was completed in 1933.

The Fire Station and Guard House faces northwest toward Hildreth Avenue and stands between Buildings 205 and 206 (Enlisted Men's Barracks). Like most fire stations built by the Quartermaster Corps, the building also served as a guard house and was built in a prominent location that was accessible to the major road on the installation. The building was completed in 1935.

Among the alterations on the buildings include enclosing the porches on Allison Hall and cladding them with stucco; and replacement of windows.

Historic Features

The below features are based on the submission application for the historic district to the National Register of Historic Places, as well as on an examination of historic photographs dating from the period of significance indicated in the National Register application, i.e., 1927-1940.

General

- Colonial Revival-style forms and architectural detailing
- Number of stories:
 - Allison Hall: two stories above a raised basement
 - Kaplan Hall: two-stories
 - Fire Station and Guard House: two-story main block with flanking one-story wings and a one-story rear ell.
- Footprints:
 - Allison Hall: H-shaped footprint with rear projecting wing. Central administration block with flanking ward wings
 - Kaplan Hall: rectangular footprint
 - Fire Station and Guard House: rectangular footprint with rear ell

Landscaping, Siting and Streetscape

- Buildings are prominently located with views of Cowan Park and the Parade Ground (Kaplan Hall and the Fire Station and Guard House), or other expanse of open space
- All have ample adjacent parking
- Concrete sidewalks along the street separated from the roadway by a strip of grass landscaping (except for the Fire House which has a paved apron separating it from the roadway for the maneuvering of fire trucks)

Roof

- Shape:
 - Allison Hall: cross-hipped
 - Kaplan Hall: front-gable
 - Fire Station and Guard House: Hipped roof on main block; flat roofs on one-story wings
- Brown asphalt shingle roofs
- Roofline ornamentation:
 - Allison Hall: overhanging eaves
 - Kaplan Hall: wood ogee cornice with a closed pediment
 - Fire Station and Guard House: wood frieze and ogee cornice on main façade; wings have a concrete belt course near the roofline. An intersecting pedimented bay projects slightly from the main elevation and is ornamented by brick quoins
- Copper flashing, gutters and downspouts

Cladding

- Five course American bond brick veneer



Entrances

- Main entrances:
 - Allison Hall: centered on the façade and is sheltered by a concrete portico ornamented by paired Tuscan columns, an unadorned frieze, an ogee cornice, and a balustrade
 - Kaplan Hall: Two centered double-leaf wood doors separated by a wood panel, likely the original location of the ticket booth. Lettering on the awning's frieze above the main doors reads "U.S. Army Communications Museum Kaplan Hall."
 - Fire Station and Guard House: Two segmental-arched openings outlined with double header course voussoirs and concrete impost blocks and keystones which are marked with the numbers two and three. The openings hold roll-up metal vehicular doors. A single-leaf wood door with a Colonial Revival-style wood surround is located south of the arched openings.
- Additional entrances on front facade:
 - Kaplan Hall: The center doors are flanked by single arched openings ornamented by keystones. The west opening holds a single-leaf six-light wood paneled door capped with a fanlight. The east arched opening has been enclosed with brick.
 - Fire Station and Guard House: The flanking one-story wings hold roll-up metal vehicular doors on the north-west elevation

Windows

- Fenestration:
 - Allison Hall: One over one metal sash windows each capped with a one-light awning window
 - Kaplan Hall: second story has five six-over-six wood sash windows with stone sills and jack-arched lintels decorated with keystones. A semicircular wood-sash multi-light window pierces the center of the pediment
 - Fire Station and Guard House: second story has one-over-one metal sash windows with jack-arched lintels and concrete sills

Design Guidelines

Landscaping, Siting and Streetscape

- HVAC systems, ground mounted renewable energy systems, satellite dishes, antennae or other telecommunications equipment shall be located in rear yards only and shall be screened in accordance with the Land Use Rules.

Roof

- The original roof form on the street fronting façades including shape, line, pitch and overhang shall be retained, protected and repaired
- Replacement roofs or additions to should replicate the original pitch, design and materials
- Reroofing shall be done with asphalt shingles so long as it matches the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details
- Copper flashing, gutters and downspouts shall be retained and repaired as required. Replacements shall be of copper and match the existing material in size, shape, texture and color





Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced
- Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible
- Wood cornices and trim should be retained and repaired as necessary. Any repairs or replacement wood should use salvaged, sound, original wood or new wood matching existing wood materials similar in composition, size, shape, texture and color to the original wood. Cement board siding (such as hardiplank) is an acceptable alternative. Cement board siding is preferred over vinyl or aluminum. The substitute material should match the historic material in size, color and finish
- Where wood cornice or trim has been replaced with vinyl trim, the replacement of the vinyl trim with wood is encouraged. Replacement of vinyl cornices or trim with vinyl or cement board siding (such as hardiplank) is also acceptable so long as it matches the remainder of the cornice or trim in material, dimension, spacing, composition, texture, pattern, design and details

Entrances

- The size, shape and location of existing main entrances visible from the public street shall be retained and not moved
- Main entrance porticos on Allison Hall and Kaplan Hall shall be retained and repaired as necessary. Any repairs or replacement of materials should match existing materials in composition, size, shape, texture and color
- Concrete entrance steps shall be retained and repaired as necessary. Concrete patching materials shall match existing profiles and color. Where concrete spalled at railing post connections, the concrete shall be repaired to match existing

Windows

- The original pattern of fenestration on the front and side facades shall be retained. New window openings should not be permitted on the front or side façades
- Replacement of vinyl sash windows with wood sash windows is encouraged. However, replacement with vinyl windows is also acceptable so long as it matches the other windows on the front and side facades in material, composition, and details. Where wood window units remain, replacement or repair shall be wood
- Stone sills that are damaged or deteriorated shall be replaced. Replacement sills shall be installed matching the original sill in material, composition, size, shape, texture and color

Ornaments

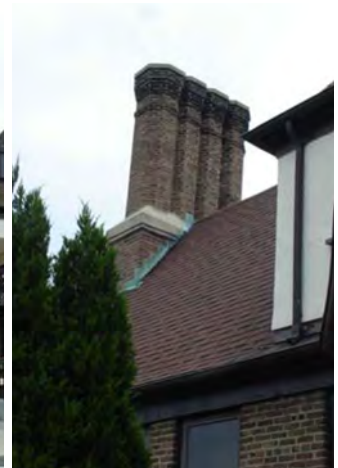
- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.

Charles Wood Area

Gibbs Hall and Swimming Pool at Suneagles Golf Club

Building: 2000 | Style: Tudor Revival 7 | 1926

Swimming Pool: 2020



History

Originally constructed as part of the Suneagles Country Club, Gibbs Hall and the accompanying swimming pool are located on Lowther Drive in the Charles Wood Area of Eatontown. The structure is surrounded by the Suneagles Golf Course. The Suneagles Golf Course occupies nearly 235 acres of the Charles Wood Area. Gibbs Hall is a dining and reception facility.

Historic Features

The below features are based on data included in the Fort Monmouth Reuse and Redevelopment Plan Existing Conditions Technical Memoranda prepared by EDAW, Inc. and dated September 2007.

General

- Tudor Revival-style forms and architectural detailing
- One to three stories at different locations
- T-shaped footprint formed from a rectangular main block and a rear projecting wing

Landscaping, Siting and Streetscape

- Situated with expansive views of the Suneagles Golf Course
- Stone wall adjacent to outside pool

Roof

- Side gable
- Asphalt shingle (possible originally clay tile)
- Cooper roof on tower feature

Cladding

- Stucco
- Common bond brick

Entrances

- Double wooden door

Windows

- Casement

Chimneys

- One exterior brick chimney
- One interior brick chimney
- Two stucco interior chimneys

Design Guidelines



Landscaping, Siting and Streetscape

- The views of the Suneagles Golf Course should be preserved and not obstructed
- The stone wall adjacent to the swimming pool should be retained

Roof

- The original roof form on the main façades should be retained
- Reroofing of the main building shall be done with asphalt shingles so long as it matches the remainder of the roof in material, dimension, spacing, composition, texture, pattern, design and details
- The copper roofing on the tower feature shall be preserved and repaired as necessary. Any replacement of materials shall be of copper similar in texture and color to the existing roof

Cladding

- Bricks that are damaged, spalled, or deteriorated shall be replaced. Replacement brick shall be installed with the same bonding and coursing pattern of existing facade. Modern extruded bricks, which lack the texture and variation of sand molded bricks, are generally not appropriate
- Stucco should be repaired as necessary using the same texture, color and composition as the remainder of the stucco facade
- When brick repointing, the mortar shall match the size, texture, and gradation of existing mortar as closely as possible



Entrances

- The size, shape and location of existing main entrance should be retained

Windows

- The original pattern of fenestration on the front and side facades should be retained

Chimneys

- The chimney brick should be retained and repaired as necessary. Replacement brick shall be installed with the same bonding and coursing pattern of existing facade

Ornaments

- If original main entrance outdoor lighting fixtures are present, the fixtures should be preserved and repaired. If original fixtures are not present, new fixtures should be appropriate to the style and scale of the building and element to which it is attached.
- Historic locations of main entrance outdoor lighting fixtures shall be retained.

New Construction and Additions to Contributing Buildings

New construction in the Fort Monmouth Historic District including additions to contributing historic buildings should reflect the design trends and concepts of contemporary architecture, yet remain compatible with the surrounding historic structures.

The purpose of this guidelines are to ensure that new construction respects the historic character of the Fort Monmouth historic resources from site design (setback, orientation, etc.) to building envelope (size, scale, roof shapes, façade bays, etc.) and building materials, details, and colors.

New Construction

- A new building or addition should visually relate to contributing historic buildings in its immediate neighborhood. The prevailing setback line at the street should be preserved. Avoid siting a building significantly farther away or closer to the street than adjacent and other buildings on the block
- Roof shapes on new buildings or additions should visually relate to the roof forms and slopes on neighboring historic buildings
- New buildings should respect the bulk and height of neighboring buildings. The facade height and proportions of new buildings should be compatible with the predominant character of other buildings in the streetscape
- The proportion (relationship of height to width) of a new building's primary façade must be visually compatible to neighboring buildings
- The prevailing relationships of building widths and the spaces between buildings should be respected and preserved. Where the spacing of buildings and side yards creates a rhythm, new buildings and additions to existing buildings should not alter that rhythm
- New construction should incorporate traditional elements which give scale to the streetscape, such as porches or stoops, when they are present on adjacent historic buildings
- Materials used in new buildings should be compatible with materials used on buildings in the immediate neighborhood. Artificial cladding may be found appropriate if the design and details are such as to simulate traditional building practices
- Door and window designs and materials for new construction should be consistent with the historic materials of the district and reinforce its architectural character. Artificial materials may be found appropriate if the design, details and scale are consistent with the historic doors and windows of neighboring contributing historic resources. Only clear paned, non-tinted glass shall be used. Mirrored and tinted heat reflective glasses are not appropriate.
- Sidewalk, driveway and walkway materials should match the materials of sidewalks, driveways and walkways on neighboring contributing historic resources

Additions

- The historic building should retain its original massing (form and shape) and visual characteristics. Additions shall be designed to be subordinate to the main part of the building in terms of massing, height, scale and detail.
- Additions which compete with or obliterate an original structure should be avoided.
- Additions that compete in size with original buildings are strongly discouraged. If the addition is large relative to the existing building, it should be designed with setbacks, offsets, hyphens, change of materials, or mediating architectural details relating to the original structure. To preserve the historic character of a building's mass, additions should be extended to the side and rear; the integrity of the front façade should be maintained.
- Materials used in building additions should be compatible with materials used on the existing building, and should be appropriate to the style and consistent with the character of the original building.
- Roof additions on existing buildings must not damage or obscure the historic character of the roof. The roof pitch, plane, eave overhang and detailing of an addition must be compatible with the main roof. Where an area shows a predominant roof type, new roofs should be guided by the existing character consideration.
- Roofing materials used on additions to historic buildings should be compatible with the materials used on the existing structure.

Additional Guidelines

A. Building Access for the Mobility Impaired

The American Disabilities Act (ADA) of 1990 called for all buildings open to the public to become more accessible for individuals with physical or mental impairment after January 1993. This act affects commercial, service, three and above multi-family residences, government, religious and museum functioning buildings in the historic district. It calls for the removal of architectural and structural communication barriers in existing facilities where

readily achievable. When their removal is not readily achievable, alternative measures must be sought. Congress recognized, however, that for historic properties either eligible for or listed in the National Register to fully comply with this act, a loss of significance and integrity would occur. Therefore, the implementing regulations, in 28 CFR 36.405 “Alterations: Historic Preservation,” allow historic properties to comply to the “maximum extent feasible” The regulations also provide that “[i]f it is determined that it is not feasible to provide physical access to an historic property that is a place of public accommodation in a manner . . . that will not threaten or destroy the historic significance of the building or facility, alternative methods of access shall be provided” as provided in the regulations. This clause does not exclude historic buildings from meeting the act but means to do so without destroying character-defining features.

While this section does not summarize the requirements of the ADA for historic properties eligible for or listed in the National Register, the following should be considered.

- Building accessibility for individuals with disabilities should be achieved without threatening or destroying historic materials or to character-defining elements of historic buildings and sites.
- Design handrails and balusters or other accessibility elements with architectural detailing to compliment the building and district so they become design amenities, instead of intrusions.

B. Noncontributing Resources in Historic Districts

- Non-contributing properties should follow the same guidelines as new construction as stated herein. However, considerable flexibility is warranted when making changes to non-contributing buildings. Decisions that make practical and aesthetic sense that may be contrary to specific guidelines may be made if they uphold the overall intent of the guidelines.

Demolition and Relocation

- Demolition or relocation of buildings that contribute to the Historic District’s significance is generally inappropriate and should be avoided.
- A demolition or relocation may be supported by FMERA or the HPAC if one of the following three conditions exists:
 - o The presence of an existing dangerous condition that constitutes an emergency hazard to public safety.
 - o The requested demolition or relocation will have no adverse impact on the streetscape and/or overall integrity of the district.
 - o All other approaches to protect a historic building on its site have been exhausted.
- In considering the demolition or relocation, the following should be considered:
 - o The significance of the resource affected;
 - o Whether the resource is the only or one of the last remaining examples of its kind within the district;
 - o Whether, in the case of relocation, the relocation of a historic resource results in the loss or diminishment of its historic integrity;

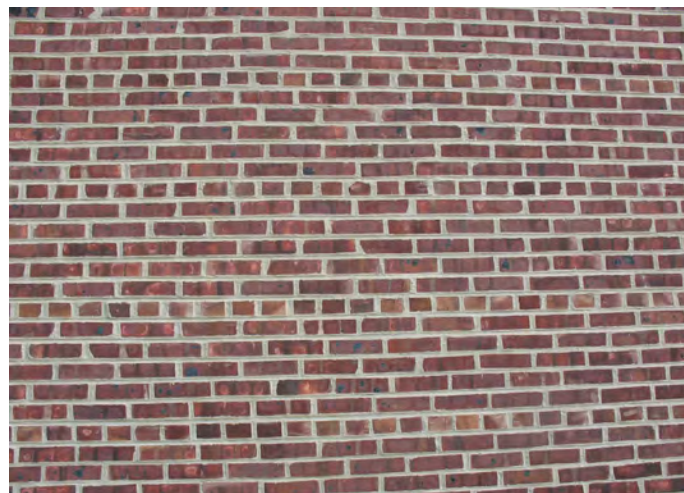
- o Whether the resource is a good example of design, materials or workmanship;
- o Evidence that rehabilitation/restoration is neither technically nor economically feasible due to the design, materials, location or other factors;
- o Imminent collapse of structure and inability to stabilize; and
- o Feasibility of alternatives to demolition.

Mothballing

In order to protect historic buildings for the future, a process known as mothballing can be an effective means for protecting a building when there is currently no viable use or no moneys available for rehabilitation. Mothballing is essentially the action of temporarily closing up a building to protect it from the elements as well as any potential interior vandalism or theft. Long-term mothballing is a multi-step process aimed at preserving a structure for a period of up to ten years. Although interim uses and monitoring is preferable, mothballing remains an important means to prevent long-term neglect and deterioration of a building beyond repair.

- Unused or vacant buildings should be mothballed, secured stabilized and documented according to the guidelines in NPS Preservation Brief 31: Mothballing Historic Buildings available at <http://www.nps.gov/tps/how-to-preserve/briefs/31-mothballing.htm>

Appropriate and Inappropriate Treatments and Landscaping



Top left: Inappropriate mortar, size, texture and color

Bottom left: Inappropriate combination of brick colors

Top right: Appropriate brick cladding



Left: Inappropriate foundation landscaping which obstructs views of the historic structure from the roadway

Top: Appropriate year-round landscaping of foundation that preserves the views of the historic structure



Top: Appropriate asphalt shingle roofing
Left: Inappropriate mismatched shingle colors



Top: Inappropriate removal of mutins
Right: Appropriate replacement of mutins





Top: Appropriate replacement of portico balustrade

Bottom: Inappropriate removal of portico balustrade



Top: Inappropriate bricking in of doorway



Bottom: Inappropriate boarding up of window

Chapter V

Glossary of Architectural Terms



Clockwise: American Bond, Baluster, Dentil

American bond (Common bond).

A pattern of brick coursing in which every third, fifth, sixth or seventh row consists of headers.

Asphalt shingle.

A shingle composed of rag felt or fiberglass, saturated with asphalt.

Baluster.

One of a series of short pillars or other uprights that support a handrail or coping.

Balustrade.

A series of balusters connected on top by a coping or a handrail and sometimes on the bottom by a bottom rail; used on staircases, balconies, porches, etc.

Bay.

The regular external division of a building marked by windows or other vertical elements (as in a three bay wide façade).

Belt course.

A projecting or flush horizontal band of wood or masonry extending across the face of a building. Through much of the eighteenth century it was used to distinguish the approximate location of an upper story on two or three-story buildings; string course.

Bracket.

A projecting support used under cornices, eaves, balconies, or windows to provide structural or visual support.

Chimney, External.

A chimney located outside, and usually attached to, an exterior wall of a structure at the gable end or mansard end.

Chimney, Internal.

A chimney located inside the wall of a structure.

Column.

A round, vertical support. In classical architecture the column has three parts, base, shaft, and capital.

Contributing Properties.

Properties so designated identified in the Programmatic Agreement (see “Programmatic Agreement”) as a “contributing element” to its respective historic district being those which by reason of age, form, materials, architectural details and relation to surrounding properties contribute favorably to the general character of the part of the historic district in which they are located.

Cornice.

A projecting molding at the top of a roof, wall or other element.

Dentil.

Molding composed of equally spaced rectangular blocks used in a series to form a molding below a cornice.

Door, Paneled.

A door constructed with recessed rectangular panels surrounded by raised mouldings.

Dormer window.

A vertical window housed in a frame that rests on a sloping roof.

Elevation.

The perpendicular view of a side of a building; an accurate drawing of one side of a building that represents its true dimensions in the plan perpendicular to the line of sight.



Left to right: Pedimented Dormer, Hipped Dormer, Internal Chimney, Jack Lintel

EII.

An extension that is at right angles to the length of the building.

Entablature.

The horizontal beam-like member supported by columns containing three parts: the lower architrave, the middle frieze, and the upper cornice.

Facade.

The principal front or face of a building, more generally, the wall facing the street or public space.

Fanlight; fan sash.

An arched window with muntins that radiate like a fan.

Flashing

Pieces of metal used around wall and roof junctions and angles as a means of preventing water infiltration.

Gutter

A channel running along the eaves of the structure, used for catching and carrying water.

Header.

The approximate four-inch-wide end of a brick.

Header course.

A row of bricks laid with all headers facing outward.

Jack arch

Flat arch usually used for short spans such as lintels.

Keystone.

A central, wedge-shaped masonry block of an arch; often embellished. Until this block is in place, the arch cannot support any superimposed weight. Also called a voussoir.

Keystone arch.

Any arch having a keystone at its center, but commonly a flat arch or round-topped arch.

Lattice.

Open work produced by interlacing of laths or other thin strips, often used as screening.

Lintel.

A horizontal structural member that spans an opening; support member over a door or window opening.

Lites.

Window panes.

Moulding.

Decorative strip of wood used for ornamentation or finishing.

Mullion.

The fixed vertical bar separating a window that opens in two directions, especially on a casement window.

Muntin.

A sash bar; small molded bars of wood for holding the edge of glass panes in a window sash.

NJSHPO

The New Jersey State Historic Preservation Office within the State of New Jersey Department of Environmental Protection.

Non-contributing resource.

A building, site, structure or object that does not add to the historic significance of a property or a historic district.

Parapet.

A low wall or protective railing, usually used around the edge of a roof or around a balcony.

Pediment.

In classical architecture, the triangular gable end of a roof above a horizontal cornice.

Pilaster.

Decorative feature that imitates engaged piers but are not supporting structures, as a rectangular or semicircular member used as a simulated pillar in entrances and other openings; often contains a base, shaft and capital.

Pointing.

In masonry, the final treatment of joints by troweling mortar into the joints. When replacing or repairing a mortared joint, it is called repointing.



Top: Quoin, Sills, Transom Window

Porte Cochere.

A roofed structure attached to a building and extending over a driveway, allowing vehicles to pass through.

Portico.

A covered entrance or porch with a roof supported by a regular series of columns.

Programmatic Agreement

The "Programmatic Agreement among the United States Army and the New Jersey State Historic Preservation Officer for the Closure and Disposal of Fort Monmouth, New Jersey" dated as of October, 2009, as the same may be modified or amended.

Quoin.

In masonry, a hard stone or brick defining the corners of a masonry building for reinforcement and/or decoration.

Roof, Gable.

The vertical triangular shape of a building wall above the cornice height formed by two sloping roof planes. A gable is the triangular section of wall under the roof edge.

Roof, Hipped.

The external angle at the intersection of two roof planes, a hip roof has roof planes that slope toward the center from all sides.

Roof, Pyramidal.

A pyramid-shaped roof with four sides of equal slope and shape.

Sash.

The wooden or metal frame for holding window panes which slides vertically or horizontally within a window casing. Sash windows differ from casement windows which are side hinged and swing inward or outward.

Setback.

The minimum distance by which any building or structure must be separated from the front, side or rear lot line.

Sidelight.

One of a series of window lights flanking a door or other opening.

Sill.

The lower horizontal member of a window or door frame.

Soffit.

The underside of an overhanging element, such as the eaves of a roof.

Stoop.

A small, raised, open platform at the entrance to a house or other building.

Story.

The height of a wall measured from the sill to the plate.

Stretcher bond.

A pattern of brick laid with its long side parallel to the face of a wall; stretched out.

Transom.

A window or series of windows located above a door or window; may be rectangular, fan-shaped or elliptical.

Voussoir

One of the wedge-shaped masonry units which form the arch ring. An example is a brick in a jack arch.

Window, Casement.

A window which swings open along its entire length on hinges fixed to the sides of the opening into which it is fitted and may have any combination of fixed lights.

Window, Double-hung sash.

A window with two vertical sliding sash, each closing half of the window opening.

Window, Single-Hung Sash.

A window with one vertical sliding sash and one fixed sash.

Wrought iron.

Heating iron until it can be hand beaten and twisted into a design.

SOURCES:

EDAW, Inc. "Fort Monmouth Reuse and Redevelopment Plan," August 22, 2008.

Farewell Mills Gatsch Architects and EDAW, Inc. "Fort Monmouth Reuse and Redevelopment Plan Technical Memorandum: Cultural Resources Evaluation," September 14, 2007.

Groesbeck, Sarah and Patti Kuhn, "Fort Monmouth Historic District National Register Nomination Form," December 2013.

Matrix Design Group, Inc., "Fort Monmouth Sustainability Strategies," March 2011.

Matrix Design Group, Inc., "Fort Monmouth Building Assessments," October 2010.



Voussoir

Appendix A



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

NATURAL & HISTORIC RESOURCES, HISTORIC PRESERVATION OFFICE

PO Box 404, Trenton, NJ 08625

TEL: (609) 984-0176 FAX: (609) 984-0578

www.state.nj.us/dep/hpo

JON S. CORZINE
Governor

MARK N. MAURIELLO
Acting Commissioner

December 2, 2009
HPO-L2009-8 PROD
07-0835-13

Wanda Green
BRAC Environmental Coordinator
U.S. Army – Fort Monmouth
173 Riverside Drive
Fort Monmouth, NJ 07703

**Re: Monmouth County, Eatontown Borough, Oceanport Borough, Tinton Falls Borough
Fort Monmouth Programmatic Agreement (PA)**

Dear Ms. Green:

I have signed the attached PA and am returning it to you as requested. Thank you for your substantial efforts to complete the Section 106 Review process.

If you have any questions, please contact me at (609) 633-2397.

Sincerely,

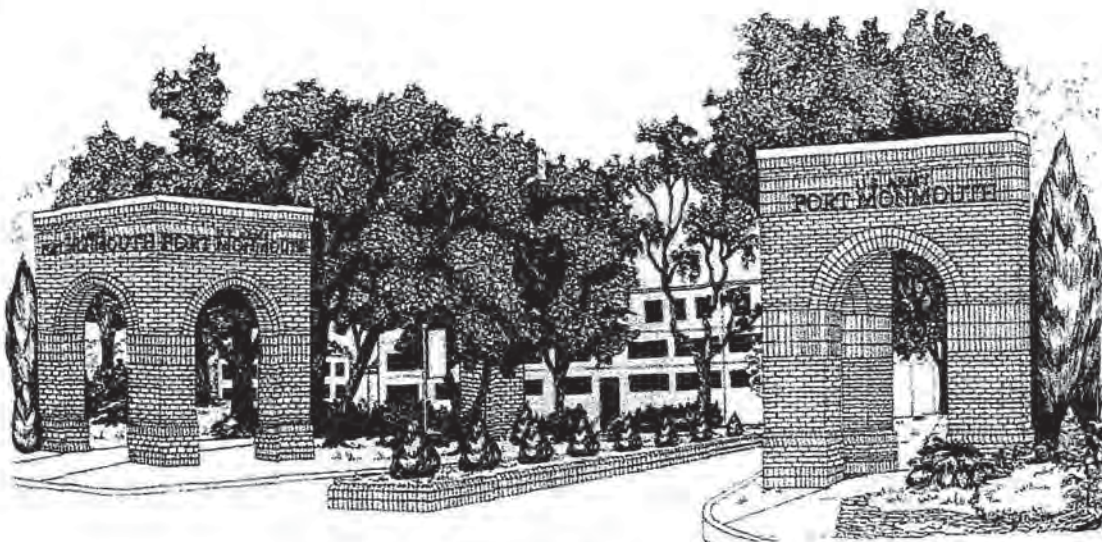
Daniel D. Saunders
Deputy State Historic
Preservation Officer



07-0835-13

PROGRAMMATIC AGREEMENT

Among the
United States Army
and the
New Jersey State Historic Preservation Officer
for the
Closure and Disposal of Fort Monmouth, New Jersey



OCTOBER 2009

Programmatic Agreement

**Among the
United States Army
and the
New Jersey State Historic Preservation Officer
for the
Closure and Disposal of Fort Monmouth, New Jersey**

October 2009

WHEREAS, the United States Army (Army) is responsible for implementation of the Defense Authorization Amendments and Base Closure and Realignment Act of 1988 (Pub. L. No. 100-526, 10 U.S.C. § 2687 note) and the Defense Base Closure and Realignment Act of 1990 (Pub. L. no. 101-510, 10 U.S.C. § 2687 note, as amended) and is proceeding with the closure of Fort Monmouth and consequent disposal of excess and surplus property by September 15, 2011, in a manner consistent with the requirements of the 2005 Defense Base Closure and Realignment Commission (BRAC) Recommendations; and

WHEREAS, the Area of Potential Effect (APE) of this undertaking is the entire real property of the installation; and

WHEREAS, The Fort Monmouth Economic Revitalization Planning Authority (FMERPA), a non-profit corporation, is the single entity responsible for identifying local redevelopment needs and preparing a redevelopment plan for the Army to consider in the disposal of installation property; and

WHEREAS, all references to FMERPA within this agreement shall be meant to equally apply to its unnamed successor as implementing local reuse authority; and

WHEREAS, the Army has determined that historic property, including an historic district, all of which are eligible for listing on the National Register of Historic Places (NRHP) are contained in the disposal of all or portions of Fort Monmouth as proposed under the FMERPA Reuse and Redevelopment Plan; and

WHEREAS, the disposal of such historic property (including the historic district) will have an adverse effect upon historic properties that are listed on or designated as eligible for listing on the NRHP, and has consulted with the New Jersey State Historic Preservation Officer (NJSHPO) pursuant to the provisions of the National Historic Preservation Act (NHPA), as amended, 16 U.S.C. § 470 et seq, and the implementing regulations codified at 36 CFR Part 800; and

WHEREAS, the Army and the NJSHPO concur that archeological identification efforts shall be completed as stipulated herein and the inclusive list of archeological properties at Fort Monmouth are listed in Attachment A; and

WHEREAS, the Army and the NJSHPO concur that architectural identification efforts are complete and historic properties identified are as listed in Attachment A; and

WHEREAS, historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior, including artifacts, records, and remains that are related to and located within such properties; and

WHEREAS, the Army and NJSHPO agree that this Programmatic Agreement ("PA") will apply to all historic property at Fort Monmouth, of which select historic properties as identified in Attachment A (hereafter the "Select Historic Properties") shall be preserved with covenants; and

WHEREAS, the Army identified federally recognized Indian tribes as shown in Attachment C that may attach traditional religious and cultural importance to properties in the Area of Potential Effect (APE) and were notified of the undertaking and no tribe contacted chose to consult on a nation-to-nation basis to address tribal concerns; and

WHEREAS, interested members of the public have been provided opportunities to comment and consult on the effects this base closure may have on historic properties at Fort Monmouth through Section 106 consultation meetings, publication of this agreement on Fort Monmouth and FMERPA websites; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP) was invited to consult on this undertaking and has chosen not participate; and

WHEREAS, the Army, in consultation with the NJSHPO, has invited FMERPA and the Boroughs of Eatontown, Tinton Falls and Oceanport, to consult in this agreement; and

WHEREAS, consistent with the DoD BRAC Implementation Regulation and Base Redevelopment and Realignment Manual (BRAC Manual), the Army chooses to protect historic properties primarily through zoning, deed restrictions and/or covenants; and

WHEREAS, in carrying out the disposal of excess and surplus property the Army will comply with all applicable laws and regulations, including 36 CFR Part 79, Curation of Federally Owned and Administered Archeological Collections; and

WHEREAS, the Army has completed an Environmental Assessment under NEPA and coordinated Section 106 public involvement with NEPA through public comments ; and

WHEREAS, the Army has completed compliance under the National Historic Preservation Act (NHPA) for Capehart and Wherry Era Housing and World War II Temporary Wooden Buildings through the Program Comment for Capehart and Wherry Era Army Family Housing and Associated Structures and Landscape Features (1949-62), approved on 31 May 2002 by the ACHP; and the Programmatic Memorandum of Agreement between the DoD, ACHP, and the National Conference of State Historic

Preservation Officers (NCSHPO) regarding demolition of World War II Temporary Buildings, signed in July 1986, and amended in May 1991; and

NOW, THEREFORE, the signatory parties agree that the undertaking described above shall be implemented in accordance with the following stipulations to take into account the effect of the undertaking on historic properties and fulfills the Army's responsibilities under Section 106 and 110 of the NHPA.

Stipulations

The Army will ensure that the following measures are carried out:

I. Archeological Identification

- A. Additional testing for VSR-2. The Army shall complete additional Phase II archeological testing of the VRS-2 area as shown in Attachment B within six months of signing this agreement.
- B. Phase II testing for VSR-2 shall consist of larger excavation units preceded by tighter interval shovel testing to adequately characterize the size and nature of the identified Native American site. The excavation units and interval testing shall be established in coordination with the NJSHPO.
- C. The Army shall also ensure that an archeological site form and SITS number is obtained from the New Jersey State Museum for VSR-2.
- D. Through consultation with NJSHPO, should additional testing establish NRHP eligibility for any portion of VSR-2, archeological covenants as shown in Attachment E shall be incorporated in the instruments of transfer.
- E. With completion of identification efforts for VSR-2, all archeological identification efforts for this undertaking are complete.
- F. If site VSR-2 is determined eligible for listing on the New Jersey and National Registers of Historic Places, a plan must be in place within 12 months of the eligibility determination for all artifacts, field records, reports, etc. to be prepared for curation in accordance with 36 CFR Part 79 and curated in a repository that meets 36 CFR Part 79.9, such as the NJ State Museum.

II. Mitigation

A. Popular Report. Mitigation for the overall loss of Fort Monmouth as a military entity will consist of a compilation of documentation of the history of the installation from its inception to its closure. Within 24 months of the signing of this agreement, the Army will prepare a popular report based upon previously developed historic contexts. The popular report will be hardbound in full color and generously illustrated with maps, current and historic photographs of the installation. Copies (250) will be printed and distributed to area libraries and institutions.

B. Mitigation for Historic Properties Not Receiving Covenants or Zoning Protection. The following historic properties listed in Attachment A not receiving covenants or protective zoning under Stipulations III A & B shall be documented by the Army within 24 months of the signing of this agreement:

1. Hexagon Complex. Buildings 2700, 2701 (Electrical Substation) and 2750 (Dymaxion Deployment Unit). Recordation to Historic American Building Survey Level II standards.
2. Squier Hall. Bldg. 283. Recordation to Historic American Building Survey Level II standards.
3. Kronenburg Mural (Interior of 2540). Recordation to Historic American Building Survey Level II standards.

These mitigation measures shall mitigate for the loss of all historic properties not receiving covenants under Stipulation IV B.

C. Revised Fort Monmouth New Jersey and National Register Historic District Nomination. The Army shall ensure the preparation of a complete and sufficient New Jersey and National Registers of Historic Places nomination for the Fort Monmouth Historic District within 24 months of the signing of this agreement.

The Army shall ensure that the Fort Monmouth Historic District has been presented to the New Jersey State Review Board for consideration for the New Jersey Register of Historic Places prior to transfer of any parcel containing select historic properties.

III. Treatment of Select Historic Properties Prior to Transfer from Federal Control

A. Property Maintenance. The Army will ensure the provision of caretaker building maintenance, security, and fire protection pending the disposal of Select Historic Properties (Properties listed in Appendix A) at Fort Monmouth in accordance with 32 CFR 174.14, relating to facilities operations, maintenance and repair for BRAC facilities.

B. Mothballed Properties. The Army shall undertake reasonable measures to preserve unused Select Historic Property (Properties listed in Appendix A) through mothballing.

1. The Army shall mothball Select Historic Property that has been or will remain vacant for twelve (12) months or if there is no planned use for them.
2. Mothballing shall be according to guidance found in the National Park Service *Preservation Brief 31: Mothballing Historic Buildings*.

IV. Treatment of All Historic Properties Upon Transfer from Federal Control

The Army shall avoid adverse effects on historic properties by placing covenants on Select Historic Properties, reduce adverse effects by encouraging protective zoning by the FMERPA and local Boroughs and mitigate any adverse effects on properties not receiving covenants in Stipulation II.

A. Development of Zoning Regulations in the Fort Monmouth National Register Historic District. To reduce adverse effects of the closure, the Army shall work with the FMERPA and the Boroughs of Eatontown, Oceanport and Tinton Falls in their efforts to develop historic overlay zoning regulations for the Select Historic Properties within the Revised National Register Historic District as shown in Attachment A.

B. Covenants on Select Historic Properties. To avoid adverse effects of the closure on historic architectural properties, the Army will ensure that Select Historic Properties listed in Attachment A shall receive covenants containing the language shown in Attachments D (Architectural) or E (archeological), as applicable. These covenants will be included in the instruments of transfer and will be made binding on the transferee and all future transferees.

C. Information Transferred Upon Disposal of Fort Monmouth Historic Property. In disposing of real property and improvements that contain the Select Historic Properties, the Army's bid solicitation will contain the following information:

1. Information on the property's historic, archeological, and/or architectural significance, identifying elements, or other characteristics of the property that should be given special consideration in planning; including the revised Fort Monmouth National Register nomination.
2. Information on financial incentives for rehabilitation of historic structures by private entities such as federal tax credits.

V. Non-BRAC Undertakings

On non BRAC-related actions, the Army shall continue to consult under 36 C.F.R. §800 on all federal undertakings prior to transfer.

VI. Disposition of Miscellaneous Material Culture

Any non-real estate material culture not addressed under Army Regulation and not under the purview of the Army Museum such as artifacts, signage, monuments, textural records, displays, etc. may be considered by the Army for disposition to a local entity.

VII. Modification to Facilitate Transfer

If the Army cannot transfer any of the Select Historic Properties pursuant to the any of the provisions set forth herein, then the Army will consult with the signatories, and the prospective transferee(s) to determine what steps are necessary in order to complete transfer of the property(ies) within established disposal timelines. Such modifications shall be limited to those that are reasonably necessary in order to effect transfer of, or effectively market, the concerned property within established timelines.

VIII. Environmental Remediation

Environmental remediation by the Army that occurs after the transfer of the Select Historic Property out of federal control shall constitute a separate undertaking under the NHPA and shall be coordinated under 36 C.F.R. Part 800.

IX. Inadvertent Discoveries

A. NAGPRA Related Discoveries. If Native American human remains and/or objects subject to the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA), ie., burials, associated and unassociated funerary objects, sacred objects and objects of cultural patrimony, are encountered before the transfer of Fort Monmouth, the Army shall notify and consult with the appropriate federally recognized Tribe(s) to determine appropriate treatment measures for these human remains in agreement with 36CFR800.13. It shall be the responsibility of the Army to either preserve in place or repatriate these humans remains, depending on the agreed upon determination of the tribe(s). If remains / objects subject to NAGPRA are encountered prior to completion of the transfer, the rules of NAGPRA disposition will be followed by the Army. Nothing in this agreement should be construed to contradict this stipulation.

B. Non-NAGPRA Discoveries. In the event of inadvertent discovery of archaeological materials not subject to NAGPRA, work shall immediately stop in the area of discovery and the Army shall comply with 36 CFR 800.13(b) to notify and consult with the NJSHPO, Federally recognized Indian tribes that might attach significance to the property, and the Advisory Council on Historic Preservation.

X. Anti-Deficiency Act

The stipulations of this agreement are subject to the provisions of the Anti-Deficiency Act. If compliance with the Anti-Deficiency Act alters or impairs the Army's ability to implement the stipulations of this agreement, the Army will consult in accordance with the amendment and termination procedures in this agreement. All stipulations in this agreement ensured by the Army are subject to the availability of funds.

XI. Status Reports

Until such time as all Fort Monmouth and historic and/or archeological-site properties have been transferred from Army control in accordance with the terms of this agreement, the Army will provide an annual status report to the NJSHPO for review implementation of the terms of this agreement and to determine whether amendments are needed. If amendments are needed, the signatories to this agreement will consult, in accordance with stipulations of this agreement, to make such revisions. The first status report will be submitted to the consulting parties six months after the date this agreement is ratified.

XII. Dispute Resolution

Should any signatory or concurring party to this PA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, the Army shall consult with such party to resolve the objection. If the Army determines that such objection cannot be resolved, the Army will:

- A. Forward all documentation relevant to the dispute, including the Army's proposed resolution, to the ACHP. The ACHP shall provide the Army with its advice on the resolution of the objection within 30 days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the Army shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The Army will then proceed according to the Army's final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the 30 day time period, the Army may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the Army shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories to the PA, and provide them and the ACHP with a copy of such written response.
- C. The Army's responsibility to carry out all other actions subject to the terms of this PA that are not the subject of the dispute remain unchanged.

XIII. Amendments


This PA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

XIV. Termination of Agreement

- A. Pursuant to 36 C.F.R. §800.6(c)(8), if any signatory determines that the terms of this PA cannot be, or are not, being carried out, the signatories shall consult to seek amendment of the PA. If the PA is not amended, any signatory may terminate it providing 30 days written notice to all other signatories. The Army shall either execute a new PA with signatories pursuant to 36 C.F.R. §800.6(c)(1) or request the comments of the ACHP under 36 C.F.R. §800.7(a)(1).
- B. In the event of termination, the Army will comply with 36 C.F.R. Part 800 with regard to individual undertakings associated with the BRAC disposal action at Fort Monmouth.
- C. The parties agree that this PA will terminate upon the disposal of the last parcel at Fort Monmouth containing historic property as defined herein, or when the Army has completed its obligations under this PA, whichever is last occurring.
- D. The effective date of this PA shall be the date of the last signature of a signatory party.
- E. Execution and implementation of this PA evidences that the Army has taken into account the effects of the undertaking on historic properties and has afforded the ACHP a reasonable opportunity to comment on the closure and disposal of excess and surplus property at Fort Monmouth. Execution and compliance with this PA fulfills the Army's Section 106 responsibilities regarding the closure and disposal of Fort Monmouth upon a signed copy of the agreement filed with the ACHP.

Signatory Parties:

DEPARTMENT OF THE ARMY

By: 
Stephen M. Christian
Colonel, U.S. Army
Commanding

Date: 19 OCT 09

NEW JERSEY HISTORIC PRESERVATION OFFICER

By: 

Daniel D. Saunders

New Jersey Deputy State Historic Preservation Officer

Date: 12/2/2009

Concurring Parties:

**FORT MONMOUTH ECONOMIC REVITALIZATION PLANNING
AUTHORITY**

By:

Frank C. Cosentino, Executive Director

Fort Monmouth Economic Revitalization Authority

Date:

BOROUGH of EATONTOWN, NEW JERSEY

By:

Gerald J. Tarantolo, Mayor

Borough of Eatontown, New Jersey

Date:

BOROUGH of OCEANPORT, NEW JERSEY

By:

Michael J. Mahon, Mayor

Borough of Oceanport, New Jersey

Date:

BOROUGH of TINTON FALLS, NEW JERSEY

By:

Michael Skudera, Mayor

Borough of Tinton Falls, New Jersey

Date:

ATTACHMENT A

Definitive List of Historic Properties at Fort Monmouth and Map Showing the Fort Monmouth National Register Historic District

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
115	Main Post	WWII MON/MEMORIAL	1952	YES	CE - Fort Monmouth HD
None-Parade Field	Main Post	Parade Field - including triangular landscaped area in front of Building 286	1927	YES	CE - Fort Monmouth HD
206	Main Post	ADMIN GENERAL PURPOSE	1927	YES	CE - Fort Monmouth HD
207	Main Post	ENLISTED Unaccompanied Personnel Housing	1927	YES	CE - Fort Monmouth HD
208	Main Post	ENLISTED Unaccompanied Personnel Housing	1927	YES	CE - Fort Monmouth HD
209	Main Post	ADMIN GENERAL PURPOSE	1928	YES	CE - Fort Monmouth HD
211	Main Post	Family Housing for COL.	1929	YES	CE - Fort Monmouth HD
212	Main Post	Family Housing for COL.	1929	YES	CE - Fort Monmouth HD
213	Main Post	Family Housing for COL.	1929	YES	CE - Fort Monmouth HD
214	Main Post	Family Housing for COL.	1932	YES	CE - Fort Monmouth HD
215	Main Post	Family Housing for COL.	1931	YES	CE - Fort Monmouth HD
216	Main Post	Family Housing for COL.	1931	YES	CE - Fort Monmouth

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
					HD
218	Main Post	Family Housing for COL.	1932	YES	CE – Fort Monmouth HD
219	Main Post	Family Housing for COL.	1932	YES	CE – Fort Monmouth HD
220	Main Post	Family Housing for COL.	1935	YES	CE – Fort Monmouth HD
221	Main Post	Family Housing for GENERAL OFFICE	1931	YES	CE – Fort Monmouth
222	Main Post	Family Housing for COL.	1935	YES	CE – Fort Monmouth HD
223	Main Post	Family Housing for COL.	1935	YES	CE – Fort Monmouth HD
224	Main Post	Family Housing for GENERAL OFFICE	1931	YES	CE – Fort Monmouth HD
225	Main Post	Family Housing for COL.	1932	YES	CE – Fort Monmouth HD
226	Main Post	Family Housing for COL.	1932	YES	CE – Fort Monmouth HD
227	Main Post	Family Housing for COL.	1932	YES	CE – Fort Monmouth HD
228	Main Post	Family Housing for COL.	1932	YES	CE – Fort Monmouth HD
229	Main Post	Family Housing for COL.	1931	YES	CE – Fort Monmouth HD
230	Main Post	Family Housing GENERAL OFFICE	1936	YES	CE – Fort Monmouth HD
233	Main Post	Family Housing for NCOs	1929	YES	CE – Fort Monmouth HD
234	Main Post	Family Housing for	1931	YES	CE – Fort

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
		NCOs			Monmouth HD
235	Main Post	Family Housing for NCOs	1931	YES	CE – Fort Monmouth HD
236	Main Post	Family Housing for NCOs	1931	YES	CE – Fort Monmouth HD
237	Main Post	Family Housing for NCOs	1931	YES	CE – Fort Monmouth HD
238	Main Post	Family Housing for NCOs	1931	YES	CE – Fort Monmouth HD
239	Main Post	Family Housing for NCOs	1931	YES	CE – Fort Monmouth
240	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
241	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
242	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
243	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
244	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
245	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
246	Main Post	Family Housing for NCOs	1932	YES	CE – Fort Monmouth HD
247	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
248	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
249	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
250	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
251	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
252	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
253	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
254	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
255	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth
256	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
258	Main Post	Family Housing for NCOs	1934	YES	CE – Fort Monmouth HD
260	Main Post	SEWAGE LFT STATION	1930	YES	CE – Fort Monmouth HD
261	Main Post	Family Housing for LTC/MAJ	1930	YES	CE – Fort Monmouth HD
262	Main Post	Family Housing for LTC/MAJ	1930	YES	CE – Fort Monmouth HD
263	Main Post	Family Housing for LTC/MAJ	1930	YES	CE – Fort Monmouth HD
264	Main Post	Family Housing for LTC/MAJ	1931	YES	CE – Fort Monmouth HD
265	Main Post	Family Housing for LTC/MAJ	1932	YES	CE – Fort Monmouth

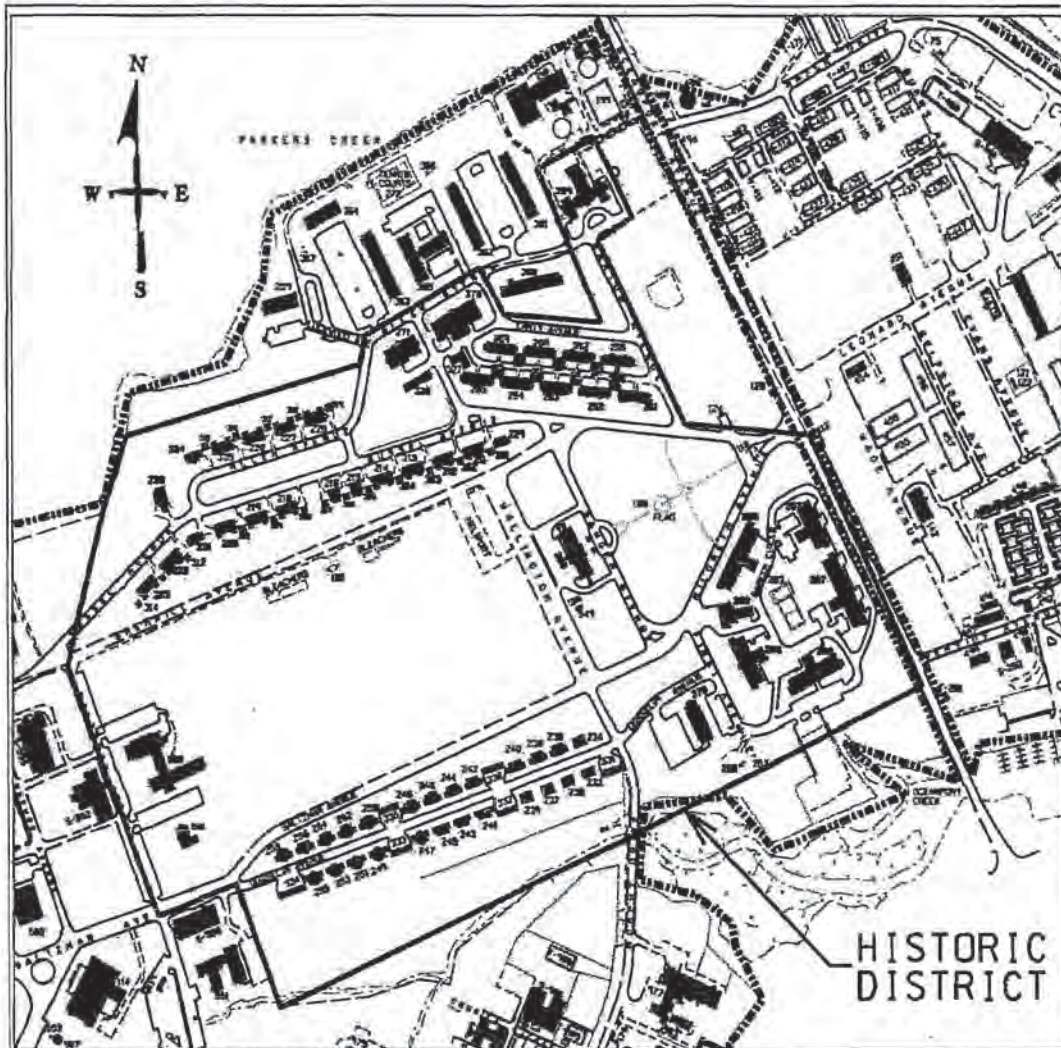
NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
					HD
266	Main Post	Family Housing for LTC/MAJ	1932	YES	CE – Fort Monmouth HD
267	Main Post	Family Housing for LTC/MAJ	1931	YES	CE – Fort Monmouth HD
268	Main Post	Family Housing for LTC/MAJ	1931	YES	CE – Fort Monmouth HD
269	Main Post	Family Housing for LTC/MAJ	1930	YES	CE – Fort Monmouth HD
270	Main Post	ARMY LODGING, ADMIN GENERAL PURPOSE	1930	YES	CE – Fort Monmouth HD
271	Main Post	UOQ MILITARY	1934	YES	CE – Fort Monmouth HD
275	Main Post	MUSEUM SPT BLDG	1934	YES	CE – Fort Monmouth HD
282	Main Post	FIRE STATION	1935	YES	CE – Fort Monmouth HD
283	Main Post	ADMIN GENERAL PURPOSE, AUDITORIUM GP/ Squier Hall	1935	NO COVENANTS – HABS LEVEL RECORDATION	Fort Monmouth HD; I
286	Main Post	ADMIN GENERAL PURPOSE	1936	YES	CE – Fort Monmouth HD
287	Main Post	ENLISTED Unaccompanied Personnel Housing	1927	YES	CE – Fort Monmouth HD
301	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
302	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
303	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
					HD
304	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
305	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
306	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
307	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
308	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
309	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
310	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
312	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
313	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
314	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
315	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
316	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
317	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
318	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
319	Main Post	Family Housing Garage	1932	YES	CE – Fort Monmouth HD
320	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
321	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
322	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
323	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
324	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
325	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
326	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
327	Main Post	Family Housing Garage	1934	YES	CE – Fort Monmouth HD
328	Main Post	Family Housing Garage	1937	YES	CE – Fort Monmouth HD
2000	Golf Club Charles Wood Area	Officers Open Dining	1926	YES	CE – Charles Wood HD
2020	Golf Club Charles Wood Area	SWIM POOL	1935	YES	CE – Charles Wood HD
2700	Charles Wood Area	ADMIN GENERAL PURPOSE/ "The Hexagon"	1955	NO COVENANTS – HABS LEVEL MITIGATION	I
2701	Charles Wood Area	Support Electrical Substation for the Hexagon	1943/1955	NO COVENANTS – HABS LEVEL	I

NRHP Eligible Buildings, Structures and Objects at Fort Monmouth					
Building ID	Area	DPW Description	Year Built	Select Historic Property (Preservation Covenant Upon Transfer)	Eligibility Status (Individual (I) or Historic District (HD) Contributing Element (CE))
				MITIGATION	
2750	Charles Wood Area	Storage - Dymaxion Deployment Unit (On top of 2700)	1943/1955	NO COVENANTS-HABS LEVEL MITIGATION	I
2540 (Mural Only)	Charles Wood Area	Kronenburg Mural (Inside of 2540)	2000	NO COVENANTS-HABS LEVEL MITIGATION	Individual
None	Charles Wood Area	Select Areas of the Golf Course	N/A – Potential Archeological Sites.	Select Areas Shall Receive Archeological Preservation Covenants Per Attachment E	Unknown – Protected by Covenants

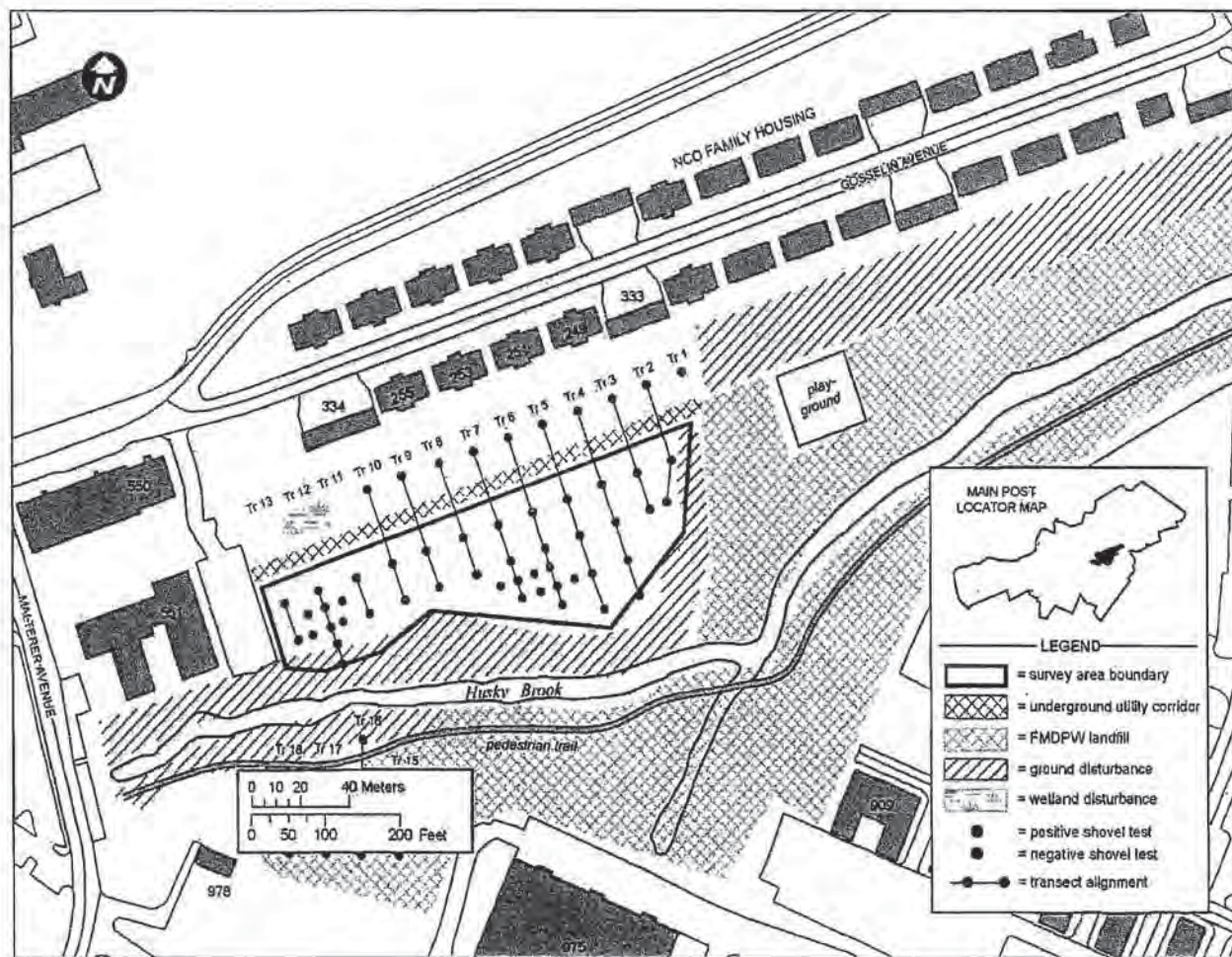
FORT MONMOUTH NATIONAL REGISTER DISTRICT



...Main Post Historic District 7- 7/22/2009 2:08:30 PM

ATTACHMENT B

VSR-2 Area to Receive Phase II Survey in Red



ATTACHMENT C

Federally Recognized Indian Tribes That May Attach Traditional Religious and Cultural Importance to Fort Monmouth Properties

1. Delaware Nation, Oklahoma (formerly Delaware Tribe of Western Oklahoma)
 - a. Edgar French, President
Delaware Nation P.O. Box 825
Anadarko, OK 73005
Phone: 405-247-2448
 - b. David M. Scholes, NAGPRA
Delaware Nation P.O. Box 825
Anadarko, OK 73005
Phone: 405-247-2448, x-162
2. Delaware Tribe of Indians, Oklahoma
 - a. Larry Joe Brooks, Chief
Delaware Tribe of Indians
220 NW Virginia Avenue
Bartlesville, OK 74003
Phone: 918-336-5272
 - b. Dr. Brice Obermeyer, NAGPRA
Dept. Soc. & Anthropology, Emporia State University
Roosevelt hall, Room 121
1200 Commercial, Box 4022
Emporia, KS 66801
3. Stockbridge-Munsee Community, Wisconsin
 - a. Robert Chicks, President
Stockbridge-Munsee Community
N8476 Mo He Con Nuck Rd
Bowler, WI 54416
Phone: 715-793-4111
 - b. Sherry White, NAGPRA
Stockbridge-Munsee Tribe
P.O. Box 70
N8510 Mo He Con Nuck Rd.
Bowler, WI 54416
Phone: 715-793-3970

ATTACHMENT D

Standard Preservation Covenant For Conveyance Of Property That Contains Historic Buildings And Structures

1. In consideration of the conveyance of certain real property hereinafter referred to as (name of property), located in the (name of county), (name of state), which is more fully described as: (Insert legal description), (Name of property recipient) hereby covenants on behalf of (himself/herself/itself), (his/her/its) heirs, successors, and assigns at all times to the (name of NJSHPO parent organization) to preserve and maintain (name of property) in accordance with the recommended approaches in the Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings (U.S. Department of the Interior, National Park Service 1992 (This and updates can be found at www2.cr.nps.gov/tps/tax/rhb , as available on 22 November 2004)) in order to preserve and enhance those qualities that make (name of historic property) eligible for inclusion in/or resulted in the inclusion of the property in the National Register of Historic Places. If (Name of property recipient) desires to deviate from these maintenance standards, (Name of property recipient) will notify and consult with the (name of state) Historic Preservation Officer in accordance with paragraphs 2, 3, and 4 of this covenant.

2. (Name of property recipient) will notify the appropriate (name of state) Historic Preservation Officer in writing prior to undertaking any construction, alteration, remodeling, demolition, or other modification to structures or setting that would affect the integrity or appearance of (name of historic property). Such notice shall describe in reasonable detail the proposed undertaking and its expected effect on the integrity or appearance of (name of historic property).

3. Within thirty (30) calendar days of the appropriate (name of state) Historic Preservation Officer's receipt of notification provided by (name of property recipient) pursuant to paragraph 2 of this covenant, the NJSHPO will respond to (name of property recipient) in writing as follows:

a. That (name of property recipient) may proceed with the proposed undertaking without further consultation;

b. That (name of property recipient) must initiate and complete consultation with the (name of state) Historic Preservation office before (he/she/it) can proceed with the proposed undertaking.

If the NJSHPO fails to respond to the (name of property recipient)'s written notice, as described in paragraph 2, within thirty (30) calendar days of the NJSHPO's receipt of the same, then (name of property recipient) may proceed with the proposed undertaking without further consultation with the NJSHPO.

4. If the response provided to (name of property recipient) by the NJSHPO pursuant to paragraph 3 of this covenant requires consultation with the NJSHPO, then both parties

will so consult in good faith to arrive at mutually-agreeable and appropriate measures that (name of property recipient) will implement to mitigate any adverse effects associated with the proposed undertaking. If the parties are unable to arrive at such mutually-agreeable mitigation measures, then (name of property recipient) shall, at a minimum, undertake recordation for the concerned property—in accordance with the Secretary of Interior's standards for recordation and any applicable state standards for recordation, or in accordance with such other standards to which the parties may mutually agree—prior to proceeding with the proposed undertaking. Pursuant to this covenant, any mitigation measures to which (name of property recipient) and the NJSHPO mutually agree, or any recordation that may be required, shall be carried out solely at the expense of (name of property recipient). The mandatory recordation and documentation of structures proposed for demolition or substantial alteration will be archived in an appropriate repository designated by the NJSHPO.

5. The (name of NJSHPO parent organization) shall be permitted at all reasonable times to inspect (name of historic property) in order to ascertain its condition and to fulfill responsibilities hereunder.

6. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the (name of NJSHPO parent organization) may, following reasonable notice to (name of recipient), institute suit to enjoin said violation or to require the restoration of (name of historic property). The successful party shall be entitled to recover all costs or expenses incurred in connection with such a suit, including all court costs and attorneys fees.

7. In the event that the (name of historic property) (i) is substantially destroyed by fire or other casualty, or (ii) is not totally destroyed by fire or other casualty, but damage thereto is so serious that restoration would be financially impractical in the reasonable judgment of the Owner, this covenant shall terminate on the date of such destruction or casualty. Upon such termination, the Owner shall deliver a duly executed and acknowledged notice of such termination to the (name of NJSHPO parent organization), and record a duplicate original of said notice in the (name of county) Deed Records. Such notice shall be conclusive evidence in favor of every person dealing with the (name of historic property) as to the facts set forth therein.

8. (Name of recipient) agrees that the (name of NJSHPO parent organization) may at its discretion, without prior notice to (name of recipient), convey and assign all or part of its rights and responsibilities contained herein to a third party.

9. This covenant is binding on (name of recipient), (his/her/its) heirs, successors, and assigns in perpetuity, unless explicitly waived by the (name of NJSHPO parent organization). Restrictions, stipulations, and covenants contained herein shall be inserted by (name of recipient) verbatim or by express reference in any deed or other legal instrument by which (he/she/it) divests (himself/herself/itself) of either the fee simple title or any other lesser estate in (name of property) or any part thereof.

10. The failure of the (name of NJSHPO parent organization) to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any other right or remedy or the use of such right or remedy at any other time.

11. The covenant shall be a binding servitude upon (name of historic property) and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence that (name of recipient) agrees to be bound by the foregoing conditions and restrictions and to perform the obligations herein set forth.

ATTACHMENT E

Archeological Covenant and Map of Golf Course Areas to Receive Covenants and Standard Preservation Covenant For Conveyance Of Property That Includes Archeological Sites

In consideration of the conveyance of the real property that includes the (official number(s) designation of archeological site(s)) located in the County of [name of county], New Jersey, which is more fully described as [insert legal description], (Name of property recipient) hereby covenants on behalf of [himself/herself/itself], [his/her/its] heirs, successors, and assigns at all times to the (name of NJSHPO parent organization), to maintain and preserve [official number(s) designation of archeological site(s)], by carrying out measures as follows:

1. These archeological sites have been determined by the NJSHPO to be eligible for the National Register of Historic Places. No disturbance of the ground surface or any other thing shall be undertaken or permitted to be undertaken for these sites which would affect the physical integrity of these sites without the express prior written permission of the NJSHPO, signed by a fully authorized representative thereof. Should the NJSHPO require, as a condition of the granting of such permission, that (Name of property recipient) conduct archeological data recovery operations or other activities designed to mitigate the adverse effect of the proposed activity on an archaeological site, (Name of property recipient) shall at its own expense conduct such activities in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeological Documentation (48 FR 44734-37) and such standards and guidelines as the NJSHPO may specify, including but not limited to standards and guidelines for research design, conduct of field work, conduct of analysis, preparation and dissemination of reports, disposition of artifacts and other materials. (Name of property recipient) shall also consult with Native American governments having standing regarding disposition of funerary and human remains.
2. If Native American human remains are encountered at any time on these archeological sites, (Name of property recipient) shall notify and consult with the (appropriate) affiliated Federally recognized Indian tribe (s) to determine appropriate treatment measures for these human remains in agreement with 36 CFR 800.13(b). It shall be the responsibility of (Name of property recipient) to either preserve in place or repatriate these human remains, depending on the agreed upon determination of the tribe(s).
3. (Name of property recipient) shall make every reasonable effort to prevent any person from vandalizing or otherwise disturbing these National Register eligible archaeological sites. (Name of property recipient) will follow any recommendation by the State Historic Preservation Officer to protect these sites. Any such vandalization or disturbance shall be promptly reported to the State Historic Preservation Officer and the (appropriate) tribe(s).

4. The State Historic Preservation Officer and the (appropriate) tribe(s) shall be permitted at all reasonable times to inspect (the property) to ascertain if the above conditions are being observed.

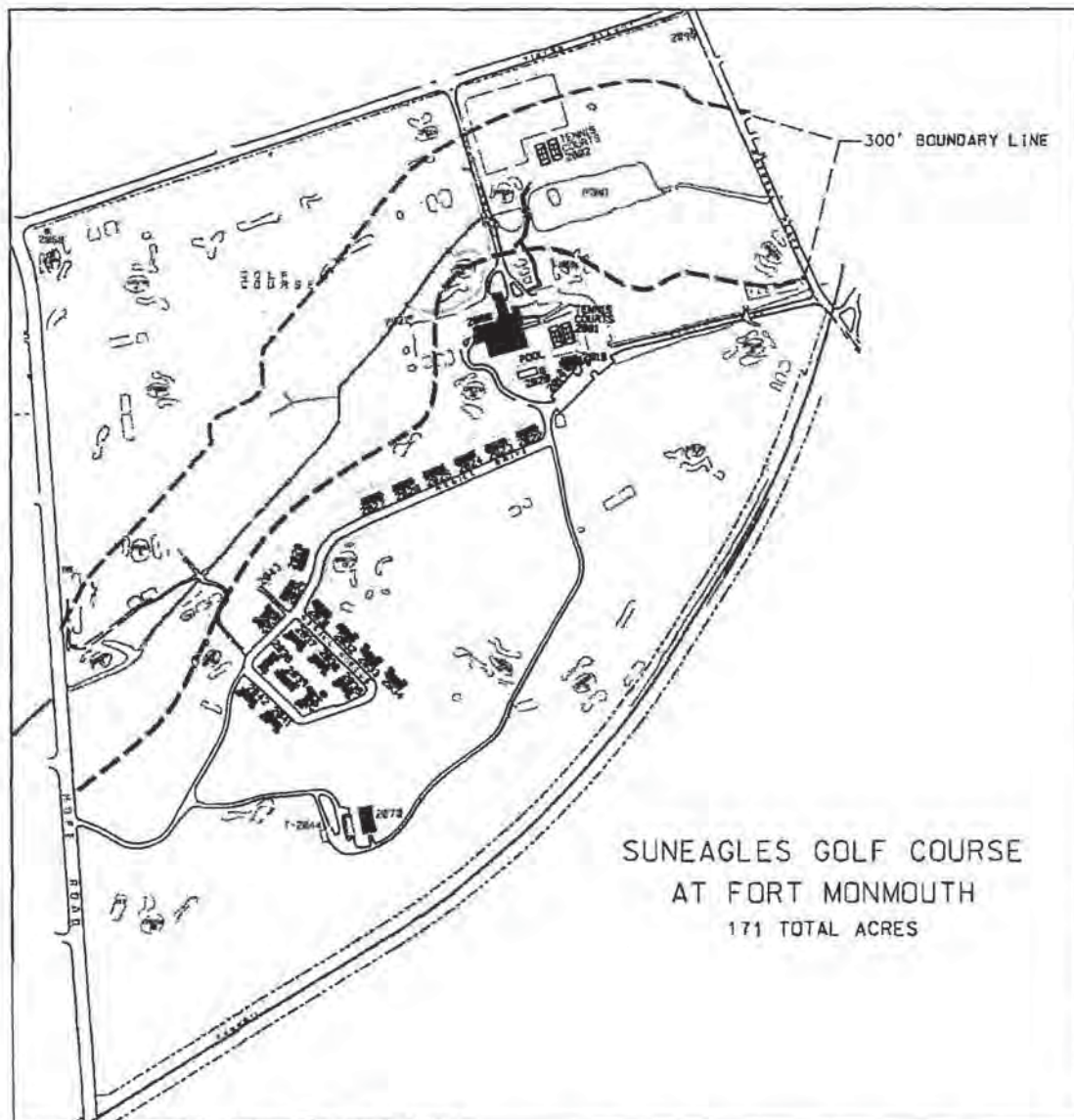
5. In the event of a violation of this covenant, and in addition to any remedy now or hereafter provided by law, the State Historic Preservation Officer may, following reasonable notice to (Name of property recipient), institute suit to enjoin said violation or to require the restoration of any archaeological site affected by such violation. If successful, the State Historic Preservation Officer shall be entitled to recover all costs or expenses incurred in connection with such suit, including all court costs and attorney's fees.

6. This covenant is binding on (Name of property recipient), its heirs, successors and assigns in perpetuity. Restrictions, stipulations, and covenants contained herein shall be inserted by (Name of property recipient) verbatim or by express reference in any deed or legal instrument by which it divests itself of either the fee simple title or any other lesser estate in (the part of the property containing the subject archeological sites) or any part thereof.

7. The failure of the State Historic Preservation Officer to exercise any right or remedy granted under this instrument shall not have the effect of waiving or limiting the exercise of any right or remedy or the use of such right or remedy at any other time. (Name of property recipient) agrees that the (name of NJSHPO parent organization) may, at its discretion and without prior notice to (Name of property recipient), convey and assign all or part of its rights and responsibilities contained in this covenant to a third party.

The covenant shall be a binding servitude upon the real property and shall be deemed to run with the land. Execution of this covenant shall constitute conclusive evidence that (name of property recipient) agrees to be bound by the foregoing conditions and restrictions and to perform to obligations herein set forth.

MAP OF AREAS TO RECEIVE ARCHEOLOGICAL COVENANTS



...lcvw golf course disturbance cro 7/22/2009 2:09:49 PM

Appendix B

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 28

STATEMENT OF SIGNIFICANCE

SUMMARY

The United States Army established Fort Monmouth in 1917 as Camp Little Silver, later Camp Alfred Vail, as a training camp for the Signal Corps. The camp is located near Eatontown, New Jersey, approximately 30 miles from New York City and on the site of the former Monmouth Park Race Track, one of the foremost American horse racetracks of the late nineteenth century. Camp Alfred Vail's formation was a direct response to the United States' entry into World War I in 1917 and the need for troops trained in communications support provided by the Signal Corps. Those trained at Camp Vail provided crucial support to troops overseas during World War I. At that time the camp also became the location of the Radio Laboratory, devoted solely to problems of wireless communication. After World War I Fort Monmouth continued as the primary headquarters of the Signal Corps and was the site of the Signal Corps School and the Signal Corps Laboratories. In 1925 Camp Vail received permanent status and was renamed Fort Monmouth in honor of those who fought at nearby Monmouth Courthouse during the Revolutionary War. Its collection of Colonial Revival-style administrative and residential buildings erected during the installation's permanent construction program (1927-1940) illustrate its prominence as a military post, the permanent construction program of the U.S. Army, and the design aesthetic of the Army Quartermaster Corps between the World Wars. The Fort Monmouth Historic District is nationally significant under **Criterion A, military/communications**, for its initial role in the Army's development of radar, which is "rated among the four or five 'weapons systems' that made a difference in World War II."¹ The Fort Monmouth Historic District also possesses local significance under **Criterion C, architecture**, as it embodies the distinctive characteristics of the U.S. Army's permanent construction program and is a local manifestation of the standardized plans created by the Quartermaster Corps between the World Wars.

The plan, buildings, and structures within the Fort Monmouth Historic District strongly illustrate its growth and prominence as the headquarters of the Signal Corps, the location of the Signal Corps Laboratories, and the Army Quartermaster Corps' permanent construction program between World War I and World War II. Owing to the anticipation of World War II the permanent construction program at Fort Monmouth came to an end after the last barracks was built in 1940. In 1940-1941 Squier Laboratory was augmented by three ancillary field laboratories to supplement the increasing research efforts. Field Laboratory #1, the Camp Coles Signal Laboratory, Field Laboratory #2, the Eatontown Signal Laboratory, and Field Laboratory #3, the Signal Corps Radar Laboratory at Fort Hancock. The Fort Hancock laboratory was moved to Camp Evans in 1942 and redesignated the Camp Evans Signal Laboratory. Thus, the period of significance for the Fort Monmouth Historic District begins in 1927, when the first permanent construction began on the installation, and extends through 1940, when the Signal Corps Laboratories began to move to ancillary locations.

The Fort Monmouth Historic District exhibits a high level of integrity. Few alterations have been made to the buildings constructed by the Army Quartermaster Corps, and changes, for the most part, have been minor, such as replacement windows and siding. Although Fort Monmouth has expanded dramatically since its initial permanent construction period, obtrusions to the 1927-1940 core are few. The open green space, street layout, and deliberate division of buildings by use remain intact, and along with its collection of red-brick buildings, the Fort Monmouth Historic District continues to exemplify the distinctive characteristics of Army installations built to the standardized plans of the Army Quartermaster Corps between World War I and World War II.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 29

NARRATIVE

Criterion A, Military/Communications

As the home of the Signal Corps Laboratories, much of the communications equipment used by American forces during World War II was designed and developed at Fort Monmouth during the 1930s. Fort Monmouth and Squier Laboratory, built in 1935 to house the Signal Corps Laboratories, hold particular significance for their role in the development of radar (Radio Detection and Ranging technology) in the years leading up to World War II. Between 1935 and 1938 research, testing, and development at Fort Monmouth's Signal Corps Laboratories led to the development of the SCR-270 Army radar, which gave warning of the impending attack on Pearl Harbor on December 7, 1941.² This initial radar program at Fort Monmouth spearheaded additional developments and improvements in radar at the Camp Evans Signal Laboratory, a branch of Fort Monmouth's Signal Corps Laboratories, during World War II.³

The laboratories at Fort Monmouth first formed when the Signal Corps Electrical Laboratory, the Signal Corps Meteorological Laboratory, and the Signal Corps Laboratory at the Bureau of Standards were moved to the fort in 1929, creating the Signal Corps Laboratories. Under the direction of Colonel William R. Blair, who was distinguished in both the scientific and military fields, the Signal Corps Laboratories received a \$220,000 appropriation for a permanent, fireproof laboratory and shops in 1934. The new state-of-the-art building was named after General Squier, Chief Signal Officer from 1917 to 1923. Squier Laboratory consisted of two sections: a two-story main block and a rear one-story shop wing. The main section of the building housed the administration and technical sections and included individual laboratories, experimental rooms, a drafting room, and blueprint and photographic rooms, and the shop wing included an instrument shop and a wood-working shop. In the basement of the main block was a "Light Tunnel," a test area that ran the length of the building.⁴ When constructed in 1935 the mission of Squier Laboratory was "the design and development of communication equipment for the Army."⁵

An enthusiastic, if overly florid, description of radar described it as "[t]he greatest of all electronic military weapons, the weapon to which victory attached her wings, a device which saluted the atomic bomb, but did not bow to it — the fabulous scientific genie of World War II — RADAR."⁶ The origins of the Army's radar research date to World War I, when Blair, then head of the Signal Corps Meteorological Section in the Allied Expeditionary Force in Europe, conducted experiments in sound-ranging to locate enemy aircraft by the sound of their engines. His experiments did not lead to the development of any equipment but did result in Army Ordnance Corps tests related to heat detection on plane motors from 1926 to 1930. After Blair was named as the director of the Signal Corps Laboratories, the project was transferred to the labs at Fort Monmouth.

The Signal Corps program leading to the development of radar began in 1931 when "Project 88" was transferred from the Office of the Chief of Ordnance to Fort Monmouth. The project focused on the use of infrared, heat detection, radio, and pulse equipment. Infrared and heat detection were abandoned as less effective means of detection in 1932 and 1935. Tests at Navesink Lighthouse on July 30, 1935 verified that radio and pulse provided the best radar detection. This type of radar detection used waves of high-frequency radio pulse, which were reflected and dispersed by metallic objects. The returning pulses were received by an apparatus that could determine the position, speed, and direction of an object.⁷

The opening of the Squier Laboratory greatly improved laboratory conditions at Fort Monmouth, despite the laboratory's operation under a reduced staff due to Great Depression cutbacks. The turning point came in 1936 when pulse-echo detection of aerial and surface targets became a high priority and all Army detection development had been officially assigned to the Signal Corps. The laboratories at Fort Monmouth quickly began the development of the first Signal Corps pulse equipment and work on the "beat" (based on the Doppler effect) and pulse concept intensified.⁸

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 30

As with other Signal Corps projects, this, too, was run on limited funding but with money siphoned off from other projects to subsidize its undersized budget. Additional engineers were soon working on the project, which was headed by Paul Watson, the civilian chief of the Radio Section. By the end of June 1936 engineers at the Signal Corps Laboratories developed a "bread-board model" of a portable, 74-watt transmitter. The construction of the model "marked the beginning of the development of the SCR-268 and SCR-270, the first Army radars."⁹ Initial tests of the equipment began on December 14, 1936 when the engineers successfully recorded echoes of pulses from flights arriving and departing from Newark Airport. Although the transmitter and receiver were located over a mile apart and the equipment tracked the planes for only seven miles, the engineers had successfully used radar technology.¹⁰

The new developments were put to the test when Fort Monmouth hosted the Secretary of War and other officials from Washington for a demonstration. The demonstration would determine any additional funding the project would receive, which was essential to future research. On the evening of May 26, 1937, a B-10 bomber, with all running lights extinguished, attempted to fly over Fort Monmouth in simulated "sneak raids." Radar success meant illuminating the bomber with searchlights in time for early artillery action. Time after time, the aircraft approached within range of the radar, its position was determined, and the searchlights escorted the bomber over the base. The Secretary of War was suitably impressed, writing that the tests "gave tangible evidence of the amazing scientific advances made by the Signal Corps in the development of technical equipment."¹¹ A special Congressional appropriation of approximately \$40,000 allowed expedited development of radar technology to continue.

The first radar set, used in the 1937 tests, was the SCR-268-TI, which had a radio detector unit, a thermo detector unit, and a searchlight. Its tracking, vacuum tubes, and antennas continued to be improved. After the set was successfully tested at Fort Monroe, Virginia, in 1938, it was formally accepted by the Army with the directions for further development and to set production requirements. Not only was the test a success, it also uncovered a new use for radar: navigation. Heavy cloud cover on the evening of the test resulted in the pilot unintentionally going off course over the ocean. Radar operators trained their set to the east and the test became a rescue operation in which the pilot was guided back to safety as visiting officials watched his progress on the oscilloscopes.

Money was no longer an obstacle as military interest reached a "feverish level." Airborne radar would follow, as would three types of radars: the SRC-268 for antiaircraft situations and two early warning sets, the mobile SCR-270 and SCR-271 for fixed installations.¹² Radar work initially moved from Fort Monmouth to Fort Hancock for security reasons in 1938 and was moved later again to the old Marconi Radio Station in Wall Township, New Jersey in 1941-42 (later named Camp Evans Signal Laboratory). Since there was no school or system of instruction for early radar operators, early warning SCR-270 classes were conducted at Fort Monmouth in Squier Laboratory. Fire control and search light control SCR-268 classes were conducted at Fort Hancock at Sandy Hook, the first formal classes taking place in 1938. The sensitive nature of the instruction material meant that students could not take books or course materials home and had to complete all studying at school. By 1941 all three sets were in use as coastal defense and in such strategic military locations as Panama and Pearl Harbor, Hawaii.¹³

Anticipation of the nation's entry into World War II led to increased activity at the Signal Corps Laboratories. As a result three field laboratories on Fort Monmouth's ancillary areas were established in 1940 and 1941 to supplement the research efforts. These included Field Laboratory #1, later Camp Coles Signal Laboratory, and Field Laboratory #2, later Eatontown Signal Laboratory at the Charles Woods area (subsequently transferred to the Air Force). Along with Squier Laboratory these two laboratories became the Signal Corps General Development Laboratories (SCGDL). An additional laboratory was also established at Fort Hancock as Field Laboratory #3. Originally the Signal Corps Radar Laboratory, the Fort Hancock laboratory was moved to Camp Evans in 1942 and re-designated as the Camp Evans Signal Laboratory.¹⁴

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 31

As the field laboratories began to assume research and development activities that were formerly on both the main post and at Squier Laboratory, the mission and activities at Squier Laboratory became more streamlined. At that time activities at the laboratory were focused on the testing of "small, so-called 'piece parts' of a larger 'end item' such as a radio set, radar set, or telephone equipment so that the end item could be manufactured. The materials tested at Squier Hall included metals, plastics, ceramics, and crystalline materials.¹⁵ The Camp Evans Signal Laboratory went on to become one of the principal facilities for radar research, testing, and development during World War II.¹⁶

Criterion C, Architecture

The construction at Fort Monmouth followed the permanent building program of the U.S. Army after World War I when many Army installations across the country suffered from neglect and disrepair. Public Law No. 45, enacted by Congress in March 1926, facilitated permanent construction on Fort Monmouth and other military bases across the country. This program widely impacted Army and Air Corps installations retained after World War I and brought new construction as well as expansion. The new facilities at Fort Monmouth, which included a new headquarters building for the Signal Corps and the Signal Corps School, a modern laboratory, a hospital, and quarters, are illustrative of this permanent construction program and the importance of Ft. Monmouth as main installation of the Signal Corps.

Between 1927 and 1940, the Army Quartermaster Corps constructed over 100 permanent buildings on Fort Monmouth. Fort Monmouth's collection of buildings built between 1927 and 1940 are excellent examples of construction on military posts as part of the Army's permanent construction program after World War I. The arrangement of the buildings around a central parade ground, the grouping of buildings by their purpose, and the use of curvilinear streets and green space are all characteristic of planning methods advocated by the Quartermaster Corps. The Colonial Revival-style buildings that line the streets of the historic district were all built to the specifications of the Quartermaster Corps and illustrate the types of dwellings and community support buildings that were typical of the permanent construction program. Two of the most prominent buildings on the campus, Squier Hall (formerly Squier Laboratory) and Russel Hall, were designed by architects Robert Perry Rodgers and Alfred Easton Poor (Squier Hall) and Harry Sternfeld (Russel Hall) in conjunction with the Quartermaster Corps. These two buildings, designed in the stripped Classicism and Art Deco styles, are representative of federal buildings constructed during the 1930s. The new facilities at Fort Monmouth, which included a new headquarters building for the Signal Corps and the Signal Corps School, a modern laboratory, a hospital, and quarters, are illustrative of this permanent construction program and the importance of Ft. Monmouth as main installation of the Signal Corps.

After World War I, Army installations across the country generally suffered from neglect and Fort Monmouth was no exception. Although the Army retained a significant number of World War I cantonments, it lacked the funds for upkeep and therefore many fell into significant disrepair. The Secretary of War commented on this dire issue in the 1925 Annual Report and stated, "No graver problem faces the War Department to-day than that of providing adequate shelter. The officers commanding units in the field are in constant dread of the outbreak of conflagration in groups of temporary wooden buildings that are being used for housing purposes. . . ."¹⁷

Public Law No. 45, enacted by Congress in March 1926, facilitated permanent construction on Fort Monmouth and other military bases across the country. The design of the program specifically financed the housing and hospital needs of the Army. The estimated total expenditure was \$148 million allocated over 10 years. The program began modestly in 1927 with \$7 million appropriated for barracks and hospital construction.¹⁸ By the end of the first decade of the housing program, Congress had allocated approximately \$150 million for permanent construction. Although considerable improvements had been made, maintenance costs for the upkeep of temporary World War I buildings continued to be high

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 32

and the Secretary of War urged additional funds. Between 1935 and 1940, congressional appropriations were supplemented by funding from the Public Works Administration.¹⁹ The appropriation of funds for permanent construction widely affected Army and Air Corps installations retained after World War I and brought new construction as well as expansion.

The task of designing and building the permanent construction and support facilities on Army installations went to the Army Quartermaster Corps Construction Division. Headed by Maj. Gen. Frank Cheatham, the construction division's staff of architects was well trained in the Beaux Arts tradition and followed the aesthetics of the City Beautiful Movement, which focused on the use of beautification of urban spaces through monumental buildings, green space, and controlled planning.²⁰ The Army recognized the growing field of city planning and the important role it would play in the design of Army posts, which were essentially functioning cities. The new bases were to be modern, and diverted from the "foursquare and austere" tradition of previous military installations.²¹ The five fundamental "laws" that that Quartermaster Corps considered in the planning of Army posts was unity, consistency in design, natural beauty, balance, and radiation.²² The Army wanted to stray from the building and planning mistakes of its past and build posts that were both well-designed and functional.

The Quartermaster Corps designs for the new bases called for main thoroughfares to be broad and direct with easy gradients and secondary streets following the natural topography. Allowing secondary streets to follow the natural contours of the land reduced grading costs and gave the streets a quality that was "distinctively domestic . . . cozier and more attractive."²³ The placement of roads also strengthened the separation of rank and functions within the posts.²⁴ Buildings were to be grouped by function — operation, administration, and housing — to create a hierarchy of space. Semi-public buildings, such as the post headquarters, post exchange, chapel, library, and theater, were to be located near open spaces and parking. Generally, the buildings on the post were to be situated to take advantage of the views provided by the large open green of the parade ground. Planners were also urged to also take advantage of the existing topography in the planning of the residential areas of the post, where the orientation of the buildings was important for good circulation and the presence of vegetation was to provide much-needed privacy.²⁵

Permanent construction at Fort Monmouth after World War I took place between 1927 and 1940. The planning of the post followed the primary principles of the Quartermaster Corps, featuring a large open green that functioned not only as a parade ground but also provided a central organizing feature to the post with sweeping views of the main buildings and residential areas. The headquarters building, Russel Hall, was situated at the front of the green facing the main entrance to the post; broad avenues bordered the green on the north and south. Administration buildings, a hospital, fire house, and theater were for the most part located near the main entrance to the post or adjacent to residential areas for accessibility. The residential areas were located in "neighborhoods" placed on the north and south sides of the green. Commissioned officers' quarters were built on the north side of the green, separated from the non-commissioned officer's quarters on the south. On the north side of the post in particular, the curvilinear streets with a central park emulated the ideals of the new Army posts of the post-World War I era. The permanent construction program also included a new quartermaster support area, which was separated from the residential and administration area by Oceanport Avenue. The quartermaster support area consisted of a warehouse/commissary, a bakery, a garage, a utility shop, and a blacksmith shop.²⁶ The plan and the buildings erected during the permanent construction program at Fort Monmouth remain extant, illustrating the lasting influence of the Quartermaster Corps.

When choosing a style to apply to the new permanent housing on military bases, the Quartermaster Corps primarily used the Colonial Revival style, which was then in the height of its popularity. The use of the style for government buildings in particular was favored as a nostalgic reference to buildings of the eighteenth century and the Revolutionary War, which had been awakened during the Philadelphia Centennial in 1876. The Quartermaster Corps found that the Colonial Revival

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 33

style was a "suitable style in architecture" for a "building program as essentially national in its character. . . . [The style] should be one that has acquired some degree of national character and that has become familiar to and is understood by a majority of people."²⁷ Styles determined to fit these criteria were the Georgian, or Colonial, of the Mid-Atlantic and New England, characterized by red brick and white trim, and the Spanish Mission style of the Southwest, distinctive with stucco walls and red tile roofs. "Both these styles were brought over by the original foundations of the settlements in those respective sections, and, while they maintain a major popularity in their original zones, they have spread throughout the central and western states until they have covered the land."²⁸

The Quartermaster Corps used the Colonial Revival style in the majority of the buildings at Fort Monmouth as it was located in the Mid-Atlantic region. The rows of red brick, symmetrical buildings with white trim and classical motifs epitomize the Colonial Revival style of the early twentieth century. Out of approximately 90 permanent buildings constructed between 1927 and 1939, only two, Russel Hall and Squier Laboratory at Fort Monmouth were not designed in the Colonial Revival style.

HISTORICAL BACKGROUND

The Establishment of the Signal Corps and Camp Alfred Vail

The origins of the Army Signal Corps date to June 21, 1860, when the Army adopted the signaling system of Albert James Myer, an Army doctor. Myer joined the Army in 1854 as an assistant surgeon. While in Texas he developed a military signaling system based on his medical dissertation, "A New Sign Language for Deaf Mutes," in which telegraph code was transformed into a means of personal communication through tapping out words on a person's cheek, hand, or nearby object. The military signal system that came to be known as "wigwag" used a torch or flag. Along with the adopted signaling system, Myer was appointed signal officer with the rank of major. Although the Signal Corps was officially created in February 1863 only for the length of the "present rebellion," a small peacetime Signal Corps was authorized after the war ended.²⁹ In 1867 management of field electric telegraphs for active forces came under the direction of the Chief Signal Officer. When a national weather service was created in 1870, it was also assigned to the Chief Signal Officer.³⁰

What had been a small service during the nineteenth century and first decade of the twentieth century required rapid expansion during World War I. As the likelihood of United States' participation in the war increased, it became evident, with only 2,000 officers and enlisted men, that the Signal Corps did not have enough strength to provide support to the Army. The Signal Corps recruited from the employees of American Telephone and Telegraph, Western Union, and the Postal Telegraph Company and received 1,400 applicants for enlistment.³¹ With the addition of so many recruits, the Signal Corps began to establish training camps in 1917 at Fort Leavenworth, Kansas; Leon Springs, Texas; the Presidio of Monterey, California; and Little Silver, New Jersey.

As the only camp not using government-owned land, Little Silver was the exception. The Army leased 468 acres, with the option to buy, of land that was formerly the Monmouth Park Race Track (1870-1893), which had ceased operation in 1893 when New Jersey abolished horse racing. The land was in poor condition, with remains of the steel grandstand, a one-mile oval track, a one-and-a-half mile oval track, and one-mile straightaway track. The remainder of the land was largely overgrown and infested with poison ivy. But the advantage of location outweighed these factors, such as the proximity of rail lines and the station at Little Silver, good roads, and water access. On June 16, 1917, Lt. Col. Carl F. Hartmann announced the establishment of the camp, with recruiting campaigns in New York City, Philadelphia, Pittsburgh, and Rochester for telegraph battalions. Electricians, engineers, and telegraph operators were especially needed. Doubled pay for privates, increased pay for non-commissioned officers, and claims that "in no other branch are there

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 34

better opportunities for character development and vocational training” and “a healthful life in the open is one of the most attractive offerings of this branch of the army” were offered as incentives for enlistment.³²

For the first three months of its existence, the camp was known only as Signal Corps Camp, Little Silver, New Jersey. The first personnel to arrive on site came in two Model T Ford trucks with tents and other equipment ordered by Lt. Colonel Hartmann; the next day a detachment of Depot Company H, Signal Corps began clearing and marking out the camp site. Lt. Colonel Hartmann arrived on June 17, 1917, as the camp’s first commanding officer, in time to greet the first troops, the First and Second Reserve Telegraph Battalions, who arrived the next day. Clearing land, repairing and extending roads, and digging drainage ditches continued throughout the summer, even after instruction of trainees began on July 23.³³

On September 15, 1917, the camp received a semi-permanent status — to be used for the duration of the war — and was redesignated Camp Alfred Vail in honor of Alfred E. Vail. Vail was an associate of Samuel F.B. Morse and contributed to the first experiments in telegraphy, devised the Morse alphabet of dots, dashes, and spaces, invented the finger key used for transmitting messages, and received the first successfully transmitted message in 1844. Naming the camp after Vail honored his contribution to communications technology that would eventually be used by the Signal Corps. A radio operator detachment was formed at the same time that the camp was renamed. During the previous months of instruction, trainees received instruction in subjects including cryptography, the heliograph, semaphore, wigwag, motor vehicle operation, physical training, dismounted drill, tent pitching, map reading, and camp sanitation, but no technical communications subjects. With the formation of the new detachment came intensive six-week training in radio (emphasis on foreign codes and languages) and a radio operator course.

The first units were dispatched from Camp Vail in October 1917 with the 11th Reserve Telegraph Battalion. By the end of the year, 2,416 enlisted men and 448 officers had been processed through the camp. Telegraph Battalions sent to Europe built over 1,700 miles of permanent pole lines and ran 23,000 miles of wire. Field signal battalions worked on the front lines connecting brigade and regimental headquarters. Telephone lines ran to each infantry battalion and between adjoining battalions. These lines were adapted to trench warfare, stringing wires on short 4-foot stakes or along trench walls. Major lines were placed in shallow trenches or buried underground to protect them from enemy shelling and foot and vehicle traffic. At division headquarters telephone switchboards were built in underground dugouts to withstand artillery bombardment. Forward from battalions to frontline companies the Signal Corps used earth telegraphy, which worked by driving poles in the ground that could pick up electrical currents. Though earth telegraphy was less secure from interception, it was less vulnerable to artillery fire. When other means were not available, communication resorted to visual signals such as wigwag.³⁴

The necessity for new laboratories devoted to the development of wireless communication provided a new mission for Camp Vail, that of adapting radio for aircraft use. Tank and aerial warfare, employed for the first time during World War I, presented a challenge for communications. Wireless sets were used during the war but were as yet an unreliable means of communication. Camp Vail was selected as the site for new Radio Laboratory, devoted solely to problems of wireless communication. Construction began in December 1917 on 43 semi-permanent laboratory buildings in the area of present-day Barker Circle. Two airfields and four hangars were built east of Oceanport Avenue for radio testing. Research focused on vacuum tubes, circuits, testing apparatus submitted by manufacturers, and the application of new inventions. Some 90 to 95 airplane flights each week were flown by the 504th and 122nd Aero Squadrons. Though the laboratory remained after the end of the war, the Aviation Section was moved from Camp Vail, but not before great progress had been made on the new technology.³⁵

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 35

The end of the war on November 11, 1918, meant the end of wartime activities but not the end of the camp. In addition to the removal of the Aviation Section, the Radio Laboratory's activity was decreased for a time. The camp, which had been called the "best equipped Signal Corps camp ever established anywhere," had 129 semi-permanent structures, which included the laboratory, housing, a hospital, stables, and hard-surfaced roads. As such, in August 1919 the Chief Signal Officer requested that all Signal Corps schools be moved to Camp Alfred Vail. Instruction began on October 2, 1919, with an officers' division divided into radio engineering, telegraph engineering, telephone engineering, signal organization, and supply. Enlisted radio specialists had courses in radio electricity, photography, meteorology, gas engines, and motor vehicle operation. Courses were also available for telephone and telegraph electricians, operators, and clerical staff.³⁶

Post World War I and the Establishment of Fort Monmouth

During the early 1920s the Signal Corps School, the largest organization at Camp Alfred Vail, continued to grow as a result of the increasing demand for communications training. The school's name was officially changed to "The Signal School" in 1921 as it educated men from several branches of the Army, not only the Signal Corps. The name remained in place until a reorganization of the school in 1935, when its name reverted back to the Signal Corps School. During the 1920s the school consisted of four departments: Communications Engineering, Applied Communications, General Instruction (for all officers), and Enlisted Specialists. Instruction was also offered in meteorology, photography, and motion pictures. The training literature section formed in 1921 and supplied much-needed technical and field manuals for the operation and maintenance of Signal Corps equipment.

During the Great Depression the school experienced an acute shortage of trained personnel, particularly instructors. To provide trained personnel, courses for advanced students were created in Equipment Studies, Tactics and Technique of Signal Communications, Auxiliary Signal Services in the Theater of Operations, Signal Operating Instructions and Orders, Staff Relations, Training Management, War Plans, Expeditionary Forces, Signal Supply, Duties of Corps Area Signal Officers, Historical Studies, and Field Exercises. These courses provided a comprehensive education to prepare commissioned personnel for the problems facing a Staff Signal Officer. Concurrently the school was reorganized into three distinct divisions: the Officers' Department, the Enlisted Department, and the Department of Training Literature. Teaching in the Enlisted Department was converted from classroom to individual instruction, allowing more advanced students to progress at a faster pace. Finally, the school was run on a 12-month basis with students entering at various times of the year to accommodate more students with any given number of instructors.³⁷

In June 1924 the Signal Corps established the Signal Corps Board at Fort Monmouth. The board's purpose was to respond to problems related to organization, equipment, and tactical and technical procedure at Fort Monmouth, the central location of Signal Corps activities. The board, consisting of Signal Corps officers, could also delegate detailed studies, experimental work, or field tests. Typical activities of the board included Tables of Organization, allowances and equipment, efficiency reports, Signal Corps organizations, and Signal Corps transportation needs.³⁸

A new phase of development for Camp Vail began in 1925 when it was granted permanent status. The installation was renamed Fort Monmouth in honor of those who fought at nearby Monmouth Courthouse during the Revolutionary War. However great the growth of the Camp from its establishment in 1917 through the early 1920s, it was only a fraction of the development that would take place once it became a permanent establishment.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 36

Permanent Construction on Fort Monmouth

Public Law No. 45 and Permanent Construction

After World War I, Army installations across the country generally suffered from neglect. Although the army retained a significant number of World War I cantonments, it lacked the funds for upkeep and maintenance, and therefore many fell into significant disrepair. In addition, the temporary buildings constructed on the installations during wartime had outlived their usefulness and were easily being destroyed by fire, collapse, and storms.³⁹ Enacted by Congress in March 1926 Public Law No. 45 facilitated permanent construction on Fort Monmouth and other military installations across the country.

The new law authorized the Secretary of War to dispose of 43 military reservations, or portions of the reservations, and to deposit the money from the sales into a "Military Post Construction Fund." The design of the program specifically financed the housing and hospital needs of the Army.⁴⁰ By the end of the first decade of the housing program, Congress had allocated approximately \$150 million for permanent construction. Though considerable improvements had been made, maintenance costs for temporary World War I continued to be high and the Secretary of War urged further appropriations. Between 1935 and 1940, congressional appropriations were supplemented by funding from the Public Works Administration. By the end of the fiscal year 1939, the Secretary of War commented on the "marked betterment in housing facilities"; however, the Chief of Staff thought that the Army's housing situation had only been partially alleviated since the enlargement of the Army offset the new construction.⁴¹ Despite these differences, the appropriation of funds for permanent construction widely impacted Army and Air Corps installations retained after World War I and brought new construction as well as expansion.

Quartermaster Corps Standards of Architecture and Planning

The task of designing and building the permanent construction and support facilities on Army installations went to the Army Quartermaster Corps. Maj. Gen. Frank Cheatham headed the Quartermaster's Construction Service. Cheatham's staff of architects was well trained in the Beaux Arts tradition and followed the aesthetics of the City Beautiful Movement. His staff included Lt. Col. Francis B. Wheaton, formerly of the firm McKim, Mead, and White; Luther M. Leisenring, formerly an associate of architect Cass Gilbert; and 1st Lt. Howard B. Nurse, a graduate of Mechanics Institute and who had practiced in Rochester, New York. Cheatham also consulted with a number of civilian engineers, landscape architects, and urban planners, one of whom was George B. Ford, a city planning adviser for the War Department. A respected urban planner, Ford studied architecture at Harvard, MIT, and the Ecole des Beaux Arts. Ford was a proponent of the City Efficient movement, which strove to consider zoning and utilities, and involve civil engineers, lawyers, and public administrators in urban planning.⁴²

The Army recognized the growing field of city planning and the important role it would play in the design of Army posts, which were essentially functioning cities. As urban planner George B. Ford explained in *The Quartermaster Review* in 1929, when "the Quartermaster General found Congress was likely to authorize the expenditure of some \$215,000,000.00 in re-housing the Army he took cognizance of the fact that in recent years a new science and art had grown up in America known as 'city planning.' He determined that, if this new method of studying the layout of cities, towns, and subdivisions is proving so effective in civil life, why should the Army not profit by it in the new housing program."⁴³ In describing the layout of military posts, Ford stressed that they should be military yet also modern.⁴⁴ Thus, the new Army posts wanted to stray from the building and planning mistakes of its past and build well-designed as well as functional posts.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 37

The primary goal of planning the new Army posts, as explained by Lt. H.B. Nurse in 1929, was to be “one great social organism. The planning the developing must take such form as will secure healthful conditions, promote the scientific training of troops, and also furnish the means of social intercourse.”⁴⁵ Nurse outlined the five fundamental “laws” to be considered in the planning of Army posts: unity, consonance in design, natural beauty, balance, and radiation. Nurse stressed that every installation should have a comprehensive plan of development to “promote the orderly...development of a post and its environs along rational lines.”⁴⁶

The planning principles for the new Army posts considered the role of existing topography within the design of the post. Main thoroughfares were to be broad and direct with easy gradients, but secondary streets were to follow the natural topography. Allowing secondary streets to follow the natural contours of the land would reduce grading costs and give them a quality that was “distinctively domestic...cozier and more attractive.”⁴⁷ The placement of roads also strengthened the separation of rank and functions within the post.⁴⁸ Buildings were to be grouped by function — operation, administration, and housing — to create a hierarchy of space. Semi-public buildings, such as the post headquarters, post exchange, chapel, library, and theater, were to be located near open spaces and parking. In general, the buildings on the post were to be situated to take advantage of the views provided by the large open green of the parade ground. Planners were also urged to also take advantage of the existing topography in the planning of the residential areas of the post. Here, the orientation of the buildings was important for good circulation, and the presence of vegetation was to provide much-needed privacy.⁴⁹

When choosing a style to apply to the new permanent housing on military bases, the Quartermaster Corps primarily followed the popular taste of the nation. During the early decades of the twentieth century in particular, the Colonial Revival style was in the height of its popularity. The use of the style for government buildings in particular was favored as a nostalgic reference to buildings of the eighteenth century and the Revolutionary War, which had been awakened during the Philadelphia Centennial in 1876. As explained by Lt. Col. Francis B. Wheaton, the most “suitable style in architecture” for a “building program as essentially national in its character. . .should be one that has acquired some degree of national character and that has become familiar to and is understood by a majority of people.”⁵⁰ Styles determined to fit these criteria were the Georgian, or Colonial, of the Mid-Atlantic and New England, and Spanish Mission of the Southwest. “Both these styles were brought over by the original foundations of the settlements in those respective sections, and, while they maintain a major popularity in their original zones, they have spread throughout the central and western states until they have covered the land.”⁵¹ In particular, Wheaton admired the Colonial Revival for its “simple dignity, fine proportions, and exquisite detail.”⁵² Thus, the Quartermaster Corps chose these two styles for the permanent construction on Army posts during the decades before World War II, the Colonial Revival style for its posts in the Mid-Atlantic and New England and Spanish Mission for the West Coast and Southwest. The buildings at each post were often differentiated by regional variations.

Permanent Construction

Permanent construction at Fort Monmouth after World War I took place between 1927 and 1940. The planning of the post followed the primary principles of the Quartermaster Corps, featuring a large open green that functioned not only as a parade ground but provided a central feature to the post and sweeping views of the main buildings and residential areas. The headquarters building, Russel Hall, was situated at the front of the green, facing the main entrance to the post, and broad avenues bordered the green on the north and south. Administration buildings were for the most part located near the main entrance to the post or adjacent to residential areas for accessibility. The residential areas were located in “neighborhoods” placed on the north and south sides of the green. On the north side of the post in particular, the curvilinear streets with a central park emulated the ideals of the new Army posts of the post-World War I era. Furthering

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 38

the Quartermaster Corps design principles was the use of the Colonial Revival style for the majority of the buildings on Fort Monmouth.

The final phase of the permanent construction building program was completed from 1934 to 1936 by the Reconstruction Finance Corporation (RFC) and later the Works Progress Administration (WPA). The RFC was an independent agency of the government created under the Hoover administration that, in addition to making loans to banks and businesses, was authorized to construct public works to increase employment under the 1932 Emergency Relief and Construction Act. The RFC was bogged down by bureaucracy and unable to fulfill projects, so a large number were turned over to the newly created Public Works Administration (PWA). Finally the WPA, another of the many "alphabet soup" New Deal agencies established in the 1930s by President Franklin D. Roosevelt's administration, completed the remaining buildings in 1936. Buildings constructed during this period include additional Non-Commissioned Officers' Quarters, Field and Company Officers' Quarters, the Hospital wing, Fire and Guard Station, the Signal Corps Laboratory (Squier Hall), Headquarters (Russel Hall), and the Commanding Officer's Quarters. Other work included roads, grading, sewer systems, grounds improvement, electrical systems, telephone construction, and building repairs.⁵³

Standardized Plans

Following the initial appropriation for housing and hospitals, the first permanent construction efforts at Fort Monmouth began in 1927 with the construction of barracks and a hospital. Construction began on the barracks in February 1927, and by October four barracks stood on the southeast side of the parade ground around what is now Baker Circle. The barracks varied slightly in size but were all three-story rectangular buildings following Quartermaster Corps plans (Photo 7). The Quartermaster Corps found that the three-story height was "not only economical in construction" but "convenient and easy of administration."⁵⁴ The buildings were designed to house one company each, with a combined capacity of 805 men. In 1934 Building 207 was enlarged on its north end to accommodate the Army band. A fifth barracks was added to the group in 1940 (Building 287) but is similar in design and construction to the 1927 barracks.

The hospital, Allison Hall (Building 209) (Photo 3), was built northeast of the parade ground facing south toward the main entrance to the installation. The building followed Quartermaster Corps standardized plans for hospitals as evidenced by its Colonial Revival two-story main block and flanking wing wards. The original sun porches on the wings, currently enclosed, are also typical features of Quartermaster Corps hospitals and evolved from the large verandas that characterized the Quartermaster Corps hospitals of the late nineteenth and early twentieth centuries. The building was completed in April 1928 and consisted of only the main block and the east wing. The north wing, which contained the medical detachment barracks, was also part of the 1928 construction and provided space for 35 beds and medical, surgical, dental, and other services for the hospital. The west wing and an addition to the north (rear) wing were completed in 1934. In this capacity the hospital held 56 beds and facilities for 26 enlisted men assigned to the medical detachment.⁵⁵

Construction on the officers' housing area on the north side of the parade ground began in 1927 and was completed by 1935. In the fall of 1927, the Quartermaster Corps surveyed junior officers' wives on what type of housing they preferred and found that the wives favored single-family dwellings and not a central mess. Though the construction of single-family houses was more expensive, the Quartermaster took this in consideration during the permanent construction phase, and the Army strove to provide single-family housing for both commissioned and non-commissioned officers at its Army bases. Instead of the former practice of situating housing to face the parade ground, the designs for housing at the new Army posts were arranged in neighborhoods of curvilinear streets around parks.⁵⁶

The officers' housing area provided two types of dwellings, single-family dwellings for field officers and the commanding officer and two-family dwellings for company officers (Photos 11-13). The officers' dwellings followed the stipulations

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 39

of the Quartermaster Corps and where "sufficient ground area" was available, were two stories, with a "living room, dining room, kitchen, pantry, three bedrooms, and two bathrooms as a maid's room and bath."⁵⁷ An additional bedroom was often added in field officers' quarters. The standards also provided double houses when less land was available and "at some of the army schools, buildings for four families, two on each floor but each provided with its own individual entrance and porch."⁵⁸ The four-family dwellings were slightly smaller, offering only two bedrooms and one bathroom, "as they are for the use of student officers who tours of duty are relatively short."⁵⁹ These four-family dwellings for student officers and their families were built adjacent to the field and company officers' quarters between 1929 and 1932 (Photo 15). Shared garages were built between or behind the houses, emphasizing the importance of the automobile in the design of the new posts (Photo 16). The Bachelor Officers' Quarters were built in 1929 and 1931 also as part of the officers' quarters area. Non-Commissioned Officers' Quarters were built on the south side of the parade ground between 1927 and 1934 (Photos 8 and 9). The two-story brick houses were similar to those of the Commissioned Officers' quarters. The buildings followed the standardized plans, which called for "two story double houses, having a living room and kitchen on the lower floor and two bedrooms and a bathroom on the second floor."⁶⁰

Community support buildings on the post were built facing the parade ground and were easily accessible to the residential areas and, in the case of the Fire Station and Guard House (1935) (Photo 6), near the main entrance to the post and accessible to the primary roads. Other community support buildings included the hospital (Allison Hall) and a theater, which was located adjacent to the enlisted men's barracks (1933) (Photo 7).

Non-Standardized Plan Buildings

Although the majority of the buildings constructed as part of the Fort Monmouth campus in the 1920s and 1930s followed the standardized plans of the Army Quartermaster Corps, the two most prominent buildings were designed by architects. These two buildings strayed from the Colonial Revival style favored by the Quartermaster Corps.

Squier Laboratory, Rodgers and Poor

Prior to the construction of Squier Laboratory, the Signal Corps Laboratories at Fort Monmouth were housed in "long, narrow, one-story, unheated, roughly-built structures."⁶¹ The mission of these laboratories was to develop radio equipment along with other equipment related to telephony, telegraphy, meteorology, batteries, and carrying vehicles. A major goal was the development of radios for aircraft; thus, four airplane hangars were adjacent to the laboratory buildings. During World War I the laboratories had a staff of 10 officers, 76 enlisted men, and 28 civilians. The laboratories were under the command of Col. (Dr.) George Owen Squier.

After the war ended, the staff decreased to two officers, four radio engineers, two civilians, and eight enlisted men in 1920. Between 1920 and 1930, the mission of the laboratories was primarily to design and test radio sets and some field wire equipment. To increase efficiency, three other Signal Corps laboratories, located in Washington, D.C., and New York, were consolidated at Fort Monmouth into the Signal Corps Laboratories in 1930. Until 1935 and the construction of Squier Laboratory, no physical changes had been made to the laboratory buildings. By that time personnel had increased to eight officers, 24 enlisted men, and 66 civilians.⁶²

As additional space was needed, Squier Laboratory (now Squier Hall) was built in 1935 at the northwest edge of the parade ground (Photo 4). The building consisted of an administration and laboratory section, housed in the main block, and a rear shop wing. After World War II the building was expanded in 1947 with a west wing. The building was designed by the New York City architectural firm of Rodgers and Poor in collaboration with the Quartermaster Corps Office of Construction. The two-story brick building was designed in a stripped classicism style distinguished by the lack

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJSection number 8 Page 40

of traditional Colonial Revival-style ornamentation from the majority of the buildings constructed at Fort Monmouth during the time of permanent construction. The horizontal nature of the building is emphasized by large bands of metal-frame windows that stretch across the main block. The design of Squier Hall illustrates the influence of the Ecole des Beaux Arts and Paul Cret in the classical symmetry and massing that reflects the Beaux Arts tradition; however, it lacks ostentatious ornamentation that is commonly associated with Beaux Arts designs. Cret was known for his civic buildings that followed the plan, flow, and symmetry of the Beaux Arts style, but displayed stripped classicism, or as Cret preferred to call it, "new classicism." Consequently, Rodgers and Poor, like Cret, chose to exhibit the fundamental principles of the Beaux Arts style yet omitted the embellishments of the style that had become "overly familiar and socially suspect."⁶³

Robert Perry Rodgers (1895-1934) was born in 1895 in Havre de Grace, Maryland, into a family with a long lineage of Naval heroes, including Commodore Matthew Perry and Commodore John Rodgers, his great-grandfathers. Rodgers received a degree in architecture from Harvard University and enlisted in the Navy at the onset of World War I. Rodgers was honorably discharged with the rank of ensign and continued his architectural studies at the Ecole des Beaux Arts in Paris. After earning a degree in 1920, he went to work for the New York City office of Bertram Goodhue and later partnered with architect Alfred Easton Poor to design the Wright Brothers Memorial at Kitty Hawk in 1931-1932. In June 1934 Rodgers died in Havre de Grace at the age of 38 from an internal hemorrhage and subsequent infection, while Squier Laboratory was under construction.⁶⁴

Alfred Easton Poor (1899-1988) was born in Baltimore in 1899 and received a degree in architecture from Harvard University and later from the University of Pennsylvania under Beaux Arts architect Paul P. Cret. Poor's architectural career spanned over half a century. In the 1930s Poor designed a number of country houses in Long Island and served as chief architect of the Red Hook housing project in New York. He partnered with Robert Perry Rodgers in 1931-1932 for the design of the Wright Brothers Memorial and shortly thereafter for the design of Squier Hall, which was completed in 1935. After World War II Poor went on to design dozens of office and government buildings, often in collaboration with associates. One of his most recognized designs was for the Jacob J. Javits Federal Office Building in Manhattan (1975-1977). He also served as the leading architect of the James Madison Memorial Building of the Library of Congress in Washington, D.C., which was designed in the mid-1960s and completed in 1982. From 1966 to 1977, Poor served as the president of the National Academy of Design in New York. He died in New York City in 1988 at the age of 88.⁶⁵

Both Rodgers and Poor are best known for their design of the Wright Brothers Memorial in Kitty Hawk, North Carolina. The architects won an international competition for their design of the memorial in 1930, and the wing-shaped monument was completed in 1932. The memorial was praised for its Art Deco design and motifs. In selecting the design, the jury stated that it was "not only the most original and impressive as seen from land, but would also be extremely effective as seen from the air. It strongly manifests the dominant motive suggested in the program, namely a memorial to the birth of human flight."⁶⁶

Russel Hall, Sternfeld

Russel Hall, the most prominent building in the Fort Monmouth Main Post Historic District, was built as the centerpiece of the Fort Monmouth installation in 1936 and served as the Headquarters building for the post (Photo 2). The Art Deco-style building originally contained the post library, the chaplain's office, telephone and switchboard rooms, a court martial room, a large map and war game room, and classrooms for the Signal Corps School.⁶⁷ Like Squier Laboratory, the building's Art Deco-style design contrasted with the Colonial Revival-style buildings built from the standardized plans of the Quartermaster Corps. The building paid tribute to the Signal Corps with its limestone reliefs of the Signal Corps in the Civil War and World War I that flank the main entrance to the building. The importance of the building is emphasized by

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 41

its location facing the original main entrance to the post at the head of the parade ground. Its role as Headquarters is further underscored by its monumental quality provided by its four-story limestone frontispiece.

Harry Sternfeld (1888-1976) served as architect for Russel Hall. Sternfeld, a native Philadelphian, studied under Paul Cret at the University of Pennsylvania and received his bachelor's degree in architecture in 1911. He then went to work in the Montreal architectural office of Francis S. Swales, who was Beaux Arts trained. Sternfeld returned to the University of Pennsylvania in 1913 to work on his master's in Architecture. Sternfeld graduated in 1914 and received the Paris Prize; however, the onset of World War I prevented him from continuing his studies in Europe. Sternfeld accepted a faculty of architecture position at Carnegie Institute of Technology (now Carnegie Mellon University) in Pittsburgh. After the end of World War I, Sternfeld was able to travel to Europe, where he attended the Ecole des Beaux Arts and later the American Academy in Rome. After rising to the position of Head of the Department of Architecture, Sternfeld left Carnegie Tech in 1923 and joined the faculty at the University of Pennsylvania as a Professor of Design and concurrently began a long career as both architect and planner.⁶⁸

Growth of the Signal Corps Laboratories

Although the Signal School was the dominant activity at Fort Monmouth in the 1920s, the Radio Laboratory (renamed the Signal Corps Laboratories in 1929) was one of the most important facilities on the installation. After World War I the Signal Corps emphasized the need for research and development facilities for Army communications equipment, despite the reduction in staff and funding. Activities at the laboratory continued and made the most of the meager budget. In the decade after World War I, the laboratory focused its research and development activities on designing and testing radio sets and field wire equipment.

#

One focus of the laboratories was on adapting and advancing radio technology for various military situations. Among the best-known developments of the period was the production of "walkie-talkie" radios. The problems inherent in front-line communication could not be solved by human or pigeon messengers, who were slow and didn't always make it to their destination. Telephone lines took time to lay and were easily destroyed by enemy fire. Radio transmitters offered a solution, if they could be built light enough to be easily carried, rugged enough to withstand outdoor exposure, and had sufficient frequencies to reach the combat team, artillery, and tanks.

The first sets were tested in 1934 (prior to the construction of Squier Laboratory) and improvements were made in 1935 and 1936, resulting in the SCR-194 and -195 models. Major General U. Birnie, Jr., Chief of Field Artillery in 1936, described the importance of the first walkie-talkies. "I consider," he said, "the production of this type of radio set to be the most notable achievement on the part of [the Signal Corps], constituting as it does the most far-reaching and important improvement in Field Artillery communications which has been made since the adaptation of the telephone to military needs. It provides almost certain and easily-carried-forward communication with the front line troops—a need which heretofore has presented problems well nigh insuperable." Walkie-talkies for use by foot soldiers, such as the SCR-194 and -195, were carried on the back with harness straps and a belt, and both a headset for the soldier carrying it and a handset that could be used by another soldier. The SCR-511, brought out in 1940, was designed for cavalry troops and allowed better communication than previous models. Its design, with a long pole that could be inserted into a stirrup, was not easily adaptable for foot soldiers and vehicles, and the pole was often broken. Newer models designed during and after World War II were lighter, had more frequencies, longer ranges, and longer battery life. The SCR-300 (and the AN/VRC-3 for tanks), developed in 1942, benefited from the use of FM (frequency modulation) and had a homing device that allowed the operator to tune into a friendly transmission and proceed to it.⁶⁹

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 42

The development of FM allowed significant advances in radio technology. FM radio signals have a shorter range than amplitude modulation (AM) but are less susceptible to interference and outside noise. The internal combustion engines in tanks and airplanes interfered with radio reception and the friction of a tank's treads generated static. As a result tanks had previously communicated by flags and hand signals with infantry. Communication during World War I was limited to three basic symbols: (1) tank to infantry, using a red, white, and blue flag to signal "coming out of action"; (2) infantry to tanks and tanks to infantry, using red and yellow flags to signal "broken down"; (3) infantry to tanks, using a helmet on a bayonet to signal "tanks wanted here" after which, once the tank came over, an infantry officer attracted the attention of the Tank Commander by means of a bell at the rear of the tank and indicated what he required of the tank.⁷⁰ Using FM transceivers allowed clear radio communication in vehicles and eliminated the need for primitive signal communication. Quartz crystal controls (also developed by the Signal Corps at Fort Monmouth) were more dependable and allowed radios to be tuned with the push of a button rather than twirling dials.

Maj. Gen. Roger B. Colton, director of the Signal Corps Laboratories, was responsible for the decision to employ FM in military radio and for the switch to crystal controls. He commented on the decision after the war, "The Army had radio before they had crystals. Now the Army has communications. That's the difference. Crystals gave us communications."⁷¹ Signal Officer Colonel Grant Williams further clarified the importance of the developments brought about by General Colton: "I feel that every Soldier who lived through the war with an armored unit owes a debt he does not even realize to General Colton."⁷²

The Signal School

#

The Signal School, like the Signal Corps Laboratories, lacked adequate resources during the Depression years. Signal services were needed for the Civilian Conservation Corps (CCC), a Great Depression program that provided manual labor jobs relating to the conservation and development of natural resources on government lands, and the Army Air Corps, which handled air mail. The school was unable to meet the needs for these services because of an acute shortage of trained personnel who could be instructors. In order to provide trained personnel, courses for advanced students were created in Equipment Studies, Tactics and Technique of Signal Communications, Auxiliary Signal Services in the Theater of Operations, Signal Operating Instructions and Orders, Staff Relations, Training Management, War Plans, Expeditionary Forces, Signal Supply, Duties of Corps Area Signal Officers, Historical Studies, and Field Exercises. These courses provided a comprehensive education to prepare commissioned personnel with the problems facing a Staff Signal Officer.

At the same time the school was reorganized into three distinct divisions: the Officers' Department, the Enlisted Department, and the Department of Training Literature. Teaching in the Enlisted Department was converted from classroom to individual instruction, allowing more advanced students to progress at a faster pace. Finally, the school was run on a 12-month basis with students entering at various times of the year in order to accommodate more students with any given number of instructors. From its inception in 1919 until 1940, 4,618 enlisted men graduated from the school, 2,443 from the Signal Corps and the remainder from other branches or services and from foreign nations.⁷³ The reorganization of the Signal School during the 1930s provided the school with a functioning organization that would be better equipped to handle the challenges of training during the impending war.

Preparation for War

In 1940 a barracks (Building 287) was completed, the last of pre-World War II permanent construction at Fort Monmouth. Construction at Fort Monmouth soon became focused on an influx of personnel as the Army prepared for entry into World War II. In 1941 the Signal Corps Replacement Center began operation on Fort Monmouth for the training of enlisted personnel. As the capacity for the center increased from 5,000 to 7,000 enlistees, the size of the post, approximately 440

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 43

acres, was deemed insufficient. Consequently, The Army purchased three contiguous areas, increasing the size of the post to 637 acres, and built cantonments on any available space, except on the parade ground behind Russel Hall.⁷⁴ These temporary structures contrasted greatly with the buildings erected as part of the permanent construction program at Fort Monmouth and marked a new area of improvement and expansion of the post.

The formal outbreak of hostilities began after the Japanese attack on Pearl Harbor on December 7, 1941, but preparations for impending war had begun in September 1939 when President Roosevelt proclaimed a state of "limited emergency." Compulsory military service was introduced the following year, causing changes at Fort Monmouth's Signal Corps School. In July 1940 the school's curriculum was overhauled and plans were made to increase capacity by 67 percent. Three field laboratories in 1940 and 1941 would meet the needs of the expanding Signal Corps Laboratory. Over the course of World War II, the number of personnel at Fort Monmouth expanded dramatically. The Army, in conjunction with the Federal Public Housing Authority, constructed hundreds of homes in surrounding areas, such as Shrewsbury, Long Branch, and Asbury Park, to provide housing for the 35,000 military and 15,000 civilians working at the fort.

ADDITIONAL HISTORY

[Preparers note: The following additional history on Fort Monmouth was taken from Sarah Groesbeck and Patti Kuhn, Watchful for the County: A History of Fort Monmouth, New Jersey, prepared for the U.S. Army Corps of Engineers, Mobile District, by The Louis Berger Group, Inc., Washington, D.C., 2011.]

World War II and Fort Monmouth

The Replacement Training Center

After President Roosevelt's declaration of limited emergency and the passage of the Selective Training and Service Act a year later (requiring men between the ages of 21 and 35 to register with the draft board), post commander Brig. Gen. Olmstead established a Replacement Training Center at Fort Monmouth. The center opened in January 1941 and quickly grew beyond the capacity of the base. Several tracts of land were purchased two miles west of the main post to provide additional space for the training center. The land was named Camp Charles Woods (now known as the Charles Woods area).

The Signal Corps School During the War

The Signal Corps School at Fort Monmouth was described during the war as the "graduate school to the college of the Replacement Training Center."⁷⁵ The school had a student body of 3,000 officers and enlisted men in 1941 from all branches of the Army, as well as the Marine Corps and Coast Guard. The school was divided into the following departments: Officers, Officer Candidate, Enlisted Men, Aircraft Warning (Radar), and Training and Literature.⁷⁶ In 1942 the Signal Corps School was re-designated the Eastern Signal Corps School to differentiate it from similar installations at Camp Crowder, Missouri, and Camp Kohler, California. It became part of the Eastern Signal Corps Training Center, which included the Replacement Center and the School.

The New Signal units were headed by officers who were trained through the Officer Candidate Department at Fort Monmouth. The first class began on July 3, 1941, with 490 students. The brick barracks on Barker Circle, previously used to house the 1st Signal Company and the 51st Signal Battalion, became the home of the department. Courses included physical training, dismounted drill, military law, sanitation and first aid, military courtesy and customs, interior guard

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 44

duty, defense against chemical attack, marksmanship, supply, administration, mess management, map reading, signal communications, motor transportation, inspections, and training methods. At the end of the three months' training, a total of 335 graduated. Subsequent classes averaged 250 men but grew to 1,100 by August 1942. When the Signal Corps School was re-designated the Eastern Signal Corps School, the Officer Candidate Department was renamed the Officer Candidate School.⁷⁷ As the Replacement Center training facilities moved to Camp Charles Woods, the Officer Candidate School moved into the vacated buildings on the main post.

Fifteen percent of soldiers from the Replacement Center, chosen on the basis of examinations and personal interviews, were sent to the School for advanced specialist training in the Enlisted Men's Department. The Radio Division offered training in radio repair and maintenance and in fixed station radio operation. The Wire division trained installer-repairmen, wire chiefs to supervise the maintenance of wire communications systems, switchboard-installers and cable splicers, telegraph printer (teletype) maintenance, and pole line construction. All students in the Enlisted Department were required to take basic courses in the principles of electricity and magnetism, followed by a short course in basic shopwork.

The Aircraft Warning Department was composed of both officers and enlisted men from various Aircraft Warning Companies, Signal Repair Companies, Signal Depot Companies, and qualified graduates of the Radio Repairman's Course in the Enlisted Men's Department. All instruction was practical, with only as much theory as was necessary for maintenance operations.⁷⁸ As facilities at Fort Monmouth began to be overtaxed once the war began, the department was moved to a new site on Hobe Sound in Florida that became Camp Murphy.⁷⁹ Radar training remained at Camp Murphy until it closed in 1944. For the duration of the war, the department was located at Camp Edison.⁸⁰

The Department of Training Literature prepared the extension course of the school, Signal Corps and signal communication field manuals, technical manuals for Signal Corps equipment, and examinations for the promotion of non-commissioned officers. The department also supervised the non-photographic phases of training film production on the Signal Corps and Signal communication.⁸¹

Signal Corps General Development Laboratories

Increase of personnel and research and development activities at Squier Laboratory necessitated the erection of supplemental buildings on the east and west sides of the laboratory. As the field laboratories began to assume research and development activities that were formerly on both the main post and at Squier Laboratory, the mission and activities at Squier Laboratory became more streamlined. World War II proved that much of the Army's signal equipment was heavy, fragile, difficult to operate and maintain, and did not operate well in different climates. Thus the research and development at Squier Laboratory became focused on making the components "smaller and lighter, much more rugged to withstand shocks of all matter or transportation on land, sea, and air, conditioned to withstand the rigors of the tropics, the Arctic, and the desert atmospheres, and capable of being mass-produced by many manufactures."⁸² Testing in simulated arctic and tropic climates began as early as 1942 and was enhanced by the research facilities at Squier and included Building 292 (1944), which served as the rainforest laboratory, and Building 293 (1943), which was the arctic laboratory.⁸³ Personnel also tested equipment in desert conditions. Test chambers could create conditions as cold as minus 85 degrees Fahrenheit to as hot as 190 degrees Fahrenheit and could simulate conditions of rain, heat, humidity, and cold. This research continued after World War II and into the Cold War.⁸⁴

The War Effort Winds Down

Fort Monmouth's wartime expansion came to an end in May 1943 when the Replacement Training Center was placed in inactive status. The Signal Corps School reduced its capacity, and the Enlisted Department was transferred to Camp

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 45

Crowder, Missouri. Other reductions included the transfer of the Eatontown Signal Laboratory to the authority of the Commanding General of the Army Air Force in 1945. After the war in Europe ended, a Redeployment Branch was begun in May 1945 to retrain personnel before deployment to the Pacific theater. But the war with Japan ended in August, and the focus changed to Army discharges. As a result the Separation Center was established in September 1945, processing more than 1,000 men every day until January 31, 1946.⁸⁵

The advancements in communications technology and the training of Signal Corps personnel at Fort Monmouth were critical to the Allied victory in World War II. The communication systems so vital to victory could not have operated without the "low-tech" carrier pigeons that were trained at the installation or the "high-tech" advances in radar and radio technology; neither could have functioned without the training Signal Corps personnel received at Fort Monmouth. The end of the war marked a shift in mission for the base, but not a reduction in activity as had been experienced at the end of the first World War. The development and use of the atomic bomb dramatically marked the end of World War II, announcing to the world that the Atomic Age had begun. Fort Monmouth's role in communications research and development would continue in the atomic age.

The Cold War Race for Innovation

Even before World War II ended with the bombing of Hiroshima and Nagasaki, tensions were mounting between the United States and the Soviet Union. Mistrust between the two superpowers and their allies quickly grew into what came to be known as the Cold War. The U.S. Army played an important role during that time in containing the spread of communism throughout the world. In order to support their mission, the Army underwent significant reorganization, first in 1947 with the National Security Act and again in 1962 when its technical services were reorganized with the formation of the Army Materiel Command (AMC). The United States was increasingly dependent on sophisticated technology for communications, surveillance, logistics, guidance, and early warning systems to support its advanced weapons technology. As the key Army organization dealing with communications, electronic systems, and equipment, the Signal Corps (and later the AMC) played a crucial role during the Cold War and the major military conflicts during that era.⁸⁶

Because of its vital role in providing technological research and development, Fort Monmouth was not closed after the end of World War II. Leading up to the Korean War, the Signal Corps Center was established at Fort Monmouth in August 1949. It consolidated the Signal Corps Engineering Laboratories, the Signal Corps Board, the Signal School, the Signal Corps Publication Agency, the Signal Corps Intelligence Unit, the Pigeon Breeding and Training Center, the Army portion of the Armed Services Electro Standards Agency, and all Signal Corps troop units stationed at Fort Monmouth. At the same time Fort Monmouth was re-designated "the Signal Corps Center and Fort Monmouth." The consolidation came as part of increasing the capacity of all activities on base to support the Army's worldwide commitments.⁸⁷ As the personnel increased at Fort Monmouth, the physical facilities on base were improved to support Cold War activities.

Signal Corps Engineering Laboratories

At the end of World War II, laboratory sites at Fort Monmouth were based at Squier Laboratory, the Coles Signal Laboratory, the Charles Woods Area, and the Evans Signal Laboratory. The most important areas of research taking place were communications systems, radar, electron tube research, and component improvement. Other areas of research included meteorology, proximity fuses, and photography.⁸⁸

Through the early Cold War research and development continued at Squier Laboratory, which was enlarged in 1947 with a two-story western wing. Personnel at Squier were responsible for the design and development of internal combustion engine-driven power units, batteries, battery chargers, battery substitutes, and dynamotors. The laboratory was also

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 46

responsible for communications equipment, including public address systems, loudspeakers, microphones and receivers, and head and chest sets as well as van bodies, trailers, and automotive-type shelters for Signal Corps equipment. Squier Laboratory developed substitutes for critical materials and finishes, component parts, and continued its research on biological equipment problems from service and transport conditions. It also tested all components and equipment developed in the other Signal Corps Engineering Laboratories and was responsible for design, development, and standardization of all test equipment.⁸⁹

In 1951 the laboratories at Fort Monmouth developed a new miniaturized radar beacon, carried into the atmosphere by a rocket, which aided in the observation of weather. One of the biggest successes occurred between 1950 and 1953 with the introduction of the AN/TPQ-3 and AN/TPQ-10 Automatic Artillery and Mortar Location Radars, both used in the Korean War.⁹⁰ The accelerated research and development program at Fort Monmouth during the early 1950s resulted in research laboratories that were immensely overcrowded. By 1952 the planned strength of personnel at the Signal Corps Research and Development Laboratories was 5,100; however, the existing laboratories had a maximum capacity of only 4,074 personnel.⁹¹ A new laboratory was planned to consolidate all laboratory activities and to provide space for the growing program. The building was to be constructed in at least four phases by three funding increments, similar to the funding program used for the Pentagon in Arlington, Virginia. The Army chose the Philadelphia architectural firm of Ballinger Co. to design the massive building. The Charles Woods Area was the chosen location for the new laboratory. The building, designed in the shape of a hexagon, was intended to become the largest facility of its kind in the United States. The laboratories located in Squier Laboratory moved to the new building, named the Albert J. Myer Center (colloquially as the Hexagon), in 1954.

The Signal School

In the early postwar years, the Signal School consisted of the Officer School, the Officer Candidate School, the Enlisted Men's School, Radar School, Extension Course Department, and the Signal Training Regiment. The demand for training through the Signal School decreased temporarily after the end of World War II, but soon student enrollment increased in all classes at the school, and night classes were established for some enlisted classes, particularly in the field of radar. The Radar School moved from Camp Edison to the 900 area of the Main Post in 1946. Building 915 held the AN/TPQ-3 and AN/TPQ-2 radar sets, and Building 911 held SO-type radar equipment.⁹² The demand for increased training was also met through the Extension Course Department, established in 1946, later renamed the Nonresident Instruction Department in 1952. Free extension courses were available to all officers, enlisted personnel, and qualified Department of Defense civilian employees in technical, tactical, logistical, and administrative subjects.⁹³

During the late 1940s a general improvement plan for Fort Monmouth was created. The largest components of the plan on the Main Post was the construction of a new Signal School complex, including the administration building, Myer Hall, for the Enlisted Department and six new 500-man permanent barracks on the northern side of the Avenue of Memories near the west gate of Fort Monmouth.⁹⁴ The main wing of the administration building was dedicated a few months later, in September 1953, in honor of the first Chief Signal Officer, Albert J. Myer, although the entire Myer Hall complex did not open officially until 1955. In 1955 the headquarters of the Signal School was moved from Russel Hall to the newly constructed Myer Hall, which provided more space and a central location for the school's administration.

Reorganization

Secretary of Defense Robert McNamara dramatically altered Fort Monmouth when the Army was reorganized in 1962. Fort Monmouth had housed the Signal Research and Development Labs, the Army Signal School, the Signal Radio Propagation Agency, and the Signal Materiel Support Agency for most of its history. McNamara's modernization plan

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 47

aimed to increase efficiency and reduce unnecessary overlap or duplication of effort. The result was the Army Materiel Command (AMC), created to oversee logistical work and research for the Army. Most of the functions of the old Signal Corps, Signal Corps laboratories, and the Office of the Chief Signal Officer were taken by an AMC subordinate, the U.S. Army Electronics Command (ECOM) based at Fort Monmouth.⁹⁵

The next major reorganization took effect in January 1978, splitting all research and development from materiel readiness functions. As a result ECOM was divided into three new organizations: ERADCOM (Electronics Research and Development Command) to handle electronics, CORADCOM (Communications Research and Development Command) for communications and automatic data processing, and AVRADA (Avionics Research and Development Activity) to deal with aviation matters. Materiel readiness was taken over by Communications Electronics Materiel Readiness Command (CERCOM). CERCOM and CORADCOM were headquartered at Fort Monmouth along with elements of ERADCOM, mostly at the Evans and Charles Woods areas. But by 1981 splitting materiel readiness and research and development was viewed as a mistake; CERCOM and CORADCOM were combined to form Communications-Electronics Command (CECOM) that year, with Fort Monmouth as headquarters.⁹⁶

In 1984 Squier Hall became the home of the U.S. Army Information Systems Management Activity (ISMA), which was a project management office of the Army Materiel Command, handling the acquisition and fielding of a variety of information and telecommunications systems. The activity improved the modernizing of communications systems not just for the Army, Navy, and Air Force, but also supported the State and Commerce departments, the National Security Agency, the Federal Aviation Administration, and foreign allied governments.⁹⁷

"Force Modernization"

By the 1980s activities at Fort Monmouth had evolved from the early years of the Cold War. Dr. Richard Bingham, Former CECOM/Fort Monmouth command historian, summed up the activity during the decade:

If a single phrase could be invoked to characterize research and development activities of the 1980s, it would be "Force Modernization" — the acquisition and fielding of powerful new weapon systems, largely based on technologies developed the previous decade. With automatic data processing systems, such as the Tactical Fire Direction System (TACFIRE), the All Source Analysis System (ASAS), and the Maneuver Control System (MCS), CECOM gave the American Soldier battlefield capabilities no other Army possessed. So did several new surveillance systems, including... GUARDRAIL....⁹⁸

The TACFIRE system "automated selected field artillery command and control functions to provide efficient management of fire support resources." New secure communications systems, including the Single Channel Ground and Air Radio System (SINCGARS), provided combat net radio communications with Electronic Countermeasures, or frequency hopping, and digital date capability. ASAS, an automated tactical intelligence system, correlated intelligence to commanders at the levels of division, corps, and above. Maneuver Control System (MCS) was a collection of computer equipment that provided battlefield information by "collecting, processing, and displaying data generated within air/land combat environment. Using this system, a commander could improve the timeliness of his or her decisions and allocate resources accordingly." GUARDRAIL/Common Sensor (GR/CS) was sent to Korea in 1988 to provide "a corps level airborne signals intelligence (SIGINT) collection/location system, providing near real time SIGINT and targeting information to tactical commanders throughout the corps area with emphasis on Deep Battle and Follow on Forces Attack support."⁹⁹

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 48

United States military emphasis shifted with the end of the Cold War in 1991. The end of the decades-long conflict led to a decrease in the size of armed forces, which had already begun during the late 1980s. The coming decade would bring new challenges to Fort Monmouth as it adapted to the challenges of continuing communications innovation with a smaller work force.

Digitizing the Battlefield and Realignment (1991-2011)

The Gulf War

As the United States Army began its air strikes against Iraq on January 17, 1991, marking the beginning of the Gulf War, CECOM struggled to ensure that Army forces had the communications and electronics equipment needed to liberate Kuwait. Although a number of units possessed up-to-date equipment, most had some incomplete or damaged systems. CECOM's Emergency Operations Center (EOC) had begun to operate 24 hours a day, seven days a week prior to the first strikes, beginning August 7, 1990. EOC served as the focal point for CECOM's efforts to supply soldiers with the equipment they needed during the fight. CECOM also fielded 1,318 personnel between July 1990 and February 1991 to equip units and provide them with operator and maintenance support training.

Among the first civilians to arrive in the war zone were the CECOM Logistics Assistance Representatives (LARs), who provided technical assistance to soldiers whenever they needed it. LARs lived in tents, eating, sleeping, and working alongside soldiers and participating in all the life support activities of their units. The role LAR played was a vital one, especially during the first days of Desert Shield/Desert Storm, when new troops arrived daily. They were to help off-load equipment, inspect it, and move it to holding or assigned areas. The task proved difficult because before one unit could be made fully operational, another would arrive and require immediate assistance. In the days leading up to the ground offensive, CECOM LAR worked tirelessly to prepare. In the 48 hours prior to the offensive, four LARs worked day and night to complete the installation of 47 SINCGARS radios in 1st Cavalry Division vehicles.

Keeping a sufficient supply of batteries during the Gulf War presented a major challenge for CECOM. Not only did wartime demands exceed peacetime stocks, the problem was worsened by the desert heat, which quickly sapped battery power. Battery producers worked round the clock through the conclusion of the ground war in March to produce more batteries. When supplies of the BA-3517 battery were critically short, a CECOM production engineer at Fort Monmouth developed a cable that allowed the M8 chemical alarm to use a vehicular power source. The cable was rushed into production, and 10,000 450-foot cables were produced by Federal Prison Industries in five weeks. Similarly, engineers created a cable used to provide power from vehicle batteries for GPS receivers. Eight hundred of these cables were assembled in five days by volunteers working 12 to 14 hours a day from the Center and the Concurrent Engineering Directorate at Fort Monmouth.

Digitizing the Battlefield

Although operations Desert Shield and Desert Storm were viewed, overall, as a success, they demonstrated the need for enhanced communications, more integration on the battlefield, and a better logistics infrastructure. The experience shaped a shift in military strategy in the coming years toward information dominance rather than overwhelming force.¹⁰⁰

The Army Chief of Staff defined the Army's role and mission to ensure victory: "to own the spectrum, to own the night, to know the enemy, and to digitize the battlefield."¹⁰¹ During the 1990s Fort Monmouth and CECOM played a vital role in meeting these goals. It did so with an overall loss of staff during the first five years of the decade, its military force dropping from 1,826 to 761 and civilians assigned at Fort Monmouth decreasing from 7,732 to 6,385. During 1994-1995

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 49

CECOM managed half of the Army's Advanced Technology Demonstrations, participating in a large number of the remaining half; owned nearly a quarter of all the Army's approved Science and Technology Objectives; and had the Army's most active Independent Research and Development programs.

Changes during the 1990s came, in part, from Base Realignment and Closure (BRAC), the goal of which was to balance forces and infrastructure. The first round of BRAC took place in 1988; Fort Monmouth was affected in 1991 when the Electronics Technology and Devices Lab of the Army Research Lab was moved from Fort Monmouth to Adelphi, Maryland. Further changes came with BRAC 1993, when the decision was made to realign activities at Fort Monmouth, disestablish Belvoir RDEC, and close the Vint Hill Farms Station (VHFS) in Virginia. Disestablishment of Belvoir RDEC meant that six business areas were moved to CECOM: Countermine, Low Cost Low Observables, Physical Security, Battlefield Deception, Electric Power, and Environmental Controls. The Chaplain Center and School was moved from Fort Monmouth to Fort Jackson, South Carolina. The Evans Area was closed and its occupants relocated to the Main Post and the Charles Woods Area.¹⁰²

As the twentieth century was coming to a close, the Army was deciding what its forces would look like in the new century. At the center was "digitization," the use of computers and digital transmission technologies to "link all an army's soldiers and equipment, giving commanders the ability to assess the disposition of friendly and enemy forces quickly with a glance at a flat-panel display, whether at headquarters or a forward command post." Army Acquisitions Executive Gilbert F. Decker explained the digitization effort and expected results:

The ability to dominate the battlefield or to conduct operations other than war efficiently will depend completely on having the pertinent information in the right hands at the right time. In military terms, this is often summarized as situation awareness. It seems clear to warfighters and technologists alike that if commanders and decision makers at every echelon of the Army are completely aware of their total situation at all times, they will react with a course of action that will place them inside the opposing forces' decision cycle. Thus, with numerically inferior forces, one can achieve combat leverage dominance.¹⁰³

The culmination of early battlefield digitization efforts was the Task Force XXI Advanced Warfighting Experiment, a project designed to turn the 4th Infantry Division into a prototype of the Force XXI Army, testing systems created in the 1990s in a "real world" environment. Two heavy battalions tested systems during exercises held at the National Training Center at Fort Irwin, California, in an attempt both to assess the technical aspects and understand how they would perform when used by soldiers in combat. CECOM made the project possible by solving technical problems as they were discovered and by supplying troops with equipment and software. Through Force XXI and digitization efforts, CECOM's products were a part of every army system. Its most important contribution was integrating Army communications by creating a set of "building code" standards for all new systems.

Among the many technical achievements of CECOM was the state-of-the-art wideband receiver/downconverter for communications intercept. It delivered five times the performance with one-hundredth the size and one-thirtieth the weight of previous technology. Others included a Guardrail/Common Sensor system together with a Grounded Tethered Satellite Relay, which detected enemy radar and radio signals, tracked the signals to their source, and relayed the information to commanders on the battlefield; a Close-in Manportable Mine Detector ATD (Advanced Technology Demonstration); a Radar Deception and Jamming ATD; and the Asynchronous Transfer Mode (ATM), which could be integrated into a division's Mobile Subscriber Equipment (MSE) network to provide video teleconferencing and multi-media capability.¹⁰⁴

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 50

Joint Endeavor

Prior to U.S. troop deployment to Bosnia for Joint Endeavor, CECOM had been involved for two and a half years planning for and supporting military operations in the Balkans. It prepared estimates of communications equipment needed to rearm Bosnian Muslim forces for Operation Able Sentry and was involved in advanced planning for large-force operations in Bosnia and Croatia. New mine detection and destruction technology was developed to deal with the vast number of mines in Bosnia. Countermine systems included ground-penetrating radar that was mounted on the front of a vehicle and could detect buried, on-road, anti-personnel, and anti-vehicular mines. A remote-controlled, vehicle-mounted mine detection system prototype was developed for Bosnia that consisted of a metal detector, an infrared camera, and the ability to transmit video to a control vehicle.

During Joint Endeavor CECOM worked to overcome compatibility problems between U.S. and Coalition forces' communications, creating, for example, a communications controller that acted as a "handshake" between U.S. and British systems.¹⁰⁵ As the trend toward coalition warfare continued into the twenty-first century, CECOM worked to ensure that communications systems could work with those of coalition forces. A Joint Contingency Force Advanced Warfighting Experiment held at Fort Polk, Louisiana, in September 2000 established how digitization of light forces would increase lethality, survivability, and operation tempo. CECOM was heavily involved, especially in the aircraft testing of its En-route Mission Planning and Rehearsal System, which allowed troops to retain situational awareness while in the air. It "provided a template for airborne soldiers not just to change any aspect of their upcoming operation but to 'rehearse it' and determine how likely these alterations would be to affect the success of the mission."¹⁰⁶

A New Century

In the wake of the September 11, 2001 terrorist attacks, the first direct attack on American soil since Pearl Harbor, Fort Monmouth assumed a new role in the recovery and the resulting new military climate. The change was visible at the base, as gates were closed and access limited in response to the new threat level. Employees volunteered to check identification cards at the gates until reservists were activated as part of homeland defense Operation Noble Eagle. CECOM was brought in to help with the rescue and recovery efforts at the World Trade Center site: the world's smallest infrared camera, developed by CECOM, was attached to a PVC pipe and used to search through rubble; a laser Doppler vibrometer was used to judge the structural stability of buildings; and electronic listening devices were used to detect 911 distress calls made from cellular phones. At the Pentagon CECOM deployed a task force to install a communications infrastructure for 4,500 displaced workers and coordinated with the Pentagon renovation office to provide engineering and renovation support for Pentagon Rebuild (the Phoenix Project).

Beyond the immediate after-effects of the attacks, homeland security was one of CECOM's top objectives in the following months, ensuring better communications, more integrated response plans, and quicker response times. As part of Operation Enduring Freedom in Afghanistan and the Global War on Terror, Fort Monmouth deployed military and civilian personnel. Items in high demand included lithium batteries, Firefinder radars, and night vision equipment. CECOM's "phraselator," developed at Fort Monmouth in cooperation with DARPA, translated English voices into Dari, Pashto, Arabic, and other languages using fixed phrases from force protection and medical domains. The phraselator proved critical as there were not enough trained linguists to meet translating needs.¹⁰⁷

Preparations for military operations in Iraq began in October 2002 by forming the Anticipatory Logistics Cell (ACL) to identify potential spare and repair part shortfalls. Fort Monmouth fielded and maintained a variety of equipment, managing half of the nationally stock-numbered items in Army inventory, including frequency hopping tactical radios, satellite-linked computers inside vehicles, sophisticated sensors, and electronic jamming systems. As in other armed

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 51

conflicts, technology was provided to improve communications. Blue Force Tracking and the Force XXI Battle Command Brigade and Below Command Control System virtually eliminated friendly fire incidents by giving commanders increased situational awareness on the battlefield and enabling them to synchronize their forces. The Lightweight Counter Mortar Radar-Army, developed in 2004, provided 360 degrees of coverage and was used to detect, locate, and report locations of enemy indirect firing systems.¹⁰⁸

CECOM was once again realigned when a memorandum of agreement was signed on August 2, 2004, to formally establish the Life Cycle Management Initiative. The initiative enabled a closer relationship between AMC; Major Subordinate Commands that direct the activities of numerous depots, arsenals, ammunition plants, laboratories, test activities, and procurement operations; and Program Executive Officers. AMC systems-oriented major subordinate commands such as CECOM were aligned with the Program Executive Offices with whom they worked, resulting in the formation of the Communications-Electronics Life Cycle Management Command. Its name changed in 2007 to CECOM Life Cycle Management Command (CECOM LCMC). The change aimed to create a unified vision across the acquisition, research, development, and sustainment communities.

BRAC 2005, the End of an Era at Fort Monmouth

BRAC 2005, authorized in the National Defense Authorization Act for fiscal year 2002, marked the beginning of the end for Fort Monmouth. Despite aggressive state and local lobbying, the BRAC Commission approved the Department of Defense recommendation to close Fort Monmouth and realign CECOM LCMC elements at Fort Monmouth to Aberdeen Proving Ground, Maryland. The transition of the workforce was to take place by 2011.¹⁰⁹

Seventy-five years after the completion of Russel Hall and the end of the permanent construction program at Fort Monmouth, the residences, administrative, and support buildings from that period continued to define the Main Post and were still in use until 2010-2011. Up until the closure of the base, Russel Hall served as the Garrison Headquarters for Fort Monmouth and Squier Hall housed the Program Executive Office for Enterprise Information systems (PEO EIS) and the Defense Information Systems Agency (DISA).

To facilitate the transition of Fort Monmouth land back into the community, the Fort Monmouth Economic Revitalization and Planning Authority was created. The final plan called for a variety of new uses for the land. The Charles Woods Area would include mixed-income housing, a conference hotel and golf course, the Myer Center as a mixed-use technology and research and development facility, and a town center for Tinton Falls. The Main Post plan would become mixed-income housing and retail and office space.

Fort Monmouth's closing, although the end a century-long chapter in the history of Oceanport, New Jersey, does not mean that its legacy will be lost or forgotten. Although the contributions made at Fort Monmouth during that time are too numerous to recount in full, they were instrumental in the success of the nation in almost every major twentieth-century military campaign. The hard work, dedication, and inventiveness of its employees have saved countless lives and enriched the lives of Americans as their innovations have become part of mainstream consumer technology and everyday life.

¹ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth, New Jersey 1917-2007* (Fort Monmouth, N.J.: Office of the Deputy Chief of Staff for Operations and Plans, U.S. Army CECOM Life Cycle Management Command, 2008), 24.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 52

- ² Roger B. Colton, "Radar in the United States Army: History and Early Development at the Signal Corps Laboratories, Fort Monmouth, N.J.," *Proceedings of the Institute of Radio Engineers*, No 331 (November 1945): 740.
- ³ Camp Evans was listed as a National Historic Landmark in 2012 for its role in the development of radar (Raymond C. Watson, Jr. and Robie S. Lange, Camp Evans, National Historic Landmark Nomination, 2012).
- ⁴ Office of the Construction Quartermaster, "Completion Report on Signal Corps Laboratory," November 15, 1935, Record Group 77, Entry 393, National Archives and Records Administration, College Park, Maryland.
- ⁵ Office of the Construction Quartermaster, "Completion Report on Signal Corps Laboratory," November 15, 1935, Record Group 77, Entry 393, National Archives and Records Administration, College Park, Maryland.
- ⁶ Arthur L. Vieweger and Albert S. White, "Development of Radar SCR-270" (n.d.) accessed on November 25, 201 <<http://cecom.army.mil/historian/docdisp.php?fname=vieweger-scr-270.pdf&dirname=Equipment+and+Systems%2FSCR+270>>, 19.
- ⁷ Lawrence Galton and Harold J. Wheelock, *A History of Fort Monmouth New Jersey 1917-1946* (Fort Monmouth, NJ: Signal Corps Publication Agency, 1946), 74.
- ⁸ Dulaney Terrett, *The United States Army in World War II, The Technical Services, The Signal Corps: The Emergency (to December 1941)*, (Washington, D.C.: Center for Military History, United States Army, 1956), 45-48.; CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth, New Jersey 1917-2007* (Fort Monmouth, New Jersey: U.S. Army CECOM Life Cycle Management Command, 2008), 13.
- ⁹ Colton, 742.
- ¹⁰ Terrett, 46.
- ¹¹ Harold A. Zahl, *Electrons Away Or Tales of a Government Scientist* (New York: Vantage Press, 1968), 42-46.
- ¹² Zahl, 52-57.
- ¹³ Vieweger and White, 20-21.
- ¹⁴ Zahl, 2-3.
- ¹⁵ "Squier Signal Laboratory," March 1950, on file, CECOM Life Cycle Management Command, Historical Office, Aberdeen, Maryland.
- ¹⁶ Watson and Lange, 15.
- ¹⁷ United States Congress, House Committee on Military Affairs, Sale of Surplus Real Estate by War Department, Hearings on SS.129 and H.R.47, 69th Congress, 1st Session, 7 January 1926, 7.
- ¹⁸ Erna Risch, *The Quartermaster Support of the Army, A History of the Corps: 1775-193* (Washington, D.C.: Center of Military History, United States Army, 1989), 713-714.
- ¹⁹ Risch, 715.
- ²⁰ Katherine Grandine, "Fort Monmouth Historic District National Register Nomination, Draft," May 1993, in R. Christopher Goodwin, "National Historic Context for Department of Defense Installations, 1790-1940," Volume IV (August 1995), accessed on March 3, 2011 at <http://aec.army.mil/usaec/cultural/nhc_04.pdf>.
- ²¹ George B. Ford, "New Army Posts for Old: A New Design and Layout for Army Posts and Fields," *The Quartermaster Review* (November-December 1929), 19.
- ²² H.B. Nurse, "The Planning of Army Posts, *The Quartermaster Review* (September-October 1928), 15.
- ²³ Nurse, 15.
- ²⁴ Paul Chattey et al., "Context Study of the United States Quartermaster General Standardized Plans 1866-1942," prepared for the U.S. Environmental Center, Environmental Compliance Division, Aberdeen Proving Ground, Maryland (Seattle: United States Army Corps of Engineers, Seattle District, November 1997), 54.
- ²⁵ Nurse, 15.
- ²⁶ Grandine, xxxv.
- ²⁷ Ford, 19.
- ²⁸ Ford, 19.
- ²⁹ Rebecca Robbins Raines, *Getting the Message Through: A Branch History of the U.S. Army Signal Corps* (Washington, D.C.: Center of Military History, United States Army, 1996), 5-7, 10.
- ³⁰ Raines., 43
- ³¹ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 1.
- ³² "Signal Corps Recruiting," *New York Times*, 17 June 1917.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 53

³³ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 3.

³⁴ Raines, 176, 180.

³⁵ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 4.

³⁶ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 6.

³⁷ Raines, 49-52.

³⁸ Raines, 7-8.

³⁹ United States Congress, House Committee on Military Affairs, Sale of Surplus Real Estate by War Department, Hearings on SS.129 and H.R.47, 69th Congress, 1st Session, 7 January 1926, 7.

⁴⁰ Risch, 713-714.

⁴¹ Risch, 715.

⁴² Grandine, xxxv.

⁴³ Ford, 19.

⁴⁴ Ford, 19.

⁴⁵ Nurse, 14.

⁴⁶ Nurse, 15.

⁴⁷ Nurse, 15.

⁴⁸ Chattey et al., 54.

⁴⁹ Nurse, 15.

⁵⁰ Ford, 19.

⁵¹ Ford, 19.

⁵² Ford, 19.

⁵³ U.S. Congress, House of Representatives, Emergency Relief Bill (72nd Congress, 1st Session, Ex. Report No. 1760), 11; U.S. Congress, Senate, Public Works Administration, A Letter from the Administrator of Public Works (73rd Congress, 2nd Session, Ex. Doc. No. 167), 41-42; Chrissie Reilly, *Brother Can You Spare a Dime?* (Fort Monmouth, N.J.: CECOM LCMC Historical Office), accessed online November 18, 2010, at [#http://cecom.army.mil/historian/pubArtifacts/Articles/2009-03-16_1125-FILE-Brother_Can_You_Spare_a_Dime_WPA.pdf](http://cecom.army.mil/historian/pubArtifacts/Articles/2009-03-16_1125-FILE-Brother_Can_You_Spare_a_Dime_WPA.pdf).

⁵⁴ Francis B. Wheaton, "The Architecture of the Army Post," *The Quartermaster Review* (September-October 1929), 10.

⁵⁵ Building Technology Incorporated [BTI], *Historic Properties Report, Fort Monmouth, New Jersey, and Sub installations, Charles Wood Area and Evans Area. Final Report* (Silver Spring, Md., 1984), 30.

⁵⁶ Chattey et al., 48, 295.

⁵⁷ Wheaton, 11.

⁵⁸ Wheaton, 11.

⁵⁹ Wheaton, 11.

⁶⁰ Wheaton, 11.

⁶¹ "Squier Signal Laboratory."

⁶² "Squier Signal Laboratory."

⁶³ Stephen Sennott, ed., *Encyclopedia of Twentieth Century Architecture* (New York: Fitzroy Dearborn, 2004), 326.

⁶⁴ "R.P. Rodgers, Architect, Dies," *Washington Post*, 6 June 1934, 16; Sarah Allaback, *Mission 66 Visitors Centers: A History of a Building Type* (Washington, D.C.: U.S. Department of the Interior, National Park Service, 2000), accessed online February 20, 2011, at [#http://www.cr.nps.gov/history/online_books/allaback/vc2.htm](http://www.cr.nps.gov/history/online_books/allaback/vc2.htm).

⁶⁵ "Alfred Easton Poor, Architect," *The New York Times*, 16 January 1988.

⁶⁶ "Sixty Foot Granite Memorial Now Towers High Above Sea Level On Scene of Man's Victory Over Air," *The Daily Advance* (Elizabeth City, N.C.), 18 November 1932.

⁶⁷ CECOM LCMC Historical Office, *Landmarks, Memorials, Buildings & Street Names of Fort Monmouth, New Jersey and the U.S. Army CECOM Life Cycle Management Command* (Fort Monmouth, N.J.: CECOM LCMC Historical Office, 2009), 17.

⁶⁸ Sandra L. Tatman, and Roger W. Moss, *Biographical Dictionary of Philadelphia Architects 1700-1930* (Boston: G.K. Hall & Co., 1985), 755-756.

⁶⁹ *Signal Corps Walkie-Talkie...Past, Present, & Future* (Fort Monmouth, NJ: Signal Corps Engineering Laboratories, ca. 1951).

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 54

⁷⁰Frederic Louis Huidekoper, *Illinois in the World War Volume II: The History of the 33rd Division A.E.F.* (Springfield, IL: Illinois State Historical Library, 1921), 391-92.

⁷¹Richard J. Thompson, Jr., "The Development of the Quartz Crystal Oscillator Industry of World War II," *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 52, No. 5 (May 2005), 697.

⁷²CECO NCMC Historical Office, *A History of Army Communications and Electronics*, 12.

⁷³Raines, 49-52.

⁷⁴Melissa Ziobro, "Fort Monmouth Drafted Local Sites, Including Famed Asbury Park Convention Hall," *Monmouth Message*, 8 June 2007.

⁷⁵Office of the Public Relations Officer, *Fort Monmouth Today: An Outline of the Principal Activities of the Only Signal Corps Post*, (Fort Monmouth, New Jersey, 1941), 3.

⁷⁶Office of the Public Relations Officer, 9.

⁷⁷CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 21.

⁷⁸Office of the Public Relations Officer, 10-15.

⁷⁹Galton and Wheelock, 89.

⁸⁰Helen C. Phillips, *United States Army Signal School, 1919 - 1967* (Fort Monmouth, NJ: U.S. Army Signal Center and School, 1967), 194.

⁸¹Office of the Public Relations Officer, 15-16.

⁸²Office of the Public Relations Officer, 2-3.

⁸³Nolte et al., *Installation Cold War Inventory and Assessment, Fort Monmouth*. Prepared for U.S. Army Corps of Engineers, Southwest Division, Fort Worth District (April 2003), 3-23.

⁸⁴Signal Corp Engineering Laboratories, *SCEL Annual Review, Fiscal Year 1951*, on file CECOM LCMC Historical Office, Aberdeen, Maryland.

⁸⁵CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 27-28.

⁸⁶Nolte et al., 2-4.

⁸⁷CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 31.

⁸⁸CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 32.

⁸⁹"The Mission and Early History of the Signal Corps Engineering Laboratories," ca. 1950, on file CECOM LCMC Historical Office, Aberdeen, Maryland.

⁹⁰CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 36.

⁹¹U.S. Congress, House of Representatives Subcommittee on Appropriations, Military Public Works Appropriations from 1952, 82nd Congress, 1st Session, 1951.

⁹²Phillips, 195.

⁹³Phillips, 289.

⁹⁴Robert Werdig, "1st Bn. Planning A House Warming At New Barracks" *Monmouth Message* (June 23, 1953).

⁹⁵M.B. Reed, M. Swanson, R. Proctor, and M. Prior, *Evaluation of Selected Cultural Resources at Fort Monmouth, New Jersey: Context for Cold War Era, Revision of Historic Properties Documentation, and Survey of Evans Area and Sections of Camp Charles Wood* (Draft) (Prepared for U.S. Army Corps of Engineers, Fort Worth District, November 1995), 52.

⁹⁶Reed et al., 55-56.

⁹⁷CECOM Historical Office, *A History of Army Communications and Electronics*, 53-54.

⁹⁸CECOM Historical Office, *A History of Army Communications and Electronics*, 53-54.

⁹⁹Melissa Ziobro, *Cold War Competition Heats Up Innovation at Fort Monmouth* Parts 1-3 (available at the CECOM LCMC Historical Office, Aberdeen, Maryland).

¹⁰⁰CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 57-60.

¹⁰¹CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 61.

¹⁰²CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 63-66.

¹⁰³CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 70-76.

¹⁰⁴CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 70-76.

¹⁰⁵CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 88-90.

¹⁰⁶CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 97.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 8 Page 55

¹⁰⁷ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 97-99.

¹⁰⁸ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 103-107.

¹⁰⁹ CECOM Historical Office, *A History of Army Communications and Electronics at Fort Monmouth*, 101-103.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 9 Page 56

BIBLIOGRAPHY

"Alfred Easton Poor, Architect." *The New York Times*, 16 January 1988.

Allaback, Sarah. *Mission 66 Visitors Centers: A History of a Design Type*. Washington, D.C.: U.S. Department of the Interior, National Park Service, 2000.

Building Technology Incorporated [BTI]. *Historic Properties Report, Fort Monmouth, New Jersey, and Sub installations, Charles Wood Area and Evans Area. Final Report*. Silver Spring, Maryland, 1984.

CECOM Historical Office. *A History of Army Communications and Electronics at Fort Monmouth, New Jersey 1917-2007*. Fort Monmouth, N.J.: Office of the Deputy Chief of Staff for Operations and Plans, U.S. Army CECOM Life Cycle Management Command, 2008.

CECOM LCMC Historical Office. *Landmarks, Memorials, Buildings & Street Names of Fort Monmouth, New Jersey and the U.S. Army CECOM Life Cycle Management Command*. Fort Monmouth, N.J.: CECOM LCMC Historical Office, 2009.

Chattey, Paul et al. "Context Study of the United States Quartermaster General Standardized Plans 1866-1942," prepared for the U.S. Environmental Center, Environmental Compliance Division, Aberdeen Proving Ground, Maryland. Seattle: United States Army Corps of Engineers, Seattle District, November 1997.

Ford, George B. "New Army Posts for Old: A New Design and Layout for Army Posts and Fields." *The Quartermaster Review* (November-December 1929):19-22.

Galton, Lawrence and Harold J. Wheelock. *A History of Fort Monmouth New Jersey 1917-1946*. Fort Monmouth, NJ: Signal Corps Publication Agency, 1946.

Grandine, Katherine. "Fort Monmouth Historic District National Register Nomination, Draft," May 1993. Found in R. Christopher Goodwin, "National Historic Context for Department of Defense Installations, 1790-1940," Volume IV, August 1995, accessed online March 3, 2011, at http://aec.army.mil/usaec/cultural/nhc_04.pdf.

Groesbeck, Sarah, and Patti Kuhn. *Watchful for the County: A History of Fort Monmouth, New Jersey*. Prepared for the U.S. Army Corps of Engineers, Mobile District, by The Louis Berger Group, Inc., Washington, D.C., 2011.

Huidekoper, Frederic Louis. *Illinois in the World War Volume II: The History of the 33rd Division A.E.F.* Springfield, IL: Illinois State Historical Library, 1921.

"The Mission and Early History of the Signal Corps Engineering Laboratories," ca. 1950. On file CECOM LCMC Historical Office, Aberdeen, Maryland.

Nolte, Kelly, Mark Steinbeck, and Frank Schieppati. *Installation Cold War Inventory and Assessment, Fort Monmouth*. Prepared for U.S. Army Corps of Engineers, Southwest Division, Fort Worth District, April 2003).

Nurse, H.B. "The Planning of Army Posts." *The Quartermaster Review* (September-October 1928):14-16.

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 9 Page 57

- Office of the Public Relations Officer. *Fort Monmouth Today: An Outline of the Principal Activities of the Only Signal Corps Post*. Fort Monmouth, New Jersey, 1941.
- Phillips, Helen C. *United States Army Signal School, 1919 – 1967*. Fort Monmouth, NJ: U.S. Army Signal Center and School, 1967.
- Raines, Rebecca Robbins. *Getting the Message Through: A Branch History of the U.S. Army Signal Corps*. Washington, D.C.: Center of Military History, United States Army, 1996.
- Reilly, Chrissie. *Brother Can You Spare a Dime?* Fort Monmouth, N.J.: CECOM LCMC Historical Office. Accessed online November 18, 2010, at http://cecom.army.mil/historian/pubArtifacts/Articles/2009-03-16_1125-FILE-Brother_Can_You_Spare_a_Dime_WPA.pdf.
- Reed, M.B., M. Swanson, R. Proctor, and M. Prior. *Evaluation of Selected Cultural Resources at Fort Monmouth, New Jersey: Context for Cold War Era, Revision of Historic Properties Documentation, and Survey of Evans Area and Sections of Camp Charles Wood* (Draft). Prepared for U.S. Army Corps of Engineers, Fort Worth District, November 1995.
- Risch, Erna. *The Quartermaster Support of the Army. A History of the Corps: 1775-1939*. Washington, D.C.: Center of Military History, United States Army, 1989.
- "R.P. Rodgers, Architect, Dies." *Washington Post*, 6 June 1934.
- "Signal Corps Recruiting." *The New York Times*, 17 June 1917.
- Signal Corp Engineering Laboratories. *SCEL Annual Review, Fiscal Year 1951*. On file CECOM LCMC Historical Office, Aberdeen, Maryland.
- Signal Corps Walkie-Talkie...Past, Present, & Future*. Fort Monmouth, NJ: Signal Corps Engineering Laboratories, ca. 1951.
- "Sixty Foot Granite Memorial Now Towers High Above Sea Level On Scene of Man's Victory Over Air." *The Daily Advance* (Elizabeth City, N.C.), 18 November 1932.
- "Squier Signal Laboratory," March 1950. On file, CECOM Life Cycle Management Command, Historical Office, Aberdeen, Maryland.
- Tatman, Sandra L., and Roger W. Moss. *Biographical Dictionary of Philadelphia Architects 1700-1930*. Boston: G.K. Hall & Co., 1985.
- Terrett, Dulaney. *The United States Army in World War II, The Technical Services, The Signal Corps: The Emergency (to December 1941)*. Washington, D.C.: Center for Military History, United States Army, 1956.
- Thompson, Jr., Richard J. "The Development of the Quartz Crystal Oscillator Industry of World War II." *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 52, No. 5 (May 2005).

United States Department of the Interior
National Park Service

National Register of Historic Places

Continuation Sheet

Fort Monmouth Historic District
Monmouth County, NJ

Section number 9 Page 58

- U.S. Congress, House Committee on Military Affairs. Sale of Surplus Real Estate by War Department, Hearings on SS.129 and H.R.47, 69th Congress, 1st Session, 7 January 1926, p. 7.
- U.S. Congress, House of Representatives. Emergency Relief Bill, 72nd Congress, 1st Session, Ex. Report No. 1760.
- U.S. Congress, House of Representatives Subcommittee on Appropriations, Military Public Works Appropriations from 1952, 82nd Congress, 1st Session, 1951.
- U.S. Congress, Senate. Public Works Administration, A Letter from the Administrator of Public Works, 73rd Congress, 2nd Session, Ex. Doc. No. 167.
- Vieweger, Arthur L. and Albert S. White. "Development of Radar SCR-270" (n.d.) " accessed on November 25, 2013 at <<http://cecom.army.mil/historian/docdisp.php?fname=vieweger-scr-270.pdf&dirname=Equipment+and+Systems%2FSCR+270>>.
- Werdig, Robert. "1st Bn. Planning A House Warming At New Barracks" *Monmouth Message*, June 23, 1953.
- Wheaton, Francis B. "The Architecture of the Army Post." *The Quartermaster Review* (September-October 1928):10-13.
- Zahl, Harold A. *Electrons Away Or Tales of a Government Scientist* (New York: Vantage Press, 1968), 42-46.
- Ziobro, Melissa. "Fort Monmouth Drafted Local Sites, Including Famed Asbury Park Convention Hall." *Monmouth Message*, 8 June 2007.
- Cold War Competition Heats Up Innovation at Fort Monmouth* Parts 1-3. Available at the CECOM LCMC Historical Office, Aberdeen, Maryland.