# Preservation Master Plan

Virginia Military Institute

Lexington, Virginia

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## **Preservation Master Plan**
Virginia Military Institute

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# EXECUTIVE SUMMARY

The history of the Virginia Military Institute (VMI) has a significant impact on the state of the Institute today; this is evident in its architecture, landscape, culture, and traditions. The VMI Post is recognized as a National Historic District and the Barracks is a National Historic Landmark. Like so many institutions with long and identifiable histories, VMI has embraced its past and recognizes that preserving its physical character is an important aspect of protecting the integrity of the Post for future cadets, faculty, staff, and visitors to enjoy and learn from.

In recognition of VMI dedication to preservation and its historical roots, the Institute was awarded a Campus Heritage Grant from the Getty Foundation in 2005. The purpose of the grant was to develop a *Preservation Master Plan* for the Post that identified existing conditions of historic resources; made recommendations for preserving and protecting those resources; developed strategies for integrating preservation into Post-wide decision-making; and produced guidelines for caring for and maintaining the historic resources of the Post. Additional guidelines for incorporating new development and considerations into the historic landscape were also included.

John Milner Associates, Inc. (JMA) was selected by VMI to prepare the *Preservation Master Plan* to assist the Institute in managing change and protecting significant historic resources. All recommendations included within the Plan are based on established preservation planning principles, as well as the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and *Guidelines for the Treatment of Cultural Landscapes.*

The report begins with a detailed history of VMI, dating back to its origins as the Lexington Arsenal. Historic periods associated with the development of the Institute are included, as is a statement of VMI's historical significance. The next section identifies a preservation approach for VMI, including an overview of the *Secretary of the Interior's Standards* and common preservation treatments and terms.

Subsequent sections represent the true crux of the *Preservation Master Plan*, beginning with an existing conditions assessment of all historic buildings and landscapes on the Post. Six character areas were identified to assist in the organization of various Post resources, based on their history, character, and existing conditions. The existing conditions analysis concluded that while some resources retain high integrity and are in good condition, some other buildings and landscape resources are in various states of disrepair. A lack of regular, cyclical maintenance and attention has resulted in a loss of historic materials, structural problems, and unsafe conditions in some areas. The existing conditions analysis provides VMI with a solid understanding of where they are today with respect to caring for historic resources and provides the basis for the development of subsequent Treatment Guidelines.

Treatment guidelines were prepared for both the Institute's landscapes and historic buildings; they are intended to provide guidance to ensure that current issues do not lead to larger problems in the future, and to assist Physical Plant staff in caring for historic resources on Post.

The treatment guidelines for landscapes focus on preserving the existing historic character, as well as re-establishing historic elements of the Post that have been lost or degraded through the years. Specific recommendations looked at the Parade Ground, Faculty Row, Academic Row, North Post, South Post, and Jordan's Point. Defining and improving the Main Street corridor was a primary concern and objective. Re-establishing the design intentions of the Post's early site planners, A. J. Davis and Bertram Goodhue, were also key components of the landscape recommendations.

The treatment guidelines for historic buildings focus on ensuring that regular, cyclical maintenance be undertaken in order to preserve and protect the integrity of the existing buildings. The Post is well known for its Gothic Revival architectural style, and maintaining the integrity of this style and the extant buildings designed by Davis and Goodhue is an important objective of VMI. The guidelines look specifically at caring for historic building materials common to the Post, such as masonry, as well as best-practice techniques for preserving and protecting specific building features, including historic doors and windows. An overall lack of preventative maintenance is one of the most widespread problems at VMI.

Guidelines for incorporating new construction and building additions were also addressed, as they are a significant issue for VMI. New construction projects proposed on the Post have the potential to detract significantly from its historic character, due to incompatible building design and insensitive site planning. The *Preservation Master Plan* offers general guidance for assessing new projects, and also considers the impacts of specific projects, including the proposed Field House and Aquatic Centers and Barracks expansion.

VMI clearly has significant challenges in maintaining and preserving its architectural legacy and some of the problems begin with the management policies and procedures associated with decision-making on Post. Because administrative and management processes are so important to the future protection of historic resources on Post, the final section of the *Preservation Master Plan* is dedicated to identifying how VMI's current processes could be improved to more effectively consider preservation-related issues.

The *Preservation Master Plan* should be viewed as a complement to the existing *Vision 2039 Plan* and *Post Facilities Master Update* which have been widely reviewed and circulated on Post. The *Preservation Master Plan* will ideally play a direct role in future planning efforts on Post and will be used as an informational tool by members of the VMI staff as they consider how best to care for, maintain, and preserve the irreplaceable historic resources which exist. The Plan provides VMI with a solid framework for fulfilling its stewardship goals and objectives in the area of historic preservation.

# CHAPTER 1
# PROJECT OVERVIEW

## Background and Purpose

With roots that can be traced back to the construction of the Lexington Arsenal prior to the Civil War, VMI is one of the oldest and most influential state-supported military school in the United States. The Post includes a rich collection of significant architectural and landscape resources. Built upon a low ridge overlooking the Maury River and the City of Lexington, the Virginia Military Institute has a dramatic natural setting that is both picturesque and idyllic. The physical landscape and distant views of the mountains are a natural backdrop to the stately Gothic Revival style buildings that define the Parade Ground and the Post. The Institute's academic excellence and military achievements contribute further to its distinguished reputation.

*Stono, as it appeared circa 1894*

In 1974 the Virginia Military Institute Historic District was defined to include the Parade Ground, the nineteenth and twentieth century buildings located around its perimeter, and residential buildings located along Letcher Avenue between the Institute and Washington and Lee University. The district is listed in the National Register of Historic Places and has been identified as a National Historic Landmark. The Barracks building is also individually listed as a National Historic Landmark and Stono is individually included in the National Register of Historic Places. The designation of the VMI Historic District, as well as the individual listings of two Post buildings, is evidence of the Post's historical and architectural legacy.

With ties to A.J. Davis, Bertram Goodhue, and John Jordan, among others, the VMI Post boasts a historic architectural legacy that begins with the origins of the Gothic Revival collegiate style of building and design. When considered in combination with the National Historic Landmark designation of the Washington and Lee University campus directly to the west and the National Register district for the City of Lexington, there is a sizable land area around VMI that is directly related to its own history and development. The interconnectedness of the Post, Washington and Lee, and Lexington can be traced back to the historical development of the region; this developmental history is key to defining the character and significance of VMI.

VMI is mindful of its legacy, both as a military institute and as a living museum of architectural excellence. The Institute understands that preserving and promoting that legacy is directly tied to the quality and care that is tendered to its physical shape and appearance. Changing the character of the physical environment of the Post would result in the loss of VMI's history and integrity. Although its primary function is to educate cadets and accommodate their day-to-day lives, the VMI Post has long been an attraction to visitors interested in seeing the unique collection of buildings and landscapes. The image and character of the buildings and landscapes is meaningful and important to not only the cadets, alumni and staff, but also to visitors.

As VMI embarks on an ambitious development and expansion plan for the Post, Institute leaders and staff acknowledged that they needed to ensure that their vision for the future VMI did not negatively impact any of its past. VMI's struggles and achievements are interwoven into the buildings and landscapes of the Post, and maintaining their legacy and character is key to securing their future.

In the summer of 2005, VMI was awarded a campus heritage grant from the Getty Foundation to prepare a *Preservation Master Plan* for the Post. The *Preservation Master Plan* is intended to help VMI identify approaches and solutions to changes on Post that are sensitive to its historic context. When done correctly, it is possible to accommodate change and growth while also preserving and enhancing important pieces of the past. The final *Preservation Master Plan* for VMI is intended to be a guide to promote the on-going stewardship of the Post's historic resources; it defines a flexible approach to decision-making, ensuring preservation issues and values are considered when design, development, and maintenance decisions are made. Implementation of the *Preservation Master Plan* assures that the values associated with historic preservation will enhance the character of the Post as it continues to change and evolve.

In preparing the *Preservation Master Plan*, John Milner Associates, Inc. inventoried existing historic resources, identified character-defining features of the Post's buildings and landscapes, and recommended treatments for their short- and long-term care and maintenance. Design guidelines have been developed to address specific topic areas associated with buildings, landscapes, and new Post development.

## Historic Preservation at VMI

The historical development of VMI begins in the early nineteenth century with the establishment of the Lexington Arsenal and includes six distinct periods of development – each of which contributed to the configuration of the Post, as well as significant buildings and landscape features. Chapter 2 of the *Preservation Master Plan* provides a detailed overview of the historical development of the VMI Post. This development has influenced historic preservation efforts at VMI throughout history.

The earliest period of development at VMI saw the establishment of the Lexington Arsenal which, twenty years later, became the basis for the Virginia Military Institute. Today, only one building, the Old Hospital, remains as a remnant of the Lexington Arsenal period. The mid-nineteenth century at VMI was shaped largely on the efforts of Alexander Jackson Davis, who first brought the Gothic Revival style of architecture to this ridgetop site. His first commission at VMI was to construct the Barracks; this was followed by the development of two officer's quarters sited to take advantage of the views of

Woods Creek, as well as a Porter's Lodge and Mess Hall. Today, this period is represented by three surviving Davis buildings. However, Davis' original site plan and the re-location of two of his original buildings has altered the landscape from this period.

During the Civil War, construction was essentially halted at VMI, as the Institute suffered from many cadet and faculty casualties. In 1864 the war arrived at VMI's doorstep and after a four day occupation, VMI was left in ruins; only four buildings survived the occupation. Although A. J. Davis prepared plans for rebuilding VMI after the war, his vision was never implemented. However, this did not impact a rebuilding campaign that stretched from the late-nineteenth century to the early-twentieth century. Today, sixteen existing buildings represent the post-Civil War growth of VMI.

The early twentieth century welcomed Bertram Goodhue to VMI; he was charged with the role of developing an overall site design concept for the Post, as no comprehensive site planning had taken place since Davis' work prior to the Civil War. Consistent with the Beaux Arts tradition popular at this time, Goodhue's vision defined a new main entrance to the Post and focused on circulation and creating major north-south and east-west axes, as well as developing more formal landscaped areas. Goodhue built three new quarters along VMI Parade, expanded the Parade Ground, and constructed Jackson Memorial Hall. Although his plan was never fully implemented, his legacy is still evident on the Post today with a reconfigured Barracks and larger, level Parade Ground.

Post-Goodhue construction has not closely followed the original design intentions of Goodhue. The expansion of the Post, particularly along the Main Street corridor, has resulted in new academic and residential buildings, the demolition of historic buildings and landscapes, changes to older buildings, and the construction of new, large-scale athletic facilities. Changes to the Post, although not always sensitive to its historic context, have been necessitated by the growth of the cadet corps; the need to upgrade facilities with modern systems and amenities; and the desire to portray an image of success and achievement which VMI has earned.

Expansion has occurred throughout the history of VMI and is a direct reflection of its success as a flourishing military college. Throughout the nineteenth century, much of the development associated with VMI was focused on providing essential services to the cadet corps, and was focused around the Parade Grounds and Barracks. The growth of the cadet corps, and in the number of faculty and staff, resulted in the need for further intensified expansion during the twentieth century. Again, development was focused around the Parade Ground, as well as at South Post, on the south side of Main Street. Until the period after World War II, few changes were made to the Post that significantly altered or impacted its historic integrity. However, the 1960s saw a construction boom that resulted in the demolition of numerous historic buildings and residences, as well as an incompatible annex to Cocke Hall that resulted in the loss of the historic terraced landscape garden at the rear of Jackson Memorial Hall.

Throughout history, the most important character-defining feature of VMI has been the unified architectural style of the buildings. The effort by VMI to duplicate the Gothic Revival style in later buildings reveals their desire to create a cohesive, recognizable image for the Post. The Gothic Revival style has become the idealized image associated with VMI. However, the adoption and recognition of this image has not always resulted in a strong preservation-minded ethic on Post. Although VMI has attempted to duplicate the Gothic Revival style in later buildings, the newer buildings have not always been given the same consideration and attention to detail.

In addition to the loss of historic buildings and landscape features in the 1960s, more recent planning decisions, as well as the defined vision for the future of the Post, are also in conflict with preservation philosophies. For instance, the new Science Building (1988) along Letcher Avenue was constructed with modern materials and lacks the detail, workmanship, materials, and integrity of its older neighbors. The addition of chiller units on the roof of Nichols Engineering destroys the historic integrity of the building, as it essentially adds another floor to the façade and destroys the crenellated roofline. Numerous other instances can be cited that exemplify how the preservation ethic has not always been employed at VMI, even as the “concept” of preservation is considered appropriate and desirable.

The tension between maintaining the image of VMI and the desire and need for change continues to occur today. With an expanding cadet corps and the need to upgrade older buildings to provide up-to-date, state-of-the-art facilities, VMI is constantly evolving and re-assessing their needs and goals for the future. More often than not, the changing needs has resulted in some exterior and significant interior modifications to historic buildings. Almost all of the academic buildings on the Post have lost a majority of their historic architectural features on the interior, while maintaining much of their exterior integrity. This focus on retrofitting interiors, while preserving exteriors in tact, signified that VMI was still concerned about the exterior image of the Post through the 1990s. However, in recent years, even exteriors began to be inappropriately altered, with the most notable example being the addition of the rooftop air handler unit on Nichols Engineering building.

Today there are two primary documents which guide decision-making on Post, not only for buildings, but for academics, military, and athletics. *Vision 2039*, a development plan created by VMI Superintendent General J. H. Binford Peay, focuses on these four topics. In addition, the 2005 *Post Facilities Master Plan* identifies specific projects that are based on the goals and objectives of *Vision 2039*. The *Post Facilities Plan* clearly identifies and acknowledges VMI’s stewardship responsibilities as it relates to their National Landmark status.

By seeking the development of a *Preservation Master Plan* for VMI, the Institute, and its leaders and decision-makers, are clearly acknowledging that there have been mistakes made in the past, and they want to take a pro-active approach to preservation so they can avoid any similar mistakes in the future. Involvement in the planning process is an indication that VMI is positioned to ensure that they are considerate and sensitive to the importance of historic preservation and what it means to their Institute.

# Using the Preservation Master Plan

The Preservation Master Plan for Virginia Military Institute looks holistically at the campus, identifying the historic character and integrity of the Institute, as well as how the Institute has historically responded to change. Using the past as a framework, the preservation plan provides guidance to VMI regarding decision-making in the future, specifically as it relates to preserving the significant historic landscape and building resources which comprise the Post. Effectively utilizing those resources will allow VMI to enhance and maintain them for future generations to learn from, and enjoy. With them, the legacy of VMI will continue far into the future.

The heart of the Preservation Master Plan is encompassed within the design guidelines for buildings, landscapes, and new construction. The design guidelines are a tool for VMI to assist the Institute in the management, maintenance, and treatment of the historic buildings and landscapes on the Post. They are not the only solution for addressing issues associated with historic resources, as every building and landscape has its own unique attributes and opportunities. They are a basic set of guiding principles which encourage sensitivity and sound decision-making as it relates to preservation and maintenance.

Often times, maintenance and facility staff are not trained to identify the unique issues that can arise when dealing with historic properties. Without a clear set of guidelines to follow, it can be difficult to address all of the necessary issues associated with maintenance, repair, and construction projects. The guidelines within this document serve as a checklist of items that should be considered by VMI as they contemplate changes and modifications to the buildings and landscapes on the Post. They are intended to inspire creative solutions to problems that may not have been previously considered.

The best solutions for VMI will meet the needs of the Institute's academic programs, cadets, and staff while preserving the historic character and integrity of the Post. The history of the Post is integral to the image of VMI and is one of the most influential characteristics of the Institute which stays with the cadets, faculty, staff, alumni, and visitors long after they have physically left.

# How the Preservation Plan is Organized

*The Preservation Master Plan* for Virginia Military Institute includes ten chapters, beginning with an overview of the preservation planning process, the role of historic preservation at Virginia Military Institute - both historically and today, and how the guidelines and preservation plan should be used at VMI as a tool to help the school identify and address preservation-related issues. The *Preservation Master Plan* continues with an overview of the history of VMI, as well as relevant historic contexts associated with the development of the site. A preservation approach is defined which is specific to the process for considering potential preservation-related impacts at VMI. The final chapters outline preservation guidelines for the design, treatment, and maintenance of existing historic buildings, historic landscapes, and other historic resources on the Post. Guidelines for new construction projects, including additions and the adaptive re-use of buildings, are also included in the document to ensure a level of historic sensitivity. The final chapter focuses on administrative processes and procedures and proposes changes that should be implemented at VMI.

## CHAPTER 1 – PROJECT OVERVIEW

Chapter 1 of the *Preservation Master Plan* for Virginia Military Institute discusses the background and purpose of the planning document, the importance of historic preservation planning at VMI, and explains how the plan is organized. This opening section is intended to relay to the user the importance of preservation planning and how it can help protect and enhance the unique history and character of the Post.

## CHAPTER 2 – HISTORY OF VIRGINIA MILITARY INSTITUTE

Chapter 2 begins with an overview of the history of VMI, from its origins as the Lexington Arsenal to its current function as a state-supported military academy. The history is divided into eight development periods and provides a sound framework for determining the buildings and landscapes on the Post which are historically significant.

## CHAPTER 3 – HISTORIC CONTEXTS

The Historic Contexts chapter looks at the development of the Post from the perspective of its context and relationship to regional and national trends and events. Chapter 3 presents historical contexts that influenced and impacted planning and design on the Post. In this chapter, a statement of significance for VMI is presented.

## CHAPTER 4 – PRESERVATION APPROACH FOR VMI

The preservation approach for VMI outlines the principles of the *Secretary of the Interior's Standards* which are intended to serve as a foundation for making sound preservation decisions which will impact the Post. Chapter 4 includes the identification of commonly used preservation treatments and terms.

## CHAPTER 5 – CULTURAL LANDSCAPES AT VMI

Chapter 5 includes an inventory and assessment of the historic and cultural landscapes of the VMI Post. The landscapes of VMI are divided into character areas based on their significant features and location. The character areas of VMI include Central Post, North Institute Hill, Jordan's Point, South Institute Hill, South Post, and North Post. This chapter is the basis for the Landscape Guidelines and Recommendations included in Chapter 7.

## CHAPTER 6 – HISTORIC BUILDINGS AT VMI

The historic buildings of VMI are organized based on their significance, integrity, and existing conditions. Chapter 6 includes a thorough inventory of extant historical buildings and includes a description of each building and a summary statement of recommended treatments for each building. This chapter is the basis for the treatment guidelines for existing buildings and new construction presented in Chapters 8 and 9.

## CHAPTER 7 – LANDSCAPE TREATMENT GUIDELINES

Chapter 7 identifies recommended treatment guidelines for historic and cultural landscapes at VMI. The guidelines are subdivided to address specific preservation issues on the Post, including open spaces, memorialization, gateways, and access.

## CHAPTER 8 – ARCHITECTURAL TREATMENT GUIDELINES

Treatment guidelines for the exteriors and interiors of historic Post buildings are provided in Chapter 8. Treatments guidelines are organized under sub-headings, such as brick, wood, stucco, masonry, roofs, windows, doors, and paint.

## CHAPTER 9 – GUIDELINES FOR NEW CONSTRUCTION

Chapter 9 discusses treatment guidelines for incorporating additions to historic buildings, as well as how to design new buildings and projects in a manner that is sensitive to the historic context of the Post. Guidelines for incorporating barrier-free access and environmentally sensitive design solutions are also included.

## CHAPTER 10 – ADMINISTRATIVE RECOMMENDATIONS

Chapter 10 discusses and analyzes current review procedures and processes for decision-making on the Post as it relates to maintenance of existing buildings and landscapes, as well as new construction projects. Recommendations for how existing procedures could be improved upon to more fully incorporate the issues and ideals of preservation are included.

# CHAPTER 2
# HISTORY OF VIRGINIA MILITARY INSTITUTE

## Introduction

Located in Lexington, Virginia VMI is a National Historic District, and the Barracks building is individually recognized as a National Historic Landmark. The design of the Post's core historic district set the tone for nineteenth-century military educational architecture in the United States. The Institute began as the Commonwealth of Virginia's Lexington Arsenal and emerged as a model for state-sponsored military education, particularly in the South.

VMI's unique built and natural environment was shaped by the functional nature of military buildings, its ridge-top site, and the consistent use of Gothic Revival style architecture. Organized by major periods of development, this chapter provides a chronological history of VMI's physical development from the late-eighteenth century to the present day. It is intended to serve as a tool for understanding the significance of both buildings and landscapes.

## Historic Periods

### LEXINGTON'S EIGHTEENTH AND EARLY-NINETEENTH CENTURY SETTLEMENT

The history of the VMI has its roots in the eighteenth-century development of Rockbridge County and is linked with significant early settlers. Most of the county was included in a 1738 land grant of 92,100 acres given to Benjamin Borden by King George II; the grant stipulated that at least one family settle on every 1,000 acre parcels. Soon, Scotch-Irish immigrants settled the Shenandoah Valley, traveling along the Great Road, a former Native American trail through the Valley. Early river transportation played a formative role in the founding of towns such as Lexington, which was established near the junction of the Great Road and the North River (now known as the Maury River) (Gilliam 1982: 109-110).

Lexington was founded in 1778 as the county seat for the newly-created Rockbridge County. The town site was elevated above the nearby North River to provide access to river transportation without the fear of flooding (Hadsel 1985: 3-4). The small town grew with settlers constructing simple log and wood frame houses and a few grander Georgian buildings of brick and stone. A fire in 1796 destroyed much of Lexington, prompting a rebuilding campaign with buildings that were fireproof and more durable than their predecessors. From 1815-1825, Lexington underwent a building boom, fueled by commercial growth, improved transportation, and population expansion (Lyle and Simpson 1977: 16-18). Many of the buildings from this period were designed in the Federal style.

The hub of Lexington's nineteenth-century commercial and industrial development was located at the confluence of the North River and Woods Creek. This land lies below the prominent ridgeline that today is the site of VMI. This location became known as the Point, or Jordan's Point, and was named for Colonel John Jordan (1777-1854), a nineteenth century pioneer in the iron industry and transportation systems in western Virginia. Jordan moved to Rockbridge County in 1803 and developed business interests at the Point including a grist mill, foundry, forge, and toll bridge (Gilliam 1982: 112-115). He played an important role in the development of Lexington as a commercial center for the surrounding agricultural region. Jordan made significant architectural contributions to Rockbridge County by introducing the Neoclassical Revival style to the region. Moreover, Jordan, with his partner Samuel Darst (1788-1864), built what was to become the first building at VMI, the Lexington Arsenal (1816), as well as Washington Hall (1824) at Washington College (later became known as Washington and Lee University in 1870), and several outstanding private homes (Gilliam 1982: 113-114).

In 1818, Jordan built his home Stono on the bluff overlooking the Point. The property is currently owned by the VMI Foundation and will be transferred to VMI ownership in 2006. This stately brick residence is one of the earliest Neoclassical style buildings west of the Blue Ridge Mountains. The property included several brick or stuccoed stone dependencies including a round ice-house and summer kitchen and landscaped terraces and gardens.

## THE LEXINGTON ARSENAL AND VIRGINIA MILITARY INSTITUTE: 1816-1850

The Virginia Military Institute was established on the site of an arsenal authorized in 1816 by the Virginia Legislature. The Lexington Arsenal was one of three arsenals established in the Commonwealth of Virginia. The location of the Lexington Arsenal was selected by a committee of five Lexington citizens appointed by Virginia Governor Wilson Cary Nicholas (1761–1820). Nicholas charged the group with the selection and purchase of approximately three to five acres of property. The committee was led by Samuel McDowell Moore (1796-1875), an alumnus of Washington College and later a member of the Virginia House of Delegates. The committee selected a tract of five acres located on a high bluff above the North River. This parcel was bounded by Woods Creek to the north and the Valley Road (now U.S. Rt. 11 and Main Street) to the south. The Lexington Arsenal site was adjacent to the ridge-top location of Washington College overlooking the Town of Lexington.

Major John Staples of Richmond, the superintendent of the state arms factory, drafted a series of plans for the new Lexington Arsenal. Jordan and Darst, the preeminent architectural craftsmen in Rockbridge County during the first half of the nineteenth century, were selected to construct the Lexington Arsenal. The building complex was sited on the crest of the ridge overlooking a Parade Ground and Lexington. Although no architectural drawings exist, illustrations from the 1840s depict the barracks building surmounted by a cupola with the large three- or four-story brick Lexington Arsenal to its rear, both set in a rural landscape. Designed to store about 30,000 stand of arms, the facility was occupied and defended by a company of the State Guard consisting of 28 enlisted men under the command of a captain. The sole function of the company was to perform guard duty and drill (Smith 1912: 12).

Francis Henry Smith, the first superintendent of VMI, later described the Lexington Arsenal as a:

> …substantial brick building, in the center of a small courtyard. In front were the soldiers' barracks, embracing a small two-story brick building in the center, with five rooms; and two wings of one story each having two rooms. The sally-port was closed by a large iron-bound gate, and the court was enclosed by a brick wall fourteen feet high. The windows of the first story of the barracks were guarded by substantial iron bars; the whole establishment presenting the appearance of a prison, and such it was to the old soldiers (*Lexington Gazette*, August, 1835, and *Rockbridge County News*, June 6, 1889, in Lyle and Simpson 1977: 211).

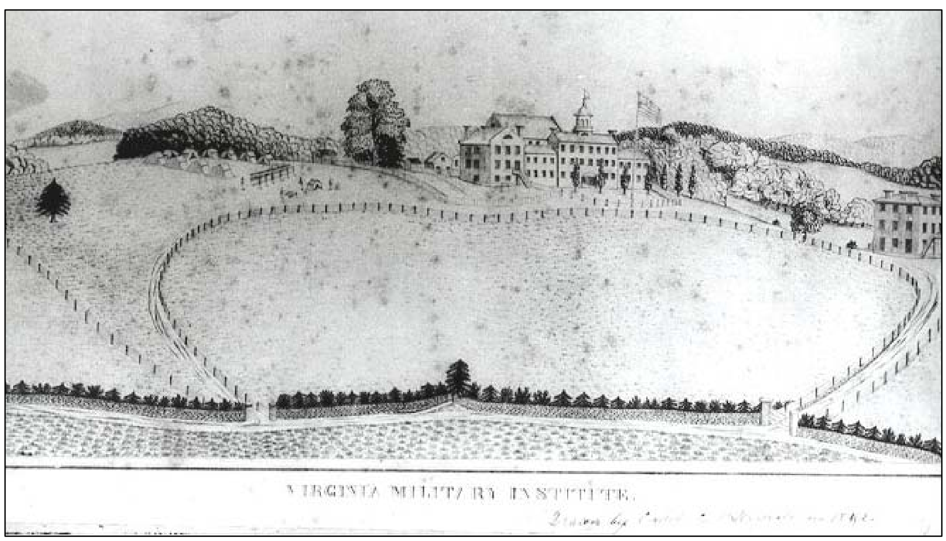
The landscape at the Lexington Arsenal was described by Edmund Pendleton in 1839. Pendleton, a member of the first VMI graduating class, recalled that the Parade Ground was partly under cultivation as a corn field and intersected by worm fences. The Parade Ground contained a few log buildings and a sole hickory tree, known as the Guard Tree. A spring near the buildings provided water. There was no path or avenue to Washington College and the only path to Lexington led down the hill to the Valley Road, now known as Main Street (*VMI Bomb*, 1896: 8-9, in Lyle and Simpson 1977: 300). Early sketches show the Parade Ground as a sloping field defined by an elliptical drive. Stone limit posts marked the entrance from Valley Road. The Lexington Arsenal boundary along Valley Road was defined by a brick wall while a wood fence lined the inner portion of the drive.

In the mid-1830s, John T.L. Preston (1811-1890), a local attorney, Washington College alumnus, and later VMI professor, advocated combining the Lexington Arsenal's military environment with a program of scientific studies. He was the leading proponent of the concept of a "military school at the arsenal, in connection with Washington College, on the plan of the West Point Academy" (*Lexington Gazette*, August, 1835, and *Rockbridge County News*, June 6, 1889, in Lyle and Simpson 1977: 211). Preston wrote letters of support to the local newspaper and furthered the idea at meetings of the Franklin Society, an incorporated literary and debating body composed of influential professionals, merchants, and mechanics. The debate over the formation of a military school at the arsenal was published in the *Lexington Gazette*, August 28, 1835, as follows: "Whether it be practical to organize the Lexington Arsenal as a military establishment and be at the same time a Literary Institution for the education of youths" (*Lexington Gazette*, August, 1835, and *Rockbridge County News*, June 6, 1889, in Lyle and Simpson 1977: 211).

In 1835-36, the State of Virginia authorized disbanding the Lexington Arsenal to establish a military college in its stead. Initially, a branch of Washington College, this provision was later repealed by legislation in 1839 when the school was organized as an independent entity. An agreement of cooperation was formalized between the new military school and Washington College (Smith 1912: 19). The Virginia Military Institute was born.

Colonel Claudius Crozet (1789-1864) was named the first president of the Board of Visitors, the school's governing body. Crozet, a French native, served as a soldier under Napoleon and was awarded the Legion of Honor. A graduate of l'Ecole Polytechnique in Paris, he emigrated to America in 1817 and taught at West Point. With this background, he shaped the new school on the military models of West Point and l'Ecole Polytechnique: cadets led the rigid disciplined life of a soldier and learned history, mathematics, chemistry, engineering, physics, drawing, and a foreign language. Even the French Guard-inspired uniforms of West Point and VMI during the nineteenth-century period were a reflection of Crozet's influence. In 1839, Francis Henney Smith (1812-1890) a West Point graduate and mathematics professor at Hamden-Sydney College, was chosen as the school's first superintendent; he served in this role until 1889.

By 1840, the outmoded quarters and growing cadet population spurred Superintendent Smith into an expansion campaign. His initial effort added three new buildings near the original Lexington Arsenal to serve the growing institution. The first completed was his home, or Superintendent's Quarters, a three-story brick building facing south. An illustration from the 1840s appears to show this building attached to the west end of the barracks. A two-story Mess Hall was constructed in a location southeast and down the hill from the Lexington Arsenal on the same general site as today's Crozet Hall. The third new building, a gun shed, was built next to the north side of the barracks.




*1842 drawing of the Lexington Arsenal and barracks by cadet Charles P. Deyerle.*

An 1842 drawing of the Lexington Arsenal and barracks by cadet Charles P. Deyerle shows that the original barracks were enlarged with one-story additions at both the center section and flanking wings during this period. In 1845, a second residence was built on the east side of the barracks; it was a mirror-image of the Superintendent's Quarters. As the school continued to expand, Smith built a new Superintendent's Quarters at the west end of the Parade Ground (Lyle and Simpson 1977: 212). The Hospital (now known as the Old Hospital), located down the hill near the Mess Hall, was completed in 1849. It was a simple two-story brick building with a front gallery and end chimneys.

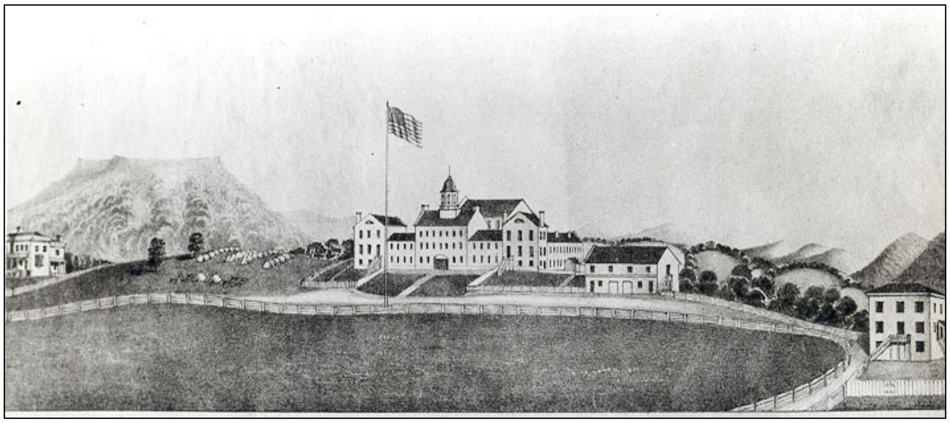


*Image of new Superintendent's Quarters at the west end of the Parade Ground.*

Two private residences were constructed near the burgeoning Institute during this period. The houses were later acquired by VMI. The Moore-Pendleton-Bates House was constructed in 1843 by Samuel McDowell Moore. The two-story Italianate brick residence with prominent square cupola faced the town on what would become Letcher Avenue. Moore, a Washington College alumnus, was instrumental in the site selection of the Lexington Arsenal. In circa 1850, John Jordan built a brick Greek Revival-style residence for his son, Samuel F. Jordan, west of Stono along the same ridge. This two-story dwelling featured a front gallery and faced south towards Lexington. Today, it serves as the Post Hospital.

The VMI landscape of this period was shaped by the construction of these new buildings, setting the stage for future land use patterns: the core military functions focused on a parade ground with residential development on Letcher Avenue and near the Point. The mid-nineteenth century landscape was fairly plain and utilitarian. An 1847 illustration depicts wood fences around the Mess Hall, officers' quarters flanking the barracks, and the second Superintendent's Quarters. All of these fences created rectangular yard spaces facing the Parade Ground. Apart from a few spare trees on the Parade Ground and a line of evergreen trees along Valley Road, the early VMI landscape was barren of vegetation except for grass.

***Extant Historic Resources***

The Old Hospital is the only intact surviving building associated with the Lexington Arsenal period. Both Jordan residences and the Pendleton-Coles House are extant; the Samuel Jordan residence is now known as the Post Hospital. The landscape and topography is largely extant although it has been extensively modified. The Limit Gates on Letcher Avenue date to 1857.

*The Moore-Pendleton Bates House was constructed in 1843.*

## A.J. DAVIS AND THE DESIGN OF VMI: 1851-1865

Despite the dismal accommodations offered by the small Lexington Arsenal and barracks, the first class of cadets graduated in 1842. The growing reputation of the fledgling Institute made the construction of a new barracks a high priority. Nonetheless, construction was not possible until financial support could be found.

Philip St. George Cocke (1809-1861) filled the role of benefactor well. He was a wealthy Virginia planter, West Point graduate, and member of the VMI Board of Visitors since 1846. Cocke felt there was a need for a beautiful and inspiring plan for a new Institute building that would be both adequate and tasteful. He was determined to see VMI become the great polytechnic institute of the South and renown for its distinctive architecture. Cocke was an advocate of the Gothic Revival style and employed the nationally prominent architect Alexander Jackson Davis (1803-1892) to design his villa, known as Belmead, in Powhatan County, Virginia in 1845-48. Cocke became Davis' patron in Virginia; as a result, Davis was commissioned to design the Greek Revival style Powhatan County Courthouse (1849-1850) and several private villas, including Harkwood in Louisa County (1851) (Lyle and Simpson 1977: 213-217). During a visit to Cocke's residence circa 1848, VMI Superintendent Smith and John T.L. Preston were impressed by Davis' work and subsequently influenced VMI to hire Davis to design the new barracks building (Lyle and Simpson 1977: 213, 216).

Alexander Jackson Davis was one of the best-known architects of his day and the first to champion the use of the Gothic Revival style in this country. A founder of the American Institute of Architects (AIA), his 1838 masterpiece in Tarrytown, New York, Lyndhurst, is considered the finest extant Gothic Revival home in America. Although Davis frequently worked in the Neoclassical style, and completed the landmark Neoclassical state house in Indiana and North Carolina, he favored the Gothic Revival style for country homes. The picturesque villas he designed for wealthy patrons featured irregular forms, complex and steeply pitched roof lines, multiple parapets, castellated towers, grouped chimneys, elaborate vergeboards, and window tracery.

Although Davis had previously used the Gothic Revival on institutional buildings at New York University (1833-1837) and the University of Michigan (1838, not constructed), he was initially hesitant about VMI's invitation to prepare designs for the new barracks. This hesitancy likely stemmed from the proposed building's enormous size and scale, as well as VMI's modest construction budget. He wrote to Superintendent Smith that "…a building of such *extent* and combining so many *uses* will require *invention* to bring it within a modest appropriation" (Lyle and Simpson, 1977: 217-218). Smith responded that the barracks would include a chemistry laboratory, lecture rooms, debating rooms, and a library and should be:

> a rectangle four stories high with barracks rooms opening upon piazzas in the inside…, the rooms to accommodate three cadets and to be about 20 x 16 feet or equivalent. The object being to accommodate 200 cadets, the barracks to be entered by one arched door in front, [and the] rooms for the cadets were to be entirely disconnected from each other (Lyle and Simpson, 1977: 217-218).

The onset of construction of the massive Barracks caused some local Lexington citizens to raise longstanding objections about the VMI site to the Commonwealth of Virginia. The group who opposed the establishment of a permanent military academy, so close to Washington College on this land-locked ridge, helped foment a rivalry between the two schools.

The Virginia General Assembly weighed in on the debate and requested that alternate sites be evaluated in the Town of Winchester. This turn of events influenced the Lexington citizenry to re-examine their position on VMI; they concluded that competition between the two institutions was healthy and resolved to retain the Institute on its original site. In March 1850, the Virginia legislature concurred and provided $46,000 for construction (Lyle and Simpson 1977: 218-219).

John Jordan, builder of the Lexington Arsenal, was contracted to construct the Barracks building under Superintendent Smith's supervision. Stone was the material of choice; however, its cost proved to be prohibitive. Because Jordan and Darst were the preeminent masonry craftsmen in Rockbridge County, it was decided to use brick on a local limestone foundation. The outer brick surfaces were then coated with stucco to give, as Davis put it, "a granite imitation" (Davis to Smith, March 15, 1850, quoted in Lyle and Simpson 1977: 221). The illusion of a stone building was further detailed by scoring the surface finish into large rectangular shapes to replicate stone block.

Davis designed the building so that it could easily be enlarged by "adding 17 foot sections at pleasure" as funding became available (Davis to Smith, December 1, 1848, in Lyle and Simpson 1977: 222). His basic design concept of a large and foreboding rectangular building with a protected internal courtyard (referred to as a cloister on the Davis plans) accessed by arched sally-ports was similar to the plans of enclosed military fortifications such as the Lexington Arsenal. The Davis Barracks accommodated cadet housing and classroom and academic uses. It featured individual rooms opening onto roofed outdoor corridors that ringed the courtyard on all levels.

The cornerstone for the massive Barracks was laid on July 4, 1850 and by September 1851, the first four-story southern section was ready for occupancy. The imposing building faced Valley Road below and featured crenellated parapets, octagonal towers, double-height windows, and dressed limestone foundation. This south façade contained the formal Gothic arched sally-port that came to be known as Washington Arch.

During the next two years, the barracks and its flanking officers' quarters were demolished to begin construction of the second section, which faced east. Using the 17-foot module, work began in March 1852 on the three-room tower overlooking Valley Road. Because funds dribbled in slowly, VMI was in a perpetual state of construction for most of this decade. In 1854, VMI received a $20,000 state appropriation to finish the next section of the Barracks and allow other plans for new buildings to go forward (Lyle and Simpson 1977: 223).

In the early 1850's, work had also begun on the Barrack's parade ground façade. By 1859, the Barracks parade façade had stopped short of the elaborate three-bay central towers and sally-port, known today as Jackson's Arch. During the plan revisions which were completed during the period leading up to the outbreak of the Civil War in 1861, Smith proposed an economical change that he hoped would accelerate construction. His idea was to round the corner of the Barracks and then "run to the Northwest by the line of the hill, making it an irregular polygon…;" he continued "it struck me that we might have something of the effect at the corner like the round tower at Windsor Castle" (Smith to Davis, May 21, 1860, in Lyle and Simpson 1977: 226).

In response, Davis wrote: "I am as little wedded to symmetry as any person living (though my wife is quite symmetrical) and yet it has appeared to me from the first that your barracks ought to be orderly and well balanced" (Davis to Smith, November 19, 1860, in Lyle and Simpson 1977: 226). In keeping with the architect's desire for symmetry, the plans for the west façade remained unchanged. Although work on the Barracks project continued until 1861, only the south half of the west façade had been completed by the start of hostilities.

Because the two officers' quarters had been demolished, VMI had an urgent need to replace them. When he turned his attention to the design of these new quarters, Davis was very interested in the Parade Ground's dramatic hillside landscape above Woods Creek. The architect personally completed the site planning for the two houses during a visit to Lexington in 1850. Both buildings were completed in 1852 in Davis' trademark Gothic Revival style as residences for Colonel William Gilham (1818-1872) and Major Thomas H. Williamson (1813-1888). The Gilham House remains notable as the only asymmetrical building designed by Davis at VMI, despite the fact that he almost exclusively used asymmetry in most of his Gothic Revival villas (Lyle and Simpson 1977: 225). Known today as the Commandant's Quarters, the Gilham House is slightly irregular with a central octagonal tower and a taller hexagonal tower and features a one-story porch at the southeast corner. Davis' design of the Williamson House (not extant) marked a return to symmetry. It was a two-and-one-half story stuccoed building dominated by a central three-story square tower. Both residences shared crenellated rooflines, drip-mold detailing, and diamond-paned casement windows intended to mimic leaded glass.

A third building designed by Davis was also completed in 1852. This was a Porter's Lodge, built on the Parade Ground near the western VMI Limit Gates. The house was a residence for the VMI Porter, who was responsible for admitting and assisting those entering the VMI Post. It was a two-and-one-half story stuccoed building with symmetrical square turreted towers. An eastern Porter's Lodge was proposed, but never built (Lyle and Simpson 1977: 222).

The state appropriation also funded a new Mess Hall, built on the site of the old Mess Hall east of the Barracks. Designed by Davis in the Gothic Revival style and completed in 1854, it was a symmetrical two-and-one-half story stuccoed brick building. The main entrance had a wide sally-port flanked by crenellated square towers (Lyle and Simpson 1977: 223). A plain, two-story side-gabled brick laundry building (later known as the Chemistry Building) also existed during this period and was located next to the Old Hospital.

A detailed Casimir Bohn engraving of Institute Hill in 1857 gives a birds-eye view of the development of the Davis plan during the 1850s. It shows, beginning at the western edge: the Samuel Moore home just beyond the VMI Limit Gates (later Moore-Pendleton-Bates House); the Porter's Lodge at the

Limit Gates; the 1847 Superintendent's Quarters (soon to be demolished); the two 1852 officers' quarters, both shown in bare brick before application of stucco; Barracks; Laundry (later Chemistry Building); Old Hospital; and Mess Hall to the east.

*Engraving of Institute Hill by Casimir Bohn in 1857.*

The Bohn engraving also captures the 1850s Post landscape. The buildings were laid out to face the Parade Ground with the Barracks and residences on the higher elevations. From there, the land sloped down to Valley Road. The central Parade Ground was uneven and dotted with trees. A formal semi-circular escarpment, later known as the Parapet, was located opposite the Barrack's south sally-port. The Parapet retaining walls were constructed of local limestone and held a statue of Washington with flanking cannon. The elliptical drive leading up to VMI remained the formal approach to the Post. However, Bohn depicts several informal foot paths along the slope. The fence around the inner edge of this road had been removed by 1857, but fences remained at the 1847 Superintendent's Quarters, the Parade Ground, and along the stretch of road between the Laundry (later Chemistry Building) and Mess Hall. Trees were clustered in an unplanned manner along the Valley Road, near the Laundry and Mess Hall, and around the 1847 Superintendent's Quarters, Porter's Lodge, and Moore-Pendleton-Bates House.

In the years leading up to the Civil War, Davis was anxious to complete the new Executive Mansion for Superintendent Smith. Its design completed the Davis concept for a group of Gothic Revival buildings with battlements, crenellation, towers, and turrets (Lyle and Simpson 1977: 226). The Executive Mansion, known today as the Superintendent's Quarters, was completed in 1862 on a Parade Ground site just west of the two 1852 officers' quarters. It is a symmetrical two-story stuccoed brick building with central main entrance, semi-circular front porch, and twin octagonal turrets. The main block is flanked by one-story wings. The rear elevation featured a semi-circular projecting porch that overlooked Woods Creek.

During the 1860s period, there were also a number of simple two-story side-gabled buildings in between the Barracks and Old Hospital. Known as the cabins, they extended from the southeast corner of the Barracks along the semi-circular drive to the Old Hospital. These were constructed to accommodate the corps while the barracks was rebuilt from 1865 to 1867.

By the time war was declared in April 1861, Davis and Smith had nearly completed their plan for VMI. Three faculty residences, Porter's Lodge, Mess Hall, and a substantial amount of the Barracks, were all finished.

***Extant Historic Resources***

There are three surviving buildings from the decade of A.J. Davis' active involvement at VMI. The Old Barracks south and east sections, and the southern half of the west section, date to 1851-1861. Despite the damage from the Civil War, the Old Barracks was later rebuilt to the same plan. The 1852 former Gilham House, now known as the Commandant's Quarters, remains. It was moved in 1914 from its original location in the central Parade Ground to the south edge of the Woods Creek ravine. The 1860 former Executive Mansion, now known as the Superintendent's Quarters, also survives. It too was moved to the bluff overlooking Woods Creek in 1914.

The Davis-era landscape has not survived; the early-twentieth alterations to the Parade Ground and relocation of two Davis buildings plus demolitions and new construction later in the twentieth century have dramatically changed its character.

Three of the Davis buildings have been lost: the 1852 Williamson House was demolished in 1965; the 1852 Porter's House in 1912; and the 1854 Mess Hall burned and was rebuilt to Davis' plan after the Civil War. In 1904 it was rebuilt again, this time to the design of Frye and Chesterman, which differed from the Davis design and was later demolished to make room for Crozet Hall in 1934.

## REBUILDING AFTER THE CIVIL WAR: 1866-1912

The outbreak of the Civil War in 1861 halted construction at VMI, though the institute remained open until 1864. At this time, the Barracks was J-shaped in plan: the southern and eastern sections were complete but only the south half of the west section was finished. It was in 1864 that the war entered the upper Shenandoah Valley. In May 1864, VMI cadets were ordered to join the outnumbered Confederate forces against U.S. General Franz Sigel in the upper part of the Valley. Under VMI Commandant Scott Shipp (1839-1917), the cadets performed courageously in the Battle of New Market on May 15, heading a charge on Bushong Hill that effectively forced the Union troops to retreat. Ten VMI cadets were killed in battle or died later from the effects of their wounds (Couper 1933: n.p.).

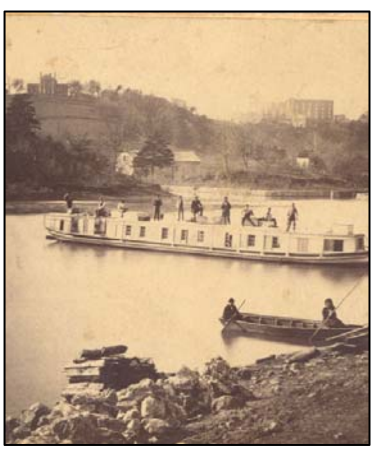


*Image of Jordan's Point following Hunter's Raid. Stono escaped with little damage.*

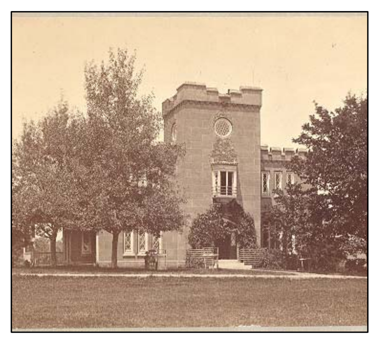
In the following month, the conflict arrived in Lexington. On June 12, 1864, Major General David Hunter's troops occupied Lexington and sacked VMI, burning the Barracks, Mess Hall, and Gilham and Williamson Houses. The only buildings to escape damage were the Executive Mansion, which Hunter had used as his headquarters, the Porter's Lodge, Laundry, and Old Hospital (Lyle and Simpson 1977: 227). Following the brief four-day occupation, VMI was left in ruins. Books, medical supplies, equipment, and documents were all lost.

A series of photographs from 1865-1866 vividly depicts VMI's complete devastation. The Barracks and Gilham and Williamson Houses were extensively damaged; the interiors were gutted and roofs, parapets, towers, and some walls had collapsed. The John Jordan residence apparently escaped with relatively little damage. The landscape was littered with debris and no fences are apparent. A line of mature trees at the base of Institute Hill survived as did a stone wall along Valley Road. The statue of George Washington statue was removed by Union troops although its base remained. The statue was reinstalled circa 1866.

Upon his return to Lexington at the end of the war, Superintendent Smith was determined to rebuild the Institute. With the news that Robert E. Lee had agreed to be president of Washington College, Smith declared that "This makes it more necessary that our work be one of vigor" (Smith to Scott Shipp, September 1, 1865, in Lyle and Simpson 1977: 228). Despite the ravaged Southern economy, Smith made plans to reconstruct VMI. His widespread appeals for financial assistance resulted in the VMI faculty agreeing to contribute one-third of their wages towards rebuilding. Although Smith resumed his correspondence with A.J. Davis, Smith planned the work himself: since funds were extremely tight, VMI could not afford professional architectural fees.

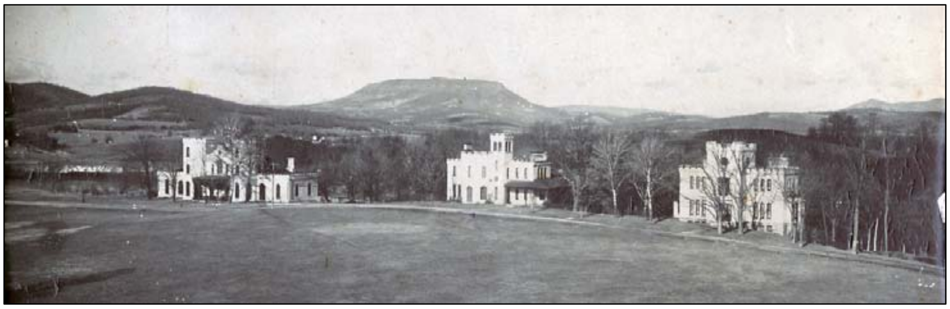
Davis and Smith continued to correspond about the progress of rebuilding. Upon learning that all of his 1850s drawings had been lost during the war, Davis was anxious to complete his earlier plan. In 1869, Davis submitted plans to complete the Barracks' west elevation. This design included an elaborate museum and audience hall to be placed over the west sally-arch. None of these 1869 plans were ever built. In 1870, Davis proposed a large botanic garden, Rockbridge Park, at VMI with exotic shrubs and trees as well as a grand central window for the Barracks parade façade. Perhaps it was the juxtaposition of the harsh local and regional economic conditions and Davis' grandiose schemes, but Davis played a minor role at VMI after the Civil War. Other Davis designs that were never implemented included a second Porter's Lodge, a faculty house on the bluff over Woods Creek, and various academic buildings (Lyle and Simpson 1977: 228-330).

By the 1870s, much of Smith's work had been completed. Period photos show the rebuilt officers' quarters. Reconstruction of the Barracks was a massive undertaking but it was substantially rebuilt by 1875, though the windows were not completely repaired. Photos from the early 1890s show the Barracks finally reconstructed to its pre-war state with the original south, east, and half of the west section rebuilt. By this date, the diamond-paned dark-colored window sash had been completely replaced.



*Rebuilt Officers' Quarters.*

The VMI landscape changed little during the post-Civil War years. By the 1890s, mature deciduous and evergreen trees in the Wood Creek ravine had created a dense woodland backdrop for the three Davis-designed dwellings. The houses had open front lawns facing the Parade Ground that was used for sporting events and other activities. The south slope leading to Main Street remained dotted with trees during this period and many were left to reach maturity. The Mess Hall and Old Hospital area east of the Barracks was heavily-used and informal paths crisscrossed the worn grass. Wood picket fences enclosed the Mess Hall and Letcher Avenue by the VMI Limit Gates.



*Davis-designed dwellings with Woods Creek ravine to the background and the Parade Ground in the foreground.*

***Civil War Commemoration***

An important part of the post-Civil War period at VMI was the commemoration of those lost in battle. VMI alumni supported erecting a memorial to the cadets killed in the Battle of New Market. This was particularly poignant for VMI Commandant, Brigadier General Scott Shipp, who led the cadets in the 1864 battle. The New Market Memorial's earliest form in 1878 was a cadet cemetery plot on the VMI Post near what is today the northwest corner of the Parade Ground. Several cadets who died at the Battle of New Market were interred there.

*Historical image of the 1878 cadet cemetery commemorating the cadets who died at the Battle of New Market. Today the site is the northwest corner of the parade ground and the cemetery graves have been relocated.*

From 1869 to 1889, during Superintendent's Smith's tenure, interest developed in identifying a memorial dedicated to General Stonewall Jackson - to honor this military hero and former VMI faculty member. Shipp suggested that commemorative funds be consolidated to fund a building dedicated to Jackson. The proposed Jackson Memorial Hall would hold YMCA offices, gymnasium, cadet bathing facilities, and improved classroom space. Due to insufficient funds, plans were not submitted to the Board of Visitors until 1892. Isaac Eugene Rose, an alumnus of VMI, was selected as the architect.

Rose's Jackson Memorial Hall was completed in 1896 at the north end of the Barracks' west section. With its completion, the Barracks became U-shaped in plan: the Davis-designed portions remained at the east, south, and half of the west section while Jackson Memorial Hall in-filled the missing half of the west section Rose's design deviated considerably from the Barracks original. Gothic Revival style. Jackson Memorial Hall had an ecclesiastical plan with a tall nave and side aisles, exterior buttresses, and an apse at the north end facing Woods Creek (Lyle and Simpson 1977: 230-231). At the south end, where the hall adjoined the Barracks, Rose placed a large Gothic arch window with lancet arches and rose window tracery. Virtually all of the 1896 Jackson Memorial Hall was demolished in 1916. The exception was its prominent pedimented three-bay central entry feature; this 1896 sally-port was retained and incorporated into the Old Barracks parade façade during the 1916 Goodhue project to return to the Davis concept of an enclosed building. This 1896 Isaac Rose feature is known as Jackson Arch.

***Late-Nineteenth Century Residential Growth***

Beginning in 1867 there was a housing shortage in post-Civil War Lexington that spurred construction of new houses in proximity to VMI and Washington College. VMI faculty and staff built private residences nearby while Lexington residents developed the surrounding areas. This late-nineteenth century building boom followed no one particular style, but instead reflected the flowering of eclectic architectural styles characteristic of this period. Over time, many of these private homes were acquired by VMI and now serve as administrative offices or faculty housing.

The first spurt of residential development occurred along what is now called Letcher Avenue. Although VMI had envisioned a road linking the Post with Washington and Lee since its founding, this plan was not implemented except for a row of deciduous trees planted along the proposed route from the Limit Gates to the present site of Lee Chapel. The post-Civil War plan for this road met with resistance by Washington and Lee, and in 1867, the University erected a fence to close its northern boundary. Nonetheless, the new link road was a well-known project and starting in 1867, a number of new houses sprang up along its route (Hadsel 1985: 74).

In 1874, this road finally came to fruition. Known as The Avenue, it followed a long arc from VMI past Lee Chapel to Main Street. The Lexington Town Council formally renamed Letcher Avenue in 1887 in honor of former Governor John Letcher (1813-1884). Letcher led Virginia during the Civil War years and was an active member of the VMI Board of Visitors from 1867-1882.

New construction along the link road started in 1867. In that year, the VMI Post Surgeon built the residence known today as the Pendleton-Coles House at 309 Letcher Avenue. The two-and-a-half story wood frame cottage is designed in the Gothic Revival style with a steep cross-gabled roof, board and batten siding, and decorative scrollwork vergeboards. The Archer House, also known as the Cabell House, was also built in 1867 by the Archer family. Located west of the Moore-Pendleton-Bates House, this Italianate brick residence at 306 Letcher Avenue is two-and-one-half stories tall with simplified brackets at the roof cornice. Both homes have been acquired by VMI.

A third house joined the neighborhood in 1872. VMI faculty member Colonel William Blair built his home next to the Archer House at what is now 304 Letcher Avenue. Known today as the Blair or Neikirk House, the three-and-a-half story brick Gothic Revival building house has a cross-gabled roof and a Tudor-arched main entrance. The property was purchased by VMI in 1920.

In 1880, S. H. Letcher, son of the former governor, built his residence on this soon-to-be eponymous road (now Letcher House at 305 Letcher Avenue) (Hadsel 1985: 74-76). The Italianate brick residence is two-stories tall with scrollwork decoration and a decorative bracketed cornice. It is currently owned by VMI.

Diamond Hill, directly across Main Street from VMI, also saw late-nineteenth century residential development associated with VMI faculty. This area was also known as Freedmen's Hill, so-called because of the large number of freed blacks who settled at the toe of the slope along Main Street after the Civil War (Hadsel 1985: 30-31). In 1875, Colonel John Mercer Brooke (1826-1906) built a wood-framed Gothic Revival cottage at 501 Brooke Lane. Brooke was a distinguished war veteran and served as Chief of Ordnance and Hydrography

*From top to bottom: 309 Letcher Avenue (Pendleton-Coles House), 306 Letcher Avenue (Archer House), 304 Letcher Avenue (Neikirk House), and 305 Letcher Avenue (Letcher House).*

for the Confederate States Navy. Brooke also taught Physics at VMI from 1866-1899. Ten years later, in 1885, Superintendent F.H. Smith built a twin cottage at 503 Brooke Lane for his retirement. Both houses are clad in vertical wood siding with prominent triple windows at cross-gables. They are both owned by VMI.

The design for the cottages on Brooke Lane was undoubtedly influenced by the landscape designer and writer Andrew Jackson Downing (1815-1852). In 1867, Smith wrote asking his staff to purchase supplies of door locks, hinges, shutter fasteners, and “one copy of Downing’s *Country Cottages*,” as he was planning to “build a cottage” (Smith to R.H. Campbell, August 5, 1867, in Lyle and Simpson 1977: 230). Downing favored the Gothic Revival style used by A.J. Davis, who integrated his villas into the park-like landscapes espoused by Downing. Downing collaborated with Davis on the book *Cottage Residences* (1842). This influential publication, an architectural pattern book, combined mid-nineteenth century romantic building styles with picturesque landscape design. The Brooke Lane cottages are classic examples of Gothic Revival pattern book houses; there is no remaining above-ground evidence of designed landscapes. Both houses are currently owned by VMI.

By 1875, Diamond Hill had a solid row of homes facing Main Street with other buildings stretching up the hill. Residential construction on the north side of Main Street and on Letcher Avenue also continued during the 1880s and 1890s. In 1880, former Governor John Letcher built a three-story vernacular wood-frame house for his two spinster daughters facing Main Street (now 306 Main Street). It was acquired by VMI in 1945. In 1892, VMI faculty member Major William A. Anderson built his residence on Letcher Avenue near the northwest corner of the Parade Ground. The three-and-a-half story brick, Queen Anne style house was acquired by VMI in 1934; it was demolished to make room for Moody Hall in the late 1960s (formerly located at 308 Letcher Avenue).

*Image of the Freeland House, constructed circa 1900.*

Five new residences were constructed on the south side of Letcher Avenue in 1900. The Bachelor Officers’ Quarters, at 301 Letcher Avenue, was a private home and then a fraternity house for Washington and Lee University before it was acquired by VMI. The Classical Revival style brick building with a two-story portico reflects the prevailing classical architectural taste found at Washington and Lee. Another residence was completed at 302 Letcher Ave (not extant). A two-and-one-half story vernacular wood-frame duplex residence was constructed at 303 Letcher Avenue. Today, it houses VMI Protocol.

A second 1900 two-and-one-half story wood frame residence at 307 Letcher Avenue was designed in a vernacular Queen Anne style. It has classical columns as porch supports instead of the more common spindlework detailing. The fifth house built in 1900 is the Queen Anne style Freeland House, which sits on the slope below the 1989 Science Building. Designed by VMI engineering professor Colonel Robert A. Marr, the three-and-one-half story wood frame residence had a prominent central circular tower. It was acquired by VMI in 1911.

The last house built in 1900 is 304 Main Street. It is a simple wood frame vernacular styled house which combines elements of Greek Revival and Gothic Revival details. VMI purchased the property in 1920.

### *Early-Twentieth Century Expansion*

An intensive building campaign was initiated in the early years of the twentieth century that expanded the core group of institutional buildings beyond the Barracks area. Unfortunately, there was no holistic approach guiding the design and location of these new buildings. During this period, VMI seemingly abandoned the carefully-laid plans of A.J. Davis and Superintendent Smith in favor of a more haphazard approach to planning. As a result, most of the VMI institutional buildings built between 1896 and 1909 were later demolished or totally renovated (Lyle and Simpson, 1977: 234).

The first institutional building was added in 1900, a three-story brick classroom building built between Jackson Memorial Hall and the Barracks. It featured a single central square clock tower with a crenellated parapet. Designed by local Lexington architect William G. McDowell, the building was named the Francis H. Smith Hall in honor of VMI's first Superintendent. The Smith Academic Building created a semi-enclosed interior courtyard within the U-shaped Barracks, which remained a central feature of cadet life at VMI. It is no longer extant.

In 1903, VMI built a matched pair of Queen Anne style officers' quarters on either side of the former Samuel Jordan home. Also designed by William G. McDowell, the twin buildings most recently housed the Post Surgeon (446 Institute Hill) and Post Chaplain (450 Institute Hill). The two-and-one-half story brick buildings featured dentils at the cornices and decorative brickwork at chimneys. They faced south along an east/west road which came to be known as Institute Hill in 1908; it ran from the VMI Mess Hall to Stono (Hadsel 1985: 60). 446 Institute Hill was recently demolished to make room for the expansion of Crozet Hall.

*Smith Hall was the first institutional building added to the Post.*

Between 1904 and 1909, VMI built a cluster of densely-packed buildings on the elliptical drive below the Barracks and near the Old Hospital. In 1904, the Davis-designed Mess Hall burned for a second time, destroyed during Hunters Raid in June 1864, and was rebuilt on its original foundation in 1905. Designed by Lynchburg architects Edward Graham Frye and Aubrey Chesterman, the 1905 Mess Hall was a scaled-down version of the 1854 Davis building. It was a full story shorter than its predecessor at one-and-one-half stories. The new Mess Hall's proportions and detailing were simplified and it had a different fenestration pattern. Like its predecessor, it was stuccoed masonry building with a cross-gabled roof and central sally-port flanked by square turrets. The 1905 Mess Hall was demolished in 1934 to make room for Crozet Hall (1935).

*1904 image of newly constructed buildings between the Barracks and the Old Hospital.*

In 1904, Frye and Chesterman also designed the Administration Building (later known as the Biology Building and now as Carroll Hall) on a site next to the Old Hospital. This Gothic Revival-style stuccoed masonry building was two stories tall and featured crenellated parapet walls, central square tower, and an octagonal turret. A third story was added in 1934. Carroll Hall is extant.

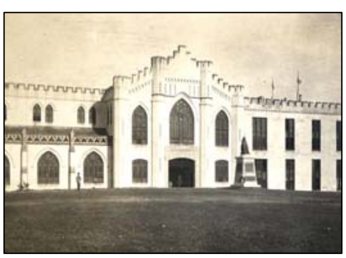
*1920 image of Carroll Hall.*

During this period of expansion, VMI improved Letcher Avenue from the Limit Gates to the Barracks. An 1889 photograph shows the avenue lined with recently-planted deciduous trees. By the turn of the century, the Letcher Avenue road surface was covered with rough gravel. There was also a sidewalk that bordered the Parade Ground. The section of Letcher Avenue at the Barracks was paved in brick circa 1903-1904. The road in front of Faculty Row, now known as VMI Parade, remained a dirt road with a brick sidewalk in front of the houses.

*1889 photograph of an improved Letcher Avenue with an allee of deciduous trees.*

Commemoration of the VMI cadets lost during the Battle of New Market also continued in the early-twentieth century. A 1905 photograph depicts the New Market Statue (*Virginia Mourning Her Dead*) on the Parade Ground opposite the Jackson Arch, Barracks. The memorial was sculpted by Moses Ezekiel (1844-1917), a graduate of the VMI class of 1866. He fought at New Market and went on to study sculpture in Germany. Ezekiel became a nationally-acclaimed sculptor and created the Jefferson Monument in Louisville, Kentucky, the Homer Group for the University of Virginia, and the Confederate Soldiers Memorial at Arlington National Cemetery.

The rapid early-twentieth century expansion of VMI included facility and infrastructure improvements. In 1907, a new Library and Heating Plant were built near the Barracks**.** The firm of Frye and Chesterman designed the Gothic Revival-style Library which was sited on the Parade Ground northwest of the Barracks. The Library was a side-gabled three-story stuccoed masonry building with a central four-story square tower. A Heating Plant was also needed to serve the growing Post. Located northeast of the Barracks on the steep slope above Woods Creek, the Heating Plant is a two-story brick building with a prominent round stack. The Library was demolished in 1948; the Heating Plant is extant.



*1905 image of the New Market Statue on the Parade Ground.*

In 1909, Norfolk architect John Kevan Peebles (1892-1934) designed Maury-Brooke Hall, located between the Barracks and Administration Building (Figure 1626). Maury-Brooke Hall is a three-story Gothic Revival-style stuccoed masonry building. Its parapet and multi-story windows reflect the influence of the Davis Barracks. Peebles was a noted alumnus of the University of Virginia who later designed multiple buildings for his alma mater as well as additions to the Virginia State Capitol (Lyle and Simpson 1977: 301). Maury-Brooke Hall is extant.

In 1912, the Davis-designed 1852 Porter's Lodge was demolished. After the Civil War, the building was used as an art museum and later converted into faculty housing. The reason for its demolition is not known.

*The library, constructed in 1907, was demolished in 1948.*

***Extant Historic Resources***

Sixteen historic buildings have survived from the post-Civil War period; the majority of these are residences. Only three institutional buildings remain from this period: Carroll Hall, modified with an additional floor in 1934; Maury-Brooke Hall; and the Heating Plant, substantially renovated circa 1958. VMI has demolished a total of six historic buildings from this era.

The thirteen extant historic residences reflect the late-nineteenth century growth of VMI and Lexington. They include the twin Gothic Revival cottages at 501 and 503 Brooke Lane, the 1900 frame house at 304 Main Street, and the 1880 house built by Governor Letcher at 306 Main Street. There are eight historic VMI houses on Letcher Avenue: Bachelor Officer Quarters (301 Letcher Avenue); 303 Letcher Avenue; Neikirk House (304 Letcher Avenue); 305 Letcher Avenue; Archer (or Cabell) House (306 Letcher Avenue); 307 Letcher Avenue; and Pendleton-Coles House (309 Letcher Avenue), moved to its current location in 1988. The Freeland House (320 Institute Hill) and one of the twin officers' quarters at 450 Institute Hill are also extant.

*Maury-Brooke Hall, shown here in 1925, was constructed in 1909.*

The Moses Ezekiel statue, *Virginia Mourning her Dead*, remains on the VMI Post although it was moved from its original site in front of Jackson Arch to the façade of Nichols Engineering in 1912.

## BERTRAM GOODHUE PLAN: 1913-1917

The post-Civil War reconstruction focused on meeting immediate needs without considering long-range planning ramifications. As a result, the carefully-planned Post landscape of A.J. Davis and Superintendent Smith was disrupted with new buildings in various architectural styles sited haphazardly around the Post. By 1913, the VMI administration came to the realization that a master plan was needed to guide future development. Accordingly, Superintendent Edward W. Nichols (1858-1927) began discussions with the prestigious architectural firm of Cram, Goodhue, and Ferguson. Like A.J. Davis, Cram, Goodhue, and Ferguson were among the leading architectural firms of the time. In 1903, the firm had won the design competition for the design of the U.S. Military Academy at West Point. Their work, completed in the Gothic Revival style, brought the firm great acclaim (Lyle and Simpson 1977: 234).

Bertram Goodhue became head of the firm's New York City office in 1903. The firm's important commissions included St. Thomas' Church and the remodeling of St. John the Divine. On the strength of his prestigious portfolio, Goodhue started his own firm in 1914. This move was an immediate success with a flood of nation-wide commissions for private homes, libraries, state capitols, and ecclesiastical buildings. Although a strong proponent of the Gothic Revival, Goodhue also believed that architecture should reflect its own time and combined modern materials and technology with the traditional stone work, oak carving, ornamental metal work, and stained glass (Lyle and Simpson 1977: 235).

In 1914, the VMI Board of Visitors engaged Goodhue to prepare a development plan for the future Post. This was to be his only commission in Virginia. No doubt influenced by the spatial arrangement created by A.J. Davis, Goodhue also based his work to some extent on several studies previously completed by Colonel Thomas A. Jones (Lyle and Simpson 1977: 235). Goodhue's vision was to enhance the buildings while creating new visual and physical relationships that would solidly link the Barracks with Lexington and the Parade Ground.

His basic design concepts would create a major axis between the Barracks and Main Street and a second axis between the Barracks and Parade Ground. His scheme would triple the size of the Parade Ground and complete the Barracks according to the Davis design. A new Faculty Row would be created along the bluff overlooking Woods Creek. VMI would have a formal and monumental grand entrance from Main Street flanked by new academic buildings rising dramatically from the ridge (Lyle and Simpson 1977: 235).

In essence, this plan would make the Barracks the centerpiece of VMI. Its towering west and south facades high on the ridge would convey the Institute's distinctive military image to the public and cadets. The original 1850 south section of the Barracks would become what Goodhue called "Front of Barracks" (Lyle and Simpson 1977: 235). It would functionally and symbolically serve as the main entrance into Post. A grand stair with a series of terraces would descend to Main Street from the parapet with President Washington's statue. Goodhue's 1914 plan showed a square plaza half-way down the slope with a pair of paved paths running east-west. The stairway terminus would be marked by a semi-circular plaza.

The Goodhue plan included two primary circulation loops: the first, a sweeping arc around the Parade Ground and the second, a southern elliptical drive connecting Main Street with the interior of Post. The upper Parade Ground drive would link the Barracks with faculty housing and Letcher Avenue. The lower drive would essentially link VMI's primary institutional buildings, Letcher Avenue, and Main Street.

To complete the Barracks, it would be necessary to first demolish the 1896 Jackson Memorial Hall and 1900 Smith Hall. Then the missing west and north sections could be built to finally achieve Davis' monumental rectangular building with an enclosed central courtyard. Goodhue planned a new grand entrance and sally-port in the middle of the west façade with a massive square central tower and a smaller turret. His plan included sites for future memorials in small plazas near the Barracks' two primary entrances.

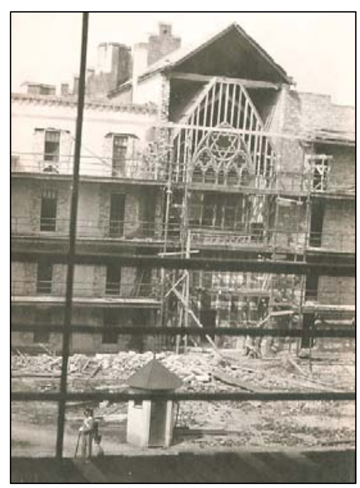
Goodhue planned massive grading changes that would level the northwest side of the Parade Ground by as much as thirteen feet (Lyle and Simpson, 1977: 238). The Parade Ground would be enlarged by almost three times its original size and require the relocation of the three Davis officers' quarters to the picturesque bluff overlooking Woods Creek. His plan included a new row of officers' quarters aligned along the new arc-shaped road.

### *Implementing the Plan*

The VMI Board of Visitors apparently enthusiastically embraced the Goodhue development plan because work began in 1914. Moving the three Davis-designed Officers' Quarters was the first project to be undertaken. Each building was documented in measured drawings and then carefully dismantled and rebuilt using the maximum amount of original material. The new location was north at the edge of the Woods Creek Ravine, a move of several hundred yards. The houses were set on a different axis, facing south, and set on a lower elevation than their original locations.

In 1915, Goodhue built three new quarters (now 406, 408, and 410 VMI Parade) that extended the line of Faculty Row. Their design was based on the Gothic Revival style established by Davis. The main facades are all asymmetrical with an off-center, crenellated turret and a first-floor arcade. This row of six residences was set against the heavily-wooded picturesque landscape of Wood Creek. The same year, the Parade Ground was significantly leveled. The hilly topography was graded to emphasize the Barracks and make it more prominent, whereas the officers' quarters were now less conspicuous.

With the planned demolition of the 1896 Jackson Memorial Hall, Goodhue proposed a new assembly hall. This new Jackson Memorial Hall was started in 1915 with $100,000 given to VMI by the federal government in recognition of damages inflicted by Union troops during the Civil War. Goodhue chose a dramatic location on the steep hillside south of the Barracks above Main Street. The building design was based on the Barracks and had Gothic Revival features such as crenellations, buttresses, towers, Gothic arch windows, and leaded glass. The interior had a central nave with side aisles and galleries and a romantic rustic character with exposed heavy timber framing and wood coffered ceilings. Goodhue designed each detail of the building down to the hardware (Lyle and Simpson 1977: 265).

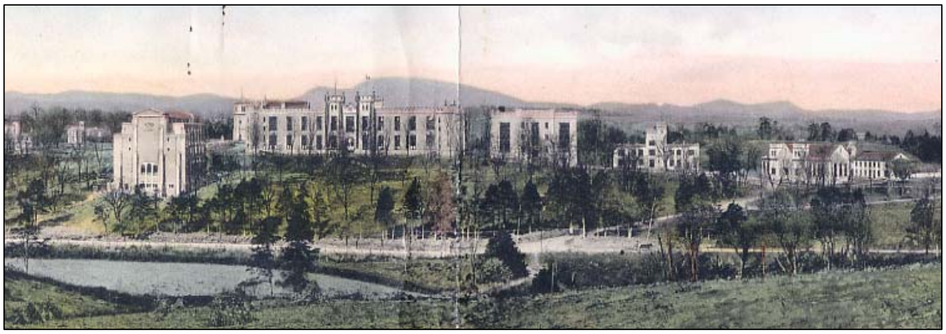


*1916 image of demolition of Jackson Memorial Hall and Barracks project.*

In 1916, after completion of the new Memorial Hall, the Board of Visitors authorized the conversion of the old Jackson Hall into barracks. In actuality, the old hall was razed to the courtyard level that year while Goodhue prepared drawings to complete the parade elevation. His 1914 design for the parade elevation had a monumental square central tower. This, however, was never built. When the northern section of the 1896 Jackson Memorial Hall was demolished, the western three-bay central elevation with its second-floor lancet windows was left standing and was used in the completion of the Barracks. Goodhue expressed his concern about the changes to his design, but Superintendent Nichols replied "we have no contract for this work and will not, perhaps for some years to come" (Nichols to Goodhue, October 12, 1916, in Lyle and Simpson 1977: 239).

Instead of a square tower, the central entry features from the Isaac Rose 1896 Memorial Hall were incorporated into the building. They included the pedimented parapet with turrets, central tower window, and Jackson Arch.

Although the new wing continued the Davis form and massing, it was not a mirror image of the original west façade. Goodhue's wing had five sets of paired windows and did not feature the Davis counterpoint of two triple pairs of windows. Also, the north end tower was much smaller than it southern counterpart. Taken as a whole, the Goodhue section was shorter and did not balance the symmetry of the Davis elevation (Lyle and Simpson 1977: 239).



*1916 illustration of the Barracks.*

Goodhue's involvement with VMI ended shortly after the completion of the Jackson Memorial Hall and Barracks parade elevation, both of which were completed in 1916. His plan for VMI remained substantially unfinished. The fourth side of the Barracks had not been completed as planned and the building remained in its U-shaped form. The curving road, which was to make a loop around the Parade Ground, was not built along the western side. A 1916 illustration shows that the "Front of Barracks" grand entrance was not built except for the upper Parapet and some terraces near the top of the ridge. Goodhue's 1914 plan showed an academic building to the east of the grand entrance which was intended to balance Jackson Memorial Hall; it would not be built until 1918. While locations of future memorials had been determined, none were erected.

Despite the unfinished nature of his plan, however, by the time Goodhue officially terminated his relationship with VMI in 1917, he had established a new direction for future Post development. The larger Parade Ground and Barracks parade façade became the new focus of activity. Although subsequent development added buildings around the Parade Ground that were not shown on Goodhue's plan, the landscape's role as a focal point was reinforced.

### *Extant Historic Resources*

Perhaps the most important legacy of Bertram Goodhue's involvement at VMI is his emphasis on the Barracks parade façade and the much-enlarged and leveled Parade Ground. This west façade became the primary elevation and dominates the Parade Ground. As a result, twentieth century construction has been focused along the undeveloped south and west edges of the Parade Ground. Academic Row to the south, and the administrative, alumni, and library buildings to the west, have impacted the once-open landscape shown on Goodhue's 1914 plan.

Post-Goodhue construction has had both negative and positive impacts. It disrupted the historic Letcher Avenue neighborhood, causing the demolition of one house, relocation of a second, and isolation of a third, the Freeland House.

The landscape's once-sloping topography has also been radically manipulated to accommodate new buildings. Nonetheless, most of the Institute buildings that ring the Parade Ground today have essentially followed the blueprint created by Davis and have compatible massing, scale, and Gothic Revival styling.

Today, only the parade façade of the Barracks dominates, but in fact, the Goodhue plan had two primary elevations. Goodhue planned the formal "Front of Barracks" to emphasize the historic front door and face of VMI, which has traditionally been the Barracks 1851 south façade. This imposing elevation was designed by Davis to command the crest of the hill when viewed from Main Street and downtown Lexington. Today, these important historic visual and physical relationships have been eliminated by the construction of the Swimming Pool Annex to Cocke Hall. The main entrance to the VMI Post is now from the west, through Washington & Lee University.

From the brief period of Goodhue's direct involvement at VMI from 1914-1917, four buildings remain. The three 1915 officers' quarters are extant along the Woods Creek ravine and are currently known as 406, 408, and 410 VMI Parade. Goodhue's masterpiece, the 1916 Jackson Memorial Hall, is also extant, but its majestic rear elevation has been largely obscured. Three historic buildings from this period have been lost: the 1896 Jackson Memorial Hall, Smith Hall in circa 1920, and the Library in 1948. The historic landscape of the Lexington Arsenal and mid-nineteenth Post was largely lost due to the enlargement of the Parade Ground and extensive grading. This altered the existing spatial relationships between the Barracks and the three faculty quarters, which were relocated during this period. The existing landform of the ridge top was also significantly altered by the regarding. The three Davis faculty quarters were also relocated during this period.

## EXPANSION BETWEEN WORLD WARS: 1918-1939

VMI underwent significant expansion of its facilities in the decades following the end of World War I. Growth was focused in two areas: around the Parade Ground at the Central Post and South Post at the base of Diamond Hill. The development of Central Post saw new academic buildings along Letcher Avenue oriented to face the open green parade. The South Post became an important extension of Post in the 1920s as cavalry training facilities and athletic fields were developed. This area would become the focus of athletic facility development at VMI through to the present.

### *Central Post*

After the departure of Goodhue, the Richmond-based firm of Carneal and Johnston was hired to design the new academic building Goodhue had envisioned to balance his 1916 Jackson Memorial Hall. The building, named Scott Shipp Hall after VMI's second Superintendent, maintained Goodhue's massing but with stripped-down Gothic Revival styling (Lyle and Simpson 1977: 239). The main façade has a stepped parapet wall with twin octagonal turrets and bay window above the arched entrance. Carneal and Johnston incorporated drip molds over the windows as seen in Davis' officers' quarters.

Scott Shipp Hall was completed in 1919 and housed many of the offices and classrooms formerly housed in the 1900 Smith Academic Building. With the completion of Shipp Hall, Smith Hall could be demolished to allow the north section of the Barracks to be built.

Construction of the missing north façade was underway in 1923 and closed the Barracks around a central courtyard. The final completion of A.J. Davis' plan for an enclosed rectangular Barracks was finally realized in 1925. One alteration occurred in 1926 when the tracery at Jackson Arch's main window was changed by Carneal and Johnston who were attempting to reinterpret Davis' design intent (Lyle and Simpson 1977: 239).

In 1912, the Moses Ezekiel statue of *Virginia Mourning Her Dead* was moved from its location opposite Jackson Arch. The move was necessitated by the arrival of a statue of Stonewall Jackson, also by Moses Ezekiel.

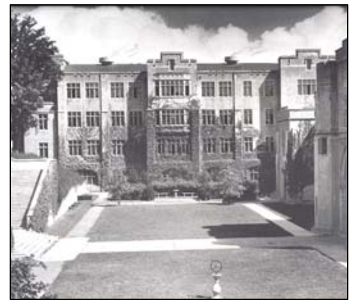
*1923 aerial of VMI shows a completed Shipp Hall and work on the Barracks in-progress.*

A rare aerial photograph in 1923 shows the Post after the completion of Shipp Hall in 1919 and the in-progress work on the Barracks in 1925. The road in the northwestern corner of the Parade Ground jogged around the 1892 Anderson House and did not yet follow Goodhue's planned arc. Several smaller roads fanned out across this portion of the Parade Ground towards the officers' quarters. Letcher Avenue was heavily shaded by an allée of trees. The southern slope of the ridge was in a relatively undeveloped state. It was dotted with trees, and tennis courts were located near the Freeland House. A diagonal path led from the 1916 Jackson Memorial Hall, past the tennis courts, to Main Street. The slope had a slightly unkempt appearance and was heavily shaded by the trees.

Following the completion of the Barracks, development continued around the perimeter of the Parade Ground. The first round of expansion occurred in 1927 with the construction of additional faculty housing west of the Goodhue officers' quarters. This duplex building, now known as 402-404 VMI Parade, was designed to harmonize with the 1915 houses. It is located along the curving road Goodhue planned around the north side of the Parade Ground. The residence is symmetrical with crenellated parapet walls and Gothic Revival detailing at side entrances.

The same year, 1927, Cocke Hall was built on the slope below the Barracks and above Main Street. It housed indoor athletic facilities. The long two-story building was designed with a tall lancet-arched entrance flanked by narrow octagonal turrets, reminiscent of those at the 1916 Jackson Memorial Hall. Although Goodhue had planned a grand stair in this location, the slope remained undeveloped, dotted with trees and crisscrossing paths.

The site plan for Cocke Hall created a sunken garden now known as the Memorial Garden. A double-loaded stair descended from either side of the Parapet to a formally landscaped rectangular area bounded by Scott Shipp Hall on the east, Cocke Hall on the south, and Jackson Memorial Hall on the west. Paved paths bordered all four sides and ran down the center from north to south, creating two square lawns. To the east, a small raised platform contained a seating area surrounded by low shrubs. A classical statue, “Spirit of Youth”, was installed in 1939 on the west end in honor of Brigadier General William H. Cocke. Ivy was encouraged to grow up the stair cheek walls and on the surrounding buildings.



*1933 image of the Memorial Garden with Scott Shipp Hall visible in the background.*

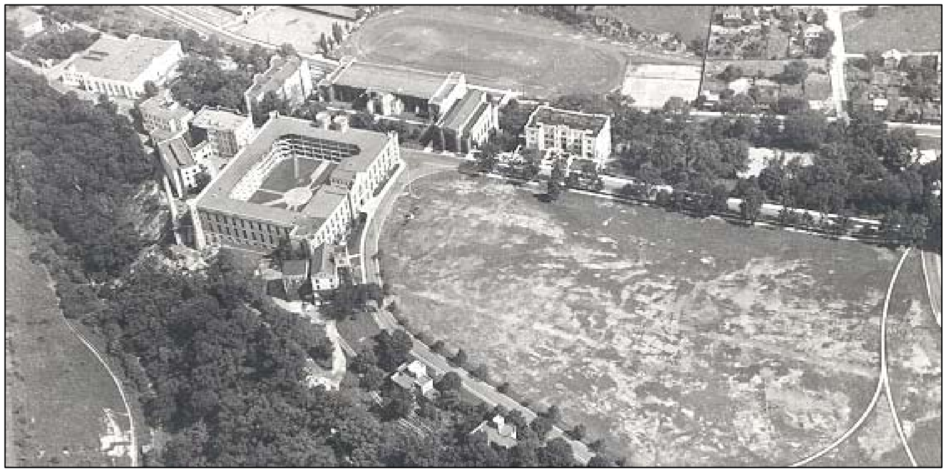
In 1929, a pedestrian bridge was constructed across Main Street, leading from the south side of Jackson Memorial Hall to the South Post. In conjunction with this work, a terraced garden was created immediately below Jackson Memorial Hall on the site of the current Cocke Hall annex. It served as a formal stair from the pedestrian bridge to Letcher Avenue. As shown in photographs dating to the 1930s, the garden was laid out with two tiers of limestone retaining walls and curving staircases on the east and west. A third garden tier was added in 1937. This configuration did not match the Goodhue plan but represented at least partial implementation of his design intent, albeit in a different location.

The next addition to the Post was the construction of Nichols Engineering building in 1931. It was sited on Letcher Avenue west of Jackson Memorial Hall. The three-story building faced the Parade Ground with a central entrance bay marked by shallow and square crenellated turrets and arched main entrance. As part of this work, a new memorial to the New Market cadets was created. The remains of six New Market cadets buried in the cadet cemetery, created in 1878, were re-interred immediately in front of the main entrance. Each grave was identified with a rectangular plaque. The statue of *Virginia Mourning Her Dead*, which had long stood opposite the entrance to the 1896 Jackson Memorial Hall, had earlier been moved to the site in 1912.

*Nichols Engineering building was constructed in 1931 and is shown here in a 1933 photograph.*

In 1931, a memorial to Francis H. Smith, the first Superintendent of VMI, was erected between Jackson Memorial Hall and Nichols Engineering Building. Designed by sculptor Ferruccio Legnaioli, the life-sized statue of a classical figure stood on a granite pedestal. It occupied a small plaza, delineated by a curving bench wall on the south, which was covered with scored stucco. The statue was moved to its current position in front of Smith Hall in 1979.

The 1892 Queen Anne style Anderson House was acquired by VMI in 1934. It was located north of Letcher Avenue and obstructed the Goodhue-planned arc of circulation around the Parade Ground because the road was forced to jog around it. Despite this, the Anderson House remained and was used as an alumni house until 1968, when it was demolished to make way for Moody Hall.



*1935 aerial photograph of the VMI Central Post.*

A 1935 aerial photograph shows the VMI Central Post during this period. There was a new landscape feature, an allée of trees installed on the north side of the Parade Ground, near the officers' quarters. The double row of trees was planted between 1932-1935.

Two new support buildings were constructed in 1935. A new mess hall, Crozet Hall, was constructed in the location of the 1905 Mess Hall, which was demolished. Greatly increasing the mess hall capacity, Crozet Hall is a long two-story building with a central bay marked by the pair of engaged octagonal turrets. The second building, Richardson Hall, was located on the site of the old Laundry/Chemistry Building east of the Barracks near the 1907 Heating Plant.

*Shown here in 1950, Crozet Hall was constructed on the site of the 1905 Mess Hall in 1935.*

In 1939, a new library, named the Preston Library, was built next to Nichols Engineering Building. The work involved the removal of the old tennis courts which were in poor condition by this time. Preston's parade façade had a central entrance bay which dominated the two-story building. Flanked by octagonal turrets, it featured a carved limestone panel surrounded multiple windows and arched entrance.

***South Post***

The VMI South Post is south of Main Street at the base of Diamond Hill. Beginning in 1920, South Post was developed for cavalry training and athletic fields. Prior to this time, South Post was mainly residential and agricultural in character. Two twin Gothic Revival cottages were constructed on Brooke Lane by VMI faculty in 1875 and 1885. Houses built by freed blacks existed on Main Street and were part of post-Civil War Lexington. The area remained predominantly agricultural with houses hugging the road until the 1920s.

*Historical image of Richardson Hall was taken the year of its construction, 1935.*

In 1919, VMI built its first structure on the south side of Main Street. The Stables building, now the Department of Buildings and Grounds, was constructed in the VMI Gothic Revival style with crenellated turrets at the end of this long low building. The Stables was surrounded by a corral and pastures.

The size of the Stables attests to the importance of cavalry training at VMI during this period.

*A 1920 photograph shows a small row of houses along Main Street. This area later became known as Diamond Hill.*

A 1920 photograph of the south side of Main Street shows a small row of houses along Main Street and other buildings along a pathway running perpendicular to the street. The houses are clustered near Lexington proper. A manicured athletic field or cavalry field can be seen to the east of this residential cluster. Given the popularity of college football during the 1920s, this field became a site for football games, which had traditionally been held on the Parade Ground. After the 1920 undefeated football season, all games were played at Alumni Memorial Field beginning in 1921.

The importance of the South Post for cavalry training and athletic fields plus the increase in traffic along Main Street led to the construction of a pedestrian bridge over the street in 1929. A 1932 aerial photograph shows the VMI Post just after Nichols Engineering was built. There is a formal athletic field with a baseball diamond and track. The 1929 bridge, with an oval stair leading down the south slope below Jackson Memorial Hall, spans Main Street and provided pedestrian access to the athletic field. The stables and riding grounds were located immediately east of the athletic fields.

In 1935, the cavalry facilities were improved with a new cavalry equipment storage building now known as the ROTC Motor Shop. This long one-story flat roofed building, sited immediately south of the Stables, was embellished with concrete block end walls and crenellated parapets. It was converted to a vehicle storage building circa 1950.

***Extant Historic Resources***

From the period between World Wars I and II a substantial number of buildings remain, dating from 1918-1939. On the ridge, the remaining resources include Scott Shipp Hall (1919), north façade Old Barracks (1919-1925), 402-404 VMI Parade (1927), Cocke Hall (1927), Memorial Garden (1927), Nichols Engineering (1931), Crozet Hall (1935), Richardson Hall (1935), and Preston Library (1939). The statue of Francis H. Smith still stands in the Central Post, but it was moved in 1979 from its original site to its current location in front of the new Smith Hall.

*1932 aerial shows formal athletic fields at South Post.*

In South Post, the extant buildings include the Department of Buildings and Grounds (former Stables 1919), Pedestrian Bridge over Route 11 (1929), and the ROTC Motor Shop (1935). Most of these buildings have been altered.

## POST-WORLD WAR II GROWTH: 1940-PRESENT

### *World War II: 1940-1945*

World War II profoundly affected VMI. The VMI Commandant was called to service in 1941 and served as chief of staff for the U.S. Army Pacific Ocean Area. Approximately 90 percent of the older cadets left VMI to join the Armed Forces in 1942. The incoming class of first year cadets outnumbered the total cadet corps three-to-one. Corps size was reduced from 700 before the war to 250 during the war. Cadets in the older classes continued to join the war before graduating, making for extremely small graduating classes from 1943-1946 (Wise 1994, 2).

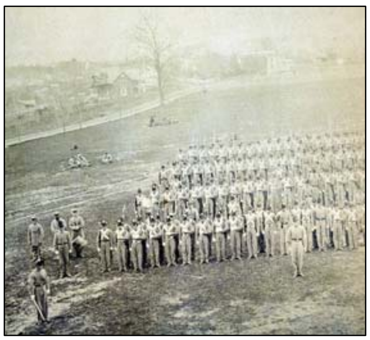


*Photo from 1869 with the Guard Tree evident in the background.*

Very little construction occurred on the VMI Post during the war years. A tradition also ended during this period with the death of the Guard Tree in the 1940s; it was reduced to a stump because of disease. The hickory tree had been a part of the Parade Ground from the earliest days of the Institute dating to 1839. It stood at the south center of the Parade Ground and can be seen as a mature tree in photographs from as early as 1869. According to VMI tradition, the tree was given its name in the nineteenth century when cadets camped on the Parade Ground during the summer months. The cadet guard tent had seniority and could set-up in the shade of the only tree. The Guard Tree was a popular gathering spot and appears in the background of many group photographs. The stump was finally removed around 1954 and replaced with a monument and plaque.

Constructed during World War II, the Cormack Field House, completed in 1943, was the last building constructed for cavalry training at VMI. It is sited on the South Post east of the Stables and ROTC Motor Shop. The building originally housed an indoor riding hall. The long one-and-one-half story concrete block building was covered with a half-barrel roof and lit by a central roof monitor. In 1950 it was converted to indoor athletic facilities and became known as “The Pit”.

*View of the New Barracks dating from 1950.*

### *Post-World War II Expansion: 1946-Present*

VMI experienced a building boom in the years following World War II. VMI cadets who had served in the war returned to complete their degrees. Enrollment in 1946 reached an all time high of 773. Many cadets were married, creating a mix of day students who lived in Lexington and regular uniform-wearing cadets (Wise 1994: 3).

The immediate response to the swelling enrollment was the extension of the Barracks. The New Barracks was constructed in 1949 as a quadrangle connected to the Old Barracks but slightly on angle. The 1907 Library building was razed for its construction. The new four-and-one-half story building featured a Tudor-arch sally-port entrance on the southwest façade with flanking octagonal turrets. The New Barracks followed the Gothic Revival style from A.J. Davis’ original design. Multi-story windows with diamond-paned wood casement sash closely followed the Davis window prototype.

Increased demand for housing at VMI led to the construction of two groups of brick bungalow cottages in 1950 and 1953. The first group of five bungalows dating to 1950 were located on Institution Hill below the twin 1903 Queen Anne style officers' quarters. The second group of four bungalows was constructed in 1953 immediately below the 1900 Freeland House. Both groups of bungalows were built into the sloping hillside. The houses are laid out in pairs with mirror-image bungalows facing each other. Each has a garage opening onto the south.

The first academic building to be constructed in the post-war years was Mallory Hall, completed in 1953. Sited west of Preston Library, Mallory Hall housed the Math and Physics departments. The main façade facing the Parade Ground is two-stories tall with a central bay embellished with multi-paned arched windows and carved limestone surround. In the same year, the Moore-Pendleton-Bates House was demolished.

Over the next two decades, construction was focused on the north and west sides of the Parade Ground, along the road now known as VMI Parade. In 1964, both the George C. Marshall Research Library and Francis H. Smith Hall were completed to the west. The Marshall Research Library is a one-story cinderblock building with stone detailing. It is a research library and memorial to General George Catlett Marshall, World War II Chief of Staff of the Army and a 1901 VMI graduate. Smith Hall is a two-and-one-half story stucco building with engaged octagonal turrets and crenellated parapet walls. It is the VMI administrative building. A memorial to General Lem Shephard, USMC, VMI class of 1917, was installed as a curving bench wall in the former location of the Smith statue.

In 1967, the Davis-designed 1852 Williamson House was razed to make room for the construction of Lejeune Hall. Lejeune Hall is octagonal in plan with a two-story three-bay wide arcade facing the Parade Ground. The building contained cadet services including a snack bar, book store, and reception facilities. Lejeune Hall was demolished in September 2006 in order to accommodate an addition to the Barracks.

Moody Hall, home of the Alumni Association, was completed in 1971. The two-story limestone building has a one-story Tudor-arched porch across its parade façade. The 1892 Anderson House, which had served as the alumni house since 1934, was razed to accommodate Moody Hall. The new alumni building is sited slightly to the west of the former Anderson House, allowing the road around the Parade Ground to curve as originally envisioned in the Goodhue plan. A new Science Building was completed in 1988 west of Mallory Hall. This caused the demolition of an historic home at 302 Letcher Avenue and the relocation of the Pendleton-Coles House to 309 Letcher Avenue. The new two-story stuccoed building attempts to reference the tradition of Gothic Revival architecture at VMI but with a post-modern lack of relief and incompatible colored sash.

Since 1955, rear and side extensions and annexes have been added to most of Academic Row. These include Scott Shipp Annex 1955, Nichols Annex, Mallory Hall Annex circa 1960, Cocke Hall Annex 1969, Preston Library extension 1971, and Crozet Hall expansion 2004. The latter involved demolition of the historic 1903 Post Surgeon's residence at 446 Institute Hill. Athletic and academic facilities have been continually improved and expanded in South Post, including Alumni Memorial Field (1962), Kilbourne Hall (1969), and Cameron Hall (1980). VMI has also expanded into North Post, located across Woods Creek. This area contains modern athletic fields and facilities, a welding shop, four residences, and an outdoor rifle range.

***Extant Historic Resources***

All of the historic buildings constructed after 1945 remain including the New Barracks (1949), Mallory Hall (1953), and the 1950 and 1953 bungalows. The historic bungalows are currently slated for demolition. The remaining buildings were constructed after 1960 and currently do not have historic significance. However, Moody Hall, Smith Hall, and the Marshall Library were designed to be generally compatible in scale, massing, and details with the rest of the VMI Central Post and should be maintained.

### THE FUTURE DIRECTION OF THE VMI POST: *VISION 2039*

VMI has stated its new goals in a document entitled *Vision 2039: Focus on Leadership*. This states that the physical plant should be "historic, beautiful, modern, and technologically enhanced" and goes on to say that the unique architectural coherence of the VMI Post will set the tone by communicating "extraordinary expectations" for cadets. The document establishes that facility improvements and technological advances will occur within the architectural and historic traditions of VMI.

Specific projects include the construction of a third Barracks and the demolition of the 1967 Lejeune Hall. A new Leadership and Ethics Center will be built west of Smith Hall to accommodate cadet activities, conferences, and events. The two groups of bungalows on Institute Hill are scheduled for demolition to build new parking facilities. Future proposed VMI expansion along Main Street calls for the demolition of additional historic buildings.

Proposed new athletic facilities at South Post will include a massive field house and an aquatics center at the entrance to Lexington. Maintenance facilities will be relocated to an off-site location, opening up the 1919 Stables for ROTC classroom and office space. Kilbourne Hall will be expanded to connect with the Stables.

The North Post is proposed as a center of athletic and leadership facilities. Suggested improvements will include an all-weather soccer-lacrosse stadium, a baseball stadium, multi-purpose fields, and challenge courses for first-year cadets.

## VMI's Historical Significance

VMI is significant as the first and most influential state-supported military school in the country as well as for its collection of Gothic Revival style buildings. It is also significant for its association with noted architects A. J.

Davis and Bertram Goodhue. In 1974, VMI was listed on the National Register of Historic Places and as a National Historic Landmark district. The Barracks is also individually listed as a National Historic Landmark.

As the first state-sponsored military institute in the United States, VMI was the model for other state-sponsored forms of military education, particularly in the South. The founding principles of VMI influenced other state institutions such as the Citadel in South Carolina and the Georgia Military Academy. VMI alumni became prominent soldiers, officers, leaders, and educators in both civilian life and the armed forces.

The National Historic Landmark designation focuses only on the core VMI Post around the Parade Ground, but the *VMI Preservation Master Plan* includes all historic resources built prior to 1956 on VMI property in Lexington. Based on an evaluation of these extant resources using the National Register of Historic Places criteria, VMI's period of significance is 1816-1953.

According to federal criteria, VMI retains integrity of location, design, setting, materials, workmanship, feeling, and association. Most of the historic architecture was executed in a unifying Gothic Revival style based on the Barracks, the oldest VMI Gothic Revival building. This masterpiece of A. J. Davis combines imposing architectural massing, heavy masonry walls, fortress-like crenellations and turrets, and deeply-set entrances with often delicate, multi-paned windows.

The central core of the VMI Post is surrounded by historic residences that reflect a variety of architectural styles from Neoclassical to Gothic Revival and Italianate. VMI includes the 1818 residence of the prominent Lexington builder and industrialist, John Jordan. Stono is strongly associated with the Neoclassical aesthetic and fine brickwork that Jordan brought to his buildings throughout Rockbridge County. Other notable residences include the Gothic Revival cottages known as the Pendleton-Coles house (309 Letcher Avenue 1867), the Brooke House (501 Brooke Lane 1875), and the Smith House (503 Brooke Lane 1885).

Some key historical features of VMI have been significantly altered. These include the topography of its south slope which has been intensively developed. This recent construction has severed the historic connection between VMI, Main Street, and the City of Lexington. Proposed projects in the *Vision 2039* plan will compound this physical barrier with monumental new buildings along Main Street. Other significant changes that have adversely impacted historic resources include gut renovations and large additions to buildings such as Nichols Engineering (1931) and Crozet Hall (1934).

# CHAPTER 3
# HISTORIC CONTEXTS

## Introduction

Historic contexts are patterns or trends in history that help clarify the historical importance of a property. The historic contexts for VMI consist of information related to specific themes, times, and places in American history. An historic campus typically relate to one or more contexts. Preservation planners use contexts as a tool to assess if a property illustrates a specific historic context, how it illustrates that history, and if it possesses the physical features necessary to convey the aspect of history with which it is associated.

## Historic Periods and Themes

### THE FOUNDING OF LEXINGTON AND THE LEXINGTON ARSENAL: 1738-1838

#### *Founding and Building of Lexington*

VMI is situated on a ridge top site to the west of the town of Lexington in Rockbridge County, Virginia. The establishment and later development of VMI is intrinsically linked with the history of Lexington. The area now known as Rockbridge County was settled as part of a 1738 royal land grant of 92,100 acres granted by King George II to Benjamin Borden (1675-1743). Borden was a wealthy Quaker from New Jersey who promoted the settlement of his tract in the heavily-populated areas around Philadelphia, where land had become expensive. Borden was required to settle at least one family per 1,000 acres. The first settlers were primarily of Scots-Irish descent and traveled to their new home along a Native American trail known as the Great Road or Valley Road. The Valley Road connected with a Colonial road leading west from Philadelphia, turned south through West Virginia and Maryland, and then traveled south through the Shenandoah Valley along the Blue Ridge Mountains (Gilliam 1982: 109-110).

Lexington was founded in 1778 as the county seat for the recently established Rockbridge County. The site for the new town was chosen for its accessibility to transportation routes; it was located along the great artery of the Valley Road near its crossing with the North (now Maury) River. An elevated spot was chosen to protect the town from flooding which was laid out on a grid plan similar to other Virginia court towns (Hadsel 1985: 3-4).

By 1796, Lexington had developed into a town of 250 people. Lexington featured several high-style Georgian brick residences, as well as stone houses, although the majority of early buildings were log and wood frame. On April 11, 1796, Lexington suffered a devastating fire that began in a stable on Main Street. It ravaged the majority of the town south of Washington Street and west of Randolph. Most of the early wood structures were destroyed, prompting a rebuilding campaign circa 1800 using more durable and fireproof brick masonry. Through the first quarter of the nineteenth century, Lexington prospered and witnessed the establishment of new educational institutions and churches. Much of this growth was spurred by an economic boom in 1815 that led to commercial expansion, improved transportation, and population growth (Lyle and Simpson 1977: 7, 13, 17).

Local citizen John Jordan (1777-1854) played a fundamental role in shaping the town during the economic boom following 1815. Jordan had arrived in Lexington by 1803 and may have worked as a brick mason for Benjamin Darst, a local builder and brick maker. John Jordan and his large family lived and developed extensive business interests in the area known as the Point, later called Jordan's Point, located at the confluence of Woods Creek and the North River. Jordan's Point consisted of fourteen acres of level land located at the base of a bluff.

The Point had long been an important location for transportation in the county, with a ford providing river crossing at this location as early as the 1740s. In the early-eighteenth century, the Jordan family controlled the river crossing here; their monopoly was strengthened after the construction of a toll bridge in 1834. Jordan established a foundry and forge as well as flour mills on the Point. Jordan's sons would remain on this land, controlling business from this strategic location through the 1860s (Gilliam 1982: 110, 113-115, 123).

Jordan also formed a business partnership with Benjamin Darst's son, Samuel (1788-1864), which flourished from 1815 to 1824. Together they are credited with constructing some of the most important buildings in Lexington. Acting as architect-builders, Jordan and Darst fundamentally influenced the architecture of the town. The Lexington Arsenal building, constructed in 1816, was one of their early commissions (Lyle and Simpson 1977: 18, 24).

In 1818, Jordan and Darst constructed Jordan's residence, Stono, on a ridge top overlooking Jordan's Point and the North River. Although it features Federal-style detailing, Stono is believed to be one of the earliest Neoclassical style buildings west of the Blue Ridge Mountains. Stono features both the proportions and details of the Neoclassical style. The prominent east facade overlooks the river. The central front-gabled two-and-one-half story main building has a two-story portico flanked by one-story wings. Four round Tuscan columns support the projecting pediment. The features of this portico were repeated at the Samuel Darst residence called Beaumont (1819) and Washington Hall at Washington College (1824). The fine brickwork used at Stono provided clients with proof of Jordan and Darst's quality materials and mastery of brick construction.

Jordan and Darst may have become familiar with the Neoclassical style through the use of builders' manuals, such as Owen Biddle's *Young Carpenter's Assistant* (1805), as well as by a direct connection to the construction of Thomas Jefferson's Monticello (1769-1808) (Lyle and Simpson 1977: 20, 23). An 1805 letter from Jefferson to Jordan indicates that Jordan provided brick building services at Monticello; Jordan would have received first-hand experience of the Neoclassical style from his work at Monticello. Another potentially important link to Jefferson's Monticello may be Jordan's enslaved laborer, known as "Brown", who worked as a brick mason at Monticello and was later sold to Jordan; he may have brought valuable skills and knowledge to Jordan's building business in Lexington (Pulice 2005: 8:5).

Jordan was also influential in developing the commercial economy in Lexington by promoting improvements in transportation. He was instrumental in the construction of the North River Canal, completed in 1851, which connected the North River to the James River and Kanawha Canal between Lynchburg and Richmond. The canal linked Lexington with markets to the east, making Lexington a trade center for counties to the north and west. Jordan was president of the North River Navigation Company whose goal was to extend the canal to Jordan's Point. Major Williamson of VMI acted as the engineer. The extension was not complete until 1860, after Jordan's death (Gilliam 1982: 115-116, 122). The development of these transportation routes sustained the economic growth of Lexington until they were superseded by the railroad.

### *State Militias in the New Republic: Lexington Arsenal*

The Virginia Military Institute has its genesis in the establishment of a state arsenal at Lexington in 1816. At the end of the American Revolution, there was a general distrust of standing armies that grew out of fears that a strong national army could be used to oppress individual and states rights. There was also a widely-held belief that the military as an institution corrupted the morals of young men (Bogle 2002: 63).

Based on the Constitution of 1787, Congress had a limited authority to appropriate funds to raise and support armies for a maximum two-year term. Only a small permanent force was maintained by the federal government. In times of conflict, the majority of the men would come from state militias, manned by citizen-soldiers. These men would lay down their arms at the end of the conflict and return to their civilian lives. Control of the militias remained primarily with the states which had various regulations and requirements. In an effort to organize the diverse state militias, the federal government passed the 1792 Uniform Militia Act, aimed at standardizing training and improving mobilization. This act later became the foundation for state militia legislation.

Under the Uniform Militia Act, militiamen were initially required to supply their own weapons. This led to a motley group of militiamen sporting a variety of firearms in various states of repair. In an effort to better equip their militias, states began acquiring and storing small arms. The extent of rifles, cannon, and ammunition supplied varied in each state; Virginia and Massachusetts were the only states to supply every artillery company with guns. The storage of arms required safe and secure locations for the maintenance and distribution of the equipment; thus, many states constructed arsenals for arms storage, guarded by a contingent of militiamen (Mahon 1983: 53, 58, 77).

Virginia established three state arsenals following the War of 1812. Lexington was selected as the site of the westernmost arsenal by local citizens appointed by Virginia's Governor, Wilson Cary Nicholas (1761–1820). The selected tract of land consisted of five acres situated outside of the growing town. The Lexington Arsenal site was strategically located on a bluff above the North River (now Maury River) with Woods Creek to the north and the unimproved Valley Road to the south. Washington College (later Washington and Lee University) had relocated to its current location west of the Arsenal site in 1804. The original brick arsenal building was designed by Major John Staples of Richmond and constructed by the noted Rockbridge County builders Jordan and Darst (Lyle and Simpson 1977: 211).

Originally a source of pride, the Lexington Arsenal became a well-spring of discontent for the Lexington community. The Lexington Arsenal was guarded by a company of state militiamen under the command of a captain. Rather than being model citizen-soldiers, the militiamen turned out to be rowdy, indolent, and poorly-organized. Over the following decades, the reputation of the Virginia militia declined.

By the 1830s, the undisciplined conduct of Lexington's arsenal guards had become a subject of popular discussion in Lexington. The Franklin Society of Lexington, composed of the local elite, debated various solutions to the problem of the arsenal guards and offered a unique course of action. The Lexington Arsenal site would become the location of the first state-sponsored military academy. Patterned on the United States Military Academy at West Point, the military academy would serve the interests of Virginia rather than the federal government (Wineman 2001: 9, 17).

## MILITARY EDUCATION IN THE ANTEBELLUM ERA: VIRGINIA MILITARY INSTITUTE 1839-1861

### *American Military Education and the Influence of West Point*

Formal military education in the United States began in 1802 with the founding of the United States Military Academy, later known as West Point. Prior to this, several national military schools were founded throughout Europe between 1750 and 1800, including the Prussian War Academy in Germany, l'École Spéciale Militaire (St. Cyr) in France, and the Royal Military College (Sandhurst) in Britain.

The need for a federal military school had been noted by George Washington in his 1783 "Sentiments on a Peace Establishment". Washington stressed the need for academies to provide essential engineering and artillery training which was not available to the average militiaman (Washington 1938: 374-76, 388-91). Anti-Federalist critics opposed the idea of a federal military academy and Washington's plan was not brought to fruition until the presidency of Thomas Jefferson. The founding of West Point can be seen as part of a trend in both the United States and Europe to provide formal education for future military commanders, teach emerging military theories and tactics, and provide practical courses in mathematics and engineering.

The most influential foreign model for military education in the United States was l'École Polytechnique in Paris. Founded in 1794, l'École Polytechnique was not initially a military academy. Originally, the school was established to provide specialized technical training for future civil servants who would later work in state departments developing national engineering and mining interests. Under the Napoleonic regime from 1804 to 1814, l'École Polytechnique was reorganized under a military regimen with graduates leading Napoleon's artillery and other state-sponsored endeavors. The school was used to train men who could support the state's military endeavors.

The Napoleonic era at l'École Polytechnique would prove to shape the future of American military schools because of its influence on two important leaders in military education at West Point: Sylvanus Thayer (1785-1872) and Claudius Crozet (1789-1864). Sylvanus Thayer served as superintendent at West Point from 1817-1833. He had visited l'École Polytechnique and returned to the United States with a host of ideas as well as "approximately a thousand volumes of technical studies, textbooks, and other works on mathematics, military art, and engineering, along with a collection of maps of the Napoleonic campaigns" (Lovell 1979: 22). Thayer's term at West Point started after this visit. Thayer was responsible for codifying the code of conduct for the cadets and promoting an engineering curriculum modeled after l'École Polytechnique. Claudius Crozet was a professor at West Point during the term of Thayer from 1816-1823. Crozet was an alumnus of l'École Polytechnique and aided Thayer in establishing West Point's engineering studies.

Prior to Thayer's appointment as Superintendent, West Point was struggling to remain open as academics and discipline floundered. The officers-in-training remained loyal to an eighteenth-century code of honor, which stressed personal honor over the greater good of the regiment. Efforts to discipline the students were considered personal affronts. Superintendent Alden Partridge (1785-1854) eventually resigned amid a scandal during which he arrested several professors accused of conspiracy (Bogle 2002: 64-65).

Thayer was brought in to overhaul the educational system at West Point following a directive from the Secretary of War, John C. Calhoun (1782-1850). He was tasked with establishing a board of visitors, standard subjects, general examinations, and a four-year academic program. Thayer is credited with codifying the academic curriculum and regulations, known as the Thayer System. This educational system was widely-adopted by other military education institutions in the nineteenth century, including VMI. The Thayer System attempted to combine the French system of technical education with the regimen of military life. Thayer's system was unique in that it created a uniform military experience that was devoid of class distinctions; it instilled cadets the need for both mental and physical discipline. Its three main components were discipline and character-building methods, pedagogical techniques, and a prescribed academic curriculum (Lovell 1979: 17-18).

The Thayer System of discipline closely followed the system established by the preceding Superintendent of West Point, Alden Partridge, while including a new emphasis on ethics training. Discipline was maintained through a chain of command under the Superintendent's leadership. The Commandant reported directly to the Superintendent and was responsible for maintaining discipline and providing military training. The Commandant was, in turn, supported by assistant military officers and a cadet chain of command. Cadets with the greatest amount of training and experience were responsible for supervising younger cadets.

This disciplinary system was designed to be egalitarian, with command falling to cadets and officers according to rank, not social status; typically, class, not talent, had previously determined a soldier's rank in contemporary military institutions. In addition to following established rules and regulations, cadets were required to attend chapel and undergo ethics training to promote moral discipline. The egalitarian and moral ethics of the Thayer System proved popular and aided the spread of the system to other military academies. Thayer's discipline methods differed from his predecessor in that the ultimate goal was the creation of a body of disciplined, civic-minded engineers with a shared sense of responsibility to society and a common code of ethics (Lovell 1979: 18-19).

The academic techniques followed at West Point consisted of recitations of learned text. Recitations were graded daily and general reviews for each subject were undertaken twice a year. Cadets were ranked according to their combined grades from recitation and from military training and conduct. Cadet ranking caused fierce competition, which helped to maintain discipline and academic achievement (Lovell 1979: 19).

The academic curriculum at West Point was completely proscribed over the four-year term. All coursework was set for every cadet; no electives were allowed. The first and second years of introductory work led to advanced coursework in the final two years. The general emphasis was on engineering-related subjects such as drafting and mathematics. Students were required to learn French because many of the engineering textbooks were written in that language. Additional academic subjects included chemistry, natural philosophy (physics), geography, history, and moral philosophy (Lovell 1979: 22).

The emphasis on French engineering texts at West Point was underscored by the presence of Claudius Crozet (1789-1864). A trained engineer, Crozet served under Napoleon and immigrated to the United States in 1816, when he began work as a professor of engineering at West Point. Given the strong engineering emphasis at West Point, Crozet was an influential figure during the years of Thayer's superintendence. In 1823, the Virginia Board of Public Works elected Crozet as Principal Engineer and Surveyor; Crozet departed for Richmond, ending his duties at West Point. From 1823 until 1843, Crozet was actively engaged in hundreds of public improvement projects for Virginia, including the building of canals, roads, and railroads. Crozet's contributions in Virginia included involvement in the founding of the Virginia Military Institute in 1839. As the first head of the Board of Visitors, Crozet brought the Thayer System and French engineering principles of West Point to this fledgling educational institution.

The engineering curriculum established at West Point was avant-garde in the context of American education circa 1800. During the early-nineteenth century, West Point was the only institution in the United States to offer formal engineering training. The focus on engineering, mathematics, and physics was not part of a typical college education until the mid-nineteenth century. West

Point graduates left with a practical and specialized professional skill, in contrast to the general education obtained by the typical college student. Most American colleges of this period also required a solid foundation in classical languages for admission. The study of French, rather than Greek or Latin, distinguished the West Point curriculum from other contemporary colleges (Lovell 1979: 23).

However, the Thayer System also shared many similarities with other teaching techniques, disciplinary rules, and regulated daily routines found at contemporary colleges. At both West Point and typical nineteenth century colleges, teaching was conducted through recitation and the memorization of texts, instead of through practical hand-on experience. For example, chemistry was learned through recitation of key passages rather than by running experiments in a laboratory setting.

The rigorous disciplinary rules of the Thayer System were not altogether unusual for educational institutions of this era. Most professors at contemporary colleges viewed themselves first as disciplinarians and second as educators. Behavioral problems were a concern at all schools and regulated with rules and a graduated list of potential punishments. The unique aspect of the Thayer System at West Point was that the punishments were military in nature, involving extra guard duty or drills. The tightly-regulated daily routine was common for both students and cadets with a typical day at a college beginning at dawn followed by mandatory prayers, breakfast, morning devotionals, and classes with a break for lunch, supper, and mandatory study in the dormitory until lights-out. Proctors and tutors patrolled the dormitory corridors after hours, just as the officers and cadet corps monitored their fellow students at West Point (Morrison 1986: 104, 106-107, 110).

***The Establishment of VMI***

The Franklin Society of Lexington espoused the idea of creating a military school at the Lexington Arsenal to provide for the protection of state arms as well as to train future model militiamen in Virginia. The proposal put forward by the Franklin Society was published in the *Lexington Gazette* in 1835. The Franklin Society's proposal for the military academy was primarily the work of John T.L. Preston (1811-1890), a local lawyer and Washington College graduate.

Under this plan, the arsenal guards would be replaced with young men between the ages of 16 and 24 who would carry out guard duty while receiving a practical education. The proposed curriculum included courses in English, Latin, mathematics, natural philosophy (physics), chemistry, and military arts. The benefits to Virginia were three-fold: the Arsenal would be better protected; state militiamen would be formally trained; and citizenry would benefit from the body of graduates who would serve Virginia's education and engineering needs (Wineman 2001: 21-24).

It is clear that the founders of VMI modeled their military school on the established academy at West Point. However, the founders were equally aware of the recent criticism of elitism at West Point and actively avoided certain practices. Throughout the 1830s, West Point was considered one of the best schools in the United States and played an outstanding and unique role in educating American engineers. By the late 1830s, however, an increasing amount of criticism was leveled at West Point for creating an elite class of engineers who served the federal government for only a short time. Most West Point graduates tended to stay in their low-paying Army positions for only one or two years. More often, the West Point graduates left their federal government positions to work in more lucrative positions with private firms engaged in large-scale public improvement projects. Rather than forming a cadre of trained army officers, West Point was turning out private engineers who were profiting from their government education in new public works projects (Wineman 2001: 69-70).

In contrast, the founders of VMI stressed both the egalitarian nature of admissions and the important role of future graduates in improving Virginia through science and education. Preston's writings expressed the progressive and democratic ideals of Jacksonian America. Industry, commerce, and education were promoted as forces that would improve the nation and provide advancement for the lower classes. According to Preston, the graduates of the military school in Lexington, educated in practical sciences, would provide Virginia with much-needed engineers and technicians.

VMI graduates were not necessarily destined for military careers. The military training at VMI would prepare graduates to command militia units in an emergency situation and not just for regular service in the army. Instead, the graduates' primary duties would be civilian engineers and educators. Their work improving roads and canals and educating other young men would in turn enhance the lives of all citizens. (Wineman 2001: 60, 77-78).

Preston's promotional essays also underscored the egalitarian nature of the Institute. As a state school, VMI would provide educational opportunities to a wide section of the male population who could not afford to attend private institutions. This would allow the poorer citizenry to improve their sons' prospects through education, as admissions were open to all white males in Virginia. Students who could not pay full tuition could receive state funds. However, some personal funding was required even for state-supported cadets to pay for uniforms and food. This continued to prevent the extremely poor from attending VMI.

Within VMI, all classes of students would be treated equally regardless of economic standing. The military aspect of the school would act as a social-leveler, removing distinctions of class by creating a sense of uniformity that would erase social distinctions (Wineman 2001: 26, 28). In this era of progress, the spread of education, technology, and material wealth was a popular idea. One of the first members of the Board of Visitors at VMI remarked that the educational program for the new military academy was a "valuable institution, alike accessible to the poor and rich [which] stands as a kind of intermediate point between the academies and university, affording the very best training for scientific and industrial pursuits" (Report to Governor John B. Floyd from Philip St. George Cocke, July 4, 1851, quoted in Lyle and Simpson 1977: 211).

Through Preston's eloquence and influence, state legislators passed an act in 1835-36 that changed the mission of the Lexington Arsenal by adding the role of military college. As part of its founding, Virginia required that state-supported cadets teach in a public school for at least two years following graduation (Smith 1912: 19).

While the mission of VMI differed from that of West Point, the command structure, military regulations, and academic curriculum were carefully patterned after this distinguished Academy renowned for its engineering education. Founding members of the Institute had close ties to West Point. Francis Henney Smith (1812-1890), a West Point graduate and mathematics professor at Hampden-Sydney College in Virginia, was appointed the first VMI Superintendent. Smith served as Superintendent of the Institute for the first fifty years of its existence. The first president of the Board of Visitors was Claudius Crozet, former professor of engineering at West Point under Sylvanus Thayer and later Virginia's Principal Engineer and Surveyor. Smith carefully crafted the VMI academic curriculum based on the West Point model, while Crozet drafted the VMI Code of Regulations drawing heavily on the Thayer System. Crozet also brought his direct experience at the l'École Polytechnique and its engineering curriculum. The emulation of West Point at VMI extended to details such as the cadet uniforms patterned after those worn at West Point (Wineman 2001: 82-85).

### *A.J. Davis and the Gothic Revival Style at VMI: 1851-1861*

Within ten years of its founding, the number of applicants to VMI exceeded the space available in the Arsenal Barracks. This sign of success underscored the need for new barracks to replace the deteriorating arsenal building (Lyle and Simpson 1977, 212). While Superintendent F.H. Smith had constructed essential buildings, such as officers' quarters, a mess hall, and a hospital, the old Arsenal barracks remained primitive and could no longer accommodate the growing cadet corps. With the financial backing of Philip St. George Cocke (1809-1861), a wealthy Virginia planter, VMI received both funds and aesthetic direction for a new barracks. Cocke had recently completed Belmead, his villa residence in Powhatan County (1845-48), designed in the Gothic Revival style by renowned New York architect Alexander Jackson Davis. Both Smith and J.T.L. Preston visited Cocke's villa, approved of Davis' work, and acquired his services for VMI in 1848.

Alexander Jackson Davis (1803-1892) was at the time at the height of his career as one of the most well-known architects in America. Davis was not formally trained as an architect but began his career as an architectural illustrator. In 1829, the young Davis was made a partner in the firm of Ithiel Town (1784-1844), a leader in the popular Greek Revival style. In addition to obtaining a premier architectural apprenticeship, Davis had access to Town's architectural library. This library acted as a substitute for the European travel which Davis never undertook, providing inspiration for his own European-based designs. Together, Town and Davis completed prominent landmarks, such as the Indiana State Capitol (1831-35) and the New York City Custom House, now Federal Hall (1833-1842). The majority of their work was executed primarily in the Neoclassical style.

Working independently after 1835, Davis designed the first examples of the Gothic cottage as well as the Italianate villa. These Davis prototypes from 1836 set the standard for the many popular Gothic and Italianate style buildings that followed. Davis was versatile in the use of many architectural styles, including Neoclassical, Gothic Revival, or Italianate depending upon the demands of the client. However, he preferred the more romantic styles for residential construction. Davis also wrote and illustrated seminal books on residential design. His own pattern book, *Rural Residences* (1838), although well-respected, was not as popular as his collaborations with Andrew Jackson Downing (1815-1852). Davis illustrated Downing's widely-read and much-copied publication *The Architecture of Country Houses* (1850).

Davis was best-known for his residential design, particularly for wealthy clients in New York State's Hudson River Valley from 1840-1860. Although most of the Davis designs were carried out by local builders without his oversight, Davis had personal involvement with his work in the Hudson River Valley. His Gothic Revival villa, Lyndhurst (1838 and 1864), remains a lasting masterpiece of this style of architecture. At Lyndhurst, Davis perfected his Gothic Revival style and designed mantels and sideboards, bay windows, and pocket shutters which were widely imitated by others.

Davis was also a prolific institutional architect designing insane asylums, prisons, and educational institutions. For these buildings, Davis invented a multi-storied window known as the Davisean window; this window design is thought to be the precursor of the modern strip window. Created in 1831, the Davisean window was typically two- or three-stories, recessed in one plane, with a panel at floor level and mullions running its entire height. This window unit was a signature Davis detail found on many of his institutional buildings regardless of their architectural style (Davies 1992: 10).

Adept at many styles, Davis' institutional architecture took many forms. His romantic Gothic Revival style was particularly well-adapted to educational buildings. Davis used the Gothic Revival style for collegiate architecture beginning with the chapel at New York University in 1835. This project was influential in popularizing the collegiate Gothic Revival style as seen in the Davis designs at the University of Michigan at Ann Arbor in 1838-1839.

In 1837, Davis designed a hotel on Constitution Island in the Hudson River opposite West Point; the hotel (never built) was designed in the Gothic Revival style with little ornamentation and was similar to his later work at VMI. With an irregular tower alignment, the hotel was not symmetrical; square towers stood on one end with a large octagonal tower and taller square tower at the other. The main building was eleven-bays long with a one-story porch running the entire length. Windows were a mix of lancet and rectangular windows with drip-mold detailing, two-story rectangular and bay Davisean windows, and arched Gothic Revival triangular windows. The roofline was crenellated (Davies 1992: 11). At VMI, Davis was given the opportunity to display his prowess in adapting the Gothic Revival style to both residential and academic buildings. Davis was tasked with designing the Barracks, Mess Hall, Porter's Lodge, and three faculty residences. All were constructed by John Jordan under the direction of Superintendent F.H. Smith.

The Lexington Arsenal site plan essentially shaped the early development of VMI. Davis adopted the functional layout of the earlier military buildings along the ridge. The fortress-like Barracks commanded the ridge top, while the Mess Hall, always a fire hazard, was located at a safe but convenient distance away. For the quarters to the north of the Parade Ground, Davis developed a more informal residential character and utilized the dramatic topography to create views out over Woods Creek.

The Barracks was located on the site of the earlier Lexington Arsenal, just as the new Mess Hall was constructed on the site of its predecessor. The three houses for the Superintendent and two officers faced the Parade Ground along its north side and a Porter's Lodge was sited just to the east of the western entrance gates.

The three Davis-designed residences at VMI followed the Gothic Revival style he had previously adopted for villas. The initial plans for the VMI quarters were very similar in their asymmetrical form and plan to the Italianate villa-style country residence Davis was designing for R.O. Morris in Louisa County, Virginia (Lyle and Simpson 1977: 221); the primary difference was that all but one of the VMI residences were designed to be symmetrical while the villas were asymmetrical. Davis found symmetry to be more fitting for a military institution than his usual irregular, romantic Gothic Revival style. Davis' background in classical architecture allowed him to adapt his Gothic style to a plan that reflected classical symmetry and order.

The easternmost Officer's Quarters, designed for the Commandant Colonel Gilham, was dominated by a central three-story square tower. The central Officer's Quarters, designed for Professor Williamson, was slightly irregular with a central octagonal tower and taller hexagonal tower as well as a one-story porch at the southeast corner. The Superintendent Quarters had a central entrance bay flanked by tall octagonal towers. The rear façade had a semi-circular projecting center bay with a porch to capitalize on the views across Woods Creek. All three residences were unified by crenellated rooflines, stucco exteriors, drip-mold detailing, and diamond-paned casement windows meant to mimic leaded glass.

The Barracks, as designed and completed by Davis (1851-1861), is a particularly fine example of his skill in combining Gothic Revival details with the classical planning principles of order and symmetry. Although the entire Davis Barracks plan was never completed, its final form was completed as a symmetrical quadrangle. The Barracks façade was four-stories tall and thirteen-bays wide with a central Tudor arched passageway and drip-mold crown. The entrance bay was flanked by tall octagonal towers with a stepped parapet in the middle. The twin end bays featured slightly shorter octagonal towers. The roofline was crenellated with deep shadows cast by the parapet wall. The verticality of the structure was emphasized by pairs of Davisean casement windows which spanned two floors. For economic reasons, the Barracks was constructed of brick and covered with a scored stucco to mimic dimensional stone.

### *Military Education in the South: The Influence of VMI*

In its first decade, VMI became a model for other southern state-sponsored military schools. The writings of both J.T.L. Preston and Superintendent F.H. Smith were often quoted by advocates for these later institutions. In some states, such as South Carolina, there was a similar need to replace unreliable militia units defending state arsenals. In 1842, South Carolina manned its two state arsenals with student guards who were simultaneously given an education in liberal and mechanical arts. Originally called the South Carolina Military Academy, it was later renamed the Citadel, after the state arsenal in Charleston. In other states, such as Georgia, there was simply a desire to educate future generations of engineers and educators for civic improvements. The Georgia Military Institute in Marietta was established in 1851 and was influenced by both VMI and the military enthusiasm following the success of the Mexican-American War. Burned in 1864 during the Civil War, the Georgian Institute was never rebuilt.

Both institutions drew heavily on the VMI model. Their regulations were adopted almost verbatim from VMI; each consciously copied the VMI code of regulations, punishment system, and curriculum. As at VMI, the founding principle of each school emphasized the goal of producing industrious citizens of the state, rather than military officers. In each case, the schools required state-sponsored graduates to teach for a minimum of two years in public schools (Wineman 2001: 98, 102-103). This was an important distinction between the state military institutions and the federal academies (Wineman 2001: 10).

The growth of southern military academies took place against the backdrop of a mid-nineteenth century expansion of institutions of higher learning. Many schools added professional instruction in medicine, law, and education. During this era of progressive educational theory, the emerging southern middle class believed that public education was the best way to improve society. This group took advantage of the relatively inexpensive and practical military education, which unlike most antebellum colleges, did not require extensive classical training for admission. Therefore, middle-class cadets dominated southern military schools. The science-based curriculum was also appropriate for young men seeking a professional career. Moreover, the ideas of modernity and expanding material wealth promoted by the military schools was appealing. By 1850, every southern state, with the exception of Texas and Florida, had either established a public military institution or was in the process of doing so (Wineman 2001: 10). By 1860, ninety-six military colleges, academies, and universities were opened in the southern states (Andrew 2001: 19). All told, military schools in the antebellum South educated more than 10,000 young men prior to the Civil War (Green 2002: 6, 16).

### *Architecture at Military Institutions*

Architecturally, American military academies were based on a different model than their civilian counterparts with spatial environments exhibiting the unique characteristics of a military establishment. The plans depended upon the utilitarian function of the site, rather than on aesthetic design. The site was usually dominated by a fortress-like substantial masonry building that served multiple purposes. This fortress commanded the most strategic location and provided the best perspective of the surrounding area. Access to the interior of the fortress was through gated sally-ports which opened onto a central courtyard. The courtyard itself was well-guarded and ringed with balconies.

Specialized services were often sited outside of the main building. The mess hall was prone to fires and was kept at a safe but convenient distance from arms or sleeping quarters. Hospitals were also kept separate to quarantine patients from the healthy population. A large flat piece of ground was required for drills and musters; therefore a Parade Ground was usually located adjacent to the main building, or barracks.

The Old Central Barracks (1839-1845) at West Point served as a model for many military school barracks, including VMI. Designed by West Point Superintendent Richard Delafield, the Old Central Barracks featured a central entrance with a two-story oriel window and small crenellated towers and flanked by towers at each end capped with onion domes. Constructed of granite, the trim details, string courses, and window drip moldings were emphasized with contrasting red sandstone. The rooms were aligned on either side of a central stair hall (Miller 2002: 49). Military barracks at other schools developed in a similar form. Many antebellum military schools had barracks with rooms or hallways opening directly onto a central open courtyard. The courtyard was a highly public space with guards patrolling there and along the hallways. Here was a physical manifestation of the disciplinary system at military schools where cadets were supervised by other cadets and officers (Green 2002: 73-75, 111).

The architecture at military schools was meant to reflect a regimented, structured, and disciplined atmosphere. In some cases, the original buildings were built for defense and military purposes. For example, in the early years of the Citadel 1842-1919, the original arsenal housed most of the dormitory and academic facilities. This building was a rectangular barracks with crenellated parapets (Bond 1936: 24, 194). Although the Citadel relocated to a new site in 1920, all of the new buildings were patterned on the military Gothic style of the original barracks building. Although the school was not originally intended to be used for defensive or military purposes, its earliest buildings reflected a military post. Crenellated parapets suggested that surveillance was required from the building heights. Massive masonry walls gave the impression of a fortress, even if defense was not the primary goal.

## STATE MILITARY EDUCATION IN THE POST-CIVIL WAR ERA: VIRGINIA MILITARY INSTITUTE 1865-1913

### *The Civil War Period*

In the years leading up to the Civil War, many military schools shifted their state-oriented focus to prepare for war; scientific education became secondary to military training (Wineman 2001: 126). Nonetheless, both VMI and the Citadel continued to promote education in the face of conflict. During the war, VMI managed to remain open until 1864 and actually saw a surge in applicants. This has been ascribed to both military fervor and parents hoping to keep their sons out of the fighting. VMI cadets were in demand as drillmasters to train militiamen, a much-needed skill, and this often kept them out of armed conflict (Andrew 2001: 28).

The Civil War profoundly effected both VMI faculty and cadets. Thomas “Stonewall” Jackson (1824-1863) taught natural and experimental philosophy at VMI from 1851-1861. He was ordered to command the VMI Corps of Cadets to Richmond in 1861 where they were needed as drillmasters. Soon after, he led a brigade of men from the Shenandoah Valley. His military prowess was evident at the Battle of Manassas and the subsequent Shenandoah Valley campaign in 1862. Ultimately, he was accidentally shot by friendly fire in 1863 and later died from the wound.

In May 1864, the Shenandoah Valley was under attack by U.S. General Franz Sigel, whose goal was to cut the Virginia Central Railroad line at Staunton. The Valley was defended by a relatively small Confederate force lead by General J.D. Imboden. The VMI Corps of Cadets was called to join General John C. Breckinridge in Staunton. After two days of marching through mud and rain, the cadets reached Staunton and then proceeded to march on to New Market. Skirmishes began almost immediately, but fighting did not break out until the following day. The cadets joined the Battle of New Market in the late morning of May 15, 1864, advancing through the artillery line of fire. On Bushong Hill, the cadets came under extremely heavy fire, as they were only hundreds of yards away from the Union batteries. Rather than fall back, the cadets courageously charged forward and began firing on the gunmen. This was a turning point in the battle; soon the Union artillery line was broken and forced to retreat. Ten VMI cadets lost their lives during the battle or from wounds received at the battle (Couper 1933: n.p.).

The Civil War arrived on the doorstep of VMI a month later. In a strike through the Shenandoah Valley, U.S. Major General David Hunter arrived in Lexington on June 11. The VMI faculty and cadets retreated to a camp in the Blue Ridge Mountains. Hunter set up temporary headquarters in the VMI Superintendent’s Quarters. On June 12, Hunter ordered the burning of VMI including the Barracks, two Davis-designed faculty quarters, and Mess Hall. The buildings were completed gutted and all of their contents destroyed. Only Superintendent Smith’s quarters was spared. The extent of the destruction forced VMI to relocate, temporarily, to Richmond.

Many military schools closed or were destroyed during the Civil War and never recovered. VMI, however, reopened in 1865 despite the extensive damages. The school now held a position of honor in the post-war South. The decisive role of the VMI cadets at the Battle of New Market and the valor of former faculty brought prestige to VMI and a dedication to rebuilding (Andrew 2001: 31, 34, 37).

### *Post-Civil War Lexington*

Immediately following the end of hostilities, Lexington experienced a housing shortage even though the town had not been seriously damaged by fire or looting due to an influx of people from other war-ravaged areas. Residential construction could not begin until 1867 because building materials, workers, and funds were in short supply (Lyle and Simpson 1977: 36). The first post-war houses, such as the Pendleton-Coles House (1867) on Letcher Avenue, therefore tended to be modest in size.

Lexington rebounded more quickly than other cities in the South, with widespread street and civic improvements evident by the 1870s. A building boom occurred in the 1880s, intensified by a period of land speculation from 1889 to 1892. During this period, Lexington and this part of the Shenandoah Valley region, experienced a “frenzy of speculation, investment, and construction” by incorporated land companies (Lyle and Simpson 1977: 39). Large parcels of land were acquired by these companies for development. Typically, lots were sold off to individual homeowners rather than developed in large tracts. Many of the land companies eventually went bust. This era in Lexington was characterized architecturally by large mansions and major public buildings designed in a profusion of late-nineteenth century styles.

Most of the residences that are now owned by VMI were built during this boom period. Letcher Avenue was planned to connect the western VMI Limit Gates to Main Street. The road, which crossed the Washington and Lee campus, was formally dedicated in 1874. This was a desirable location for VMI faculty and four houses were erected even before the street was completed. The Gothic Revival wood-fame cottage at 309 Letcher Avenue (Pendleton-Coles House) was built by the VMI Post Surgeon in 1867. The same year, an Italianate brick residence at 306 Letcher Avenue was constructed by the Archer family; it is also known as the Cabell House. Shortly thereafter, in 1872, VMI faculty member Colonel William Blair built a brick Gothic Revival residence at 304 Letcher Avenue; it is now known as the Neikirk House. In 1880, Samuel Letcher, son of the Civil War-era Virginia governor, constructed an Italianate brick residence at 305 Letcher Avenue. Nestled between the two educational institutions, Letcher Avenue remained a desirable real estate location throughout the rest of the nineteenth and early-twentieth centuries.

### *Campus Planning at Military Educational Institutions*

The tendency of many military schools to look to the past isolated them from the new planning trend that swept across other college campuses at the beginning of the twentieth century. Born from the City Beautiful movement, this trend became known as the University Beautiful movement. The City Beautiful movement promoted a reformist belief that the aesthetic beautification of cities and sites would bring widespread moral and physical improvements. The guiding principles of City Beautiful were defined by order, dignity, and uniformity, and based on an eclectic classical model known as Beaux- Arts. Beaux-Arts gained national attention at the 1893 World’s Columbian Exposition in Chicago and spawned both the popular Beaux-Arts architectural style and spatial planning and design trends. It emphasized views, axial relationships, focal points, symmetry, monumental buildings, and graceful circulation patterns. The goal of the Beaux-Arts movement was to create a harmonious whole; architecturally, the movement relied on detailing such as cornices of a uniform height and other unifying style and massing elements.

The classical planning methodologies of the City Beautiful movement were rapidly adapted to campus planning and gave rise to the University Beautiful movement. It proved to be especially well-suited for universities planning for growth. Many schools, such as Ohio State, Bucknell University, and Washington and Lee University, incorporated existing and proposed buildings into comprehensive plans featuring open grassy quadrangles lined with monumental buildings, axial circulation patterns, and views and vistas. The preferred architectural styles for University Beautiful plans were the Neoclassical and Colonial Revival.

While some civilian schools were unifying their campuses with new architectural styles and formal Beaux-Arts plans, military schools continued to place their emphasis on historic architectural traditions as part of their custom of respect and glorification. The use of an historically-based Gothic Revival architectural vocabulary at VMI and West Point has endured as their signature style and iconic image. This VMI tradition was firmly established by the early-twentieth century and would guide growth and planning for years to come.

***The West Point Example: Cram, Goodhue, and Ferguson***

Against this backdrop, military school planning developed a new twist under the influence of the noted architectural firm of Cram, Goodhue, and Ferguson. They created new plans for West Point and VMI which utilized Beaux-Arts planning approaches but defied the uniformity of the University Beautiful movement. Using each institution’s existing architectural idiom, architects Ralph Adams Cram (1863-1942) and Bertram Grosvenor Goodhue (1869-1924) developed innovative designs with axial relationships, geometric forms, long-range vistas, and symmetry while using topography to add drama and perspective. They first worked at West Point in 1903. Goodhue later applied many of the same principles to his planning work at VMI from 1913 to 1917.

Cram and Goodhue joined forces in 1891 at a defining moment in their careers. Cram had just obtained his first major commission for All Saints’ Church in Ashmont, Massachusetts. Goodhue, fresh from his internship with James Renwick (1818-1895), had acquired the commission for the Dallas Cathedral of St. Matthew (never constructed). Both men had a strong affinity for the Gothic Revival style; they believed that the craftsmanship, beauty, logic, and attention to detail found in gothic buildings could be applied to modern architecture.

The United States Military Academy at West Point was strategically located on a lofty bluff above the Hudson River in southern New York State. The rugged topography and rocky cliffs shaped its site plan and provided dramatic opportunities for monumental buildings and long-range vistas. Just as the West Point educational and disciplinary system influenced the VMI curriculum and regulations in the nineteenth century, its site plan would shape VMI in the twentieth century.

A military post was established at West Point in 1775 because of its unique topography. This bluff above the Hudson River provided long-range views both up and down the river and across to the eastern shore. Here, the river makes two nearly-hairpin turns and forces ships to navigate the narrow passages and rougher waters. All ships, therefore, were required to slow their speed and were at the mercy of the forces commanding the bluff. West Point was a key post in the Revolutionary War and successfully protected Manhattan and the lower Hudson from British advances. Before the establishment of the United States Military Academy in 1802, West Point remained an active post.

The early Academy at West Point was just a handful of wooden buildings from the original military post. Permanent buildings were not erected until 1815 and included the Cadet Mess Hall, Academy Building, and North and South Barracks. These buildings were arranged around three sides of a central parade ground with spectacular views of the Hudson River. The first architectural style of West Point was created by Superintendent Major Richard Delafield (Superintendent 1838-1845). He designed a new Library, Barracks, and Ordnance Compound in an eclectic Tudor-Gothic style featuring crenellated rooflines and towers with parapets (Miller 2002: 3, 5-7).

Delafield's hybrid style would prove difficult to integrate into new buildings at West Point. By the late-nineteenth century, the nationally-prominent architects working at West Point, Richard Morris Hunt and McKim, Mead, and White, found Delafield's buildings awkward and chose to work in their preferred style. Hunt designed the Gymnasium and the second Academic Building (1889) in the Romanesque style. McKim, Mead, and White designed both the Officers' Mess and Cullum Hall (1890s) in the Neoclassical style (Miller 2002: 30-31).

A defining moment in the development of West Point occurred in 1903, when the firm of Cram, Goodhue, and Ferguson won the national competition to plan and design the future West Point. Their innovative design was inspired by a modern interpretation of Delafield's Gothic Revival-influenced architecture. Cram, Goodhue, and Ferguson gave West Point a cohesive architectural style by incorporating characteristics of Delafield's buildings into a new style, termed Military Gothic. Military Gothic is a blend of Gothic details drawn from the academic compounds of Oxford and Cambridge, England with the substantial massing, heaviness, and crenellated towered rooflines of military fortresses (Miller 2002: 9).

Cram and Goodhue's planning work at West Point and at other schools such as Sweet Briar College and Rice University relied upon the rational order and strong axes typical of the Beaux-Arts planning movement. However, they softened the traditional Beaux-Arts style with irregularly placed elements that often appeared naturalistic and organic rather than designed. The firm's winning design at West Point was organized around two north-south and east-west axes. The north-south axis was the main approach and culminated at a pair of monuments on the far side of an enlarged parade ground, known as the Plain. The east-west axis linked the academic buildings on the Plain with a new Observatory on the top of the hill.

This approach created a monumental whole. One of the most prominent new buildings was the Cadet Chapel designed by Bertram Goodhue from 1906-1910. Cram, Goodhue, and Ferguson also designed numerous buildings on the Plain at West Point, including Taylor Hall (1905-1910), Bartlett Hall (1903-1913), Thayer Hall (1908-1911), Power House (1905-1909), Lincoln Hall

(1908-1909), Arvin Gymnasium (106-1910), and the Buffalo Soldiers Field Group (1903).

Two buildings on the Plain are of particular note in connection with VMI. First, Thayer Hall, a riding hall by Ralph Adams Cram, is a large rectangular structure with crenellated parapets that rises from the edge of the bluff. Constructed of local granite, Thayer Hall appears to emerge from the rocky bluff itself, thus the architect effectively utilized the topography for dramatic effect. This idea would later be applied by Goodhue at VMI in his 1916 Jackson Memorial Hall and proposed, but largely unrealized, “Front of Barracks” monumental axis.

The second building, the Cadet Chapel by Bertram Goodhue, is sited on a high point overlooking the Plain (Oliver 1983: 45, 47). It clings to the rocky cliff, thus taking advantage of the topography to create a commanding presence. Both the interior and exterior are finely-detailed. The Gothic Revival style church has a cruciform plan with a square Norman-style tower at its crossing, hexagonal towers at the narthex portal, and crenellated roofline. The interior has a long broad nave with low side aisles and large clerestory windows that emphasize the structure and its verticality (Oliver 1983: 56). It features a stone vaulted ceiling and masonry floor with lancet-shaped stained glass windows. The Cadet Chapel also set a precedent for Goodhue’s Jackson Memorial Hall and his use of dramatic topography, buildings rising from steep slopes, and the execution of fine church design at VMI.

## CAMPUS PLANNING AND EXPANSION: VIRGINIA MILITARY INSTITUTE 1914-1917

### *The Goodhue Master Plan*

In the years following the Civil War, VMI expanded its facilities in a haphazard and unplanned manner. No master planning had occurred since the A.J. Davis-era (1851-1861) fifty years earlier. Anticipating expansion in the new century, VMI Superintendent Lieutenant General Edward W. Nichols (1858-1927) engaged Bertram Goodhue in 1914 to develop a master plan for the Post. Nichols decision to use Goodhue was based on the architect’s extensive Gothic Revival portfolio and his high-profile work at West Point. Goodhue was tasked with redesigning the Post and establishing a direction for future expansion (Lyle and Simpson 1977: 235).

Goodhue’s plan for the VMI Post retained the A.J. Davis buildings and set the stage for orderly growth. He used the same approach honed at West Point: a rejection of the uniformity of the University Beautiful reform movement while embracing the formal axial relationships, symmetry, focal points, and sweeping vistas associated with the Beaux-Arts movement. In his plan, Goodhue established dual primary axes and retained the informal edges of the existing Post site plan. The primary east-west axis focused on the Barracks west façade across a vastly-enlarged Parade Ground from the perspective of the west Limit Gates. In essence, the Barracks became the centerpiece of the core Post set against an expansive greensward. He softened its imposing bulk with an irregular elliptical drive, now known as VMI Parade, and the dense woodlands along the ridge above Woods Creek.

The size of the Parade Ground was increased by carefully relocating the three Davis- designed residences further the north. The rearrangement created a new residential row aligned along the curved drive above Woods Creek. Goodhue designed three additional Officers' Quarters to create Faculty Row; they are now known as 406, 408, and 410 VMI Parade (1915). These buildings harmonized with the spare Gothic Revival style of the 1850s and 1860 residences but added a more-modern spatial use of voids and solids.

Once the houses were removed from the central Parade Ground, the massive Barracks became dominant and the visual impact and prominence of the faculty residences was diminished. Because the three historic buildings were set at a different angle below the plane of the Parade Ground, they became a visual backdrop to the sweeping Parade Ground and fortress-like Barracks. The Goodhue plan was to complete the Davis quadrangle with a monumental new Barracks west façade. However, the Barracks was not to be finished for another ten years and did not include the Goodhue west sally-port design.

The primary north-south axis was intended to be a monumental "Front of Barracks" approach from Main Street to the Barracks south façade. The plan featured a massive formal stair cut into the steep slope with a square plaza half-way up the bluff. At this point, Goodhue placed gracefully curving paths running to the east and west. New circulation was planned in the form of an irregular elliptical drive encircling the "Front of Barracks" which followed the sites topography. The Goodhue plan terminated this strong north-south axis at the President Washington memorial set against the imposing Davis Barracks rising from the bluff. Although some features of a formal stair approach were later built in a different configuration, this portion of the Goodhue plan was never executed as designed.

Goodhue's dramatic emphasis on the original section of the Barracks was underscored by the vertical rise and width of the stair. His plan gave further visual and spatial prominence to the Barracks by framing it with a pair of new buildings on the top of the bluff. To the west, Goodhue placed a memorial hall with an academic building to the east. These new buildings would be cut into the topography and appear to emerge dramatically from the top of the bluff (Lyle and Simpson 1977: 235). The Goodhue plan retained the back-of-house services buildings to the east including the 1904 Mess Hall as well as the administrative and academic Carroll Hall and Maury-Brooke Hall.

### *Goodhue Buildings*

By 1914, Goodhue was at a turning point in his career. He and Cram had just ended their business partnership although the two had been working independently for some time. This prompted Goodhue to pursue new design concepts that would eventually result in a transition of his trademark style. During a visit to England in 1912, Goodhue had observed the work of architect Giles Gilbert Scott (1880-1960) at the Cathedral in Liverpool. Designed in the Gothic Revival style with a cross plan, the building has a massive square tower

with battered walls that rise at the cross axes. What struck Goodhue was the fact that Scott had reduced Gothic Revival to bare geometric forms; this use of strong geometric massing and clean crisp detail appealed to Goodhue.
The Liverpool Cathedral caused Goodhue to re-evaluate his own approach to using Gothic architectural features on modern buildings. He rejected profuse and elaborate decorative motifs in favor of geometry, massing, and abstraction (Oliver 1983: 130). This exploration eventually led to Goodhue's design of the Nebraska State Capitol. Completed 1920-1932, this building is widely-believed to be the precursor of the 1930s Art Deco style for high-rise buildings (Oliver 1983: 188).

Despite his growing interest to pursue new forms and styles, Goodhue's architectural work at VMI remained more traditional and was largely based on his earlier Gothic Revival buildings. His strong body of ecclesiastical work is reflected in the architecture of Jackson Memorial Hall (1916), Goodhue's primary contribution to VMI's built legacy. The 1916 building replaced the 1896 Memorial Hall. The latter was demolished as per the Goodhue plan so that the missing north and west facades of the Davis Barracks could be built.

Goodhue's Jackson Memorial Hall faced the Parade Ground at right angles to the Barracks. The parade façade features a large central five-lancet Gothic arched window below a prominent pediment flanked by short octagonal towers. The side elevations are more dramatic and cut into the steep slope. As a result, they rapidly drop two stories below the elevation at the Parade Ground. Eight-bays long, the side elevations feature twin lancet windows between heavy buttresses. The rear southern elevation was designed to be a very prominent component of the "Front of Barracks." Its tall central bay contained a seal with the national and state emblems above a tri-partite leaded glass window. The impressive interior nave has side galleries which create low side aisles. It is richly ornamented with brass lamps along the main aisle and a mural of the battle of New Market as the focal point in the apse. Goodhue designed the hall with an exposed heavy timber-frame structure that supports the side balconies. The rustic dark wood framing and coffered wood ceilings contrast with the pale-colored plaster walls and paired lancet windows in each of the balconies bays.

Jackson Memorial Hall has numerous parallels with the Cadet Chapel at West Point (1903-1910) and other projects by Cram, Goodhue, and Ferguson. Details, such as hardware, found on the VMI building are very similar to Goodhue's earlier work; in fact, the Jackson Memorial Hall entrance rim lock is almost identical in form to the rim lock at Saint Thomas's Church in New York City (1905-1913) (Oliver 1983: 69). In many ways, Goodhue adapted the concepts used at West Point to VMI: Jackson Memorial Hall's imposing mass set into the steep bluff; twin lancet windows; heavy buttresses; and traditional Gothic Revival detailing all reflect this influence. Interestingly, at VMI, Goodhue continued to design using the approaches that had made him so prominent, even as he was embarking on a transitional style that would lead to new design possibilities for the Gothic idiom.

## BETWEEN THE WARS: VIRGINIA MILITARY INSTITUTE 1918-1939

The new plan for VMI set forth by Bertram Goodhue coincided with the United States involvement in World War I from 1917-1918. VMI cadets and alumni were well represented in the United States Expeditionary Force commanded by General John J. Pershing (1860-1948). Over 2,000 VMI alumni served in the war, with 1,200 as commissioned officers. According to VMI records, over 82 percent of VMI students and alumni between the ages of 17-40 served their country during the conflict (Strum 2002: 27).

World War I had profound impacts on the military tools and tactics that would later influence military education in the United States. At the beginning of the conflict, the European armies used nineteenth century military tactics and had only limited modern technology. By the end of the war, most of the armed forces had modernized and were using wireless communications, armored tanks, and aircraft. After World War I, it was clear that the conflict had dramatically changed the American military. In order to adapt to the new complexities of warfare, the United States military established a new bureaucratic structure that introduced a streamlined promotion system, centralized decision-making, and new war schools for the various branches of the military (Neiberg 2000: 23).

Another impact of World War I was a major national initiative to improve and expand military training in the United States. This lead to the creation of the Reserve Officers' Training Corps (ROTC), established by the 1916 National Defense Act. The act outlined three basic components of the United States military system: active-duty forces; organized reserves; and the National Guard. The National Guard was the modern equivalent of the now-outdated state militia organizations. The act created ROTC to absorb the existing military training programs at land-grant schools and military colleges (Neiberg 2000: 23-24).

ROTC was designed as a four-year training program as a college elective. Its objective was to develop leadership skills, problem-solving, strategic planning, and professional ethics in a diverse student body. The first two-year basic course was often mandatory at military schools while the second two-year advanced course was voluntary. Completion of the full four-year program required graduates to enlist for active service and made them eligible for a commission in the reserves or National Guard.

VMI adopted the ROTC program when the 1916 program was in it infancy, though the new ROTC training program was temporarily suspended during American involvement in World War I. In 1919, the program was revived and thirty-five institutions were granted ROTC agreements. By January 1922, over 57,000 students were enrolled in 131 units. There were few active-duty commissions available after World War I. These scarce positions were primarily given to graduates of Annapolis or West Point, and many ROTC graduates who wished to enlist for active duty found that they had no opportunities for a commission. This would change dramatically after World War II (Neiberg 2000: 26, 28).

Military education in the interwar years started to change in the aftermath of a long and destructive war. Not only had the technology become more complex, but the entire process of waging war had changed. War was no longer just a science of force and tactics. It was now restricted by international agreements to limit its use and regulated by ethical rules of conduct. The new military needed to be a thinking body that acted with great deliberation. Policy, diplomacy, and ethical conduct became an integral part of warfare. Accordingly, American military education was forced to broaden its scope to meet the challenges of international conflict in the twentieth century (Hattendorf 2002: 9).

This post-World War I period also saw a general trend in America towards isolationism and anti-militarism. A conscription plan was stopped by popular discontent; pacifist groups flourished on United States campuses. Military education was not considered a priority by the tax payer. In this climate, the continued relevance of VMI was challenged by the Commonwealth of Virginia and in 1927, the state legislature appointed a commission on education. This group recommended closing VMI. It determined that the liberal and vocational education offered there was available at other state schools such as the University of Virginia and Virginia Polytechnic Institute. In the end, influential VMI alumni successfully persuaded the state that the Institute played a vital and important role in education (Strum 2002: 25-26).

Despite these challenges, VMI continued to grow and expand after World War I and several major infrastructure projects were completed. These included the construction of Scott Shipp Hall (1919) for the liberal arts department; it was built based on the Goodhue plan to balance Jackson Memorial Hall to the west. The original vision of A.J. Davis was finally realized with the completion of the Barracks from 1919-1925. This, too, was based on the Goodhue plan to finish the enclosed rectangle, albeit with the Isaac Rose 1896 central sally-port west façade known as the Jackson Arch. VMI built additional academic buildings including Cocke Hall (1927), an indoor athletic facility, Nichols Engineering (1931), Crozet Hall (1935) as the new mess hall, and the Preston Library (1939). Cavalry training was enhanced with the development of facilities on South Post.

## WORLD WAR II: VIRGINIA MILITARY INSTITUTE 1940-1945

World War II had a much greater impact on the VMI Post than World War I, in part since prominent faculty members were called to active-duty. The VMI Commandant, Colonel Henry B. Homes Jr., left to serve in 1941 and was later promoted to Chief of Staff, United States Army, Pacific Ocean Arena. While over 4,000 VMI alumni served in the armed forces during World War II, the vast majority of cadets also enlisted. In 1942, approximately ninety percent of all VMI cadets joined the Armed Forces. The incoming class of first year cadets in 1943 outnumbered the total cadet corps by three-to-one. The pre-war class size of 700 was reduced to 250. Throughout the war, senior cadets left before graduating to serve their country. This left extremely small graduating classes during the period 1943 to 1946 (Wise 1994: 2).

During the war years, VMI used the extra space created by the reduced cadet corps to accommodate students in the Army Specialized Training Program

(ASTP). Two notable American figures passed through the ASTP program – Mel Brooks and Gore Vidal. This was an accelerated course to prepare recruits for active-duty by teaching them civil engineering and other specialized subjects. In the fall of 1943, VMI was home to 500 Army Specialized Training Program students who easily outnumbered the cadets. By the end of the war, VMI had trained over 2,000 men in this Army program (Wise 1994: 2-3).

With dramatically reduced enrollments and war-time shortages, very little construction occurred at VMI during World War II. The exception was the 1943 Field House on South Post. This utilitarian building housed the indoor riding hall and was the last building specifically built for cavalry training at VMI. Ten years earlier, the United States Army had begun converting their mounted cavalry units to armored tank divisions, and by 1943, the tradition of the military cavalry had become largely ceremonial. Cavalry training was dropped from the VMI curriculum after World War II.

## POST-WORLD WAR II: VIRGINIA MILITARY INSTITUTE 1946-PRESENT

Following the lean war years, VMI experienced a building boom and rapid expansion. Many of the cadets who had enlisted in the armed forces returned to complete their degrees. In 1946, VMI saw enrollment reach a record 773. Many of the returning cadets were older and married. This new group of cadets was given the option of living in Lexington with their families and enrolling at VMI as day students. Returning cadet veterans were also exempt from guard duty, parades, and drills (Wise 1994: 3).

To meet the greatly-increased housing needs, VMI built the New Barracks as an extension of the original Barracks in 1949. New faculty houses were also critically needed and VMI built two sets of brick bungalows in 1950 and 1953. A separate building for the Math and Physics Departments, Mallory Hall, was also completed along Academic Row in 1953.

In the 1950s, VMI expanded its ROTC training program and made it mandatory for all students. Influential military leaders including VMI alumnus General George Marshall and General Dwight Eisenhower, a West Point graduate, acknowledged the important role of ROTC graduates in the war, especially in its early days after Pearl Harbor. These generals were pivotal in supporting a stronger emphasis on ROTC and military education starting in the late 1940s (Neiberg 2000: 32-33).

This era signaled the start of United States involvement in global issues and the development of a much-larger and more sophisticated military. The new military required graduates with training in diverse disciplines such as public relations and financial administration. With a growing military on active-duty, ROTC graduates were readily able to find commissions (Neiberg 2000: 36-37). During this period, VMI emerged as a senior military college within the ROTC program; VMI graduates in the ROTC program were guaranteed an active-duty commission if requested.

The scope of military education continued to grow during the 1950s. Americans generally supported the belief that the use and conduct of national militaries world-wide must be limited by international agreements. Armed forces were increasingly used for new peace-keeping missions. As a result, military education evolved to meet the academic standards and diversity found at civilian institutions. This improved the quality and breadth of the military curriculum as schools met the need to understand science and technology with liberal arts training and cross-cultural understanding (Hattendorf 2002: 9-11).

An even more radical change in the diversity of the VMI student body was triggered by a 1976 federal ruling requiring federal military institutions to accept women. However, single sex state-sponsored institutions were not legally challenged until the 1980s. In 1985, the Supreme Court ruled in *University for Women v. Hogan* that a state-funded institution could not bar men from admissions. This prompted VMI to reassess its own male-only policy. This internal assessment concluded that the all-male student body was justifiably essential to the VMI experience (Strum 2002: 31).

These arguments were tested in 1989 in a suit was brought against VMI by the United States Department of Justice challenging the male-only policy. Through protracted court battles, the case eventually went before the Supreme Court. In 1996, the Supreme Court ruled against VMI in *The United States vs. Virginia*, demanding that it make equal provision for female applicants. African-American Justice Clarence Thomas abstained from the decision because his son was attending VMI at the time (Brodie 2000: 11, 21).VMI's male-only policy ended with the admission of women to VMI in 1997.

The transition to coeducation at VMI was based on careful planning at the administrative, faculty, and cadet levels. Various accommodations were made for female cadets and involved both small and substantial changes to Post facilities. Shades were installed over the Barracks room doors, which could only be pulled down when cadets were dressing. New female bathrooms were placed in existing rooms in the Old Barracks and all academic buildings. Exterior lighting levels were found to be uniformly poor and new illumination was installed throughout the Post. Athletic facilities were also expanded to accommodate female cadets during the renovations of Cocke Hall and Cormack Field House (Brodie 2000: 110, 113, 120, 122-123).

## FUTURE VISION FOR VMI: VISION 2039

A vision statement for the next three decades at VMI has been captured in a document entitled *Vision 2039: Focus on Leadership*. Its overarching goal is to place new emphasis on creating leaders in all walks of life and to instill graduating cadets with a feeling of civic responsibility for their communities and nation. To attain this vision, VMI has articulated fourteen broad goals focused on the academic, military, athletic, and physical environment. Academically, VMI seeks to become the premier undergraduate college in America with a balanced curriculum in engineering, science, and the arts. VMI has been designated the nation's number one public liberal arts college by *US News and World Report* for several years.

The military environment will remain at the core of the VMI experience and VMI will seek to build cadet leadership, teamwork, and a commitment to service. A key goal is to increase the number of VMI graduates who accept active or reserve commissions with the armed forces. In athletics, VMI seeks to expand opportunities for cadets in club sports and intramurals. Athletic competition will support teamwork and leadership.

The physical plant will be enhanced to support the VMI mission. VMI will seek to preserve and maintain the historic built environment while developing modern facilities and keeping pace with new technologies. The vision also includes a number of new buildings. A new Leadership and Ethics Building will support conferences and events and house the new VMI Leadership Program. New athletic facilities will expand opportunities for cadets and the community. In sum, the VMI vision is to look forward and enhance the VMI tradition of academic excellence, military training, and leadership.

# CHAPTER 4
# PRESERVATION APPROACH FOR VMI

## Introduction

The purpose of the *Preservation Master Plan* is to assist VMI in the preservation of the historic integrity and character which defines the Post today. Long after cadets and visitors leave the Post grounds, the memories of the buildings, landscape features, and history of the site endure. The final product achieved through the preservation planning process will be a tool to assist VMI's decision-makers, facilities staff, planners, and historians in preserving the historical character of the campus, while simultaneously allowing for growth and change.

VMI is the steward of a collection of nineteenth and twentieth century buildings and landscapes designed and planned by some of the nations leading visionaries and designers – A.J. Davis, Bertram Goodhue, and John Jordan. The legacy of their ideas lives on today, and contributes to the significance of the VMI Post. Preserving these remaining resources is important to VMI and the desire to maintain these resources, while planning for future development, was the impetus for the *Preservation Master Plan.*

The distinctive character and scale of the buildings and landscapes at VMI are reminiscent and reflective of the Post's military origins and heritage. This unique history and character is one of VMI's most valuable assets, as it sets it apart from other colleges and universities in the region. The visions of Davis and Goodhue are still visible to some degree today, and they create a tangible link to the history of VMI. Understanding and retaining the unique characteristics are central to promoting and preserving the Post.

When cadets, faculty, staff, and visitors walk across the Post, they are acutely aware that they are not on a typical college campus. Military remnants, memorializations, and cadets participating in long-standing traditions are just a few of the visible characteristics that make the Post different than other college campuses. Familiar buildings and landscapes associated with the Post, such as the Parade Grounds and the Barracks, contribute to the distinctive identity of VMI. From the colors of the buildings, to the architectural vocabulary which defines the Post, the elements of the Post character are crucial to the creation of a "sense of place."

Preservation is truly a practical discipline that allows for the accommodation of change and development while maintaining the integrity and character that make a "place", such as VMI, special and unique. Building uses can come and go, but once the original building fabric is gone, it can never be reclaimed in its original form. Therefore, maintaining the original historic fabric of a building, its unique design features, materials, and design elements is critical to a sound and justifiable preservation approach. The importance of regular cyclical maintenance using methods and materials appropriate to historic resources cannot be overstated. It is important that facility managers and staff at VMI become personally acquainted and comfortable with the recommended treatment guidelines for landscapes and buildings presented in subsequent chapters of this document. The involvement and understanding of those individuals directly responsible for maintenance and design decisions at VMI is critical to the successful implementation of the *Preservation Master Plan.*

## The Secretary of the Interior's Standards

Professional standards for historic preservation are provided to the general public by the Secretary of the Interior, National Park Service. The Secretary of the Interior established the *Standards for the Treatment of Historic Properties (Standards)* as part of the National Historic Preservation Act of 1966. The *Standards* provide a philosophical framework intended to promote responsible preservation practices. The *Standards* were intentionally developed to be broad and therefore, can be applied to virtually all types of historic resources, including buildings, landscapes, roadways, structures - such as bridges, and archeological sites. The philosophy behind the recommendations and treatment guidelines for VMI is based on the *Secretary of the Interior's Standards for Rehabilitation,* which are a component of the *Standards for the Treatment of Historic Properties*. Because the *Standards* are applicable to anticipated projects at VMI, they have been used as the philosophical framework for this document.

The intent of the *Standards* is to assist in the long-term preservation of a building, site, or resource. However, the *Standards* are not principles which can be used to make specific decisions about what features of any specific building, landscape, or site should be saved or replaced. Case-by-case decisions require additional direction which goes above and beyond the framework provided in the *Standards*; it is best to look at the *Standards* as an approach to sensible preservation planning, not as the solution. The *Standards* are intended to be applied to specific rehabilitation projects in a reasonable manner and to provide philosophical consistency to preservation work (Weeks and Grimmer 1992). The Standards have been modified and updated since their original conception four decades ago, but their basic message has remained the same; the durability of the *Standards* as the accepted framework for all historic preservation work is a testament to the soundness and flexibility of their language.

In the field of historic preservation, the *Standards* are considered a list of best practice techniques for undertaking preservation projects. They ensure that the decision-making process for the care and maintenance of historic resources is based on sound principles that consider the special needs and issues associated with those resources. They are a starting point for discussing what proposed changes are appropriate for a historic resource, and what changes are inappropriate. The *Standards* were developed to ensure consistency in decision-making impacting historic resources, though the end result may differ on a case-by-case basis.

The language of the *Standards* can be found in the United States Department of the Interior, National Park Service, 36 CFR (Code of Federal Regulations), Part 67. Hard copies of the document are available as publications distributed by the United States Department of the Interior, National Park Service or online at http://www.cr.nps.gov/hps/tps/tax/rhb/stand.htm.

Initially developed by the Secretary of the Interior to determine the appropriateness of projects associated with the Historic Preservation Fund grant-in-aid program, the *Standards* have expanded over the years and are widely used to determine qualifications for Federal tax breaks, for reference in conjunction with all Federally-owned or controlled historic resources, and by State governments and officials in reviewing rehabilitation projects. It is recognized that all preservation efforts, whether through the federal government, a local government, or through private efforts, can be informed and enhanced by the *Standards*. Because they articulate the basic underlying principles that are fundamental to historic preservation, they are often incorporated into preservation plans, zoning ordinances, and regulations that govern historic districts or properties.

The ten preservation approaches which comprise the *Standards for Rehabilitation* are identified below, as taken directly from the website referenced in the preceding text. Each of the standards is followed by a short discussion of how the standard should be interpreted when undertaking a historic preservation project.

***Standard 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.*

Standard 1 encourages property owners and decision-makers to consider and find uses for historic sites that enhance the historic character, not detract from it. This standard is directly applicable to reuse projects and advises they should be carefully planned to minimize adverse impacts to the historic character. Destruction of character-defining features should be avoided.

***Standard 2*** *– The historic character of the property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.*

Standard 2 emphasizes the importance of preserving the historic materials and features which define a historic property. In an effort to retain the historic character of a property, efforts should be made to repair historic features, as opposed to allowing them to be removed.

***Standard 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.*

Standard 3 acknowledges that historic resources are really a “snapshot in time”, and therefore, discourages combing historic features from various properties or constructing new buildings that falsely read as historic. Reconstruction of lost resources, or specific features, should only be undertaken when detailed documentation is available and when a resource is of such significance that it warrants reconstruction.

***Standard 4*** *– Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.*

Standard 4 recognizes that few buildings remain unchanged over a long period of time, and that many of these changes contribute to a resources' significance. Understanding the history of a resource, and how it has evolved, is as important as understanding the origins of the resource. This standard should be kept in mind when considering treatments for buildings that have undergone changes. The evolution of a resource can usually be identified and significant, contributing changes should be retained. The changes that have occurred to the resource are an interesting way to learn more about, and communicate, the parallel changes that may have occurred in a larger community context.

***Standard 5*** *– Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.*

Standard 5 recommends preserving the distinctive qualities of a property that are representative of the overall historic character and integrity. When undertaking a preservation project, it is important to identify the distinctive features, materials, construction type, floor plan, and details that characterize the property. Every effort should be made to retain these distinctive features in their original form.

***Standard 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.*

Standard 6 focuses on the importance of repairing features, as opposed to replacing them, to the greatest extent possible. Looking at options and opportunities for repairing a feature should always precede a decision to replace the feature. In instances where severe deterioration, or a missing feature, makes repair impossible, new features should match the original as closely as possible. Before an existing figure is removed for its replacement, it should be carefully documented and photographed as a reference to assist in future decision-making.

***Standard 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.*

Standard 7 warns that harsh cleaning alternatives can severely damage historic fabrics by destroying materials physical properties and speeding the deterioration process. This standard is intended to emphasize the importance of considering cleaning alternatives, and choosing the cleaning means that is the gentlest one available in an effort to protect and preserve the historic fabric.

***Standard 8*** *– Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.*

Standard 8 addresses the importance of historic resources which exist below ground level. This is particularly important for new construction projects which involve excavation. All new construction projects, particularly in areas of likely archeological resources, should be assessed for archeological potential. When significant archeological resources are identified, mitigation may be required.

***Standard 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.*

Standard 9 identifies the potential for new additions, alterations, and new construction to negatively impact historic features of a property. This standard emphasizes the importance of identifying potential impacts and mitigating them before they become problematic. All new work is expected to be compatible with existing resources, though it should never replicate the existing historic resource. A person should be able to identify new work from the original.

***Standard 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.*

Standard 10 stresses the importance of sensitive additions, alterations, and new construction. Sensitive planning and design of additions, alterations, and new construction should never destroy existing historic fabric and features. This standard reiterates how smart planning can protect the historic integrity of a building or resource.

# Preservation Treatments

There are four historic preservation treatments, defined in the *Standards*, which are widely accepted in the field of historic preservation today. They are: Preservation, Rehabilitation, Restoration, and Reconstruction.

*Preservation* treatments require the retention of the greatest amount of historic fabric. *Rehabilitation* treatments acknowledge the need to alter or add to a property to meet its needs, while still maintaining the historic character. Rehabilitation assumes that the property is more deteriorated and therefore provides more latitude with respect to retention and repair of historic features. *Restoration* focuses on the retention of materials from the most significant period in a property's history, while allowing the removal of materials from other periods. *Reconstruction* provides limited opportunities to re-create a non-surviving structure, landscape, building, or object with new materials that replicate the original, historic materials (Weeks 2001). Because of the high degree of significance and integrity of buildings and landscapes at VMI, preservation, rehabilitation, and restoration are the most applicable treatments.

Definitions for each of the preservation treatments have been included below for reference.

### *Preservation*

Preservation is defined as the act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than an extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project (Dickenson 1983).

Preservation stresses the protection, maintenance, and repair of historic fabric and features, and should be the baseline treatment for all historic resources at VMI.

### *Rehabilitation*

Rehabilitation is defined as the act or process of making possible a compatible use for a property through the repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values (Dickenson 1983).

Often referred to as adaptive reuse, the key to a rehabilitation project is to avoid impacts to the historic fabric when expanding or upgrading facilities. When undertaking rehabilitation projects, VMI should take care in retaining the greatest amount of historic fabric as possible.

### *Restoration*

Restoration is defined as the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project (Dickenson 1983).

When undertaking restoration projects, VMI should take advantage of the extensive collection of archived historical images and documentation, to ensure the restoration work is historically accurate.

### *Reconstruction*

Reconstruction is defined as the act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location (Dickenson 1983).

Reconstruction is not anticipated to be relevant to immediate future projects at VMI.

# Preservation Terminology

There are certain words used throughout the *Preservation Master Plan* that have special meaning when used in the context of preservation planning and in describing the resources at VMI. The most commonly used terms found throughout this document are "significance", "integrity", and "existing condition". These three terms have specific meanings when used in the context of historic preservation work. Understanding their meaning in this context is important to understanding the intent of the *Preservation Master Plan*.

The following definitions are provided for words which are commonly used throughout this document.

***Alteration***

Any change, rearrangement, or other work that is not an addition but that does alter the exterior appearance of a property, site, or building.

***Character***

The combination of distinguishing attributes belonging to a building, structure, or other resource.

***Existing Condition***

A description of a resources physical condition, appearance, and soundness. The existing condition of a historic resource is reflective of how the resource exists today. Has it been altered? Has it retained its integrity? Has it been well-maintained, or has maintenance been deferred? A description of the resources physical condition and appearance constitutes an assessment of its existing conditions.

Existing condition evaluations deal with a resource's physical condition, appearance, and soundness. These conditions are inextricably linked to maintenance. Inappropriate maintenance or lack of maintenance often leads to a loss of historic fabric and integrity, while appropriate maintenance retains and repairs historic fabric and supports integrity.

Integrity and existing conditions are also closely related. If historic fabric is deteriorated but has been retained, integrity may still be high. However, if the historic fabric has deteriorated to a severe extent, its integrity may be impaired. The presence of inappropriate additions, modern accretions, or damaging treatments can greatly impair overall integrity.

***Feature***

A single, distinguished part of a greater whole, as a single architectural element of a building.

***Historic Context***

A unit created for planning purposes that groups' information about historic properties based on a shared theme, specific time period, and geographical area.

***Historic Significance***

In historic preservation, resources are evaluated for their relative historic significance according to the professional criteria developed for nomination and listing on the National Register of Historic Places. Individual statements of historic significance describe why each building is considered to be an important component of the VMI Post.

Historic significance can accrue over time. Many historic buildings are characterized by a mixture of stylistic elements that are part of the building's evolution. For instance, the Old Barracks was built in several phases from 1851-1925, which included renovation after a major fire in 1864 and the construction and partial demolition of the 1896 Jackson Memorial Hall. Taken as a whole, these layers of history add richness to the building's historical development. Removing evidence of any of these layers would destroy that record and diminish its overall significance.

***Integrity***

The authenticity of a property's historic identity, evidenced by the survival of physical characteristics that existed during the property's historic or prehistoric period. The National Register program identifies seven qualities associated with integrity – location, setting, feeling, association, design, workmanship, and materials. Integrity is frequently assessed by how much of a resource's historic fabric is intact. When a resource has retained a significant amount of authentic historic fabric, the integrity of the resource is considered to be high. When there is little historic fabric remaining, the integrity of the resource is considered to be low. By preserving historic fabric, you are also preserving the integrity of a resource; retaining the integrity is an important aspect of preservation work.

Integrity is relative. When a resource retains a great deal of its authentic historic design, materials, and features, its integrity is rated highly. When there is little historic fabric remaining, integrity is generally lower. Baseline preservation efforts focus on preserving the integrity of a resource by preserving historic fabric.

***Maintenance***

The routine upkeep of a building or property, generally performed to combat the effects of weathering and age.

***Significance***

The importance of an element, building, or site owing to its involvement with a significant event, person, or time period, or as an example of past architectural style.

In the field of historic preservation, resources are evaluated for historic significance according to established criteria developed in association with the National Register of Historic Places. The National Register of Historic Places criteria state:

*The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and* *objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:*

*A* *That are associated with events that have made a significant contribution to the broad patterns of our history; or*

*B* *That are associated with the lives of persons significant in our past; or*

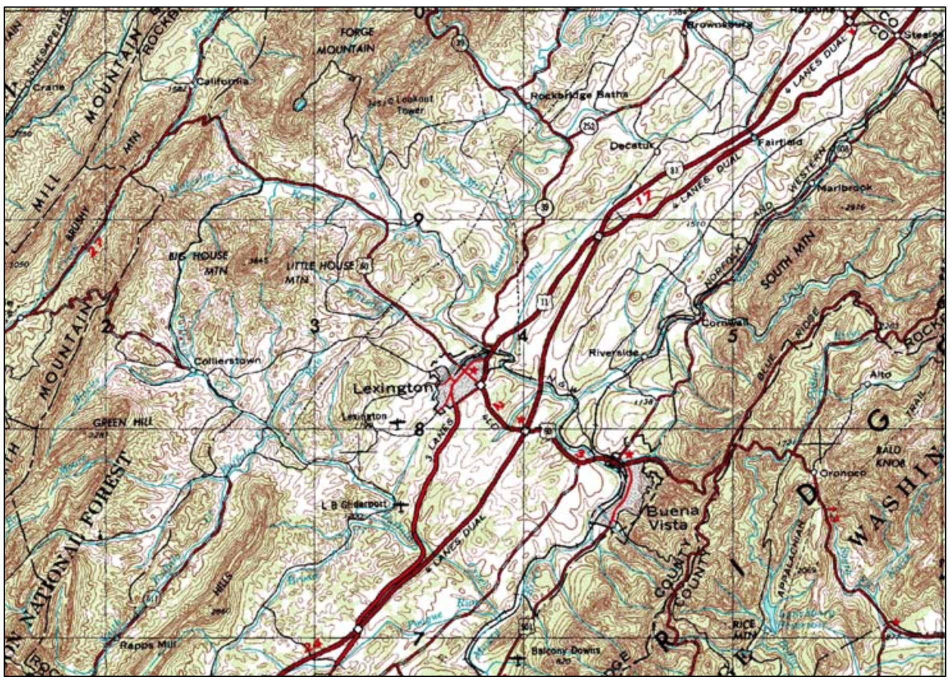
*C* *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*

*D* *That have yielded or may be likely to yield, information important in prehistory or history.*

# CHAPTER 5
# CULTURAL LANDCAPES AT VMI

## Introduction

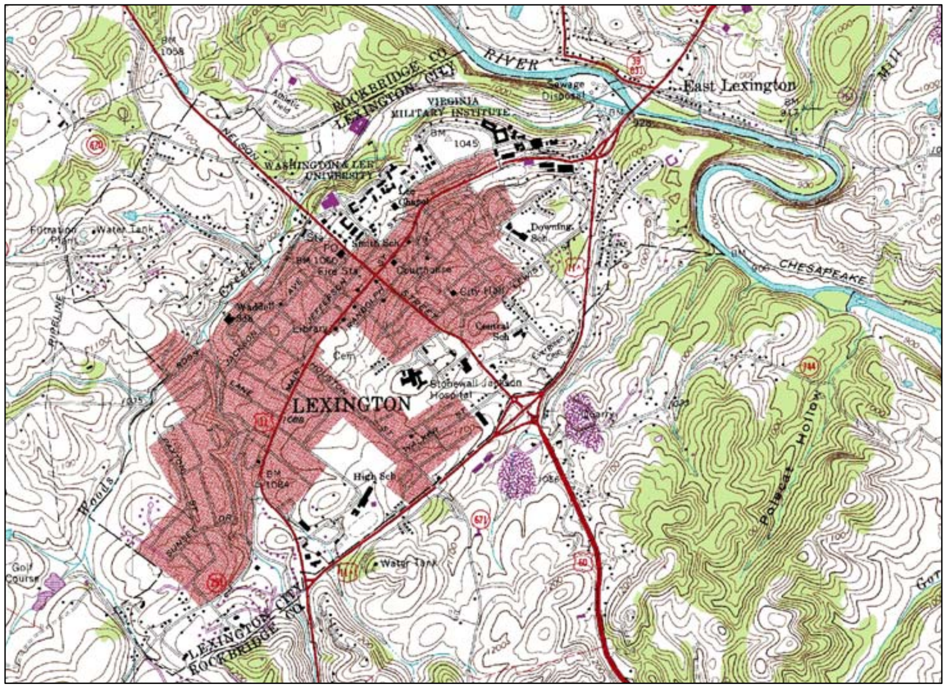
VMI is located within Rockbridge County, Virginia, in the southern portion of the Shenandoah Valley. Situated approximately 1,045 feet above sea-level between the Appalachian Mountains to the west, and the Blue Ridge Mountains to the east, the geomorphology of this region consists of long, narrow, even-crested ridges rising above smaller, intervening valleys of varying size. The ridges consist of sandstone, quartzite, and shale, while the valleys consist of more erodable limestone and dolomite.




*Topographic map depicting the cresting ridges and valleys around Lexington, Virginia.*

VMI was built upon a low ridge overlooking the Maury River to the north and the City of Lexington to the south. Today, Lexington has a population of about 7,000 people. Woods Creek bisects the Post's northern boundary and flows eastward before emptying into the Maury River, which serves as the boundary between Rockbridge County and Lexington. The Small Town Branch Creek bisects the southern boundary. Located along two very important transportation routes, the Post lies just southwest of the juncture of I-81 and 1-64. Route 11, the historic north-south transportation corridor within the Shenandoah Valley, also bisects the Post's southern boundary and provides the primary vehicular access to both VMI and Washington and Lee University, which is located directly to the west of VMI.

This chapter presents an inventory of existing cultural landscape features at VMI, and an assessment of their physical condition. The purpose of this inventory and assessment is two-fold: to document existing and historic physical conditions to determine how the landscape has evolved over time, and to create a baseline of data for preparation of treatment guidelines and recommendations. Ultimately, the information presented in this chapter will help VMI understand the opportunities and constraints related to preserving the Post's historic cultural landscape.




*Context map identifying VMI's location among notable surrounding destinations and features, as well as primary transportation routes.*

# Methodology

This findings in this chapter are based upon field surveys undertaken by JMA in the spring of 2006. While the entire Post was examined at a broad scale to understand how the cultural landscapes of VMI physically and functionally interact, the focus of these investigations was on historic landscape resources that pre-date 1956. Areas of campus that are not historic were subject to an overview visual inspection, but not surveyed in detail.

Features of historic significance found in the landscape were identified through research of primary and secondary sources. These features are considered to contribute to the historic character of the campus landscape and are therefore identified as historic resources. Management issues and condition assessments that pose a threat to the integrity of the cultural landscape were identified.

Numerous sources of guidance are available to assist in evaluating the integrity of a historic property. For example, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* states that "Integrity is the ability of a property to convey its significance….Historic properties either retain integrity (convey their significance) or they do not. Within the concept of integrity, the National Register criteria recognize seven qualities, or aspects, that in various combinations, define integrity. The seven aspects of integrity are: location, design, setting, materials, workmanship, feeling, and association. To retain historic integrity a property will always posses several, and usually most, of these aspects." If a character area retains integrity to a specific historic period or periods, the resources that remain from this period have been noted.

## Character Areas

Preservation planners use landscape character areas as a tool to organize landscape features and uses according to their distinct aesthetic and physical characteristics. Once divided into character areas, landscapes with similar features, opportunities, and constraints are more easily understood in terms of their evolution and future management options.

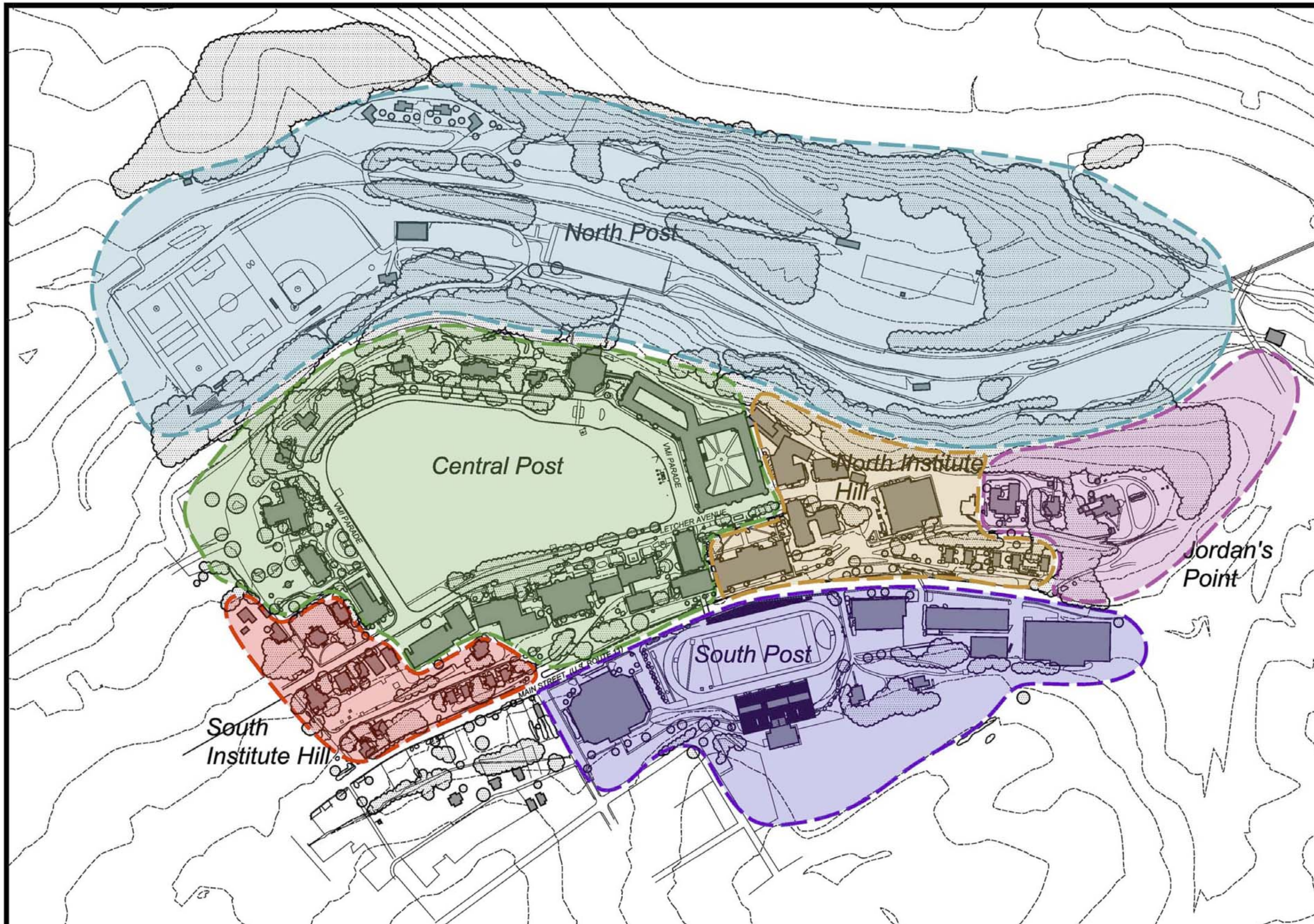
Each of the character area descriptions includes an evaluation and assessment of buildings; spatial organization; land use; topography; circulation; vegetation; views; landscape structures; small-scale features; summary of historic resources; and evaluation of historic integrity.

For each character area, existing landscape features and conditions were photographed and documented in field notes. Site photographs have been incorporated into the chapter to illustrate features and condition issues described within the text. Based on this inventory, updates were also made to digital copies of the base map provided by VMI to illustrate existing conditions. Unless stated otherwise, features were found to be in good condition.

For the purposes of this study, the overall Post landscape has been divided into six separate landscape character areas:

1. Central Post;
2. North Institute Hill;
3. Jordan's Point;
4. South Institute Hill;
5. South Post; and
6. North Post.

A map identifying all character areas is included on the following page.




Preservation Master Plan

Virginia Military Institute

Lexington, Virginia

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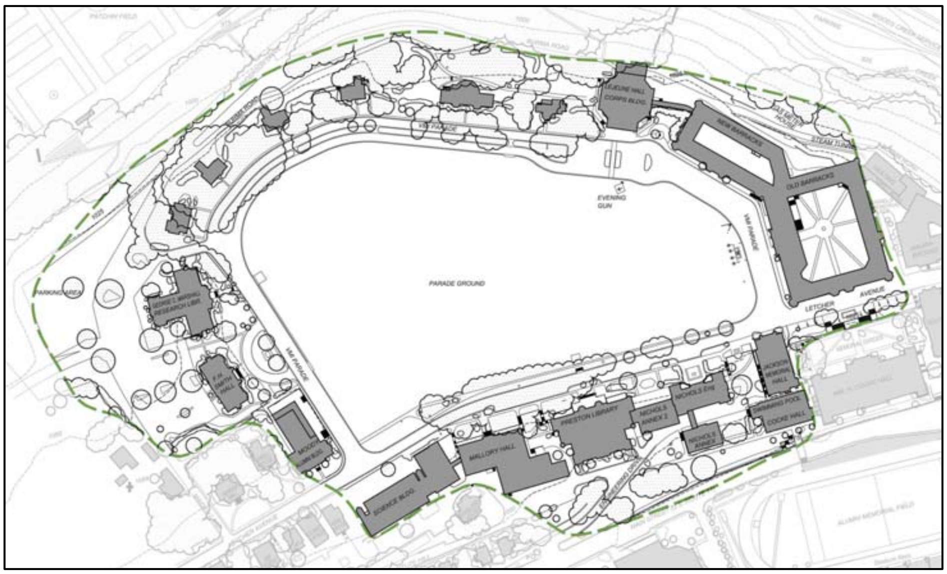
August, 2006

AutoCAD basemap derived from Virginia Military Institute Master Plan Update MMM Design Group, 2005

# Character Areas

## CENTRAL POST

The Central Post Landscape Character Area is the heart and soul of VMI. It is defined by the Parade Ground and the academic, residential, and administration buildings that frame its boundaries. Central Post is circumscribed by streets around its periphery. It is generally bounded by Burma Road to the north, Maiden Lane and Anderson Drive to the west, and South Institute Hill and Main Street to the south. The eastern boundary is defined by the narrowing of Letcher Avenue and the service road (Burma Road) behind the Old Barracks.




*Map depicting the boundaries of the Central Post Character Area.*

### *Buildings*

Central Post contains three buildings designed by A.J. Davis.  These important survivors of the Post's mid-nineteenth century architectural legacy include the Old Barracks (1850), which anchors the Parade Ground on its eastern side, and two faculty residences along the northern edge--the Superintendent's Quarters (1860) at 412 VMI Parade and the Commandant's House (1853) at 416 VMI Parade. These two houses were moved to their present location in 1914 based on Bertram Goodhue's redesign of the Central Post of the same year. In 1915, three new faculty residences designed by Goodhue were added at 406, 408, and 410 VMI Parade. In 1927, 402-404 VMI Parade was built.

This row of Gothic Revival style buildings continues to frame the northern edge of the Parade Ground and creates a romantic backdrop to this significant open space. The New Barracks (1949) and LeJeune Hall (1967) anchor the northeastern edge of this character area and reinforce its function as the center of cadet activity. Lejeune Hall is scheduled for demolition in Summer 2006 to make way for the Third Barracks expansion. The Third Barracks will contain the VMI Visitor Center, cadet rooms, food service, and other public spaces.

Historic buildings along the southern periphery of the Parade Ground include the Goodhue-designed Jackson Memorial Hall (1916), Nichols Engineering (1931), Preston Library (1939), and Mallory Hall (1953). This line of buildings became known as "Academic Row". In 1988, the Science Building was added, resulting in the demolition and relocation of several historic cottages and extensive site regrading. Two large modern additions to buildings, the Nichols Annex and Cocke Hall Swimming Pool Annex behind Jackson Memorial Hall, are included within this character area by virtue of their physical relationship to the buildings facing the Parade Ground.

Other buildings were constructed in the latter half of the twentieth century, including Marshall Research Library (1964), Smith Hall (1964), and Moody Alumni Hall (1971). They frame the western edge of the Parade Ground and create an administrative zone. Chapter 6, Historic Buildings at VMI, contains detailed descriptions and condition assessments of the historic buildings within the Central Post Character Area.

***Spatial Organization***

The Parade Ground, which is defined by Letcher Avenue to the south and VMI Parade to the north, is the physical center of the Post and serves as a focal point around which all surrounding buildings are oriented. At an average elevation of 1,045 feet above sea-level, the 12.5-acre Parade Ground provides an open and level mown grass surface that supports corps activities. These include cadet formations, military drills, ceremonies, physical training exercises, and recreational activities. The open field also serves as an overflow parking area during large-scale Post events, such as football games. While the overall condition of the Parade Ground is good, some rutting and erosion is evident near one of the two vehicular entry points. The second vehicular entry point is paved with a concrete pad.

*Photograph of the Barracks with the Parade Ground in the foreground.*

***Land Use***

Land uses within the Central Post area are quite diverse, and reflect the complexity and multi-functional nature of this character area. With few exceptions, most of the uses are grouped together in defined areas around the perimeter of the Parade Ground. As mentioned above, these include the academic uses associated with the buildings along the south side of Letcher Avenue (Academic Row), the residential uses associated with the Barracks and the faculty quarters (Faculty Row) on the east and north sides of the Parade Ground, and the administrative and corps support facilities along the western edge of this open field. Commemoration occurs within and along the periphery of the Parade Ground, and military activities, such as formations, inspections, and drills, occur primarily in front of the Barracks and within the Parade Ground. Limited recreation uses are also accommodated by this large open space.

***Topography***

The topography of Central Post is characterized by the broad and level ridge upon which the Parade Ground is centered, as well as steep slopes at its northern and southern boundaries. The grade of South Institute Hill drops approximately 50-feet towards Main Street from Letcher Avenue. The slope to the north drops approximately 100-feet towards Woods Creek behind the faculty residences.

The topography of the Parade Ground, Letcher Avenue, and Institute Hill have been significantly modified by regrading in the twentieth century. In 1915, Goodhue enlarged the Parade Ground to three times its original size and leveled the northwest side by as much as thirteen feet (Lyle and Simpson, 1977, 238). This, plus the relocation of the Davis quarters, reduced the former prominence of the dwellings as they were rebuilt on a much lower plane. Along Academic Row, the modern Science Building was built on extensive fill that obliterated the earlier grade.

Sometime before 1930, a formal terraced garden with steps was constructed on the steep slope of Institute Hill to provide a connection between the pedestrian bridge across Main Street and Jackson Memorial Hall. This designed feature was obliterated in the late-twentieth century to make way for construction of the Cocke Hall Swimming Pool Annex. Other large additions to Mallory and Nichols also required regrading and new retaining walls along Letcher Avenue.

*View looking west down Letcher Avenue; the Parade Ground is to the north and Academic Row is located to the south.*

***Circulation***

Vehicular circulation within Central Post is primarily along Letcher Avenue and VMI Parade, which frame the Parade Ground on all sides. Service access to the rear of the buildings located along Academic Row is provided by South Institute Hill and Engineering Drive. Burma Road provides access to the rear of Faculty Row, where it continues behind Lejeune Hall and the Barracks.

*View of Burma Road which runs along the rear of Faculty Row; Woods Creek ravine is located to the north.*

Parking is permitted on the periphery of the Parade Ground except for the area directly in front of the Barracks and Jackson Memorial Hall. A large dedicated parking area is located behind the Marshall Library. In general, these circulation features are in good condition. The parking area located on the edge of the bluff to the far west of the Marshall Library is in fair to poor condition, as the asphalt in this area has begun to degrade from what appears to be an inadequate seal coat. Asphalt paving to the east of Mallory Hall, near the ADA accessible ramp, also appears to be in poor condition.

Pedestrian circulation is provided throughout this area via a network of sidewalks paralleling the edges of the Parade Ground, Letcher Avenue, and VMI Parade as well as by sidewalks and stairwells that traverse South Institute Hill. These circulation features vary in age and style of construction. Concrete sidewalks and curbing are found throughout the academic and administrative areas, along the southern edge of the Parade Ground adjacent to Letcher Avenue, within the Barracks courtyards, and around Lejeune Hall. These average four to five feet in width (some are wider along entries to the academic buildings), and are heavily trafficked by cadets several times a day as they attend classes and participate in other Post activities.

*Commemorative brick pavers recently constructed in front of the Barracks.*

In some areas, special paving defines commemorative areas and entries to certain buildings. The sidewalk in front of the Barracks has been recently constructed of brick pavers inscribed with names of individuals associated with VMI. These commemorative bricks are red clay, uniform in color and texture, and in good condition. Older twentieth century memorial bricks, square in shape, are also found around the Stonewall Jackson Memorial statue in front of the Barracks. The commemorative cannons and evening gun located in this area also rest on a paved brick surface laid in a running bond pattern. These brick are of a different character altogether, smaller in size and more uniform in color. A newly-laid brick forecourt has been added to the front of Nichols Engineering building where the New Market memorials are located. Flagstone paving defines the entry to several buildings, including Lejeune Hall, Preston Library, Marshall Library, and the Moody Alumni Building.

Except for a few areas, the sidewalks and curbs surrounding Academic Row, the Barracks, and the administrative buildings are in good condition. Notable exceptions include some spalling and cracking at the front of Smith Hall, the staircase between the Science Building and Mallory Hall, and the staircase between Mallory Hall and Preston Library. The concrete staircase along the west side of Lejeune Hall has also undergone minor settlement in some areas, creating trip hazards. Concrete curbing along VMI Parade near Smith Hall is also in fair to poor condition due to cracking. In all instances where flagstone has been installed at building entries, cracked mortar joints cause unsightly conditions and potential safety hazards.

Circulation features surrounding the Faculty Quarters are more eclectic in style and less formal in nature. Constructed of a variety of materials, these include “Lexington brick” sidewalks such as those found along VMI Parade, as well as informal paths, stairs, and stepping stones to the rear and sides of the residences. Lexington bricks are a character-defining feature of the Post, as they are found in several other character areas. These were manufactured in Lexington in the early-twentieth century and are made of vitreous clay. These bricks are embossed with both star and circle patterns. Some are red, while others have a metallic glaze. These bricks are also found within Washington and Lee’s campus, and were once extensively used throughout Lexington as well. VMI maintains a stockpile of these historic bricks and occasionally integrates them into new construction areas, such as at the entry to the new Science Building. In general, the brick-paved sidewalks found within the residential area are in fair to poor condition, as the bricks have begun to settle and create trip hazards for pedestrians.

Sidewalks and stairs located around the Faculty Quarters are in fair to poor condition. Due to their age, some of the concrete stairs are cracking and spalling, such as those located on the side of 406 VMI Parade. Other stairs that are less formal in their construction, such as the stacked and mortared stone at 410 VMI Parade, are also in poor condition and pose trip hazards.

*Stairs at 406 VMI Parade are cracking and spalling.*

***Vegetation***

Vegetation and ornamental plantings within Central Post vary considerably. Vegetation along the front and between the academic and administrative buildings is generally formal in nature and includes foundation shrubs (primarily clipped boxwood, yew, and juniper), groundcovers, and street trees of maple, elm, dogwood, holly, and honey locust. Plantings to the rear of the academic and administrative buildings are relatively scarce, with the exception of the rear of the Marshall Library, where several ornamental species (such as hawthorn and strawberry) can be found. Several sycamore trees are also contained within the parking islands to the rear of this building. Except for a few weeping cherry trees and clipped yews to the east of Lejeune Hall, there is no vegetation within or around the Barracks.

*Stacked and mortared stone at 410 VMI Parade is in poor condition.*

The most distinctive planting is the row of maple trees along the north side of Letcher Avenue, lining the edge of the Parade Ground. These trees were formerly part of a formal allee, or double row of trees lining the road, which were installed in the 1880s. The trees on the south side of Letcher Avenue along Academic Row were incrementally removed as new buildings were added. While several of the remaining trees along the Parade Ground appear to be quite old, most are immature. The oldest trees appear to be in decline--this is particularly true of one tree in front of Preston Library.

Historic aerial photographs show a row of trees (species unknown) on the north side of VMI Parade in the front lawns of the Faculty Quarters sometime before 1920, and possibly in conjunction with Goodhue's 1915 redevelopment of this area. These trees have been incrementally replaced over time, but their alignment has generally been maintained. Based upon aerial photo documentation, a second row was added between 1932 and 1935 along the Parade Ground, but was removed circa 1960 when a planted median was added to divide the traffic lanes. The original plant species used here is unknown. Today, the median is a mix of sweet gum, dogwood, oak, maple, and eastern redbud. This odd palette of species, sizes, and shapes creates an unattractive appearance and the sweet gum trees drop fruit along the roadway, creating maintenance and safety issues. Furthermore, these trees obstruct the view across the Parade Ground of the Faculty Quarters.

*A variety of formal foundation plantings have been used along Faculty Row.*

The landscape character of the faculty residences is generally a mix of formal foundation plantings (primarily boxwood) and informal garden areas. The garden areas contain open lawns with a mix of evergreen and deciduous shade trees and shrubs (primarily maple, oak, spruce, pine, magnolia, dogwood, forsythia, viburnum, and holly). In some instances, such as the side yard of 404 VMI Parade, foundation planting beds contain spring bulbs, hostas, ornamental grasses, and other perennials.

While the general landscape character of the Faculty Quarters is less formal than that of the rest of the Post landscape, its surrounding setting has been altered by development. The original visions of Davis and Goodhue were influenced by the picturesque style of landscape design which became popular in the 1820s and was employed in parks, gardens, and institutional settings all over the United States throughout the nineteenth century.

*Athletic fields, support structures, and parking areas dominate the Woods Creek floodplain.*

The setting envisioned for these buildings was to be that of a picturesque and natural landscape. This aesthetic was generally characterized by asymmetry, meandering lines, irregular edges, natural materials, informal plantings, and strategic vistas afforded by topography and vegetation. Goodhue's 1914 VMI plan and Davis' writings reflect these concepts: the Goodhue plan shows the houses facing the open Parade Ground with the forests and Woods Creek behind.

The integrity of this picturesque setting has been degraded with the development of Burma Road circa 1930s and to a greater extent in the 1960s when the floodplain and associated agricultural fields along Woods Creek were converted to recreational facilities. Views of this natural creek valley are now dominated by these athletic fields and their associated structures and parking areas. The backyards of these residences are bisected by Burma Road and access drives. The interstitial area between these roads is generally informal in nature and serves as a semi-private/semi-public transition zone between the residences and the wooded ravine below.

A terraced garden is located to the west of the Superintendent's Quarters. Originally installed by the Garden Club of Virginia in the late twentieth century, its character is reflective of the surrounding residential landscapes and contains many of the same plant species found elsewhere in this area. Irregular planting beds define an open and relatively level lawn on all sides, and sloped paths of fine-crushed gravel retained by stone walls provide pedestrian access to VMI Parade. Another small perennial garden is found to the north of the Commandant's Quarters.

*Photograph of the small plaza located above the Memorial Garden.*

The small paved concrete plaza above the Memorial Garden, which is framed by a parapet wall, provides a setting for the Washington Statue and commemorative cannon. This plaza is planted with boxwood and sweet gum trees. Sweet gums produce large, messy fruit that can become a maintenance headache; their use in this confined space should be reconsidered. Historic photographs appear to indicate that trees in this general location were the same maple species found along the Parade Ground.

### *Views*

Views within Central Post are generally defined by the open and expansive views across the Parade Ground, which are framed on all sides by buildings. Most notable is the view of the Barracks upon entry into the Post from Letcher Avenue. Another splendid view is that of Big House Mountain to the northwest. The mountain figures prominently in paintings and sketches dating as far back as 1847. Distant views to the mountain range comprising the George Washington National Forest provide a backdrop further to the west.

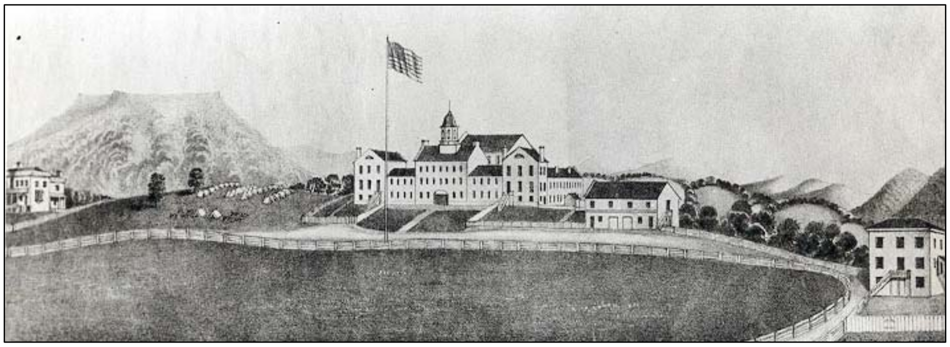


*Image from 1847 prominently depicts Big House Mountain.*

Views overlooking Main Street and South Post are also notable, as are the axial views along Letcher Avenue. As previously mentioned, the views overlooking Woods Creek no longer reflect historic conditions due to North Post developments. The axial view looking through the south arch of the Old Barracks towards the Washington Statue is also significant and continues to reflect the historic relationship between these two important features.

***Landscape Structures***

Landscape structures are built elements on Post that help define spatial organization and circulation. Within this character area, stone retaining walls are the most prominent landscape structures; they are used extensively to accommodate differences in grade along steep slopes. A variety of retaining walls are found throughout Central Post. The tradition of stone wall construction at VMI dates to 1857, as documented in some of the earliest paintings of the Post. Most are constructed of rough uncut limestone stacked horizontally with exposed unraked mortar. This style of wall construction is a character-defining feature of VMI. It is prevalent along the entire north edge of Main Street, to the rear of Smith Hall, behind and in-between the faculty residences, in-between most of the buildings along Academic Row, and along the south side of the Parade Ground. The date of origin of these walls varies, as they were constructed in association with surrounding buildings.

Other styles of stone wall, such as rough-cut limestone with raked mortar joints, or rough–cut, dry-laid construction, are also found throughout this character area, primarily near the Faculty Quarters. These, however, are less common.

While the condition of these retaining walls is generally good, there are some in poor condition which are in need of repair. They are:

- The western half of the wall located between Mallory Hall and Preston Library is starting to fail. The cause for this failure is unclear, although it is likely due to expansion of the root zone from the adjacent elm tree. Because this part of the wall is not consistent with other sections, it appears that the western half was constructed during a different period. If this involved different construction methods, inadequate backfill or drainage (which exacerbates soil shrink/swell) may also be contributing to wall failure.
- The concrete cap on the low retaining wall behind the Superintendent’s Quarters is severely cracked and starting to dislodge.

- The concrete cap on the retaining wall along the north side of Letcher Avenue is cracked in several places and starting to dislodge. In some areas, the trees along this wall have also caused the wall to buckle.

***Site Furnishings and Objects***

Site furnishings and objects generally are small-scale elements in the landscape that may be functional, decorative, or both. At VMI, most of the site furnishings and objects found within Central Post are located along the streets and sidewalks. The most user-friendly amenities are benches located between Letcher Avenue and its north sidewalk. Many of these date to the early-twentieth century. They are simply constructed with wrought iron arms and vertical back straps that provide support for two wooden boards along the back. Newer benches are similar in style, but are more ornamental in nature. Several benches bear commemorative plaques.

Iron lamp posts are found along Letcher Avenue, VMI Parade, and the northern Main Street sidewalk. These are simple in form with one vertical fluted post set atop a flared base and supporting an apple-shaped lamp. Other lamp posts in front of the Faculty Quarters are similar in form, but support a globe lamp; their date of origin is unknown.

*Existing concrete bollards are generally in poor condition.*

Concrete bollards are another common site object found on Post, particularly near the Barracks and the Washington Statue. These are similar in form to the fence posts found in front of the Barracks and are constructed of a hexagonal concrete post with a rounded concrete cap. Historic photographs indicate that these date to at least 1930. Most are in poor condition.

There are two extant sets of historic VMI limit gate posts, one of which is located in the Central Post Character Area. The second set of gate posts is located in the South Institute Hill Character Area. The oldest gate posts are located on Letcher Avenue in front of the Science Building and mark the historic limits of VMI before to its expansion west along Letcher Avenue after the Civil War. The gates identify the 1857 property line and are known as the “1857 Limit Gates”. Constructed of brick and inset with bronze plaques, they were likely moved to their current location in the latter part of the nineteenth century after completion of Letcher Avenue in 1874. Historically, these supported metal gates that controlled access to the Post. Photographic evidence suggests that these gates were removed by 1920.

There are many monuments and memorials located within VMI, most of which are located within the Central Post Character Area, particularly along Letcher Avenue and near the Barracks. There are a variety of ways in which VMI cadets, alumni, faculty, and family members have chosen to commemorate the people and events that have contributed to VMI’s history. These include statuary, cannons, plaques, granite markers, and commemorative bricks.

A list of the most notable commemorative features includes:

- Washington Statue, dedicated in 1857, located on axis with the south sally-port of the Barracks.
- Two cannon positioned along cut-outs in the parapet wall overlooking the Memorial Garden and mounted on concrete supports. The French Cannon were brought to VMI early in the Civil War.
- Six cannon, three on either side of the Washington Statue plaza, located in the lawn area are contained by bollards and overlook the sunken Memorial Garden. These cannon are mounted on ornamental cast iron supports and were brought to VMI at the start of the Civil War.

*Mounted cannon located on either side of the Washington Statue plaza.*

- George C. Marshall statue (1979) located in front of the New Barracks.

*George C. Marshall statue located in front of the New Barracks.*

- The New Market Statue, *Virginia Mourning Her Dead* by Moses Ezekiel (circa 1904) located in front of Nichols Engineering; this was moved from its original location on the Parade Ground to its current location in front of Nichols Engineering Building.
- Commemorative cannon (in place no later than 1910) located just to the east of the entry gates; this was originally one of a pair of cannon on either side of Letcher Avenue.
- Stonewall Jackson Monument (circa 1912) located on the Parade Ground directly in front of the Jackson Arch.
- The Cadet Battery (1848) comprised of four cannon mounted on red carriages located directly to the west of the Stonewall Jackson Monument.

*Photograph of the Stonewall Jackson Monument and the Cadet Battery.*

- F.H. Smith Statue (1931), by Ferruccio Legnaioli, located in front of Smith Hall; this was moved from its original location along Letcher Avenue between Jackson Memorial Hall and Nichols Engineering circa 1964.
- Ten granite slabs commemorating the VMI cadets killed at the Battle of New Market located in front of Nichols Engineering. Prior to being re-interred in this location in 1931, these fallen cadets were buried in a cadet cemetery in 1878 near what is today the northwest corner of the Parade Ground.
- General Lemuel C. Shepard, Jr., plaque (1980) and memorial seating area located between Jackson Memorial Hall and Nichols Engineering. This curved seating area was the original location of the F.H. Smith Statue before it was moved circa 1979. In general, this concrete structure is in poor condition. The eastern edge of the seat wall is severely cracked.
- The World War II Roll of Honor Monument and plaques located at Washington Arch.
- Bronze plaques dedicated to George C. Marshall by Dwight D. Eisenhower (1959) and Harry S. Truman (1945) on the west entry wall of the New Barracks.

*Bronze plaque on the west entry wall of the New Barracks.*

- Korean War Roll of Honor plaque on the east entry arch of the New Barracks.
- Piccarilli’s Spirit of Youth statue in the Memorial Garden.

*Image of Cincinnatus Monument located in front of Preston Library.*

- The Guard Tree Monument (1954) located on the southeast corner of the Parade Ground. A corner of the concrete top has cracked and fallen off.
- Bronze plaque commemorating the Cadet Battery and Stonewall Jackson Monument, located at the eastern base of the monument.
- Bronze plaque covering the 1989 time capsule located to the west of the Cadet Battery .
- Painted cannonball located at the southeast corner of the Parade Ground.
- Cincinnatus Monument located in front of Preston Library.
- Jackson-Hope Medal Monument commemorating the cadets with highest academic achievement located in front of Nichols Annex.
- Alpha Tau Omega Fraternity Monument and commemorative benches located in front of Preston Library.
- Colonel Claudius Crozet Memorial located in front of Crozet Hall.
- Sigma Nu Fraternity Monument located at the southwest corner of the Parade Ground.

***Summary of Historic Resources***

The following resources contribute to the Central Post's historical significance:

*Buildings*

- Old Barracks
- 402-404 VMI Parade
- 406 VMI Parade
- 408 VMI Parade
- 410 VMI Parade
- Superintendent's Quarters (412 VMI Parade)
- Commandant's Quarters (416 VMI Parade)
- New Barracks
- Jackson Memorial Hall
- Nichols Engineering
- Preston Library
- Mallory Hall

*Spatial Organization*

- Parade Ground
- Faculty Row
- Academic Row
- Barracks

*Land Use*

- Academic
- Administration
- Residential
- Military
- Recreational
- Commemorative

*Topography*
- Parade Ground
- Woods Creek Ravine
- South Institute Hill
- Small Town Branch Creek

*Circulation*
- Letcher Avenue
- VMI Parade
- Burma Road
- Lexington brick sidewalks at Faculty Row
- South sidewalk at Parade Ground
- South sidewalk at Letcher Avenue
- Informal sidewalks and stairs at Faculty Row

*Vegetation*
- Allee of trees on Letcher Avenue
- Allee of trees at Faculty Row
- Terraced garden west of Superintendent's Quarters
- Open and level lawn of Parade Ground
- Wooded grove at Faculty Row

*Views*
- Open and expansive views across Parade Ground
- Distant Blue Ridge Mountains view behind Old Barracks
- Distant views of Big House Mountain and mountain range to the west
- Views overlooking Main Street and Lexington
- Axial view along Letcher Avenue

*Landscape Structures*
- VMI Limit Gates
- Stone retaining walls

*Site Furnishings and Objects*
- Historic benches along Letcher Avenue
- Globe-style lamp posts along VMI Parade
- Concrete bollards
- Washington Statue and commemorative cannon
- George C. Marshall statue
- The New Market Statue, "Virginia Mourning Her Dead"
- Commemorative cannon  located just to the east of the limit posts
- Stonewall Jackson Monument
- The Cadet Battery
- F.H. Smith Statue
- Ten granite slabs commemorating the VMI cadets killed at the Battle of New Market
- General Lemuel C. Shepard, Jr., Plaque and memorial seating area
- The World War II Roll of Honor Monument and plaques
- Korean War 'Roll of Honor' plaque
- The Guard Tree Monument
- Painted cannonball

- Jackson-Hope Medal Monument
- Alpha Tau Omega Fraternity Monument
- Colonel Claudius Crozet Memorial
- Sigma Nu Fraternity Monument

***Integrity Evaluation***

In general, the integrity of Central Post is partially intact. Its location relative to the rest of the Post has remained unchanged, as has its surrounding context, including the Maury River, the City of Lexington, Main Street, and Washington and Lee University. These relationships reflect the Lexington Arsenal and established the physical context for later changes. Davis' plan for VMI added the Barracks, Faculty Row, the Parade Ground, and the loop drive around its northern edge. Although the Davis plan has been expanded and reconfigured, it also set the stage for Goodhue's plan for the Post in 1914.

During the Goodhue period, the Parade Ground was significantly enlarged and regraded, and the three Davis faculty residences were dismantled and relocated several hundred feet to the north overlooking Woods Creek. Goodhue added two more faculty quarters; a third was built in the 1920s. In 1949, the New Barracks was built. Despite the loss of several historic houses, the construction of new buildings, and the reconfiguration of VMI Parade in the late-twentieth century, these historic resources remain intact and generally support Goodhue's original design intent. While many of the academic and administration buildings on the periphery of the Parade Ground do not necessarily reflect Goodhue's plan, their location reinforces the primary spatial organization and circulation patterns that his plan established.

With few exceptions, buildings within Central Post are unified by the Gothic Revival architectural style. Methods of construction, the use of stuccoed masonry, orientation, height, and detailing have basically remained constant over time and support the design aesthetic that characterizes the Virginia Military Institute. While the design of the Science Building attempts to incorporate the design characteristics found in historic buildings, it differs in character and detracts from a completely unified aesthetic. Likewise, massive rear additions along Academic Row and the addition of rooftop mechanical equipment have resulted in a loss of historic integrity. Lejeune Hall, demolished in 2006, was similarly not consistent with the design character of the Post. The conceptual design of the Third Barracks, which will replace Lejeuene Hall, appears to be more consistent with the traditional design aesthetic of the Post as a whole.

The Post's historic role in educating and preparing young cadets for leadership positions and military careers remains as fundamental to the Institute's mission today as it was in 1839. Military and academic traditions are alive in Central Post and VMI takes care to preserve the landscape that supports these activities.

Although Central Post generally conveys its historic significance, multiple changes have resulted in important losses of integrity. These include demolition and relocation of historic buildings, incompatible new construction, massive building additions—particularly along South Institute Hill, new parking areas, and new service drives behind and along Academic Row and Engineering Drive. This type of work has detracted from the Central Post's integrity and should be avoided in the future.

The most significant loss has been the visual and physical north/south axial relationship between Main Street and Jackson Memorial Hall, which was a result of the construction of the Cocke Hall Swimming Pool Annex along South Institute Hill. Early photographs confirm a terraced garden was once located to the south, or rear, of Jackson Memorial Hall. Evident in historic photographs dating to as early as 1930, this two-tiered garden was constructed of the same stacked limestone retaining walls that characterize the rest of the Post. This garden created a formal pedestrian transition between Letcher Avenue, above, and the pedestrian bridge over Main Street, below. Sometime before 1937, photographic evidence indicates that four columnar trees (species unknown) were added to the middle terrace.

*1938 aerial image shows the formal garden at the rear of Jackson Memorial Hall.*

Two curved symmetrical staircases framed the terraces on either side and two trees framed the passage to the pedestrian bridge. This designed feature created a formal, almost-Italianate axis between South Post and Central Post with Jackson Memorial Hall as the focal point. Now obscured by the rear of the Swimming Pool Annex, this historically significant physical and visual connection between VMI and Main Street has been virtually eliminated.

Another significant loss of integrity is the picturesque landscape setting of Faculty Row. Relocated by Goodhue to perch high above the Woods Creek ravine, the faculty residences were to be nestled into the wood line and appear part of their natural setting. Today, the view of Faculty Row is obscured by the formal median along VMI Parade and the formal foundation plantings around the residences; neither landscape element conveys the intended naturalistic setting. The romantic views of Woods Creek from the residences have also been compromised by the development of athletic fields and structures across the stream valley.

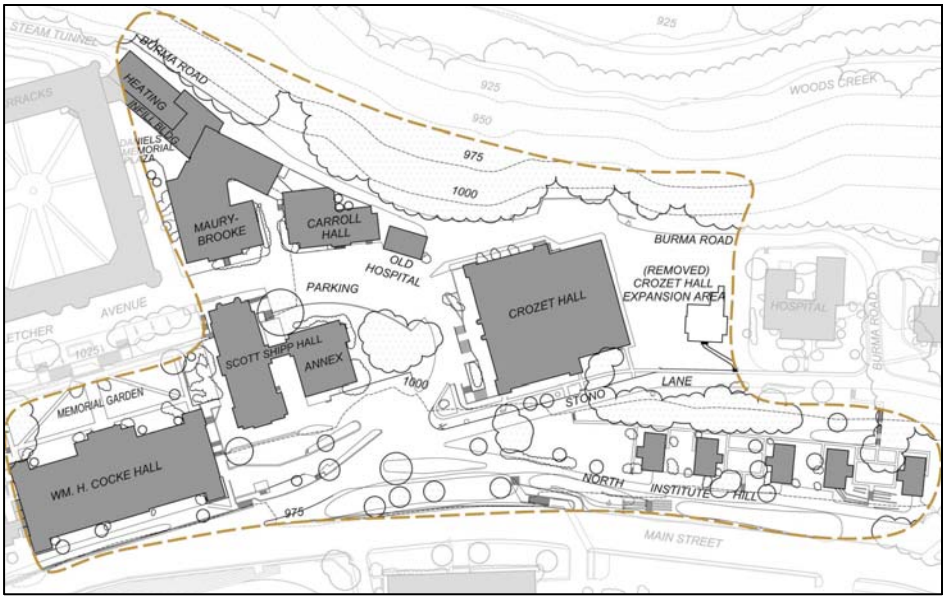
In addition to these large-scale design modifications, there have also been detail-level losses, such as materials, that have been altered since the historic period. One example is the replacement of Lexington brick sidewalks with

*1925 image shows Lexington brick sidewalks which have since been replaced with concrete sidewalks.*

concrete along the south side of the Parade Ground. Other changes have included the loss of the allee along Letcher Avenue; the placement and age of the existing trees along Academic Row does not match the character of the historic tree line along the Parade Ground. Taken as a whole, if left unchecked, this damage and loss of historic features will continue to degrade the historic integrity of Central Post and impair its National Historic Landmark status.

## NORTH INSTITUTE HILL

The North Institute Hill Character Area is a transition zone located between the Central Post Character Area to the west and the Jordan's Point Character Area to the east. It is defined by the narrowing of the Letcher Avenue road corridor after passing east of the Parade Ground and is generally framed on either side by buildings.




*Map depicting the boundaries of the North Institute Hill Character Area.*

### *Buildings*

This character area contains one building, the Old Hospital (1849), which remains from the Lexington Arsenal period. Most of the other buildings reflect the Institute's expansion after the turn of the twentieth century and are concentrated between the Old Hospital and Barracks. These buildings include Carroll Hall (1904) designed by Fye and Chesterman, the Heating Plant (1907), and Maury-Brooke Hall (1909) designed by John Kevan Peebles. Scott Shipp Hall (1919), designed by Carneal and Johnston, reflects the vision of Goodhue's 1914 plan for the Post, which called for an academic building mirroring Jackson Memorial Hall to the east of the Barracks.

Other buildings within North Institute Hill reflect VMI's response to the needs of a growing corps of cadets. Aside from Crozet Hall (1935), which replaced the 1905 Mess Hall, Cocke Memorial Hall (1927), Richardson Hall (1935), Scott Shipp Hall Annex (1955), and a modern unnamed infill building adjacent to the Heating Plant were constructed to provide recreational, academic, and service support facilities.

A row of five bungalows (1950) is located along the south side of North Institute Hill. These are part of VMI's historical response to increased demand for faculty housing after World War II. The residential bungalows are slated for demolition to allow for the construction of a paved surface parking lot.

Chapter 6, Historic Buildings at VMI, contains detailed descriptions and condition assessments of these and other historic buildings.

***Spatial Organization***

The primary axis around which the buildings and spaces within this character area is organized is Letcher Avenue. A secondary axis is formed between Cocke Hall and the south façade of the Old Barracks. Both of these reflect the historic design intentions and early development of the Post.

*The Memorial Garden (1927) is one of the most prominent open spaces on the Post; the monumental staircase on the north edge includes memorials and leads to the south side of the Old Barracks.*

There are two sub-spaces within this character area that function as "outdoor rooms". The Memorial Garden, the most well-defined outdoor space, was created either during or immediately after construction of Cocke Hall in 1927. This sunken garden measures approximately 310-feet-long by 90-feet-wide, and is approximately 25-feet below the grade of Letcher Avenue. It is bounded by Cocke Hall to the south, Jackson Memorial Hall to the west, Scott Shipp Hall to the east, and a large retaining wall and monumental stairs to the north. The garden space has changed little since its original construction. Exceptions to this include a slightly different seating arrangement within the eastern raised planting area, new sidewalks, and the addition of some vegetation.

*Photograph of Daniels Memorial Plaza (1990) as it exists today.*

Daniels Memorial Plaza, located in the northwest corner of this character area, is a triangular-shaped space approximately 140-feet long by 80-feet wide at its largest side. It is enclosed on the west by the Old Barracks, on the north by the Heating Plant, and on the east by Maury-Brooke Hall and a modern infill building located between the Heating Plant and Maury-Brooke Hall. Daniels Memorial Plaza was developed to serve as a formal area for seating and to improve pedestrian circulation.

***Land Use***

Land uses within North Institute Hill generally reflect the support facilities needed to feed and clothe the cadets and provide them with the goods and services that support their daily life. Specific uses include the mess hall, military store, post office, tailor, and laundry. Academic uses are also supported here, as is commemoration. Recreational activities take place in Cocke Hall.

***Topography***

The change in topography within this character area is significant, as Letcher Avenue drops approximately 50 feet in elevation from the area in front of the Barracks to its intersection with Main Street below. This drop in elevation is particularly dramatic within the Memorial Garden, where a high retaining wall and symmetrical staircases accommodate a grade change of 25 feet. Before the construction of Cocke Memorial Hall in 1927, this change in grade was more gradual and reflected the natural topography of the hill that defined the Lexington Arsenal, as well as the Davis and Goodhue periods.

***Circulation***

Both vehicular and pedestrian circulation features are found within this character area. The primary vehicular access is provided by Letcher Avenue. In the early-twentieth century, Letcher Avenue was paved in brick, and appears to have remained so until the 1950s. Burma Road, a narrow service road behind the Heating Plant, serves as a secondary circulation feature. Historic photographs indicate that Burma Road did not extend behind the Old Barracks until after 1932. Letcher Avenue and Burma Road are currently paved in asphalt.

*Asphalt parking in front of Scott Shipp Hall has concrete wheel stops atop a deteriorating stone retaining wall.*

An asphalt-paved front-in parking area exists to the north of the Scott Shipp Hall Annex. The parking replaced a row of trees that once lined this side of the road. Historic photos indicate that this area was used as an informal parking area as early as 1925, although at this time cars were parked up to and in-between the trees. Concrete wheel stops along the south edge of this parking area now sit precipitously atop a stone retaining wall, which is suffering from the lack of a concrete cap that apparently cracked off some time ago.

*A pedestrian walkway provides access between Letcher Avenue and Daniels Memorial Plaza.*

There are several dedicated pedestrian zones within this character area. A 30-foot-wide brick-paved walkway located between the Old Barracks and Maury-Brooke Hall provides access from Letcher Avenue to Daniels Memorial Plaza. Access to this plaza is also provided via a concrete walkway that leads to a breezeway between Maury-Brooke Hall and Richardson Hall. This walkway has been expanded over time in an attempt to reduce foot traffic on the adjacent grass.

An elevated concrete walkway along the northeast side of this plaza provides a direct connection between the Old Barracks with the cadet service support areas found within Richardson and Maury-Brooke Halls (i.e., military store, tailor, laundry, post office). Prior to this walkway, the area between these buildings was informally maintained in grass with concrete walkways.

In general, pedestrian areas in North Institute Hill are in good condition. The noticeable slope within Daniels Memorial Plaza, however, makes this space appear awkward as the ground slopes more than five percent away from the Barracks. Surface water is directed along the edge of this plaza from the Barracks to a drain located at the corner of a raised planter. Concentrated surface drainage may pose safety hazards in the winter when temperatures drop below freezing, as ice could be expected to form on the sloping pavement. Two raised planters in the center of the courtyard, which once contained trees, now have benches. The retrofitting of the raised planters appears awkward and the benches are not comfortable or user-friendly.

Brick paving along the north side of Letcher Avenue defines a pedestrian zone that connects the Old Barracks, Maury-Brooke Hall, and Carroll Hall with Crozet Hall; this route is heavily- traveled by cadets several times a day. This brick-paved area rests at the same elevation as the roadway and serves as an important safety feature separating pedestrians and vehicles. The sidewalk was elevated above the roadway in the early-twentieth century, but the road was eventually made level with the sidewalk sometime before 1945; this is a likely result of cumulative layers of asphalt paving.

An awkward set of stairs and ramps is located along the front of Scott Shipp Hall. They are contained by short concrete retaining walls that make up the grade difference between the building entrance and the road. Metal railings have been added for safety. Prior to 1925, the entry to Scott Shipp Hall consisted of a simple elevated sidewalk with two steps into the front door. The recent changes were likely necessitated by the road's increased height caused by additional layers of paving.

The brick paving in front of Crozet Hall is notable with Lexington bricks used to define the entry. It is not known if this is a historic feature, as a photo dating to 1950 shows a smaller entry with masonry pillars defining the turn to Burma Road. These pillars no longer exist. A low retaining wall is located along the north side of Crozet Hall to separate the pedestrian walk from the road corridor. As elsewhere, it appears that the height of the road base has been built-up over time, thereby reducing the profile of the wall. This retaining wall is in poor condition and has been impacted by vehicles. During the time of the field survey, Crozet Hall was under construction for a major renovation and expansion project.

Concrete sidewalks frame the Memorial Garden on all sides and provide direct access between the monumental staircase and the front of Cocke Hall, which is framed by planting beds containing pachysandra and cherry trees. Two diagonal paths, added some time after 1940, cross the grass lawn and connect the east and west entries of Cocke Hall to the central stairs. In general, these features are in good condition. Some erosion within the lawn is visible, likely a result of trucks using the sidewalks to gain vehicular access to the surrounding buildings. A direct pedestrian route from the Memorial Garden into the east side of Jackson Memorial Hall was constructed in 2006.

### *Vegetation*

With the exception of the Memorial Garden, vegetation and ornamental trees and shrubs within this character area generally consist of foundation plantings (holly, boxwood, magnolia, juniper, rhododendron, and dogwood) around Maury-Brooke Hall, Carroll Hall, and the Scott Shipp Hall Annex. Two willow oak trees remain in one of the Daniels Plaza planters but they are in a state of decline and require further evaluation. At the time of the field survey, there were no trees in the second planter.

There are several distinctive planting areas within the Memorial Garden. Along the western edge, brick sidewalks and planting beds of holly, rhododendron, pachysandra, and daffodils provide a setting for the Cocke Memorial Statue. This planting area is framed by large oak trees on either side. Along the eastern edge, an elevated planting bed is enclosed by a yew hedge, and its stepped entry is framed by boxwood on either side. Dogwoods provide shade to two ornamental concrete benches and a broken sundial. The front of Cocke Hall is framed by planting beds containing pachysandra and cherry trees, and large masses of forsythia are contained along the slopes framing the monumental staircase. All vegetation within Memorial Garden appears to be well-maintained and in good condition.

*There are a variety of distinctive plantings and species within the Memorial Garden.*

***Views***

The most notable views within this character area are the axial views looking down Letcher Avenue towards the façade of Crozet Hall, as well as the view overlooking the parapet wall to the Memorial Garden below. Significant enclosed views are also contained within the Memorial Garden itself. One view is from the south side of the courtyard looking north, which focuses on the quote mounted in letters on the retaining wall with the façade of the Old Barracks in the background. Another is the cross-axial view which focuses on the statuary located on the east and west ends of the garden.

External views are generally limited by the large buildings contained within this character area. An exception to this is the view from Burma Road, which provides views of the Woods Creek ravine and North Post beyond. Views of South Post are also afforded by the prospect of Letcher Avenue as it turns west to join with Main Street.

***Landscape Structures***

The most notable landscape structure located within this character area is the high retaining wall and monumental stairs along the north edge of the Memorial Garden. This feature was constructed circa 1927 and could be viewed as an adaptation of the Goodhue 1914 plan, which called for a central staircase connecting the Barracks with Main Street below, on axis with the Washington Statue. However, as constructed, this monumental staircase differs from the Goodhue design in that two sets of symmetrical stairs descend at right angles to the axis, which is now terminated by Cocke Hall, not part of Goodhue’s design. All features associated with this landscape structure appear to be in good condition.

PVC pipes have been used in the stone retaining walls at the south and east sides of the Crozet Hall expansion that are not keeping with the Crozet Hall’s historic context.

***Site Furnishings and Objects***

Most of the small-scale features located within North Institute Hill are commemorative in nature. Within the Memorial Garden, letters have been added to the high retaining wall to commemorate a quote from Col. J.T.L. Preston. Dozens of memorial plaques of various sizes and shapes flank the symmetrical stairs. These features, as well as the statue honoring Brigadier

General William H. Cocke, contribute to an atmosphere of reserved and contemplative calm. Along the eastern side of this garden, a damaged sundial is positioned on axis with the Cocke statue. Two concrete benches are also located here. Other features include a bronze plaque commemorating Jonathan Myrick Daniels located in the plaza bearing his name.

Consistent with the Central Post Character Area, iron lampposts also line Letcher Avenue as it passes through this character area. Concrete posts and pipe rail fences are found along the south side of Letcher Avenue opposite the Barracks. These posts exhibit the same design as those found in front of the Old Barracks and are in equally poor condition.

***Summary of Historic Resources***

The following resources contribute to the historical significance of the North Institute Hill Character Area:

*Buildings*

- Old Hospital
- Carroll Hall
- Heating Plant
- Maury-Brooke Hall
- Scott Shipp Hall
- Cocke Memorial Hall
- Richardson Hall
- Crozet Hall
- Five Bungalows

*Spatial Organization*

- Memorial Garden
- Raised gardens within the Memorial Garden
- Row of buildings along north side of Letcher Avenue

*Land Use*

- Academic
- Cadet service support
- Residential
- Recreation
- Commemoration

*Topography*

- Steep slope of Letcher Avenue between Barracks and Main Street
- Steep slope between Barracks and Memorial Garden

*Circulation*

- Letcher Avenue
- Burma Road
- Sidewalks within Memorial Garden
- Brick sidewalk along north side of Letcher Avenue

*Vegetation*

- Forsythia along embankment within Memorial Garden
- Oak trees within Memorial Garden
- Raised planting areas on east and west ends of the Memorial Garden

*Landscape Structures*

- Stucco retaining walls within Memorial Garden
- Monumental staircase to Memorial Garden
- Stone wall along north side of Crozet Hall

*Views*

- Axial views along Letcher Avenue
- Axial and cross-axial views within Memorial Garden

*Site Furnishings and Objects*

- Concrete benches within Memorial Garden
- Statues in Memorial Garden
- Concrete posts and pipe rail fencing
- Crozet Monument

### *Integrity Evaluation*

In general, North Institute Hill retains integrity to VMI's early-twentieth century expansion through to World War II. Maury-Brooke Hall, Richardson Hall, Crozet Hall, Scott Shipp Hall, Cocke Memorial Hall, and the Memorial Garden generally retain integrity of location, design, materials, workmanship, feeling, and association to their original construction. Their setting, relative to Jordan's Point to the east and Central Post to the west, also remains unchanged, as does their relationship to Letcher Avenue. That said, two recent new annex buildings, parking lots, and the Crozet Hall expansion have eroded the historic landscape setting and context.

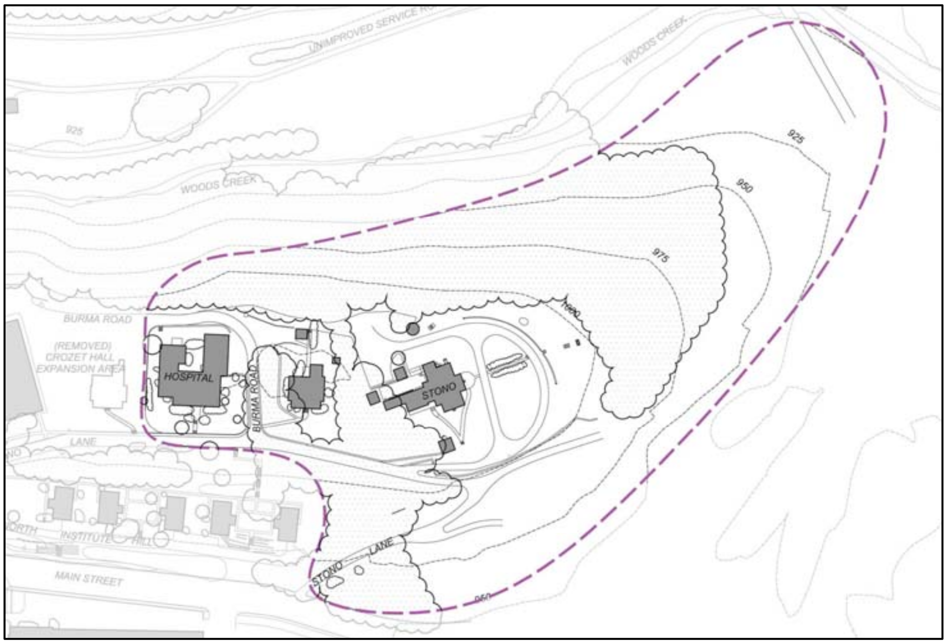
*Historical image of a prominent Barracks overlooking Main Street and the City of Lexington.*

Because of the construction of Cocke Memorial Hall in 1927, North Institute Hill retains little integrity to earlier periods and in particular to Davis' and Goodhue's designs for the Post. Both architects valued the visual prominence of the Barracks atop the hill overlooking Main Street and the city of Lexington, a strategic factor influencing the location of the historic arsenal. While Davis maintained this open relationship, Goodhue intended to reinforce it with a monumental approach from Lexington to the main sally-port of the Barracks. His grand vision, portrayed in a sketch he titled “Front of Barracks,” was only partially realized. In effect, the construction of Cocke Hall reverses this historic relationship and turns its back to what was once the welcoming front door of the Post.

Other changes have occurred that diminish historic integrity. Photographs dating to the 1940s indicate that the allee of trees along the Parade Ground extended eastward on the entire south side of Letcher Avenue, ending in a small grove east of Scott Shipp Hall. These trees, likely maples, were removed sometime before 1971.

## JORDAN'S POINT

The Jordan's Point Character Area is located at the far eastern edge of the Post. It is primarily defined by its ridge-top topography and dramatic views, as well as by the two nineteenth century Jordan family homes, a terraced garden, and an early-twentieth century residence. This area is located on the bluff above the junction of Woods Creek and the Maury River, historically referred to as Jordan's Point. The land below the bluff, at the area of confluence, contains historic sites associated with Lexington's nineteenth century commercial and industrial development, including mills, stores, foundry, forge, and toll bridge.




*Map depicting the boundaries of the Jordan's Point Character Area.*

### *Buildings*

Buildings within Jordan's Point reflect the earliest period of Lexington and VMI's history, as well as VMI's expansion in the early-twentieth century. They include Stono (1818, the former residence of John Jordan), its associated outbuildings, including the Office, Ice House, and Summer Kitchen, the Post Hospital (1850, the former Samuel Jordan residence), and 450 Institute Hill, also known as the Chaplain's Quarters (1903).

Detailed descriptions and condition assessments of the historic buildings in the Jordan's Point Character Area can be found in Chapter 6, Historic Buildings at VMI.

### *Spatial Organization*

The topography of this ridgeline is the primary organizing feature of Jordan's Point with all the buildings and roads located along its east-west axis. Aside from Stono, which is oriented east towards the Maury River and Jordan's Point, the other two buildings on the ridge are oriented to face south towards Main Street; their lot sizes average a little less than half of an acre. These two houses are set back from Stono Lane approximately 40-feet, contributing to the rural and rustic character of this area.

***Land Use***

Residential and institutional land uses are contained within Jordan's Point. The Chaplain's Quarters continues to provide staff housing and the VMI Hospital provides medical care and support. Stono provides lodging for VIP guests of VMI and is also a venue for small-scale special events.

***Topography***

Jordan's Point is located on the narrow ridgeline that protrudes approximately 100-feet above the confluence of the Maury River and Woods Creek. The topography drops steeply to the north and south. The land to the north is part of the Woods Creek ravine; it is primarily wooded and relatively unaltered from its natural state. The topography of North Institute Hill below this area has been significantly regraded to accommodate mid-twentieth century construction.

The topography to the east of Stono was altered in the early-nineteenth century to create a series of terraces that step down towards Woods Creek. Since John Jordan died in 1854, these features presumably date to his residency at Stono. They are evident in an 1866 photo taken from Jordan's Point looking back up at the top of the hill towards Stono. These terraces reflect a design motif frequently found in many eighteenth and early- nineteenth century Virginia estates: terraced lawns and gardens carved into a natural hillside and overlooking a prominent vista. As garden features, the verdant rolling terraces fell from a central lawn and became part of a vast unfolding view from the main house. Occasionally, these terraces had steps from either side, or in the case of Stono, steps or ramps in-between, to facilitate access.

***Circulation***

*Images of Stono Lane along the ridge, above, and in front of Stono, below.*

Stono Lane was the historic estate's carriage drive and today is the formal approach to the buildings along this ridgeline. It is accessed from Letcher Avenue as it ascends North Institute Hill near Crozet Hall, and from the east at the base of the ridge where a spur near Woods Creek connects Stono Lane to Main Street. Just to the south of the Stono Office, the historic carriage drive veers off from Stono Lane and follows an arc around the front of the house, separating the front yard from the terraced lawns that step down towards Woods Creek. A short north-south connector drive, also paved in asphalt, provides direct access to the front porch and patio and bisects the front lawn.

Burma Road is a secondary service drive along this ridgeline's north side. It provides vehicular access behind the buildings before turning south between the Post Hospital and 450 Institute Hill to intersect with Stono Lane. Sometime after 1969, Burma Road was extended to the rear of Stono to connect to the semi-circular drive.

There are several historic pedestrian features within Jordan's Point. The front walk of Stono is approximately eight-feet wide and constructed of dry-laid brick in a herringbone pattern. While its date of origin is unknown, it likely dates to the Jordan-era. Another brick walkway at the Hospital is similar in size, style, and condition to the Stono brick walk. Both of these sidewalks exhibit uneven surfaces from settlement of the sub-grade.

To the north of Stono, a series of cut limestone block steps provide a formal entry to the terraces. These steps are in poor condition and exhibit cracks and irregular settlement angles. A concrete sidewalk parallels Stono Lane on its north side. Each of the three primary buildings has a front walk that links to this sidewalk. Photos indicate that this sidewalk was in place as early as 1920, although it was historically paved in brick.

*The pedestrian walk leading to Stono is constructed of dry-laid brick in a herringbone pattern.*

### *Vegetation*

Vegetation within Jordan's Point is generally informal in nature and is represented by large deciduous trees (primarily maple and oak), as well as a few evergreens of pine and spruce. These are informally planted in the open lawns and provide a leafy canopy of shade that contributes to the rustic character of this area. Yew, forsythia, and boxwood are common foundation plants.

*Cut limestone steps provide access to the terraces at Stono but are in poor condition.*

A more formally planted landscape characterizes Stono and its associated lands. Here, a double row of old boxwood parallel Stono's brick walk. A historic photograph dating to 1894 does not show these boxwood, but they were in place sometime before 1969 when the property was documented in a Historic American Building Survey. It is not known if these boxwoods replaced earlier historic plantings, although boxwood was a typical early-nineteenth century planting in Virginia.

A remnant of a semi-circular planting of boxwoods is also located just south of the historic iron gates leading to the terraced lawn. Their date of origin is unknown, but they were also likely planted in the twentieth century when the boxwoods lining the sidewalk were installed. The two trees located on either side of the front porch also date to the twentieth century. However, these are planted in locations similar to the two trees evident in the 1894 photo of Stono. The brick courtyard located to the rear of Stono also contains some formal plantings of dogwood, boxwood, and euyonomous. These are not historic, however, as the courtyard was built in the 1980s.

*Formally planted boxwood line the walkway to Stono.*

Daffodils and other spring bulbs line the stone wall between Stono and 450 Institute Hill. The latter also has bulbs around the house near and in a small garden by a patio and garden shed.

### *Views*

The most significant view at Jordan's Point is the axial view from the façade of Stono towards the terraces, which is framed by boxwood hedges. The views of the Maury River, once visible from the open terraced lawn stepping down towards Jordan's Point are now obscured by heavy vegetation. The second floor views from Stono are slightly clearer. Views of Main Street and South Post from Stono Lane and all three houses are also notable.

*The existing stone retaining wall in front of the Post Hospital retains historic integrity.*

*Limestone walls have been incorporated into the existing bedrock, contributing to the rustic nature of Jordan's Point.*

*Replacement walls are not consistent with historic walls in color and materials.*

***Landscape Structures***

The most character-defining structures at Jordan's Point are the dry-laid limestone retaining walls along the north side of Stono Lane, the carriage drive, and portions of Burma Road. These differ from the retaining walls found elsewhere on Post, as there is greater variety in the size and shapes of the stones. Presumably, the stone walls near the Hospital and Stono date to the buildings' period of construction.

The walls in front of the Post Hospital are constructed of rough-cut, irregularly-sized limestone block, larger than is typical elsewhere on Post, and approximately seven courses high. The walls in front of 450 Institute Hill are of particular interest as they have a dry-laid limestone cap of rough uncut stones stacked vertically and laid at an angle. While missing in some areas, the walls generally continue along the length of asphalt road before terminating at the Stono Office. Here, a wall of similar construction, approximately 200-feet long, follows the southern edge of the lower drive. Another wall, approximately 125-feet long, wraps around the east edge of the semi-circular drive.

Two stone pillars constructed of cut and mortared limestone block mark the formal entry to Stono. Similar pillars support a historic iron gate marking the pedestrian entrance to the terraced lawn. Another set of limestone pillars is located at the opposite end of the retaining walls along the carriage drive.

In some instances, retaining walls are incorporated into the existing bedrock, a unique character-defining feature of Jordan's Point. This is the case on both sides of Burma Road between the Hospital and the Chaplain's Quarters, where rough uncut limestone walls have been well-integrated into the adjacent bedrock exposed in this area. The foundation and adjacent sidewalk along the east side of the Hospital are also entirely framed by exposed bedrock that has been cut to create a level surface for the building and contributes to the rustic nature of this character area.

Generally, these walls are in fair to poor condition from age, settlement and vehicular impacts. Dry laid stone walls of this height and size have a tendency to bow over time due to the pressure of dirt and movement from tree roots. This condition is evident in several locations along Stono Lane. A section of wall along the west side of the Post Hospital has recently been replaced. These repairs are inconsistent with the historic walls in color and material, and have oversized PVC pipes in the wall as weep holes.

***Site Furnishings and Objects***

A notable historic site furnishing at Jordan's Point is an old mill stone mounted on a stone pedestal. It is located on the terrace below the northeastern edge of Stono's semi-circular drive.

Several lampposts, approximately eight-feet-high and mounted on simple iron posts, are also located along the front and side brick paths and drive surrounding Stono. The date of origin of these features is unknown.

There are two sets of metal gates located at Stono. One is a simple vehicular gate mounted on the stone pillar marking the formal entrance to the carriage drive near the Office. Its date of origin is unknown. The other is a pedestrian gate mounted on a stone pillar marking the entrance to the terrace garden. It is ornamental in nature and constructed of three rails supporting thin pickets topped with rounded finials. Its date of origin is also unknown but it is likely to be associated with the Jordan-era.

***Summary of Historic Resources***

The following resources have been determined to contribute to the Post's historical significance:

*Buildings*

- Stono
- 450 Institute Hill
- Post Hospital
- Office
- Ice House
- Summer Kitchen

*Spatial Organization*

- Three buildings along ridge top surrounded by open lawn and shade trees

*Land Use*

- Residential
- Institutional

*Topography*

- Level ridge top between Stono Lane and Burma Road
- Terraced lawn east of Stono, stepping down towards Woods Creek

*Circulation*

- Stono Lane
- Stono Lane eastern extension towards Woods Creek
- Stono Lane southern extension towards Main Street
- Semi-circular drive around Stono
- Portions of Burma Road
- Brick walks leading to the Post Hospital entry and Stono entrances
- Limestone block steps near ice house
- Stone steps leading to terraces

*Vegetation*

- Boxwood along brick walk leading to Stono entry
- Boxwood along upper terrace on axis with walkway
- Large shade trees in lawns surrounding buildings

*Landscape Structures*

- Dry-laid stone retaining walls along Stono Lane and surrounding the Hospital

- Stone pillars marking end of Stono
- Stone pillars at either end of retaining wall delineating the terraces

*Views*

- Views overlooking Maury River from Stono Lane
- Axial views along brick entry walk in front of Stono
- Views to Main Street from ridge top

*Site Furnishings and Objects*

- Iron gate leading to terraces
- Mill stone on upper terrace

***Integrity Evaluation***

This character area retains a high degree of integrity to the Jordan period, and is well represented by Stono, its associated outbuildings, circulation features, stone walls, and landscape terraces. The Post Hospital, the former home of Samuel Jordan, also contributes to the integrity of this character area. While the views of the river have since been obscured by vegetation, the relationship to its surrounding context and feeling of prominence and relative isolation high above the town remain relatively unchanged.

While 450 Institute Hill continues to represent the early-twentieth century expansion of the Post, the integrity of this period has been degraded by the loss of its twin, 446 Institute Hill, as a result of the Crozet Hall expansion. The spatial organization, massing, scale, design, and use of the new facility is far different from the 1903 residential structure and landscape it replaced.

## SOUTH INSTITUTE HILL

The character area known as South Institute Hill is located between Central Post to the east and the Washington and Lee campus to the west. It includes the Letcher Avenue Road corridor and all the land along the slope of South Institute Hill between Letcher Avenue and Main Street. It is generally defined by the large residential homes that were constructed in the late-nineteenth century when VMI faced an increased demand for faculty housing.


*Map depicting the boundaries of the South Institute Hill Character Area.*

### *Buildings*

This character area contains fourteen (14) historic buildings. They include 301 Letcher Avenue (Bachelor Officers' Quarters 1900), 303 Letcher Avenue (1900), 304 Letcher Avenue (Neikirk House 1872), 305 Letcher Avenue (Letcher House 1875), 306 Letcher Avenue (Cabell House 1859), 307 Letcher Avenue (1900), 309 Letcher Avenue (Pendleton-Coles House 1867), 320 Institute Hill (Freeland House 1892), 304 Main Street (1900), and 306 Main St. (1880). There is also a row of four 1953 bungalow homes located on Institute Hill to the south.

In 1988, the Pendleton-Coles House was moved from the site now occupied by the Science Building further west to its present location at 309 Letcher Avenue. Another historic building, 302 Letcher Avenue, was demolished to accommodate the new Science Building.

Detailed descriptions and condition assessments of the historic buildings in the South Institute Hill Character Area can be found in Chapter 6, Historic Buildings at VMI.

### *Spatial Organization*

The entry into VMI along Letcher Avenue is marked by the building facades and front yards that frame the road corridor east of Maiden Lane. While the building setbacks along the north 300-block of Letcher Avenue vary from 40-

to 140-feet, the south 300-block averages only 15- to 20- feet, creating a more urban character within this vicinity. Side yards range from 10- to 50-feet.

Until the mid-twentieth century, the residential rear yards of Letcher Avenue's south 300-block buildings were approximately 160-feet deep, but were shortened significantly in the 1990s to make room for a parking lot and service drive. The rear residential yards of Main Street's north 300-block were likewise lost with the construction of the residential bungalows in 1953.

***Land Use***

The historic use of this character area was residential in nature, as the buildings located here were built to accommodate the need for additional faculty housing after the Civil War. Historic photographs from the 1920s and 1930s indicate that the yards associated with these buildings were used for domestic and agricultural uses with large lawns, trees, and outbuildings as well as a few garden/agricultural plots.

Today, the extant historic homes are used for faculty and staff housing, as well as administrative purposes. These include the Bachelor Officer Quarters (BOQ) at 301 Letcher Avenue, the VIP Guest House at 303 Letcher Avenue, Human Resources Office at 305 Letcher Avenue, Construction Office at 307 Letcher Avenue, and the Admissions Office at 309 Letcher Avenue.

***Topography***

As elsewhere on Post, the elevation change in South Institute Hill is dramatic. The area's high point of 1,064-feet above sea-level is just west of Maiden Lane. This elevation drops to approximately 980-feet along Main Street. Even in the absence of documentation on modern topographical changes, it is clear that expanded parking lots and new roads and buildings have resulted in substantial re-grading. This is particularly evident on the slope with the row of bungalow dwellings. As a result, the natural grade has been replaced by both level surfaces needed for construction and steeper slopes in some areas; this has necessitated the construction of numerous retaining walls to accommodate the grade changes.

*Letcher Avenue, above, and Institute Hill, below, are the primary circulation routes through South Institute Hill.*

***Circulation***

Letcher Avenue is the main east-west vehicular and pedestrian corridor through South Institute Hill and is its primary organizing feature. Constructed in 1874, the road is the only formal connector between VMI and Washington and Lee University and currently serves as the main entrance to VMI.

The street known as Institute Hill, located between Letcher Avenue and Main Street, functions as a service road and provides east-west vehicular access to the buildings located on the north 300-block of Main Street and the 1953s bungalows. It connects with Main Street via a steep drive opposite Diamond Street. The date of this road is unknown, although photographic evidence suggests it was constructed some time after 1930 and perhaps in association with the bungalows.

Maiden Lane is the only road that runs north-south in South Institute Hill. It provides a direct connection between Main Street and Letcher Avenue and forms the westernmost boundary of the Post. At the intersection of Letcher Avenue, Maiden Lane follows a slight right dog-leg and continues north-south behind the Neikirk House. Here, it traverses the parking lot behind F. H. Smith Hall before branching off into Burma Road and Anderson Lane near the faculty quarters. Maiden Lane was a private alley in 1867 and was not recognized as a formal road until 1914.

*An east-west service road is located behind the residences on Letcher Avenue.*

An east-west service road and associated parking area is located directly behind the residences on the south 300-block of Letcher Avenue. Accessed from Maiden Lane, these circulation features were constructed in the late-twentieth century. This area was historically a landscape of private rear yards approximately 160-feet deep, containing lawns, shrubs, and large trees. Today, the area is almost completely paved. This service road extends along the south side of the Science Building before it becomes a service drive around the Freeland House.

In general, all roads are in fair to good condition. The exceptions are the asphalt and concrete curbing along South Institute Hill. Here, there is poor site drainage and the curbs are in poor condition with numerous cracks. The asphalt parking area behind the 300-block of Letcher Avenue is also in poor condition with surface cracking, spalling, and settlement.

There are several pedestrian sidewalks and stairs within this character area. While concrete sidewalks and stairs are most common, a few others have been constructed of brick and stone. Concrete sidewalks are primarily found along South Institute Hill, the south 300-block of Letcher Avenue, and the east side of Maiden Lane. The sidewalks that provide access to the rear entries of the bungalows are also paved in concrete.

*Lexington Brick sidewalks, like this one at 307 Letcher Avenue, are a character-defining feature on the Post.*

The sidewalks paved in patterned Lexington Brick include the sidewalk along the north 300-block of Letcher Avenue, a walkway leading to the rear of 307 Letcher Avenue and the front sidewalk leading to 306 Letcher Avenue. The small seating area located along the north side of Letcher Avenue is also paved in this patterned brick.

A semi-circular sidewalk paved in non-historic bricks with a running bond pattern provides access to the front of the Neikirk House. This sidewalk appears to have been recently laid and its original form and materials are unknown. The modern bricks here are a brighter red than the historic pavers and are out-of-place within the historic context.

*Lexington Brick defines the seating area along the north side of Letcher Avenue.*

A small patio providing entry to the west side of the BOQ is paved in sandstone. The stone is laid in a random pattern with wide mortared joints. This patio is in poor condition as the mortar has cracked in several places, grass is beginning to grow between the joints, and some of the stones have settled to create an uneven surface.

### *Landscape Structures*

Stone retaining walls are found in multiple places within South Institute Hill. The most prominent and character-defining walls are on the north side of Main Street. As elsewhere on Post, they are constructed of rough uncut limestone stacked horizontally with exposed unraked mortar and approximately four-inch thick concrete caps. The Main Street stone walls are very large and range in height from approximately eight- to fifteen-feet.

*Stone walls along Main Street range from eight- to fifteen-feet in height.*

Other less common types of wall construction at VMI are found throughout this area and include rough uncut limestone stacked randomly with no exposed mortar and a thin cap of concrete (approximately two-inches thick) spread along the top. This style of construction is found around the Freeland House. Another style of wall construction is found along the west side of the BOQ, which contains cut limestone blocks with wide mortared joints raked flush with the stones.

A small seating area is located directly across the street from the BOQ at 301 Letcher Avenue. It serves as a focal point along this road and helps mark the western gateway to the Post. It framed on three sides by mortared, rough-cut and stacked stone retaining walls approximately six-feet high. Rounded concrete slabs comprise the cap. The eastern wall steps down in three tiers to make up the change in grade. Aerial photos indicate that this seating area was constructed after 1963.

A second set of brick Limit Posts, similar to the historic Limit Posts described in the Central Post Character Area, are found at the entry to VMI on either side of Letcher Avenue near the seating area. Bronze plaques with raised letters stating “Virginia Military Institute 1839” are mounted on these features to mark the late-nineteenth century edge of the Post property line. Although the entry posts’ exact historic date is unknown, they appear in early-twentieth century photographs.

In general, all the landscape structures located within this character area appear to be in good condition.

*View of South Institute Hill shows landscape structures in good condition, including the historic Limit Posts.*

### *Vegetation*

Vegetation in South Institute Hill is primarily comprised of large deciduous shade trees and lawns surrounding the historic residences. Species are typical of what is found elsewhere on Post and primarily include maple and oak. A few spruce and hemlock trees are also dispersed within these lawn areas. Most of the trees here appear to be in good condition. A large oak tree south of the Science Building requires a more detailed assessment as it is currently subjected to root compaction from a construction trailer located underneath its canopy.

Forsythia, boxwood, yew, and quince are the most common ornamental shrubs; these are typically found along the foundations of the buildings. The most notable ornamental planting is the clipped forsythia hedge surrounding the seating area on Letcher Avenue. Shrubs at VMI have often been used as visual buffers. This is evident above the Main Street retaining wall where a privet hedge provides a privacy screen for the houses facing the street and the bungalows to the north.

***Views***

Views within this area are both expansive and limited. The most expansive views are provided along Letcher Avenue, where the drop in topography provides open views towards Washington and Lee University to the west. The buildings on either side of Letcher Avenue frame an axial view to the east before opening up to views to the Barracks across the Parade Ground, and the mountains in the distance.

More limited views are found along the south slope of Institute Hill where existing buildings, walls, and vegetation keep the visual focus here on the backs of the buildings.

***Site Furnishings and Objects***

Site furnishings and objects within this character area post-date the historic period. These include two benches and a state historical marker within the Letcher Avenue seating area, which identifies the Post as a National Historic Landmark. Iron lampposts, which are similar to those found within the Central Post Character Area, are also located along this portion of Letcher Avenue. Other landscape features are generally utilitarian in nature and include traffic and wayfinding signage, utility boxes and poles, and trash dumpsters.

***Summary of Historic Resources***

The following resources have been determined to contribute to the Post's historical significance:

*Buildings*

- Cabell House
- Pendleton-Coles House
- Neikirk House
- 305 Letcher Avenue
- 306 North Main St.
- Anderson House
- Bachelor Officer Quarters
- 303 Letcher Ave
- 307 Letcher Avenue
- Freeland House
- 304 North Main Street

*Spatial Organization*

- Orientation and setbacks of historic homes facing Letcher Avenue and Main Street.

*Land Use*

- Residential
- Administrative

*Topography*

- Natural slope north of Letcher Avenue
- Sloping lawns of historic houses along Letcher Avenue (south side) and Main Street (north side)

*Circulation*

- Letcher Avenue
- South Institute Hill
- Sidewalks paved in patterned Lexington bricks

*Vegetation*

- Large shade trees in lawns immediately surrounding the historic buildings

*Landscape Structures*

- Stone retaining walls along Main Street
- Stone retaining walls along south side of Letcher Avenue
- Brick Limit Gates marking western entry to VMI

*Views*

- Views overlooking Main Street
- Axial view along Letcher Avenue
- View from Letcher Avenue towards Barracks
- Views to Washington and Lee

*Site Furnishings and Objects*

- No historic elements

***Integrity Evaluation***

South Institute Hill retains a moderate degree of integrity to its original historic period, VMI's post-Civil War expansion. This neighborhood was developed in conjunction with the creation of Letcher Avenue to accommodate an increased demand for faculty housing. The area that best conveys this history is the Letcher Avenue corridor. Here, the location, size, and scale of the historic homes, building setbacks, topography, and the roadway alignment generally reflect conditions present at the end of the nineteenth century. However, the relocation of the Pendleton-Coles House and the demolition of 302 Letcher Avenue in 1988 to make way for the new Science Building have degraded the neighborhood's historic character.

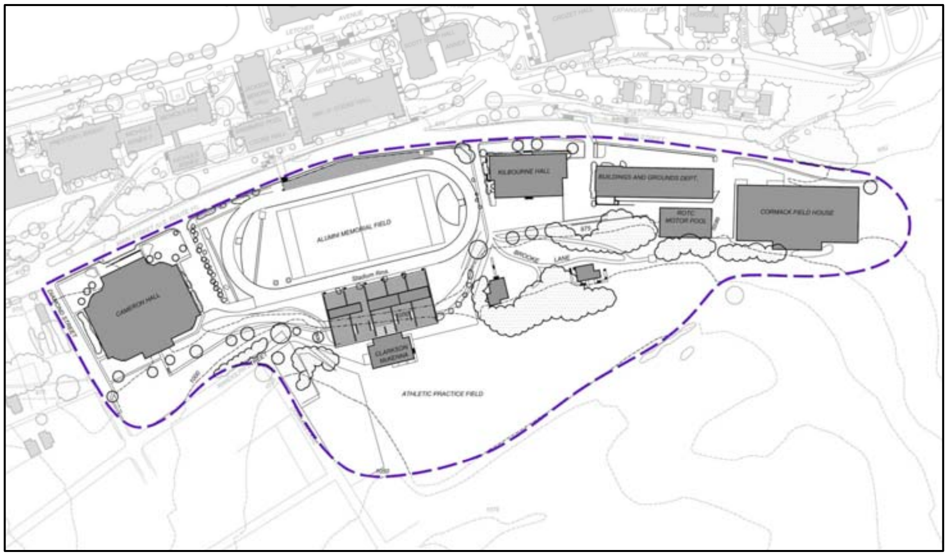
South Institute Hill's most significant loss of integrity has occurred behind the homes on the south 300-block of Letcher Avenue. Here, the removal of domestic yards and vegetation associated with the late-nineteenth century residences, to make room for new parking and roads, has had a negative impact on historic landscape integrity. Likewise, the Freeland House yard and its connection to its surrounding site has been lost as a result of the new Science Building, modern roads and parking areas, and the significant amount of regrading necessary to construct these features. The massive rear addition on Mallory Hall has blocked the historic view and spatial connection between the Freeland House and the Old Barracks.

While the row of 1953 residential bungalows does not reinforce the integrity of the post-Civil War period, it does represent VMI's post-World War II history of rapid expansion which triggered the need for additional faculty housing.

Although this character area has lost significant historic fabric, spatial relationship, views, vegetation and topography, extant historic buildings and their landscape features remain and should be treated carefully to avoid further erosion of historic character.

## SOUTH POST

The South Post Character Area is on the south side of Main Street and contains VMI athletic and maintenance facilities. It is generally bounded by Main Street to the north, Diamond Street to the west, Hook Lane to the east, and Maury Street to the south. At the time of the field survey, much of South Post was under construction with an underground utility project, improvements to Alumni Memorial Field and Delany Field, and expansion of Clarkson-McKenna Hall.




*Map depicting the boundaries of the South Post Character Area.*

### *Buildings*

Historic buildings in South Post include 501 Brooke Lane (Brooke House 1875), 503 Brooke Lane (Smith House 1885), VMI Stables (Department of Physical Plant) 1919/1940, the former VMI Stables building), ROTC Motor Shop (1935), and Cormack Field House (1943). There are also three modern buildings: Kilbourne Hall (1969), Clarkson-McKenna Hall (1962), and Cameron Hall (1980).

### *Spatial Organization*

All the buildings and structures located within this character area are generally oriented towards Main Street, which serves as the primary organizing feature. The topography of the hill also influenced the placement of athletic facilities on now-level surfaces at the base of the hill.

### *Land Use*

The historic land use on Freedmen’s Hill was a residential neighborhood for African-Americans after the Civil War. By the early-twentieth century, VMI had established stables there. Today, land uses within this character area include primarily recreational and maintenance facilities, as well as some academic and administrative uses. There are also two VMI staff residences at the terminus of Brooke Lane.

***Topography***

Historically known as both Diamond Hill, the topography of South Post was once a steep hill rising from the generally level land along Main Street. The latter was historically a floodplain for a small creek, known as Town Branch Creek, that has since been diverted underground. Aerial photographs show that this creek still flowed free in 1920; therefore, it was likely placed in a culvert when the athletic field was constructed near the end of that decade.

*Aerial image from 1920 showing creek running freely on South Post.*

By the 1930s, VMI had started extensive grading to cut into the base of the hill to create level surfaces. Today, the remainder of the hill rises dramatically behind the spectator stands in a steep cut. This condition is evident in historic photos dating to 1932 and was connected to the development of the playing field. The hillside directly above Alumni Memorial Field appears to have been leveled in the early 1960s for the construction of Delaney Field, which serves as VMI's practice field.

A steep cut is also found along its south side and behind the ROTC Motor Pool and Cormack Field House. Many of these cuts are highly-eroded.

***Circulation***

Main Street provides access to most of South Post, whereas Diamond and Maury Streets provide access to the Clarkson-McKenna Hall and Delany Field. Parking is haphazard and not well-organized; it is generally located between buildings and Alumni Memorial Field. Access to these parking areas is provided by three service drives. They are located between Cameron Hall and Alumni Memorial Field, between Kilbourne Hall and the former VMI Stables, and between the historic Stables, ROTC Motor Pool and the Cormack Field House.

Brooke Lane is an historic road that was likely constructed in the late-nineteenth century to provide access from Main Street to 501 and 503 Brooke Lane. This road passes between Alumni Memorial Field and Kilbourne Hill and also provides access to a small parking area south of Kilbourne Hall.

Most roads and parking areas in South Post are in fair to poor condition, particularly those surrounding the former VMI Stables and Cormack Field House. Many were under construction at the time of the field study and could not be fully evaluated.

*Concrete sidewalks comprise the limited pedestrian circulation system on South Post.*

South Post does not have an extensive pedestrian system. Most of the sidewalks are located along Main Street and around Cameron Hall. A concrete sidewalk is also located along the east side of Diamond Street and provides pedestrian access to the neighborhoods surrounding South Post. Several sidewalks were under construction at the time of the field study and others had been completely removed.

There are two historic pedestrian circulation features that connect the South Post to Central Post. The pedestrian bridge, which was constructed in 1929 to provide safe access to and from the athletic facilities, connects Institute Hill with Alumni Memorial Field. Historically, the bridge was accessed via a terraced garden and stairs located below Jackson Memorial Hall. Although the garden stair terrace was different in design and exact location from the Goodhue "Front of Barracks," it nonetheless created a grand axial approach to this building. The terraced garden and stairs were removed in 1969 with the construction of the Cocke Hall Annex.

*The pedestrian bridge is suffering from structural cracks and settling – creating unsafe conditions for pedestrians.*

Today, the condition of the pedestrian bridge is poor as structural cracks are evident. Paving atop this bridge is also in poor condition as cracked concrete and settling of several layers of asphalt patching create trip hazards. At the time of the field survey, access to the bridge was restricted due to construction activity throughout South Post.

A pedestrian tunnel, located just south of Crozet Hall, provides passage underneath Main Street and is accessed via a stairwell immediately in front of the VMI Stables. Based on circa 1920 photographs, there was a stairwell opening framed by stone retaining walls in this location. These stone walls no longer exist and have been replaced by concrete and plywood. At the time of the field survey, the South Post opening was closed due to construction and a condition assessment was not possible. There was once a narrow vehicular drive adjacent to the tunnel that is no longer passable due to South Post construction; it is a safety hazard because of the poor sight lines created by the retaining walls.

*Photograph from 1920 shows the stairwell opening in front of the VMI Stables building.*

***Landscape Structures***

Stone walls are found in several locations in South Post. A long continuous freestanding wall approximately two-to-three-feet tall parallels Main Street in front of the VMI Stables. This wall is slightly different from other VMI stone walls because it is constructed of tumbled sandstone. This makes it more beige in color than the rough-cut gray limestone found elsewhere. It is cracked in several places and in poor condition. This wall historically enclosed a paddock that once extended to the site of Kilbourne Hall; this portion no longer exists.

A limestone retaining wall is located behind the Stables to accommodate the grade change for the service road between the Stables and Motor Pool. This wall is similar to others on Post and likely dates to circa 1940 when the Stables building was expanded. Roof drainage from the former VMI Stables and ROTC Motor Pool collects in this area and contributes to wall deterioration. An awkward and unsafe set of stone steps traverses up the slope behind the stables and is in poor condition.

A large set of concrete bleachers is located along the north side of Alumni Memorial Field. These bleachers, which are approximately 350-feet in length, were constructed in 1929 and have a direct connection to the 1929 pedestrian bridge across Main Street. A long flight of steps on the west side of the bleachers accesses the bridge. A taller set of concrete spectator stands was constructed in 1962. Approximately 250-feet in length, they are located along the south side of Alumni Memorial Field. At the time of the field survey, the stadium area was closed for construction and conditions could not be evaluated.

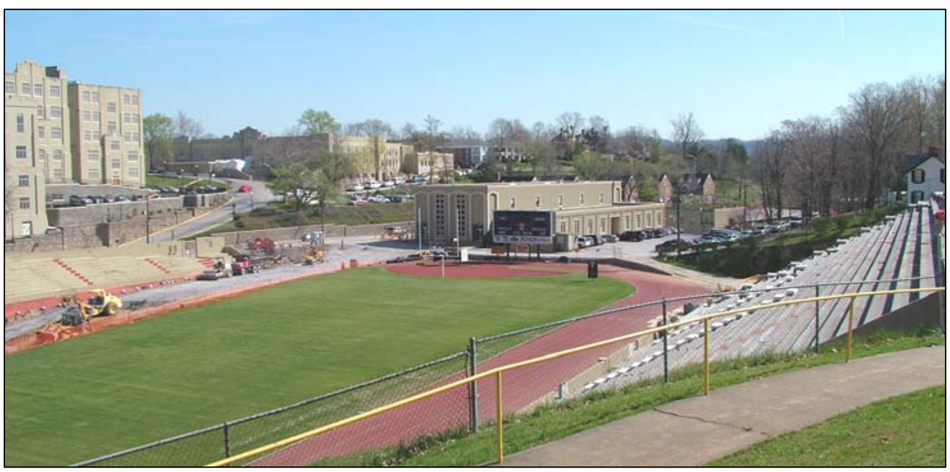
***Vegetation***

There is little ornamental vegetation in South Post and most areas are paved in asphalt or maintained as playing fields. Vegetation at Cameron Hall consists of a lawn with white pine trees behind the building and flanking the front entrance. Except for one dead tree at the rear, the majority of trees are in good to fair condition. A few boxwoods have also been planted around Cameron Hall’s foundation.

Large deciduous trees frame the toe of the slope near Clarkson McKenna, above Brooke Lane, and behind VMI Stables, ROTC Motor Pool, and Cormack Field House. The steeply-rising grade above these buildings is exposed bare earth. Vegetation surrounding the historic Brooke Lane residences is mostly comprised of large deciduous trees with sloping lawns.

***Views***

Prominent views at South Post generally focus towards Central Post. At street level, the view takes in the historic stone retaining wall, and above, the rear elevations of VMI buildings that parallel Main Street on Institute Hill. From the eastern end of South Post, there is a close-up view of the five 1950s bungalows.



*View from South Post looking towards Central Post.*

Likewise, views of South Post from the south slope of Institute Hill are equally prominent. While most all buildings can be seen from this perspective, Clarkson-McKenna Hall and its associated stadium on the south side of Alumni Memorial Field visually dominates views of South Post.

Notable lost historic views from South Post include the south façade of the Barracks, the monumental stair and terraced garden and stairs below Jackson Memorial Hall, and the view of the rear elevation of Jackson Memorial Hall.

### *Site Furnishings and Objects*

Site furnishings and objects at South Post are generally recreational and utilitarian in nature. They include a large scoreboard, goal posts, modern traffic signs, and metal handrails. Contemporary site lighting is located along the sidewalk and pathways around Cameron Hall. Utility lines and poles, once visually prominent features of the Main Street Corridor, have been recently been placed underground.

### *Summary of Historic Resources*

The following resources have been determined to contribute to the Post's historical significance:

*Buildings*

- 501 Brooke Lane
- 503 Brooke Lane
- Former VMI Stables
- ROTC Motor Shop
- Cormack Field House

*Spatial Organization*

- Orientation of historic features towards Main Street
- Athletic field

*Land Use*

- Recreation
- Residential
- Maintenance/Storage
- Academic
- Administrative

*Topography*

- Level floodplain area along Main Street
- Steep rise of Diamond Hill behind the athletic field

*Circulation*

- Main Street
- Brooke Lane
- Concrete sidewalk along Main Street
- Pedestrian bridge

*Vegetation*

- Large deciduous trees along slope overlooking Brooke Lane

*Landscape Structures*

- Pedestrian bridge
- Pedestrian tunnel

- North bleachers
- Stone retaining walls along Main Street

*Views*
- Views toward Central Post
- Views of historic buildings and athletic field from Central Post

*Site Furnishings and Objects*
- None

***Integrity Evaluation***

The South Post Character Area has poor integrity to its nineteenth century origins as a rural, sparsely-settled area on the outskirts of Lexington and a post-Civil War African-American neighborhood on Freedmen's Hill. Most of the extant buildings from the latter period are located on Main Street. VMI's grading and extensive cutting has radically altered the topography and has damaged the historic landscape integrity.

*The residences at 501 Brooke Lane, above, and 503 Brooke Lane, below, have poor historic landscape integrity.*

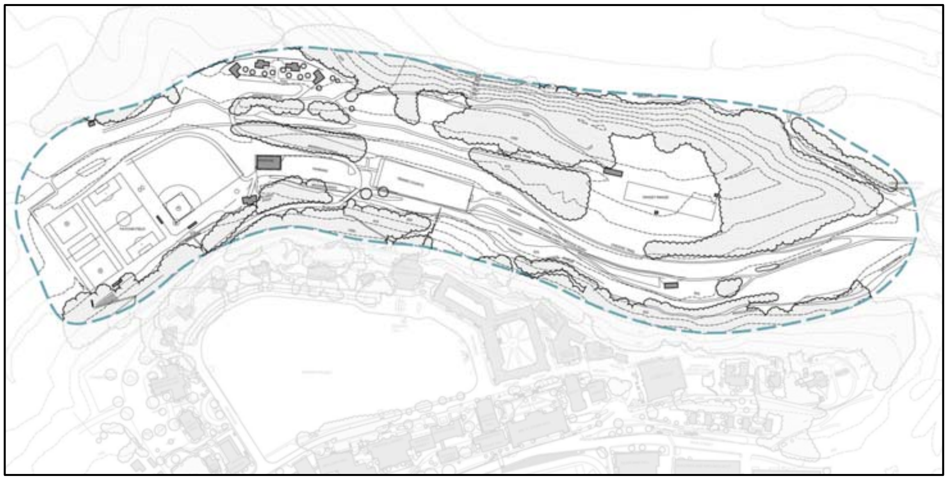
The twin Brooke Lane residences represent the late-nineteenth century period of South Post and the construction of faculty residences beyond the Limit Gates. They were built by VMI faculty using the Gothic Revival pattern-book style popularized by A.J. Davis and A.J. Downing. Although the houses are intact, they have lost their picturesque, rural landscape setting and context. They have poor historic landscape integrity due to the extensive new construction that has occurred around them.

The South Post Character Area represents VMI's expansion south of Main Street beginning in the early- to mid-twentieth century as it acquired land for cavalry training and developed recreational facilities for the growing cadet population. While western and southern portions of South Post have been significantly altered by new buildings and structures, this history continues to be represented by the former VMI Stables, now the Department of Buildings and Grounds; the ROTC Motor Shop, which was originally developed as a cavalry equipment storage building; Cormack Field House; the athletic field; and pedestrian bridge and tunnel.

These extant resources are located in the central and eastern portions of this character area; overall, they have only moderate integrity due to multiple building campaigns and alterations. The South Post landscape has poor integrity due to extensive grading, stream channelization, and new construction.

## NORTH POST

The North Post Character Area was acquired by the VMI Foundation in the early 1960s. It is located north of Burma Road and encompasses the wooded slope of the Woods Creek ravine and its floodplain. It is bounded on the east by the sewage treatment plant bridge and on the west by Washington and Lee University. Its north boundary is defined by the ridge bordering the Maury River. Although North Post has no historic buildings, it does contain historic landscape features.



*Map depicting the boundaries of the North Post Character Area.*

### *Buildings*

North Post contains most of VMI's athletic fields and courts as well as four residences and several maintenance buildings. All of the resources date from the 1960s and 1970s. They include the baseball field, Patchin Field, lacrosse field, tennis courts, target range, four residences at the terminus of Anderson Drive, Athletic/Physical Education Facility, Welding Shop, Range Building, and two unnamed utility structures.

### *Spatial Organization*

The spatial organization of North Post is formed by the central riparian corridor of Woods Creek and its floodplain. The Woods Creek ravine encloses the creek bottom with steep slopes to the south and a high ridge to the north.

### *Land Use*

Land uses today in the North Post are a mix of recreation, circulation, residential, and maintenance activities. Historic photographs indicate that, prior to VMI acquisition, the Woods Creek floodplain was primarily used for agriculture while the slopes were covered in woods.

### *Topography*

The Woods Creek stream valley is a wooded area with a steep slope separating Central Post from North Post. The elevation change between these two areas is approximately 100-feet and the slope is in excess of sixty perecent in some areas. While most of the slopes are treed, the portion of the ravine north of the heating plant has been denuded as a result of recent construction.

Above the floodplain, a long and narrow ridge rises to the north before descending to the banks of the Maury River. The athletic fields, tennis courts, and the target range have all been cut into the side of the ridge. Although the grade is generally covered with grass, some erosion is evident.

*View of athletic field cut into the side of the ridge at North Post.*

### *Hydrology*

Woods Creek is a major tributary of the Maury River; their confluence is east of VMI at Jordan's Point. The Woods Creek watershed, the larger uplands that are drained by the creek, is a 5.2-square mile area that includes parts of Rockbridge County and much of the City of Lexington. Water quality within Woods Creek has been compromised by pollutants and land use practices common to most developed watersheds. These include fecal coliform bacteria, fertilizers, and herbicides from agricultural land uses. The water quality has also been impacted by building and site development in urban and suburban areas. These include impermeable surface runoff, soil erosion, and pollutants such as petroleum hydrocarbons, heavy metals, and lawn fertilizers. Taken as a whole, these pollutants have a particularly adverse effect on the health of Woods Creek at VMI because it is at the bottom of the watershed.

VMI land use and development decisions at North Post have contributed to the poor quality water. Although the creek travels its natural channel for most of this character area, it is piped below-grade for approximately 840 feet as it passes underneath the baseball, soccer, and lacrosse fields. This underground culvert dates to the late 1960s. It restricts the creek's access to air, sunlight, and vegetation, all of which are needed to increase the amount of dissolved oxygen available to aquatic organisms. Because it has been deprived of these natural conditions, the creek's water quality will continue to decline. During the time of the JMA survey, this culvert was undergoing additional construction.

*View of Woods Creek.*

The adjacent athletic fields and parking areas also contribute pollutants through surface runoff, which further degrades water quality. Most of the creek's northern bank is eroded and lacks vegetative cover. These conditions further degrade water quality because erosion is exacerbated without vegetative cover. The entire slope between the creek and the heating plant is covered in rock revetment, causing higher stormwater runoff volumes than would be present with vegetative cover. Several sewer pipes and manholes are also exposed along the creek.

### *Circulation*

North Post circulation for vehicles and pedestrians parallels Woods Creek. These include the Woods Creek Service Road, Chessie Nature Trail, Woods Creek Trail, and Anderson Drive as well as a few parking areas. Several pedestrian paths also provide access between Central Post and North Post. None of the pedestrian paths are ADA-accessible.

The Woods Creek Service Road is a gravel service road that connects with U.S. Route 11 to the east. It runs directly adjacent to the creek corridor and terminates in the asphalt parking area by the tennis courts. Most of the road is edged by informal gravel parking areas on both sides. The road and parking conditions are generally fair to poor with eroding gravel and potholes in some areas. The service road appears in 1962 aerial photographs and as an unimproved pathway in aerial photos dating to 1935. The adjacent parking areas were established circa 1970s.

*Chessie Nature Trail is accessed on North Post by way of steps located near the tennis courts.*

North Post contains two walking trails. The Chessie Nature Trail is a rails-to-trails project along the bed of the former Chesapeake & Ohio Railroad right-of-way between Lexington and Buena Vista. The portion on VMI property is seven miles long and runs along the north ridge. It can be accessed via steps near the tennis courts. These steps are framed by metal edging filled-in with crushed gravel. Another series of steps and pathways provide access from the tennis courts parking lot. All steps are in poor condition and constitute a safety hazard due to their uneven nature and settlement.

The Woods Creek Trail is a separate trail which parallels Woods Creek for over three miles in Lexington. VMI owns the portion of trail that passes over North Post between Washington and Lee University and Jordan's Point.

The North Post portion of Anderson Drive travels down the ravine slope from Central Post. It is a two-lane asphalt road that provides access to the Athletic/Physical Education Facility, tennis courts, and four homes at the top of the ridge. The drive crosses Woods Creek via a 70-foot long two-lane bridge with concrete abutments and metal side rails. In general, the road and bridge are in good condition. Aerial photographs suggest that this portion of Anderson Drive and its bridge were constructed in the early 1960s.

A spur of Anderson Drive, called Maury Cliffs Trail, provides access to the east side of the ridge and target range. This range, which is cut into the grade, was developed during the 1960s and 1970s. Two other pathways are located at the western end of North Post and provide access to the athletic fields. One is accessed from a dirt road off of Anderson Drive behind the Marshall Research Library; it has been neglected and is barely discernable in some locations. Overall, the path is eroded and its metal edging missing. It also has a pair of concrete steps in poor condition. All of these circulation elements are unsafe. The second path connects Anderson Drive with the baseball field and has similar condition problems; it terminates at the construction area's chain link fence.

*A pedestrian bridge, located behind LeJeune Hall, provides access across Woods Creek.*

The most heavily-used pedestrian path crosses Burma Road behind Lejeune Hall and links to a pedestrian bridge across Woods Creek. This path has multiple sets of stairs, concrete landings, and metal pipe railings. There is a concrete ramp to the west that terminates above the Anderson Road Bridge. A steep and narrow set of metal stairs connects this ramp with the road below. Overall, these mid-twentieth century circulation features are in fair to poor condition. Some steps are cracked and several of the railings are bent. The narrow pedestrian bridge over Woods Creek has metal pipe railings and is constructed of metal trusses overlaid with wooden planks; it is approximately 60-feet long, is contemporaneous with the path, and in poor condition.

***Vegetation***

Vegetation in the North Post is a mix of native deciduous trees on the slopes and along the stream bank. Predominant tree species include oaks and hickories, tulip poplars, elms, sycamores, eastern redbuds, and flowering dogwoods. White pines are also prominent along the ridge north of Woods Creek.

***Views***

Internal views within this area are relatively enclosed due to the steep vegetated slopes above the floodplain. There are views into North Post from the north edge of the Central Post. The only historic views are from Faculty Row and the Old Barracks.

***Landscape Structures***

North Post has very few landscape structures. There is a low stone retaining wall at the north side of the tennis courts. A low mortared limestone freestanding wall is located west of the tennis courts and contains a small monument and plaque to honor Patchin. In general, these walls are in fair condition. Other structures include dugouts and range towers.

*Wooden bleachers overlooking the lacrosse field are in poor condition due to settlement and decay.*

***Site Furnishings and Objects***

Site furnishings in North Post are utilitarian and include garbage cans, lamp posts, athletic field lights, parking lot lights, scoreboards, athletic field fencing, backstops, utility poles, and traffic signs. Wooden bleachers are located on the slope overlooking the lacrosse field. They are in poor condition due to decay and settlement.

***Summary of Historic Resources***

The following North Post resources contribute to an understanding of VMI's physical history:

*Buildings*
- None

*Spatial Organization*
- Woods Creek Ravine
- Chessie Nature Trail (former C&O Railroad right-of-way)

*Land Use*
- Recreational
- Residential
- Maintenance

*Topography*
- Woods Creek and its floodplain
- Woods Creek Ravine and ridge at the Maury River

*Hydrology*
- Woods Creek

*Vegetation*

- Native trees

*Views*

- From Faculty Row and Old Barracks

***Integrity Evaluation***

In the historic period, the naturalized, romantic views of Woods Creek, its ravine, and its rural character prompted Goodhue to establish Faculty Row on bluff overlooking these picturesque natural features. Although views from Faculty Row remain, the historic period character has been altered by modern athletic fields and facilities and extensive parking lots. Exposed pipes and rock revetments create further negative visual distractions.

North Post's natural historic landscape resources include Woods Creek, Woods Creek Ravine, and native plant species. These have all been impacted by recent development. In particular, Woods Creek has been degraded by soil and stream bank erosion, underground culverts, exposed pipes, insufficient riparian buffers, and rock revetments. Despite the substantial loss of integrity at North Post, the topography, creek, and native trees species that existed during the historic period have survived.

All of North Post's buildings, structures, circulation features, and athletic facilities were developed after the mid-twentieth century and are not considered historic.

# CHAPTER 6
# HISTORIC BUILDINGS AT VMI

## Introduction

This chapter presents an overview of all of the buildings at VMI constructed prior to 1956. The primary purpose of this chapter is to identify historic buildings for preservation and stewardship. The buildings are organized into six character areas as defined in Chapter 5, Cultural Landscapes at VMI of the *Preservation Master Plan*.

A summary of the development, use, significance, integrity, and existing conditions is presented for each building. This information is intended to provide a framework to support the preservation approach outlined in the Architectural Treatment Guidelines found in Chapter 8 of the *Preservation Master Plan*. This existing conditions assessment is also intended to be informational, as it provides an overview of architectural conditions at the VMI Post in the spring of 2006.

## Methodology

This chapter's findings were compiled from information provided by VMI, limited research at the VMI Archives, and during site surveys undertaken by JMA in March and April 2006.No primary research was conducted in association with the completion of this chapter.

While all Post buildings were examined on a broad scale to understand the basic site design and relationships of buildings, the focus of this assessment was on buildings that pre-date 1956. Conditions were noted from the ground and from easily accessible interior spaces. Roof level surveys were not undertaken. Field notes and digital photographs were taken to document the current conditions.

## Character Areas

Identifying character areas within the Post is a useful way to organize buildings and features according to their distinct physical characteristics and histories. For the purposes of this study, the overall VMI Post has been divided into six separate character areas. These character areas, listed below, were also used to define and organize significant landscape characteristics in Chapter 5 of the *Preservation Master Plan.*

1. Central Post;
2. North Institute Hill;
3. Jordan's Point;
4. South Institute Hill;

5. South Post; and
6. North Post.

The Central Post character area includes all buildings surrounding the Parade Ground. North Institute Hill includes the academic buildings to the east and south of the Old Barracks. Jordan's Point includes buildings located on the eastern ridge and South Institute Hill includes the buildings within the historical neighborhood that developed between VMI and Washington and Lee University. The South Post character area includes all buildings on the south side of Main Street. There are currently no historic buildings in the North Post character area.

## Historic Status Summary

The National Register of Historic Places maintains an official list of cultural resources worthy of preservation and supports efforts to identify, evaluate, and protect national historic resources. A special level of significance is given to cultural resources designated as a National Historic Landmark. National Historic Landmarks have been deemed to be nationally significant historic resources that possess exceptional value or quality in illustrating or interpreting the heritage of the United States

The Virginia Military Institute Historic District was listed on the National Register and made a National Historic Landmark in 1974. The contributing structures to the VMI Historic District include both the Barracks and Stono, as well as fifteen academic and residential-type properties located in the Central Post (7), North Institute Hill (1), South Institute Hill (6), and Jordan's Point (3) character areas.

The VMI Barracks was individually listed as a National Historic Landmark in 1965, and included on the National Register in 1966. Stono was individually listed on the National Register in 1975. The outbuildings at Stono, including the Office, Ice House, and Summer Kitchen, were included in the listing.

For this chapter, JMA surveyed and assessed forty-six buildings on the VMI Post that were constructed pre-1956. Of those surveyed, thirty-seven were found to be either individually significant or contributing historic buildings according to the National Register of Historic Places criteria.

Based on the site survey and assessment of each building, JMA determined that an additional twenty buildings contribute to the VMI Historic District. These include eleven academic buildings on the Central Post and North Institute Hill. Four residences in the South Institute Hill area were also deemed contributing.

## CENTRAL POST

The Central Post character area encompasses the buildings that ring the Parade Ground. There are currently 15 buildings within this character area constructed between 1851 and 1988; eleven of these are considered historic.

On the north side of the Parade Ground, a row of six Gothic Revival quarters includes two designed by A.J. Davis and three by Bertram Goodhue. To the east stand the Old and New Barracks. A row of academic buildings lines the south side of the Parade Ground, including Jackson Memorial Hall, Nichols Engineering, Preston Library, and Mallory Hall. On the west stands Moody Hall, Smith Hall, and the Marshall Library.

The Central Post is characterized by Gothic Revival architecture with massive, low-lying proportions and fortress-like detailing including crenellated parapet walls and substantial, arched entranceways. The buildings are evenly spaced and sited to allow unrestricted views of their facades from the Parade Ground.

***402-404 VMI PARADE***

Constructed in 1927, the duplex dwelling at 402-404 VMI Parade is located along the north side of the Parade Ground at the westernmost end of a row of faculty residences. The residence at 402-404 VMI Parade maintains its original use as faculty housing.

***Architectural Description***

The rectangular, Gothic Revival residence is six bays wide and three bays deep with two, screened-in porches on the northern, rear elevation. Supported on a cast concrete foundation, the exterior masonry walls are coated with colored stucco. The building has a flat, shed-style roof which slopes down towards the rear. Crenellated parapet walls crown the roofline. Windows are composed of single and grouped wood casement sash, which have interior screens. Typical window units consist of a twelve-paned casement sash below a fixed, six-pane transom. Main entrances are located at the southeast and southwest corners. Each entrance has a nine-pane glazed wood door with screen door. Main entrances are protected by a standing-seam, metal corner porch roof supported on decorative wood brackets. Secondary entrances are located at the north, rear elevation, giving access to the basements and first floors, through the screened-in porches.

The interior of 402-404 VMI Parade has retained many of its character-defining features, including original fireplace surrounds, woodwork, built-in cabinets, and skylight. The quarters at 402-404 VMI Parade have been used as a residence since its initial construction. Minor interior renovations have been undertaken to modernize interior systems, with the greatest changes noted in the kitchens and bathrooms.

***Significance***

402-404 VMI Parade is considered eligible as an historic building within the Central Post for its significance to VMI architecture and planning. The 1927 Gothic Revival duplex dwelling was designed to harmonize with the adjacent Bertram Goodhue-designed residences, dating to circa 1915. The residence utilizes wood casement sash windows, plain stucco walls, and crenellated parapets found in the Goodhue buildings. The site chosen for 402-404 VMI Parade conforms to the arc of faculty residences along VMI Parade as envisioned by Goodhue in 1914. It was constructed during a period of early-twentieth century expansion and intensive development around the Parade Ground.

***Integrity***

Both the interior and exterior of 402-404 VMI Parade have good integrity. The original form of the residence has remained unchanged. Many character-defining features are still extant and in good condition, including original wood casement windows, exterior glazed wood doors, and Gothic Revival entrance porches. On the interior, the original floor plan has been retained. Interior finishes, such as woodwork, fireplace surrounds, and wood floors have been maintained in good condition.

### *Existing Conditions*

The main preservation concern at 402-404 VMI Parade is proper drainage at the rear of the building. The primary roof drains to a gutter located along the north edge of the roof. Two downspouts carry the water onto the screened-in porch roofs, which in turn drain to downspouts connected to underground drains. There is evidence that the gutter is overflowing directly onto the ground, causing erosion of the northern slope and biological growth and rising damp at the building foundation. It is possible that the gutters and downspouts are chronically clogged and/or the underground drains are blocked.

Typical conditions at 402-404 VMI Parade include minor damage to exterior and interior finishes. Hairline cracks run through the exterior stucco, highlighted by dark patches where water is absorbed into the crack. These hairline cracks will eventually cause the stucco to fail. There is also minor paint failure at wood windows and other exterior wood trim. On the interior, the building is in good condition. However, the plaster on lath has cracked at the ceilings and walls, probably from a combination of water damage, settlement, and installation problems.

### *406 VMI PARADE*

The residential quarters located at 406 VMI Parade is one of three Gothic Revival residences designed by Bertram Goodhue and constructed in 1915. The three Goodhue residences, located at 406, 408, and 410 VMI Parade line the northern edge of the Parade Ground. 406 VMI Parade retains its original use as faculty housing.

#### *Architectural Description*

The residence has a rectangular, two-and-a-half-story main block, measuring five bays long and two bays deep, with a rear, two-story, two-bay wide projecting ell to the north. A single bay window/turret projects off center from the main south façade. A three-bay wide, Gothic arched arcade creates an entrance porch on the south. A one-story, screened-in porch is located at the northwest corner, formed by the projecting ell and the north façade of the main block. A sun porch is located at the roof level of the projecting ell.

The brick structure is supported on a poured-in-place concrete foundation and is finished with painted stucco. Trim masonry is cast stone. The main block has a side-gabled roof that drains to the north and south. The projecting ell has a flat roof, which slopes towards the northeast corner. The roofline of the main block has crenellated parapet walls along the south façade. Windows are typically grouped, wood casement sash fitted with interior screens. A typical window unit consists of a single, six-paned casement sash with a fixed, four-paned transom. The main entrance is located under the south, arcaded entrance porch. The four-paneled wood door has a twelve-light transom and is flanked by ten-light sidelights, each with a four-light transom. The original screen door with decorative, square borders remains. French doors open onto the entrance porch at the south façade. Secondary entrances are also located at the northeast screened-in porch and at the north façade at the basement level.

The interior of 406 VMI Parade was undergoing renovation in March 2006. The original floor plan remains intact, with two clear circulation paths for residents in the front and household staff in the back. The first and second floors of the main block have a wide central hall with rooms leading directly off the center hall. The interior retains significant original finishes throughout, including stairwells, wood floors, wood trim, fireplace surrounds, and doors and door hardware. The residence has been sensitively upgraded with new HVAC systems. The current system is a high efficiency, high velocity central air system. The kitchen and bathroom spaces have been renovated with new tile, cabinets, and finishes.

### *Significance*

The quarters at 406 VMI Parade is listed as a contributing historic building within the Virginia Military Institute Historic District. The VMI Historic District was listed as both a National Register property and a National Historic Landmark in 1974. The Gothic Revival quarters at 406 VMI Parade, constructed in 1915, are architecturally significant as an example of the work of Bertram Goodhue and as an integral part of the Goodhue plan for VMI. The quarters were designed to harmonize with the existing A.J. Davis Gothic Revival residences dating to 1853 and 1862. The residence is part of an intact row of Gothic Revival officer’s quarters created by Goodhue in his 1914-1917 plan for enlarging the VMI Parade Ground.

### *Integrity*

The residence at 406 VMI Parade has excellent integrity on both exterior and interior. The main form, fenestration patterns, and floor plan of the original building have remained intact. Historical, character-defining features have been largely preserved. Defining interior spaces, such as main central halls and an open staircase, remain. Original features include wood casement sash, main entrance door, interior wood floors, wood trim, and fireplace surrounds.

### *Existing Conditions*

The overall condition of 406 VMI Parade is good. Main preservation concerns revolve around the water drainage system, particularly on the north. Downspouts typically have a larger diameter than the underground drains. Downspouts have had to be crimped to fit into underground drains, which can lead to blockages. There is evidence of biological growth at the foundation of the rear masonry walls, particularly at the northeast corner of the projecting ell, indicating problems with water drainage. It appears that the northeast and northwest downspouts regularly overflow, allowing water to drain directly against the foundation.

The rear chimney at the projecting ell is beginning to twist under the forces of thermal expansion. This chimney should be monitored annually. It will need to be rebuilt in order to stabilize the upper portion. Maintenance level work is required at the wood windows, where the paint is beginning to deteriorate.

***408 VMI PARADE***

Designed by Bertram Goodhue and completed in 1915, 408 VMI Parade is one of three Gothic Revival Goodhue-designed residences at VMI. Together with 406 and 410 VMI Parade, 408 VMI Parade forms a row of faculty residences that line the northern edge of the Parade Ground. From its original construction to the present, 408 VMI Parade has served as faculty housing.

***Architectural Description***

The two-story, rectangular residence consists of a southern main block, measuring four bays long and two bays deep, with a rear, two-story, two-bay wide projecting ell to the north. A single bay window projects off center at the main south façade. External chimneys are located on the east and west facades. At the southeast corner, an entrance porch is formed by an irregular arcade, comprised on one Gothic arched section and one flat arched span with a large cast stone lintel. A one-story, screened-in porch is located at the northwest corner, formed by the projecting ell and the north façade of the main block. A second two-story screened-in porch is located at the center of the north façade, supported on concrete piers. A sun porch is located at the roof level of the projecting ell.

The brick structure has a poured-in-place concrete foundation and is finished with painted stucco and cast stone trim. The main block is covered with a flat roof that drains to the north. The south façade has a parapet wall with a crenellated section over a central turret section and recessed, Gothic arched ornament. A VMI plaque is inset at the center of the south façade, under the crenellated parapet wall. The projecting ell has a flat roof, which slopes towards the northeast corner. Windows are typically grouped, wood casement sash fitted with interior screens. A typical window unit consists of a single, six-paned casement sash with a fixed, four-paned transom above. The main entrance is located in the center of the south façade, at the entrance porch. The sixteen-light, glazed wood door is flanked by eight-light sidelights. The current wood screen door does not appear to be original to the entrance. French doors open onto the south entrance porch. Secondary entrances are also located at the northeast screened-in porch, at the center, north screened-in porch, and at the north façade at the basement level.

On the interior, the original floor plan of 408 VMI Parade remains relatively unchanged, with two clear circulation paths for residents in the front and servants in the back. The first and second floors of the main block have a wide central hall with rooms leading directly off the center hall. The interior retains significant original finishes throughout, including stairwells, wood floors, wood trim, fireplace surrounds, and doors and door hardware. The kitchen and bathroom spaces have been renovated with new tile, cabinets, and finishes.

### *Significance*

The quarters at 408 VMI Parade is listed as a contributing historical building to the Virginia Military Institute Historic District. The VMI Historic District was listed on the National Register in 1974; it was also made a National Historic Landmark in the same year.

The Gothic Revival quarters at 408 VMI Parade is significant as the work of architect Bertram Goodhue in both Gothic Revival design and overall Post planning. Constructed in 1915, 408 VMI Parade was designed to harmonize with the existing A.J. Davis-designed Gothic Revival residences. It was constructed as part of an intact row of Gothic Revival officer's quarters, which was created by Goodhue as part of his 1914-1917 plan for enlarging the VMI Parade Ground.

### *Integrity*

The residence at 408 VMI Parade has good integrity on both the exterior and interior. The main form, fenestration patterns, and floor plan of the original building have remained intact. Historical, character-defining features have been largely preserved. Defining interior spaces, such as main central halls and wide, open staircase, remain. Original features include wood casement sash, main entrance door, interior wood floors, wood trim, and fireplace surrounds. Some alterations have occurred at fireplaces on the second floor. With the exception of the removal of fireplace surrounds and the covering of original fireplace openings, interior finishes have been retained.

### *Existing Conditions*

Overall, 408 VMI Parade is in good condition. There is evidence of overflowing downspouts on the north façade, stucco failure, and deterioration of concrete paving. Downspouts, particularly at the northeast corner of the projecting ell, show evidence of chronic overflow, causing erosion of the adjacent soil. The beginning of stucco failure has begun with evidence of hairline cracking. Stucco at the east chimney shows advanced signs of failure as the underlying metal lath has corroded and caused staining on the exterior. The concrete pad at the north, brick-paved patio exhibits signs of reinforcing bar corrosion and efflorescence. Water is moving through the concrete pad, accelerating corrosion, and depositing salts on the exterior surfaces. Both the stucco and the concrete pad will have to be replaced.

***410 VMI PARADE***

Constructed in 1915, 410 VMI Parade is one of three Gothic Revival residences designed by Bertram Goodhue. In addition to the two Goodhue residences located at 406 and 408 VMI Parade, 410 VMI Parade contributes to a row of faculty residences that line the northern edge of the Parade Ground. Originally intended for faculty housing, 410 VMI Parade retains its original use today.

***Architectural Description***

The rectangular residence consists of a two-story main block, measuring five bays long and two bays deep, with a rear, two-story, two-bay wide projecting ell to the north. A single rectangular turret projects off center at the main south façade. An external chimney is located at the west facade. A rectangular bay window projects from the east façade. A three-bay wide, basket-handle arched arcade forms an entrance porch at the southeast corner. A two-story screened-in porch is located at the center of the north façade, supported on concrete piers. A sun porch is located at the roof level of the projecting ell.

The brick structure is supported on a poured-in-place concrete foundation and is finished with painted stucco and cast stone trim. The main block is covered with a flat roof that drains to the north. Parapet walls along the south facade are slightly crenellated with recessed square panel decorations. The projecting ell has a flat roof, which slopes towards the northeast corner. Windows are typically grouped, wood casement sash fitted with interior screens. A typical window unit consists of a single, six-paned casement sash with a fixed, four-paned transom above. The main entrance is located under the south, arcaded entrance porch. The sixteen-light, glazed wood door is flanked by eight-light sidelights. French doors open onto the south entrance porch. Secondary entrances are also located at the center, north screened-in porch, and at the east façade of the rear projecting ell.

The original floor plan of 410 VMI Parade remains unchanged, with two clear circulation paths for residents in the front and servants in the back. The first and second floors of the main block have a wide central hall with rooms leading directly off the center hall. The interior retains significant original finishes, including original newel posts, wood floors, wood trim, fireplace surrounds, and six-paneled doors and door hardware. The kitchen and bathroom spaces have been renovated with new tile, cabinets, and finishes.

***Significance***

The quarters at 410 VMI Parade is listed as a contributing historical building to the Virginia Military Institute Historic District. The VMI Historic District was noted as both a National Register property and a National Historic Landmark in

1974. The Gothic Revival quarters at 410 VMI Parade is significant as the work of architect Bertram Goodhue in both design and Post planning. Constructed in 1915, 410 VMI Parade was designed to harmonize with the existing A.J. Davis-designed Gothic Revival residences. The residence at 410 VMI Parade is also significant as a part of the larger Goodhue plan for VMI. The Goodhue-designed residence is part of an intact row of Gothic Revival officer's quarters, including three designed by Goodhue, and two designed by A.J. Davis. The residential row was created by Goodhue as part of his 1914-1917 plan for VMI.

***Integrity***

The residence at 410 VMI Parade has excellent integrity on both exterior and interior. The main form, fenestration patterns, and floor plan of the original building have remained intact. Historical, character-defining features have been largely preserved. Defining interior spaces, such as main central halls and wide, open staircase, remain. Original features include wood casement sash and interior screens, exterior glazed wood doors, interior wood floors, wood trim, and fireplace surrounds. The light fixture over the main entrance may also be original.

***Existing Conditions***

Overall, 410 VMI Parade is in good condition. However, roof and site drainage problems appear to be ongoing at the north and east facades, causing significant rising damp and biological growth at the foundation. Several downspouts drain directly against the foundation or onto adjacent paving. The foundation at the northeast and northwest corners and the entire north façade show evidence of drainage problems. One downspout at the northwest corner drains directly onto the adjacent concrete paving under the wood steps to the screened-in porch. There is evidence of biological growth on both masonry and wood steps. Both north central and northeast downspouts direct water directly onto the foundation wall, causing rising damp and biological growth. The downspout that drains the east bay window roof has no bottom section and drops water two feet from the ground directly against the foundation. Extenders should be installed at each downspout to ensure that rain water is directed away from the foundation. If left unchecked, these drainage problems can cause settlement or failure of the foundation.

In addition to the water damage at the foundation, there is evidence of serious deterioration at wood windows. Wood frames and sash should be investigated for wood rot. Biological growth can also be seen on wash surfaces, such as at the west chimney. Overall, paint is peeling at the exterior stucco. Biological growth should be cleaned and exterior finishes should be reapplied.

On the interior, cable has been installed in an inappropriate manner. The cable has been run up the exterior and cut in through the wood window sill. Future work of this type should be coordinated with maintenance and preservation staff to ensure that it is done without damaging historic fabric.

## *412 VMI PARADE (SUPERINTENDENT'S QUARTERS)*

The Superintendent's Quarters at 412 VMI Parade are located along the north side of the Parade Ground within a row of Gothic Revival residences. The building was designed by A.J. Davis and was completed in 1862. The Superintendent's Quarters original location was approximately in the center of the current Parade Ground. During Major General David Hunter's Raid in 1864, the Superintendent's residence was used as a temporary military headquarters and was one of few Post buildings that escaped being destroyed by fire.

In 1914, the Superintendent's Quarters was moved to its current location as part of Bertram Goodhue's plan to enlarge the Parade Ground. The building was carefully taken down and reconstructed; however, some changes were made to the building. The original building had hipped roofs while the current roofs are flat. East and west chimneys have also been removed. The interior has been altered with the installation of a second floor level in the main foyer; whereas the original building had a two-story entrance foyer. A semi-circular, enclosed porch on the north façade was enclosed in the mid-1990's. The residence at 412 VMI Parade has served as the Superintendent's Quarters from its initial construction to the present.

### *Architectural Description*

The Superintendent's Quarters at 412 VMI Parade is a brick structure covered with painted stucco. The building is sited on sloping terrain and is two stories tall on the south side and three stories tall on the north. The main south façade has a two-story tall center section flanked by three-story turrets and one-story wings. A one-story, semi-circular entrance porch forms an arc between the two turrets. The porch brackets have decorative scroll work with shield and axe patterns. The center section and east and west wings each have separate flat roofs that drain to the north. Both turret and roof parapet walls are crenellated. Along the rear façade, a semi-circular enclosed modern porch addition, supported on concrete piers, wraps around an original semi-circular projection.

Windows are diamond paned, double-hung wood sash, exhibiting several different forms of muntin patterns. One former oculus window at the north façade has been covered over and fitted with a decorative VMI logo grille. The main entrance is located at the center of the south façade under the porch. The double entrance doors form a triangular arch and are glazed with leaded, diamond-paned glass. Two additional entrances are located at the north façade, one at each wing. The east wing entrance is original and is designed in a similar style as the main entrance; these doors retain colored glass panes. The entrance at the west wing is a modern addition. A drip-mold crowns lintels over windows and doors.

The overall floor plan of 412 VMI is essentially rectangular with the addition of two octagonal turrets at the south façade, flanking the main entrance, and a semi-circular projection at the north façade. The interior has been carefully preserved and both original floor plan and finishes have been retained. Doorways with Tudor arched lintels are fitted with original six-paneled doors. Distinctive chamfered corners at plaster walls give a feeling of massive masonry walls. Rooms retain both heavy baseboards and crown moldings. Original fireplace surrounds have Gothic Revival detailing carved in both marble and wood. One room on the first floor of the west wing has Federal-styled woodwork and trim that is out of character with the other Gothic Revival detailing found throughout.

***Significance***

The Superintendent's Quarters at 412 VMI Parade is listed as a contributing historical building to the VMI Historic District. The VMI Historic District was listed in the National Register and as a National Historic Landmark in 1974. The residence is significant for its role in historical events, for its association with noteworthy persons, and for its role in the architecture and planning of VMI. The Superintendent's Quarters is significant for its role during Major General Hunter's Raid in 1864. The residence was used as headquarters by Hunter and his officers. The building was left undamaged for this reason and did not suffer from fire damage like the majority of other Post buildings.

The Superintendent's Quarters is closely associated with the first Superintendent at VMI, Gen. Francis H. Smith (1812-1890). Smith worked with A.J. Davis during the design of the early VMI buildings and oversaw the construction of Davis's Barracks and officer's quarters. He resided in the Superintendent's Quarters until his retirement in 1889. From this residence, Smith guided VMI through the difficult rebuilding period following the Civil War; his dedication ensured that VMI survived into the early-twentieth century.

The Superintendent's Quarters at 412 VMI Parade is architecturally significant as an A.J. Davis designed Gothic Revival residence. Davis was a nationally renowned architect responsible for popularizing the Gothic Revival style throughout the United States from. 1840-1860. The Superintendent's Quarters is a significant example of Davis's residential Gothic Revival style adapted for VMI. Davis's Gothic Revival work at VMI was symmetric and spare with heavy masonry buildings pierced with delicate, diamond-paned windows. The interiors of the Superintendent's Quarters is characteristic of Davis's romantic Gothic Revival work. Irregular stairways and arches are combined with octagonal spaces and Gothic Revival detailing at doors and fireplace surrounds.

The Superintendent's Quarters at 412 VMI Parade is also significant within the context of the development of Bertram Goodhue's plan for VMI; the design and location of were key to the development of Goodhue's plan. Goodhue relocated the Superintendent's Quarters to its current site as part of his enlargement of the Parade Ground. Goodhue added three additional residences in line with the Superintendent's Quarters. These residences were designed to harmonize with Davis's earlier buildings.

### *Integrity*

Though moved from its original location, the Superintendent’s Quarters retain good exterior and interior integrity. The move itself has historical importance for its role in Goodhue’s plan for enlarging the Parade Ground. The careful reconstruction preserved the overall form, plan, and fenestration patterns of the original building. Despite small alterations, the majority of the character-defining features has been retained.

### *Existing Conditions*

The main preservation concern at 412 VMI Parade is inadequate site drainage, particularly at the north façade. The flat roofs direct water to downspouts at the north façade. Each of these downspouts drains directly against the foundation. Downspouts that drain the modern enclosed porch roof direct water onto the pier footings supporting the porch structure. Water must be carried further away from the building foundation through extenders or other site drains. Continued water drainage at the building foundation may eventually cause structural damage. Settlement is already visible at the south main entrance steps.

The exterior colors of 412 VMI Parade do not appear to be historically accurate. Window sash, muntins, and frames were painted a dark hue in historic photographs. Also, the stucco color appears to be greenish and should instead be a more natural stone color. Paint analysis at both stucco and wood trim elements would help identify appropriate period colors.

***416 VMI PARADE (COMMANDANT'S QUARTERS)***

The Commandant's Quarters at 416 VMI Parade is sited along the northern edge of the Parade Ground. It is the easternmost building in the row of Gothic Revival faculty residences. Completed in 1853, the Commandant's Quarters is the earliest A.J. Davis designed residence remaining at VMI; it is also Davis's only asymmetric building planned for VMI. During Hunter's Raid in 1864, the Commandant's Quarters was burned and required substantial rebuilding. In 1914, the building was moved from its original site near the center of the current Parade Ground to its present location. The structure was carefully reconstructed using the original materials. At some point between 1920 and 1955, the southeast porch roof was removed. The building at 416 VMI Parade has served as a residence for the Commandant from its construction to the present.

***Architectural Description***

The residence at 416 VMI Parade is a brick structure covered with painted stucco. The overall form is a three-story L-shaped building with multiple projections. On the south is a wide, two-story octagonal tower and an adjacent narrow, three-story square turret. To the east and west are one-story bay windows. A screened-in, wood frame porch is located within the elbow of the L-shape at the northwest corner. The flat roof drains to the north. Both roof and tower parapet walls are crenellated. Windows on main facades are diamond-paned wood casement sash fitted with modern exterior screens. At the rear façade there are also six-over-six, double-hung wood windows. The main entrance is a located at the center of the octagonal tower on the south façade. The single door is glazed with diamond-paned wood muntins. Secondary entrances are located on the north and east façades. Windows and doors at the octagonal tower portion are embellished with crowning drip-molds.

The interior of 416 VMI Parade is composed of octagonal and rectangular rooms with a central stair. Historic character-defining features have been retained. Fireplaces have original Gothic Revival styled wood surrounds. Windows have interior, louvered shutters. Interior doorways have original six-paneled doors. The winding stair case has the original balustrade and heavy newel posts.

***Significance***

The Commandant's Quarters at 416 VMI Parade is listed as a contributing historical building to the Virginia Military Institute Historic District. The VMI Historic District was listed as both a National Register property and a National Historic Landmark in 1974. The residence is significant for its association with important historical persons, as well as for its importance to the architecture and planning of the VMI Post.

The Commandant's Quarters is also significant for its association with the Commandants and faculty at VMI, most notably Matthew F. Maury (1806-1873). Nicknamed the "Pathfinder of the Seas," Maury pioneered the study of oceanography and was internationally recognized for his contributions to improving navigation. Following the Civil War, Maury became a professor at VMI, teaching here and lecturing abroad until his death.

The Commandant's Quarters at 416 VMI Parade is significant as an A.J. Davis designed Gothic Revival residence. The building is notable as the earliest Davis residence at VMI, as well as the only asymmetric Davis building at VMI. Davis was a nationally renowned architect responsible for popularizing the Gothic Revival style throughout the United States during circa 1840-1860. The Commandant's Quarters is a significant example of Davis's style at VMI, with both exterior and interior details characteristic of his romantic Gothic Revival work. Gothic Revival detailing can be seen on the interior at doors and fireplace surrounds.

The Commandant's Quarters is also significant within the context of the development of Bertram Goodhue's plan for VMI. The design and location of the Commandant's Quarters were key to the development of Goodhue's plan. Goodhue relocated the Commandant's Quarters to its current site as part of his enlargement of the Parade Ground. Goodhue then constructed an additional three residences in line with the relocated Commandant's Quarters.

***Integrity***

The Commandant's Quarters at 416 VMI Parade has good integrity on both exterior and interior. The property has been moved from its original location; however, this move was an important part of the development of the Central Post, as it allowed for the enlargement of the Parade Ground. The careful reconstruction preserved the overall form, plan, and fenestration patterns of the original building. Character-defining features and finishes have been retained.

***Existing Conditions***

The major preservation concern at 416 VMI Parade is the evidence of settlement at the east side of the building. There is evidence of cracking through masonry walls and steps. This settlement is of particular concern given the planned Barracks extension. Construction for this extension will impact the site immediately adjacent to the east façade of 416 VMI Parade. Though the cracks are currently being monitored, it will be necessary to institute constant monitoring of the building throughout construction to ensure that no major structural failure occurs.

A possible contributing factor of this settlement is poor site drainage. Roof water is drained to downspouts at the north façade. Downspouts require maintenance to direct water runoff away from foundations. In one location, a downspout extender had been installed in the past but is no longer connected to downspouts. In another, a downspout is no longer connected to boots and has dropped water from a height of two feet from ground level. There is evidence of biological growth and chronic rising damp at the north foundation overall. One area of concern is the northeast corner, where chronic water problems may compromise the structural stability of the wood access stair. Ongoing water problems here should be investigated and addressed.

The stucco at 416 VMI Parade has hairline cracking and peeling paint, particularly at the southeast cornice. There is a loss of crisp detailing at the stucco overall from previous repairs. The windows require maintenance level painting to protect the exposed wood.

### *THE BARRACKS*

The Old Barracks is the heart of the VMI Central Post. It has been the hub of cadet activity from its initial construction in 1850 to the present. The Old Barracks is a square building with a central courtyard that was completed over the course of several building campaigns from 1850 through 1925.

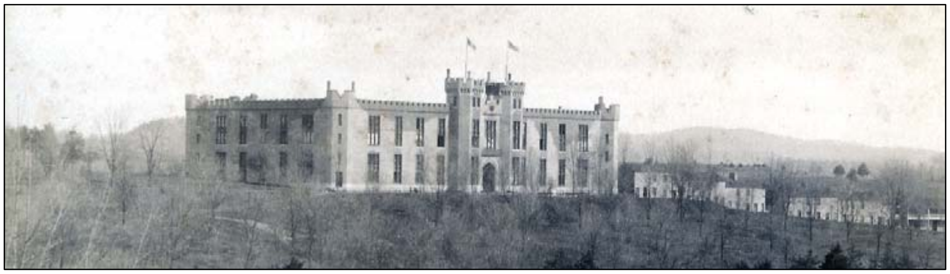
The Old Barracks was A.J. Davis's first building commission at VMI. He established his symmetrical, military Gothic Revival style at the Old Barracks building before applying the same style to the officer's quarters, now located along VMI Parade. Davis intentionally designed the Old Barracks to be completed in stages; it could be enlarged in seventeen-foot sections as funding became available. The original building was constructed by the prominent local builders John Jordan (1777-1854). The first campaign of building occurred from 1850 to 1861. In 1861, the Old Barracks resembled a "U" in plan.

*Historical image of the Old Barracks from 1865, when rebuilding began.*

In 1861, the Old Barracks was a four-story brick structure covered with stucco scored to resemble ashlar stonework. Tall Tudor-styled chimney pots rose above the crenellated roofline. The main south façade had a central arched sally port with flanking, four-and-a-half-story, crenellated, octagonal towers. The southeast and southwest corners and the center of the east façade were marked by smaller octagonal turrets. The windows were designed to span two floors, a characteristic Davis detail. Each window unit consisted of a diamond-paned casement sash window at the upper and lower floors and a wood panel spanning the floor levels. These window units were clustered in groups of two or three. The turrets had smaller, slot type, casement sash windows. Secondary entrances, fitted with wood panel doors, were located at the base of the corner turrets. The courtyard side of the Old Barracks had four stories of open galleries, originally constructed of metal and wood. Each cadet room opened directly onto the galleries; there were no interior hallways.

In 1864, the Old Barracks building was burned during Hunter's Raid. Historical photographs of the ruined Barracks building show that the interior was completely destroyed. The roof, crenellated parapets, and upper floors were partially collapsed. Few original windows survived the fire. Soon after the war, in 1865, VMI began rebuilding the Old Barracks; this process was not complete until circa 1885. This second building campaign essentially rebuilt the Old Barracks to its pre-war state following Davis's original design. Growth in the cadet corp required additional sections be added to the eastern side of the Barracks, resulting in a "J" configuration.

The third building campaign at the Old Barracks occurred in 1896. As a tribute to former faculty member Thomas J. "Stonewall" Jackson, VMI constructed the first Jackson Memorial Hall. Designed by VMI alumnus Isaac Eugene Rose, the Hall was constructed at the northern end of the incomplete west section. The Old Barracks was now U-shaped in plan.



*Historical image of the Old Barracks from 1889 after it was rebuilt to its pre-war state.*

The fourth major building campaign realized the completion of the Old Barracks during 1921-1925. At this time, the northern portion of the first Jackson Memorial Hall was demolished leaving a three-bay wide, lancet window section standing. This three-bay section was modified to create the current day Jackson Arch, which stands at the center of the west façade. The west and north sections of the Barracks were completed following Davis's original design. The Old Barracks, as it stands today, was complete.

*Historical image of the Barracks from 1923.*

The last major building campaign took place in 1949 with the construction of the New Barracks. The New Barracks is a separate structure connected to the Old Barracks at the northwest corner at a 45 degree angle. The interior of the Old Barracks has been modernized throughout the twentieth century with new finishes and systems.

### *Architectural Description*

The exterior of the Old Barracks remains relatively unchanged from its completion in 1925. The four-story, stuccoed brick structure is supported on a local limestone foundation. It is fifteen-bays on each side. The roofline is crenellated with decorative triangular parapet walls over both the south and west sally ports. The stucco has a smooth finish and is painted a pale olive color. Faint evidence remains of the original scored stucco. Windows are typically the two-story Davis type, with diamond-paned wood casement windows at the upper and lower floors and a wood panel spanning across floor levels. Turrets have single, diamond-paned wood casement windows.

The west façade facing the Parade Ground has the central Jackson Arch sally port and corner octagonal turrets. The Jackson Arch is a three-bay wide section, with a crenellated triangular-shaped parapet wall. The central bay is flanked by thin, octagonal turrets with narrow, slot type windows. The first and second floors have two-story tall windows that resemble Davis's window units with the embellishment of a decorative transom. The third and fourth floors are spanned by two-story lancet-arched windows with stone tracery.

The south façade closely resembles Davis's original design. The central sally port is flanked by crenellated, octagonal towers. This central sally port is known as the Washington Arch, named for the Washington statue, which stood opposite this entrance as early as 1857. An octagonal turret stands at each end. The doorways at the base of the corner turrets have been converted into windows.

The east façade has a central octagonal turret in addition to the corner turrets. The northeast turret is supported by a buttressed limestone foundation where it extends over the ridge towards Woods Creek. The north façade runs straight with no projections between the corner turrets. This façade is treated as the rear of the Old Barracks and has been pierced by multiple vents.

The courtyard side of the Old Barracks contains four wrap-around levels of open galleries. Exterior metal stairs access the upper balcony levels. The balconies are constructed of concrete and are supported on concrete piers. Each cadet room opens directly onto the balcony. The interior of the Old Barracks have been upgraded with modern finishes and fixtures, though the original floor plan remains unchanged. The cadet rooms are fitted with fluorescent light fixtures and modern modular furniture. Heating and sanitary systems have been upgraded as well.

The New Barracks is constructed of masonry covered with painted stucco. The overall form is a large rectangle with a chamfered edge at the east corner, surrounding a central courtyard. The building is four-and-a-half stories tall on the southwest Parade Ground side and five-stories tall at the northeast façade. It is fifteen-bays wide and nine-bays deep. The roof appears to be flat and drains to internal downspouts.

The exterior of the New Barracks follows the detailing of the Old Barracks. At the main southwest façade, the central entryway is emphasized with a slightly projecting center entrance tower flanked by crenellated, octagonal turrets. A wide, Tudor arched gateway leads under the entrance tower to the interior courtyard. A crenellated turret stands at each end of the façade. Windows are composed of two-story tall units. Each unit has a pair of diamond-paned, wood casement sash at both top and bottom. The central section has a pair of decorative wood panels. The windows of the New Barracks are distinguishable from the windows of the Old Barracks; they are taller, with chamfered window frames, and different wood panel details.

Within the courtyard, the New Barracks has a series of open galleries running around the entire perimeter. The balconies are accessed by exterior concrete stairs. Cadet rooms open directly onto the balconies. There are no interior hallways or connections between rooms.

***Significance***

The VMI Barracks, including both the Old and New sections, was individually listed as a National Historic Landmark in 1965, and included on the National Register in 1966. The Barracks is also a contributing historical building to the Virginia Military Institute Historic District. The VMI Historic District was listed as both a National Register property and a National Historic Landmark in 1974.

The Old Barracks has national significance as an A.J. Davis designed building. Davis was a nationally renowned architect responsible for popularizing the Gothic Revival style throughout the United States during circa 1840-1860. The Old Barracks is a significant example of Davis's Gothic Revival style applied to institutional architecture. He utilized heavy crenellated parapets and massive towers to create a formidable fortress appearance. The mass was lightened by Davis's distinctive two-story diamond-paned windows, which emphasized the verticality of the building. The Old Barracks are a unique Davis design, containing features from Davis's previous Gothic Revival work with a new military architecture vocabulary.

The Old Barracks is also regionally significant as the work of John Jordan, prominent local builder and industrialist. A.J. Davis primarily relied on local builders to realize his plans. The final form of the Old Barracks was left to John Jordan to complete in 1850-1861 under the supervision of VMI's Superintendent. Jordan established himself as a local builder during 1815-1824 working with Samuel Darst. Together they introduced the Neoclassical style to Rockbridge County with their work at the residences of Stono (1818) and Beaumont (1819), and at Washington Hall (1824) at Washington and Lee University.

The Old Barracks is also significant to the development of VMI. With the Old Barracks, Davis created the iconic image and signature Gothic Revival style of VMI. VMI is the earliest entirely Gothic Revival styled campus in the United States and retains three original Davis designed buildings. With the design of the Old Barracks, Davis established the symmetrical, military, Gothic Revival architecture of VMI. He used a slightly embellished form of this style in the residential architecture of the VMI officer's quarters, now located on VMI Parade. Later architects at VMI, including Bertram Goodhue, designed their buildings to harmonize with Davis's Gothic Revival style and detailing.

As a cadet dormitory, the Old Barracks is significant for its continued role as an educational building from 1850 to the present. The Barracks was the most important structure at VMI, housing cadets as well as early academic classrooms. As the Institute flourished, the Old Barracks remained central to cadet activities. Cadets lived and studied here. They kept guard within its courtyard and around its perimeter. Cadet rankings were listed at its main sally port entrances. Punishments for breaking the code of regulations were carried out on the adjacent pavements.

***Integrity***

The Old Barracks has excellent overall integrity from the period of its completion in 1925. The form, plan, and fenestration patterns of the Old Barracks follow the original 1850 Davis design. However, the date of the actual materials varies. The masonry at the south, east, and southern half of the west façade dates to 1850-1861. The interiors and windows in these sections may date to 1865-1885 when the Old Barracks were substantially rebuilt after being burned during the Civil War.

The Jackson Arch and the foundation masonry at the northern half of the west façade date to 1896 and are associated with the first Jackson Memorial Hall. The northern half of the west façade, and the north façade, date to 1925 when the Old Barracks was completed. The concrete galleries at the courtyard elevation are modern replications of the original metal and wood balconies. The stucco coating has been reapplied over the course of many maintenance campaigns and is coated with a modern paint.

On the interior, the Old Barracks have moderate integrity. The interior of the Old Barracks follows the original floor plan with cadet rooms opening directly onto the balconies. However, the interior spaces have been refinished and upgraded with modern systems.

***Existing Conditions***

The major preservation concern at the Old Barracks is the deteriorated condition of the wood windows. The windows have been inappropriately repaired and have suffered from a lack of maintenance. Typically, the window sash have failed at the joints between the side and bottom rails. Some sash have been reinforced with metal angle brackets. The wood muntins have split or broken and sealant applied to retain the glass panes. Glazing putty has failed overall, leaving the glass panes loose in the frame. Several glass panes have broken. The paint at the wood window sash and frames is failing overall.

A typical condition throughout the pre-1925 sections is the minor deterioration of the local limestone foundation. The local limestone has minor cracking and delamination overall. Because of the geological makeup of the stone, it tends to delaminate in large rounded pieces. This deterioration is linked to the geological makeup of the stone. The limestone contains veins of clay rich material, which preferentially weathers out, leaving cracks and causing delamination.

The current painted stucco does not reflect Davis's original design intent. Davis intended the Old Barracks to have the appearance of an ashlar stone structure. The stucco was originally scored to mimic large dimensional stone. The original color would have been a light buff stone color.

## *JACKSON MEMORIAL HALL*

Jackson Memorial Hall is located at the southeast corner of the Parade Ground, across from the Old Barracks. Completed in 1916, Jackson Memorial Hall was designed by Bertram Goodhue. It was the first building to be constructed along the southern edge of the Parade Ground. The building originally served both assembly and athletic functions. Around 1920, a pool addition was constructed at the basement level. The lower level gym floor space was converted to a museum circa 1970. and housed the former Hall of Valor. In the Fall of 2006 Jackson Memorial Hall completed its most recent major interior restoration which included a redesign of the lower level museum space.

### *Architectural Description*

Jackson Memorial Hall is a masonry structure supported on a concrete foundation. The exterior is coated with painted stucco with limestone trim detailing. The three-story building is eight-bays long and one-bay wide. The main façade faces north toward the Parade Ground with the long axis running north-south. The central nave portion has a front-gabled roof covered with standing seam metal roofing. The slightly lower side aisles to the east and west have flat roofs that drain to internal drains. Parapet walls are crenellated. On the west façade, a masonry staircase leads from the Parade Ground level to Cocke Hall Annex and Engineering Drive.

The main north façade has a slightly projecting central portion with a limestone pediment at the gable end wall and flanking octagonal turrets. The turrets do not project above the roof line. The façade is pierced with a five-part, lancet-arched, leaded glass window with a carved limestone surround. There are two small slot type windows in each turret. Set below a heavy basket-handle arch are the double entrance doors. The doors have vertical tongue-and groove boards and heavy cast iron strap hinges. The original rim lock hardware, imprinted with the VMI crest, remains on the interior side designed by Goodhue.

The east and west facades rise three-and-a-half stories with setoff buttresses between each window bay. At the lowest level, double leaded-glass windows are shadowed by heavy limestone basket-handle arches. The upper two levels of windows are treated as one decorative panel with paired, pyramid-arched leaded glass windows above and paired, basket-handle arched windows below. The windows have limestone surrounds and muntins. The upper, pyramid-arched windows have a central, operable pivot-hinged sash. Above the lancet arched windows are triple, rectangular, leaded glass clerestory windows. Secondary entrances are located on the east and west facades.

The south façade is partially obscured by the Cocke Hall pool annex, completed in 1969. The three-bay wide façade has a four-story center section flanked by three-story side bays. At the center, the lower two stories have leaded-glass windows, rectangular windows at the first floor and a basket-handle arched group of three windows at the second floor. The upper section of the central façade is blank with a low-relief carved decoration at the fourth floor level. The plain façade is broken with setoff buttress between each bay.

The main historical interior space is the first floor assembly hall; lower floors are currently being redesigned for new use as the VMI Museum. The first floor assembly hall is designed as a rustic Gothic church interior. The central nave rises two-and-a-half stories, lit by clerestory windows above and the northern lancet window. The nave is spanned by a flat, coffered wood ceiling, supported on simple curved brackets. The east and west sides of the nave have timber-framed galleries, with low side aisles at the first floor level, and taller second floor galleries above. The interior is sparse. Undecorated plaster walls are broken only by limestone trim around windows and exposed timber framing. The only applied decoration is a row of wooden shields above the galleries and a large painting of the Battle of New Market at the south end. Original seats, hardware, and lighting fixtures remain and are currently under restoration.

***Significance***

Jackson Memorial Hall is listed as a contributing historical building to the Virginia Military Institute Historic District. The VMI Historic District was officially acknowledged as both a National Register property and as a National Historic Landmark in 1974. Jackson Memorial Hall is significant for its architecture and importance to Post planning at VMI.

Jackson Memorial Hall is architecturally significant as a chapel designed by Bertram Goodhue (1869-1924), well-known for his Gothic Revival ecclesiastical architecture. The simplified Gothic features, rustic, timber-framed assembly hall, and attention to details, such as hardware, are characteristic of Goodhue’s work. It is the only non-residential, Goodhue-designed building completed at VMI.

Jackson Memorial Hall is also significant within the greater context of Goodhue’s plan for the Central Post. The site chosen for Jackson Memorial Hall established a precedent for the expansion of VMI along the south side of the Parade Ground.

***Integrity***

The exterior of Jackson Memorial Hall has good integrity, though the integrity of the south façade has been impaired by the construction of the Cocke Hall annex. The rear garden and elliptical stairways have been removed, eliminating the strong relationship between the rear of Jackson Memorial Hall and Main Street.

On the interior, the main entrance foyer and assembly hall also have good integrity. The hall has been carefully preserved with the majority of character-defining features and historical finishes retained. Lower floors have been altered for athletic and museum spaces as required by VMI. The rehabilitation of these lower floors does not impair the overall integrity of Jackson Memorial Hall.

### *Existing Conditions*

The exact location of roof drains at Jackson Memorial Hall is unknown. It appears that the main roof directs rainwater to the lower side aisle roofs, which have internal downspouts. These internal downspouts empty into external downspouts near the lower levels. It was noted that the external downspouts direct water in inappropriate places. For example, the downspout at the southeast corner drains directly onto a concrete ramp. There is no provision for proper drainage.

The stucco at Jackson Memorial Hall is in the early stages of failure. There is hairline cracking and efflorescence overall. The western stairs appear to have more advanced stages of stucco failure. It is probable that water is infiltrating through the upper surface of steps. The limestone trim requires cleaning with a biocide-containing cleaner to remove biological growth at wash surfaces. The limestone base course has extensive spalling and has been inappropriately patched. Loose patches should be removed and replaced with new cementitious patching or with limestone dutchmen.

Related retaining walls at entrances show signs of movement or settlement. At the southeast entrance, the cast stone coping units are loose. The cast stone units should be reset in a full bed of mortar and the wash surface joints should be sealed.

***MALLORY HALL***

Mallory Hall is located on Letcher Avenue along the south side of the Parade Ground. Mallory Hall has served as an academic building for the Math and Physics departments since its completion in 1953. A major rear addition was constructed circa 1960. In 1989, Mallory Hall was connected to the new Science Building. The interior is currently undergoing renovation with new systems and modern finishes. All interior historic fabric has been removed.

***Architectural Description***

Mallory Hall is a concrete structure coated with painted stucco and detailed with limestone trim. Measuring seven bays wide and four bays deep, Mallory Hall is constructed into the side of the hill south of the Parade Ground. The original building is four-stories tall, although it appears to be two-stories tall when viewed from the Parade Ground. At the north façade, the ground is excavated below the two stories to create a two-story tall areaway that allows light to enter the lower floors. The flat roof appears to drain to internal downspouts. Windows are typically steel casement sash set in groups of four. Each window unit consists of a fixed twelve-light window with a three-light pivot-hinged sash below and a fixed nine-light transom above.

The main north façade has a slightly taller, projecting center section capped with crenellated parapet walls. An eagle and crest sculpture panel decorates the cornice. A multi-paned, basket-handle arched window panel is surrounded with a carved limestone surround, including a castle in relief. Below is the main entrance comprised of two sets of double doors. Each entrance has tongue-and-groove vertical panel doors with decorative diamond windows and a transom light above. The doors have Gothic Revival styled strap hinges and hardware. The transom lights have ironwork grilles. The main entrance is accessed by a small concrete bridge that spans the areaway. A two-story, rectangular addition is constructed at the southeast corner of the original structure.

The two-story annex, completed in 1960, is located at the southeast corner of the original building. The flat-roofed, stucco covered masonry structure is sited on the lower side of the hillside and is not visible from the Parade Ground façade.

***Significance***

Mallory Hall is a contributing resource to the VMI Historic District. Mallory Hall was designed in the Gothic Revival style to harmonize with the other buildings on the Post. It represents the expansion of VMI in the post-World War II era.

### *Integrity*

The exterior integrity of Mallory Hall is good. Spalling on the stone façade should be promptly addressed to arrest further damage to the building's integrity. The rear annex addition does not compromise the overall massing of the original structure. On the interior, Mallory Hall has poor historic integrity. No historical features remain on the interior; it has been extensively renovated and updated with new systems and finishes.

### *Existing Conditions*

The main preservation concern at Mallory Hall is the condition of the limestone trim, especially over the main entrance. The limestone exhibits both spalling and delamination, potentially caused by corroding anchors. The cause of limestone deterioration should be investigated. Corroding anchors could potentially damage the carved limestone detailing.

***NICHOLS ENGINEERING***

Nichols Engineering is located on Letcher Avenue between Jackson Memorial Hall and the Preston Library. It has served as an academic building for the Engineering department since it was originally completed in 1931. Two annexes were added to the west and south facades of the original building circa 1960. The interior is currently undergoing a major renovation involving the updating of interior finishes and HVAC systems.

***Architectural Description***

The original Nichols Engineering building is a concrete structure coated with painted stucco and decorated with cast stone trim. Nichols Engineering was constructed into the hillside on the south side of the Parade Ground. The original, rectangular building measured nine-bays wide and five-bays deep. The annex additions are constructed to the south and to the west, directly into the hillside. The original building is five-stories tall with only three stories visible from the Parade Ground.

The flat roof drains to internal downspouts and is surrounded by low, crenellated parapet walls. HVAC fans have been installed on the roof rise above the parapet walls, adding a full-floor to the top of the building. Windows are modern replacements consisting of a fifteen-light fixed metal sash with a six-light pivot sash below and a fixed six-light transom above. The windows are placed singly and in clusters of three or six. The main north façade has three slightly projecting sections at the east, west, and central bays. The center three-bay wide projection is emphasized with a triangular, stepped pediment wall and flanking turrets. The central main entrance is set in a basket-handle arched masonry surround. The entrance has double-leaf glazed wood doors with lancet arched panel details and a multi-light transom above. It is accessed across a small concrete bridge that spans across an areaway, which allows light to enter the lower floor levels. A secondary entrance is located in the western bay.

The monument statue of *Virginia Mourning her Dead* is located in a memorial plaza immediately in front of the main entrance to Nichols Engineering building. Six cadets who participated in the Battle at New Market in 1864 have been re-interred on either side of the statue.

The south annex addition is a flat-roofed, stucco-covered masonry structure that is four-stories tall. The south addition is not visible from the Parade Ground. The two-story west annex addition connects the Nichols Engineering Building to Preston Library. The flat roof forms a paved plaza between the two buildings. The stucco covered masonry is only visible from the south.

The interior of Nichols Engineering has been recently renovated with new finishes and upgraded systems. The only remaining historical features are located in the main entrance lobby. The lobby is spanned by a four-part vaulted plaster ceiling, embellished with rib vaulting that is supported on octagonal columns. Gothic style pendant lamps hang from the center of the vaults. All other historical finishes have been removed.

***Significance***

Nichols Engineering is a contributing resource to the VMI Historic District. Nichols Engineering was completed in 1931 and was designed to harmonize with the Gothic Revival buildings at VMI. It is the first academic building constructed to the west of Jackson Memorial Hall along Letcher Avenue. Additional academic buildings were constructed along the south side of the Parade Ground as the Institute expanded and grew. This row of buildings later became known as Academic Row.

***Integrity***

The overall integrity of the exterior and interior of Nichols Engineering is poor. The overall massing and roofline has been altered by large HVAC fans installed on the rooftop. These are highly visible from the Parade Ground and significantly alter the exterior appearance of the building. The original windows have been replaced with modern units. The exterior doors are original. The interior main lobby retains a few remnants of original features. Otherwise, the interior has been completely renovated with modern materials and finishes.

***Existing Conditions***

Nichols Engineering has been recently renovated and is in good condition. The joints at the cast stone trim have been inappropriately pointed with sealant. The sealant will trap water within the masonry walls, forcing water to escape through the masonry or stucco coating. Sealant is only appropriate for joints located at wash surfaces. All other joints, including joints at the base of capstones, should be pointed with a cementitious mortar that is less dense than the masonry.

***PRESTON LIBRARY***

Preston Library was constructed in 1939 to the west of the Nichols Engineering building along Letcher Avenue. It is built into the slope to the south of the Parade Ground. The Preston Library has served as VMI's main library from its original construction to the present. A rear addition was built against the south façade circa 1970. The entire facility underwent a major renovation circa 1997.

***Architectural Description***

The Preston Library is a concrete structure with an exterior veneer of painted stucco and cast stone trim. The rectangular building has a tall central section with lower, flanking wings. Overall the building is five stories tall, though only three stories are visible from the Parade Ground. The flat roofs appear to drain to internal downspouts. The low roof parapet walls are crenellated. From the Parade Ground, large vent hoods can be seen along the west roof. The main north façade has a slightly projecting center section flanked by octagonal turrets. The central entrance bay is emphasized by clusters of five windows at the second and third floors set in a decorative cast stone surround.

The main entrance has four door leaves set under a basket-handle arched surround. Each door has a small grille, large metal pull, and decorative nail heads. The main entrance is accessed by a small concrete bridge, which spans across an areaway that runs along the north side of the building. The heavy masonry massing is emphasized by wide buttresses set between window bays in the flanking wings.

Windows are typically clustered in groups of three. Each window unit consists of a metal eighteen-light casement sash with a lower fixed three-light window and a six-light transom above. The east and west facades have two-story bay windows with decorative cast stone panels. Octagonal turrets stand at the southeast and southwest corners. An exterior metal fire stair exits from the southeast corner of the library.

The rear addition of Preston Library, completed circa 1970, is a three-story tall, seven-bay wide stucco-covered masonry building. It spans almost the entire length of the south façade of the original building. The flat-roofed addition is not visible from the Parade Ground.

The interior of the Preston Library has some remaining historical finishes in the entrance lobby and stairwells. The entrance lobby has remnants of stone arches. Original stairwells are steel with wood handrails and terrazzo treads. The railings and newel posts have Gothic arched detailing. The remaining interior spaces have modern finishes. Interior storms have been mounted at windows using Velcro mounting strips. The windows are not currently operable.

***Significance***

The Preston Library is a contributing resource to the VMI Historic District. The Preston Library was completed in 1939 and is one of the most thoughtfully designed Gothic Revival academic buildings constructed after Bertram Goodhue’s involvement in 1917. The fortress type appearance is effectively conveyed with turrets and buttresses. As a central hub of cadet activity, the Preston Library was carefully designed to complement the existing military Gothic Revival buildings at VMI.

***Integrity***

The Preston Library has good integrity on the exterior. The overall form, massing and fenestration patterns remain unchanged. Minor changes have been made at the roof line. The main entrance doors do not appear to be original.

On the interior, the integrity of Preston Library is poor. The main entrance lobby and stairwells are the only spaces with significant historical features. The central north stairwells in particular show Gothic Revival detailing. The remainder of the interior of the library has been refinished with modern materials.

***Existing Conditions***

The Preston Library is in good condition overall. The concrete foundation has map cracking and efflorescence, indicating water is moving through the foundation in these locations. Several features require maintenance level work. The metal sash windows are corroding, particularly in the location of hinges and moving hardware. At the main north entrance area, there is minor cracking at the cast stone capstones. Sealant joints have failed and water is entering through these joints. There is also evidence of salt damage at the slate paving which has likely been caused by the use of deicing salts.

## NORTH INSTITUTE HILL

The North Institute Hill character area is comprised of buildings sited to the east and south of the Barracks. Eight buildings, built between 1849 and 1955, are included in this area and all are contributing historic resources within the VMI Historic District. The majority of the buildings on North Institute Hill are academic or cadet support facilities including Cocke Hall, Scott Shipp Hall, Maury-Brooke Hall, Richardson Hall, Carroll Hall, and Crozet Hall. The Old Hospital is currently an administrative building. The Heating Plant still serves as a power plant for VMI.

The majority of the buildings on North Institute Hill are massive, fortress-like Gothic Revival styled academic buildings that reference the work of A.J. Davis at the Old Barracks. Later buildings, such as Scott Shipp Hall, Cocke Hall, and Crozet Hall show exterior detailing that is similar to the turrets and buttresses of Goodhue's Jackson Memorial Hall. The buildings on North Institute Hill are sited on a hillside, which creates overlapping volumes of buildings and oblique views of main facades.

## *CARROLL HALL*

Carroll Hall is located to the east of the Old Barracks, sited between Maury-Brooke Hall and the Old Hospital Building. Constructed in 1904, Carroll Hall was designed by Lynchburg architects Edward Graham Frye and Aubrey Chesterman. It was originally known as the Administration Building. Around 1930, a third floor addition was added when the building was converted to the Biology Academic building. A major renovation was undertaken circa 1990 in order to convert the academic building into its current use for administrative and academic support facilities.

### *Architectural Description*

Carroll Hall is an L-shaped building constructed on sloping topography. Overall the building is four-stories tall, though only three stories are visible from the south. It is a masonry structure supported on a local limestone foundation. The exterior is clad with painted stucco and Indiana limestone trim. The roof is flat with crenellated parapet walls. The flat roofs drain to gutters and downspouts at the north elevation. The south elevation has a central square tower with an octagonal turret at the southeast corner. The main entrance is located at the base of this square tower. A flight of local limestone steps accesses the Tudor-arched door surround with double, vertical-paneled wood doors. Windows have double-hung wood sash with a diamond-paned upper sash and plain plate glass in the lower sash. Windows are placed as single windows or clustered in groups of two or three. The rear façade has four-over-four double-hung wood windows. Secondary entrances are located on the south and west facades. The interior of Carroll Hall was completely refinished during the 1990 renovation. No historical finishes remain.

### *Significance*

Carroll Hall is a contributing resource to the VMI Historic District. Designed in the Gothic Revival style, architects Frye and Chesterman patterned Carroll Hall after the existing Gothic Revival-style buildings at VMI. The diamond paned windows and crenellated roof line mimic those found at the Old Barracks. Carroll Hall dates to a period of expansion at VMI which occurred at the turn of the twentieth century.

### *Integrity*

The exterior of Carroll Hall has excellent integrity. The overall form, mass, and fenestration patterns still reflect the building after its 1930 enlargement. Character-defining features, such as the wood windows, remain intact. The exterior doors, however, are modern replacements. The interior of Carroll Hall has poor integrity. The interior has been completely renovated and no historical finishes remain.

### *Existing Conditions*

The main south entrance at Carroll Hall shows deterioration from wear and weather. The limestone entrance steps have cracked and have been repaired with iron dowels. Both the dowels and the handrail posts are beginning to corrode. Ongoing corrosion of these embedded metal items will cause more disruption of the stone steps. The concrete threshold has exposed rebar reinforcement and delaminating concrete. The varnish on the main entrance doors has deteriorated and the wood is exposed and dry.

Overall, the paint has begun to deteriorate at the wood windows. The masonry at the foundation water table course is delaminating, probably from damage caused by deicing salts. Several prior patch repairs have failed. The limestone trim has been coated with an orange coating that has discolored the stone.

Sealant has been inappropriately applied as a raised ribbon joint. Sealant should be applied as a concave joint, supported by foam backer rod. Raised ribbon joints fail very quickly, allowing water to penetrate into the joint. The large raised joint gives a false sense that the joint is adequately sealed.

## *COCKE HALL*

Cocke Hall creates the southern edge of the sunken Memorial Garden and was constructed in 1927. Cocke Hall houses indoor athletic facilities. A pool annex was constructed to the west of Cocke Hall in 1969. This annex is currently being renovated and expanded.

### *Architectural Description*

Cocke Hall is a masonry structure on a concrete foundation finished with painted stucco and stone trim. The long, rectangular building is 13-bays long and two-stories tall with a crenellated roof line. The flat roof is supported on metal trusses; skylights allow natural light to enter the main gymnasium floor below. The main north façade has three projecting sections at the east, west, and central bays. The central bay has a stepped, triangular parapet wall over the lancet-arched main entrance. The entrance is flanked by octagonal turrets and one-story wings. The entrance surround is decorated with shields set in trefoil panels. The double, glazed wood doors have Gothic panel details and large strap hinges. A multi-pane, lancet-arched transom conforms to the door surround. The first floor is lit with glazed metal French doors. Upper levels have leaded metal casement sash windows with fixed transoms. Windows are single or set in clusters of two or three. The interior of Cocke Hall retains significant historic spaces. The gymnasium at the main level of the original building is intact. It is flooded with natural light from the French doors, windows, and skylights. An elevated track is located along the perimeter of the second floor level. The ceiling is exposed to the metal trusses supporting the roof.

### *Significance*

Cocke Hall is a contributing resource to the VMI Historic District and is an important element in the design of the Memorial Garden area. Cocke Hall, the Memorial Garden, and the double stair leading down from the Washington statue were designed as one piece to utilize the slope south of the Old Barracks and connect Jackson Memorial Hall (1916) and Scott Shipp Hall (1919).

### *Integrity*

Both the exterior of Cocke Hall and the main gymnasium interior have excellent integrity. The overall mass, plan, and fenestration patterns reflect the original design. Major character-defining features have been retained, including metal casement sash and French doors, skylights, and the raised indoor track.

### *Existing Conditions*

Cocke Hall is in good condition overall. Maintenance level work is required at exterior windows and doors. The metal casement sash and French doors show signs of early corrosion, particularly at hinge locations. The varnish on exterior wood doors is deteriorated, leaving the wood dry and exposed to the weather.

## *CROZET HALL*

Crozet Hall is located to the east of the Old Hospital, where Letcher Avenue curves down the hill towards Main Street (U.S. Route 11). Constructed in 1934, Crozet Hall has served as a mess hall for the VMI cadets since its original construction. It is built on the site of three earlier mess hall structures: the first VMI mess hall (1840), an A.J. Davis designed mess hall (1854) which was burned in 1864 and rebuilt 1865-1866, and a Frye and Chesterman designed mess hall (1904). A major expansion and renovation of Crozet Hall began in 2004, which involved the demolition of a 1903 Queen Anne residence. The anticipated completion date for this renovation work is Fall 2006.

### *Architectural Description*

Crozet Hall is a masonry structure supported on a local limestone foundation and clad in painted stucco with cast stone trim. The original Gothic Revival two-story building is rectangular in plan and measures 13-bays long and seven bays deep. A large two-story addition has been constructed against the east façade of the original mess hall. The flat roof has crenellated parapet walls and is believed to drain to internal downspouts. The main façade faces east towards the Central Post. The north, south, and central bays project slightly; each has its own entrance. The central bay has a triangular parapet wall with flanking, wide octagonal turrets.

Decorative buttresses stand between each window bay. Windows over the entrance doors are triple, metal fifteen-paned casement sash with a fixed six-light transom above. Entrance doors are double, glazed wood doors with a basket-handle arched, multi-light transom. The windows at the recessed portions of the east façade form a five-part panel of metal sash windows from first through second floors. The paired windows have Gothic tracery at the lowest level, followed by a six-light transom, two twelve-light sash, and a six-light transom on top. The north facade carries over the buttresses and two-story window details of the north elevation, though the window design is slightly different. The south facade is treated as the rear and has utilitarian fixed metal sash windows that were once fitted with a central pivot sash. The glazing has been removed from the original metal casement sash and new windows installed behind. The original metal sash have been left in place to form a grille. The interior of Crozet Hall was gutted as part of the current renovation work.

### *Significance*

Crozet Hall is a contributing resource to the VMI Historic District. It is designed in the VMI Gothic Revival style to harmonize with the existing Post environment. Crozet Hall is located on the same site as previous VMI mess halls, dating from 1840. The present building dates to a period of growth and development at VMI from 1920 to 1940.

***Integrity***

The integrity of the exterior of Crozet Hall is compromised due to the current alteration of the windows. The metal windows are being retrofitted with new casement sash windows on the interior. This work significantly alters the fenestration at the exterior. This new configuration will create a barred window effect that was not part of the original design intent. On the interior, Crozet Hall has poor historic integrity. The major spaces, including the mess hall, have been altered. Original skylights have been covered over. Most interior surfaces have been refinished with modern materials.

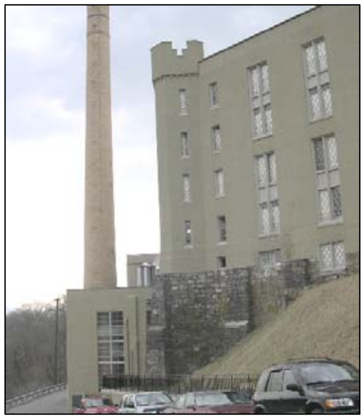
***Existing Conditions***

The primary preservation concern at Crozet Hall is the condition of the original metal windows. The original metal sash exhibit overall corrosion, especially where the glass panes have been removed. Ongoing corrosion has caused causing staining at the cast stone sills. The new design also offers potential locations for birds to nest.

Sealant has been used to point the cast stone trim. The sealant has been applied as a wide raised ribbon, which has failed. All non-wash surface joints should be pointed with a cementitious mortar. Sealant retains moisture in the wall and does not allow it to escape.

The stucco is showing signs of early failure. There is map cracking and efflorescence, particularly near the foundation. The main west façade also has areas of detached stucco. The varnish at the exterior entrance doors is beginning to fail. On the interior, the original ventilation skylights have been by-passed but leaks have not been corrected. This band-aid type work will lead to chronic leaks in the renovated facility.

## *HEATING PLANT*



The Heating Plant was constructed in 1907 at the northeast corner of the Old Barracks. The ground drops steeply at this corner and the Heating Plant is sited on a lower grade down the slope. The Heating Plant has maintained its original use as a power generating plant for the VMI Post. The building appears to have been renovated circa 1950s and was joined with Richardson Hall by an annex structure in the 1990s. The original square boiler stack, located to the east, has been replaced with the current circular boiler stack, located to the north.

### *Architectural Description*

The three-story, rectangular, painted brick building is three-bays wide and two-bays deep. The flat roof slopes to the north. A brick boiler stack dominates the building. Windows are typically double or triple groupings of fixed steel frame fitted with a four light pivot-hinged sash. Windows span from first to third floors, creating a broad vertical band of glass. The Heating Plant is accessed through a garage door on the northeast façade. It is connected to Richardson Hall with a four-story tall, four-bay wide stucco-covered masonry addition.

### *Significance*

The Heating Plant is a contributing resource to the overall VMI Post. The building played an important role within the historical development of VMI and is significant within the larger context of the VMI Post. It is a utilitarian structure constructed to house conventional power supply sources for the VMI Post. The Heating Plant was constructed during a period of expansion at VMI in the early-twentieth century, indicative of the increased infrastructure required for the growing Institute. Though it has been extensively modified, the Heating Plant continues to be used for the same purpose as it was originally intended.

### *Integrity*

The overall integrity of both the exterior and interior of the Heating Plant is moderate. The exterior of the Heating Plant has been altered from its original appearance. At least two bays have been removed from the eastern end of the structure, possibly at the time of the construction of the Richardson Hall annex. The overall fenestration patterns have also been changed, although some of the windows may be original. The original square stack was located on the eastern end; this has been replaced with a larger, circular brick stack at the north end of the building. On the interior, the systems have been upgraded and altered over time.

### *Existing Conditions*

The Heating Plant is generally in good condition. The steel windows show minor signs of corrosion.

## *MAURY-BROOKE HALL*

Maury-Brooke Hall is sited at the southeast corner of the Old Barracks on the north side of Letcher Avenue. Designed by Norfolk architect John Kevan Peebles, Maury-Brooke Hall was completed in 1909 as the Chemistry Building. Richardson Hall was connected to the north façade of Maury-Brooke Hall at the time of its construction in 1935. Maury-Brooke Hall underwent a major renovation circa 1991 when it was renovated to accommodate its current use for cadet support facilities.

### *Architectural Description*

Maury-Brooke Hall is a masonry structure on a local limestone foundation that is finished with painted stucco. Limestone is used at window sills and parapet capstones. The L-shaped Gothic Revival building is three-stories tall with a full basement level. Maury-Brooke Hall has a particularly elaborate crenellated roof line, which is patterned after the Old Barracks parapets. The main south façade is five-bays wide with a slight projection at the center three-bays. The main central entrance has an elaborate crenellated entrance with a basket-handle arched doorway. The double entrance doors are modern plain wood doors with brass hardware. Windows at the main elevation are diamond-paned wood casement sash with diamond-paned transoms. Lintels are decorated with a low-relief keystone. The windows are placed singly as well as in groups of four set in three-story panels. Vertical board wood panels span the areas between floor levels; these windows were inspired by the Davisean windows at the Old Barracks. At all other facades, the windows are plain double hung, one-over-one windows with a pivot sash transom.

The interior of Maury-Brooke Hall was refinished with modern materials during a 1991 renovation project. Most of the historic fabric has been removed. However, the original stairwell and railings were retained at the south central stair. The newel post has Gothic Revival detailing. All other spaces have modern finishes.

### *Significance*

Maury-Brooke Hall is a contributing resource to the VMI Historic District. Maury-Brooke Hall is an academic building dating to a period of expansion of VMI in the early-twentieth century. It is designed in a Gothic Revival style that closely follows the details established by A.J. Davis at the Old Barracks, including deep crenellated parapets and multi-story diamond-paned windows.

### *Integrity*

The exterior of Maury-Brooke Hall has good integrity. The exterior reflects the appearance of the building circa 1935 when Richardson Hall was connected to its north façade. The original wood windows remain on the south façade.

However, the main entrance doors are modern replacements. On the interior, Maury-Brooke Hall has poor integrity overall. The interior has been altered and refinished with modern materials with the exception of one original stairwell and steel railing.

### *Existing Conditions*

Maury-Brooke Hall is in good overall condition. However, several maintenance level repairs are required. The painted stucco coating is beginning to deteriorate, particularly at the parapet level. The paint is beginning to peel and fail at the wood windows. The limestone trim is blackened with biological growth, which should be removed with regular cleaning. The main south entrance cheek walls require overall repointing at both capstones and walls. The limestone foundation has been pointed with wide joints feathered over the edges of the worn stone. This type of pointing work is prone to early failure. Hairline cracks have formed at the feathered edges allowing water to infiltrate the masonry.

### *OLD HOSPITAL*

Located to the southeast of the Old Barracks, the Old Hospital is on the north side of Letcher Avenue before it turns down the hill towards Main Street (U.S. Route 11). Constructed circa 1849 as a hospital, the Old Hospital is the oldest remaining building at VMI and is the only building to survive from the Lexington Arsenal period. It was once part of a row of two-story brick buildings that lined Letcher Avenue from 1849 to1900. The Old Hospital served as the VMI hospital until 1870, after which it housed various functions. A major renovation was undertaken in 1974. Currently, the Old Hospital provides offices for International Programs and the Institute Chaplain.

#### *Architectural Description*

The Old Hospital is a vernacular painted brick structure supported on a local limestone foundation. The two-story building has a double-pile, central hall plan. The side-gabled roof is covered with a standing seam metal roof. A two-story porch extends across the main southwest façade. The wood porch is supported by brick piers at the first story and square wood columns at the second story. The porch has a shed-style, standing seam metal roof. Interior end chimneys stand at the northwest and southeast facades. The main southwest façade is three-bays wide with a central entrance at both first and second floors. Windows are six-over-six double hung wood sash. The doorways have single, glazed wood doors. The northwest and southeast facades have no openings. The rear, northeast façade is three-bays wide with modern, fixed sash wood windows and doors at the basement level.

The interior of the Old Hospital retains the overall double-pile, central hall plan. The office spaces have been renovated with modern finishes. Some historical finishes remain, though it is not clear that they date to the original construction. For example, the central stairwell may retain the original wood stairs and railings. However, the decorative newel post resembles the newel post at 503 Brooke Lane, which dates to 1885. Further investigation is required to determine the exact dates of the remaining historical elements, including doors, windows, and stairs.

#### *Significance*

The Old Hospital is listed as a contributing historical building to the Virginia Military Institute Historic District. The Old Hospital is significant for its role in the history of VMI. It is the oldest remaining building on the Post and the only building to survive from the Lexington Arsenal period. The Old Hospital is representative of the earlier vernacular brick structures that once served both the Lexington Arsenal and the early Institute.

The Old Hospital is also significant as a vernacular brick structure that predates the Gothic Revival era at VMI. It was constructed as part of a row of two-story brick buildings with few embellishments and was the only one of these structures to have a large porch. The two-story porch would have provided shade and protection for hospital patients. Multi-story porches that covered an entire façade were typical for both vernacular and high-style buildings in the south during the mid- to late-nineteenth century.

### *Integrity*

The Old Hospital has good integrity on both interior and exterior and retains the overall form, plan, and fenestration patterns of the original building. Further research is required to date the individual historical features, such as the windows, interior doors and door trim, and central stairs.

### *Existing Conditions*

The Old Hospital is in good condition overall. Minor deterioration was noted at the brick porch piers. The damage at the brick appears to be caused by rising damp and salt damage; it is not severe. In addition, the paint is beginning to deteriorate at the wood windows.

## *RICHARDSON HALL*


Richardson Hall is sited to the northeast of Maury-Brooke Hall along the ridge overlooking Woods Creek. Originally designed for chemistry labs, Richardson Hall was completed in 1935. It was connected to Maury-Brooke Hall, which was then the Chemistry Building. In 1997, Richardson Hall was converted into a military store and tailor shop.

### *Architectural Description*

Richardson Hall is a masonry structure clad with stucco and cast stone trim. The two-story, rectangular building measures three-bays deep and seven-bays long and has a full basement built into the slope of the hill. The flat roof has crenellated parapet walls. Richardson Hall is linked to the north façade of Maury-Brooke Hall with a three-bay wide, two-story connecting structure. A tunnel runs through this connector at ground level for pedestrian access. Windows are multi-paned, fixed metal sash with a bottom three-light pivot sash. The basement level has large louver panels. The main entrance is located on the southwest façade; it is fitted with a modern, glazed metal door. The interior is utilitarian and has been upgraded with new systems and finishes.

### *Significance*

Richardson Hall is a contributing resource to the VMI Historic District. It is a utilitarian building that has served specific needs of the VMI Post, first as a chemistry laboratory and now as a military store and tailor shop. Its position to the rear of Maury-Brooke Hall did not require elaborate architectural detailing. However, its overall appearance was designed to blend in with the surrounding Gothic Revival architecture.

### *Integrity*

The exterior of Richardson Hall has good integrity and conveys the appearance of the building circa 1935. The interior has been altered to accommodate the changing needs associated with the building's various uses.

### *Existing Conditions*

Richardson Hall requires overall rehabilitation of exterior masonry, stucco, and metal windows. Both the stucco and cast stone exhibit hairline cracking. Efflorescence has formed around these cracks indicating that water is moving through the masonry. In some areas, the stucco and cast stone have begun to delaminate from chronic water infiltration. The foundation joints have been inappropriately sealed. Sealant was applied over old mortar, with no foam backer rod installed. The sealant joints have prematurely failed and are allowing water into the cast stone masonry. The metal windows require painting to protect the sash from corrosion.

***SCOTT SHIPP HALL***

Scott Shipp Hall is sited to the southeast of the Old Barracks and is built into the slope on the south side of Letcher Avenue. Scott Shipp Hall was designed by the architectural firm of Carneal and Johnson and was completed in 1919. A major addition was added to the east of the original building in 1955. Both the addition and the original building underwent interior renovations in 1994. Scott Shipp Hall has served as the Liberal Arts Building from its initial construction to the present.

***Architectural Description***

The 1919 portion of Scott Shipp Hall is a masonry structure clad with painted stucco and limestone trim. The rectangular building is built into the hillside and is five stories tall overall; however, only three-and-a-half stories are visible along its northern facade. The flat roof has crenellated parapet walls. Measuring five-bays wide and 11-bays long, the main north façade of Scott Shipp Hall faces Letcher Avenue. The center bay of the main façade is emphasized with an extra half story, a second floor bay window, and flanking octagonal turrets. The main entrance is at-grade with double, wood paneled doors and a multi-light transom.

The windows typically have a nine-light metal casement sash with a fixed three-light sash below and a six-light transom above. Some transoms have been covered over with stucco on the north façade. The windows are clustered in groups of two or three. Windows at the west elevation are slightly more ornate. The center bay has a multi-story bay window with seven window units. The five-unit basement level windows on both east and west facades are set under a basket-handle arch with trefoil arched transoms.

The Scott Shipp Hall addition is a five-story rectangular building constructed perpendicular to the original building. It is linked to the east façade of the main building with an adjoining, four-story connector. The addition closely follows the original Scott Shipp Hall in materials and detailing.

The interiors of both Scott Shipp Hall and its addition were extensively renovated in 1994. Much of the original interior fabric has been removed. The interior retains little of its original plan or finishes.

***Significance***

Scott Shipp Hall is a contributing resource to the VMI Historic District. Scott Shipp Hall is an academic building which has served the VMI Post in that capacity since 1919. It is an important element in the design of the Memorial Garden area; it forms the east boundary of the Memorial Garden, which was designed in 1927. The Memorial Garden was developed to utilize the slope south of the Old Barracks and provide an outdoor connection between Jackson Memorial Hall and Scott Shipp Hall.

***Integrity***

The exterior of Scott Shipp Hall has good integrity. The overall mass and form of the 1919 building has been retained. The 1955 addition stands as a separate structure with a one-bay wide connector. Character-defining features, such as original exterior doors and windows, have been retained. The interior has been completely renovated and has poor historic integrity. Nothing remains of the original plan or finishes.

***Existing Conditions***

Scott Shipp Hall is in good condition overall. However, several maintenance level repairs are required. The mortar is deteriorating in the joints of the limestone trim, especially over the main north entrance. There is biological growth on wash surfaces, primarily limestone trim at capstones and belt-courses. The original buff color is obscured by the black growth. All of the exterior doors have deteriorating varnish finishes. The finish is particularly worn at the base of doors and around handles and push plates.

## JORDAN'S POINT

The Jordan's Point character area includes the buildings located along the eastern ridge stretching out towards the Maury River. It includes eight buildings dating from 1818 to 1950; three are individually significant or contributing resources. Two of these properties are associated with John Jordan, a prominent nineteenth century builder and industrialist, and have special significance for Lexington and Rockbridge County. One residence was constructed for VMI faculty in 1903; a twin residence also dating to 1903 was torn down during the recent expansion of Crozet Hall.

The non-contributing buildings are five identical bungalows constructed in 1950 for VMI faculty. The buildings are residential in scale with brick masonry exteriors. Each building is surrounded by its own landscaped area with associated retaining walls, creating a rhythm of a residential country road.

### *443, 445, 447, 449, 451 INSTITUTE HILL*

The five cottages clustered at 443, 445, 447, 449, and 451 Institute Hill are constructed into the slope below Crozet Hall and the Hospital. Completed in 1950, the bungalows remain in use as faculty housing, although they are currently slated for demolition. The residences are laid out back to back, sharing both front and rear yards.

#### *Architectural Description*

The one-and-a-half-story, rectangular brick bungalows face either east or west. Due to the sloping topography at this location, the south facades of the bungalows rise two-and-a-half stories. The side-gabled roof is covered with asphalt shingles. Three dormers are located on the main façade; a single, two-bay wide dormer rises from the rear roof. Internal brick chimneys are located at the north ends of the bungalows. Windows are typically six-over-six, double hung wood windows. Main entrances are single wood doors with five-light transoms centered on the main façade. The main entrances are protected with a one-story, front gable roofed entrance porch. Additional entrances, typically one garage door and one glazed wood door, are located at the basement level of the south facades.

#### *Significance*

The faculty houses at 443, 445, 447, 449, and 451 Institute Hill are contributing historic resources at VMI. Although they are not architecturally significant, they are associated with VMI's rapid expansion in the post-World War II era.

#### *Integrity*

The integrity of the bungalows is excellent. The bungalows have not been materially changed since their construction in 1950. Wood siding has been replaced with vinyl siding at dormers and porches.

#### *Existing Conditions*

All five bungalows are in good condition. There is some evidence that gutters are chronically clogged and overflow.

### *450 INSTITUTE HILL*

The Queen Anne style residence at 450 Institute Hill is located to the east of the Post Hospital on Stono Lane. The house was constructed in 1903 as one of a matched pair built on either side of the Post Hospital. Both residences were designed by Lexington architect William G. McDowell. The twin building, which served as the Post Surgeon's residence, was located at 446 Institute Hill; it was razed in 2004 to make room for the expansion of Crozet Hall. The remaining home at 450 Institute Hill is currently the residence of the Post Chaplain.

#### *Architectural Description*

The two-and-a-half-story Queen Anne residence is square in plan with a rear one-and-a-half-story ell at the northeast corner. A one-story addition with a shed-roofed porch stands to the west of the ell. The residence is a brick structure on a local limestone foundation with patterned wood shingles at gable-end dormers. The main block of the house and the rear ell have hipped, slate roofs. The wood cornice, decorated with dentils, supports a box gutter. The main block has a large gable-end dormer on the south, flanked by small, hipped roof dormers, and a gable-end dormer on the west. The four chimneys are embellished with decorative brickwork. The brick masonry has been tuck-pointed with a red and white mortar.

Windows are two-over-two double hung wood windows with arched lintels. Dormer windows have decorative muntins. A one-story wood entrance porch with turned columns spans across the main south façade. The main entrance is located in the center of the south façade. The single wood door has a large plate glass window. A secondary rear entrance is located in the one-story addition.

The interior of 450 Institute Hill has a double-pile floor plan with central hall. The interior retains the original floor plan as well as historical finishes. The main staircase with spindle work railings still commands the main entrance hallway. Original strip wood flooring, baseboards, five-panel doors, and window and door trim remain and pocket doors are still operable. The fireplaces have delicate Queen Anne tile and carved wood surrounds. Mantelpieces have elegant ionic columns and low-relief garland decoration. The rear ell appears to be original and has more modest finishes, signifying this area probably served household staff and kitchen functions.

#### *Significance*

The residence at 450 Institute Hill is a contributing resource to the VMI Historic District and is particularly important as physical evidence of the twin residence that was demolished in 2004. The residence is a good example of the Queen Anne style expressed in brick with patterned wood shingles at the gable ends. Constructed for VMI faculty, 450 Institute Hill is representative of the period of growth at VMI that occurred in the early-twentieth century.

***Integrity***

The residence at 450 Institute Hill has excellent integrity on both the interior and exterior. However, the brick masonry has been damaged by abrasive cleaning. The majority of the character-defining features have been retained. These include original wood windows and doors, slate roofs, wood entrance porch, interior flooring, wood trim, and fireplace surrounds.

***Existing Conditions***

It is evident that the brick masonry at 450 Institute Hill has been abrasively cleaned in the past. The cleaning has removed the protective fire skin from the brick, revealing the softer interior surface. Subsequently, the bricks are now more vulnerable to weathering and freeze-thaw deterioration. The most recent tuck pointing campaign was installed to restore a crisp appearance to the damaged masonry.

The slate roof has missing slates over the rear ell and the roof underlayment is currently exposed. The missing slates should be replaced in order to keep water out of the rear ell. The rear north chimney has failed masonry joints and should be completely repointed.

There is also evidence of drainage issues. At the rear ell, the west box gutter shows signs of chronic overflow. Biological growth is heavy on the outer face. At the west façade, the downspouts direct water runoff directly against the building foundation. Extenders have been installed at the northwest corner, but some are disconnected.

***POST HOSPITAL***

The Post Hospital is located on Stono Lane immediately to the east of Crozet Hall. The original Greek Revival residence was constructed in 1850 by prominent local builder John Jordan for his son Samuel F. Jordan. It is possible that the residence was used as the new Post Hospital as early as 1870, when the Old Hospital stopped serving this function. The Jordan residence was officially serving as the Post Hospital circa 1909 when the northeast and west ward wings were constructed. The interior has been renovated to upgrade finishes and systems.

***Architectural Description***

The Post Hospital is a brick structure consisting of the original residence, a northeast wing, and a west wing. The original 1850 residence is a two-story, five-bay wide, two-bay deep structure. The hipped roof is covered with standing seam metal roofing. The main, south façade is dominated by a full-height, two-story porch, which extends across the south facade and wraps around the southeast and southwest corners. The porch is supported by square wood columns. Brick mortar joints at the original residence portion have been painted with white lines. Windows are six-over-six, double-hung wood sash fitted with exterior screens. There are two main entrances on the south façade, located at the first and second floor levels. Each entrance has a single glazed wood door with flanking three-light sidelights. Secondary entrances are located at the north façade. The interior has been completely rehabilitated for hospital services. The original floor plan has been altered and the interior has been refinished with modern materials.

The northeast wing is two-stories tall, six-bays long, and two-bays wide. The hipped roof is covered with standing seam metal roofing. Windows are paired, steel casement sash with fixed transom lights above. The west wing has similar proportions to the northeast wing but was constructed against the west side of the 1850 residence. At the south façade, the west wing has a two-story, glassed-in porch that copies the original 1850 porch details. The remaining portion of the west wing is constructed in brick. A one-story brick addition is located at the north end. Windows at the west wing are six-over-six, double-hung wood sash fitted with exterior screens. There is a ground level entrance to the glassed-in porch at the west façade.

***Significance***

The Post Hospital is a contributing structure to the Jordan's Point character area within the VMI Historic District. The original house was constructed in 1850 by John Jordan for his son, Samuel F. Jordan. The original Jordan residence has been altered with exterior additions and interior alterations. Serving as Post Hospital from circa 1870 to the present, the building has provided a necessary service to VMI staff, faculty, and cadets.

### *Integrity*

On the exterior, the Post Hospital has good integrity for the period circa 1909 when the ward wings were constructed. The ward wings significantly change the overall massing of the original 1850 building. The historical five-bay main façade has been expanded with the two-bay, west wing addition.

On the interior, the Post Hospital has poor historic integrity. The interior of the Post Hospital has been altered and updated with modern finishes and systems to accommodate the current healthcare facilities. No historical finishes remain.

### *Existing Conditions*

The Hospital is currently in good condition. Minor corrosion was noted at the east wing steel casement windows, particularly at hinge locations.

***STONO***

Stono is located at the eastern tip of the VMI ridge overlooking the Maury River. The property consists of the Main House and three outbuildings: the Office, Ice House, and Summer Kitchen. Associated landscape features, such as retaining walls and terraced beds, also remain. The Main House was constructed in 1818 by prominent local builders John Jordan and Samuel Darst.

***Architectural Description***

The original portion of the main house included the two-story, three-bay wide and three-bay deep center section and the flanking one-story wings. The exact dates of the outbuildings are unknown. However, it is probable that a one-story, two-bay deep brick building, that is now connected to the Main House, was an early, freestanding outbuilding. The Office, Ice House, and Summer Kitchen may have been constructed around the same time as the Main House. However, unsubstantiated reports place the date of the Summer Kitchen in the period between 1898 and 1910 (Historic American Building Survey No. VA-900).

At some point prior to 1883, a two-story, two-bay deep addition was added to the west end of the main house. A one-and-a-half-story ell was constructed circa 1883 to connect the Main House with the rear one-story brick outbuilding. At a later, unknown date, a one-story, shed-roofed addition was built at the west side of the north wing. Stono was documented by the Historic American Building Survey in 1969.

The exterior and interior of the Main House was restored in the 1980s. The property is currently owned by the VMI Foundation and will be transferred to VMI ownership in 2006. It is currently used for accommodations for VIP guests.

MAIN HOUSE

The Main House is a brick structure on a local limestone foundation. The roof is covered with standing seam metal roofing. The building has an overall T-shaped plan, with the broadest façade facing east. The T-shaped plan is produced by the eastern original portion and a series of additions on the west.

The main east façade of Stono features both the proportions and details of the Neoclassical style. The front-gabled, two-and-a-half-story center section is flanked by one-story, side-gabled wings. The brickwork is laid in a Flemish bond. The center section has a two-story portico with four round Tuscan columns supporting the projecting pediment. The pediment is pierced with a half-round fanlight. External chimneys rise at the north and south facades. At the center bay, the main entrance has a six-panel wood door and a metal-framed, half-round fanlight. The entrance opening is fitted with louvered door shutters. A similar doorway opens onto the second floor of the portico. Windows are six-over-six, double-hung, modern aluminum clad sash set in original wood frames. Louvered shutters are located at each window opening. Secondary entrances are located at the basement level on the north and south facades.

To the rear of the south wing, a one-story porch forms an L where it extends across the one-story wing and the Main House. The porch has a limestone foundation and the roof is supported by circular brick columns formed with specially molded bricks. The rear of the north wing has been altered with the construction of a one-story, shed-roofed addition at some point post-1883. A two-story brick addition was constructed at the west end of the center section prior to 1883, expanding it by two-bays. The addition is visible from the north and south facades because the western two bays have windows of a slightly larger size. A wood-paneled bay window projects from the second floor west façade of this later addition. An internal chimney stands at the west end.

To the rear, west facade of this addition stands a one-and-a-half-story, front-gabled addition, constructed circa 1883. The brickwork is laid in a common bond. A one-story porch extends across the southern façade. The porch has a brick foundation and circular, brick piers. There are entrances on both north and south facades. In contrast to the rest of the Main House, the windows here are two-over-two, double hung wood sash. Central dormer windows are located on then north and south facades. An external chimney was constructed at the western end. At the west façade of the circa 1883 one-and-a-half-story addition stands a one-story, front-gabled addition, which probably dates to circa 1818. The brickwork is laid in a running bond. A single entrance is located at the north façade. A southern door opening has been covered with brick. Windows are six-over-six and four-over-four double-hung sash. An external brick chimney stands at the west façade.

The first floor of Stono has a large central hall, which leads to a library to the south, a dining room to the north, and a stair hall to the west. Beyond the stair hall is a living room. A kitchen is accessed through both the north dining room and the west living room. The second floor of Stono has two bedrooms to the east and west and bathrooms to the north and south.

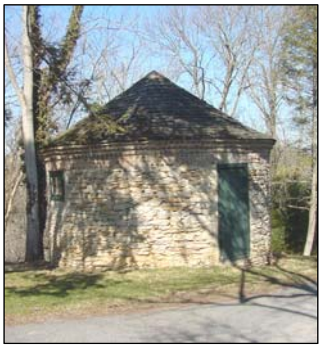
The central hall, library, living room, and second floor bedrooms have plaster walls and ceilings with wood wainscot. Floors are covered in random width pine boards. Fireplaces retain the original, Federal style surrounds and cast iron inserts. Original trim remains in both Federal and Greek Revival styles from different periods of construction. The Federal fireplace surrounds are particularly well executed with fine engaged columns or pilasters on either side of the opening. The mantel is embellished with elliptical ornament that is delicately reeded or projects like a medallion. The central stair hall encloses an elegant stair with a hand-carved dog’s head on the handrail. The original flooring in the stair hall has been replaced with a parquet floor. The kitchen has preserved the bulls-eye moldings at doors and windows, though it has been updated with new appliances, cabinets, and linoleum flooring. Second floor bathrooms have been refinished with modern materials and fixtures.

To the west of the first floor living room are two small rear additions, each consisting of one room. The one-and-a-half-story addition also has a second floor with two small rooms. The rear additions retain simplified fireplace surrounds but have modern carpeting, doors, and other finishes.

OFFICE

The Office is a one-room, one-story building with full basement sited to the south of the main house. The building is constructed of brick, laid in a Flemish bond, on a local limestone foundation. The standing seam metal, pyramidal roof drains to a perimeter gutter, which drains to two downspouts on the south. An internal brick chimney is located at the southeast corner of the roof. The main entrance is located on the north façade under a one-story entrance porch. A secondary entrance accesses the basement level at the south façade. Windows are modern replacement six-over-six, double hung sash set in the original wood frames. First floor windows are fitted with louvered shutters. The interior of the Office has been refinished as an apartment.

ICE HOUSE



The Ice House stands to the north of the main house. The circular one-room building is constructed of local limestone with a corbelled brick cornice. The evidence of the rough stone work and detailed brick cornice indicate that the Ice House was originally covered with stucco. The cone shaped roof is covered with wood shakes. A single, vertical board door enters the Ice House on the south. Small wood windows are located on the east and west. The interior is currently used for storage.

SUMMER KITCHEN

The Summer Kitchen is a one-story, one-room building located to the northwest of the main house. Constructed of local limestone masonry, there is evidence that the building was originally covered with stucco. The side-gabled roof is covered with standing seam metal roofing. An internal brick chimney rises at the north end of the roof. The single entrance fitted with a paneled wood door is located on the east façade. Windows on the east and west facades have six-over-six, double hung wood sash. The single room on the interior is finished with plain plaster walls and ceiling with wood floors. The fireplace has a Neoclassical styled wood surround. The opening has been plastered over and has a circular hole for a stove pipe.

### *Significance*

Stono was individually listed on the National Register in 1975. Stono is also recognized as a contributing historical building to the Virginia Military Institute Historic District. The VMI Historic District was listed on the National Register and was also distinguished as a National Historic Landmark in 1974.

Stono is architecturally significant as one of the earliest Neoclassical style buildings built west of the Blue Ridge Mountains.

Stono is also historically significant for its association with Colonel John Jordan (1777-1854), a prominent local builder and industrialist. Stono was built by Jordan as his primary residence. It is sited atop a ridge overlooking Jordan's Point, where Jordan and his family had important business and transportation interests. The building was constructed in the early years of Jordan's partnership with Samuel Darst (1788-1864) and stood as advertisement for the elegance and skill of their architectural work. The influence of Jordan's work at Stono can be seen in other buildings he designed and built in Lexington, including the Samuel Darst residence Beaumont (1819) and Washington Hall (1824) at Washington College (now known as Washington and Lee University).

### *Integrity*

MAIN HOUSE
The exterior of Stono has good integrity. Many character-defining features such as overall form, massing, and fenestration pattern have been retained. However, the windows currently have modern replacement sash that are not compatible with the historic exterior. On the interior, the overall floor plan has been preserved to the period 1883. Many historical finishes remain; however, more research is required to understand the exact dates of important character-defining features such as cornice moldings, fireplace surrounds, and flooring. The chronology of alterations to interior finishes has not been adequately established.

OFFICE
The Office has good exterior integrity; however, the interior has been altered. The Office has been altered on the exterior with the installation of modern window sash. The interior has been renovated as a small apartment with modern finishes.

ICE HOUSE
The exterior of the Ice House was originally covered with stucco, as shown by the use of brick and stone masonry as well as by the remnants of stucco material. It is not known whether the windows, door, and roof are original or replacements in kind. More research is required to investigate these features.

SUMMER KITCHEN
The Summer Kitchen has good integrity on both exterior and interior. The exterior has evidence of stucco on the roughly laid limestone masonry. It is not known whether the other materials are original. More research is needed to

identify the dates of features such as the wood cornice, windows, door, flooring, and fireplace surround.

### *Existing Conditions*

MAIN HOUSE
Stono is in relatively good condition. The main preservation concerns have to do with poor drainage and failure of masonry joints. The gutters and downspouts that drain the southeast porch roof have failed. The gutters are designed to drain to a downspout at the center of the L-shaped porch; instead, the gutters have sagged and chronically overflow. Water runs against the porch cornice, causing biological growth and rapid deterioration of the brick column in this area. The brick porch at the rear, one-and-a-half-story addition shows evidence of failed joints and masonry disruption. This has been caused by water running through the porch floor above.

Overall, paint is peeling and cracking at exterior wood trim, including main entrance columns, porch ceilings, window and door frames, and cornices. Mortar joints have been repointed with a grapevine joint, though the original brickwork may have been tuck pointed. The existing repointing work used a hard Portland cement mortar that is not compatible with the soft brick masonry. However, the current masonry joints are sound and do not require repointing at this time. The soft brick at the rear one-and-a-half-story addition and the porch columns along the south façade all appear to have been stuccoed at one time. A coating of appropriately soft stucco could protect the brickwork in these areas.

The interior of Stono is in excellent condition. The main preservation concerns have to do with maintenance level repainting. During repainting campaigns, window and door hardware have been painted over, impairing their operation. The delicate detailing at fireplaces and door trim have been obscured by many layers of paint.

OFFICE
The Office outbuilding is in good condition.

ICE HOUSE
The Ice House is in poor condition. The wood shake roof is failing and must be replaced. From its current appearance, the structural framing may also need to be replaced. Ivy is growing on the Ice House masonry. The masonry was originally stuccoed, which would have provided a very different appearance than exposed masonry.

SUMMER KITCHEN
The Summer Kitchen is in overall good condition. The Summer Kitchen metal roof is beginning to corrode. The exterior once had a coating of stucco, which would have protected the soft masonry joints. On the interior, the plaster has cracked in several places. The fireplace surround has large cracks from thermal fluctuations in this unconditioned space.

## SOUTH INSTITUTE HILL

The South Institute Hill character area is characterized by the residential buildings along Letcher Avenue, Maiden Lane, and Main Street. The 18 buildings included in this character area are all contributing historic buildings in the VMI Historic District. Most of the houses were constructed between 1867 and 1900 and served primarily as private residences for VMI faculty. The residential scale buildings exhibit both wood cladding and brick masonry exteriors with prominent front porches. The buildings are sited close together, reflecting a rural town setting.

## *301 LETCHER AVENUE (BACHELOR OFFICERS' QUARTERS)*

The Bachelor Officers' Quarters at 301 Letcher Avenue is located on the south side of Letcher Avenue at its junction with Maiden Lane. The Classical Revival building was constructed in 1900 and formerly served as a fraternity house for Washington and Lee University. The building was purchased by VMI at an unknown date. The Bachelor Officers' is currently used for faculty housing and offices for the Post Police and housekeeping departments.

### *Architectural Description*

The residence at 301 Letcher Avenue is a painted brick structure on a local limestone foundation. Built into the slope of the hill, the building is two stories tall at the north and four stories tall on the south. The overall form is a rectangular central block with flanking wings on the southeast and southwest. The roof is hipped and covered with standing seam metal roofing. Rainwater drains to a perimeter gutter and then to downspouts on the east, west, and south. Internal chimneys rise from the center and south end of the roof. A two-story shed-roofed porch stands on the west façade.

The main north façade has a full two-story portico supported by four Tuscan columns. The main entrance is located in the westernmost bay and is fitted with a six-panel wood door. Windows are typically six-over-six or four-over-four, double-hung sash. North façade windows have louvered shutters.

The floor plan of 301 Letcher Avenue has been modified to accommodate its current use as office and residential space. The first floor retains the original layout, as well as historic finishes such as fireplace surrounds, stairs, doors, and window and door trim. Floors have been covered with wall-to-wall carpeting. In the basement and upper floor areas, original radiators, baseboard and chair rail trim, door and window trim, and some five-panel doors have been retained. These floors have also been covered with modern carpeting or linoleum.

### *Significance*

The Bachelor Officers' Quarters is listed as a contributing historic building within the South Institute Hill area of the Virginia Military Institute Historic District.

### *Integrity*

The exterior of 301 Letcher Avenue has good integrity. The overall form and mass has been retained and the two-story portico still dominates the north façade. Wood windows and doors have also been preserved. The current water drainage problems are undermining the northeast foundation, which may impact the integrity of the exterior.

The integrity of the interior is moderate. The interior has been modified to accommodate its current use as office and residential space. Some character-defining features remain, including first floor fireplace surrounds, stairs, five-panel doors, and wood trim.

***Existing Conditions***

The most significant preservation concern at 301 Letcher Avenue is the cracking and building settlement occurring at the northeast corner. A downspout drains the northeast corner of the roof and directs water to a depression adjacent to the foundation. There is nowhere for the water to go except against the foundation or into the ground. The constant flow of water has undermined the foundation, causing cracks that run through the entire foundation wall. At the same location on the interior, there are chronic mold and water problems in the basement.

The situation is exacerbated by open joints at the building foundation and faulty gutters. The current gutters are corroding and bent. They do not have the correct slope to drain to the downspouts and are not angled correctly away from the building. Water drainage is a problem around the entire building. Paint is beginning to deteriorate at the wood trim, particularly the window sash. Window sills should be checked for rot given the poor gutter situation.

***303 LETCHER AVENUE (VMI PROTOCOL)***

The vernacular duplex dwelling at 303 Letcher Avenue is located on the south side of Letcher Avenue between the Bachelor Officers' Quarters and the Human Resources building. Constructed in 1900, the house was acquired by VMI at an unknown date. The building currently houses VMI Protocol offices on the lower level and apartments on the upper levels.

***Architectural Description***

The wood framed dwelling is supported on a local limestone foundation and clad in horizontal wood siding. The building is square in plan standing two-and-a-half stories on the north and three-and-a-half stories on the south. The hipped roof is covered in standing seam metal roofing. The roof drains to a perimeter gutter with downspouts at all four corners. Front-gabled dormers are located on the north and south. Internal brick chimneys rise through the east and west section of the roof. An exterior brick chimney stands at the east façade. The north main façade has a one-story, shed-roofed porch that extends across the face of the building. The porch is supported by Neoclassical styled round columns. Two main entrances are located at the center of the north façade. Each entrance has a three-panel wood door with three-light glazing. Windows are modern double-hung replacement sash fitted with exterior storm windows. Windows are set singly or in pairs. The rear south façade has three stories of wood porches and balconies.

The interior of 303 Letcher Avenue has been preserved while adapting the rooms for office space. Each duplex section has a side hall in the center and rooms leading off to the east and west. Character-defining features have been retained, including classically styled fireplace surrounds and wood trim at doors and windows with bull's eye molding. Some original doors remain, including pocket doors, with original door hardware.

***Significance***

The duplex dwelling at 303 Letcher Avenue is a contributing historic building to the South Institute Hill area of the Virginia Military Institute Historic District.

***Integrity***

The building at 303 Letcher Avenue has good integrity on both interior and exterior. The exterior has been modified with balcony and porch additions at the rear façade, but these do not negatively impact the overall form and mass. The fenestration pattern has been retained, although windows have been replaced with modern sash. The exterior storm windows alter the historical appearance of the multi-light windows. The interior has been renovated for office space but the original floor plan and character-defining finishes are largely in tact.

***Existing Conditions***

The major preservation concern at 303 Letcher Avenue is roof drainage. The downspouts direct water to a concrete gutter at grade, which leads water towards the south. However, this concrete gutter is cracked and discontinuous. Extenders have been installed to direct water away from this gutter. There is also evidence of water pooling against the foundation. Furthermore, some downspouts are disconnected and drain water directly against the building. Chronic water infiltration in a wood frame building often leads to termite damage, especially in warm climates such as Virginia. The building should be regularly monitored for termites in order to prevent more extensive damage. In addition, the standing seam metal roof is corroding and must be refinished. Paint is beginning to fail at the wood siding. This is particularly evident in areas where water flows against the walls, such as near exterior wood stairs.

***304 LETCHER AVENUE (BLAIR or NEIKIRK HOUSE)***


The building at 304 Letcher Avenue, known as the Blair or Neikirk House, is located on the north side of Letcher Avenue at the corner of Maiden Lane. The house was built in 1872 as a private residence for VMI faculty member Colonel William Blair. It was purchased by VMI in 1920. A large rear addition was recently constructed to the north, joined to the original residence with a connecting corridor. The expanded building currently houses the VMI central post office, cadet support activities, and meeting space.

***Architectural Description***

The residence at 304 Letcher Avenue is a brick structure with a local limestone foundation. The original 1872 three-and-a-half-story portion measures five-bays wide and three-bays deep. The standing seam metal roof is cross-gabled with prominent north and south dormers. The roof drains to a box gutter that leads to downspouts at each corner. There are two internal brick chimneys at both the east and west ends. Along the north (rear) façade, a large nine-bay wide and three-bay deep, two-and-a-half-story addition was recently completed. The addition is joined to the original residence with a two-story connecting corridor.

The main south façade has a three-story porch supported on brick piers. The porch has scrollwork brackets that do not match the other Gothic Revival details, such as the Tudor-arched main entrance. The central entrance has a four-panel wood door with side lights and transom. The original wood windows remain on the south façade, but have been replaced elsewhere. The historical windows are casement French doors with half-round transoms at the first floor. The replacement windows are four-over-four double-hung sash.

The interior of the 1872 portion of 304 Letcher Avenue has a center hall plan. The Gothic Revival detailing is carried through to the interior with Tudor arches in the entrance foyer and at the parlor fireplace surround. Other period finishes include window and door trim and four-and five-panel wood doors. Modern finishes, doors, and door hardware have been installed throughout.

***Significance***

The residence at 304 Letcher Avenue, known as the Blair or Neikirk House, is listed as a contributing historical building to the South Institute Hill area of the Virginia Military Institute Historic District.

***Integrity***

The building at 304 Letcher Avenue has good integrity on both the exterior and interior. The rear addition is distinct from the original 1872 residence and does not impact the main façade. The windows on three elevations have been replaced and the porch appears to have been altered. However, the overall form and fenestration patterns have been retained. On the interior, the floor plan and major character-defining features remain.

### *Existing Conditions*

Overall, 304 Letcher Avenue is in good condition on both the interior and exterior. The standing seam metal roof requires maintenance level painting. Portions of the roof have advanced areas of corrosion. Single downspouts at building corners drain multiple areas and may be overburdened. A water drainage capacity study is required to determine whether these downspouts are adequate.

### *304 MAIN STREET*

The vernacular frame residence at 304 Main Street, constructed c. 1872, is sited close to Main Street at the corner of Maiden Lane. Various architectural styles are represented; the entrance doors exhibit Greek Revival detailing, while the porch has Tudor styled basket-handle arched brackets. The property was purchased by VMI in 1920. Since 1920, 304 Main Street has been used for faculty apartments.

### *Architectural Description*

The residence at 304 Main Street is a wood frame structure with horizontal wood siding supported on a brick foundation. The house is set in a depression cut into the slope of the hill. The rectangular main block is three bays wide with a two-story hipped roof porch across the main, south facade. The hipped roof is covered with a standing seam metal roof. A rear, two-story, front-gabled addition projects from the northeast corner. A two-story, L-shaped porch is located at the northwest corner. Windows consist of both six-over-six, double-hung wood sash and one-over-one double hung, modern sash. The main entrance doors are located along the south façade. Twin entrances give access to the basement and first floor levels. Each entrance has a glazed, wood door with a five-light transom and flanking five-light sidelights. Secondary entrances are located on the north and east facades.

On the interior, the original floor plan of 304 Main Street has been compromised to create faculty apartments. Fireplace surrounds have been removed and electric heating units have been installed. Some original woodwork remains, including baseboards, door and window trim, four-paneled doors, and wood floors.

### *Significance*

The residence at 304 Main Street is a contributing structure to the South Institute Hill character area within the VMI Historic District. The building is a typical example of late-nineteenth century vernacular architecture in Lexington. The house represents the period of reconstruction following the Civil War. The house dates to a period of rebuilding for both Lexington and VMI. The house is also a part of the Lexington Historic District. Its interior historic fabric has been compromised.

### *Integrity*

The exterior of 304 Main Street has been minimally altered and has good integrity. However, the interior has been compromised by alterations for faculty apartments. New walls have been constructed, fireplace surrounds have been removed, and electric heating units installed. Some original finishes remain, including wood trim, four-paneled doors, and wood floors.

### *Existing Conditions*

The roof drainage system at 304 Main Street appears to be overburdened. The roof drains to downspouts located at each of the four corners. These main downspouts drain onto the roofs of the lower porch and addition. From here, water is directed to the north and east façades. Therefore, all runoff drains through only two downspouts. In addition, the gutters are often clogged by surrounding trees. Roof drainage should be redesigned to redirect water flow.

The interior of 304 Main Street is in moderately good condition. The finishes are worn from heavy use as faculty apartments.

***305 LETCHER AVENUE (LETCHER HOUSE. HUMAN RESOURCES)***

The building at 305 Letcher Avenue, known as the Letcher House, is located on the south side of Letcher Avenue. The Italianate brick residence was built in 1875 by Samuel Letcher, son of a former Virginia governor John Letcher. The residence was acquired by VMI at an unknown date. It is currently used as the Human Resources office.

***Architectural Description***

The brick structure is basically square in plan with a wood frame addition at the rear, south façade. Measuring two-bays wide and deep, the building is two-stories tall on the north and three-stories tall on the south. The low-pitched hipped roof is covered with standing seam metal roofing. The roof drains to hanging gutters with downspouts at building corners. An external brick chimney stands along the east façade.

The main north façade has a slightly projecting western bay. The roof cornice is decorated with a dentil course and paired modillions. An ornamental gable end panel has a scrollwork pattern at its center. A one-story, hipped-roof porch extends across the entire façade. The porch has a simplified bracketed cornice, square columns, and a diamond-patterned railing. The main entrance is at the easternmost bay. The nine-light glazed wood door has flanking, three-light sidelights and a large transom. Windows are both one-over-one and two-over-two double hung wood sash.

The interior of 305 Letcher Avenue has been rehabilitated into modern office space, though the building retains its original central hall plan. Fireplace surrounds have Victorian detailing, including large brackets that mimic the exterior roof cornice modillions. Original stairs, five-panel doors, and four-panel chamfered doors have also been retained. Floors are covered with wall-to-wall carpeting throughout the building.

***Significance***

The building at 305 Letcher Avenue is listed as a contributing historical resource to the Virginia Military Institute Historic District.

***Integrity***

Both the exterior and interior of 305 Letcher Avenue have good integrity. The overall mass, form, fenestration patterns, and floor plan have been retained. Major character-defining features, such as the windows, doors, fireplace surrounds, and wood trim, have been preserved within the modern office spaces.

### *Existing Conditions*

Drainage is the main preservation concern at 305 Letcher Avenue. On the west, the gutters appear to be overflowing. There is evidence of water splashing directly to the ground and spattering the foundation with dirt. Downspouts drain directly against the foundation with no provision for moving the water away from the foundation.

The interior of 305 Letcher Avenue is in good condition overall.

***306 LETCHER AVENUE (CABELL OR ARCHER HOUSE)***

The residence at 306 Letcher Avenue, also known as the Cabell or Archer House, is located on the north side of Letcher Avenue to the rear of Moody Hall. The Italianate home was constructed by the Archer family in 1867. VMI purchased the property in 1974. It currently serves as a one-family residence for VMI faculty.

***Architectural Description***

The brick structure is L-shaped in plan with a rear ell addition. The main two-and-a-half-story block is three-bays wide and one-bay deep. The hipped roof is covered with standing seam metal roofing. The roof drains to hanging half-round gutters with downspouts at each building corner. Two internal brick chimneys rise through the center of the roof. The front-gabled rear ell is two-stories tall.

The main south façade has a one-story, hipped-roof porch. Both the roof and porch cornices have simple bracket ornamentation. The central main entrance has a four-panel wood door with three-light sidelights and a three-light transom. First floor, six-over-six double-hung wood windows reach down to floor level. The remaining windows are six-over-six double hung wood sash with louvered shutters and limestone sills.

The interior of 306 Letcher Avenue has a center hall plan with a parlor and dining room to located to each side. Rooms are finished with wood floors, original wood trim and doors, and marble fireplace surrounds. The central stair hall retains the gracefully curving stair. The rear ell is finished with simpler woodwork and fireplace surround details.

***Significance***

The residence at 306 Letcher Avenue is listed as a contributing historical building to the South Institute Hill area of the Virginia Military Institute Historic District. It is also a contributing building within the Lexington Historic District.

***Integrity***

The integrity of 306 Letcher Avenue is excellent at both the exterior and interior. The overall form, plan, and fenestration patterns have been retained. Major character-defining finishes have been retained in both the elegant main house and the more utilitarian rear ell.

### *Existing Conditions*

Water drainage at the foundation of 306 Letcher Avenue has been an ongoing problem. The standing seam metal roof and hanging gutters appear to be new. However, masonry disruption, erosion, and rising damp are occurring where the downspouts drain to the ground. The brick masonry at the east foundation is disrupted by chronic water infiltration and mortar loss. At other locations, water is directed away from the foundation with splash blocks, but the ground has eroded and water now sits in swales close to the foundation. Biological growth at the foundation masonry indicates that it is chronically damp. Overall, water splashes from the gutters directly to the ground, washing dirt onto the foundation. These problems continue despite the new roof work.

On the interior, 306 Letcher Avenue is in excellent condition. Long term tenants have carefully preserved the interior finishes.

***306 MAIN STREET***

The vernacular frame house at 306 Main Street is located just east of 304 Main Street, near the corner of Main Street and Maiden Lane. The residence was built in 1880 by former Virginia governor John Letcher for his two spinster daughters. The property was acquired by VMI circa 1945. Since that time, it has been used for faculty apartments.

***Architectural Description***

The wood frame structure has horizontal wood siding and is supported on a local limestone foundation. The square, three-story building is three-bays wide and two-bays deep. The roof is pyramidal in shape and is covered with a standing seam metal roof. There are three brick chimneys; two located on the east and one on the west. The main façade faces south onto Main Street and has a three-story, one-bay wide, front-gabled porch. Decorative brackets at the porch suggest Tudor arches and Gothic Revival style lancet arches. The north façade has a two-story porch that is partially enclosed. Windows are typically six-over-six, double-hung wood sash with wood frame exterior screens. The main entrance is located at the first floor level in the center of the south façade. Accessed by the porch, the four-paneled wood door has a four-light transom and flanking five-light sidelights. Secondary entrances are located at the west and north facades.

On the interior, 306 Main Street has been divided to form modern faculty apartments. Modern finishes, such as linoleum floors and acoustical tile ceilings, are found throughout. Although there is minimal original trim, a few original doors with original door hardware remain.

***Significance***

The house at 306 Main Street is significant for its association with John Letcher (1813-1884) and the Letcher family. Letcher, a Lexington native, was the governor of Virginia during the Civil War. Following the war, Letcher returned to Lexington to practice law; he also served on the VMI Board of Visitors from 1866 to 1880. The house at 306 Main Street is an example of local late-nineteenth century vernacular architecture. Within the context of the South Institute Hill character area, 306 Main Street is a contributing structure to the VMI Historic District. It represents the growth and importance of residential development within the South Institute Hill character area during the last quarter of the nineteenth century.

### *Integrity*

The integrity of 306 Main Street remains good on the exterior. However, the interiors have been compromised by water damage, divisions for apartments, and modern finishes. The exterior retains original wood siding, windows, exterior doors, and porch details. On the interior, each floor has been divided into apartments with modern finishes, such as acoustical tile ceilings. Though there is minimal wood trim, a few original doors with original door hardware remain.

### *Existing Conditions*

The primary preservation concern at 306 Main Street is site drainage. The roof drains to downspouts on the east and west facades. The downspouts in turn drain water into depressed areas adjacent to the foundation that are cut out of the slope. The water must flow south out of these depressions. Without the aid of extenders or drains, the water collects in these areas contributing to water-related problems at the foundation. The basement apartment shows clear evidence of ongoing water problems at the foundation; lower portions of plaster walls exhibit blistering and the bases of door jambs have rotted. The exterior wood siding and trim suffers from deteriorating paint.

### *307 LETCHER AVENUE (CONSTRUCTION OFFICE)*

The building at 307 Letcher Avenue is located on the south side of Letcher Avenue between the Pendleton-Coles House and Letcher House. Constructed in 1900, the residence was acquired by VMI at an unknown date. Currently, the house serves as offices for the VMI Director of Construction.

#### *Architectural Description*

The wood frame house is on a local limestone foundation and is clad with horizontal wood siding. The duplex dwelling is styled in the Free Classic variant of the Queen Anne style, utilizing classical columns as porch supports. The building is square in plan with a projecting two-story bay window at the main north façade. Measuring three-bays wide and deep, the house stands two-and-a-half stories tall on the north and three-stories on the south. The cross-gabled roof is covered with standing seam metal roofing. The roof drains to a perimeter box gutter with downspouts at the building corners. Internal brick chimneys rise on the east and west sides of the roof. A three-story porch addition was added to the rear façade.

The main north façade has a prominent center gable, a two-story bay window on the east, and a one-story hipped-roof porch extending across the entire façade. The roof cornice has ornamental brackets. The main entrances are located in the center of the façade and have modern glazed doors and screen doors. Windows are typically two-over-two double-hung wood sash fitted with exterior screens.

On the interior, each side of the duplex dwelling has a side hall plan with two rooms to the east and west. Modern finishes have been installed as part of the renovation for office space. However, some historical features have been retained including fireplace surrounds, original four-panel doors, and window and door trim with bull's eye moldings. All floors are covered with wall-to-wall carpeting.

#### *Significance*

The building at 307 Letcher Avenue is listed as a contributing historical building to the South Institute Hill area of the Virginia Military Institute Historic District.

#### *Integrity*

Despite the modern upgrades, 307 Letcher Avenue has good integrity on both interior and exterior. The overall form, mass, and plan have been retained. Historical features, such as interior woodwork, fireplace surrounds, and windows, have been preserved.

### *Existing Conditions*

The building at 307 Letcher Avenue is in good condition overall. The only identifiable problems include the metal roofing which is beginning to corrode and minor drainage issues where downspouts direct water against the foundation.

The interior of 307 Letcher Avenue is in good condition. The modern and historic finishes are well-maintained and show general wear from office use.

### *309 LETCHER AVENUE (PENDLETON-COLES HOUSE)*

The building at 309 Letcher Avenue, known as the Pendleton-Coles House, is located on the south side of Letcher Avenue. It is the easternmost building in the row of residences in the South Institute Hill area. The Gothic Revival cottage was built by the VMI Post Surgeon in 1867 as a private residence. The property was acquired by VMI at an unknown date. In 1988, the house was moved from its historic site to make room for the new Science Building. The house currently serves as the Admissions office.

#### *Architectural Description*

The wood frame house is clad in vertical board and batten wood siding; its concrete foundation dates to the 1988 relocation. The building is square in plan and stands two-and-a-half stories on the north and three-and-a-half stories on the south. The steeply-pitched, cross-gabled roof is covered with patterned slate shingles. The roof drains to hanging gutters with downspouts on the east, west, and south. A single chimney rises at the center of the roof. A two-story enclosed porch addition, supported on brick piers, was constructed at the south façade.

The main north façade has a prominent center gable end embellished with decorative verge boards and a spire-like finial. The center gable is further emphasized by an ocular window at the gable end and a bay window at the second floor. A one-story, hipped-roof porch extends across the entire façade. Covered in standing seam metal roofing, the porch has Gothic Revival bracket detailing. The main entrance has a four-panel wood door with diamond-paned sidelights and transom. The double-hung wood windows have diamond-paned sash and are fitted with modern exterior storm windows. At other facades, the window type varies with irregularly placed bay, ocular, and round-arched windows. These are double-hung sash with diamond panes, six-over-six, or four-over-four glazing.

On the interior, 309 Letcher Avenue has a front stair hall with one room to the east and one to the west. A winding stair stands just inside the main entrance. Rooms typically have rounded, rather than square corners. They are finished with wood floors, baseboards, built-in cupboards, and four-panel doors. The Gothic Revival detailing is revealed in interior woodwork with lancet arches and heavy moldings. The Gothic Revival fireplace surrounds are decorated with tiles and have original stove inserts.

#### *Significance*

The house at 309 Letcher Avenue is significant as an early example of a Gothic Revival cottage. The house is also significant for its association with VMI alumnus General George Marshall (1880-1959), who married resident

Elizabeth (Lilly) Coles in this house in 1902. Marshall graduated from VMI in 1901 and distinguished himself as an army officer in World War I. During World War II, he served as army chief of staff. He ended his distinguished career in diplomatic efforts, serving as Secretary of State and then Secretary of Defense. He was responsible for the development of the economic aid plan for the recovery of war-torn Europe, known as the Marshall Plan.

The Pendleton-Coles House at 309 Letcher Avenue is listed as a contributing historical building to the Virginia Military Institute Historic District.

***Integrity***

The integrity of the Pendleton-Coles House is good. The house has been moved from its original location on Letcher Avenue and is set on a modern foundation. However, the exterior and interior have been carefully preserved.

***Existing Conditions***

The main preservation concern at 309 Letcher Avenue is the condition of the slate roof. The patterned slate roof is beginning to show signs of failure and may need to be replaced in the near future. The house does not appear to be painted in original period colors. A paint analysis could uncover the original colors used on the exterior siding and wood trim.

***315, 317, 319, 321 INSTITUTE HILL***

The group of four cottages at 315, 317, 319, and 321 Institute Hill are located along South Institute Hill Road, south of 320 Institute Hill. The bungalows were completed in 1953 and remain in their original use as faculty housing. This group of bungalows is slated for demolition in 2006.

***Architectural Description***

The bungalows are grouped back-to-back in pairs, with shared front and rear yards. Each bungalow is a one-and-a-half-story, three-bay wide, rectangular brick building. The side gabled roofs are covered in asphalt shingles. Two dormers are located at the main façade; a three-bay wide dormer rises from the rear roofs. An external brick chimney is located on the north facades. Windows consist of both six-over-six and eight-over-eight, double-hung wood windows. First floor windows at the main façade have fixed decorative shutters. The main entrances are located in the center of the main façade. The entrances are protected with a one-story, shed-roofed porch supported on clustered wood columns. A secondary entrance is located on the rear façade. Garage door entrances are located on the south façades.

***Significance***

The bungalows at 315, 317, 319, and 321 Institute Hill contribute to the significance of the South Institute Hill character area or the VMI Historic District. The suburban style development grew out of an immediate need for faculty housing during the rapid expansion of the VMI Post in the 1950s.

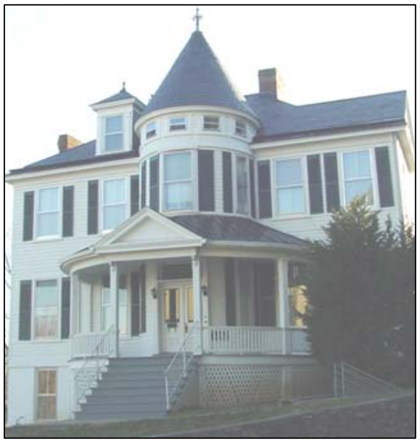
***Integrity***

The integrity of the bungalows is excellent. The bungalows have not been materially changed since their construction in 1953. In some cases, wood siding has been replaced with vinyl siding at dormers and porches.

***Existing Conditions***

The bungalows at 315, 317, 319, and 321 Institute Hill are in good condition.

### *320 INSTITUTE HILL (FREELAND HOUSE)*



The house at 320 Institute Hill, known as the Freeland House, is located on South Institute Hill, south of Mallory Hall and the Science Building. Constructed in 1899, the house was designed by VMI engineering professor R.A. Marr. The private residence was home to Mrs. Freeland, who became a mother figure to the VMI cadets. The house was acquired by VMI at an unknown date. Currently, the building is undergoing renovations to upgrade the facility for math department offices.

#### *Architectural Description*

The house at 320 Institute Hill is a Queen Anne style wood frame house on a masonry foundation of local limestone and brick. It is clad in horizontal wood siding. The building is roughly square in plan with a circular tower at the center of the east façade. Measuring five-bays wide and three-bays deep, the house stands three-and-a-half stories tall. The slate roof has a hipped-roof over the main block and gable-end roofs at projections to the north and west. Gable ends have ornamental wood shingle and cross-bracing. An iron finial decorates the cone shaped roof over the eastern tower. An off-center hipped-roof dormer looks out on the east. Internal brick chimneys are located in the center and south ends of the roof.

The main east façade has a semi-circular entrance porch at the base of the central tower. Windows are two-over-two double hung sash with modern exterior storm windows. Louvered shutters have been fixed to the exterior walls. The double doors at the central main entrance have large plate glass glazing. The main entrance is accessed by concrete steps with modern handrails.

On the interior, 320 Institute Hill has a large central stair hall with rooms to the north and south. Elaborate newel posts and arched partitions are typical in the three-story main stairwell. Rooms are finished with wood floors and heavy Victorian era wood trim. Original four-panel doors, pocket doors, and ornate door hardware remain. Fireplaces are set in corners with beveled mantelpiece mirrors, tiled insets, and decorative columns.

#### *Significance*

The house at 320 Institute Hill is significant as an example of the Queen Anne style, which was unique within the VMI Post. The building is a contributing resource for its association with the development of the South Institute Hill area of the Virginia Military Institute Historic District. It was also the residence of Mrs. Freeland whose untiring attention to the cadet corps earned her the role of the matron of VMI. The integrity of its original setting has been damaged by the construction of the Science Building. Originally, the house had unrestricted site lines across the Parade Ground to the Barracks.

***Integrity***

The integrity of the immediate setting of 320 Institute Hill has been impaired by the construction of the new Science Building. The building was once connected to the row of residences located along Letcher Avenue within the South Institute Hill area. During the construction of the Science Building in 1988, one residence was demolished and 309 Letcher Avenue (Pendleton-Coles House) was relocated. The Science Building both physically and visually separated 320 Institute Hill from Letcher Avenue and the Parade Ground.

However, both the exterior and interior of 320 Institute Hill have good integrity. The exterior wood cladding, doors, windows, slate roofing, and decorative roof finials have been retained. The overall floor plan and historical finishes have also been retained.

***Existing Conditions***

The main preservation concern at 320 Institute Hill is the condition of the slate roof. The roof is beginning to fail and there is evidence of chronic water damage in attic areas.

Current renovation work is being undertaken with the goal of preserving as much of the interior finishes as possible. Work was ongoing at the time of survey.

## SOUTH POST

The South Post character area encompasses the land area on the south side of Main Street (U.S. Route 11). It is dominated by athletic and maintenance facilities. Of the eight buildings included in this character area, five are considered to be contributing resources.

Two twin Gothic Revival cottage residences were constructed in 1875 and 1885. The remaining three contributing historical buildings date from 1919 to 1943 and were originally associated with cavalry training at VMI, although they are now used for maintenance and athletic activities. These are the Department of Buildings and Grounds, ROTC Motor Shop, and Cormack Field House. The three non-contributing buildings include Alumni Memorial Field (1962), Kilbourne Hall (1969), and Cameron Hall (1980).

The overall character of the area is a utilitarian assemblage of large-scale, low-lying, buff-colored masonry buildings set within a predominantly paved area. The two Gothic Revival cottages are the only residential scale buildings in this area.

***501 BROOKE LANE (BROOKE HOUSE)***

The residence at 501 Brooke Lane is located on a small lane that runs south from North Main Street, past Kilbourne Hall, and then climbs up the slope of Diamond Hill. The house currently overlooks the athletic and maintenance areas of the South Post. Completed in 1875, the residence is a Gothic Revival cottage designed and built by VMI professor Col. John M. Brooke. Brooke resided in this house until his death in 1906. The property was acquired by VMI at an unknown date and remains in use as faculty housing.

***Architectural Description***

The Gothic Revival cottage is a wood framed structure clad in vertical wood siding, with a local limestone foundation. The cottage is composed of a rectangular main block which is two stories tall, three-bays wide, and two-bays deep. The standing seam roof of the main block is side-gabled with a prominent center gable. Internal chimneys are located at both east and west ends of the main block. A one-story, shed-roofed porch extends across the entire north façade. At the southwest corner is a two-story, one-bay deep projection. To the south of this projection is a two-story, two-bay deep, shed roofed addition; this later addition is constructed of concrete masonry units at the first story and wood frame at the second. The building is currently painted white with dark green trim and a metal roof. Windows consist of both six-over-six and four-over-four double-hung wood sash. A prominent triple window is located under the center gable on the north façade. The historical main entrance was through double, glazed wood doors at the center of the north façade. Currently, the main entrance is through a side door on the west façade of the rear addition.

The interior of 501 Brooke Lane has a center hall plan with two rooms on both the east and west sides. Significant original features remain including fireplace surrounds, wood floors, staircases, wood trim, and doors. The original fireplace surrounds have been stripped to bare wood and finished with a transparent varnish; while this is not an historic treatment, the fireplace surrounds are in excellent condition. Doors date to various periods of construction and appear to be original. The kitchen and bathrooms have been updated with new systems and finishes.

***Significance***

The house at 501 Brooke Lane is considered an eligible historic building within the VMI Historic District. The house is significant for its strong association with important national figures and architectural trends. Constructed in 1875, 501 Brooke Lane was the home of Col. John M. Brooke (1826-1906), who designed and built the Gothic Revival cottage and resided in it for over thirty years. Brooke is nationally recognized for his contributions to sea floor mapping and for his role in the design of the ironclad CSS Virginia during the Civil War.

The house is also significant as an example of an A.J. Downing pattern book-inspired, Gothic Revival cottage.

### *Integrity*

The integrity of 501 Brooke Lane is good. The main alteration to the house has been the shed-roofed addition at the southwest corner. This addition is appropriately sized and has been sited to the rear of the house; it does not alter the overall massing of the building from the main north façade. The interior retains the original floor plan, as well as significant character-defining features, such as fireplace surrounds, wood trim, wood floors, stairs, windows, and doors. Some interior woodwork has been stripped, removing the history of paint finishes.

### *Existing Conditions*

The major preservation concern at 501 Brooke Lane is termite damage. The rear of the house sits close to the base of a hill. Roof drainage from the shed-roofed addition directs water towards the rear, where water is trapped against the base of the hill. The wood siding and wood floor framing are close to chronically wet at ground level, creating optimal conditions for termite infestation. It is important that regular termite inspections be carried out to control these infestations. Roof drainage should be directed away from the foundation with extenders or other drainage improvements. The residence is otherwise in good condition.

***503 BROOKE LANE (SMITH HOUSE)***

The Gothic Revival residence at 503 Brooke Lane is the twin of 501 Brooke Lane. Completed ten years later in 1885, 503 Brooke Lane was constructed as the retirement residence for Gen. Francis Henney Smith, Superintendent at VMI from 1839-1889. The house was deeded to VMI in 1902, twelve years after Smith's death, and has served as faculty housing since that time.

***Architectural Description***

The Gothic Revival cottage is a wood framed structure clad in vertical wood siding, with a local limestone rubble foundation. The cottage is composed of a rectangular main block, which is two-and-a-half stories tall, three-bays wide, and two-bays deep. The standing seam roof of the main block is side-gabled with a prominent center gable flanked by twin dormers. A portion of the rear roof was raised over the southeast ell. An internal chimney is located at the east end; an exterior chimney stands at the west façade. A one-story, shed-roofed porch extends across the entire north façade. At the southeast corner is a two-story, one-bay deep projection. A one-story addition is located at the southwest corner. The building is currently painted white with dark green trim and a metal roof. Windows consist of both six-over-six and four-over-four double-hung wood sash. A prominent triple window is located under the center gable on the north façade. The main entrance is through the double, glazed wood doors at the center of the north façade.

The interior of 503 Brooke Lane has a center hall plan with two rooms on both the east and west sides. Significant original features remain including fireplace surrounds, wood floors, staircases, wood trim, and doors. The doors date to various periods of construction and appear to be original. Two-paneled wood doors are typical of the original construction while five-panel doors are typical of later additions. The kitchen and bathrooms have been updated with new systems and finishes.

***Significance***

Constructed in 1885, 503 Brooke Lane is significant for its association with prominent figures in VMI history and for its architectural design. The cottage at 503 Brooke Lane was constructed by Gen. F.H. Smith (1812-1890) as a retirement residence. Smith was the first Superintendent at VMI, seeing the early Institute through some of its most turbulent years from 1839 to 1889.

The residence is also significant as a Gothic Revival cottage styled after A.J. Downing's pattern book houses. It was clearly influenced by the earlier cottage at 501 Brooke Lane constructed in 1875.

### *Integrity*

The residence at 503 Brooke Lane has good integrity. The exterior has been minimally altered by later additions. The overall massing has not been impacted. The interior floor plan has been retained. Historical character-defining features, such as original trim, fireplaces, stairs, doors, and windows, have been retained. The first floor framing and flooring has been replaced because of termite damage.

### *Existing Conditions*

As noted at 501 Brooke Lane, the wood framed structure at 503 Brooke Lane is vulnerable to termite infestation. Termites have already compromised the floor structure at the first floor. The topography at the rear of the house demands careful site drainage design, as water must be directed away from the foundations. In addition, regular termite inspections should be undertaken.

## *CORMACK FIELD HOUSE*

The Cormack Field House is located on the south side of Main Street, directly to the east of the Department of Buildings and Grounds and ROTC buildings. Constructed in 1943, the Field House was originally an indoor riding hall; it was one of three buildings supporting the cavalry training program at VMI. In 1950, the riding hall was renovated into a Field House for indoor athletics and ceremonial activities. The exterior remained relatively unchanged.

### *Architectural Description*

The Cormack Field House is a long, one-and-a half story building, measuring approximately fifteen-bays long and five-bays wide. The concrete block structure is covered in painted stucco and has cast stone trim. The roof is a half-barrel shape, covered in built-up roofing, and supported on an exposed metal truss system. A roof monitor runs almost the entire length of the building. Windows are fixed steel frames with inset, four-light pivot-hinged sash. The main entrance is at the east façade. Rear entrances are located at the west façade. The interior is dominated by a large athletic court with flanking bleachers under a ceiling of exposed trusses. The interior is lit by the clerestory windows in the roof monitor.

### *Significance*

The Cormack Field House is a contributing historic resource within the South Post character area. It contributes to the context of South Post development in the post-World War II years. It is also a contributing structure to the development of cavalry training at VMI during the same period. Completed in 1943, the Cormack Field House was built specifically as an indoor riding hall for cavalry training at VMI. However, cavalry training was phased out at VMI soon after its completion. Although cavalry training had become largely ceremonial following World War I, VMI continued this training until the end of World War II. The structure was adapted to the function of indoor track and basketball facility in the 1950's. Known as "The Pit", all conference basketball was played here until the construction of Cameron Hall in 1981.

### *Integrity*

The exterior of the Cormack Field House has remained relatively unaltered, though fenestration patterns and entryways may have changed. The interior was altered in 1950 to create indoor athletic facilities and does not reflect the original use as an indoor riding hall.

### *Existing Conditions*

The Cormack Field House is surrounded by asphalt paving on a relatively flat site. There is little provision for directing water drainage away from the building. The large roof surface to be drained requires planning to direct the water away from the Field House and other nearby buildings.

## *DEPARTMENT OF BUILDING AND GROUNDS*

The Department of Building and Grounds is located at the site of the original South Post stables, constructed in 1919. The stable building was the first structure to be built on the South Post site. The building was expanded and renovated circa 1940 to convert the stables to ROTC offices and classrooms. This renovation work included expanding the structure and adding a two-story addition at the west end. It is unclear how much of the original stables structure remained after this renovation. The current Department of Building and Grounds building reflects the circa 1940 renovation work. In 1969, the building was renovated to accommodate the Buildings and Grounds offices and shops.

### *Architectural Description*

The Department of Buildings and Grounds is a long, brick structure covered with painted stucco and detailed with cast stone trim. The building is 40-bays long and six-bays wide. It is primarily one-story tall with a nine-bay long, two-story section at the west end. The flat roof slopes slightly to the south. The two-story west end and the east end wall have crenellated parapet walls. Windows are typically fixed steel frame with a lower pivot-hinged sash. Multiple entryways give access to the interior; two sets of garage doors open at the east and west ends. Additional doorways are located at the east, west, and north facades. The interior of the building contains storage and shop facilities, as well as modern office spaces.

### *Significance*

The Department of Buildings and Grounds building is a considered an historic building. It is significant for its association with the expansion of VMI on the South Post and the tradition of cavalry training at VMI. The site of the Department of Buildings and Grounds building is the location of the first building constructed on the South Post. However, the current structure dates to a major circa 1940 renovation.

The building contributes to the context of post-World War II expansion at VMI as it relates to the South Post. The South Post became a focus of intensive development in the years following World War II; this has continued through to the present.

It is also significant in the history of cavalry training at VMI. The Department of Buildings and Grounds building originally served as stables for horses from 1919 to circa 1945.

### *Integrity*

The exterior of the Department of Buildings and Grounds building reflects the major renovation of the original stables building dating to circa 1940. There is no evidence of the original 1919 stables structure. The exterior of the building has changed little from circa 1940 to the present. The interior of the building has been extensively renovated for facilities and offices.

### *Existing Conditions*

The Department of Building and Grounds building is surrounded by asphalt and concrete paving. The large roof surface is drained to a concrete-formed swale at the south foundation. The concrete swale was designed to collect water runoff and direct it towards the east, where water was drained to the asphalt paving. Currently, the concrete swale is cracked and full of vegetation and dirt. In addition, the swale was blocked with equipment at the east outlet during the time of the site survey. A new water drainage system must be designed to properly remove runoff from the south façade.

***ROTC MOTOR SHOP***

The ROTC Motor Shop is located immediately to the south of the Department of Buildings and Grounds. It was completed in 1935 to serve as cavalry equipment storage. This use was no longer needed after cavalry training at VMI ended in the 1950s. The building now serves as military vehicle storage.

***Architectural Description***

The one-and-a-half story rectangular building is eight-bays long and four-bays wide. The brick structure is coated with painted stucco on the north, east, and west facades. Parapet caps, cornices, and buttress caps are cast stone units. The flat roof slopes to the south and drains directly to the ground. Parapet walls on the north, east, and west are crenellated. Windows are fixed steel sash with inset, eight-light pivot-hinged sash. Entryways on the north, east, and west are garage doors. The south façade is a blank brick wall adjacent to the hillside.

***Significance***

The ROTC Motor Shop is a contributing building within the South Post character area. It contributes to the contexts of historical development of the South Post and cavalry training at VMI. It is related to the Department of Buildings and Grounds and the Cormack Field House; all three buildings originally supported the cavalry training work at VMI. Unlike other historic South Post buildings, the ROTC Motor Shop has undergone few changes.

***Integrity***

The exterior of the ROTC Motor Shop remains relatively unchanged from its 1935 appearance. However, the interior has been altered for its new use as vehicular storage.

***Existing Conditions***

As with other South Post buildings, the ROTC Motor Shop has poor site drainage. The roof drains to the south, where a small ridge slopes towards the foundation. Water is trapped against the south façade. In addition, the steel windows are generally corroding overall and require maintenance level painting.

## NORTH POST

The North Post is located to the north of the Central Post. The land lies well below the main ridgetop and runs along the ravine adjacent to Woods Creek. The area contains athletic fields and facilities, a welding shop, four residential buildings, and a target range. No historic buildings are located in the North Post character area.

# CHAPTER 7
# LANDSCAPE TREATMENT GUIDELINES

## Introduction

This chapter provides treatment guidelines and recommendations which specifically address the historic landscape resources and spaces found on the Virginia Military Institute Post. The guidelines and recommendations are based on the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and *Guidelines for the Treatment of Cultural Landscapes*, as well as the existing conditions assessment of landscape resources summarized in Chapter 5 of this report. Implemented in conjunction with the treatment guidelines and recommendations for buildings on the Post, this guidance will allow VMI to effectively and comprehensively preserve and protect their cultural and historic resources.

## Overview of Landscape Resources

Critical to the concept of preservation at VMI is the understanding that while VMI has a unique historic character that is defined by its landscape resources, it is also a modern institution that needs to be able to continue to evolve and change to meet the needs of its cadets, faculty, staff, and visitors. Historically significant landscape features should be retained to the greatest extent possible, while less significant features can be adapted to meet the changing needs of the Institute. Balancing the need for change with an understanding of the Post's preservation goals and stewardship responsibilities has been, and will continue to be, a challenge.

One of the overarching goals for landscape preservation at VMI is to preserve and retain characteristics from A. J. Davis' and Bertram Goodhue's plans and visions for the Post, which focused on creating a strong relationship between the Barracks and Main Street; maintaining the Parade Ground as a central, unifying feature; creating inviting open spaces; natural landscaping combined with formal gardens; promoting important views and vistas; strong axial relationships; and the incorporation of Gothic Revival design principles established by the Post's architectural vocabulary.

Maintaining the distinctive and desirable attributes of Academic Row, the Parade Ground, Faculty Row, the residential quarters, North Post, South Post, and Jordan's Point are critical to the long-term success of preservation at VMI. All of these areas have a distinct historic character that is significant to the Post as a whole. It is critical that changes to the modern campus are considerate of these distinguishing attributes and that proposed features, as well as alterations to existing features, are evaluated for their potential impacts.

# Chapter Overview

This chapter is divided into two primary sections: Management Guidelines and Landscape Treatment Recommendations. The Management Guidelines focus on general landscape recommendations that apply to all of the VMI Post; they should be reviewed prior to undertaking any landscape-related project on the Post. The Landscape Treatment Recommendations provide specific guidance for individual features and for the Post's unique character areas. These recommendations address physical condition issues, maintenance solutions, and alterations to historic landscape resources. Methods for incorporating new construction and new landscape amenities are addressed in both sections.

Prior to developing the Management Guidelines and Landscape Treatment Recommendations, the project team thoroughly and carefully reviewed pertinent background information and conducted field surveys to assess existing landscape conditions and identify those issues, both campus-wide and resource-specific, that have the potential to impact landscape resources. The existing conditions assessment for VMI landscape resources is included in Chapter 5 of this document.

# Preservation Issues and Goals

Identifying primary issues and defining the landscape related goals for VMI are, together, the driving force behind many of the guidelines and recommendations included within this Chapter. The issues and goals are summarized below:

## LANDSCAPE RESOURCE ISSUES

The landscape resource issues cover topics that should be considered by VMI when any changes or modifications to the existing Post landscape are proposed.

***New Development: Vision 2039 and Post Facilities Master Plan Update***

As VMI embarks on an ambitious development campaign, as outlined in *Vision 2039* and the *Post Facilities Master Plan Update*, it is faced with the challenge of balancing growth and the need for additional amenities with the desire to preserve the historic character and integrity of the Post. Proposed expansion projects are not limited to the Central Post; proposed projects have been identified within all of the VMI character areas.

Proposed new development includes the addition of surface parking lots, a parking garage, new residential and academic buildings, and expanded athletic facilities. The challenge for VMI is to incorporate these additions in a manner that; does not degrade the integrity of the Post; is site-appropriate; is compatible with the established architectural vocabulary of VMI; and is harmonious with the overall historic character of the Post.

Impacts to the existing Post should be minimized and opportunities to re-establish the goals and objectives from previous site plan concepts, including

Bertram Goodhue's plans from the early-twentieth century, should be explored and considered. Specific plan elements, such as creating a strong relationship between Main Street and Central Post and establishing a defined entry sequence onto the Post are features that would serve the institute well today. Opportunities to reverse past planning oversights, such as the removal of the terraced gardens at the rear of Jackson Memorial Hall, should be considered as new projects move forward. Recommendations concerning these particular issues are discussed in more detail within their respective character areas at the end of this chapter.

### *Preserving Historic Character*

The historic buildings and landscape resources existing on the Post today should be maintained and preserved. However, it is generally acceptable to replace non-historic buildings and features, particularly in the event their proposed replacements are compatible within the historic context and they do not result in a loss of historic integrity.

The replacement of a non-historic building with a more appropriate modern building is currently being implemented on the VMI Post with the demolition of LeJeune Hall for the expansion of the Barracks. LeJeune Hall has little architectural integrity or relationship to the established architectural vocabulary of the Post. On the contrary, the proposed Third Barracks addition incorporates the Gothic Revival architectural style established throughout the Post.

Significant landscapes, such as the Parade Ground, should not be altered or modified to accommodate new buildings, landscape features, roads, or other modern amenities that would detract from its historical value. Identifying and preserving the elements of the landscape which contributes to the Post's character is an essential part of the preservation planning process.

### *Traffic and Circulation*

The VMI Post is plagued with the same problem facing colleges and universities throughout the nation – the increasing role and dominance of the automobile. As an automobile-reliant culture, the number of roadways and parking lots to accommodate an increased number of cars has grown significantly in recent decades. Often this has a negative impact on the character of a place as vegetation, open spaces, and gathering areas are adversely impacted by the visual effects created by a sea of asphalt. The presence of vehicles, especially around heavily traveled pedestrian routes, detracts from the real and perceived safety of pedestrians. This is particularly true along the circulation routes that surround the Parade Ground, as these routes are heavily utilized by both vehicles and cadets.

Letcher Avenue contributes to the Posts choppy and fragmented circulation problems, as does Main Street. The approach to VMI along Main Street is unwelcoming and unclear for visitors entering the Post for the first time. This is particularly true as one turns onto Letcher Avenue from Main Street and finds themselves at Washington and Lee University, as opposed to VMI. There is truly no direct way to get to the Post – the lack of a primary gateway and entry sequence does not support the historic image of VMI. The lack of clear directional signage creates further confusion.

Carefully studying the circulation patterns of the Post is an immediate necessity and VMI should obtain the services of a land and transportation planning firm to assist them in identifying the best way to accommodate traffic on Post, while considering the current needs and historic integrity and design considerations. The traffic study should holistically analyze general Post-circulation, entry sequences, and parking demand and need. Moving parking to peripheral areas and creating pedestrian malls at strategic locations should be topics that are discussed in a Post-wide traffic, circulation, and parking study.

***Review Process and Internal Procedures***

One of the overarching issues at VMI with regards to decision-making and implementation is the lack of a consistent, identifiable review process. This is true for not only maintenance and minor projects for existing buildings, sites, and structures, but for new construction projects as well. The existing process does not consider historic preservation principles; this is particularly important in the feasibility stage of the project, before budgets and teams are identified and determined. The lack of consideration at the project onset results in budgets and timeframes that do not allow for the remediation of project impacts to the historic landscape context and surrounding resources as a project moves forward.

Defining standardized review procedures that are utilized and implemented for all future decision-making regarding changes to VMI's landscape would ensure that historic resources are considered in the design and development process. Specific recommendations regarding administrative procedures are included in Chapter 10, Administrative Recommendations, of the *Preservation Master Plan*.

***Loss of Historic Features***

The loss of significant landscape features has occurred incrementally on the Post over the last few decades. While each decision that results in the loss of a landscape features may seem minor or insignificant, the incremental impacts over the long-term are much more noticeable and, when taken as a whole, have a widespread impact on the Post landscape. Changes to views and axis, the removal of formally planned gardens, and changes to the plantings and vegetation inconsistent with historic patterns are just a small number of the landscape characteristics that have been lost or adversely impacted in recent years.

The loss of important visual relationships is the most identifiable change to the landscape character of the Post. The strong relationship between Main Street and the Post has been eliminated; the relationship between Stono and Jordan's Point has been weakened; the terraced garden and axial approach to Jackson Memorial Hall was replaced with the Cocke Hall Pool Annex; the planted median along VMI Parade changed the view of the Faculty residences from the Parade Ground; and the development of North Post has intruded upon the picturesque views of the Woods Creek ravine to the north.

Making efforts to reverse some of these changes, and ensuring that no modifications are allowed in the future that would exacerbate the changes that have already been made, is critical to VMI's preservation of its historical integrity.

## GOALS FOR LANDSCAPE RESOURCES

General goals for historic landscape resources on the Post are highlighted below and provide a framework for the detailed guidelines and recommendations within this Chapter.

- Maintain the historic landscapes and associated resources which define the character of the VMI Post.
- Ensure strategies are developed which allow the historic landscapes to be maintained while simultaneously allowing VMI to address its changing needs.
- Promote the value of historic landscape resources as equal to the value of the more identifiable and visible historic architecture of the Post.
- Evaluate impacts to the landscape of the Post when considering the development and siting of new buildings, parking facilities, and other structures.
- Implement a design review process that considers the impacts of new development projects on existing historic landscape resources before final decisions are made.

# Management Guidelines

The Management Guidelines outline broad preservation guidance to direct effective stewardship of VMI's historic landscape resources. The guidelines address those issues that are common throughout the Post, regardless of character area. The guidelines defined below should be considered during the planning and design review process for any alterations or new projects that are proposed on the Post grounds.

***General***

- Any alterations or work proposed on historically significant features should be based on historical and physical documentation.
- All alterations to historically significant landscape features should be documented through photography and/or drawings.
- Coordinate preservation and new development efforts with the City of Lexington. As areas of the Post fall within the City's historic district, there should be on-going coordination between the two entities to ensure that development and construction activities do not negatively impact City or institution resources.

***Buildings***

- Avoid demolishing or relocating any historic buildings or structures, including gates, bridges, and walls.
- In the event changes are made to a historic building or structure, document changes through drawings and photography.
- Coordinate with the City of Lexington to ensure that any City-owned or regulated structures are preserved and maintained in-situ.

***Topography***

- Maintain the diverse topography of the Post, including the Woods Creek ravine, North Post, and the south side of Letcher Avenue.

***Spatial Organization***

- Maintain significant historic spaces on Post such as the Parade Ground, the Memorial Garden, and smaller plazas that create nodes for seating and memorials.
- Maintain spatial relationships between historic buildings and landscapes and between historic landscape features. Avoid removing landscape resources and use compatible features and materials to maintain the spatial patterns.

***Land Use***

- Maintain the historic land uses that currently exist within each character area.
- When considering new development projects, consider how its land use will impact the surrounding landscape.

***Circulation***

- Paving materials should be selected based on historic research, compatibility, and maintenance considerations.
- Historic patterned brick should be replaced in-kind.
- New circulation routes should be compatible with historic patterns and should not adversely impact existing historic features.

***Vegetation***

- Use plant materials that are native to Virginia for non-specialized and non-thematic plantings because they require less water and maintenance, survive longer, and rarely become invasive.
- Avoid using invasive plant materials that grow quickly and aggressively and compete with native plants for nutrients. Remove and/or control any invasive species which have already been planted on Post.
- Evaluate and remove any hazard trees that may drop limbs, fall, or transfer disease to other plants.
- Prune shrubs and trees away from building walls and rooftops.
- Avoid planting vines directly on buildings and structures. Gently remove any existing vines from building surfaces.
- Should a tree be identified for removal, cut trunk flush with the ground and grind to remove (unless the tree lies within an area of high archeological potential). Tree remnants can become a safety and trip hazard.

***Views***

- Maintain views and vistas to the mountains, Woods Creek, and the City of Lexington.
- Re-create intended views between the Post and Main Street.
- Avoid any development that would obstruct significant views.
- Use vegetation to screen undesirable views in lieu of modern fences and walls that are not a part of the historic landscape.

***Landscape Structures***

- Retaining walls should be repaired with like materials. Should replacement be required, new walls should be constructed using identical, or compatible, construction techniques and materials which complement the historic retaining wall. Rough, uncut limestone stacked horizontally with exposed unraked mortar complements the historic character of the Post and appears natural.
- Landscape structures should be constructed of natural materials, such as brick, slate, and stone, to the greatest extent possible. Concrete block and asphalt should be used sparingly.

***Site Furnishings and Objects***

- Ensure that site furnishings and objects, such as benches, bollards, lighting, and railings are compatible within their historic context.
- New site furnishings and objects need not be historic but should contribute to the overall historic character of the Post, as opposed to detract from it.
- Develop a long-term plan that identifies a strategy for the future design and location of memorials and monuments.

- Consider new memorials, walks, gardens in association with new developments.

***Ground Disturbing Activity / Archeology***

- Any new construction, demolition, or maintenance activity that involves ground-disturbance near known or potential archeological cultural resources should be monitored by a qualified archeologist.
- Limit the use of destructive investigative techniques such as extensive excavation or demolition. Any excavated or disturbed earth should be replaced to replicate the landscape appearance prior to digging.
- If ground disturbance reveals buried cultural resources, consult with a qualified archeologist to assess archeological potential, significance, and integrity.

***New Construction***

- Limit ground-disturbing activities during new development and construction. Consider using previously disturbed sites for new construction to avoid any potential archeological impacts.
- Avoid removing any historic features from the landscape in conjunction with new development.
- Evaluate all proposed new development that may affect a historic landscape feature in consultation with a professional trained in the field of historic preservation, cultural landscapes, and/or archeology.
- Incorporate “green” or sustainable construction methods whenever possible.

# Landscape Treatment Recommendations

The Post-wide landscape treatment recommendations cover specific landscape resource topics related to maintenance and long-term strategies for preservation that apply to more than one character area. Additional recommendations that are specific to conditions and resources within each character area are also included at the end of this chapter.

## POST-WIDE RECOMMENDATIONS

### *Topography*

The topography of the Post is one of its most defining natural features. The topography, together with the natural qualities of Woods Creek and North Post, should be retained.

- Avoid any projects that would require regrading.
- Monitor the slopes located throughout the Post, including along Main Street, South Post, the north side of Central Post, North Post, and Jordan's Point for signs of soil erosion.
- Identify locations of exposed soils. Exposed soils need to be revegetated.

### *Circulation*

Circulation on Post is a major issue for both vehicles and pedestrians. One-way roads that are in poor condition, unclear circulation routes, and an overlap between pedestrian circulation and vehicular circulation are major concerns. Settlement, deterioration of steps and mortar, dislodged stones, and uneven steel edging have also created unsafe conditions and trip hazards.

- The circulation and traffic flow on the Post needs to be carefully evaluated by professionals trained in identifying and assisting with traffic and transportation-related issues. Recommendations for changes to the Post circulation patterns should be requested by an experienced traffic and site planner.
- Overall pedestrian access between Central and South Post is poor. Identifying necessary improvements and upgrades to improve safety should be identified and implemented.
- Pedestrian accessibility between Central and North Post is poor. Established pedestrian routes have unsafe conditions associated with trails and staircases. These access routes need to be improved and should be done prior to the expansion of any facilities on North Post that will generate additional usage of the walkways and trails.
- Pedestrian circulation features should be monitored and upgraded as necessary to address unsafe pavement conditions. When undertaking rehabilitation of historic brick and stone paths or patios, the following recommendations apply:
    - Document, through photographs and measured drawings, the extent and condition of the historic circulation features prior to removal. If possible, compare existing conditions with historic photographs of these features to determine their integrity.

- For dry laid brick and stone that is in good condition, remove and sensitively stockpile all paving materials from the patio or path for cleaning.
- Gently regrade the path or patio sub base to allow for positive drainage; ensure that circulation features drain away from building foundations.
- Reset pavers in a manner consistent with historic construction methods, overall dimensions, and appearance, taking into consideration the modifications that may be required to meet current ADA standards and guidelines.
- If most of the pavers are in good condition, they should be re-used in their historic location to the greatest extent feasible. Avoid setting historic patterned brick in a mortar base as this will limit opportunities for re-using these bricks in the future.
- Brick and stone paths and patios with failing mortar joints may also be able to be recycled if the pavers are set atop a sand base. The feasibility of cleaning these pavers should be evaluated before deciding to replace them with new materials.
- Where new pavers are required, due to poor condition or limited feasibility of re-use, these should match historic pavers in materials, size, texture, and color to the greatest extent possible.
- Where only a few new replacement pavers will be added, these should be randomly distributed to limit the visual impact of the pavers that do not perfectly match the historic pavers.

***Gateways***

There is no clear, identifiable entrance to the VMI Post; the main entry to the Institute is through the neighboring campus of Washington and Lee University. Alternatives for enhancing the entry sequence to the Post are an important aspect of creating a unique Post identity. Identifiers along Main Street, signifying that you are at VMI, would help to bolster the streetscape and announce ones arrival at the school. An eastern entry and gateway is also an option that could be considered in the vicinity of Stono and Jordan’s Point; however, the impacts to the existing historic roadway, sight lines, and stone walls, as well as an increase in traffic volume, noise, and visual intrusions from vehicles, should be carefully deliberated before a final decision is made.

- Establish VMI’s presence and visibility along Main Street through streetscape enhancements and improved signage. Identifiers, such as views to the Central Post, paving patterns and materials, signage, and planting selections, will emphasize the unique character of the Post.
- Identifiers along Main Street should be consistent with the landscape structures and signature landscape palette selected for the entire Post.
- VMI should consider an alternative entry sequence that does not require visitors to first travel through Washington and Lee University.
- Consider options for an eastern Gateway in the vicinity of Stono and Jordan’s Point which would accentuate the slope up to Stono and the historical significance of the site. Stono Road would require significant improvements and modifications to allow for a gateway to be developed that is safe for a continuous flow of vehicles.

### *Main Street*

Main Street is a high-volume vehicular corridor with little “curb appeal”. Main Street, as it cuts through VMI, has been neglected in recent years. Main Street would benefit from the addition of more streetscape amenities, pedestrian detailing, and landscaping, as it currently does not portray a pedestrian-friendly atmosphere.

- Add pedestrian amenities and landscaping to Main Street to enhance the streetscape character, Post ambiance, and restore human scale.
- Avoid additional pedestrian skywalks that remove pedestrians from street level and create a visual intrusion that detracts from the historic character of the Post.
- Refrain from constructing new structures against the street that are visually incompatible with the established historic context and scale. Large, monumental structures detract from the human scale of the streetscape and are not appropriate.

### *Parking*

The VMI Post is largely dominated by vehicles which are highly visible from most locations on Post and are now considered an acceptable component of the historic Post landscape. Pocket parking areas have developed around and adjacent to the Parade Ground and parking spaces have seemingly been added at every location where one will fit. Although pedestrian friendly in terms of its size, VMI has not fully adopted a pedestrian friendly design for the Post. A parking study that identifies realistic needs and demands could help VMI make smarter decisions about the location and amount of parking that is needed.

- A parking study should be developed by a professional consulting firm hired by VMI to determine what the demand and need is for parking on Post. This should be done before moving forward with any new projects to construct additional surface lots or a parking garage.
- New parking lots and garages should be sited at inconspicuous locations on the periphery of the Post.
- Remove pocket parking from areas on the interior of the Post and along vehicular access routes. Back-out parking on roads designated for through traffic is dangerous.
- Use internal parking on Post for handicap-accessible spaces and emergency services.
- New parking structures should be located in the northwest corner of the Post where it is obscured from view and does not negatively impact any existing resources, buildings, or landscape features.

### *Vegetation*

In general, the landscape palette is not consistent with the historic character or style of the Post. Historic trees and vegetation have been removed and replaced with poorly chosen new plant materials and new landscaping has been added where it is not contextually appropriate. The development of a Post-wide plan and list of preferred landscape materials would help define VMI’s identity and would reduce future maintenance requirements.

- A cohesive vegetation design palette for the entire Post and specific to each character area should be studied and determined. The design palette should be followed when any future landscape work is undertaken on the Post.
- Ensure that the design palette incorporates appropriate landscapes materials and species. For instance, the current use of sweet gum trees along roadways and pedestrian areas is inappropriate.
- Consider the selection of a specific tree species to serve as the signature Post tree. Maples or oaks were used historically on the Post and have a long life span. The trees should announce gateways, connect different character areas, define desirable views, and screen unwanted views.
- Existing vegetation in construction areas should be protected from soil compaction and closely monitored. Tree roots typically extend out as far as the tree canopy / drip line of the tree. Soil compaction from construction equipment within this vicinity will inhibit water penetration to root zone and trees will suffer.
- Consult with arborists, horticulturalists, and landscape architects to evaluate the health and vigor of significant historic trees and shrubs.
- Avoid the use of de-icing salts in the winter due to their ability to damage plants and materials.

***Views***

The original VMI Post was specifically designed, both from a site plan and architectural perspective, to take advantage of short-range views and long-range vistas. These features should be preserved and enhanced. In locations where the intended views and vistas have already been compromised, efforts should be made to restore them to their intended splendor.

- Important views and vistas should be preserved and enhanced.
- Maintain views to the mountains, surrounding countryside, and City of Lexington. These natural features should be considered when siting and constructing new buildings.
- Maintain view from western entry across Parade Ground to the Barracks. No landscaping or landscape structures should be incorporated onto the Parade Ground.
- Maintain views of faculty residences along VMI Parade. Historically, the residences had minimal landscaping in the foreground and were intended to blend in with Woods Creek ravine to the rear. This landscape characteristic has been modified and should be restored to its original condition.
- Enhance views from Main Street north towards the Central Post.
- Establish new views and vistas in selected areas to strengthen visual connections between North Post, Central Post, South Post, and Jordan’s Point.

### *Landscape Structures*

In addition to historic buildings and defined open spaces, landscape structures are an important character-defining feature of the Post landscape. Historic features, such as retaining walls and entry gate posts should be preserved.

- Retaining and freestanding walls should be monitored and repaired as appropriate with complementary materials. There are several walls throughout the Post that are suffering from structural failure and deterioration, such as severely cracked caps.
- Deteriorated walls should be repaired rather than replaced to the greatest extent possible. Where the severity of deterioration requires replacement, the new wall should match the old in design, color, texture, materials, and other visual qualities, where possible. Materials should be reused to the greatest extent possible.
- When replacement is required, document existing walls before and during demolition/removal with photographs, scaled drawings, and notes, giving particular attention to the following characteristics: materials; color; texture; dimensions of wall; dimensions of stones; coping treatment; construction techniques; mortar; and apparent problems contributing to wall failure.
- An architecture and/or engineering firm or contractor should be consulted before work is undertaken. VMI should convey the need for matching historic design characteristics, to the greatest extent possible, given the need for improvements to the wall strength and long-term stability.
- New walls should be designed and constructed to complement the Post's historic character to the greatest extent possible. Oversized weep holes and exposed PVC pipes are not appropriate.

### *Site Furnishings and Objects*

Modern site amenities have been located throughout the Post and include bollards, trash receptacles, bicycle racks, and benches. In order to maintain the historic character of the Post, compatible site amenities should be selected that enhance the character, as opposed to detract from it. Site amenities should be consistent throughout the Post, in color and design, to promote a cohesive identity. Specific site elements should be located in areas where they functionally make sense, but also blend in with the Post landscape.

- A comprehensive landscape and amenities plan should be prepared to address the entire VMI Post. The plan should identify appropriate locations for site furnishings and amenities. Historically sensitive areas, such as the Parade Ground, should not be considered as suitable locations for modern amenities as they detract from the historic character of the overall Post landscape.
- Site furniture should be placed in close proximity to buildings or parking lots whenever possible, as these are the least conspicuous locations.
- A single theme for site furniture and small-scale amenities should be identified and used in conjunction with all future projects and improvements.

- The furnishing palette selected for the Post does not need to include all historic amenities but should be compatible with the historic character of the Post.
- Durable, low maintenance furnishings will reduce the amount of required maintenance and upkeep.
- New furniture and site amenities should be consistent with recent updates to the Post. Color selection for future amenities should be consistent and will help to provide a unifying theme for VMI.
- All pedestrian and street lighting should have the appearance of a historic acorn-globe light post, even if they are modern light posts.

***Monuments and Memorials***

Monuments and memorials are integral commemorative elements within the VMI landscape which provide links to historical events and persons that are important to the Institute. They can take many forms, though traditionally they are life-size statues, symbolic elements such as cannons, and relief plaques. All of these forms of memorialization can be seen on the Post today. Together with their landscape setting, these monuments and memorials are an integral component of the overall VMI cultural landscape.

- Create a long-term plan and vision for how future monuments and memorials can be accommodated on Post. The plan should identify appropriate types and locations for future monuments and memorials.
- Monuments and memorials are revered objects and require cyclical maintenance to remain in good condition. Prepare a comprehensive monument maintenance program which should include a manual to guide work for each individual monument. The maintenance program will help VMI to identify their maintenance needs, additional skilled labor required, and the need for specialty cleaning equipment.
- Regularly inspect monuments and memorials to ensure they remain in good condition. Inspections should be documented with reports and photographs which will aid in the understanding of certain chronic conditions.
- Metal elements should be checked for broken or missing parts; cracking, loose anchors or bolts; serious weathering of metal statuary, corrosion, streaking, or pitting of bronze; poor drainage or ponding; clogged weep holes; cracking in plaques; and missing letters on plaques.
- Masonry elements should be examined for weathering of carved detailing; open joints at masonry; cracked, spalled, or damaged masonry; rising damp staining; or efflorescence at base.
- The landscape surrounding monuments and memorials should be maintained as they are often designed as a framework for the commemorative object. Overgrown vegetations and plantings, cracked paving, and poor site drainage should be identified and remedied to ensure that the landscape is in a condition that respects the importance of the commemorative feature.
- Repair work associated with monuments and memorials should address both immediate and long-term solutions.
- Once a problem is identified, do the least amount of work necessary to remedy it. Aggressive repairs can permanently destroy the historic materials.

***New Construction***

New construction projects on the Post must be sensitive and considerate of the historic context of VMI. New buildings and features should not destroy any historical elements and should be sympathetically designed to blend in with the established historic character.

- The layout of the overall campus should be considered in conjunction with new development projects to ensure that they are compatible with the goals and visions of the larger Post plan.
- Monumental new buildings and parking structures should be avoided throughout the Post as they do not fit in within the existing architectural context. New construction should be of a compatible size and architectural style.
- Monumental new buildings and parking structures should be avoided along Main Street. They will detract from the pedestrian scale of the streetscape and create a cavernous-like effect for travelers driving along the roadway, as well as pedestrians.
- All new construction should be designed in a manner that is consistent with the scale, form, and massing of the existing historic buildings. Materials, features, and architectural elements should reflect the historic character of the Post and respect the established architectural vocabulary.

## CHARACTER AREA TREATMENT RECOMMENDATIONS

The following landscape treatment recommendations are unique to each character area. They address specific issues related to the resources documented within Chapter 5, Cultural Landscapes at VMI. Each set of character area recommendations also include relevant issues related to new construction projects that have been proposed in *Vision 2039*, the development plan created by VMI Superintendent General J. H. Binford Peay, and the *Post Facilities Master Plan (Plan Update)*, which is based on the goals and objectives identified in *Vision 2039*.

### Central Post

As the heart and soul of VMI, Central Post conveys multiple layers of VMI history. These include some of the most significant designed features on the Post, including the Barracks, Faculty Row, the Parade Ground, and the loop drive around its northern edge (VMI Parade). These features represent the earliest manifestation of VMI's iconic landscape. They also continue to convey the design ideals and aesthetics of significant architects A. J. Davis and Bertram Goodhue, who were influential in setting the stage for later development and expansion of the Post. Because Central Post supports most of VMI's core academic, residential, administrative, and military activities it must constantly adapt to increasing demands for additional space, and balance automobile access with pedestrian safety.

Therefore, the overarching treatment approach for this area is rehabilitation, with an emphasis on preserving the integrity of the architectural aesthetics and landscape features that convey the rich military and academic history of the Institute. The treatment approach emphasizes the work of Davis and Goodhue, as well as the design ideals that they represent from the period of their involvement at VMI, 1850-1916. Where appropriate, recommendations are offered to restore characteristics and relationships that have been degraded since this time.

#### *Buildings*

- Preserve extant historic buildings in accordance with the Architectural Treatment Guidelines contained in Chapter 8 of the *Preservation Master Plan*.
- Monitor the Commadant's House for structural movement during the demolition of LeJeune Hall and construction of the Third Barracks.

#### *Spatial Organization*

- Avoid further intrusions and/or incremental losses to the perimeter of the Parade Ground. Its perimeter should not be modified.
- Maintain the Parade Ground as a versatile open space.

#### *Topography*

- Consider restoring the formal terraced steps linking Jackson Memorial Hall with Main Street once the Cocke Hall Swimming Pool Annex is removed (see recommendations under New Construction, below).

- Recreate the visual and physical connections between VMI and Main Street that were envisioned in the early plans and designs for the Post.

***Circulation***

- Install unobtrusive grass pavers at vehicular entries to the Parade Ground to reduce erosion potential and rutting.
- Repair and rehabilitate circulation features in poor condition. These include the sidewalk and curbing in front of Smith Hall as well as the flagstone patio entry in front of Preston Library. Refer to Post-wide circulation treatment recommendations for detailed guidance.
- Remove, regrade, and reset patterned brick along VMI Parade in front of the faculty quarters. Refer to Post-wide circulation treatment recommendations for detailed guidance.
- Coordinate the building and site drainage improvements of the faculty residences with an overall approach to rehabilitation of residential stairs, steps, and walks. Maintain the informal character of the walks by using:
    - Dry, rather than mortared joints;
    - Natural stone, gravel, or brick materials over concrete and asphalt;
    - Patterned bricks, where possible; and
    - Meandering or curving paths over straight angular lines.
- Consider pedestrian-only zone in front of the Barracks; tie in paving and pedestrian flow directly with sidewalks along Letcher Avenue and VMI Parade.

***Vegetation***

*VMI Parade*

- Consider removal of planted median along VMI Parade; this is an urban feature that does not support the picturesque qualities of the historic design intentions or aesthetics for the faculty quarters area, which was intended to be residential homes set within a natural woodland. The median trees obscure the view of the residences from across the Parade Ground; views were intended to be uninhibited.
- If median along VMI Parade is to remain, consider replacing sweet gum trees as these are not well-suited to streetscape environments due to the large fruit which they produce. Replanting the median with maple or oak trees will create a high canopy under which views of the faculty residences can be afforded from the Parade Ground. Limb up as necessary. The dogwood and eastern redbud should also be removed as these understory trees have a low canopy that obscures important views.

*Letcher Avenue*

- Replace sweet gums located on either side of the Washington Monument with the same maple species located along the north side of Letcher Avenue.
- Consult with certified arborist to evaluate health of declining maple trees along the north side of Letcher Avenue.

- Establish a replanting plan for declining trees that will require replacement within the next 5-10 years. Consider the following guidelines for replacement:
    - Replace with same maple species;
    - Consider establishing on-Post nursery for ready replacements acclimated to local soils and climatic conditions;
    - Space trees at consistent distances (i.e. 25 ft. on center) to create a formal effect reminiscent of the historic character.

*Faculty Row*

Landscape guidelines for Faculty Row should be reflective of nineteenth-century design traditions and aesthetics. Typical design landscapes of this period were informal and naturalistic in style. In particular, foundational plantings were avoided and preference was given to deciduous shrubs over evergreen shrubs. Irregular edges and odd angles were favored over straight lines (both for planting areas and paths) and a variety of plants and plant forms (including a layering of plant heights) were favored over the installation of uniform species. Given these traditions, the following guidelines apply to Faculty Row:

- Encourage irregular edges on all planting beds.
- Limit ornamental foundational plantings, particularly boxwood, as it is a formal evergreen shrub that contradicts the naturalistic setting/aesthetic that faculty quarters were designed to occupy.
- To maintain an understated, low-maintenance, yet naturalistic appearance to necessary foundation plantings, consider low-profile native shrubs, flowers, and groundcovers.
- In other non-foundational planting areas, consider using a layered aesthetic, where tall shrubs and small trees are located in the center or rear, with smaller shrubs leading outwards towards grass or groundcover in the front.
- A recommended list of appropriate plants for Faculty Row is provided for further consideration:

<u>Shrubs and small trees reaching over 6’</u>
Red chokecherry (*Aronia arbutifolia*)*
Allegheny chinkapin (*Castanea pumila*)
Silky dogwood (*Cornus amomum*)
Witch Hazel (*Hamamelis virginiana*)*
Winterberry (*Ilex verticillata*)
Mountain laurel (*Kalmia latifolia*) –Could use a smaller dwarf cultivar
Spicebush (*Lindera benzoin*)
Catawba rhododendron (*Rhododendron catawbiense*)
Common elderberry (*Sambucus Canadensis*)
Southern arrow-wood viburnum (*Viburnum dentatum*)*

<u>Shrubs under 6’</u>
New Jersey tea (*Ceanothus americanus*)
Sweet pepper bush (*Clethra alnifolia*)
Wild Hydrangea (*Hydrangea arborescens*)
Sweetbells (*Leucothoe racemosa*)

Rose azalea (*Rhododendron prinophyllum*)
Swamp azalea (*Rhododendron viscosum*)
Fragrant sumac (*Rhus aromatica*)
Broad-leafed meadowsweet (*Spirea latifolia*)*
<u>Ground covers</u>
Wild ginger (Asarum canadense)
Black cohosh (Cimicifuga racemosa)
Moss phlox (Phlox subulata)
Wintergreen (Gaultheria procumbens)
Virginia creeper (Parthenocissus quinquefolia)*
Ferns (various)
Spring/summer bulbs (various)

- Avoid planting species that are adapted to basic soils, or soils with a high pH (7.5 or greater), next to historic mortared foundations as plant roots may be attracted to lime and can cause leaching. *Note: those species marked with an asterisk (*) are slightly basic and are not recommended for use near historic mortared foundations.*
- Consider developing a summary of design guidelines for residents of Faculty Row to reference as part of their "welcome package", so new residents understand how plantings can influence the historic character of the Post landscape, and which species are most appropriate.
- Consider designating "personal" planting areas in the rear or on the sides of the faculty residences, which are less visible from VMI Parade, to allow for more personal preference and creativity.

***Views***

- Maintain open and expansive view of the Barracks and Faculty Row as focal points from western gateway; avoid allowing parking along the perimeter of the Parade Ground across from Moody Hall as it will add visual intrusions to this vista.
- Maintain distant views of the mountain range comprising the George Washington National Forest to the west, and especially Big House Mountain.
- Consider adding infill vegetation (native understory trees and shrubs) along the north side of the parking area located behind Marshall Library, and along the north side of Anderson Drive and Burma Road behind Faculty Row. This area is currently sparsely vegetated with mature trees that offer little screening of the athletic fields below. Revegetation of this area will improve screening of these fields, better convey the historic wooded character of the Woods Creek ravine, and reduce the erosion potential of these steep slopes.

***Landscape Structures***

- Repair failing retaining walls and coping located along Burma Road. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.
- Repair failing wall between Mallory Hall and Preston Library. The cause for this failure is unclear, although it is likely due to expansion of the root zone from the adjacent elm tree. Because this part of the wall is not

consistent with other sections, it appears that the western half was constructed during a different period. If this involved different construction methods, inadequate backfill or drainage (which exacerbates soil shrink/swell) these conditions may also be contributing to wall failure. Ensure causes for wall failure are investigated during the wall demolition process so that lessons may be learned. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.

- Preserve and maintain the extensive stone retaining walls located along the north side of Main Street as these features signify passage through the Post and represent a character-defining feature of VMI's cultural landscape.

***Site Furnishings and Objects***

- Ensure preservation of historic benches; maintain and repair rather than replace.
- Repair damaged monuments and memorials (particularly the Guard Tree Monument and the General Lemuel C. Shepard, Jr. memorial seating area), as these are in poor condition. Refer to Post-wide treatment recommendations concerning Monuments and Memorials for detailed guidance.

***Archeological Features***

- Given the possible presence of intact archeological resources associated with the A. J. Davis residence within the Third Barracks construction area, VMI should engage professional archeologists to research, evaluate, and potentially test for below-grade resources before construction begins. Research should utilize available documents, maps, photographs, and plans to assist in making a determination about previous ground-disturbing activities. It is also advisable to have ongoing ground-disturbing work monitored during construction.
- If the proposed site construction plan for the Third Barracks is not altered, JMA recommends that a professional historical archeologist be retained to conduct, research, evaluate and potentially test in the rear and side yards of the Commandant's House. This building was moved to this location circa 1915, but yard deposits associated with the dwelling may be intact.

***New Construction***

*Third Barracks*

The proposed footprint of the Third Barracks extends beyond the west elevation of Lejeune Hall, within fifty feet of the Commandant's House. Blasting and vibration during demolition of Lejeune Hall and construction of the Third Barracks has the potential to damage the Commandant's House. This historic A.J. Davis building already has significant structural problems, due in part to its early-twentieth century relocation and location on the steep grade above Woods Creek. It will be necessary to develop structural movement thresholds and continually monitor the Commandant's House for structural movement throughout demolition and construction.

A related concern is the location of the Third Barracks in such close proximity to the two-story dwelling. The proposed western terraces, seating areas, pedestrian bridge access, and sidewalks encroach within 20 feet of the residence and will trigger fairly extensive grading changes and hardscape additions. The March 2006 plans show a large seating plaza that obliterates the rear yard of the Commandant's House. Taken as a whole, the new construction and proposed site elements of the Third Barracks will irreversibly damage the historic context and setting of the Commandant's House, as well as have a negative visual impact on the other Parade Ground residences.

There are also several proposals to provide pedestrian access from the new Barracks to the North Post, including a universally accessible series of switchback walks and two alternatives for a pre-engineered bridge/elevator tower(s). The existing proposals for the Woods Creek crossing are not sympathetic or compatible with the historic context.

The following guidance should be addressed in future site planning and schematic design at this site:

- Protect and preserve the landscape context surrounding the Commandant's House to the greatest extent feasible. Consider alternatives that will reduce the footprint of the new Barracks west wing and provide less visual and physical intrusions to the Commandant's House and site.
- Consider modifying the pedestrian access switchback proposal to create an aesthetically pleasing and functional set of stairs/ramps to provide access to North Post by utilizing the concept of terraced gardens. Although this would take up more horizontal space than the proposed option, it would have less impact on historic landscape character and views and be more in-keeping with the landscape design traditions of the Post.
- If the pedestrian bridge/elevator tower remains a desired option, it should be relocated, redesigned, and reduced to avoid negative physical and visual impacts. There are two possible alternatives for this that should be considered:
    - One alternative for relocating the proposed bridge access is within the Third Barracks envelope on the Burma Road elevation, rather than directly behind the Commandant's House. The first floor PX has a projecting semi-octagonal bay and wall overlooking the creek which should be evaluated as entry points for the bridge. The bridge should be simply designed at a single continuous level (ref: WLU footbridge over Woods Creek) with only one overlook or elevator that connects to the pedestrian bridge crossing the creek. The tower and bridge should be detailed based on VMI's Gothic Revival motifs and architectural vocabulary.
    - A second alternative for relocating the proposed pedestrian access is directly to the north of the power plant. This could take the form of a terraced garden or similarly designed feature with stairs and accessible ramps which would connect North Post with Daniels Memorial Plaza. This slope has already been disturbed due to recent construction and its location provides a direct connection between North Post and the core of cadet service support facilities. A pedestrian walk could be designed along Burma Road.

- Any outdoor features to the west of the Third Barracks, including terraces, raised planters, outdoor seating plazas, and paved areas should be reduced to avoid negative physical and visual impacts.
- The sidewalk behind the Commandant's House leading to the Woods Creek area should be eliminated. The current plan would do irreversible damage to the historic setting and context of the Commandant's House.
- Revisions are needed to help reduce privacy concerns and the amount of site work and grading. While the slope is very steep, alternative grading solutions next to the new building should be developed. Naturalistic landscape screening between the dwelling and the new Barracks is preferred to grading and hardscape changes. New drainage solutions should avoid run-off and erosion.

*Leadership and Ethics Center*

The new Leadership and Ethics Center is planned for the parking lot site behind Marshall Library and Smith Hall. This site directly abuts the Washington and Lee campus near DuPont Hall. The main multi-story building is linked to a meeting facility via a glazed atrium.

- VMI should consider redesigning the elevation of the Leadership and Ethics Center facing the Parade Ground to better articulate the massing, scale, materials, and detail of the Marshall Library and Smith Hall. The current elevation design is not consistent with the architectural character of historic Post buildings. It consists of a blank monumental wall with relatively few details and large amounts of glazing. It also has no bay spacing, windows, or articulation. This will result in adverse visual impacts which should be mitigated with design changes.

*Cocke Hall Pool Annex*

Goodhue's Jackson Memorial Hall originally had a dramatic rear elevation which was designed to be visible from Main Street; it featured terraced steps and landscaping which provided a physical link with the street and pedestrian bridge below. In 1965, the Cocke Hall Pool Annex was constructed to the rear of Jackson Memorial Hall, effectively changing the face of Main Street and obliterating the terraced steps and landscaping. The Annex is a plain box with blank walls that has no historic aesthetic value, particularly when compared to the formerly-splendid Main Street elevation of Jackson Memorial Hall. Because the Main Street streetscape was historically important in the early design of the Post, the following recommendations are offered:

- Remove the Pool Annex in conjunction with the construction of the proposed new aquatic center. The loss of the Annex building is outweighed by the opportunity to recreate signature features of the Goodhue legacy on Post. The needs of cadets currently using the Annex would be met by the new aquatic facility.
- The historic design of Jackson Memorial Hall's Main Street elevation and landscape features should be accurately replicated based on period photographs and plans. This would dramatically strengthen the relationship between VMI and the Main Street corridor and help re-establish the historic visual and physical connections with Lexington.

## North Institute Hill

North Institute Hill reflects VMI's academic and service-support facility expansion during the early-twentieth century (1904 -1950) and generally retains integrity to this period. However, because changes to the Letcher Avenue road corridor and the renovation of Crozet Hall have resulted in incremental losses of integrity to this historic landscape, the overarching treatment approach for this area is rehabilitation. Treatment recommendations focus on preserving those features and characteristics that contribute to the period from 1904 to 1950, as well as restoring and reinforcing characteristics and relationships that have been degraded since this time.

### *Buildings*

- Preserve the extant historic buildings in accordance with the Architectural Treatment Guidelines contained in Chapter 8.
- Ensure the preservation of the Old Hospital, as it is the only building which remains from the Arsenal period.

### *Spatial Organization*

- Maintain the strong physical and visual axis between the south sally port of Barracks with Cocke Hall.
- Maintain the strong visual axis along the Letcher Avenue corridor, particularly at its terminus at Crozet Hall.
- Maintain the overall spatial organization of the Memorial Garden and symmetrical stairs.

### *Topography*

- Consider regrading a portion of Daniels Memorial Plaza to mitigate the notable slope on the pavement; consider a retaining wall and planting area along the side of the Barracks to accommodate this grade change.

### *Circulation*

- Avoid further layering of asphalt on Letcher Avenue that raises the elevation of the road bed. Future road improvements should require removal of existing asphalt and regrading of the sub-base to restore historic profiles on adjacent sidewalks and stairs.
- Consider alternative solutions to the ADA accessible ramp recently constructed in front of Crozet Hall, such as subtly regrading the road and sidewalk approach to create a gentle and less visually intrusive universal access.
- Consider removal of the existing surface parking area adjacent to the Scott Shipp Hall Annex. This front-in parking area creates unsafe conditions as drivers have to back into a heavily trafficked pedestrian and vehicular corridor. Historically, this area was planted with trees that extended the row of maples along Letcher Avenue from the Parade Ground and past the south sally port of the Barracks. Consider replanting maple trees to line the south side of Letcher Ave. in this area.
- Alternately, if parking is to remain consider parallel parking, which allows for better sight angles and an opportunity to add trees back into this area.

### *Vegetation*

- Carefully remove the large boxwood that is located adjacent to the Old Hospital. It is possible that boxwood roots will exacerbate the leaching of lime from historic mortar foundations and will contribute to loss of structural stability over time. Cut stem flush with the ground and do not grind due to the high likelihood of archeological resources in this area.
- Consider regrading Daniels Memorial Plaza to provide more surface water to the tree planting islands. The remaining trees appear to be suffering from stressful site conditions and will likely need to be replaced. Options for treatment may include: expanding the size of the planting island; eliminating the raised curbing and allowing more surface runoff to filter into or through the planting area before reaching the underground drain; and/or replacing the trees with more drought-tolerant species.

### *Views*

- Maintain axial views along Letcher Avenue that focus on the façade of Crozet Hall.
- If a parking lot is constructed on the site of the existing 1950s bungalows (as proposed), selectively plant screening vegetation, such as shrubs and small trees, along the slope of the hill south of this parking area to buffer this visually intrusive feature.

### *Landscape Structures*

- After the Letcher Avenue roadbed has been restored to its historic elevation, restore the awkward set of stairs and ramps located in front of Scott Shipp Hall and restore its original entry. Prior to 1925, the entry to Scott Shipp Hall consisted of a simple elevated sidewalk with two steps leading to the front door.
- Repair failing retaining wall and coping located near the Scott Shipp Hall Annex. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.

### *Site Furnishings and Objects*

- Refer to Post-wide treatment recommendations concerning Site Furnishings and Objects for general guidance.

### *Archeological Features*

- Refer to Landscape Treatment Guidelines for general recommendations concerning archeological features in this character area.

### *New Construction*

Improvements slated for North Institute Hill include the demolition of five brick cottages, constructed in 1950, on the slope below Crozet Hall; the cottages are to be replaced by a 108-car surface parking lot. Current plans do not show any landscaping. The demolition of these five historic buildings above Lexington’s Main Street corridor would have adverse impacts on the historic character of North Institute Hill. Further, the highly-visible location of the surface parking lot would also create adverse visual impacts. The historic Post Hospital, Crozet Hall, and a circa 1904 faculty residence are all in close proximity to this site and help define its immediate historic context. A sterile parking lot is not appropriate in this location as it would compromise views from the Main Street corridor. The following recommendations apply to this proposed new construction project:

- Avoid construction of the surface parking lot and retain the five existing historic brick cottages for use as faculty housing or other compatible purposes.
- Carefully evaluate proposed parking options to consider the impacts on historic buildings and landscapes.
- Should VMI move forward with the surface lot, it should be designed with attractive landscaping, screening, and pedestrian-friendly amenities (see recommendations above concerning views).

## Jordan's Point

The Jordan's Point character area is significant for its association with John Jordan, one of Rockbridge County's most prominent early citizens and industrialists. Stono is one of the earliest examples of the Classical Revival style east of the Blue Ridge Mountains; its surviving designed landscape and other surrounding buildings which represent the early-twentieth century expansion period of the Post (1818-1903) further support the significance of this cultural landscape.

Because this area generally retains a high degree of integrity and conveys the history of this early period, it is recommended that further in-depth studies be conducted immediately to determine an appropriate treatment strategy for the adaptive reuse of this area and its resources. These should include, at a minimum, a Historic Structures Report (HSR) and Cultural Landscape Report (CLR) for Stono, as well as possible updates to National Register documentation and expansion of the boundaries of this listed property.

Until such studies are conducted, the overarching recommended treatment approach is preservation. The treatment recommendations for Jordan's Point focus on preserving the features and characteristics that contribute to the period from 1818 to 1903, as well as maintaining those features and characteristics which are in poor or deteriorating condition and require repairs to improve pedestrian and vehicular safety.

***Buildings***

- Preserve all extant historic buildings in accordance with the Architectural Treatment Guidelines contained in Chapter 8.
- Consider, in association with any further studies concerning Stono, the proposed use of the property as a combination VIP guest facility and house museum.

***Spatial Organization***

- Maintain existing building density and setbacks. Avoid infill development in order to preserve the relatively rural character of this area.
- Preserve the overall spatial relationship of Stono relative to its position atop the bluff overlooking the river. The original site selected for the placement of this house was clearly influenced by the configuration of the property's landform, and intended to take advantage of the views afforded by its prospect overlooking the Maury River.

***Topography***

- Undertake additional research and documentation of the terraced gardens located east of Stono through detailed drawings and historic photographs in order to understand their original extent and character. Avoid any topographic alterations to these features.
- Protect the terraces and other steep slopes within this character area from erosion by maintaining them in healthy vegetative cover. Ensure that any mowing equipment does not damage the terraces.
- Avoid planting trees or shrubs on the terraces or undertaking other activities that involve digging or altering the ground plane.

- If trees or other large vegetation must be removed, stumps should be cut flush with the ground rather than pulled from their roots. Avoid using a stump grinder or digging out remaining woody material.
- Consult with historic preservation specialists before undertaking any changes to these features including the addition of any new pathways, plantings, or other built features.

***Circulation***

- Maintain the rural character of Stono Lane and the Burma Road extension. Avoid widening these roads or adding curbs or gutters. When resurfacing is necessary, be sure to respect the existing alignment and historic elevation of the road bed, as well as adjacent sidewalks and stone walls.
- Preserve the existing alignment and character of the historic carriage drive.
- Protect the historic character and alignment of the brick pedestrian paths surrounding the historic buildings when undertaking any rehabilitation. Refer to Post-wide circulation treatment recommendations for detailed guidance.
- Document, remove, and reset the cut limestone steps that lead to the terraces. These steps are cracked and have settled at odd angles that create pedestrian trip hazards. Ensure that the steps are reset in the same location and that the overall spatial relationships remain the same.
- When undertaking any rehabilitation of the sidewalk along Letcher Avenue, consider replacing it with brick paving in order to reinforce the historic and rustic character of Jordan’s Point.
- Maintain service areas to the rear of the historic structures along Burma Road and ensure that views to these service areas from Stono Road are adequately screened with vegetation.

***Vegetation***

- Preserve and protect the large shade trees that are located within Jordan’s Point. These trees are informally planted in the open lawns and provide a leafy canopy of shade that contributes to the rustic character of this area. When new trees are added, they should appear informal (i.e. not planted in rows or grids) and the palate should be limited to native species.
- Avoid the use of large shrubs as foundation plants as these were not characteristic features of the nineteenth century landscape. Refer to the guidelines concerning foundation plants surrounding the faculty residences (Central Post) for appropriate types of plantings in these areas.
- Maintain the spring bulbs and perennial flowers found along building foundations and the stone walls. While it is not known if these plants are historic they contribute to the rural and residential character of this area.
- Develop a management plan to remove and control the spread of bamboo growing north of Stono and along the steep slope of the ravine. This is an aggressive invasive exotic species that will spread rapidly if not kept in check.
- Maintain the boxwood aligning both sides of the walkway connecting Stono with the carriage drive and within the terraced garden. Unless additional research conclusively finds that these features do not contribute to the period 1818 to 1903, they should be maintained with care.

***Views***

- Conduct additional research to understand the extent and character of historic views from Stono to the Maury River and vice versa.
- Evaluate the features that now serve as obstructions to this historic vista and consider the feasibility as to whether or not these features can be removed or cleared to restore historic views.
- Maintain prominent views from Stono Road overlooking South Post. Avoid adding intrusive features that will either obstruct or degrade this visual relationship.

***Landscape Structures***

- Preserve the historic stone walls found throughout Jordan's Point, as well as those that are integrated into the surrounding bedrock. The latter is a uniquely character-defining feature of Jordan's Point. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.
- Avoid adding any new driveways or parking areas along Stono Road that would require removal of historic wall sections.

***Site Furnishings and Objects***

- Preserve and maintain the mill stone located on the upper terrace at Stono, as well as the pedestrian gate marking the entrance to the terrace garden.
- Refer to Post-wide treatment recommendations concerning Site Furnishings and Objects for general guidance on the addition of any new features.

***Archeological Features***

- As part of any larger cultural landscape study for the Stono property, engage professional historical archeologists to undertake historical research and evaluate any proposed construction areas for intact archeological remains associated with this 1818 residence. Research should be focused on the land use of the grounds and property. The research should utilize available documents, maps, plats, plans and photographs to assist in determining archeological potential and to identify the nature and extent of previous ground-disturbing activities. Locations of outbuildings and possible quarters should be identified.
- A work plan should be developed by professional historical archeologists to investigate potential archeological remains in conjunction with any renovation and adaptive reuse activities concerning Stono.

***New Construction***

There are no new construction projects or improvements currently proposed within the Jordan's Point character area.

## South Institute Hill

South Institute Hill reflects VMI's post Civil-War growth and expansion to the west, which took place from 1859 to 1953. The South Institute Hill character area includes a range of residential structures that were constructed to accommodate a growing VMI faculty. Because much of the area south of the 300-block of Letcher Avenue has been modified by new roads, walls, and parking areas, the overarching treatment approach for South Institute Hill is rehabilitation, with a focus on the preservation of the Letcher Avenue road corridor as it retains relatively high integrity to this period (1859-1953). Where appropriate, recommendations are offered to mitigate intrusive features that post-date the mid-twentieth century and/or degrade the area's integrity.

### *Buildings*

- Preserve all extant historic buildings in accordance with the Architectural Treatment Guidelines contained in Chapter 8.

### *Spatial Organization*

- Maintain the spatial organization of the Letcher Avenue road corridor and the residential buildings along it. Avoid adding new buildings or structures. If any new buildings are to be built along this road corridor in the future, they should respect the overall scale, massing, and setbacks of the existing buildings.

### *Topography*

- Refer to the Landscape Treatment Guidelines for general recommendations concerning future topographic modifications within this character area.

### *Circulation*

- Preserve and maintain the patterned brick along Letcher Avenue. Consider replacing the concrete sidewalk on the south side of the street with the same patterned brick to create a unified aesthetic at the western gateway to the Post.
- Avoid further layering of asphalt on Letcher Avenue that raises the elevation of the road bed. Ensure grade separation of pedestrian and vehicular zones for safety.
- Future road improvements should require removal of existing asphalt and regrading of the sub-base to restore historic profiles on adjacent sidewalks, particularly along the north side of the street.
- Alternatively, consider extending the curbing and elevated grade currently located in the front yards of the north 300-block of Letcher Avenue to include the sidewalk area. Replace the existing brick in the same location.
- Rehabilitate Maiden Lane south of Letcher Avenue as well as the parking area located behind the BOQ. These paved surfaces are in fair to poor condition and minor settlement of the sub grade is apparent. Consider adding parking islands to break up the expanse of pavement and create shaded areas.
- Rehabilitate the small patio providing entry to the west side of the BOQ. Refer to Post-wide circulation treatment recommendations for detailed guidance.

***Vegetation***

- Consult with a certified arborist to evaluate the health of the oak tree located south of the Science Building as it is being subjected to root compaction from a construction trailer.
- Refer to Post-wide treatment recommendations concerning Vegetation for general guidance on protecting vegetation from future construction impacts.

***Views***

- Maintain the strong visual axis along Letcher Avenue corridor, as well as open views to Washington and Lee University to the west.
- Maintain open views from Letcher Avenue across the Parade Ground; this view signifies arrival to VMI from the west.

***Landscape Structures***

- Preserve and maintain the historic retaining walls, particularly those along the south 300-block of Letcher Avenue. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.

***Site Furnishings and Objects***

- Refer to Post-wide treatment recommendations concerning Site Furnishings and Objects for general guidance on the addition of any new features.

***Archeological Features***

- Refer to Landscape Treatment Guidelines for general recommendations concerning archeological features in this character area.

***New Construction***

As part of the *Master Plan Update,* a major project slated for South Institute Hill includes a proposed multi-story parking structure sited on the slope behind Mallory Hall and the Science Building, directly abutting Main Street. In order to construct this facility, two VMI-owned historic houses, 304 and 306 Main Street, would be razed; both buildings are included in the National Register-listed Lexington Historic District. There are also four brick cottages, constructed in 1953, along South Institute Hill Road that are proposed for demolition. A pedestrian skywalk over Main Street has been proposed to link this garage with a new sports complex sited on South Post. Recommendations associated with these proposed projects include:

- In light of the multiple adverse impacts associated with new construction on this site, VMI should actively pursue a thorough evaluation of alternative sites for a parking garage. Sites without historic buildings and potential archeological resources are preferred, as are sites that are not highly visible from a highly visible roadway.
- The parking garage is not appropriate for the proposed Main Street site due to the buildings' monumental size. The size and mass conflict with Lexington's historic character and cannot be easily camouflaged. As proposed, the project does not meet preservation goals to enhance historic Main Street, promote a pedestrian-friendly character, and is not compatible within the established historic context.

- If construction of a parking facility along the Main Street corridor moves forward, the following preservation design guidance should be incorporated to the greatest extent possible:
    - The scale, height, and massing should not exceed two-and one-half-stories tall; additional levels below-grade would help create a smaller footprint.
    - New construction should reflect the materials, articulation, and details of nearby historic buildings, such as those found in Lexington's historic commercial district.
    - The design and materials of any new structure along Main Street should support a pedestrian-friendly character and be compatible. VMI should engage skilled designers with a successful track record working in historic contexts. The most successful and attractive modern parking garages are often built to resemble buildings, not garages.
    - Future proposed projects that have the potential to impact Main Street should be coordinated with the City of Lexington and the Historic Lexington Foundation, as appropriate.

## South Post

South Post represents VMI's expansion south of Main Street beginning in the early to mid-twentieth century (1919-1943) as it acquired land for cavalry training and developed needed recreational facilities for the growing cadet population. The Brooke Lane residences also remain as the last vestiges of late-nineteenth century expansion of faculty housing in this area from 1875 to 1885.

Because much of South Post is undergoing major renovations to accommodate new utilities and athletic facilities, the overarching treatment approach for this area is rehabilitation. The following treatment recommendations focus on preserving those characteristics that contribute to the historic period while also offering guidance on ways to integrate historic resources into new design and development.

### *Buildings*

- Preserve all extant historic buildings in accordance with the Architectural Treatment Guidelines contained in Chapter 8.

### *Spatial Organization*

- Respect Main Street and the topography of Diamond Hill as the primary organizing elements within South Post. Consider how new buildings, structures, and circulation features can work with, rather than against the topography.
- Ensure that new construction respects the remaining landscape context of the Brooke Lane residences. The surrounding yards and circulation features help convey their historic residential character.

### *Topography*

- Evaluate the steep cuts found throughout South Post to identify areas where mitigation is necessary to control erosion, particularly the steep rise south of Alumni Memorial Field, the steep cut south of Delaney Field, and the hill behind the ROTC Motor Pool and Cormack Field House.
- Ensure that new construction does not exacerbate these conditions. Draw from VMI's tradition of stone retaining wall construction techniques to help mitigate these cuts to the greatest extent feasible while also reinforcing the character-defining features of the Post.

### *Circulation*

- Rehabilitate the pedestrian bridge connecting Institute Hill with Alumni Memorial Field as it signifies a gateway for the Post along Main Street. Ensure that the character and materials of this historic feature are preserved.

### *Vegetation*

- Remove the dead white pine tree located on the hill behind Cameron Hall.
- Maintain the large deciduous trees and lawns surrounding the Brooke Lane residences as these features create a context of residential character surrounding these historic buildings.
- Preserve the vegetation south of the ROTC Motor Pool and Cormack Field House to protect this steep slope from erosion.

### *Views*

- Consider how new construction projects will impact views from Main Street and from Central Post. Determine alternatives to mitigate any adverse impacts.

### *Landscape Structures*

- Repair the failing free-standing wall located in front of the VMI Stables and incorporate its rehabilitation into new development that will occur in this area. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.
- Further evaluate the condition of the limestone retaining wall and stairs located behind the Stables. Consider repair and/or redesign of this feature when undertaking new construction within this area.
- Carefully consider the integration of the pedestrian tunnel access into any new construction within this area. Preserve historic materials and design characteristics to the greatest extent feasible.

### *Site Furnishings and Objects*

- Refer to Post-wide treatment recommendations concerning Site Furnishings and Objects for general guidance on the addition of new features.

### *Archeological Features*

- During the early stages of project planning, consider how new construction will disturb archeological remains related to early-nineteenth century Lexington and the post-Civil War Freedmen's Hill.
- Ensure that archeological resources are considered before any construction decisions are made.
- Engage a qualified professional archeologist to determine whether there are significant archeological remains present that are associated with the buildings. Research should focus on the land use of the area and how the property has changed over time. The archeological evaluation of this area should seek to determine the potential for the presence of intact significant archeological remains. If such remains are identified, a work plan for archeological testing should be developed.
- Work should be coordinated with the City of Lexington and Virginia Department of Historic Resources.

### *New Construction*

Two new major sports facilities, a Field House and Aquatic Center, are proposed in the *Plan Update* for the South Post. The proposed location of the sports facilities is on the south side of Main Street; they would occupy the entire block between Massie and Diamond Streets. VMI is in the process of acquiring parcels up the hill, which would extend the south VMI boundaries to approximately Senseny Street. The new facilities would be connected to the proposed parking garage by a pedestrian skywalk and to Cameron Hall with a skywalk over Diamond Street. The Aquatic Center and Field House would also be connected by an additional skywalk.

The proposed Field House includes an indoor track, field events space, indoor rifle range, offices, wrestling practice area, weight room, spectator areas, a basketball court, and individual locker rooms. The proposed Aquatic Center includes a 50-meter competition swimming pool, spectator areas, locker rooms, offices, and a conference area. While no approximate square footage is included in the *Plan Update*, based upon the master plan graphic, the Field House has a building footprint that is more than double that of any existing Post building; it is even larger than the original Barracks. The asymmetrical Aquatic Center has a footprint that is approximately the size of the existing New Barracks.

Currently, there are three post-Civil War-era houses and two early-twentieth century buildings on the 900 block of Main Street, the site of the proposed new sports facilities; the historic buildings are within the Lexington Historic District. This section of Lexington, directly across from VMI, was known as Diamond Hill in the late-nineteenth century. Prior to that time, it was referred to as Freedmen's Hill, so-called because of the African-American community that developed at the base of the hill in the years after the Civil War.

The three one-story historic dwellings date to this post-Civil War period and are significant for their association with the Freedmen's Hill African-American community. The two-story masonry Progressive Lodge (1926) in the middle of this block is also associated with the community. The last historic building is at the corner of Massie and Main Streets; it is a one-story early-twentieth century gas station. Taken as a whole, these buildings and the surrounding landscape have historical significance and may contain significant archeological deposits. Every effort should be made to preserve and protect these historic buildings. In light of the multiple adverse impacts associated with new construction on the proposed athletic facility site, the following recommendations apply:

- Pursue a thorough evaluation of alternative sites for the sports complex. Sites without historic buildings and potential archeological resources are preferred. Sites that are not adjacent to Main Street are preferred. Due to the size and massing of the buildings, they would detract from the Main Street corridor and would not promote a pedestrian-friendly streetscape.
- Five historic buildings proposed for demolition are within the Lexington Historic District and should remain *in situ*. They are important for their association with African-American history in Lexington. The proposed project's extensive ground-disturbance on these sites could impact potential archeological resources.
- VMI should consider, as an alternative, a site on the South Post near the Stadium. There appears to be sufficient land between Randolph and Senseny Streets, and behind the Stadium, to support these two new buildings as well as a parking garage, if desired. The site would allow for the preservation of the five historic buildings and would set the new structures back from Main Street.
- If no other alternative is ultimately deemed possible, the building facades should be modified to create a more pedestrian friendly and welcoming streetscape. Any reductions in size and massing would be beneficial and articulation along the façade would be essential. If the buildings were to remain in this general location, substantial setbacks from Main Street should be incorporated to reduce the impacts on the streetscape.

## North Post

Because most of North Post was developed in the 1960s, none of its developed features (buildings, structures, circulation features, athletic fields, etc.) are considered historic. However, modern development has resulted in a substantial loss of integrity of Woods Creek, its natural floodplain, and the natural qualities that were embodied in this stream valley during VMI's historic period. Because of these changes and the recreational facility expansion planned for this area, the over-arching treatment approach for North Post is rehabilitation. The following treatment recommendations seek to preserve and enhance those natural characteristics that remain, as well as to mitigate poor and degraded environmental and safety conditions that exist with this area. Where appropriate, recommendations are offered to further guide design and development for new construction that will balance recreational uses with a healthy environment.

### *Spatial Organization*

- Respect Woods Creek and the topography of the surrounding hills as the primary organizing elements within North Post. Consider how new buildings, structures, and circulation features can work with, rather than against these features.
- Maintain the open and relatively undeveloped character of this floodplain. Avoid the addition of buildings or structures that will further degrade its natural character.

### *Topography*

- Avoid modifications to the ravine slope south of Woods Creek as its steep grade is highly subject to erosion. Ensure that these slopes remain under vegetative cover.
- If new construction is undertaken on this slope for the purposes of rehabilitating the existing pedestrian walkway, minimize regrading to the greatest extent possible.
- Further evaluate the steep cuts and denuded areas found throughout North Post to identify areas where mitigation is necessary to control erosion. Particular attention should be given to the steep slopes at the opposite ends of the athletic fields, along pedestrian paths, the slope below the power plant and any other areas undergoing construction.

### *Hydrology*

- Work in partnership with the City of Lexington and the Woods Creek Watershed Association to establish a healthy stream and forest ecosystem in Woods Creek Ravine.
- Where possible, create a minimum 15-foot vegetated riparian buffer zone along the creek.
- Stabilize areas of the stream bank where erosion is evident. Use natural vegetation as stabilization, rather than rock revetment, to enhance the natural qualities of this creek corridor.
- Revegetate with woodland plantings all areas that are unprogrammed in order to increase habitat diversity within the floodplain. Consider ways to connect and/or augment fragmented forest patches to increase the acreage of continuous woodland available for animal habitat.

- Evaluate the use of fertilizers and herbicides used on the athletic field and consider how these can be minimized or replaced by other more environmentally-friendly management methods.
- Create a riparian buffer zone to intercept stormwater runoff from the athletic fields before it enters the creek in order to filter out these chemicals.
- Avoid any further underground piping of Woods Creek. When future improvements to the athletic fields are necessary, consider reconfiguring their layout and/or location in ways that will allow removal of the underground culvert and day-lighting of the natural stream corridor.

***Circulation***

- Avoid introducing large, over-sized, and intrusive circulation features into this character area.
- Consider removing the existing set of stairs, ramps, and walkways currently linking Central Post with North Post as these are in fair to poor condition, exhibit unsafe conditions, and are not universally accessible.
- Consider creating a new terraced garden or similarly designed feature with stairs and accessible ramps in accordance with recommendations concerning New Construction, below.
- If a new set of stairs and ramps connecting North and Central Post is not immediately feasible, rehabilitate the existing circulation features to ensure they meet minimum safety standards.
- Remove the metal edging located throughout this character area. These features, as well as the soil around them, have settled over time and have created trip hazards.
- Provide a dedicated pedestrian access to Chessie Trail from within North Post. Currently the only access to this trail is via Anderson Road.
- Rehabilitate the existing paved and unpaved parking areas as part of the larger master plan for the redevelopment of this area. Install vegetative buffers between the parking areas and Woods Creek to filter out petroleum hydrocarbons and other impurities before allowing stormwater runoff to reach the creek (see above for more detailed recommendations concerning hydrology).

***Vegetation***

- Revegetate the denuded slope north of the power plant. The rock revetment currently covering this slope is a visually intrusive eye-sore and detracts considerably from the naturalistic character of the creek corridor. Consider replanting this area in concert with any redesign of the slope for improved circulation (see recommendations above). Native tree species that would appear natural to this hillside include oaks and hickories, tulip poplars, elms, sycamores, eastern redbuds, and flowering dogwoods.
- Consider adding infill vegetation (native understory trees and shrubs) along the hillside south of Woods Creek overlooking the athletic fields. Revegetation of this area will improve screening of these fields from Faculty Row, better convey the historic wooded character of the Woods Creek ravine, and reduce the erosion potential of these steep slopes.
- Incorporate native plantings to screen or enhance new development in ways that appear natural in character and not contrived.

- New vegetation should be planted in irregular lines and blend well with the surrounding natural vegetation of the hillsides.

***Views***

- Improve views within North Post by selectively screening utility features and structures, and by revegetating steep cuts and the denuded slope north of the power plant (see above).

***Landscape Structures***

- Rehabilitate the low retaining wall north of the tennis courts. Refer to Post-wide treatment recommendations concerning Landscape Structures for detailed guidance.
- Use organic materials such as natural stone and wood, rather than concrete, as the primary construction material on new landscape structures (particularly retaining walls) as it will help reinforce the naturalistic character of this area.
- Draw from the character-defining features throughout the rest of Post, as well as historic features that are no longer extant, to ensure that any new landscape structures support a unified aesthetic.

***Site Furnishings and Objects***

- Remove the wooden bleachers located on the slope overlooking the lacrosse field. These are in poor condition and are unsafe.
- Refer to Post-wide treatment recommendations concerning Site Furnishings and Objects for general guidance on the addition of new features within this character area.

***Archeological Features***

- During early project planning consider how new construction will disturb potential archeological remains related to prehistoric and historic use of the Woods Creek floodplain (see below).

***New Construction***

The *Plan Update* identifies numerous projects for North Post that will expand upon existing athletic facilities and parking areas. Proposed developments include: a new intercollegiate playing field with turf, grand stands, and lighting; a playing field for intramural and club sports; the relocation of existing tennis courts; the expansion and improvement of the Rat Challenge course; and the relocation of the rifle range to McKethan Park with a conversion of the site to parking. Also proposed is a new entrance to North Post at Jordan’s Point.

The *Plan Update* also indicates that VMI is finalizing a cost-sharing study for North Post Development with the U.S. Army Corps of Engineers (COE). The use of federal funds for implementation would require adherence to Section 106 of the National Historic Preservation Act (NHPA) and may also require adherence to the National Environmental Policy Act (NEPA). Although the North Post playing field areas do not have any historical buildings or landscapes, there may be potential prehistoric or historical archeological resources along Woods Creek.

The new Post entrance and road improvements at Jordan's Point have the potential to adversely impact archeological and historic resources. This land at the confluence of the North River and Woods Creek was the hub of Lexington's nineteenth century commercial and industrial development. The Point is also significant for its association with Colonel John Jordan. New construction in this sensitive area could damage archeological remains of period buildings, bridges, mills, wharfs, foundries, and other historic features, as well as Native American archeological resources.

The addition of 4-5 new playing fields, support structures, paved parking areas, and new roads have the potential to negatively impact the floodplain and its ecosystem. Grading, impervious parking surfaces, a new road system including a bridge over the creek, groomed turf playing fields, and two new large Stadium structures will alter the current Woods Creek ravine landscape and potentially exacerbate flooding, chemical and pesticide run-off, and other environmental issues.

New construction at North Post will be highly visible from the Barracks and the faculty residences along the bluff and will damage historically-significant views. The North Post has historically been a natural landscape with few manmade intrusions. The proposed projects will impact views from the core NHL district and new stadium lighting would have a significant, negative visual impact during evening games.

The following recommendations and considerations apply to any new construction within the North Post character area:

- Anticipate compliance with NEPA and Section 106 of the NHPA if federal funding, licensing or permits are used or required for construction.
- Procedures as outlined in the Section 106 process should be followed for any cultural resources work requiring Federal licensing, funding, or permitting.
- Any area along Woods Creek proposed for ground-disturbance should have an archeological surface survey conducted by professional archeologists to determine the presence or absence of archeological remains. The archeological evaluation of the Woods Creek area should seek to determine the potential for the presence of intact significant archeological remains. Research should be focused on the land use of the area and how the area changed over time. Research should utilize available documents, maps, plats, plans, and photographs to assist in making a determination about previous ground-disturbing activities. If remains are identified, a work plan for testing should be developed.
- The proposed new entrance from Jordan's Point has the strong potential to adversely impact archeological and historic resources. Although the Plan Update does not detail these improvements, new construction in this sensitive area could damage archeological remains, extant historic buildings, and the former industrial cultural landscape.
- Design options that avoid, minimize, and/or mitigate adverse impacts should be developed.
- VMI should thoroughly evaluate the environmental impacts of the North Post development projects. Environmental studies should be undertaken by

environmental specialists to assess options and mitigation measures that would not cause extensive degradation of the natural stream valley. Impacts from storm water, pesticides and chemicals, paved surfaces, and new roads should be mitigated.

- VMI should thoroughly evaluate the visual impacts of the North Post development projects. Viewshed and visual analysis studies should be undertaken by landscape architects to assess options and mitigation measures that would not further degrade the historic views of this natural stream valley from the core Post.
- The results of the environmental and visual studies should inform revised site plans that minimize negative impacts. It may be necessary to relocate large surface parking and Stadium structures to less-visible locations, reconsider the appropriateness of new construction in the floodplain, and modify road and parking systems.

# CHAPTER 8
# ARCHITECTURAL TREATMENT GUIDELINES

## Introduction

The Architectural Treatment Guidelines build upon the existing condition analysis of historic buildings at VMI. Its purpose is to provide preservation guidance and best-practice approaches for all exterior building envelopes under VMI stewardship. General recommendations for historic interiors are also included. The preservation treatment guidelines contained in this chapter incorporate the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (1995) and were drafted to specifically address VMI's unique architectural resources.

## Overview of Architectural Resources

The VMI Post displays a rich architectural heritage and contains an important collection of Gothic Revival academic buildings. The Gothic Revival tradition at VMI began with the construction of the Old Barracks, designed by Alexander Jackson Davis in 1851. The massive fortress building with light-colored stucco, crenellated parapets, and clustered window groupings established the architectural vocabulary of VMI which remains through to today. Davis's Gothic Revival style was reinvigorated through the work of Bertram Goodhue at VMI from 1914 to 1917, most notably through the design and construction of Jackson Memorial Hall. The majority of twentieth century buildings at VMI has continued the tradition of harmonizing with the existing historic Gothic Revival architecture.

The VMI Post is further distinguished by the presence of historic residential buildings that reflect prevailing architectural tastes from 1818 to 1927. The ridge top estate known as Stono is the earliest known example of Neoclassical architecture west of the Blue Ridge mountains. Constructed by local builder and industrialist John Jordan in 1818, Stono provided inspiration for the spread of Neoclassical architecture throughout Lexington. The VMI Post also includes residences that express the proliferation of architectural styles throughout the nineteenth century, including the Gothic Revival Pendleton-Coles house at 309 Letcher Avenue (1867), the Italianate Letcher House at 305 Letcher Avenue (1875), and the Queen Anne residence at 450 Institute Hill (1903).

As the steward of historic buildings, VMI faces significant challenges in maintaining and preserving its architectural legacy. Although the oldest Post buildings should be treated with the highest stewardship standards, it is recommended that all historic buildings be treated carefully during maintenance, repair, and renovation projects. The existing Gothic Revival architecture vocabulary, established by A.J. Davis and Goodhue, remains intact within the historic core of the Post. The majority of the historic residential buildings retain important character-defining features on both the exterior and interior, which must be respected as future projects are undertaken.

At present, the historic buildings at the VMI Post are generally in relatively good condition. However, poor rainwater drainage for both buildings and adjacent sites is contributing to on-going, and in some cases severe, deterioration. Basic maintenance tasks have been deferred in favor of large-scale renovations and new construction projects. The current pace of renovation and new construction has led to some inappropriate additions and alterations that negatively impact the overall architectural integrity of the VMI Post.

## Applying Historic Preservation Standards

Since its inception in the late 1960s, the profession of historic preservation has successfully tested and used the *Secretary of the Interior's Standards for the Treatment of Historic Properties (Standards)* to help guide the changes that affect historic resources. The *Standards* provide a strong but flexible philosophical foundation with a set of basic preservation approaches and principles for the preservation, rehabilitation, restoration, and reconstruction of historic buildings.

The *Standards* are not rules, nor do they provide universal answers for every situation, as each building presents unique issues and opportunities. The recommendations for VMI emphasize the following approaches that should be incorporated into the university's approach to historic building stewardship.

*Repair:* Conduct regular inspections and replace deteriorated sections, features, and materials promptly. Materials and workmanship should be executed in-kind, that is, matching the historic fabric.

*Replacement:* If historic features and materials are too deteriorated to repair, they should be replaced in-kind to match the form, materials, detailing, and other physical and visual qualities of the historic fabric.

*Reconstruction:* Rebuilding missing features should only be undertaken based on historic drawings and/or photographic documentation.

*New construction/additions:* New work should be similar in size, scale, material, design, and color to the existing historic fabric and should not obscure or damage character-defining features. Designs that mimic the historic appearance or are borrowed from another building are discouraged because they confuse the historic record and diminish the integrity of the resource.

All proposals for work on historic buildings, whether they are repair, renovation, restoration, or new construction, should start with identification of the important design features and materials that make the building in question significant and unique. The architectural existing condition section of the *Preservation Master Plan* – Chapter 6 - should provide baseline building information for this critical, yet simple, assessment. The primary considerations are building shape, materials, roof and roof features, windows and fenestration patterns, entries and doors, projections such as bays or towers, woodwork and trim features, craftsmanship, and setting and site. Using this approach will result in projects that preserve the historic fabric of VMI's buildings.

## Chapter Overview

The guidelines identified in this chapter are intended to be a tool to assist VMI decision-makers, faculty, and staff in appropriate ways to manage, maintain, and treat historic buildings.

They are divided into two sections: Guidelines for Building Materials and Guidelines for Building Features. The Guidelines for Building Materials are generally organized according to the broad construction divisions for architecture created by MASTERSPEC, an industry standard for organizing construction specifications. They specifically look at concrete, masonry, and wood. The Guidelines for Building Features focus on recommendations and treatment guidelines for specific building elements such as roof systems, doors, windows, and coatings, such as stucco and paint. General interior recommendations are also included.

Each section begins with an overview including typical conditions, how to conduct inspections, causes of deterioration, and repair and replacement guidelines. Each section serves as a checklist of items that should be considered when evaluating treatments, alterations, and renovations to historic buildings at VMI.

# Guidelines for Building Materials

*Use of concrete is visible at Preston Library.*

## CONCRETE

Cast-in-place concrete was used at VMI for building foundations after 1910. It was also used for the construction of balconies and piers, such as at the interior of the Old Barracks, and for bridges, ramps, and stairs, as seen throughout the Central Post. Cast-in-place concrete was also used for large structures constructed post-1930. Cast-in-place concrete was rarely used as a decorative material. Cast-in-place concrete, often found at ground level, is vulnerable to deterioration from site drainage problems, freeze/thaw cycling, salt damage, and structural stresses.

Cast-in-place concrete is a system composed of a cement matrix that has hardened around an interior matrix of coarse and fine aggregate and metal reinforcement. In contrast to pre-cast concrete or architectural concrete, it is poured into formwork, cured, and finished on-site. Its compressive strength is acquired from the hydration of the cement which forms a binding paste around the aggregates. Metal reinforcement gives concrete tensile strength. The alkalinity of sound concrete protects the reinforcement from corrosion by stabilizing an oxide film over the steel. Corrosion will be inhibited as long as the oxide film over the reinforcement is not impaired.

### *TYPICAL CONCRETE CONDITIONS*

Concrete work that predates 1950 is prone to failure from design or installation flaws; before this time concrete was poorly understood as a building material. Expansion joints were typically not properly installed in monolithic cast-in-place concrete construction, leading to cracking and metal reinforcement was often installed too close to the surface, causing rapid reinforcement corrosion. Concrete mixes contained too much or too little aggregate, producing shrinkage cracks or spalling. Harmful additives, such as chloride containing compounds, were added to alter setting times. Air-entrained concrete evolved in the mid-1930s and significantly improved concrete’s ability to withstand freeze/thaw deterioration. This process creates air bubbles in the mix, which form a system of fine, discrete pores that aid in relieving freeze/thaw stresses. Concrete installed prior to this invention is therefore inherently more vulnerable.

Cracking in concrete can range from hairline cracks to large gaping cracks and may be caused by a combination of deterioration mechanisms. Overall map cracking, an interlocking system of fine cracks, is caused by shrinkage of the concrete during installation or internal stresses, such as occurs with the alkali-silica reaction of certain aggregates. Vertical cracks may be caused by natural expansion forces in the material or by shrinkage during the original concrete set.

Delamination is the loss of concrete material in thin sheets. Delamination is caused by inherent flaws in the original material, such as too much aggregate in the mix, and is exacerbated by freeze/thaw cycling, salts, and structural stresses.

### *CONCRETE INSPECTIONS*

As with all exterior envelope materials, routine inspection is the best method of identifying potential problems in order to avoid any major failures. A thorough visual inspection should look for the following potential signs of deterioration:

- Discernable crack patterns.
- Rust staining or efflorescence associated with cracking.
- Delamination of surface material.
- Spalling or loss.
- Rust staining.
- Efflorescence.
- Water leakage, ponding, or areas of poor drainage.
- Exposed and/or corroding reinforcement.
- Foundation settlement.

If an inspection identifies major deterioration, a structural engineer with experience in historical concrete construction should conduct an in-depth assessment.

### *CAUSES OF CONCRETE DETERIORATION*

Freeze/thaw cycles, salts and efflorescence, and corrosion are the primary causes of concrete deterioration.

#### *Freeze/Thaw*

Deterioration from freeze/thaw cycles is dependent on the permeability and porosity of the concrete. Damage will not occur unless there is a sufficient amount of water in the capillary pores of the concrete. The entire volume of the concrete does not need to be saturated to cause damage as surface layers can spall and delaminate from freezing pressure. Air-entrained concrete reduces these pressures by allowing expansion within the small, discrete voids. Since air-entrained concrete dates to the mid-1930s, much of the failure of earlier concrete was caused by freeze/thaw deterioration.

#### *Salts and Efflorescence*

Solutions of salts or carbon dioxide percolating through concrete can cause leaching and deterioration of the concrete. The type of efflorescence depends on the rate of evaporation of the solution when it reaches the surface of the concrete. If the evaporation is rapid, salts can be deposited within the pore system inside the concrete. The pressures caused by crystallization and hydration of salts in the presence of a saturated solution can then disrupt the cement paste. Finally, damage occurs on surfaces where drying takes place.

If the rate of evaporation is fairly slow, efflorescence will appear on the surface of the concrete. The formation of efflorescence requires that water laden with certain elements move through or flow over the concrete. These deposits come from elements that were carried in the water. In particular, calcium carbonate in the water is problematic. It forms on the surface of concrete when carbon dioxide in solution percolates through the concrete, dissolving the carbonates in the cement paste, and then depositing them on the surface. This leads to unsightly masses on affected surfaces.

### *Corrosion of Reinforcement*

Corrosion of the metal reinforcement in concrete is inhibited by its high alkalinity. Concrete forms an oxide film over the steel and prevents further attack. Sufficient concrete covering on the reinforcement will further inhibit corrosion. The protective alkalinity of the concrete can be disrupted by lowering pH values by carbonation, cracking, or loss of the surface concrete. Carbonation is the reaction of carbon dioxide with the cement paste, which forms calcium carbonate. This reaction significantly lowers the pH of the concrete. If the zone of carbonation reaches the reinforcement, it can disrupt the protective oxide layer and induce corrosion. Corrosion can also occur if other problems, such as cracking, delamination, or spalling, disrupt the concrete cover and allow water to reach the embedded metal.

## *GUIDELINES FOR CONCRETE REPAIR AND REPLACEMENT*

The following guidelines should be followed when undertaking any project to repair or replace concrete on the Post.

### *Concrete Repair*

- Concrete repair work, whether its purpose is to repair cracks, delamination, or spalling, install large replacements, or repair rusting reinforcement, usually involves removal of deteriorated material.
- Deteriorated concrete must be removed using methods that do not damage surrounding sound concrete. Impact methods may cause new cracking in adjacent sound concrete. Cutting methods or small, hand-held chipping guns are preferred methods.
- The surface of the concrete and reinforcement to be repaired must be properly prepared. Inappropriate preparation of concrete surfaces is the primary cause of failure for concrete repairs.
- The concrete surfaces to be repaired must be clean, free of dust, and roughened to promote a mechanical key with new concrete. Embedded, rusting reinforcement must be exposed to the full extent of the corrosion. The rusting reinforcement must be cleaned of all corrosion down to clean metal. The cleaned reinforcement should be painted with a rust-inhibiting coating.

### *Concrete Replacement*

- New concrete can be placed using conventional cast-in-place methods, through shotcrete methods for large areas, or by hand-troweling or grout-injection repairs for smaller areas.
- Repair mixes must be formulated to match the strength and appearance of existing material and also have low shrinkage.
- Concrete that does not have an exposed aggregate finish may be coated with a silicate mineral paint or other breathable masonry coating to cover repair work.

## MASONRY

The majority of VMI's most important nineteenth and early-twentieth century buildings have load-bearing, or partially load-bearing, exterior masonry walls. The majority of the large-scale academic buildings that pre-date 1920 have structural brick walls that are finished with stucco and limestone or cast stone trim. Several later buildings are constructed using concrete masonry units. Masonry, most commonly brick, is exposed on the majority of the residential buildings. Terracotta is used in only a few cases as trim ornament. Exterior masonry is a very important and highly-visible characteristic of the historic Post; the material helps to define the overall architectural style, age, and design of the buildings. The original masonry used at VMI has lasted for generations--a testament to the cost-effectiveness and durability of traditional materials.

Even though masonry is durable, proper care should be taken to ensure its long-term survival. Exterior walls respond to the effects of rain, wind, sun, and temperature and their stability is key to the long-term preservation of a building. Masonry maintenance is not just an aesthetic consideration but a structural one. As with all historic materials, frequent evaluation and careful maintenance can solve minor problems before they become large and expensive repairs. The preservation approach for masonry at VMI emphasizes retention and repair; if replacements are necessary they should be made in-kind, matching the existing in color, texture, size, and other visual qualities. Every masonry material has its own design and maintenance issues that should be considered.

### *TYPES OF MASONRY*

There are five types of masonry found throughout the VMI Post: brick, stone, cast stone, concrete block, and terracotta.

#### *Brick*

Brick is the predominant masonry material at VMI, though a good deal of the brick masonry is covered with stucco. Bricks vary according to their composition and manufacturing process. Early brick making technology produced bricks of varying quality, thus the quality of the brick used in historic buildings varies considerably, depending upon the materials used, shaping methods, firing quality, and other manufacturing considerations. Higher quality bricks were used for exposed, exterior brick. The softer, salmon-colored bricks were used in the construction of inner walls or exterior walls that were intended to be covered with stucco.

*Brick, one of the most common building materials on Post, can be seen at 450 Institution Hill.*

Like a loaf of bread, bricks have an outer crust and a softer inner material. Without the outer crust, the inner brick is vulnerable to rapid deterioration. Removal of the outer crust by harsh abrasive or chemical cleaning greatly reduces the durability of the original bricks. For softer salmon bricks that were never meant to be exposed, the removal of exterior stucco can also increase the rate of deterioration by removing the protective layer. Brick functions best when laid with bricks of a similar type and with a mortar mix that is carefully matched to the brick type. Exterior stucco must also be compatible with the underlying brick masonry and mortar type; the stucco should be breathable and match the hardness and flexural strength of the underlying masonry structure.

It is important that brick masonry be protected from water infiltration through adequate roofing and water and site drainage. Bricks are porous and can absorb moisture much like a sponge. Water infiltration can cause freeze/thaw damage to bricks in cold weather. Water from the ground can carry salts in solution into the brick masonry, which can cause internal stresses as the salts form during evaporation. Waterproofing coatings are not recommended for brick masonry. They are often responsible for trapping water within the masonry rather than keeping it out.

***Stone***

*The use of stone is often seen in small-scale building features, such as this railing at Maury-Brooke Hall.*

Few buildings at VMI are built entirely of stone. The two exceptions are outbuildings located on the Stono property. These small-scale outbuildings, including an ice house and summer kitchen, were constructed with local limestone masonry and appear to have been originally covered with stucco. The local limestone is a clay-rich, blue-colored limestone that has been folded and stressed during geological formation. The stone naturally weathers with fine cracking and delamination of large rounded layers of stone.

Local limestone and Indiana limestone are used extensively as trim material for foundations, lintels, window sills, window tracery, parapet caps, and carved panel decoration. Local limestone was used for trim masonry in buildings dating to pre-1900. The local limestone is suited only for simple, square-cut stone with smooth to rough-faced finishes. Indiana limestone was used for more complicated trim elements in later buildings. Indiana limestone is a buff-colored homogeneous limestone with few mineral inclusions. It is so regular in color and texture that it can easily be confused for cast stone. The fineness of Indiana limestone makes it ideal for carved moldings, muntins, and decorative panels.

Slate is used as a paving material primarily at entrance plazas at VMI where it was introduced in projects as a paving material post-1915. Slate is a metamorphosed sedimentary rock that tends to delaminate along natural bedding planes. Slate is a durable paving material, but is susceptible to deterioration from salts.

Natural stone has a variety of physical properties, depending on its type, place of origin, and method of quarrying. Stone is a long-lasting material, but still vulnerable to decay. All stone can be damaged by salts, freeze/thaw cycling, inappropriate or hard mortars, harsh chemical or abrasive cleaning, and improper coatings.

***Cast Stone***

Cast stone was used at VMI as a decorative trim material for stuccoed buildings. It was particularly popular for buildings constructed in the 1930s and 1940s, including Nichols Engineering (1931), Crozet Hall (1934), Richardson Hall (1935), ROTC Motor Shop (1935), Preston Library (1939), and Cormack Field House (1943). Cast stone is composed of a cement matrix surrounding embedded aggregate and sand. Metal reinforcement was not typically used. Cast stone is molded into forms in a relatively dry state and is, therefore, ideal for repetitive elements. It is laid in mortar and installed in a similar manner as that of dimensional stone.

Cast stone is prone to deterioration from manufacturing flaws, particularly in units made before the implementation of industry standards in 1931. Webs of fine cracks can be caused by poor mix formulations or inappropriate curing methods. Delamination can occur from the use of incompatible core and facing mixes. Inherent manufacturing flaws will be exacerbated by freeze/thaw action, salt formation, and structural stresses. However, cast stone is a porous building material and is therefore vulnerable to deterioration from water infiltration, regardless of manufacturing flaws.

***Concrete Block***

Concrete block was used in the construction of utilitarian buildings at VMI, including Cormack Field House (1943). Concrete block consists of a Portland cement binder hardened around aggregates. Concrete blocks were molded in solid or hollow forms to standard sizes. Unlike cast stone, concrete block was a predominantly structural material that was not used for fine ornamentation. While concrete block was available from 1900 to the late-1920's, industry standard sizes and quality control were not established until 1930. Concrete blocks are subject to deterioration from water infiltration, which causes spalling and delamination from freeze-thaw action and salt efflorescence. Cracking may be caused by shrinkage during manufacturing or by structural stresses.

***Terracotta***

Terracotta is found only as coping stone units over the Jackson Arch of the Old Barracks and at Carroll Hall. Terracotta is a made from a mix of clay and grog (previously fired clay products) that has been fired. The clay mixture is pressed into a mold, released in its molded shape to dry, and then glazed and fired. Certain shapes can also be formed through extrusion. Terracotta is ideal for use in repetitive building elements. Historically, terracotta was installed as a trim element and was built into a masonry backup, often with steel anchors and supports.

Water infiltration is the major source of deterioration of terracotta causing cracking, spalling, loss of glaze, and displacement. Water infiltration can also cause corrosion of metal anchors and supports, which can lead to fracturing and displacement of terracotta units. Structural and thermal movement can lead to systemic cracking through multiple units. Water and moisture can also exacerbate deterioration through freeze/thaw cycling and salt efflorescence. Water may get trapped inside terracotta though the use of inappropriate sealant joints or waterproofing coatings. As with brick, terracotta units have a hard fire skin or protective outer glaze coating. If this outer protective layer is removed through cleaning or deterioration, the underlying, softer clay body is more vulnerable and subject to rapid decline.

### *TYPICAL MASONRY CONDITIONS*

Historic masonry conditions on the VMI Post are generally good; there are however, a few exceptions. The most prevalent problem affecting masonry on Post is water penetration from poorly-maintained roof drainage systems and poor site drainage. Clogged, rusted, or deformed gutters, inadequate downspouts, water ponding, chronic moisture at foundations, and soil erosion have been observed throughout the Post. Poor site drainage and structural settlement have caused major masonry disruption in the Commandant's Quarters and at the Bachelor Officer's Quarters (301 Letcher Avenue). Serious problems are developing at Stono and at the Cabell or Archer House (306 Letcher Avenue).

More typical than these major problems are minor issues such as eroded mortar joints, efflorescence, biological growth, and deteriorating masonry are evidence of chronic moisture problems, particularly at foundations where downspouts drain water onto the adjacent site.

Inappropriate maintenance practices have caused or accelerated masonry deterioration at various locations throughout the Post. Brick masonry has been damaged by aggressive abrasive cleaning at 450 Institute Hill and deicing salts have caused delamination of slate and limestone masonry. Sealant joints installed on vertical wall surfaces have trapped water in the masonry, causing spalling and the corrosion of embedded metal anchors.

### *MASONRY INSPECTION*

The best course of action to maintain masonry is cyclical inspection and repair. A yearly baseline inspection should be comprehensive and examine building exteriors and interiors, particularly in attics and basements. Water penetration is the primary source of masonry damage. Although masonry is a durable material, it is still vulnerable to decay. To remain in good condition, masonry wall must be structurally stable and weather tight, while also allowing enough flexibility to accommodate seasonal movement.

Inspections should include a comprehensive survey to identify potential problems. Exterior masonry inspections should be conducted in tandem with a complete roof drainage system inspection. Evidence of any of the following should trigger further investigation or remediation:

- Leaking, broken, or overflowing roofs, gutters, and downspouts.
- Soil erosion, lack of splash blocks, negative drainage.
- Ponding and underground drainage problems.
- Rising damp (moisture migrating up from sub-grade/foundations into masonry walls causing efflorescence, staining, and exfoliation).
- Biological growth, staining, or efflorescence on walls.
- Invasive vegetative growth on or near masonry surfaces.
- Quick-fixes such as caulks and sealants.
- Mortar erosion, mortar failure, and open joints.
- Cracked masonry in conjunction with hard cement-type mortar.
- Uneven weathering.
- Mechanical injury.

- Spalling and damage from rock salt or other chemicals.
- Spalling or buckling caused by movement, such as freeze-thaw cycles.
- Differential building settlement.
- Cracks through masonry joints or masonry units caused by movement.

### *CAUSES OF MASONRY DETERIORATION*

Primary causes of masonry deterioration at VMI include water infiltration, vegetation, structural stress, improper maintenance treatments, and thermal movement.

#### *Water Infiltration*

Water infiltration is the most common cause of masonry deterioration. Water infiltration erodes joints, carries salt into the masonry, promotes biological growth, and causes freeze/thaw stresses. Water can penetrate walls from above because of faulty roof drainage or from below due to rising damp. Regular inspection of roofing systems and site drainage in conjunction with inspection of masonry walls is the first line of defense.

A common problem at VMI is dampness at building foundations caused by a combination of poor roof drainage and poor site drainage. This is directly related to a lack of maintenance systems, resulting in damaged, clogged, or missing gutters, downspouts and underground drains. Eroded mortar, efflorescence, biological growth, and rising damp are symptoms of an underlying moisture problem. Water is absorbed by the wall and drawn upwards through the masonry pores by capillary action. Water then gravitates to the masonry surface where evaporation occurs, resulting in a characteristic tide line of wet masonry at the base of the wall. Biological growth will form on the surface of chronically damp masonry. In addition, water that is drawn from the soil into the building wall is laden with salts. These salts evaporate out of the water at the point in the wall where the rising damp stops. Here, salts will form just under the masonry surface, damaging the microstructure of the masonry from within.

It is important to identify the cause of any deterioration that is found and undertake appropriate repairs. Repairing the masonry alone will not fix the root of the problem, and future masonry deterioration will be inevitable.

#### *Vegetation*

Moss or biological growth on masonry or adjacent soil surfaces is a sure sign of long-standing moisture problems. This is commonly seen in buildings with poor roof and site drainage; buildings built into the hillside or surrounded by poorly-graded paving are particularly vulnerable. The roots and tendrils of moss, lichens, and other biological growth trap moisture and contribute to deterioration.

Shrubs and trees in close proximity to masonry walls trap moisture and prevent walls from drying out properly. Tree limbs that extend over roofs deposit debris that can clog or damage gutters and downspouts, leading to the deterioration of adjacent masonry. Over time, ivy and other vines growing directly on masonry walls saturate them with moisture that erodes mortar and causes spalling during freeze-thaw cycles. Established plantings of ivy are invasive and work their way into cracks and mortar joints, further exacerbating the moisture problems. Attempts to remove established ivy often results in damaged masonry surfaces and pitting; therefore, it should be cut off at the base, removed gently by hand, and subsequently should not be allowed to establish itself.

***Structural Stress***

Masonry wall cracks are problematic because they indicate building movement and provide opportunities for moisture penetration and further deterioration. Cracking may be caused by settlement, structural failure, freezing moisture within the wall, or rusted metal reinforcements. Cracking along the mortar joints or through masonry units is an indication that the masonry is in motion. If cracks are observed in a masonry wall, a structural engineer should be consulted to determine the cause and appropriate remedial treatments. The majority of structural problems can be prevented through proper inspection and preventative maintenance. It is important to identify ongoing deterioration, such as water infiltration and poor site drainage, before it leads to structural problems.

***Improper Maintenance Treatments***

Improper maintenance treatments, such as aggressive cleaning, use of deicing salts, waterproofing coatings, inappropriate sealant installation, and hard pointing and bedding mortars, can accelerate or directly cause masonry deterioration. Sandblasting, harsh chemical cleaning, and other abrasive cleaning methods inevitably damage the exterior surface of the masonry. This damages the hard, protective surfaces of fired clay masonry, such as brick and terracotta. By roughening the surface of all types of masonry, such cleaning methods increase the potential for reactions with acid rain and biological growth.

Traditional sodium, calcium, and magnesium chloride based deicing salts can damage entryway and foundation masonry, as well as doors and door frames. The salts are then absorbed into the masonry. As the masonry dries, salts form deep within or on the surface of the masonry causing internal stresses and damage. Alternative deicing materials, such as sand, cat litter, or chemical deicers such as calcium magnesium acetate, have proven to be effective while reducing their effects on the environment.

Waterproofing coatings, synthetic stucco, and exterior insulation should not be installed over historic masonry because they can create interior condensation that damages the wall’s integrity. Masonry buildings must be allowed to breathe by allowing water vapor from the building interior to migrate through the wall and evaporate outside. Masonry walls should only be insulated from interior surfaces using a proper vapor barrier. The exterior walls of historic buildings should not be insulated if it means removal of intact historic interior finishes. Additionally, such barriers inevitably fail when applied over historic masonry and allow water into the wall, often trapping it in, exacerbating all of the problems associated with water infiltration.

Sealant should only be installed in masonry units located on wash surfaces, such as coping units, projecting water table and belt courses, and steps. Sealant should never be installed on vertical wall surfaces. Sealant will trap water within the masonry wall, forcing the water back into the masonry units. Any embedded metal anchors located within the wall will corrode, causing stresses.

Historic masonry at VMI has typically been repointed with extremely hard, dense Portland cement mortars in a mistaken belief that a stronger mortar makes for a more durable masonry wall. In most cases, the cement mortars are harder than the masonry, causing eventual deterioration of the softer, more porous masonry during freeze/thaw cycles. Masonry load-bearing walls are also subject to daily and seasonal movement from differential thermal movement. Hard, dense Portland cement mortars are inflexible and do not allow for this movement, leading to cracking of the masonry.

***Thermal Movement***

Minor masonry deformation and some systemic cracks can be caused by thermal movement. The most visible form of thermal movement is the deformation of masonry chimneys over time. Tall chimneys will slowly twist as each face is warmed by the sun. Thermal movement is also responsible for cracking caused by differential thermal movement between two different building materials. For example, stucco applied over metal lath will have different thermal movement than the underlying masonry, leading to delamination and cracking.

***GUIDELINES FOR MASONRY REPAIR***

The following recommendations are intended to be a general treatment guide; case-by-case solutions can vary depending upon the specific individual conditions.

- Masonry repair is a complex subject; repairs should only be performed by those skilled in masonry preservation approaches and techniques.
- The type of masonry, the type and extent of damage, and the proposed methods of repair should be determined prior to beginning any work.
- It is important to understand that different types of masonry have different physical properties, weights and densities, and surfaces. Detailed information on appropriate treatments for historic masonry can also be found in the National Park Service series of *Technical Preservation Briefs.*
- It is best to consult a restoration contractor or preservation professional before undertaking repair or repointing because appropriate work is important, not only for aesthetic reasons, but also for the masonry’s long-term stability and durability.

***Water Infiltration Problems***

- Many deterioration mechanisms in masonry are related to or exacerbated by moisture and water infiltration.
- Begin by identifying the source of moisture or water infiltration and rectifying these problems first. As long as the deterioration is not critical to structural stability, repairs to masonry units and mortar joints should be postponed until water problems have been addressed.

- Rising damp solutions are complex and should be handled by a contractor or specialist skilled in historic masonry. Consultation with a landscape architect is often required for site drainage issues.
- Repair or replacement of faulty roof drainage systems is the primary consideration. Other remedial measures can include installation of underground drainage, replacement of underground drainage pipes, and regrading. A vapor barrier can be installed along the base of the wall, but this involves extensive excavation.
- Harsh cleaning should be avoided because it exacerbates rising damp and related moisture problems.
- Adjacent trees and shrubs, as well as vines and biological growth growing on the masonry, contribute to moisture problems.
- As with all moisture-related problems, careful diagnosis should precede remedial work.
- Pruning, selected removal of foundation plantings, and gentle hand removal of plants attached to masonry should precede repair work.
- Any cleaning method deemed necessary to remove biological growth and gypsum crusts from brick and masonry should use the gentlest means possible. Biocide masonry cleaners containing quaternary ammonium compounds may be effective in areas of heavy biological growth.
- Holes, slits, or borings in brick and masonry that can allow water to enter should always be limited in size and number. Any opening should be cut through mortar joints with minimal harm to the adjacent masonry. Openings with protruding metal elements, such as pipes or conduit, should be treated with an appropriate sealant colored to match the existing material. Openings that have been abandoned with no protruding elements should be repaired with mortar that matches the existing masonry surface in color, strength, texture, and finish.

***Masonry Crack Repair***

- All cracks in masonry must first be properly diagnosed. Cracks caused by structural stresses must be investigated by a structural engineer who can recommend remedial repairs. As with moisture problems, the underlying structural problems must be addressed before performing repairs.
- Cracking from a one-time event, such as small-scale settlement, may require a cementitious mortar or grout repair. Cracking through masonry joints should be repaired by repointing the affected joints. Cracking through masonry units may require the installation of reinforcement and a cementitious patch or grout repair.
- The failure of structural masonry lintels and sills usually occurs due to movement in the surrounding masonry. This is often caused by building settlement.
- Damaged lintels can be reinforced with a hidden means of support, such as a steel lintel extending 4 to 6 inches beyond the jambs of the openings on each side. If the masonry lintel is a large dimensional stone, the cracked stone may be repaired using pin repairs.
- Long, deep cracks in the masonry must be patched using a knife-grade patching compound to prevent further moisture penetration. The visual impact of such a repair should be minimized by using a colored mortar that is similar to the color of the masonry being patched.

- Not all cracks in masonry require repair. Cracks may simply be a part of the natural weathering process for some stone masonry. Small, hairline cracks on vertical surfaces of stone masonry should not be repaired unless they are deep enough to allow water to infiltrate into the masonry wall. However, such cracking on horizontal wash surfaces should be patched with a knife-grade patching compound to prevent water infiltration.

***Patches***

- Small pieces of masonry lost through spalling or delamination can be repaired with a cementitious patching compound that matches the color and hardness of the primary masonry.
- Proprietary patching compounds must only be installed by trained masons. Many manufacturers offer training courses and certification for masons.
- Commercially-available patching compounds can be either Portland cement-based or natural hydraulic lime-based. It is important to choose a patching compound that is compatible with the compressive and flexural strengths and permeability characteristics of the masonry to be repaired.

***Dutchman Repair***

- Damaged areas of masonry that are too large to patch may be repaired by installation of a masonry dutchman.
- In this procedure, the deteriorated portion of the masonry is cut away and a new piece of masonry (the dutchman) is installed to match the existing.
- Dutchman repair is a much more durable repair than a cementitious patch repair. A cementitious patch may need to be replaced after 10-15 years, while a properly-installed dutchman should last as long as the masonry itself. Dutchman repairs require skill to install correctly and should not be attempted by inexperienced personnel.

***Consolidation***

- Consolidation of masonry should only be considered in situations where the masonry is friable (prone to crumbling) and exhibits surface disintegration. Consolidation works on a microscopic level to strengthen cohesion between grains.
- Consolidation is not appropriate for delamination, spalling, or large-scale cracking.
- Commercially-available consolidants are not appropriate for masonry containing a calcium carbonate binder, such as limestone. Consolidants have only proven effective on silicate-based masonry such as sandstone.
- If the masonry type and deterioration warrants consolidation, the first step is to characterize the masonry through petrographic analysis and materials characterization. Testing is performed in a laboratory to investigate how the consolidant treatment affects the physical characteristics of the stone. If laboratory testing determines that the consolidant is well-absorbed by the masonry and does not significantly alter its physical characteristics, then the consolidant should be tested in field mockups. Consolidation is an irreversible treatment and should not be undertaken by unskilled personnel or without the proper laboratory and field testing.

### *Cleaning*

- Careful project planning is essential when making decisions about cleaning historic masonry. The initial assessment should evaluate the historic material, the reason for cleaning, and the cleaning method.
- Cleaning should be undertaken only where dirt or other material obscures significant architectural features, or is causing, or has the potential to cause, damage to masonry.
- Cleaning should never remove the patina that is evidence of a structure's history and age. It should never be performed for the sole purpose of achieving a new appearance. Gentle cleaning is only appropriate when surface soiling contributes to deterioration or in preparation for repainting walls that have been painted previously.
- Cleaning methods should be carefully selected to do the job without harming the historic material. Moreover, it is important to have realistic expectations: the goal of the cleaning process is not to create a like-new appearance.
- It is better to under clean than to over clean because the latter inevitably causes damage.
- A number of chemical treatments are available for cleaning masonry. Chemical treatments should be approached with great caution because they can cause irreversible damage. They should never be applied by unskilled personnel.
- Understanding the physical properties of the masonry in question is a vital first step before proposing or testing any chemical cleaners.
- The preservation approach is to always employ the gentlest cleaning method starting with low-pressure water and natural bristle brushes. Water pressure should be no stronger than 150-200 pounds per square inch (psi). High-pressure water spray can damage masonry surfaces and drive moisture into cracks and joints.
- If chemicals must be used, test panels should be developed and carefully evaluated to avoid over cleaning. Chemical cleaners must be chosen by a knowledgeable professional who understands the type and condition of the masonry material to be cleaned.
- Only non-acidic neutral pH detergents should be used in conjunction with non-metallic brushes or scrapers; metal brushes can permanently damage masonry. Acidic cleaners or highly alkaline cleaners can damage historic materials and should be avoided.
- Prior to cleaning, the proposed methods should be tested in an inconspicuous area to evaluate potential adverse impacts. Although it is time-consuming, the best way to determine the long-term effects of a cleaning process is to treat a small portion of the wall and observe it over a seasonal cycle.
- It is also important to repoint deteriorated mortar joints prior to cleaning to ensure that water does not penetrate the wall during cleaning.
- Water or chemical cleaning should not occur when the temperature will fall below 50 degrees Fahrenheit for three days (72 hours) after cleaning. VMI should ensure that staff and contractors applying the treatment follow the manufacturer’s instructions exactly. If chemicals are improperly applied, they can result in permanent damage that far outweighs any benefit of cleaning.

- Abrasive sandblasting should never be used on historic masonry because it is irreversible and extremely damaging. Sandblasting accelerates deterioration of historic masonry materials and has a profound negative impact on a building's historic character. Sandblasting removes the hard, protective surface of the masonry and breaks mortar joints, leading to moisture penetration.
- If masonry surfaces were painted historically, they should remain painted. Paint has a specific protective function and often plays a part in the overall historic design and appearance. Paint clings tenaciously to the tiny pores and fissures of a masonry wall and its mortar joints.
- For this reason, paint on masonry is difficult to remove and should not be attempted only for cosmetic reasons.
- If conditions warrant paint removal, it should be approached cautiously using the gentlest means possible. Test patches in inconspicuous locations should precede any large-scale or overall cleaning.
- Cleaning solutions should start with the lowest recommended concentration and gradually be increased to find the appropriate level.
- Efflorescence is a whitish stain on brick that is the result of crystallized water-soluble salts. Deposits can be removed with a natural bristle brush or with a solution that neutralizes the salt. Widespread efflorescence on an historic wall, however, indicates moisture penetration.
- Harsh chemical and abrasive masonry cleaning that removes the brick’s hard protective surface is one cause of efflorescence; constant moisture from clogged or inadequate roof drainage systems is another. In these situations, diagnosis and remediation should be undertaken prior to removing efflorescence.

***Masonry Coatings***

- Waterproof coatings, paint, or stucco should never be applied to uncoated masonry buildings to solve moisture-related problems or as a substitute for repointing and preventative maintenance. Over time, they trap moisture within the walls and cause a host of related problems.
- In some cases, a breathable masonry coating may be desired, to conceal concrete or stucco repairs, or unsightly staining. It should be understood that most masonry coatings are difficult, if not impossible, to remove.
- Coating masonry must not be undertaken without considering the long-term effects.
- If a masonry coating is required, the selection of a true breathable coating is critical for the long-term performance of both masonry and coating. Opaque, breathable masonry coatings are currently available as acrylic latex paints specifically formulated for masonry. They reduce the breathability of the masonry by ten percent. In theory, it may be possible to remove these coatings in the future, but this has not yet been tested.
- Damaged brick may receive some protection from the application of a semi-transparent silicate mineral paint. A silicate mineral paint will permanently bind to the brick or other silicate-based masonry substrate if properly prepared, and may offer some protection against weathering. Silicate mineral paints have excellent breathability and a proven track record for application on silicate-based masonry materials. A mockup

should be prepared to evaluate the coating *in situ* prior to large scale treatment.
- Buildings that have been painted may prove to be a maintenance problem. New coatings must be compatible with the existing paint to adhere properly.
- All loose or deteriorated paint should be removed and a new, breathable masonry coating compatible with the existing paint substrate applied. In other areas, small discreet areas of paint removal may be desirable.

***Sealants***
- Waterproof building sealants should only be applied to joints in horizontal surfaces at coping units, sills, steps, and at projecting cornice, belt, and water table courses. These joints are particularly prone to water penetration.
- Proper sealant installation involves installation of a foam backer rod with the correct diameter for the size of the joint. Sealant must be installed against the backer rod, forming a concave joint between the masonry units.
- Do not allow sealants to overlap the outside face of the masonry, as it will cause the sealants to fail prematurely.
- Do not use sealant in joints on vertical wall surfaces because it will trap moisture within the wall and lead to deterioration.

***Masonry Repointing***
- Repointing is the repair of deteriorated mortar joints, accomplished by removing and replacing old, deteriorated mortar. Appropriate repointing, using preservation techniques, is critical to a historic masonry building's physical condition and plays a significant role in integrity and appearance.
- When mortar joints fail in masonry, they allow water to flow into the areas around the masonry, creating a chain of events that can weaken the entire wall. Variations in pressure caused by water and ice can cause individual masonry units to move.
- Appropriate repointing techniques and mortar mixes will vary according to the type of masonry.
- Therefore, consultation with preservation contractors and professionals is strongly recommended before undertaking repointing projects. Masons trained in new construction usually lack expertise with historic masonry.

***Replication Mortar Mixes***
- The mortar mix is critical to masonry function and aesthetics and will vary according to the type of stone or brick.
- Ideally the composition of the new mortar would duplicate that of the original mortar mix. However, it should be noted that even current mortar analysis techniques cannot accurately determine the actual original mix; there are far too many variables. Mortar analysis techniques can provide subjective data on properties of the mortar such as probable binder content, hardness, air content, and color. However, no technique available today can accurately determine the actual original mix.
- An historic mortar analysis can, however, provide valuable information for characterizing the original mortar. This simple acid digestion and gravimetric analysis is usually performed by a building conservator for a modest cost. It is highly recommended as the first step in matching existing

mortars for spot repointing. The analysis releases the original sand content, allowing analysis of sand color, mineralogical content, and grain size; matching the original sand is important to finding a good replication mix.

- In addition to mortar analysis, it is critical to understand the strength and permeability of the existing historic masonry. Knowledge of the physical properties of the existing masonry will aid in choosing a mortar mix with compatible characteristics.
- New mortar must be weaker and more permeable than the existing masonry. Knowledge of both the masonry's physical properties and the probable mortar binder and sand content, allows for preparation of a custom mortar that is physically compatible with the masonry and matches the mortar in color and texture. Iron oxide pigments may be added to match the color of historically pigmented mortars. Multiple test panels are usually needed to achieve the right color and texture match.
- Historic mortars were typically composed of lime, which is more flexible and permeable than Portland cement-based mortars. Today's high-strength, commercially available Portland cement mortars are inappropriate for VMI's historic masonry buildings because they are hard and dense. Modern mortars are designed to match the characteristics of new, unweathered stone and contemporary hard brick, not historic masonry.
- When hard Portland cement-based mortars are used for pointing historic masonry, the mortar is harder than the masonry. Adding mortar that is too hard or dense to the soft or weathered historic masonry leads to accelerated masonry deterioration. The hard mortar traps moisture within the wall, which then cannot escape through the joints as it would normally. Instead, the moisture enters the softer and more permeable masonry and causes spalling, cracking, and deterioration.
- In historic masonry buildings, soft mortar joints are flexible enough to allow for the seasonal expansion and contraction of the wall. Modern buildings control this movement through expansion joints.
- If an historic masonry wall is pointed with a harder, less-flexible mortar, the masonry becomes the weakest link. The masonry, not the mortar joints, will crack, spall, or deteriorate as it absorbs the stress caused by seasonal changes and movement. If left unchecked, this masonry deterioration can result in structural failure of the wall.
- Commercially-available masonry mortars should also be avoided because they can contain unnecessary, and undisclosed, additives and fillers. In addition to these functional concerns, modern mortars have a brighter and more uniform appearance than historic mortars.
- Natural cements and natural hydraulic limes have currently come on the US market and should be considered for repointing historic masonry. Natural cements are produced from burning clay-rich limestone at temperatures that are typically lower than those used to make Portland cement.
- Natural cements tend to perform in a similar manner as Portland cement and hydrated lime mixes. It is imperative that natural cements be installed by a mason who is familiar with the product and the curing requirements.
- Natural hydraulic limes are also produced from burning clay-rich limestone at lower temperatures, but typically have more free lime than natural cements. Hydraulic lime mortars are more vapor permeable than cement-lime mortars, which aids water and salt removal within the masonry, and have better elasticity, allowing for building movement without cracking.

However, hydraulic limes do require treatment after placement to ensure proper curing, which is vital for frost resistance. The choice of a contractor with experience using hydraulic limes is the key to a successful project.

***Good Repointing Practice***

- Mortar should only be removed when it is absolutely necessary, such as when the mortar is unsound, cracked, eroded, or crumbling. Removal of mortar at all joints in an effort to achieve a uniform appearance is rarely necessary.
- Unsound mortar should be removed to a depth of 2.5 times the width of the joint, or to sound mortar, whichever is greater. Work should be performed using hand-held, non-power tools.
- Power tools such as masonry saws can easily damage masonry. In some circumstances, a thin saw cut may be run down the center of a horizontal joint with the remainder removed by hand. However, masonry saws should never be used on vertical joints. This work should only be attempted by skilled preservation masons.
- New work should match historic mortar joints in color, texture, joint size, profile tooling, and any decorative details such as penciling.
- Where necessary, voids in bedding mortar must be packed with new mortar, and then repointed to prevent face loading of the masonry and consequent spalling.
- Masons should achieve visual continuity between surviving historic material and new patches. Mask grouting is essentially a cosmetic fix that applies a skim topcoat of mortar over existing joints. Not only does it hide any underlying existing mortar problems, it changes the appearance of the entire building. This practice should be avoided.

### *GUIDELINES FOR MASONRY REPLACEMENT*

Guidelines for masonry replacement are identified below. Repair is always the preferred alternative to replacement.

- In areas of extensive deterioration or missing features, limited replacement of the masonry may be appropriate. Replacement should only be considered if the material is deteriorated beyond repair.
- The replacement should be carefully executed to match the damaged masonry in size, color, texture, appearance, and physical properties. New work should match the existing profile, pattern, and coursing details of damaged sections and features.
- Removal or rebuilding of a substantial portion of exterior masonry walls should only be undertaken when it is crucial to a building's structural integrity.
- Avoiding the need for large masonry replacement is important; preventative maintenance and minimizing openings for equipment installation should prevent the need for later rebuilding.
- Replacement brick must be suitable for exterior applications. Brick that is stronger than the original brick should not be used because of water migration that results in spalling and damage to softer bricks.

- New work should match the existing bond (overlap between bricks), course (row of bricks), and size of bricks when replacing sections of a wall. Brick should always be toothed-in to historic brickwork.
- Locating replacement stone to match the existing local limestone may be problematic. The local limestone has long been disregarded as a building stone and it may be difficult to find sources of dimensional stone. Potential sources of stone may include salvaged stone.
- Indiana limestone and slate are still commercially available. The homogeneity of Indiana limestone makes it a reliable replacement material. It is relatively easy to match the color and texture of historic Indiana limestone. Replacing slate requires careful matching to available materials, which can range from mauve to gray to green.
- Cast stone and terracotta units can be replaced but often at considerable expense. It is costly to produce a mold for only one or two replacement pieces. It is important that samples be provided by the manufacturer to ensure that the color and texture of the final product will match the existing masonry.

## METALS

*Metal light fixture on the Barracks, above, and at 410 VMI Parade, below.*

Metals are found in various architectural elements, including exterior stairs, light fixtures, gates, and grilles. The metals most frequently used in architecture are alloys containing lead, tin, zinc, copper, nickel, aluminum, and iron. Iron and its alloys, including steel, are particularly prevalent because of the moderate production costs brought about by technological breakthroughs in manufacturing in the late-nineteenth century. Metal elements are inherently durable if properly maintained. Metals used in the production of doors, windows, and their associated hardware are dealt with separately in the section on doors and windows.

### *TYPICAL METAL CONDITIONS*

Architectural metalwork is present at VMI primarily as exterior stairs, lighting fixtures, decorative roof and tower finials, and entrance handrails. Although exceptions exist, the majority of exterior metalwork at VMI is in good condition.

Metal stairs are located in the inner courtyard area of the Old Barracks. Historic light fixtures are mounted to the exterior of the residences at VMI Parade and at the Old Barracks. Roof and tower finials are found on Queen Anne styled residences, such as the Freeland House (320 Institute Hill). Most of the handrails seen on the Post are modern steel installations. In one location, the metal handrails have rusted to a severe extent and caused damage to the masonry below. All of the metals present are iron alloys and are therefore susceptible to corrosion.

### *METAL INSPECTION*

Architectural metalwork should be included in regular cyclical maintenance inspections. Metal stairs and handrails should be inspected as part of entrance and access safety. Roof finials should be inspected during roof surveys, particularly to ensure that they are properly anchored. Inspections should note any of the following potential signs of deterioration.

- Loose stair treads, risers, nosings, or handrails.
- Missing rails or decorative elements.
- Rust or rust staining through paint.
- Cracking or other disruption at anchors and screws.

### *CAUSES OF METAL DETERIORATION*

Corrosion is the major cause of deterioration of architectural metalwork and is exacerbated by the presence of moisture. Corrosion can be caused by structural stress, electrochemical reaction with dissimilar metals, or corrosive environmental triggers, such as salt-laden water. It is accelerated wherever water collects against metal elements, such as at post anchor locations in masonry. Metals undergoing corrosion are slowly reverting to their natural ores, such as iron oxide. Corroded metal expands and can cause extensive masonry cracking.

Architectural metals can also deteriorate from mechanical failures, such as overloading or fatigue. Excessive use of stairs and handrails will slowly work sections loose from their anchors and disrupt the masonry at the anchor connections.

## *GUIDELINES FOR METAL REPAIR AND REPLACEMENT*

The following guidelines should be followed when performing any repair or replacement work to metal architectural building elements on the Post.

### *Metal Repair*

- The architectural metalwork at VMI can be maintained through proper surface preparation and application of protective coatings.
- Deteriorated paint should be removed using appropriate methods, including wire-brushing for non-decorative elements exhibiting light rust, or chemical paint removal for heavier built-up paint.
- Severe corrosion may require that entire sections of metalwork be removed to a shop for repair.
- The newly-cleaned metal should be immediately protected with a rust-inhibiting primer. Alkyl-based enamel paints are recommended for finishing iron alloys. Latex and other water-based paints are not recommended.

### *Metal Replacement*

- When metalwork components are beyond repair, replacement of the element with reproduction material is a practical solution.
- Utilitarian metalwork, such as stairs and handrails, may not require replication of historic details.
- Where new or replacement handrails are required, they should match the characteristic environment of the character area.
- Modern stock handrails are not appropriate for the VMI environment.
- Decorative light fixtures and finials must be reproduced to match the existing historic elements in size, thickness, and details.

## EXTERIOR AND STRUCTURAL WOODWORK

*Wood is a visible building characteristic of the exterior of 307 Letcher Avenue.*

Historically, wood was used extensively for its structural and aesthetic value. In particular, historic wood cladding and wood details are a highly-visible and significant feature of a building's exterior. Wood was used during many historic periods and is characteristic of the late-nineteenth century vernacular and Gothic Revival buildings in Lexington. Wood windows and doors are unique elements and will be discussed separately in this chapter, under Guidelines for Building Features.

At VMI, several residential-scale buildings are wood frame structures clad in wood siding. These include Gothic Revival cottages, such as the Pendleton-Coles House (309 Letcher Avenue) and the two Brooke Lane houses, the Queen Anne-styled Freeland House (320 Institute Hill), as well as several vernacular buildings on Letcher Avenue and Main Street.

Exterior woodwork is also present in historic masonry buildings at porches, roof eaves, dormers, gable ends, shutters, and at entrances. Multi-story wood porch columns define the Neoclassical style of Stono and the Bachelor Officer’s Quarters (301 Letcher Avenue). Wood porches are integral design elements of the majority of the residential-scale buildings at VMI. Screened-in wood porches are important for the tenants of the residences of VMI Parade, though they are not important design elements. Roof eaves are protected and embellished with wood cornices. Wood cornices protect the ends of roof rafters and add decorative elements, such as moldings or dentils. Dormer and gable ends are ornamented with shingles, particularly in Queen Anne style homes. Shutters were required to protect the interiors from sun and weather. Several residential buildings at VMI have had their shutters removed. Entrances often have wood steps. These features are among the most striking and unique aspects of historic buildings. Although wood details can be challenging to repair once they have been allowed to deteriorate, they are significant elements of a building’s character and appearance. They should be maintained and preserved.

The ease with which wood can be used to form decorative details, and its exposed position on exterior walls, make it naturally susceptible to weathering and deterioration. The complex design and execution of wood details creates many opportunities for damage from water, air, and insects. The condition of a wood building and its elements is highly dependent upon the extent and quality of regular maintenance. Without routine inspection and prompt remedial action, wood deterioration will accelerate rapidly on a building’s interior and exterior. Early detection and repair avoids more extensive and costly repair later. Unfortunately, once they have deteriorated, wood details are often removed rather than repaired or replaced. Cornices are among the most vulnerable wood features because they weather quickly and are difficult to access for regular maintenance.

Historic craftsmanship was based upon the uses and characteristics of different wood species. In rehabilitation and repair projects, the replacement wood should match the historic materials. Availability, cost, and quality, however, are also important considerations in the selection of wood species. For instance, old-growth white pine was used extensively for structural framing historically and was much denser than the white pine available today. Cedar, on the other hand, was not available historically, but is now preferable for use in wood detailing that will be exposed to the elements because of its resistance to weathering.

### *TYPICAL WOOD CONDITIONS*

The most prevalent problem affecting architectural wood at VMI is water penetration from poorly-maintained roof and site drainage systems. Water penetration can lead to wood rot and insect infestation. The most significant problem with woodwork at VMI is termite infestation. Termite damage can occur in both wood frame and masonry buildings wherever termites can reach architectural woodwork. Termites have already caused major structural damage in the Brooke Lane cottages, requiring reconstruction of the first floor structural systems.

### *WOOD INSPECTION*

Preservation of historic exterior woodwork and cladding are important to the character of historic buildings. Therefore, maintenance of exterior walls and features begins with regular periodic inspections. Before repair and alterations are made to a historic building with wood features, the existing wood elements should be carefully evaluated and examined for their historical significance and physical condition. Character-defining exterior historic building fabric should be retained and repaired whenever possible.

Inspection should include interior and exterior conditions and a careful examination of structural elements associated with the walls, floors and roof framing. Wood should be inspected annually, particularly for insect infestation. Regular inspections are the key to prompt repair that will arrest deterioration and its underlying causes. Preventative maintenance inspections prevent widespread damage and save money in the long run. Evidence of any of the following should trigger in-depth diagnosis and remediation.

- Peeling paint and/or damaged paint surfaces.
- Rotted wood that is soft and spongy.
- Cracks or loose joints.
- Worn and damaged shingles and clapboards.
- Clogged gutters and downspouts.
- Failed flashing.
- Interior ceiling and wall damage.
- Water stains and/or biological growth.
- Buckled or damaged porch floors and ceilings.
- Settlement at porches.
- Animal nests.
- Insect infestation.

If insects are suspected, all of the building’s first floor wood features and foundation should be investigated. The easiest test is to attempt to penetrate the wood to a depth of up to ¾-inch with a sharp awl, using only hand-pressure. If the awl enters the wood easily, either insects or rot are likely present.

### *CAUSES OF WOOD DETERIORATION*

The primary causes of wood deterioration on Post are decay and rot, wood-destroying insects, termites, carpenter ants, carpenter bees, and beetles.

#### *Decay and Rot*

In nature, decay and rot is part of the life cycle of all living things. In historic architecture, however, wood decay should be arrested to prolong the life of the building. Rot is caused by water penetration that softens and breaks down the fibrous structure of wood, diminishing its capacity to carry loads or its ability to withstand crushing. Without these structural qualities, a building's wood frame becomes fragile and unstable.

The growth of fungi is a clear sign that decay is present. It also indicates water penetration. To survive in wood, fungi needs a moisture content of at least twenty percent and warm temperatures. Simply removing fungi and repairing the rotted wood is a superficial approach; the source of the moisture must be identified and eliminated. With a constant water source, decay will recur and spread. Moisture penetration into wood primarily occurs for one of the following reasons.

- Leaking gutters.
- Peeling paint, cracked siding, missing shingles.
- Inadequate or deteriorated flashing.
- Unventilated spaces.
- Improper insulation or lack of a vapor barrier.
- Poor site drainage at the foundation, including negative drainage toward the building.
- High water table or rising damp.
- Plumbing leaks.

#### *Wood-destroying Insects*

Termites, powder post beetles, and carpenter ants are the natural enemies of wood. Even in buildings primarily constructed of masonry, termites are attracted by moisture and can enter buildings through basements, crawl spaces, and foundation cracks. Mulch, scrap wood, and vegetation immediately adjacent to a building contribute to the problem and should be removed.

Signs of insect infestation include the following.

- Swarming termites and carpenter bees in warm weather.
- Half-round vertical termite tunnels on foundation walls, piers, pipes, and on other building and crawlspace surfaces near the ground. These mud tunnels are the most direct route from the ground to the food source in exposed moist wood.
- Minute amounts of fresh boredust at crawlspaces, walls, and foundations.
- Evidence of previous termite damage in wood. Termite-damaged wood is porous and shot-through with borings that run with the grain. It is fragile and crumbles easily.

### *Termites*

The greatest danger to buildings that contain wood comes from termites. There are two types: the generic termites that swarm in the spring and Formosan termites that cannot be easily detected because they do not swarm but stay primarily underground. Both types are attracted by moist wood. They build colonies and burrows underground, much like ants, and eat into wood before returning to the soil. Termites are most active in the spring and summer months, although they are present year-round in mild climates. Formosan termites pose the greatest threat because they are hard to detect and have migrated from the Deep South into the upper South and beyond.

Termites typically are found in basements and crawl spaces and in situations where wood is in direct contact with soil or mulch. They have been known to enter slab-on-grade buildings through tiny cracks in the slab. Their constant traffic results in mud tunnels and passageways on vertical building surfaces, usually at-grade or slightly below grade. Tiny specks or piles of sawdust are also tell-tale signs of termite activity.

### *Carpenter Ants*

Like termites, carpenter ants usually attack a building from a crawl space or basement and are they are attracted to moist wood. Carpenter ant nests can be extensive and cause serious damage to a structure.

### *Carpenter Bees*

Carpenter bees swarm in the spring and bore holes into vertical wooden elements. These bees are substantially larger than the honey bee and produce sizeable holes up to ½ inch in diameter in which to lay their eggs. Breaking the cycle is therefore important and professional treatment is recommended. They can be very destructive and are attracted to the type of thick framing members typically found on log structures. Other buildings are not immune however: large wooden architectural features, such as exposed rafter ends, solid wood columns, and half-timbering, can host carpenter bees.

### *Beetles*

Powder post beetles are attracted to wood that has already been softened by rot or fungal attack. Preventing moisture penetration, repairing deteriorated wood features, and fungal removal are effective preventive maintenance techniques for beetles.

## *GUIDELINES FOR WOOD REPAIR*

Guidelines for specific aspects of wood repair have been included to assist VMI in making decisions about repair work for wood building features.

### *General Guidelines*

- Repair work should be carefully planned to have the least physical impact on historic wood.
- Any cleaning should be undertaken using careful, non-abrasive techniques. High-pressure blasting using either water or abrasives is very damaging and should never be used.

- If the exterior woodwork requires painting or caulking, this will serve as its primary protection from weathering. Painted surfaces should be well-maintained. In general, use an alkyd primer coat and two coats of latex finish paint on wood surfaces, according to the manufacturers' instructions.
- As with all historic material, damaged sections should be replaced in-kind to match the historic in all visual and physical qualities.
- Rotted wood should be removed and replaced, especially if it is structural. It is usually not necessary, however, to remove an entire wood element that has limited areas of rot.
- In these cases, commercially available epoxy consolidants can be used to give strength to the existing wood. Consolidants can also eliminate the need to remove historic wood elements. For more extensive repairs, the deteriorated portion of the wood element can be removed and a wood dutchman installed as a patch in the original wood feature.
- For structural elements, a structural engineer should be consulted to determine the nature and extent of the repair required.

***Decay and Infestation Prevention and Remediation***

- Remove invasive plants on or near wood and address fungus or insect infestation problems promptly.
- The best prevention of termite infestation is to avoid direct contact between wood and the ground and eliminate building water penetration. Mulch piled against building foundations attracts termites and should be pulled back from the walls. Likewise, raised landscape beds that come in contact with a building are problematic.
- Beetle infestations can be prevented by preventing moisture penetration, repairing deteriorated wood features, and removing fungal growth. Carpenter ants can be controlled with soil-applied fumigants applied along the perimeter of the building. In the case of carpenter bees, professional pest control experts should be consulted.
- To prevent damage and/or help stop infestation, the following measures are recommended.
    - Block open channels, holes, and openings where pipes and conduits enter a building or its foundation wall.
    - Remove loose pieces of wood lying on the ground in proximity to buildings.
    - Avoid direct contact between wood and the ground. Porch lattice, wood posts, and wood steps are vulnerable.
    - Keep mulch at least 3 feet away from foundation walls.
    - Remove raised planting beds that touch buildings.
    - Examine untreated lumber in fences and other structures periodically.
- Retain a professionally qualified firm to regularly inspect and treat infestations. Once-a-year application of chemical poisons and soil-applied fumigants are not as effective or as safe as in-ground systems. A warrantee and routine follow-up inspections should be part of the treatment program.
- If the damage is serious, structural work may be required. Work may include shoring up the building, removing damaged wood at least one foot beyond the infestation, and other structural repairs. The same species of wood should be installed to replace the wood that has been removed.

***Wood Cladding***

Wood siding is the skin of a building and an important character-defining feature. Its purpose is to protect a building's underlying structural framing and interior features from weather. When wood siding is protected from water, it can last for many decades. To function properly, siding must accomplish two tasks: it must shed water from the exterior and allow water vapor to pass between the building interior and exterior. Any cladding material that fails to allow the passage of water vapor will promote deterioration within the wall.

- Whenever possible, retain original wood cladding.
- Repair original wood cladding by removing deteriorated pieces and replacing them with new pieces to match.
- When repairs are required to the interior of the wall, it may be appropriate to remove and reinstall original exterior wood cladding. By completing the repairs from the outside, interior historic plaster and wood lath is left intact. Electrical, plumbing, and insulation work may also be undertaken in this manner.
- Wood cladding should be protected with properly applied paint. A good paint job should last twelve to fifteen years.
- Do not power wash exterior wood walls. Power washing causes exposed wood to absorb significant amounts of moisture. The absorbed moisture will cause paint failure, especially if it is applied while the wood is still damp. Power washing raises wood grain and drives water into the building's frame.
- The preferred method of cleaning wood cladding is with a neutral detergent and light water wash before painting. Apply paint with a brush; do not spray. Brushing results in a thicker coat with better adhesion than spraying or rolling.

***Exterior Shutters***

Historic shutters were intended to protect windows and add a decorative frame to a building's fenestration. Shutters are typically found on historic residential and commercial buildings. At VMI, wood shutters are primarily found on late-nineteenth and early-twentieth century residential buildings.

- Historic shutters with moveable louvers are constructed with peg and dowel construction which should be retained.
- Always repair existing shutters with in-kind materials.
- Apply unobtrusive metal caps along the top edge of wood shutters to increase their longevity.
- Do not use the dip-stripping method to remove paint from existing shutters. This method abrades the wood and weakens the glue that binds the shutter.
- Hand-scraping is the preferred method of paint removal.
- Leave historic shutter hardware in place, even if there are no immediate plans to replace missing shutters.
- All shutter surfaces should be hand-painted with primer and two top coats.

***Weatherization of Wood Frame Buildings***

It is not appropriate to install blown-in insulation inside the exterior walls of wood frame buildings. Historic wood walls were usually built without any form of insulation, to allow water vapor from warm, moist interior air to migrate through the wall to the cooler, drier exterior. Blown insulation is rarely installed with a vapor barrier. This causes water condensation in the insulation itself and makes it permanently wet. The wetness causes it to lose its insulating characteristics, slump to the bottom of the wall cavity, and start wood decay. Moisture buildup from blown-in insulation then causes exterior paint to peel. Mildew on the exterior of a building is a sure sign that there is moisture on the interior. At this point, however, the problem is seriously out-of-control.

- Batt-type insulation may be installed in attic floors with a vapor barrier placed first on the attic floor.
- If insulation is installed in exterior walls, it must have a vapor barrier on the interior side.
- If there are no historic interior walls and finishes, insulation can be installed between the studs. If historic walls and finishes are present, insulation can be installed from the exterior.
- Remove the historic siding, install a vapor barrier first, then batt-type insulation, and reinstall the historic siding.
- Related thermal problems of air leakage around doors and windows should also be addressed during weatherization projects.

### *GUIDELINES FOR WOOD REPLACEMENT*

The following guidelines have been prepared to address the replacement of wood features at VMI.

#### *Partial Replacement*

- When only one part of a wooden feature is damaged, the entire feature should not be removed. Instead, the preservation approach is to keep sound materials and repair the damaged sections.
- Replace deteriorated parts with in-kind materials.
- If substitute materials are used, they should convey the visual appearance of the original feature, duplicating size, shape, texture, and detail.

#### *Total Replacement*

- Replacement of a missing wood detail or feature that does not have a salvaged historic prototype should be guided by historic, physical, and pictorial evidence for accurate restoration.
- Reconstruction of missing elements should be based on such evidence and match the appearance of surviving features in size, scale, material, and color.
- Do not replace missing wood features with conjectural historic reconstructions or contemporary elements that are incompatible with the building’s style, character, and other historic features.
- If wooden pediments or cornices are damaged or lost, replace them promptly. Cornice loss drastically changes an historic building’s appearance. A missing cornice also contributes to deterioration of a building’s façade by providing avenues for vertical water penetration. If a missing cornice cannot be replaced quickly, an interim solution should be devised to protect the exposed area. Retain the removed original damaged features for accurate replication.

- If existing wood cladding cannot be repaired, it is preferable to replace it in-kind by using wood cladding with the same width, profile, details, and appearance as the existing.
- If limited replacement of wood cladding is required, the new cladding should match the species of existing wood. This practice gives the wall a consistent texture and appearance and avoids problems with expansion rates; wood species have different rates of expansion.
- If damage is so extensive that existing shutters cannot be repaired, replacement shutters should match the visual appearance of the originals.
- New exterior shutters should only be installed on a building if there is a historical precedent for it.
- If shutters are missing, historic shutter hardware or traces of hardware often remain on historic window frames. This can help determine the appropriate size, fit, and mounting of shutter and shutter hardware. The type of shutter, which could be louvered and paneled, or half-louvered and half-paneled, should be guided either by surviving historic examples, historical documentation, or knowledge of local architectural styles and traditions.
- New shutters should be designed and hung to partially cover the vertical trim of the window frame. Replacement shutters should be operable, match the full height and width of the windows, and constructed of wood. Pseudo-historic or synthetic material shutters should not be used in an historic context.

***Synthetic Materials***

- The installation of vinyl or aluminum siding materials on historic buildings is not an appropriate preservation treatment. Synthetic materials seriously alter the historic appearance and character of a building by removing or covering important details such as cornice, window, and door trim. Historic cladding is obscured or destroyed by the installation.
- The use of synthetic siding on new construction within an historic context, such as an addition, should also be discouraged. It cannot be considered a compatible treatment.
- Synthetic siding materials are not recommended for historic wood-clad buildings. They should never be applied over wood nor should they replace wood siding. Synthetic siding can cause serious long-term damage to buildings. Foremost among these is moisture trapped beneath new siding, which decreases the efficiency of insulation and accelerates deterioration of structural elements. Condensation behind the siding and leaks can cause serious damage to the underlying wood structure. Related interior consequences include peeling paint and cracked wall surfaces.
- Synthetic siding materials are also problematic because they are not maintenance-free as frequently advertised. Colors and finishes fade over time, synthetic materials crack and warp, and products are changed or discontinued. The cost of periodic vinyl or aluminum siding replacement is more expensive than the cost of maintaining historic wood.
- When properly maintained, historic cladding materials are durable and serviceable; their existence on VMI historic buildings after decades of service is proof that they are economic long-term alternatives. Properly-maintained and painted wood siding is the more structurally and historically sympathetic option.

## ROOF SYSTEMS

In terms of protection and preventative maintenance, roof systems are among the most important building elements. The roof and its component parts, such as framing, sheathing, gutters, flashing, and drainage, should be approached as one system, since failure in one component can cause extensive damage and deterioration elsewhere. Providing a weather-tight roof and properly functioning drainage system is critical to historic building preservation and should be addressed before any other concern. The roof not only keeps water out of a building's interior, but, more importantly, it keeps water from penetrating structural members and exterior walls. Although each roofing material requires its own level of maintenance and repair, the essential function of any roof system is to prevent water infiltration.

Roofs are more, however, than merely the system that protects the structure and interior of a building from the elements; they are important and highly-visible design features. A roof is characterized by its shape, height, configuration, materials, and decorative elements, which help define the architectural style of a building. Since a roof is constantly exposed to the elements, it will reach a point where partial or major replacement is necessary. The preservation approach places emphasis on retention and repair with any necessary replacements matching the existing in color, texture, size, and other visual qualities. All roof components should receive the same level of preservation including materials, elements such as dormers, and cupolas, and decorative features such as weathervanes, finials, and crests.

### *TYPICAL ROOF CONDITIONS*

Roofs at VMI reflect their nineteenth and twentieth century origins and can be characterized by the use of fireproof materials and a variety of shapes ranging from hipped to gabled to flat. Materials include traditional standing seam metal, slate, and wood shingle, as well as modern built-up and EPDM roofing. Ornamental features, such as dormers, finials, and cresting, add visual interest. The major roof concern throughout the VMI Post is appropriate drainage. Rainwater must be drained off of the roof and away from the foundation. Typically, the roof is sloped to drain water to a perimeter gutter system or scupper, which in turn directs water to an internal or external downspout. The downspout carries water down to the foundation and directs runoff into an underground drain, grade level channel, or splashblock in order to move the water away from the building foundation.

At VMI, the gutters are rusting, bent, or clogged and chronically overflow. Downspouts fail to direct water away from the building foundation because of inadequate underground drainage, clogs, and runoff release points that are close or directly against the building foundation. In some cases, the entire rainwater system may be inadequately designed and carries more water runoff than is advisable. Deteriorated masonry, open or eroded masonry joints, biological growth, wood rot, stucco failure, and soil erosion are indicative of long-standing issues and a general lack of focused cyclical maintenance.

The relatively simple task of regular inspection is an urgent priority: the gutters and downspouts of all VMI historic buildings should be inspected and cleaned at least twice yearly. Moisture-related problems affecting roof systems should be diagnosed and corrected. Missing, undersized, sagging, and inappropriate gutters should be replaced. Problems with site drainage must be holistically investigated and properly addressed in order to improve conditions at building foundations. The topography of VMI is a challenge to site drainage. Improving site drainage at one building may exacerbate drainage at another building further down the hill. Preventative maintenance work on roofs and roof system drainage systems is VMI's most serious stewardship problem. Roof and roof system drainage work should become a priority and should be accompanied by implementation of cyclical maintenance and monitoring.

### *ROOF INSPECTION*

The best course of action in maintaining a roof is periodic inspection and repair. The baseline roof inspection should include a yearly inspection of the entire roof system and twice-yearly removal of debris from gutters and downspouts. The yearly evaluation should be comprehensive and examine not only exteriors, but also the attic, basement, and crawl spaces. Utilitarian roof components such as flashing, gutters, downspouts, skylights, hatches, and mechanical equipment should be part of this inspection. Inspection should include testing and/or observation during major rain events to ensure that the gutter system diverts rainwater away from the building.

Built-in gutters, internal downspouts, and underground drains are especially susceptible to failure, largely because they are difficult to inspect and maintain. Buildings with these types of drainage systems should be evaluated very carefully. Remote inspection techniques are often required, such as a flexible rod equipped with a radio transmitter or fiber optic camera. By the time problematic conditions are detected, substantial and expensive damage may have occurred. Therefore, the first line of defense is regular roof inspection.

A roof system in good condition should meet all of the following criteria during inspection.

- Capacity to shed rainwater during major rain events without ponding.
- Unobstructed flow of water from the roof to the ground and away from the building.
- Overall watertight roof surfaces.
- Watertight, free-flowing gutters and drains.
- Intact flashing around chimneys, parapets, dormers, skylights, and valleys.
- Roof venting to prevent moisture condensation.
- Drainage system that carries water away from the foundation (i.e., splash blocks beneath downspouts, underground drains, and/or drain extensions).

Inspections should include a comprehensive survey to identify potential problems. Evidence of any of the following conditions should trigger an in-depth diagnosis and remediation.

- Movement or cracking in masonry walls and surfaces.
- Efflorescence on masonry surfaces.
- Missing or deteriorated mortar joints.
- Rotted wood and peeling paint.
- Ponding water at roofs and gutters and storm water overflow.
- Excessive water runoff.
- Interior water penetration such as cracking, plaster failure, powdery residue, efflorescence, and dampness.
- Internal drains wicking water.
- Bird or animal nests.
- Wood-destroying insects.
- Broken or clogged underground drainage pipes.
- Soil erosion around downspouts and boots.

Chimneys are subject to the same forces of decay that affect other masonry features, and should be inspected on an annual basis for leaning or cracking, deteriorated brick or masonry, failed pointing and flashing, faulty flue liners, and bird nests and other intrusions. If in active use, interior soot and residue should be cleaned annually.

### *GUIDELINES FOR ROOF REPAIR*

The baseline preservation approach is to repair deteriorated roof sections, features, and materials promptly. Gutter and flashing failures, coupled with lack of proper maintenance, are typically the culprits in a leaky roof.

- Repair of deteriorated sections of historic roofing material should be considered before complete replacement.
- Leaky roofs can be temporarily covered with plastic tarpaulin or roll roofing nailed in place. Without this type of intervention, the deterioration of surviving building materials will be accelerated. However, implementation of appropriate repairs should be the highest priority anytime roof leaks are discovered.
- Repair, including materials and workmanship, should be executed in-kind to match historic conditions. For example, copper gutters should be replaced with copper, and galvanized with galvanized. Significant materials should be replaced to match the historic, especially on visible roof surfaces. The gutter profiles and mounting system should be consistent with the historic versions.
- When in-kind replacement is not feasible, replacement materials should match the visual and physical characteristics of the historic roof system.
- Repairs should be made using building-appropriate materials and techniques that are meant to last for the long-term, not simply a short-term fix. For example, patches and roofing compounds do not solve the real problem, are subject to early failure, and are often unsightly.
- Likewise, the use of inappropriate contemporary materials should be avoided in the repair of historic roofs.

### *Tin-Plate Roofing*

VMI's collection of nineteenth century residential buildings reflects the common use of standing seam tin-plate iron roofing in the last half of this century. Tin roofing was formed by sheets of iron coated with tin, lead, an alloy of lead and tin, or zinc to prevent rusting. Thomas Jefferson was an early advocate of tin roofing, which he used at Monticello (c. 1770-1802). Much of the early tin-plate iron was imported from England. The United States did not develop its own metal sheet rolling manufacturing until the second half of the nineteenth century. By that time, the low cost of tin plate roofing made it one of the most common roof materials.

*A tin roof is a character-defining feature of 303 Letcher Avenue.*

- As with most roofing systems, tin-plate roofing tends to deteriorate first at valleys, at joints with the building wall, at changes in slope, and at roof penetrations, like plumbing vents and chimneys.
- Minor surface corrosion can be repaired through the use of cyclically applied coatings.
- Tin-plate roofs should never be coated with materials containing acids, tar, asphalt, or aluminum, which can cause corrosion. Tin-plate iron roofing was always intended to have a coating of paint. Very small-scale deterioration can be repaired with elastomeric coatings embedded in a reinforcing mesh fabric. These coating repairs will have a service life of only 5-10 years and should not be considered as permanent repairs. These repairs are inappropriate for deteriorated areas that are larger than 4-6 square inches.
- Terne-plate, matching the original in weight and gauge, is an acceptable repair material for tin-plate iron roofing.
- Galvanic corrosion on a tin roof can be caused by contact with copper materials, including fasteners, gutters, and flashing materials. Copper should never be used to patch or repair a tin-plate roof.
- Small areas of deterioration can be repaired by removing the coatings to clean metal and soldering in place a new sheet of metal over the old. Full sheets of deteriorated tin-plate can also be replaced with new material, which is fastened and soldered in place.
- The size, style, and pattern of standing seams must be maintained. Fasteners should be made of galvanized or stainless steel. The solder must be a tin-zinc mix and must not contain copper. The use of asphalt- and tar-based roofing compounds and building papers will cause the tin-plate to corrode and must be avoided.
- Both new tin-plate and terne-plate roofing materials must be protected with a coating of paint after installation.

### *Slate Roofing*

Slate roofs installed prior to 1850 utilized local materials; improvements in transportation led to an expansion of the slate industry, which peaked around 1890-1914. Well-maintained slate roofing has a service life of sixty to one-hundred fifty years.

*320 Institute Hill has a slate roof.*

- Regular roof inspections from the ground or a high lift should note cracked, broken, misaligned, or missing slates, especially at the roof edge, hips, and valleys. Slates may have begun to delaminate and hold water through

weathering and age, particularly on low slope roofs or at roof edges. Weathered slates can be sounded to test their condition.
- Slate roofing should not be walked on during regular maintenance and inspection work. Inspections in the attic should identify any water staining or wood rot.
- Deteriorated or missing slates should be repaired promptly.
- The detailing, patterns, and installation techniques are all important to the overall appearance of slate roofing and should guide all repair or replacement work. It is important to match the size, color, thickness, texture, exposure, and coursing of the original slate.
- Single deteriorated slates can be removed and replaced with new slate to match the existing; the attachment location of replacement slates should be protected with copper flashing.
- Slate roof replacement should only be considered when over twenty percent of the slates are deteriorated. When repairing large sections or replacing a slate roof, traditional details should be recreated at valleys, hips, and ridges.

*A wood shingle roof is used on a Stono outbuilding.*

### *Wood Shingle Roofing*

Wood shingle roofs can last from fifteen to thirty years if properly installed and maintained. The service life of a wood shingle roof depends upon the wood type and thickness of the shingle, UV exposure, slope, presence of biological growth, and ventilation. A wood shingle roof will last longer if kept dry, well-ventilated, and free of debris and biological growth.

- The repair of wood shingle roofs requires that the replacement shingles be the appropriate size, shape, wood type, and surface texture. Early-nineteenth century wood shingles were typically manufactured by saw mills which produced inexpensive smoothly tapered shingles that did not need to be hand dressed. Rough hand-split "shakes" are not appropriate for the wood shingle roofed buildings at VMI.
- Single wood shingles can be replaced and held in place with a metal anchor.
- Strips of metal flashing can be installed to temporarily stop leaks through deteriorated shingles.
- Large scale wood shingle repairs or partial roof replacement must follow the original detailing and pattern of shingle installation, including shingle exposure length and nailing, type of roof substrate, and details at the roof eaves, ridges, and valleys.
- If over twenty percent of the wood shingles are deteriorated, the entire roof should be replaced.
- Care should be taken to retain sound original roof lath and sheathing. Nail holes in the original roof substrate can provide information on the size and pattern of the historic wood shingle roof.
- All work done should be completed by a contractor who is familiar with historic wood shingle roofs.

### *Flashing*

Flashing is a continuous metal barrier that effectively seals vulnerable roof joints. It bridges gaps between dissimilar materials, especially those with different rates of expansion, and/or incompatible profiles. Flashing prevents water from infiltrating the building at corners, ridges, valleys, or other changes in plane that are prone to separation, such as the joint between an addition and the original structure.

- Flashing should be inspected at least once a year. In addition to looking for obvious flaws such as cracks or corrosion, small holes or pinholes are a sign of trouble, especially at mortar seals.
- If the flashing is not in a prominent location, limited and small temporary patches can be made with roofing cement.
- Roofing cement, however, should never be considered a permanent repair.
- Repair or replacement of deteriorated flashing should be part of routine preventative maintenance. Corroded flashing should be replaced promptly.
- The type and gauge of flashing should be selected based on compatibility with the historic roof.
- Flashing should be secured with nails of the same material because dissimilar metals in continuous contact can corrode and stain adjacent surfaces.
- New or replacement metal flashing should not be placed in contact with any metal with which it has the potential for an electrochemical reaction that causes corrosion.
- Flashing should not be applied over clapboards or any other siding material.

***Gutters, Downspouts, and Drainage***

One of the most prevalent problems at VMI is the lack of maintenance at the roof drainage systems. Failure to effectively control and direct water runoff from the roofs and away from buildings causes multiple and expensive repair issues. Roof drainage systems should be evaluated throughout the Post as both an architectural and landscape issue. This evaluation should investigate how water drains from the roofs, where the water runoff falls to the ground, and how the water is carried away from the building. It is important that roof drainage systems are investigated holistically, Post-wide, to ensure that remedial measures do not create problems in new locations.

- Overflowing, sagging, rusting, or twisted gutters are evidence of a faulty roof drainage system that should be replaced or repaired.
- Historic gutters and downspouts should be replaced in-kind to match all visual qualities including materials, profiles, and details.
- Replacement gutters should not alter the character of the building’s architectural trim.
- Type-K (molding-shaped) corrugated gutters and downspouts are not appropriate on historic buildings. The use of synthetic materials such as vinyl is not recommended; they are incompatible with the historic Post context and have a short life-cycle.
- Galvanized steel gutters and downspouts should only be used to replace steel. Gutter guards should be considered to reduce the collection of leaves and other material.
- The placement and quantity of downspouts on historic buildings should be carefully planned. They should be securely attached to the wall with a sufficient number of anchors. Splash blocks or downspout extenders should

be placed beneath downspouts to carry water away from the foundation and limit soil erosion and subsidence.

- Downspouts should not interrupt or cross significant features such as cornices, pilasters, or trim. All historic Post buildings should have downspouts adequate to shed water from the entire roof. They should also be put in unobtrusive locations to the greatest extent possible.
- Internal drains, downspouts, and inset gutters are typical of late-nineteenth and twentieth century construction. These are particularly problematic because they are difficult to reach, clean, and inspect.
- The value of regular preventative maintenance cannot be overstated with these systems.
- Inspection may require the use of camera-equipped cleanout equipment.
- Interior finish, wall, and structural damage are warning signs of advanced deterioration due to clogging. There is no one solution to address this problem. Although it may be possible to abandon internal drains and downspouts in favor of a new external system, impacts must be carefully studied by skilled specialists.
- The best practice advice is to develop a solution with a minimum of removals, changes, and additions. Case-by-case remedial measures are always required in these difficult situations.
- Existing connections to underground drainage pipe systems should also be tested; the clay tile pipes typically used in the early- to mid-twentieth century grow brittle with age and are prone to cracking and breaking. Soil erosion at boots is usually a sign of clogged or broken underground connections.
- Below-grade pipe replacement with modern PVC pipe is appropriate.
- When replacing underground drain systems in historic areas of the Post, consultation with archeologists should take place before and during work.
- Modern downspout extensions should be unobtrusive to avoid visual impacts on the historic building and its immediate setting.

### *GUIDELINES FOR ROOFTOP ADDITIONS AND ATTACHMENTS*

The following guidelines should be followed when undertaking any project that involves a rooftop addition or attachment.

- Large-scale rooftop additions or equipment installations are inappropriate in the VMI Post setting. This is particularly important given the character-defining crenellated roofline found on the majority of VMI’s Gothic Revival styled buildings.
- Even small rooftop additions alter the height, profile, and overall exterior character of a building and are not recommended. Visibility is a key issue; sight lines from nearby buildings, streets, and other vantage points should always be evaluated.
- In general, elevator overruns and areas of fire refuge on historic buildings usually involve minor changes. Nonetheless, they should be studied for the overall visibility from all viewpoints and compatibility with the building’s historic materials and visual qualities.
- VMI rooftop attachments are typically HVAC equipment. Rooftop attachments are not appropriate on historic buildings because they can damage historic fabric and are usually highly visible. An inappropriate

placement results in a negative visual impact. Impacts to prominent building elevations or important landscape features are inappropriate.

- Only small, low-profile mechanical equipment should be considered for rooftop mounting on historic buildings, and then only in a secondary location.
- It is critical that any attachments be installed so they are not visible from principal views and sightlines.

### *GUIDELINES FOR ROOF REPLACEMENT OR ALTERATION*

All historic roofs eventually need major or total replacement. Skilled maintenance staff or roofing contractors should carefully examine gutters, leaders, valleys, and flashing before determining that wholesale roof replacement is necessary.

#### *General Guidelines*

- If replacement is required, the historic materials should be replaced in-kind, matching the existing in color, texture, size, profile, seaming, patterning, proportion, and other visual qualities. Many of the historic roof materials used at VMI are metal and slate, which are very durable and can last for many years.
- Traditional roofing materials are expensive, but a life-cycle cost analysis demonstrates that their use is actually very cost-effective; for example, slate typically lasts for a hundred years, while the average asphalt shingle lasts about twenty years.
- Traditional metal roofs at VMI are typically made of standing seam, tin-plate iron roofing. Terne-coated steel sheet roofing is typically used to replace tin-plate roofing; it is commercially available and requires cyclical maintenance painting. Although some contemporary roofing systems that resemble traditional metal roofs are now available, their cost often surpasses or is equivalent to traditional materials. It should be noted that modern factory-coated metal roofing does not require cyclical painting, though their coatings will fade somewhat over time. The new roof should match the proportion and placement of seams and trim found on the original. This may not be possible with some factory-coated roofing materials, which are often made to standard sizes.
- Slate roofs were installed on historic buildings for both their visual appeal and longevity. Slates vary in color, shape, pattern, and detailing, and should always be replaced in-kind.
- Compatible contemporary roofing systems, such as synthetic slate, are readily available, but their cost is comparable to the traditional material.
- Variation from the existing slate type in making roof repairs can be deleterious to the existing roof structure and detract from the integrity and aesthetics of the historic building.
- Generally, replacement of individual slates should always be undertaken before replacement of the entire roof. Proper installation and maintenance of slate roofs can result in a life span of a century or more.
- Roof replacement and major repair projects should preserve and/or replace all characteristic decorative roofing details in-kind. These may include specialized roof shapes, dormers, skylights, finials, crests, gutters, and cornices.

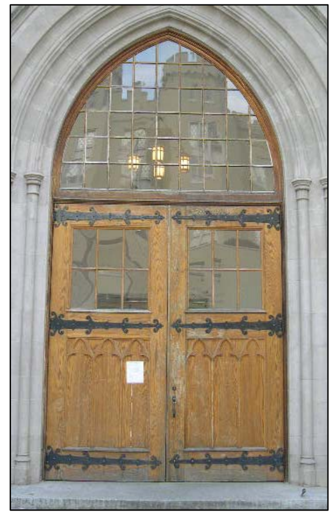
- The details and materials of any replacements should match the existing.
- Hidden construction materials and details such as decking, fasteners, and flashing should be selected for durability and compatibility, while highly-visible elements such as ornamental scuppers and copper guttering should be replaced in-kind.
- If design features such as the dormers, cupolas, or trim features are too deteriorated to repair, new replacement features should be based on the form, materials, detailing, and other visual qualities of the historic.
- Post project planning should protect adjacent buildings, architectural features, and landscape elements from damage during roofing projects.
- When replacing a roof, remove existing roofing material before adding new material. Removing old layers will prolong the life of the roof and restore the original profile of the roof edge.
- Asphalt shingles should not be applied over wood shingles, because the asphalt will trap moisture and cause deterioration of the roof structure.
- Although roofing material is an important aspect of a building's design, if the roof has a flat gently sloping profile, which cannot be easily seen, it is acceptable to use a contemporary roofing system that meets functional needs. Visibility is a key issue; sight lines from nearby buildings, streets, and other vantage points should always be evaluated. The chosen material must provide adequate anchorage against wind and precipitation. Roofs should never actually be flat but should always slope positively to gutters and roof drains. Water ponding on a roof surface should never be permitted.

***Roof Insulation***

- Energy efficiency is a central consideration in roof replacement projects.
- Roof insulation should occur only in well-ventilated spaces. Insulating poorly ventilated spaces will lead to moisture condensation on roofing and insulation materials.
- To avoid moisture damage and maximize thermal efficiency, a proper vapor barrier must be provided on the warm side of all insulation materials, especially in attics and crawl spaces.
- The standard preservation recommendation is to install batt-type insulation; blown-in insulation is only recommended for attics and crawl spaces where vapor barriers have been installed. The vapor barrier prevents the passage of moisture and its accumulation in the insulation; damp or wet insulation is virtually useless. There are several ways to achieve an attic vapor barrier: a foil-facing material on fiberglass insulation; a Kraft paper-facing if it is backed with a bituminous or tar-like coating (Kraft paper alone is not a vapor barrier); or polyethylene sheeting placed between the insulation and inside surfaces.
- In an unheated attic space, the insulation should be installed at the floor level with the vapor barrier facing down.
- If the attic space is heated, the insulation is place between the roof rafters with the vapor barrier facing in.

## DOORS

Doors are more than functional entryways; they are an important architectural elements and special care should be taken to preserve their integrity. Although the surface of the doors may show some wear, the door itself is usually structurally sound for decades. Historic wood doors are typically built of harder and heavier wood than commonly in use today and are thicker and more substantial overall. Historic steel doors are typically extremely robust and are manufactured with heavier gauge steel than modern equivalents. The environmental effects of constant use and exposure, however, can lead to rapid deterioration; therefore, regular inspections and maintenance are critical. Repair of an existing historic door is more cost-effective than replacing it.



*Historic doors, like at the entry of Cocke Hall, are important architectural features.*

### *TYPICAL DOOR CONDITIONS*

VMI has a well-preserved collection of original wood doors. Many of the academic buildings have wood paneled doors exhibiting Gothic Revival detailing and unique door hardware. Historic wood doors have also been retained on residential scale buildings, reflecting the proliferation of architectural styles in the nineteenth century. Glazed steel doors, dating to 1927, are found at the first floor of Cocke Hall. The doors at VMI are generally in good condition, although there is some failed and worn finishes, corrosion at steel doors, and general deferred maintenance. Weathered surfaces, worn finishes, minor cracks, and damaged hardware should be repaired. The original doors and door hardware should be maintained. Weather-stripping should be replaced in order to improve thermal efficiency.

*Historic door hardware, like at Jackson Memorial Hall, should be carefully maintained.*

### *DOOR INSPECTION AND MAINTENANCE*

Regular inspection and routine maintenance should identify small problems before they become major issues. Doors at VMI receive heavy use and require frequent inspection. Door inspections should note any of the following conditions:

- Sticking doors.
- Damaged hardware.
- Missing screws or anchors.
- Worn finishes and exposed wood and steel substrates.
- Cracked or rotted wood.
- Corrosion at steel doors.
- Broken glazing.

The best practice approach retains and repairs as much historic fabric as possible. Regular maintenance for historic doors should include:

- Gentle cleaning of door and hardware surfaces.
- Cleaning and lubrication of hinges and closers.
- Rust removal at metal doors and hardware and the application of appropriate protective coatings.
- Replacement of missing screws or anchors.
- Refinishing or repainting.
- Replacement of cracked or broken glazing.

### *CAUSES OF DOOR DETERIORATION*

Doors are most commonly damaged from constant use. Inspections are important to ensure that doors are operating properly and hung correctly to avoid failure at hinges or other hardware. Push plates and kick plates protect the finishes in these vulnerable areas. Wood and metal doors are also damaged by moisture which causes wood rot and corrosion. Deicing salts can cause damage to wood finishes and dramatically accelerate the rate of corrosion. Exposure to the elements will cause degradation of the underlying wood and steel.

### *GUIDELINES FOR DOOR REPAIR*

The following guidelines should be followed for door repair projects at VMI.

- Doorway features contribute to the building's architectural character and should be retained.
- Historic doors often feature door hardware, transoms (operable sash over doors) fanlights (half-round windows above an entry door), sidelights (vertical or fixed ribbon windows flanking a door), pilasters, entablatures, columns, thresholds, and steps.
- Missing elements should be replaced in-kind, and the door's original size, profile, and configuration should be preserved. Glazed entry features such as fanlights, sidelights, and partially-glazed doors should also be retained, repaired, or replaced-in-kind.
- In some situations, weather-stripping around door frames can increase energy efficiency and help protect a door's historic features.
- Deteriorated doors that are beyond repair should be replaced in-kind, to match the original in materials, design, visual qualities, and size.
- Retrofitting for fire-safety should be done in a manner that preserves the door's historic features.
- Many state building codes have special provisions for historic buildings; these should be fully explored before alterations occur. Fire-retardant coatings, other means of egress, areas of refuge, rated partitions, and other measures allowable under life safety codes can avoid removal of a significant historic door.

### *GUIDELINES DOOR REPLACEMENT OR RECONSTRUCTION*

During the nineteenth and early-twentieth centuries, the main building entrance often featured substantial, if not monumental, doors with elaborate moldings and features. For this reason, doors should be retained whenever possible. However, sometimes replacement or reconstruction is the only feasible option. These guidelines should be followed when considering a door replacement or reconstruction project.

- If an existing historic door is deteriorated beyond repair, it should be replaced with a new door that is appropriate to the period and style of the building. Historic double-leaf doors should not be replaced with a single-leaf door.
- Exterior historic doors that are non-functional should be left in place and sealed, not removed.
- Doors on primary elevations should match the original in materials, design, size, and all visual qualities.

- Historic door openings should not be filled with modern doors. New standard-size doors do not readily fit into an old door opening and would have a profoundly negative impact on the building's integrity.
- When historic door replacement is necessary, the new door should be custom-made to fit the historic opening.
- Modern flush design doors are inappropriate for VMI's historic Post.
- Door hardware should be reused wherever possible.
- If required, new door openings should be avoided on a historic building façade; if needed, they should be located on secondary elevations to limit negative physical and visual impacts.
- Reconstruction of altered or missing historic entranceways must be based on historical, pictorial, and physical documentation. Historic building designers used door detailing and frame articulation to develop a hierarchy and thus differentiate between primary and secondary entrances.
- If there is not sufficient information to determine the original feature, a compatible new design should blend with the architectural character of the building and its surroundings.
- Conjectural or designs without historic precedent on the building in question are not appropriate.

## WINDOWS

*Historic windows have been maintained and preserved at the Barracks.*

Historic windows are one of the most important features of a building and proper treatment is extremely important. Both fenestration patterns and the configuration of individual windows are character-defining features that contribute to a building's design, proportion, and rhythm. Historically, light and ventilation were very important commodities in buildings before electric service and artificial air conditioning became commonplace. Windows were designed to maximize interior natural light. They also provided a critical ventilation function with their placement. Windows placed on opposite sides of a room allow cross-breezes to circulate fresh air to inside spaces.

### *TYPICAL WINDOW CONDITIONS*

Historical window sash have been retained in the majority of VMI buildings and are generally in fair condition. Early academic buildings dating from 1850-1910 tend to have wood windows. Many of these early wood windows are patterned off of the multi-story, diamond-muntin wood windows designed by A.J. Davis for the Old Barracks. Academic buildings dating to 1910-1960 have steel sash windows. These windows are often clustered in groupings of multiple window sash. Wood windows are typical at all of the residential scale buildings and reflect their unique age and architectural style. Many residences have original interior mounted screens and louvered shutters.

Modern replacement windows have been installed in several buildings at VMI with varying degrees of sensitivity. At the Nichols Engineering building, the original steel windows have been replaced with modern metal windows that closely resemble the historic sash. At Crozet Hall, however, the original steel windows have been inappropriately treated with the removal of the glazing, greatly altering the exterior appearance of the building. Modern window replacements have been installed at Stono, which impact the exterior appearance. The exteriors of 303 Letcher Avenue (VMI Protocol) and 304 Letcher Avenue (Blair/Neikirk House) have also been altered by modern window installations. Future efforts should be directed towards preservation and repair of remaining historic windows. Even when the new windows fill the existing openings and maintain the building's overall fenestration pattern, some materials, configurations, profiles, and colors are inappropriate preservation treatments.

### *WINDOW INSPECTION AND MAINTENANCE*

As with other historic features, regularly inspection and maintenance are the first line of defense for windows. Inspection should look for the following problems.

- Open joints.
- Areas for moisture penetration.
- Failed glazing putty.
- Broken glass.
- Failed finishes on exterior window surfaces.
- Failed finishes on interior surfaces around windows.
- Failed or missing hardware, including screws, bolts and hinges.

- Wood rot, particularly at bottom rails.
- Corrosion, particularly at anchors, screws, and movable parts.
- Bowing, warping, misalignment of sash.
- Condensation on interior window surfaces.
- Faulty window operation.
- Deteriorated or missing perimeter sealant.

Frequent maintenance now prevents expensive headaches later. For instance, windows rely on paint for weather protection. Without paint, the extremes of heat, cold, sunlight and moisture can quickly act on the exterior frame and sash. This is critical for steel windows where corroding steel anchors at the window perimeter can lead to extensive masonry deterioration. Regular window inspections, combined with appropriate scraping, priming and painting, has a critical place in VMI's Post preservation plan.

### *CAUSES OF WINDOW DETERIORATION*

Moisture and water penetration is the primary cause of window deterioration. The chronic presence of water at windows leads to failure of finishes and wood rot or corrosion. Moisture and water typically infiltrate windows at the perimeter of the window sash and at lower window rails. Water problems are exacerbated in areas which do not shed water, such as improperly sloped window sills, at rough surfaces, or in pockets created by missing glazing putty. Window sills are often the first elements to exhibit deterioration. Condensation that forms on interior window surfaces can also cause deterioration. It is important to distinguish moisture penetration caused by condensation from that caused by water infiltration. Each requires different repair techniques.

Windows that have been protected from the elements by storm sash are not immune from moisture-related problems. Poorly ventilated storm windows can actually accelerate damage to wood windows. Condensation forms as the warm interior air meets the cool exterior storm window. If there is no ventilation, condensation is trapped against the sash, causing failure of finishes and, ultimately, wood rot or corrosion.

Window operation is impaired by loose joints and misaligned sash. Maintenance level painting often covers hinges and other moving parts, eventually causing excessive paint build-up. This can lead to sticking or inoperable sash.

### *GUIDELINES FOR WINDOW REPAIR*

The following recommendations provide guidance for repair historic windows on Post.

#### *General Guidelines*

- Historic windows should never be replaced unless they are missing or beyond repair. Contrary to popular belief, repaired historic windows will last far longer than modern replacement windows because they are made with superior quality materials and craftsmanship.
- Epoxy consolidants may be used to strengthen and save deteriorated wood, especially at sills. Special patching compounds may be used to repair steel

window parts. Warped wood sash and bowed or bent steel sash can often be repaired by skilled craftsmen.

- Replacing deteriorated parts, not the entire window, is the preferred solution, using elements that are visually and physically compatible with original.
- Historic windows are easily disassembled for cleaning and repair. Unlike modern replacement windows, historic window units were constructed so that damaged portions could be repaired or replaced one part at a time.
- Individual window elements that should be retained include frames, sash, muntins, glazing, sills, hardware, heads, hoods, paneled or decorative jambs and moldings, interior and exterior shutters, and blinds.
- The damaged portion of a window component should be replaced with material matching the original material and fabrication techniques.
- Any repair should match historic window sash, muntin configuration, reveal depths, glass-to-frame ratios, glazing patterns, frame dimensions, trim profiles, and decorative features. Replacement glazing should match the qualities of the historic; low-E and reflective glazing are not appropriate in historic contexts. New window elements should be based on surviving prototypes including hood molds, sash, sills and interior or exterior shutters.
- Windows should also operate smoothly. Window mechanisms such as sash locks, cords, and weights should be maintained, repaired and, if necessary, replaced. This approach not only results in cost-savings, because when properly maintained, historic windows can last for decades.
- Removal of prominent window features should be avoided because it damages a building's architectural integrity. Important features include frames, sash, muntins, glazing and glazing patterns, sills, hardware, heads, hoods, paneled or decorative jambs and moldings, interior and exterior shutters, and blinds. They should not be blocked or obscured.

### *GUIDELINES FOR WINDOW WEATHERIZATION*

The following guidelines are intended to assist VMI in making informed decisions regarding window weatherization.

#### *General Guidelines*

- Historic repairable windows should never be replaced with new units simply as a weatherization measure. Most loss of thermal efficiency at a window occurs around a leaky frame rather than through the sash itself. This can be addressed through simple weatherization techniques such as installing weather-stripping.
- Weatherization techniques can greatly increase the energy efficiency of the overall building envelope and are always less costly than wholesale replacement of an entire window unit.

#### *Weather-Stripping*

- Historic windows can be made as energy efficient as new windows through the installation of weather-stripping.
- Weather-stripping is installed between the window frame and operable sash and along the meeting rails of the sash. Do not apply reflective or insulating film to window glass.

- Blinds or insulating curtains may be added to the interior for privacy and increased thermal performance.
- In addition to weather-stripping, there are a variety of retrofit techniques that can provide thermal efficiency. These methods are less expensive than wholesale replacement and insure that the greatest amount of historic material is retained.

***Storms***

- Storm windows help achieve increased thermal efficiency without removing historic materials and features.
- Storm windows are appropriate as long as they fill the window opening completely, without the use of spacers or filler panels.
- Wood storms with removable storm sashes and screens are available commercially and are particularly appropriate for use on historic buildings.
- Do not install exterior storm windows in a manner that damages historic windows frames.
- Exterior storms should either be painted or acquire a factory-applied finish matching that of the prime sash.
- Bronzed and silver mill-finish treatments are not appropriate. Low-E and reflective glazing are also not appropriate in historic contexts.
- Interior storm windows are also available. Because interior storm windows maintain the appearance of the exterior facade, they are preferable, and often less expensive, in cases where the windows are non-operable.
- Inexpensive and reversible magnetic storms, however, can be removed in warm weather so that windows can open. Install interior storm windows with air-tight gaskets, ventilating holes, and/or removable clips to avoid condensation damage to wood or steel sash.
- Where interior storms are used, sufficient ventilation must be provided at the historic prime sash to avoid moisture condensation that will damage the historic unit.

## *GUIDELINES FOR WINDOW REPLACEMENT AND ALTERATION*

The following treatment guidelines are provided to address common issues regarding historic window replacement and alterations.

***General Guidelines***

- Total replacement of all windows on an historic building is not a preservation treatment. Peeling paint, broken glass, stuck sash, and air infiltration are problems that can be remedied; they are not valid reasons for replacement.
- Windows should only be replaced when they have reached the end of their service life and the majority of the window components have deteriorated beyond repair.
- New windows should match the originals in material, finish, configuration, setback, profiles, and all other visual and reflective qualities. Details such as sash, muntin configuration, reveal depths, glass-to-frame ratios, glazing patterns, frame dimensions, trim profiles, and decorative features should be faithfully replicated.
- A number of window manufacturers make customized replicas of historic sash and frames. They also offer more generic reproduction historic

window lines. Both are much more costly than proper maintenance and repair of existing historic windows over their life-cycle.

- Replacement windows should always be based on the original in all respects; installation of a generic historic window is not appropriate.

***Wood Windows***

- Historic wood windows that cannot be repaired should be replaced with new wood windows.
- Vinyl and aluminum replacement windows are not appropriate. Likewise, windows clad in a synthetic material should not be considered. These modern windows are of inferior quality with shorter life spans than traditional wood.
- Replacement windows should have the same operating system (i.e., double-hung sash, casement, pivot, fixed) and configuration as the original windows.
- Replacement multi-pane windows with true divided lights should be used; snap-in and applied muntins are not appropriate because they do not match the historic muntin profiles. Using modern muntins alters the historic reveals and proportions characteristic of historic sash.
- Contemporary sheet-glass windows and tinted, low-E, or reflective glass should also be avoided.

***Steel Windows***

- The replacement of steel windows can be more costly than repair work. Even large scale replacement of custom parts can be more cost effective.
- When planning for steel window replacement, it is important to understand that many steel windows are often anchored into the surrounding masonry. Steel frames were typically built into the masonry structure during the original construction. Replacing steel frames may involve costly masonry disruption around the window opening. At VMI, this may include dismantling ornamental masonry muntins, which are important character-defining features of the Gothic Revival style.
- Removing steel frames by cutting off the anchors and leaving the anchors embedded in the masonry is not acceptable. This will leave embedded steel anchors in the surrounding window masonry, which can lead to major masonry disruption when these anchors corrode and expand.
- The cost of dismantling, rebuilding, and repairing the surrounding masonry should be factored into any cost analysis of steel window replacement.
- Modern steel windows are made of a mix of rolled and pressed steel, bronze and brass sections, and aluminum glazing beads, while the originals were manufactured with rolled steel sections.
- New steel windows rely heavily on weatherstripping to prevent water infiltration.
- Aluminum replacement windows are not acceptable alternates for historic steel windows. Steel windows are characterized by thin section details, a testament to the strength of steel. Aluminum is not strong enough to recreate these thin section details. Also, the thermal performance of steel windows exceeds that of aluminum windows.

### *Fenestration Patterns*

- The spacing, location, size, placement, and rhythm of historic windows are a signature feature of historic buildings. Original fenestration patterns should be retained and maintained.
- New windows or altered openings are not appropriate in historic contexts, particularly on the façade and other visible elevations.
- Do not alter the number, size, location, or shape of original windows.
- Replacement windows should match the full size of the historic window opening. Large window openings should not be filled with a number of smaller windows.
- If new windows must be added to a windowless secondary elevation, the work should minimize the number of new openings and be compatible with the scale, location, and size of historic window frames elsewhere on the building.
- Through-the-wall heat pumps and cooling units are never appropriate on historic buildings. They destroy historic fabric and impact building integrity.

### *Air Conditioners and Vents*

- Wherever possible, window air conditioners should only be installed on a building's secondary elevations.
- If the window is removed to install an air conditioner, the window opening should be maintained and preserved.
- Protect and preserve historic window sash and frames if the installation of heating/air conditioning units requires their temporary removal. Protect surfaces below the window from moisture damage from condensation from window unit air conditioners. Unit drains should direct water away from sills and walls.
- Although windows should generally not be used as vents for air-conditioning systems and exhaust fans, this solution is sometime the least intrusive option for a historic building. If this option is chosen, the vent or fan should be installed in a window on a secondary elevation. The removed sash or window should be stored in the building for future reinstallation.

### *Interior Alterations that Impact Windows*

- Interior alterations such as lowered ceilings, new floors, or mezzanines should not impact either historic windows or the building's exterior spatial and visual experience. Lower ceilings are often used in renovation projects to accommodate mechanical equipment.
- Their extent and drop should be minimized because the alteration can affect the appearance of windows and have a negative visual impact on the building's exterior.
- Dropped ceilings that block or cover window frames and glazing are inappropriate in historic contexts. Chases for ductwork within the room are a better solution. If a drop must be accommodated, the design should incorporate generous setbacks that allow the full height of the window to remain unobstructed.
- Other alterations that may block or cover windows, such as new floors, loft spaces, and staircases, should be avoided as well.

## STUCCO


*The use of stucco is evident throughout the Post, as seen here at Richardson Hall.*

Stucco is a form of mortar used to give walls a smooth, finished appearance and protects them from deterioration caused by exposure. Stucco was traditionally applied in two or three coats directly to the underlying substrate. Buildings that have historically been covered with stucco should remain so. The underlying masonry may have been of inferior quality and was never meant to be exposed to the elements. Stucco should not be installed on buildings that were never historically stuccoed or as a substitute for maintenance. Masking problems with a surface coating solves nothing. Stucco is meant to be a sacrificial protective coating and, therefore, requires cyclical maintenance and reapplication.

Stucco is composed of a binder of sand and often a reinforcing fiber. It is applied in two to three coats. The first coat is called the brown coat. The second is the scratch coat and the final coat is the finish coat. Stucco was traditionally composed of lime-based binder materials; modern stuccoes are usually composed of Portland-cement and hydrated lime.

### *TYPICAL STUCCO CONDITIONS*

Stucco is found on the exterior of the majority of academic buildings throughout the entire Post, as well as on the historic Davis- and Goodhue-designed residences in the Central Post area. It is a character-defining feature of the masonry buildings at VMI and provides a uniform exterior surface treatment that visually links the various buildings on Post. The stucco at VMI has a smooth finish and is painted a uniform color with a modern, exterior paint. The stucco exhibits the general signs of stucco failure, from beginning signs such as failed paint, biological growth, rising damp, and efflorescence, to more serious forms of deterioration, including cracking, corrosion of underlying metal lath, delamination, and loss.

Remnants of early stucco still visible on the Old Barracks indicate that A.J. Davis intended the stucco to be scored. Scoring the stucco gave the appearance of large dimensional blocks of stone. This intended aesthetic can be seen in historical photographs. The aesthetic intention of imitating stone is important to the choice of stucco color. Currently, the buildings at VMI are painted a greenish brown color, which is unlike any natural stone color. It is more likely that Davis intended the stucco to be colored a buff color to mimic limestone or even a gray color to simulate granite. Investigations in areas of original stucco may provide clues to the original stucco color used at VMI. This is an important component of the overall architecture appearance of the buildings at VMI.

### *STUCCO INSPECTION*

Stucco is a material that will require routine repair and replacement. However, regular inspection of stucco finishes will extend its lifespan. Inspection of stucco finishes should note the following signs of problems.

- Cracks.
- Rust staining.
- Openings at building penetrations.

- Leaking gutters and downspouts.
- Intrusive vegetation or biological growth.
- Failed paint.
- Staining or rising damp.
- Efflorescence or whitish staining.
- Poor site drainage.
- Hollow sounding areas when tapped with a hammer.
- Delamination.
- Loss.

### *CAUSES OF STUCCO DETERIORATION*

Moisture and water infiltration is the main cause of stucco deterioration and failure. As with masonry, problems with the roof drainage system accelerate stucco deterioration. Excessive water runoff over the stucco surface will lead to disintegration of the stucco. Water splashing up from the foundation, or moisture penetration through rising damp, can cause the stucco to lose its bond to the substrate. Wet stucco is vulnerable to freeze/thaw deterioration in cold weather. Water moving through the stucco leaches out carbonate material, which builds up in areas where the water evaporates on the surface. Salts from the ground may accelerate stucco deterioration through salt crystallization.

Cracking in the stucco can be caused by several mechanisms. Shrinkage cracks can form if the stucco has dried too quickly during installation. Building settlement can cause cracking in the stucco finish. Metal elements, such as metal lath or metal corner beads, expand at different rates than the stucco, causing cracking.

Stucco that has been applied over metal lath is particularly vulnerable. Often, the metal lath or lath nails have been inadequately-sized and are not strong enough to hold the applied stucco. The stucco on metal lath may have no expansion joints, which are required to absorb the movement of the lath during thermal expansion. Water infiltration into the stucco and metal lath system will cause the lath to corrode and fail.

### *GUIDELINES FOR STUCCO REPAIR AND REPLACEMENT*

The following guidelines identify appropriate strategies for the repair and replacement of stucco materials at VMI.

#### *General Guidelines*

- It is important to repair existing stucco with similar materials. Dissimilar materials will have problems bonding to the existing material. Portland cement-based stucco mixes are too hard and dense for soft, permeable historical masonry. Natural hydraulic lime-based stucco mixes will require more care during installation, but provide a flexible breathable coating that is compatible with historical masonry.
- Successful patch mixes can be tinted to match the weathered appearance of the existing material.
- Before applying the replacement material to a large wall area, use a test panel to determine if the color and finish are appropriate. Once a proper

blend has been determined, it should be recorded for any future repairs to the building.

- Cracks in stucco should be repaired with cementitious materials similar to those found in the original mix. Sealant should never be used to repair cracks in stucco. Hairline cracks can be filled with a slurry made of the finish coat mix.
- Larger cracks must first be cut to provide a groove or “key” for receiving the new work. A groove can be cut by using a knife to open up an existing crack. The edges should then be undercut with a hammer and chisel. After applying stucco, it should be kept moist for three to four days to allow curing.
- Where existing stucco is deteriorated, only the deteriorated area should be removed and repaired to match adjacent surfaces. To repair stucco, all of the loose or severely cracked stucco should be removed to the masonry substrate. The area to be patched should be cleaned of all debris.
- Masonry joints may need to be raked out 5/8-1 inch to ensure good bond between the substrate and the new stucco. Stucco should be applied directly to masonry whenever possible.
- It is best to avoid the use of chemical bonding agents because a good mechanical key will provide the best support for stucco repairs.
- Where it is not possible to apply stucco directly to the masonry, stucco may be applied over metal lath, but the stucco on metal lath must have appropriate expansion joints and be protected from water. Otherwise, stucco on metal lath will fail rapidly.
- Stucco repairs should be undertaken only when temperatures are above 50 Fahrenheit.
- In applying stucco, begin from the top of the wall with a smooth application. The dimension between the surface of old and new stucco should remain unchanged. Surplus stucco should be washed off with a light stream of water. Allow the stucco to set for 30 to 60 minutes before using a fine spray of water to etch the surface to match the texture of the historic existing stucco.
- Stucco repairs must be properly protected and cured to prevent shrinkage cracks and premature failure. All stucco repairs must be installed by a skilled plasterer.

# PAINT

Paint is the final layer of finish on many historic exterior building elements, including woodwork, metals, windows, doors, stucco, and masonry. Paint protects exterior features from the elements and adds color and character to the building envelope. A good coat of paint, well-bonded to its surface, is an excellent means of preservation.

## *PAINT INSPECTION AND MAINTENANCE*

To prevent the deterioration of painted surfaces, regularly check surface conditions. Paint will fail when the bond to the underlying substrate fails. Inspection of painted surfaces should identify the following signs of deterioration:

- Exposed substrates,
- Chipping,
- Bubbling or blistering,
- Alligator cracking,
- Abrasion,
- Rust staining, and
- Biological growth.

## *GUIDELINES FOR PAINTED MATERIALS*

The following guidelines are provided to assist VMI in understanding how paint jobs should be approached for different historic building materials/

### *Painted Masonry*

- The most appropriate treatment for painted masonry is to keep it coated. Stripping paint layers will cause irreversible damage to the underlying masonry.
- For painted masonry buildings with areas of peeling paint, remove only damaged paint to the next sound layer before applying a new compatible paint coating.
- Paint that remains firmly adhered to the masonry should be left in place.
- Use a breathable masonry paint that allows moisture to pass through the walls.
- Do not coat masonry with any material that forms a moisture barrier; this barrier traps water and moisture within the masonry, causing spalling and cracking during freeze-thaw cycles and salt crystallization.

### *Painted Metals*

- Certain metals are painted for protection while others should be left unpainted. Cast iron, steel, and tin should be painted to protect them from corrosion.
- As with all paint work, the metal surface to be painted must be properly prepared. Rust, oil, grease, and loose paint must be completely removed.
- Modern alkyd paints are suitable for painting these metals. Alkyd-based rust inhibitive primers should be used to protect the substrate since modern alkyd paints tend to go on thinner than traditional coatings.

- Zinc-rich primers will provide a more durable finish, but they can only be applied over clean metal; they are only suitable for shop-prepared paint work.
- Copper, bronze, and stainless steel should be left exposed.

***Painted and Varnished Woodwork***

- Retain and renew paint coatings on wood features that have been painted in the past; paint helps to protect the surface from moisture and light damage.
- Paint that is firmly adhered should be left in place and not removed unless it is failing.
- If all paint is planned for removal during a rehabilitation project, samples of the existing layers of color should be taken prior to complete removal. This is used to perform a paint analysis that records the historic sequence of colors.
- Many of the main entrance doors at VMI have been finished with a colored varnish or with a stain and clear varnish coating. Shellac or oil-based varnishes were traditionally used to protect woodwork up through the post-World War II era. Many of these exterior doors may have been refinished with modern polyurethane varnishes. It is important to identify the existing varnish coating prior to refinishing. Shellac varnishes can often be refreshed using mineral spirits and new shellac. Oil-based varnishes can be removed with solvents and renewed. However, polyurethane coatings require complete removal down to bare wood. The wood will need to be re-stained and varnished. Polyurethane coatings should be applied by a skilled contractor to avoid lap marks, bubbling, and super high gloss finishes.

***Painted Tin Roofs***

- Tin-plate iron roofs require regular repainting to prevent corrosion of the sheet metal.
- Historically, tin roofs were most commonly painted with a brownish-red iron oxide and linseed oil primer. At the turn of the century, red lead primer became a common highly durable, anti-corrosion coating for metal in all architectural applications. Red lead primer ranged from a dark brick red to a dark red-orange in color.
- Most nineteenth century residential building metal roofs at VMI should be painted with a dark red or dark reddish brown colored paint.
- The type of paint to use depends on the type of existing paint. Modern paint formulations, such as elastomeric paints, may offer a longer service life if properly applied. However, modern paints must be compatible with the substrate and earlier paint coatings in order to properly adhere.
- It should be noted that Alexander Jackson Davis, the architect of the Old Barracks, the Superintendent’s Quarters, and the Commandant’s Quarters, advocated that tin roofs be painted green to imitate the patina of copper. This can be seen in Davis’s water color and ink drawings for the Superintendent’s Quarters (1860). It is possible that green may have been used on the Gothic Revival residences found on the VMI Post. Metal roofs found on the late nineteenth century Gothic Revival residences at 501 and 503 Brooke Lane should be considered for coating with a dark olive green.

- This should be established after investigating the original color of the wood siding and trim. The roofs should coordinate with the entire historical exterior color palette.

***Painted Stucco***

Traditionally, stucco was integrally colored through the use of colored aggregate and the addition of lime-stable pigments in the finish coat mix. In the nineteenth century, stucco was also routinely whitewashed. These early coatings were later replaced by modern paints as the commercial paint industry expanded circa 1875. At VMI, the exterior stucco has been cyclically painted a uniform color, which has changed over the years.

- New and old stucco work should continue to be routinely painted.
- Appropriate coatings include lime and cement paints, latex paints, and alkyd paints.
- Paint type will be determined by the previous coatings; new paint must be compatible with existing coatings.

***Unpainted Surfaces***

- Do not paint masonry or stucco that has never been painted.
- Painting undamaged masonry surfaces is not a preservation treatment. This is unnecessary unless the surface is much deteriorated from extreme weathering, water penetration, or sandblasting and other abrasive treatments.
- Do not paint windows shut or coat the window glass.

***GUIDELINES FOR REPAIR AND REPAINTING***

The following guidelines should be applied to all repair and repainting projects undertaken on the Post.

- Before removing, handling, or disposing of paint, it is critical to determine if it is lead-based. Paint on any pre-1970 building is almost certain to be lead-based.
- If so, ensure that the removal process complies with local, state, and federal laws and avoid breathing or ingesting the dust of lead-based paint.
- Use the gentlest means possible to remove paint and only remove deteriorated paint layers. For buildings with extensively deteriorated paint, remove all unstable coatings to bare substrate after sampling and recording the historic paint color sequence.
- Architectural features should not be stripped and left bare. The unprotected substrate will quickly discolor and deteriorate; metal substrates will quickly corrode.
- Hand-scraping and hand-sanding is the best technique for removing paint on some historical materials.
- Limited and judicious use of chemical strippers can be considered, provided test patches are evaluated prior to large-scale stripping. Care should be taken that chemical strippers do not damage adjacent building or landscape materials.
- Alkaline chemicals should be approached with caution when removing paint from wood substrates; they raise the grain and can easily damage

wood. In contrast, alkaline paint strippers have proven to be the most effective type of stripper for use on iron-containing metals.

- On masonry, mild chemical strippers may be appropriate but only under skilled supervision with prior test patches. It is important to ensure that chemicals are thoroughly rinsed off after treatment. Failure to do so will cause premature paint failure.
- Sandblasting is extremely harmful to historic material surfaces and should never be used. It leads to water penetration and deterioration.
- Water-blasting is only appropriate for loose paint on masonry surfaces if used at low pressure (150-200 psi maximum). Pressure-washing wood is detrimental as it raises the grain and forces moisture into the walls. It leads to paint failure, wood decay, and structural problems.
- Propane or butane torches, electric hot-air guns, and electric heat plates are never recommended for paint removal because they can scorch the surface of the wood and ignite debris behind clapboards. Likewise, electric sanders can cause irreversible damage by removing the wood surface in addition to paint.
- Substrates to be painted must be properly prepared and primed. Manufacturer recommendations must be followed for each type of substrate to be painted. Primer helps the finish coats bond to the new and previously-painted surfaces and combats deterioration caused by moisture absorption.
- When choosing a paint system, pick one that is appropriate to the existing coating, the surface to be painted, and the site's environmental microclimate.
- The extra cost of high-quality paint is a good investment because it maintains a better surface for a longer period.
- New paint must be compatible with the old paint. Surfaces previously painted with oil-based paint should only be repainted with oil paint. Alkyd and oil paint should not be combined in multiple layers.
- Apply paint with a brush, because spray-on paint has poor adherence, a thinner coat, and greater failure rate.

### *GUIDELINES FOR HISTORIC PAINT COLORS*

While paint offers an important protective coating for architectural materials, it also provides valuable information on the aesthetic intent and preferences for architecture over time. Often when a historic building is restored or renovated, there is a desire to repaint using original or historically appropriate colors.

- When a historically accurate restoration is needed, a materials conservation professional should be engaged to do a paint analysis or seriation study. This study analyzes a paint sample in cross-section using a microscope under special lighting conditions to study the colors and sequences of all the coating layers (seriation) on the surfaces of architecturally significant elements and building surfaces. Historic paint analysis can aid in the investigation of the history and development of a building, as well as provide information on coatings applied over time. It is valuable in determining appropriate colors for repainting.
- For less sensitive spaces or simpler finishes, it may be appropriate to choose from a palette of period colors for repainting.

- Prior to the nineteenth century, the color palette was typically confined to natural colors, such as grays, buffs, tans, ochre yellows and iron oxide reds. Bright colors were restricted to greens and Prussian blue. Care was taken to produce high gloss finishes, particularly on woodwork.
- In the early nineteenth century, new colors became available, including chrome green and yellow and reds. The color palette was slightly brighter and less gray. New paint formulations brought about a fashion for low-gloss finishes circa 1830. Factory-made paints became widely available circa 1875 during a time of exuberant color choices in the Victorian era. Tertiary colors, a mix of secondary colors, such as olives and red-browns, were popular. High gloss finishes were used on woodwork; low-gloss paints were used on wall surfaces.
- The turn of the century saw a pendulum swing back to subdued colors with the growing popularity of the Neoclassical Revival styles.
- In addition to color, other factors affect the appearance of historic paints and must be considered when applying new paint. Prior to the widespread commercialization of paints circa 1875, paints tended to have coarser pigment grains causing an unevenness of color. Unless the paint layers were later rubbed smooth, brush marks were often visible; the type of brush used left distinctive lap and brush marks. The content and thickness of the binder affected the final gloss level. It is important to understand that gloss level and application methods, as well as color, affect the final appearance of paint.

## INTERIORS

*The historic interiors of Cocke Hall, above, and Jackson Memorial Hall, below, have been retained.*

Much of the activity surrounding architecture takes place on the interior. Interiors offer rich histories about the use of the building over time. Pristine, unaltered interiors may reveal a specific aesthetic of a certain era or owner. Interiors that have been altered by each succeeding generation present tales of change and technological improvements. Unfortunately, interiors that have been heavily renovated are often stripped of all their previous history.

### *TYPICAL CONDITIONS*

The VMI Post retains significant interior spaces, including both high end and vernacular interiors. The majority of these historical interior spaces are in good condition. The interiors of the Superintendent's Quarters and Jackson Memorial Hall include major interior public and semi-public spaces and historic finishes. The Superintendent's foyer and dining room and the main floor of Jackson Memorial Hall are as familiar to the alumni of VMI as the exterior facades around the parade ground. Distinctive interiors and unique historic finishes have been retained at Stono, reflecting the Neoclassical and Federal styles, and the Commandant's Quarters, which is highly characteristic of A.J. Davis's Gothic Revival style.

Additionally, the VMI Post has several historical vernacular interiors that are equally distinct. The Gothic Revival cottages on Brooke Lane have a rustic, cozy simplicity, while the Gothic Revival Pendleton-Coles House (309 Letcher Avenue) has a slightly more upscale version of the same style. Many of the houses on Stono Lane, Letcher Avenue, and Main Street retain significant character-defining features, despite their current uses for academic offices.

The historic academic buildings at VMI retain very little of their original interiors. Most buildings have been extensively renovated and expanded several times. Floor plans, staircases, and finishes have been removed and altered. In a few buildings, entrance foyers, staircases, and their associated finishes have been preserved. One well-preserved example is the first floor of Cocke Hall, which retains its main gym floor and perimeter track. However, these preserved spaces are the exception.

### *INTERIOR INSPECTIONS*

Historic interiors can be inspected on several levels. Architectural inspection focuses on the overall features, materials, finishes, form, and circulation. Structural inspections review loads and settlement issues, focusing on foundations, structural members, and attic spaces. Systems and fixtures inspections involve review of the existing electrical, mechanical, and plumbing systems for adequacy, efficiency, and code requirements. Additionally, the interiors can be inspected with a focus on life safety, fire protection, and building code review. Often, a thorough historic interior assessment will require that all of these issues are addressed.

For the purposes of these guidelines, the focus is on the architectural assessment of historic interiors. It is important to methodically inspect and document an historic interior, noting the following conditions:

*Flooring*
- Wood: loose boards, buckling, water damage, wear, scrapes, cracking and splitting, stains, failed finishes
- Tile: loose tiles, cracks, chips, loss of glaze, loss or failure of grouting
- Terrazzo: Cracks, loose areas, loss, disaggregation, failure of finishes

*Walls and ceilings*
- Plaster: cracks, failure of finish, delamination, hollow or bulging plaster that is loose from lath, water damage, efflorescence, loss, mold
- Wood paneling: loose panels, cracks, split panels, wear, water damage, insect infestation, failure of finish

*Stairs*
- Sagging or loose stair members, including stairs, newel posts, and handrails.
- Insect infestation
- Missing parts
- Failure of finishes
- Excessive wear

*Doors and doorways*
- Water damage
- Excessive wear at doors, door trim, and threshold
- Broken glazing
- Failed finishes
- Poor operation of hardware
- Sagging or loose doors that do not close

*Windows*
- Broken interior screens and shutters
- Failed finishes
- Water stains

*Wood trim*
- Water damage
- Excessive wear
- Scrapes and gouges
- Failed finishes
- Loss
- Wood trim that is clearly not original

*Fireplaces*
- Failure of finish, loss, or damage at fireplace surround.
- Loose, broken, or lost hearth materials.
- Failed structural support for hearth
- Failed firebox lining and/or water staining

### *CAUSES OF DETERIORATION*

The majority of the deterioration to historic interiors is caused by damage to the exterior envelope of the building. Moisture and water infiltration is one of the greatest causes of problems on building interiors. Water may be entering the building at points above grade-level, including the roof, walls, wall penetrations, and door and window openings. Water may also enter the building from below-grade through rising damp at foundations. This can be exacerbated by poor site drainage. Interior systems may also be the cause of water infiltration. Leaking plumbing pipes and mechanical equipment can cause localized damage. Climate control systems may also cause condensation, which can occur on surfaces where warm humid air mixes with cooler surfaces.

Movement and settlement throughout the building can alter interior finishes. Plaster can crack and detach from the backup lath. Door and window openings may shift, blocking the operation of doors and sash. Floors may sag or buckle. It is important to determine if this movement is stable or ongoing by consulting a structural engineer.

Inappropriate maintenance and heavy wear may cause extensive deterioration of historic interiors. Updating interior finishes and systems is required for the continued use of many historic interiors. However, improper treatments, insensitive upgrades, and heavy handed alterations cause irreversible damage. Upgrades for small scale utilities, such as phone and cable lines, can cause multiple, small penetrations in exterior walls. Over time, these can lead to more serious damage. The construction of new bookshelves or cabinets can cause permanent damage to walls, wood trim, and floors. In some extreme cases, pets can cause permanent damage and stains to interior finishes.

### *GUIDELINES FOR REPAIR AND RENOVATION*

The following guidelines identify appropriate treatments and considerations for historic interiors.

- When considering repairs or alterations within an historic interior, it is important to identify the character-defining features that create a unique interior space. The overall form of the interior is often significant, including the floor plan, the volume of spaces, and the relationship of rooms. Many buildings will have primary public spaces with finer finishes and secondary utilitarian spaces.
- Certain key interior features may be of particular importance, such as a main stair case, gallery, or uniquely shaped room.
- Other features may be less prominent but, taken collectively, define the style and feel of the interior. These include the floor and wall finishes and detailing, wood trim, doorway openings, doors, window treatments, and hardware.
- The natural and artificial lighting of the interior is important and is closely linked to the treatment of windows on the exterior. Once the character-defining features are identified, all future repairs and alterations can be assessed for their impact on these features.
- Retain character defining floor plan elements, such as stair configurations.
- Avoid partitioning or opening up character-defining spaces.

- Avoid the use of drop ceilings in spaces defined by high ceilings.
- Retain historic finishes and decorative features and materials. Repair features to the greatest extent possible. Replace historic features with matching materials wherever possible.
- Retain and preserve visible features of character-defining mechanical, electrical, and plumbing systems.
- Do not recreate interior conditions that did not exist historically.

# CHAPTER 9
# GUIDELINES FOR NEW CONSTRUCTION

## Introduction

The Guidelines for New Construction build upon the architectural treatment guidelines included in Chapter 8 of the *Preservation Master Plan*. The Guidelines for New Construction focus on exterior alterations and additions, new construction, barrier-free access, and sustainable / green building design.

The preservation treatment guidelines addressed in this chapter incorporate the principles of the *Standards* and are a tool that will assist VMI decision-makers, faculty, and staff in making appropriate changes to historic buildings. They are also intended to provide a framework for relevant issues and concerns that should be considered when making decisions about new construction projects

## Recommendations for Exterior Additions

The majority of exterior additions and modifications to existing buildings on the Post are a result of the adaptive reuse of a building. This refers to an existing building being adapted to accommodate a new use. An example of this on the Post is the former single-family residences along Letcher Avenue that are now used for administrative offices or multi-unit dwellings.

Often times these changes require additions which can have a profound impact on the character and integrity of the historic resource. When new additions are constructed on a building, the design characteristics of the historic building should be considered, though not identically copied or re-created. Additions should have subtle distinguishing characteristics so the historic portion and new portion are identifiable. New uses that will have a significant impact on the historic appearance and fabric of the building and its surrounding landscape should be avoided.

Additional factors to consider when making an exterior modification to an existing historic building are identified below:

***Building Orientation***

- The original orientation of a building should not be altered when constructing a new addition.
- An addition should not turn a secondary elevation into a primary façade. If a new primary entrance is incorporated into a building addition, the original historic entrance should be retained and preserved.

***Building Features***

- New additions should be attached to a main building in a manner that does not significantly impact the character-defining features of the existing building.
- Additions, to the greatest extent possible, should be placed on a secondary façade that is less visible from the public realm.
- The placement of an addition should not obscure or destroy the existing principal entrance or other key features of any highly visible elevation.
- Fire escapes should be installed on secondary elevations and should respect the location of original doors and windows.
- Required access ramps should be located on secondary elevations wherever possible. If locating a ramp on a primary façade is required, it should be installed in a way that does not damage historic fabric and is as unobtrusive as possible.
- Dumpsters and service equipment should be screened with vegetation, fencing, or other acceptable material that is compatible with the historic character of the Post. Dumpsters and large service equipment should be located to the rear of the property, or other unobtrusive location, to the greatest extent possible.

***Rooftop Additions***

- Rooftop additions to existing structures are strongly discouraged. They detract from the historic integrity of the Post and alter the visual aesthetic of the building façade.
- If necessary, rooftop additions should be set back from the primary façade and should be made to be as inconspicuous as possible.
- Alternative locations for rooftop equipment, such as chiller units, which result in an incompatible rooftop addition should be thoroughly studied and evaluated. Alternative locations at the rear or side of the structure should be considered. Options exist for enclosing these units in confined areas.

***Compatibility***

- Additions should have the same relationship of solids to voids as the historic portion of the building.
- Align new additions with historic features such as roofline, cornice height, and masonry coursing in a manner that does not cause extensive modification.
- New additions should be in proportion with the size and scale of the historic building.
- The height and width of any new addition should not be greater than the height and width of the existing building.
- Floor-to-floor heights should be maintained, or should incorporate exterior detailing that suggests consistent floor-to-floor heights.
- Windows and doors on an addition should relate in size, scale, shape, and proportion to the original openings in the existing building.
- Contemporary designs for additions are not discouraged when they are compatible with the character of the historic building.

- Unsympathetic alterations, such as the removal of historic windows, changing rooflines, or removing character-defining features, such as chimneys, should be avoided.

***Materials***

- Construct additions to minimize the loss of historic material.
- Materials that are the same or subordinate to the primary material of the original building should be used. Wood is subordinate to brick and brick and stucco are subordinate to stone.
- Traditional materials are always preferred. Synthetic materials should be avoided.

***Interior Work***

- Careful planning and consideration should be given to retaining historic spatial plans, room hierarchy, design, and materials.
- Significant interior features, such as fireplaces, railings, staircases, and woodwork should be retained to the greatest extent possible.
- Avoid interior work that has the potential to impact the exterior of the building. Dropped ceilings, new mezzanine and loft levels, new stairs, through-the-wall HVAC units, and other work that would be visible from the exterior should be avoided.
- "Gut rehab" is not appropriate for intact historic interiors. Many of the original, historic interiors on the Post have already been completely destroyed from gut rehab projects.
- New interior work should be compatible with the existing historic character.

# Recommendations for New Construction Projects

The character of the VMI Post relies heavily on the visual continuity created by the consistent use of the Gothic Revival style of architecture. New additions, as well as new construction, can have either a positive or negative impact on maintaining the architectural theme of the Post. The key with new construction projects is to design new buildings so they enhance and complement the theme, as opposed to detract from it.

New construction does not need to replicate the historic architecture, but it should be consistent in massing, form, scale, and setback. New construction should maintain the overall pedestrian-oriented scale of the Post, with limitations on buildings that are more monumental in size than their predecessors.

The following guidelines have been developed to assist VMI in making design decisions regarding new construction projects:

***Architectural Vocabulary***

- New construction on Post should be complementary and sympathetic to the existing architectural vocabulary. For the majority of the Post, particularly around the Parade Ground, the dominant architectural style is Gothic Revival.
- New construction does not need to exactly replicate the historic Gothic Revival architectural style found on the Post, but should reflect some characteristic features of that style and should be complementary.

***Removal of Historic Resources***

- Historic buildings, structures, or landscape resources should not be demolished to make way for new construction.

***Contemporary Designs***

- New building projects intended to have a contemporary, modern design should remain compatible with the average height, massing, scale, and width of existing historic buildings.
- Exact replications of historic elements should be avoided in new construction because false historicism diminishes the integrity of the historic Post buildings and confuses the distinction between old and new.

***Design Compatibility***

- New construction should be considerate of surrounding buildings.
- New construction should maintain existing significant views and vistas.
- Project teams and architects chosen for new construction projects should have experience working with historic buildings or working on modern buildings within a historic context to ensure that design compatibility is achieved.

### *Materials*

- Materials for new construction should be sympathetic to surrounding historic buildings. Materials should be of a complementary color, size, texture, scale, and level of craftsmanship.
- Traditional materials, such as wood, brick, and stone, are preferred. The use of synthetic materials should be avoided.
- Avoid the use of materials that are visually incompatible with surrounding historic buildings, such as glass block, aluminum or vinyl siding, chain-link fences, and "antiqued brick".

### *Building Form*

- New buildings should be designed to complement the mass of surrounding historic buildings.
- Building mass is directly related to the materials used on the primary elevations and the proportion of solids (walls) to voids (windows and doors). Because contemporary materials can easily create a weightless appearance, it is important to have a proper sense of mass that is consistent with surrounding historic precedents.
- Design new construction so that the orientation of the main entrance is the same as surrounding historic buildings.
- New construction should generally be of the same average height and width of surrounding buildings.
- Window and door openings should be similar in size to those on existing historic buildings.
- Design new construction so that the orientation of the main roof form is consistent with surrounding buildings.
- Design new construction to emphasize the existing cornice line where this is a character-defining feature on adjacent properties. This is especially true for academic and administrative buildings located around the Parade Ground.
- Large monumental buildings and one-story buildings would be inappropriate at VMI when considering the existing scale of the Post.
- Any new secondary structures should be designed to complement the scale, roof form, setback, and materials of nearby secondary structures. There are limited secondary structures existing on the Post. Secondary structures are not a defining character of VMI and should be limited in association with future development.

### *Archeology and Site Work*

- The archeological potential and significance of a previously undisturbed site should be considered when selecting a site for new construction.
- VMI officials should coordinate with local officials and the Virginia Department of Historic Resources to determine if a site has historical significance or the potential to yield information about history or pre-history. This preliminary background research should be undertaken prior to any excavation or grading of the site.
- Evaluate construction projects in consultation with a professional in an appropriate discipline – archeology, history, architectural history.

- Obtain the services of a trained professional archeologist to conduct testing of any new construction sites with the potential to contain archeological resources.
- Do not carry out excavations on or adjacent to a historic building which would cause the foundation to shift or destroy important archeological resources.
- Avoid impacts to archeological sites by designating a limit-of-disturbance area around the resource. The limit-of-disturbance area should be determined by an archeologist.

# Recommendations for Barrier-Free Access

In 1990 the American Disabilities Act (ADA) was passed, providing for the requirement to provide basic levels of accessibility to almost all properties open to, and used by, the general public. ADA is a comprehensive civil rights legislation that applies to private property owners, governments, employment centers, and transportation services. With the passage of ADA, property owners became responsible for ensuring that barrier-free access was provided to all buildings, sites, and landscapes that are open to the public.

Buildings existing prior to the passage of the Act are required to comply depending on their use. Existing buildings that provide public accommodations, such as lodging, food service, or public gathering spaces, are required to comply when it is "readily achievable" to do so. New construction and alterations to existing buildings are required to comply at the time of construction work. Standards for the design of accessible facilities are defined in the Americans with Disabilities Act Accessibility Guidelines (ADAAG), as well as in the American National Standards Institute (ANSI) and the International Building Code (IBC).

Section 4.1.7 of the ADAAG states that historic buildings are allowed certain exemptions from the design standards relative to the protection of existing historic fabric. These are considered "qualified historic buildings". This section prevents undesirable modifications to historic building elements judged to have historical or architectural significance. Flexibility with respect to the preservation of historic building features has been integrated into recent building codes and ADA standards. In cases where accessibility is not possible with degrading the historic character of a building, alternative solutions are considered acceptable and should be developed.

The following guidelines have been developed to assist VMI in addressing the requirements of the American Disabilities Act:

***General Guidelines***

- New construction should provide barrier-free access under the provisions of the American Disability Act (ADA).
- When undertaking work required by life safety or accessibility codes, features should be designed to be functional, but as unobtrusive as possible.
- Ramps should be located on secondary elevations whenever possible and should be integrated to work with the existing rhythm and design of the building.
- When new stair towers or elevators are required to be installed on a historic building outside of the existing building footprint, the additions should comply with the guidelines outlined in this chapter for new construction projects.
- Accessibility improvements should not be highly-visible design statements that overwhelm or detract from the existing building.
- The best designs will provide barrier-free access that promotes independence for disabled persons while also preserving significant features, materials, and finishes.

# Recommendations for Sustainable Design

Green Building Design, or sustainable design, is defined by the United States Green Building Council (USGBC) as design and construction practices that significantly reduce or eliminate the negative environmental impacts of construction. The benefits of incorporating Green Building Design include the safeguarding of water and water efficiency, promoting energy efficiency, sustainable site planning, the conservation of materials and resources, and improved indoor air and environmental quality.

The USGBC has developed standards for new construction projects, major renovation projects to existing buildings, and neighborhoods. The mission of the USGBC is to transform the way buildings and communities are designed in a effort to enable social and environmental responsibility which improves the quality of life. Projects that incorporate the principles of Green Building Design are likely to, over the life of the building, increase the building's value in terms of environmental, health, safety, community, and economic measures.

## LEED – LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN

The USGBC developed the Leadership in Energy and Environmental Design (LEED) Green Building Rating System to provide voluntary national guidelines for incorporating sustainable design into new construction projects. LEED was created to: define "green building" by establishing a common standard of measurement; promote integrated, whole-building design practices; recognize environmental leadership in the building industry; stimulate green competition; raise consumer awareness of green building benefits; and to transform the building market.

The LEED Rating System provides the building industry with a point-based system for evaluating potential project performance and sustainability. The rating system looks at site development, transportation provisions, water efficiency in both building and landscape, renewable energy use, waste management, materials selection, air quality, and systems maintenance. Projects may register with the USGBC and be nominated for one of four levels of LEED certification.

Although no LEED standards have been developed that are specific to historic buildings, they have been developed for both new construction and existing building projects. LEED-NC references guidelines for new construction and major renovation projects; these guidelines cover all aspects of design and the construction process. LEED-EB references guidelines for existing buildings. These guidelines apply to buildings which are two or more years old; they focus on upgrades and maintenance, as well as site planning and materials selection.

Additional information about the USGBC and LEED is available on their website at http://www.usgbc.org.

## HISTORIC BUILDINGS AND SUSTAINABLE DESIGN

Even without LEED guidelines specific to historic buildings, projects involving historic buildings are excellent candidates for sustainable design practices. Sustainable design is promoted under the *Secretary of the Interior's Standards*. The preservation of historic building fabric and associated landscape resources, the reuse of existing structural elements, and the adaptation of historic buildings to new uses are characteristic of both historic preservation and sustainable design.

Few historic buildings allow for the implementation of each and every sustainable design recommendation. However, even if formal LEED certification is not achievable, VMI can be a good steward of the environment and sustainable design practices by following the appropriate recommendations outlined below. By doing so, VMI will ensure that environmental and community impacts, existing building systems, and potential increases in building efficiency are thoroughly analyzed and considered prior to final decision-making and construction.

Each project at VMI will have its own specific characteristics that will allow for the implementation and incorporation of some degree of sustainable design practices. The degree to which these principles can be applied will relate to the historic significance, existing conditions, and historic integrity of the building. Specific project considerations recommended by the USGBC are outlined below and should be incorporated into the decision-making process at VMI when considering modifications to existing buildings and new construction projects.

### *Sustainable Design Principles*

- Exterior building cleaning, site management, pest maintenance, fertilizer application, and power equipment use can all be adapted to conform to more environmentally-safe procedures.
- The value of a project can be improved by considering the following sustainable design principles which will reduce the detrimental impacts of a project on the environment: installation of appropriate plantings; managing stormwater; minimizing the amount of impervious surfaces; controlling development density; providing alternative modes of transportation and reducing impacts of vehicles; reducing light pollution; and protecting natural habitats

### *Water Efficiency*

- The appropriate installation of high efficient or dry fixtures and water flow controls are integral to sustainable design. This is appropriate when an adaptive reuse project will require the replacement of non-historic fixtures. Historic fixtures and plumbing, if still in acceptable condition, should not be replaced until they are no longer useable.
- Minimize site irrigation.
- Identify and implement innovative ecological wastewater treatment technologies.

***Energy Efficiency***

- Conduct energy model studies to determine what system components are in need of upgrades and to monitor general system operations.
- Install energy saving retrofits and elements such as insulation, weatherstripping, and storm windows as determined needed. These should be installed in a manner that is unobtrusive and does not have negative impacts on the historic character of the building. Storm windows can be designed to fit any historic window shape and can be integrated in an inconspicuous manner.
- Inappropriate retrofits and complex mechanical systems should not be installed at the risk of destroying or degrading the historic character or integrity of a building.
- As with all renovations and additions to historic buildings, proposed changes should conform to the guidelines and principles outlined in the *Standards.*
- Where opportunities exist, special consideration should be given to the potential for integrating renewable energy systems, such as solar or wind power.
- Maintenance staff should be trained in the appropriate operation, monitoring, and repair of building systems to ensure better efficiency over the life of the building.

***Materials and Resources***

- A waste reduction strategy should be enforced to control materials waste during and after a construction project on the Post.
- The waste reduction strategy should include guidelines for reducing, salvaging, recycling, or composting refuse and organic matter to divert materials to landfills.
- When building materials require replacement, new materials should meet the USGBC’s sustainability criteria. This includes the use of certified wood, products made of recycled content or renewable materials, or locally grown or manufactured products.
- Use only those cleaning products that conform to the appropriate specified sustainability criteria.

***Indoor Environmental Quality***

- Maintain outside air dampers and louvers and monitor air flow regularly.
- Provide effective airflow paths and natural ventilation.
- Install carbon monoxide monitors and increase the controllability of heating, cooling, and lighting systems.
- Prohibit smoking and the use of materials or finishes that create a high level of off-gassing within the building or near building openings.
- Implement PCB and asbestos testing and management programs and maintain accurate, up-to-date records of remediation efforts.
- Utilize natural daylight and views to retain a visual connection between interior and exterior spaces.

# CHAPTER 10
# ADMINISTRATIVE RECOMMENDATIONS

## Introduction

One of the primary purposes of the Getty Foundation Campus Heritage Grant Program is to ensure that preservation and stewardship are integrated into the long-term decision-making process at VMI. In partnership with the Getty Foundation, VMI has identified that one of its major goals is to promote preservation and sensitivity towards historic resources on the Post. The *Preservation Master Plan* for Virginia Military Institute is the first step in the process of incorporating preservation practices into the day-to-day activities and decision-making at VMI.

The *Preservation Master Plan* is not considered to be truly successful until the recommendations and guidelines are put into regular practice. The commitment of VMI decision-makers and practitioners to the implementation of the plan is vital to its success. To ensure that this occurs, it is recommended that the *Preservation Master Plan* be formally adopted by VMI with direction that it be consulted and referenced as part of VMI's maintenance, planning, and design processes.

Adoption of the plan will effectively establish a campus-wide preservation policy that will:

- acknowledge the importance of the history of the Post;
- promote the stewardship of existing historic resources;
- develop awareness of best practice techniques by facilities managers, consultants, faculty, and staff; and
- provide a framework for considering preservation issues when making design and planning decisions on the Post.

Adoption of the plan is only the first step in developing a preservation policy for the Post. VMI also needs to identify how they can best incorporate sensitive decision-making into current processes in a manner that fosters communication and inter-disciplinary collaboration.

## Overview of Existing Administrative Procedures

The current administrative and review procedures followed at VMI are fairly informal. Committees and decision-makers change with each project and there is no standardized process for decision-making related to either new construction or maintenance-level work. The Post lacks a consistent decision-making body that oversees all work that has the potential to impact historic Post buildings or landscapes.

Furthermore, there are no established criteria or guidelines for evaluating new construction or maintenance projects. Decisions are made on a case-by-case basis by individuals assigned to specific projects. Often times, these decisions are made by persons who are not professionally qualified to make them from a preservation perspective. The lack of consideration regarding impacts to historic resources is most evident at the feasibility stage of projects. When historic preservation is not considered during this early stage of planning, it becomes more difficult, from an economic and timing perspective, to integrate it into later stages of a project.

The lack of a central decision-making body has previously resulted in inconsistent project results; what may have been determined to be appropriate for one project may not be consistent with what was decided for another project. This is reflected on the Post today in inappropriate and inconsistent color selections, incompatible architectural style and detailing, and the integration of an inappropriate landscape palette.

## Chapter Overview

This chapter focuses on identifying recommendations and guidelines for administrative, management, and review procedures at VMI. The recommendations are broken down into three primary sections: General Recommendations, Guidelines for Maintenance Projects, and Guidelines for New Construction Projects.

The General Recommendations focus on broad administrative and staffing guidelines to help ensure that VMI considers its historic resources in all stages of its decision-making process for projects which have the potential to impact the Post's built environment. These recommendations should be incorporated when undertaking any maintenance or new construction project on Post. Guidelines for Maintenance Projects provide specific recommendations for administrative policies and procedures associated with the short- and long-term maintenance of historic buildings and landscapes. Guidelines for New Construction Projects provides specific guidance for review procedures and decision-making associated with new construction, major additions and changes to historic resources, and demolitions of Post buildings and structures.

Prior to developing the Administrative Recommendations, the project team spoke with current staff at VMI who are involved in maintenance and new construction projects. Relevant information about current policies and procedures was identified and the insights of current staff were considered as recommendations were prepared.

# Administrative and Management Recommendations

There are several key administrative and management recommendations that are critical to VMI's success in fulfilling its stewardship responsibilities. The administrative and management recommendations focus on how to incorporate historic preservation sensitivity into the decision-making process and what steps need to be taken in order to standardize and improve existing review policies and procedures.

## GENERAL RECOMMENDATIONS

### *Retain Historic Preservation Specialist*

VMI should retain the services of a historic preservation specialist to assist in making sensitive decisions about the stewardship of historic resources on the Post. The historic preservation specialist could be a full-time member of the VMI staff, a part-time position, or an on-going consultant position. The historic preservation specialist would work closely with maintenance staff and project managers to ensure that adequate consideration was given to projects that have the potential to impact historic Post resources. The historic preservation specialist should have an educational background in preservation and practical experience in dealing with preservation issues. They would augment the expertise of existing staff, with specialized knowledge of historic materials conservation, historic fabrics, special maintenance of historic features, cultural landscapes, the *Secretary of the Interior's Standards*, and sensitivity to preserving the historic character and integrity of the Post.

The specific role of the historic preservation specialist could be defined by VMI, but it is recommended that they monitor and oversee maintenance work associated with historic buildings, structures, and landscape resources; ensure routine maintenance work on historic buildings and landscapes is undertaken; identify appropriate treatments for preservation; and ensure that preservation issues are appropriately addressed when considering new construction projects.

### *Develop Criteria for Consultant Selection*

When choosing architecture, engineering, site planning, or landscape consultants, VMI should ensure that the selected consultant team has experience in working within a historic context and in developing design solutions that are sensitive to the historic character and setting of a place. If the selected team does not have a qualified preservation consultant, VMI's historic preservation specialist should be asked to be a part of the project team. As the entire Post has historical relevance, all projects have the potential to impact its historic character.

Without experience in working in a historic setting, the consultant team will likely disregard important aspects of the project and its impacts on surrounding resources. The potential for designs that are incompatible with the Post are also more likely to be proposed. The selection of experienced consultants, in conjunction with a defined review process that considers specific criteria, will ensure that VMI continues to meet its stewardship goals.

***Standardize Review Criteria***

VMI should prepare a set of specific preservation guidelines to be used during the review process for major projects. The guidelines should be shared with all contractors and construction personnel responsible for carrying out and approving work to occur on the VMI Post. The review criteria should address architectural style, compatibility with surrounding buildings and uses, impacts on historic character, and impacts on surrounding uses and resources, in addition to other design considerations outlined in the treatment guidelines for architecture and landscapes within the *Preservation Master Plan*.

New construction projects should be evaluated and considered against both the specific preservation guidelines to be defined by VMI and a series of questions related to project impacts. Those projects that fail to meet the criteria should not be able to proceed, until modifications are made and the criteria are met. For all new construction projects proposed on Post, VMI should:

- *Assess how the project will impact the historic character of the Post.* If it will create any adverse impacts to any historic resource, the plan should be modified to address the problem.
- *Assess if new features fit into the historic context*. If new features are not sensitive to the historic precedent established on the Post, they should be re-designed.
- *Ensure that damage or loss of historic resources is minimized.* New projects should be re-designed if they will damage or result in the loss of an irreplaceable historic resource.
- *Evaluate the finished product.* Once construction is complete, new projects should be assessed to identify any areas where improvements could be made when considering future projects.

***Establish Historic Preservation Board of Advisors***

A Historic Preservation Board of Advisors should be established to review and consider new construction, major renovation, and proposed demolition projects. Because the entire Post contributes to the historic character of VMI, all major projects should be considered by this Board.

The Historic Preservation Board of Advisors should work collaboratively with other VMI departments during the review of all proposed projects to come to collective decisions about new construction and major alteration projects. The role of the Historic Preservation Board of Advisors should be to ensure that preservation issues and considerations are incorporated into the review and decision-making process at VMI. Decisions cannot be made in a vacuum.

***Formalize Internal Review Procedures***

Internal review procedures at VMI need to be formalized to ensure consistency from project-to-project. A designated committee, including the historic preservation specialist and representatives from the maintenance, building, and engineering departments should be formed. The committee should meet on a regular basis to review potential projects.

Review procedures for construction projects at VMI should incorporate the steps defined below as it relates to incorporating historic preservation issues. Additional review procedures may be required in association with safety and technical issues which are outside the purview of historic preservation. These issues would be discussed with engineering and construction staff. Specific review procedures for maintenance projects are identified under Guidelines for Maintenance Projects.

- **Preliminary Application**
  - Committee obtains applications (including site plan) from consultant team.
  - Committee reviews the proposed construction project and identifies the buildings and landscapes impacted by the proposal. Proposals and concepts should be reviewed by VMI's historic preservation specialist, the facilities department, the construction department, the buildings department, and the Historic Preservation Board of Advisors. The proposal / conceptual plan should be considered with respect to the guidelines developed in association with the *Preservation Master Plan.*
  - Parameters for design are provided to the consultant team.
- **Application**
  - Consultant provides application checklist, site plan
  - Conceptual plans from consultant team are reviewed at an early stage and at regular intervals to ensure that design criteria are met and that alternatives have been considered.
  - If deemed necessary by Committee, the Consultant obtains the services of a professional archeologist to determine the archeological sensitivity of any areas to be disturbed. If sensitive areas are to be unavoidably disturbed, conduct an archeological investigation to collect information that will be lost as a result of the project.
- **Committee Review**
  - All reviewing groups should provide feedback on the proposed project, including how it does or does not meet the goals of VMI; to what degree the guidelines have been incorporated; and what options and alternatives for modifications should be considered to more fully address the design guidelines.
  - Comments from various departments should be forwarded to the Historic Preservation Board of Advisors to assist them in their decision-making.
  - Review and comment meetings should be held regularly until a preferred concept is agreed upon.
  - Final recommendations should be in the hands of the Historic Preservation Board of Advisors.
- **Certificate of Appropriateness**
  - Committee issues its findings and decision
  - Consultant prepares final documents, including construction documents for the work to be completed. The review of construction documents by VMI should continue throughout the development process to ensure it is completed per the

recommendations and specifications of the Historic Preservation Board of Advisors.

- **Construction Monitoring**
    - VMI's historic preservation specialist should oversee all aspects of construction, in conjunction with the Construction Department, to ensure all preservation treatment and design considerations are fulfilled as part of all building and landscape projects.

## GUIDELINES FOR MAINTENANCE PROJECTS

### *Develop Work Schedule and Detailed Condition Assessments*

Building on the Existing Conditions assessments developed as part of the *Preservation Master Plan*, VMI should establish and maintain records for each building on Post regarding conditions, potential problems, short-term maintenance needs, and long-term maintenance needs. The detailed conditions assessment should be updated each time work is completed on a historic building or landscape resource.

The detailed conditions assessment will provide a framework for VMI in the development of a prioritized work schedule and budget for all historic buildings and landscape resources. The prioritized work schedule and budget for short- and long-term projects should be developed as quickly as possible, as routine maintenance projects are one of the most significant problems plaguing VMI's historic resources. The prioritized work schedule and budget is necessary to ensure that issues such as roofs and site drainage are not deferred until they become major structural problems. Maintenance work should be considered and carried out in a regular, rational manner.

Funding for the maintenance of buildings should be identified annually and incorporated into any relevant VMI budgets. High-level staff should ensure that maintenance needs are not put on hold in lieu of new construction projects. A prioritized work program and associated budget will ensure that necessary maintenance projects, both short- and long-term, are incorporated into the capital improvements program for VMI.

### *Prepare Maintenance Manuals*

VMI should create maintenance manuals to address unique situations and conditions associated with individual buildings of groups of buildings. This manual would ensure consistency in the buildings maintenance, even as staff or individual building assignments are changed.

### *Train Maintenance Personnel*

All staff at VMI responsible for the maintenance of historic academic and residential buildings should be trained to identify maintenance problems and treatments that are specific to historic resources. VMI should develop a training program to assist Department of Buildings staff in identifying potential problems and appropriate treatments. Training should be held on a regular basis to ensure that staff is up-to-date on procedures and maintenance-related issues.

All maintenance staff should be familiar with the preservation guidelines and recommendations for buildings, landscapes, and new construction as defined in the *Preservation Master Plan*. The plan should be distributed to all maintenance personnel so they can become familiar with the purpose, existing conditions, issues, and recommendations for the Post's historic resources.

***Define Maintenance Protocols for Building Tenants***

Preservation protocols should be established for tenants of historic buildings to ensure that individual users do not make modifications to buildings that would adversely impact their historic integrity. Parameters for allowable alterations, best maintenance practices, and practices to avoid should be clearly identified and distributed to all maintenance staff and building tenants. This is particularly important for preserving remaining historic interiors, as interior modifications are more likely to be conducted by individual building tenants.

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