



# *CULTURAL LANDSCAPE REPORT* **ANTIETAM NATIONAL CEMETERY**

October 2014

Resource Stewardship and Science  
Division of Cultural Resources, National Capital Region





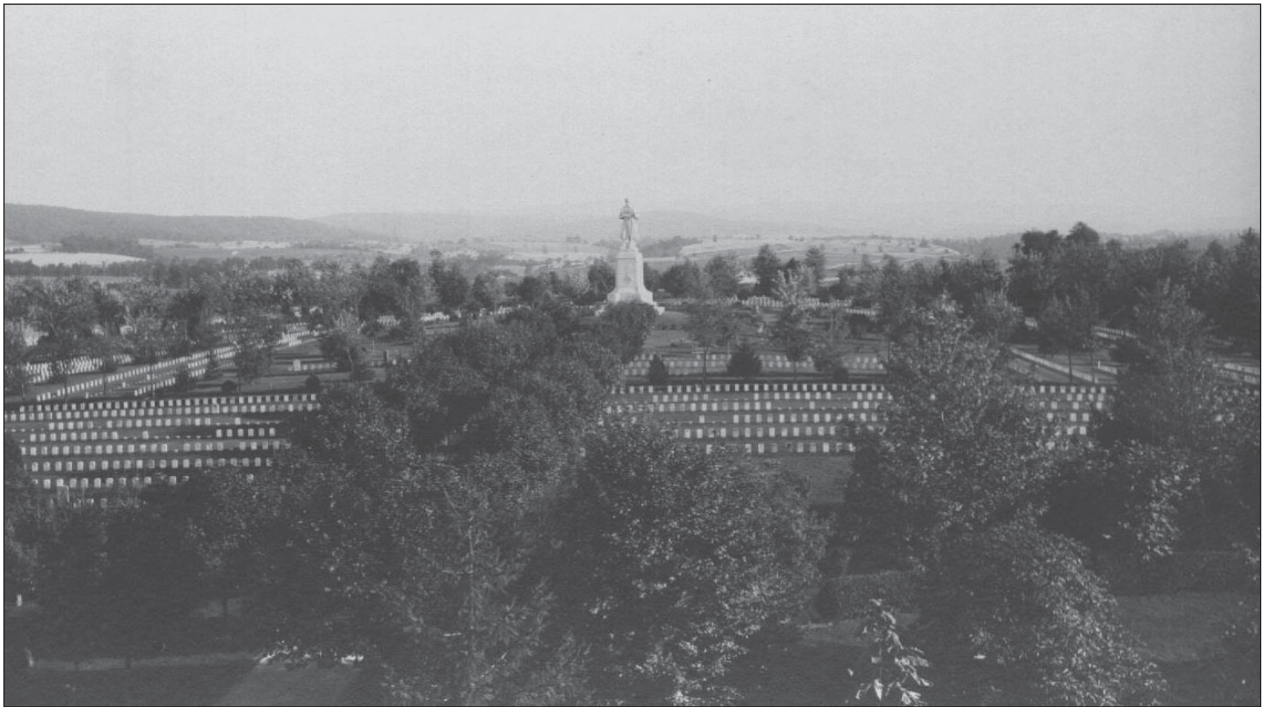
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*CULTURAL LANDSCAPE REPORT*

ANTIETAM NATIONAL CEMETERY

ANTIETAM NATIONAL BATTLEFIELD

SHARPSBURG, MARYLAND



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HISTORICAL OVERVIEW ❖ SIGNIFICANCE SUMMARY ❖ ANALYSIS AND EVALUATION❖ TREATMENT

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***Prepared by:***

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Cultural Resource Specialist

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U.S. Department of the Interior  
National Park Service  
Resource Stewardship and Science  
Washington, DC

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**Cover Photo: View of the Private Soldier Monument within the cemetery, 2014.**  
**Title Page: South view of cemetery from lodge tower, c. 1880s.**



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## EXECUTIVE SUMMARY

**A**s an integral part of Antietam National Battlefield, Antietam National Cemetery is one of the 130 cemeteries of the National Cemetery System that was initially established in 1865. Located within the Town of Sharpsburg, the cemetery contains the remains of over 4,776 Union soldiers (1,836 or 38% are unknown) from the Battle of Antietam, South Mountain, Monocacy, and other action in Maryland. The cemetery also retains many cultural landscape features, including a stone perimeter, completed between 1865 and 1867; a lodge completed in 1868; headstones and monuments, cast iron placards and rostrum, all of which date from the late 1870s and 1880s; and a blend of evergreens and deciduous trees that help make the cemetery distinctive from the surrounding open farmland.

Antietam National Cemetery derives significance under National Register Criterion A in the areas of military history and commemoration. It derives significance under Criterion C in the areas of landscape architecture and architecture. Antietam National Cemetery also meets Criteria Consideration D as a primary memorial to the military history of the United States and Criteria Consideration F for its role in the memorialization and commemoration efforts carried out by Civil War veterans, citizens, and the federal government. The overall period of significance for the Antietam National Cemetery is 1865 to the present. Under Criterion A, the period begins with the establishment of the cemetery in 1865 and extends to the present. The period of significance reflects the ongoing role and exceptional importance of national cemeteries as public places of commemoration and honor. Under Criterion C, the period of significance begins with the initial development of the cemetery in 1865, continues through the late nineteenth and early twentieth centuries with the implementation of character-defining standardized landscape features by the War Department, and ends in 1933 with its transfer to the National Park Service.

Despite retaining a high level of integrity, the Antietam National Cemetery cultural landscape has been diminished through the loss and subsequent changes of deciduous and evergreen trees and shrubs. The cemetery is also currently inaccessible to people with mobility impairments. The primary focus of this cultural landscape report is to assist the park in addressing these and other issues in order to preserve and enhance the historic character of the cemetery.





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## ACKNOWLEDGMENTS

**T**his report was a collaborative effort between the National Capital Region and Antietam National Battlefield. The report was prepared by Michael Commisso, National Capital Region Cultural Resource Specialist, with assistance from National Council for Preservation Education interns David Sheehan, Jennifer Stromberg, Amber Cohen, and Noel Lopez. Maureen Joseph, Regional Historical Landscape Architect, provided guidance and project oversight.

The National Capital Region gratefully acknowledges those at Antietam National Battlefield who participated in meetings, provided guidance and documentation, and reviewed drafts, especially Susan Trail, Superintendent; Jane Custer, Chief of Resource Management; Craig Cartwright, Chief of Maintenance; Keith Snyder, Chief of Resource Education and Visitor Services; Ted Alexander, Historian; Stephanie Gray, Chief of Museum and Library Services; K.C. Kirkman, Exhibit Specialist; Joseph Calzarette, Natural Resources Manager, Benjamin Wagner, Facility Operations Specialist; Ricky Schriever, Maintenance Supervisor; and William Gay, Arborist. Special thanks also to National Mall and Memorial Parks Turf Management Specialist, Michael Stachowicz, for his invaluable assistance in providing treatment recommendations for improving the turf at the cemetery.

We also appreciate the support that was provided by the Washington Support Office Park Cultural Landscapes Program Asset Preservation Coordinator, Stephanie Nelson, and Program Manager Susan Dolan, for their guidance and assistance with the integration of the cemetery cultural landscape data into the Facility Management Software System.





## INTRODUCTION





# INTRODUCTION

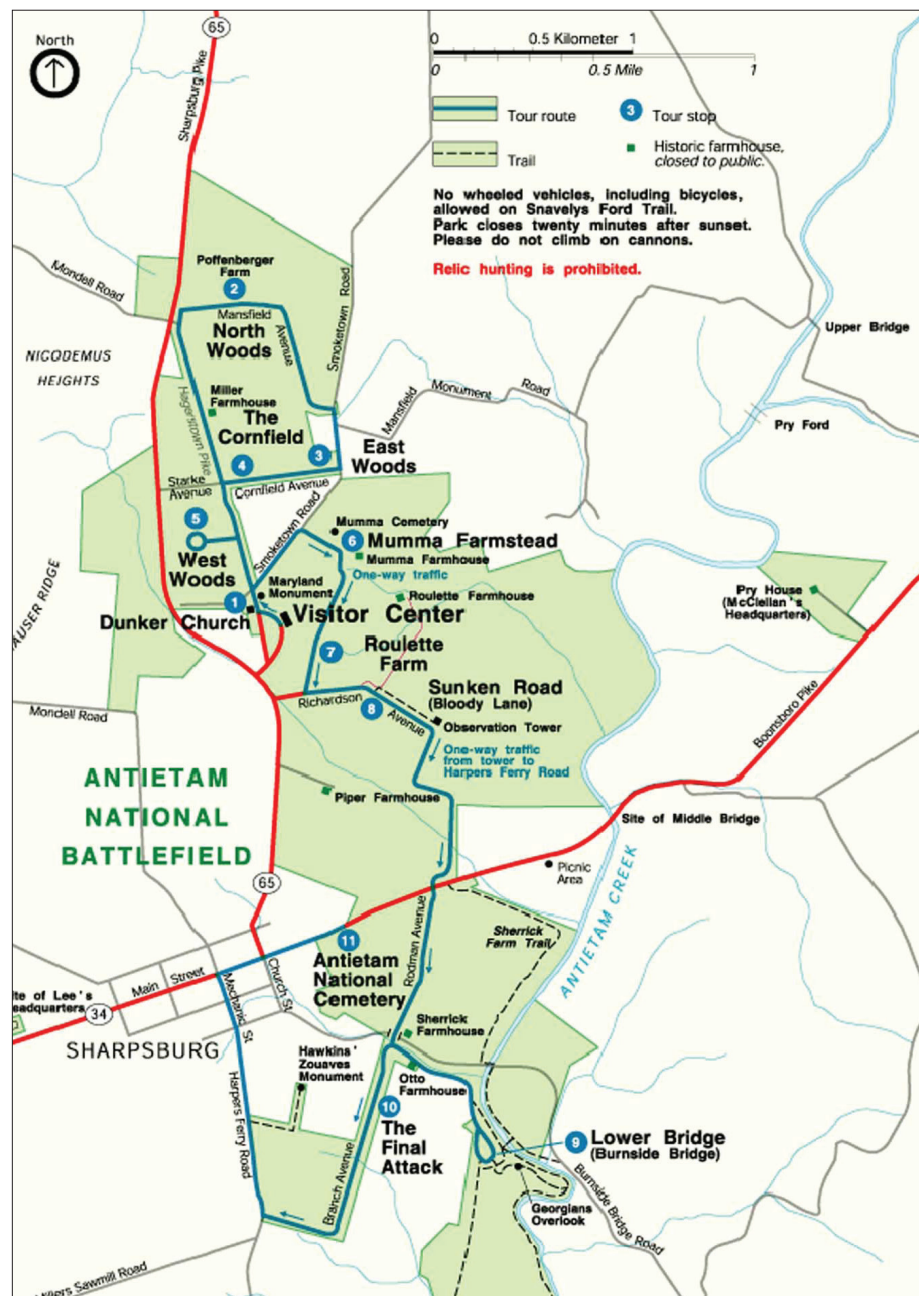
Antietam National Cemetery, situated on a hilltop at the east end of the Town of Sharpsburg in Washington County, Maryland, was initially established in 1865 by a state-developed board of trustees to inter the thousands of fallen soldiers who died in the Battles of Antietam, South Mountain, Harpers Ferry, Monocacy, and other smaller engagements. Burials also include those who died in various hospitals in Western Maryland from non-combat related illness (Figure 1). The cemetery was modeled after Gettysburg National Cemetery and the design principles espoused by landscape designer William Saunders, and later served as precedent for the design of the many national cemeteries established by the federal government after 1867. It featured a central monument surrounded by a semi-circular arrangement of graves set within open lawn divided into state plots, and surrounded by a winding drive that was bordered by groupings of trees and shrubs. Following its transfer to the federal government in 1877, the Antietam National Cemetery landscape was further developed according to national cemetery standards implemented by the War Department, which included the replacement of wooden markers with marble headstones, construction of a rostrum, mule barn, and other outbuildings, planting of additional trees and shrubs, installation of benches and other furnishings, and commemorative iron tablets.<sup>1</sup> In 1933, the National Park Service acquired the cemetery and made subsequent changes to enhance and preserve the



**Figure 1.** Location of Antietam National Cemetery and Antietam National Battlefield, showing proximity to nearby NPS parks. (<http://www.nps.gov/anti/directions.htm>)

character of the landscape, as well as address visitor accessibility and safety. These changes included new internments from later wars, the rehabilitation of buildings and structures, and the installation of interpretative signage, and parking areas.

Today, Antietam National Cemetery is one of fourteen national cemeteries administered by the National Park Service, and is an integral part of Antietam National Battlefield. Although the cemetery has undergone significant change throughout the years, it retains much of the original 1866 design, along with later standard national cemetery features, post-Civil War graves, and commemorative elements that tie the cemetery to the surrounding battlefield (Figure 2).



**Figure 2.** Antietam National Cemetery, located just east of the Town of Sharpsburg (Cultural Landscape Inventory, 2005) .

## PROJECT SCOPE, ORGANIZATION, AND METHODS

Antietam National Cemetery provides opportunities for visitors to understand a crucial time and place in American history. It represents early efforts by states to develop national cemeteries that were in keeping with the “landscape lawn plan” design principles that emerged out of the rural cemetery movement, as well as the characteristics of the national cemetery system, particularly through its buildings, structures, and other features designed and implemented by the War Department. Yet, the cemetery is faced with challenges related to effectively interpreting the cemetery landscape, modifying circulation patterns to provide accessibility, and balancing natural and cultural values. The intent of this cultural landscape report is to provide direction for the long-term management of the cemetery landscape.

The *Cultural Landscape Report for Antietam National Cemetery* incorporates and expands upon the site history, existing conditions, and landscape characteristics and features information contained in the *Antietam National Cemetery Cultural Landscape Inventory* (2005, revised 2011). The primary focus of this report defines a framework for the treatment of the cemetery and describes specific guidelines and tasks to enhance historic character in keeping with applicable National Cemetery Administration (VA) and National Park Service legislation, policies, guidelines, and standards. The *Foundation Document for Antietam National Battlefield* (2013) is another planning document that informs treatment of the cemetery along with short and long-term treatment tasks to preserve and enhance the historic character of the landscape.

This report has been developed according to the *Guide to Cultural Landscape Reports: Contents, Process and Techniques* (National Park Service, 1998). The treatment guidelines and tasks are consistent with the guidelines established by the *National Park Service Management Policies* (2006), *Director’s Order 28: Cultural Resource Management* (1999), and *The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (1996). Research for this cultural landscape report has been undertaken at a thorough level of investigation, which includes review of all historical resources including both primary and secondary sources.<sup>2</sup>

This report is organized into two chapters beginning with this chapter, Introduction, that builds upon the *Antietam National Cemetery Cultural Landscape Inventory* (2005). This chapter provides a brief history of the cemetery, followed by an updated analysis and evaluation of integrity of the landscape with respect to the historic period. As part of this process, the existing conditions of the cemetery were documented and consisted of a thorough on-site field

inventory of all features. Vegetation was recorded by updating and identifying the genus and species of all individual plants, but also included the determination of diameter-at-breast height and condition of all trees within the project area (This information is provided in Appendix A: Tree and Shrub Inventory). The chapter concludes with an overview of the National Park Service Facility Management Software System (FMSS) and its use in managing the cemetery's landscape features. The majority of these features, referred to as assets, are tracked as components of the maintained landscapes asset type. This report presents a refinement of the Antietam National Cemetery maintained landscapes FMSS hierarchy to reflect anticipated changes in landscape maintenance requirements resulting from the treatment recommendations included in this report.

The second chapter, Treatment, begins by establishing a framework for treatment based on the park's enabling legislation, policies, guidelines, current planning efforts, and broad issues that affect the historic character of the cemetery landscape. This chapter establishes a primary treatment and articulates the appropriate treatment philosophy that describes the intended character of the landscape. Finally, it outlines the specific efforts necessary to retain and enhance the historic character of the landscape and to improve landscape interpretation. The recommendations and treatment tasks are at the conceptual and schematic level. Further planning, design, and compliance will be required for implementation of many of the recommendations. The chapter concludes with a summary table of treatment tasks and considerations related to facility management. This report includes detailed drawings that represents a treatment plan for Antietam National Cemetery.

## **HISTORICAL OVERVIEW**

The historical overview for Antietam National Cemetery is largely extracted from the *Antietam National Cemetery Cultural Landscape Inventory* (2005, revised 2011). While the cultural landscape inventory provides a concise history of the physical history of the "Kennedy" property on which the cemetery is located, this historical overview focuses primarily on the establishment and the development of the cemetery. It is broken into four periods, each defined by changes in land-use, landscape character, and ownership: Movement to Establish National Cemetery, 1862-1865; Antietam National Cemetery Association Period, 1865-1877; War Department Period, 1877-1933; and National Park Service Period, 1933-Present.

**MOVEMENT TO ESTABLISH NATIONAL CEMETERY, 1862-1865**

Following the Battle of Antietam, September 17, 1862, President Abraham Lincoln issued the Preliminary Emancipation Proclamation. The final document was released in January 1863 and freed enslaved persons in the sections of the country in rebellion. Antietam still ranks as the bloodiest one day battle in American history. In the weeks and months after the battle, the most pressing need was to bury the dead. Initially, soldiers were interred in shallow poorly marked graves on the battlefield near where they fell. Antietam National Cemetery was established in 1865, at the same time the federal government was beginning to develop a systematic program for military burials.

The first burial regulation of the Civil War, General Orders No.75 issued on September 11, 1861, directed that the Army's Quartermaster General be given responsibility for the burial of officers and soldiers, and ordered that a register of all burials be kept. The order also directed that a headboard be placed at the head of each grave. The first headboards were made of wood and information was either painted on or written in chalk (Figure 3) . These orders did not provide authority for acquisition of land for new cemeteries. However, General Orders No.33 issued on April 3, 1862, gave the general authority to lay out burial grounds on or near the battlefields. Together, these two General Orders resulted in the establishment of military cemeteries near hospitals, on battlefields, within private cemeteries, and at Army posts. Finally on July 17, 1862, Congress empowered President Abraham Lincoln, "...to purchase cemetery grounds and cause them to be securely enclosed, to be used as a national cemetery for the soldiers who shall



**Figure 3.** Wooden headboards used at Antietam National Cemetery following its establishment in 1865 (Library of Congress, LC-B8184-5078).



die in the service of the country.”<sup>3</sup> This legislation, along with the two General Orders, resulted in the creation of fourteen national cemeteries. Antietam was not among them, even though the battle occurred shortly after the legislation passed.

Antietam National Cemetery was established two years later initially through state legislation and governed by a private board of trustees with members appointed by states with burials in the cemetery, and funded by apportioned contributions from each participating state. Prior to the development of the cemetery Antietam’s war dead were buried in various private cemeteries or hastily dug graves on the battlefield, or at field hospital sites<sup>4</sup>

On March 10, 1864, Maryland’s General Assembly appropriated \$5,000 to purchase and enclose a ten-acre site on the edge of Sharpsburg for burial of soldiers who were killed or died from their wounds at Antietam. Burials also included those who died in Western Maryland from non-combat related illnesses. A committee appointed by the state visited Sharpsburg and selected a site belonging to the late Robert F. Kennedy that was located on the south side of the Boonsboro Turnpike on the east edge of Sharpsburg. Shortly thereafter, the State of Maryland appropriated five thousand dollars toward the purchase of the site. However, the General Assembly’s act did not contain provisions for creation of a national cemetery. Therefore, it was repealed and replaced with another piece of legislation on March 20, 1865 that was more specific.

The new legislation created the Antietam National Cemetery and named four trustees from Maryland, Augustin A. Biggs, Thomas A. Boullt, Edward Shriver, and Charles C. Fulton. It was their duty, and the duty of the trustees of all states joining the corporation, to remove the remains of all soldiers who fell at Antietam or at other points north of the Potomac River during Lee’s invasion in the summer and fall of 1862, or who died thereafter in consequence of wounds received.<sup>5</sup> Although Antietam was called a “national cemetery,” it was not initially established through congressional action, or by purchase of property authorized by the President of the United States. That did not occur until 1877, when Antietam through a resolution of its Board of Trustees on June 7 and by federal action, General Order No. 68 A.G.O., July 1877, became federal property and officially Antietam National Cemetery.<sup>6</sup>

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**ANTIETAM NATIONAL CEMETERY ASSOCIATION PERIOD, 1865-1877****Development of the Cemetery**

The four trustees from Maryland held their first meeting on May 25, 1865 in Hagerstown and elected officers, Augustin Biggs as President and Thomas Boult as secretary/treasurer. The group then met at the cemetery site and determined to add a little over an acre of land to the east end of the property, an action approved by Governor Augustus Bradford a few days later. By putting some additional land at the east edge of the cemetery, a ravine at the opposite side was omitted from the burial area.<sup>7</sup>

The trustees met again on July 4 at the national cemetery at Gettysburg for a look at how that burial ground was designed. The trustees liked the wall around the Gettysburg Cemetery and decided to adopt a similar enclosure for Antietam. Departing from Gettysburg's example, though, they decided to leave the stone wall very low along the street front and to place an iron fence upon it. The trustees advertised for bids for "the erection of a substantial stone wall around the grounds and the president was requested to furnish all information as to dimensions and materials to be used in building it." Unfortunately, all of the bids for the work came back too high and the trustees rejected them all. Deciding to contract the work themselves, the trustees appointed A.A. Biggs superintendent, and instructed him to proceed with grading work and to quarry the stone for the walls, to procure lime and to arrange for the coping stone. The trustees employed a "large force" of mostly honorably discharged Union veterans to open quarries and to prepare the stone. More men engaged in removing surface stone from the cemetery grounds, leveling and smoothing the landscape.<sup>8</sup> By the end of 1865, two thirds of the wall was completed and much of the grading done. The wall included openings that allowed surface drainage to pass through. In 1866, an American flag, of the thirteen star order, was painted on the northwest corner of the cemetery wall. The flag may represent the standard flag carried by cavalry regiments during the Civil War. The cavalry couldn't carry the large national flag. The flag painted on the wall is similar to the style carried by the 6<sup>th</sup> Pennsylvania cavalry "lancers."<sup>9</sup>

The trustees needed money to fund the work. Dr. Biggs estimated that the cost of completing the cemetery would be \$85,852.32, of which Maryland had already provided \$7,000 (Table 1). Funds were to be apportioned among the states participating in the development of the cemetery, according to each state's population. Boult sent a printed circular "to every loyal governor whose state is interested, or represented by the dead on this Battle field." The letters that Boult sent out, however, neglected to mention that Maryland's law establishing the cemetery provided for burial of Confederate remains in addition to the Union



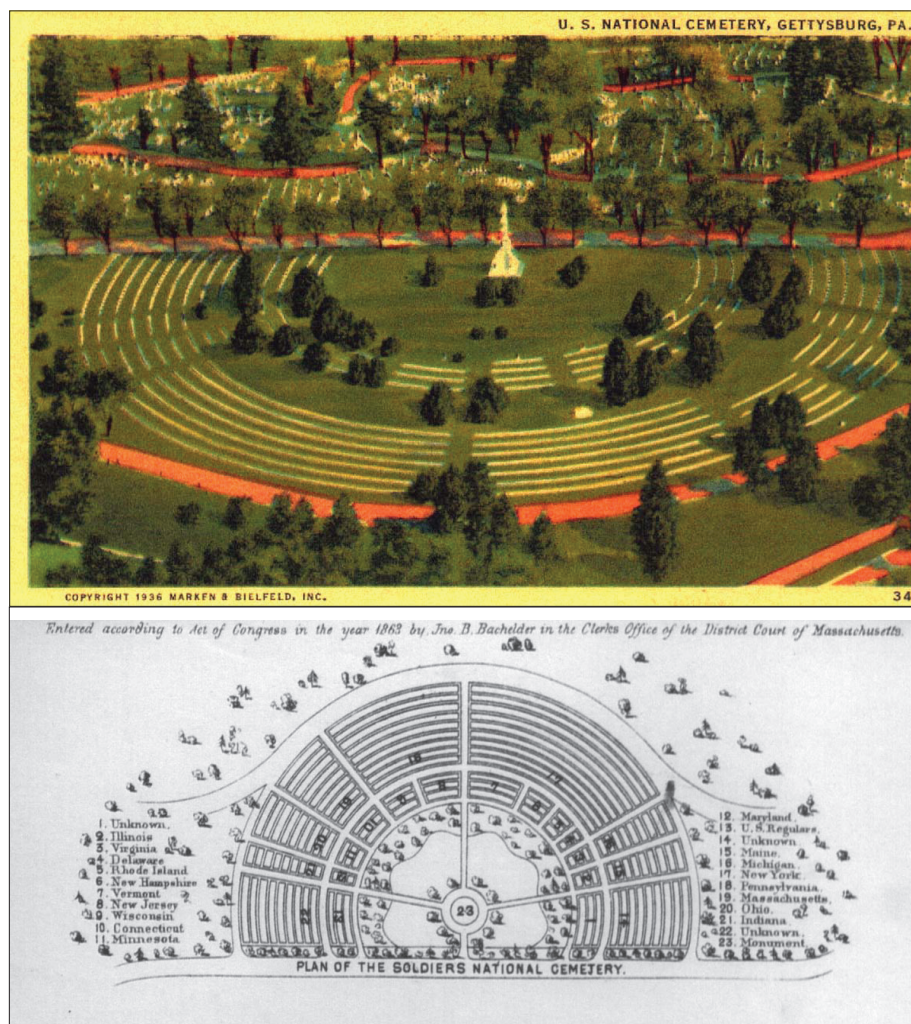
dead. Eventually, other Union states joined the cemetery corporation, but under the false assumption that it was designed to accommodate Union dead only. The issue of Confederate burials later became a major point of contention for the cemetery's trustees.

**Table 1. Estimated Amount Required to Complete the Antietam National Cemetery, Prepared for the Board by General Superintendent Augustin A. Biggs, M.D., December 13, 1865**

TASK	COST
Cost of grounds	\$1,164.75
2,636 perches stone, delivered, at \$1.20 per perch	\$3,163.20
173 perches stone, delivered for keeper's lodge at \$1.20	\$207.60
Expense of laying 2,636 perch at \$1.50 per perch	\$3,954.60
Expense of excavating 820 yards of foundation at 40 cents per yard	\$328.00
Expense of 18,161 yards grading, at 30 cents per yard	\$5,484.30
Expense of 6,560 bushels sand, at 4 cents per bus	\$262.40
Expense of 2,500 bushels lime, at 25 cents per bus	\$625.00
For labor	\$7,000.00
For survey	\$25.00
For keeper's lodge	\$1,500.00
For entrance gate	\$500.00
For powder and fuse	\$60.00
For 1,915 linear feet coping, at \$3.25 per foot	\$6,223.75
For removal, boxing, and burial of 6,000 dead, at \$5 each	\$30,000
For tools and implements	\$230.00
For 6,000 headstones for inscriptions, at \$3 each	\$18,000.00
For carriage ways and drainage	\$1,000.00
For 797 feet iron fence, on front line, at \$3 per ft.	\$3,391.00
For blacksmithing	\$500.00
For iron clamps and lead for coping (on enclosing wall)	\$420.00
For pointing wall, outside and inside, at 12 cents per perch	\$316.32
For contingent expenses	\$2,500.00
Total estimated cost:	\$85,852.32
<b>Source:</b> Board of Trustees of Antietam National Cemetery. <i>History of Antietam National Cemetery</i> . Baltimore: J.W. Woods, 1869.	

## Design of the Cemetery

By 1867 work on the wall, entrance gates and fencing was nearly complete and the cemetery grounds were graded. However, at that time, there was no design for the cemetery landscape. The board contracted with William Saunders, the landscape designer who prepared the plan for the Gettysburg National Cemetery, to plan the layout of Antietam National Cemetery. Arguably the single most important precedent for the initial development of the Civil War-era national cemeteries, Gettysburg National Cemetery—later referred to as Soldier' National Cemetery at Gettysburg, relied on a simple arrangement of gravestones organized by states in radiating semi-circles surrounding Soldiers' National Monument. Saunders' design was in keeping with the recently established lawn style, with its overall simplicity, winding approach drives, and broad sweep of lawn framed by naturalistic plantings of trees. Also in keeping with the purpose of the lawn style, Saunders' design was intended as a measure of economy, both in construction and future maintenance, an aspect that would be an important consideration in development of national cemeteries after the war (Figure 4).<sup>10</sup>



**Figure 4.** (top) Early 20th century postcard view of Gettysburg National Cemetery (Susan W. Trail Collection); (bottom) Plan of Soldiers National Cemetery, laid out by William Saunders (Antietam National Cemetery Cultural Landscape Inventory, 2005).

Unfortunately, the arrangement with Saunders never materialized. However, the plan for the Antietam National Cemetery, prepared by the teenage son of Augustin Biggs, was remarkably very similar to Gettysburg National Cemetery. Many of the trustees would have been very familiar with the Gettysburg plan, as five of them also served on that cemetery's commission.<sup>11</sup> According to the Trustees' history of the cemetery, published in 1869, the newly completed appearance of the cemetery is described as follows:

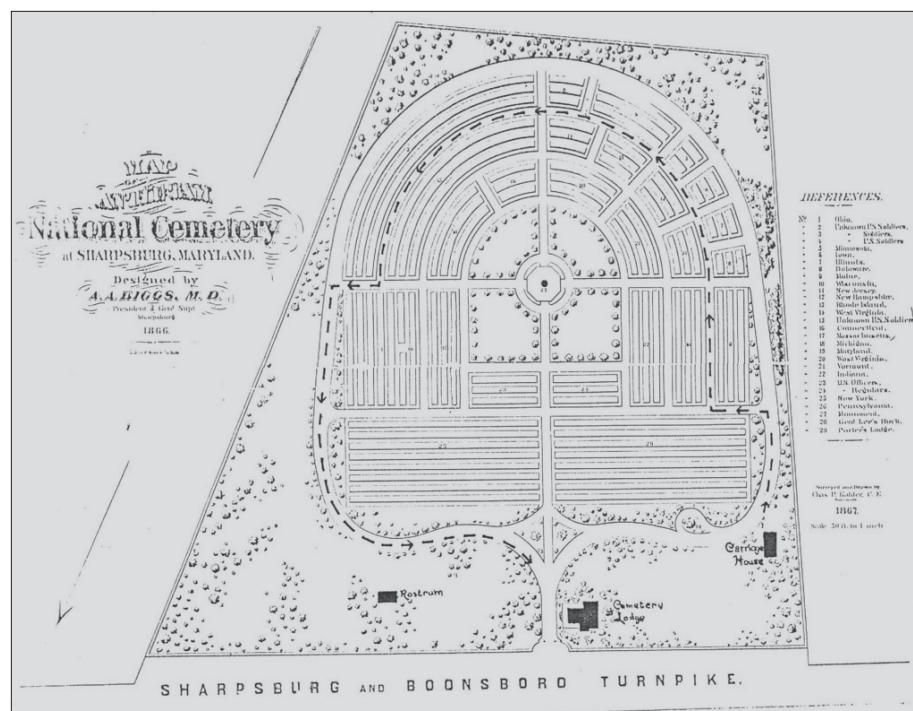
The plan forms within the walls of the cemetery a semi-ellipsis, divided into segments of circles, sections and parallelograms of varying size, to correspond with the number of the loyal dead from the different states represented in the battle, and each division is designated by a letter, and each section of the graves is numbered in order. That portion of the grounds devoted to this purpose begins at a point within about one hundred and thirty feet from the main entrance to the Cemetery, thus leaving a large open space between it and the wall, which extends along the line of the Sharpsburg and Boonsboro' pike in front. A main carriage drive, about 16 ½ feet in width, leads from the entrance through the grounds, from which branches in different directions subordinate roads and walks leading to every part of the Cemetery, which are macadamized and graveled.

The grounds are thoroughly drained by a system of tubing, very complete, and which will prove very valuable in maintaining them in good condition against injury arising from heavy rains.

Near the entrance to the Cemetery, and within the enclosure, has been erected a neat and commodious Lodge House, designed for the occupancy of the keeper of the grounds, and the comfort and convenience of visitors. In the center of the ground plan of the cemetery is an open space devoted to the erection of a monument commemorative of the great event of the battle, and the heroism of those who sleep at its foot and around it. The design of the monument, which was adopted at a meeting of the Board, held in the city of Baltimore, on the 16th day of September, 1867, seems to meet all requirements in a military, national and patriotic point of view. It is Colossal Statue of an American Soldier standing guard over the remains of the loyal dead, and, when completed, will be the largest work of its kind in the country. The estimated cost is thirty thousand dollars. The statue alone will weigh eighty-six tons.

The dedication of the grounds to the sacred purposes, for which they were designed, occurred on the fifth anniversary of the battle—the 17th day of September, 1867—at which time was also laid the corner stone of the Monument, with appropriate ceremonies.”<sup>12</sup>

The trustees determined that the burial ground part of the cemetery should be set 130 feet inside the entrance gates, and that the intervening open space was to be “ornamented with trees and shrubbery.” However, there was an obstacle to the design. While the trustees took great pains to grade and level the cemetery grounds, “Lee’s Rock” remained. Lee’s Rock was a limestone outcropping that the General supposedly climbed during the battle for a better view of the action. There was debate among the trustees about whether to keep or remove the rock during the initial grading of the cemetery grounds. The decision to move the cemetery 130 feet from the entrance, as well as retain Lee’s Rock, led to



**Figure 5.** Biggs Plan for Antietam National Cemetery, 1866 (Susan W. Trail Collection).

substantial revisions to the original plan that were approved September 20, 1866. The new plan, evidently the work of Dr. Biggs as he is credited as the author on the published version, included a walkway around the rock, in addition to elaborate drives and walks around the perimeter of the property (Figure 5).<sup>13</sup>

### Burials and Headstones

Concurrent with the design of the cemetery, plans were underway to bury the dead. The US Burial Corps began burying the dead at the cemetery on October 4, 1866 and by 1868 a total of 4,676 remains were interred in the cemetery. These interments included 1,937 soldiers from Antietam battlefield, 961 from Frederick City, 266 from South Mountain, 253 from Weaverton, 205 from Hagerstown, and 177 from Cumberland. Despite federal legislation of February 22, 1867, directing the Secretary of War to place small headstones on each grave in national cemeteries, opposition by Quartermaster General Montgomery Meigs regarding the use of marble or granite slabs, led to no action being taken until March 3, 1873, when Congress appropriated \$1,000,000 for stone markers at each grave. The stone markers for the Antietam National Cemetery were finally installed in the late 1870s. In 1873, according to federal specifications—adopted by Secretary of War William W. Belknap, markers were to be of white marble or granite, 4 inches thick, 10 inches wide, with 13 inches above ground and 30 inches underground. The top was curved and the face ornamented with a recessed shield and raised lettering. For unknown soldiers, the marker was to be 6 inches square by 2 feet, six inches,



with 2 feet set in the ground. The first marble stones were placed in the cemeteries in 1877, and a second program undertaken in 1879.<sup>14</sup>

During this time, the issue of Confederate burials had also come up and several states were withholding funding for the cemetery until they could be assured that Confederate remains would not be buried in the same cemetery with the Union dead. However, after five years of controversy, the Maryland's State Assembly passed an act on April 4, 1870 to incorporate "Washington Cemetery" for Confederate dead and others of both armies who died during the Civil War in battles in Maryland and Gettysburg. The \$5,000 originally appropriated for the Antietam National Cemetery was transferred for the use of the new cemetery. A year later, newly appointed trustees of the new Washington Confederate Cemetery purchased a portion of the recently created Rose Hill Cemetery on South Potomac Street in Hagerstown, Maryland.

#### Cemetery Lodge

Unlike most lodges in post-Civil War national cemeteries that were built according to standardized plans designed by Quartermaster General Montgomery C. Meigs, the Superintendent's Lodge at Antietam was designed by noted architect Paul Pelz in 1867 (Figure 6). (Meigs designed only the rostrum for Antietam, built years later in 1879, after the War Department took control of the cemetery.) The Superintendent's Lodge was intended to serve two functions: to provide an

**Figure 6.** Entrance to Antietam National Cemetery in the 1880s showing the Lodge and central path leading to the Soldiers Monument, along with the young specimen trees (Virginia Polytechnic College).



office where visitors could obtain information about the cemetery and the burials therein; and to provide living space for the full time, live-in superintendent, who maintained the site and provided visitors with information. It is similar in its function to the later standardized national cemetery lodges designed and constructed by the Quartermaster Department in the 1870s. Like the standardized lodges, the Antietam Superintendent's Lodge has three rooms on the first and second floors, probably serving as a living room, kitchen and office or reception room on the first floor with bedrooms upstairs. Yet, while the Superintendent's Lodge resembles other national cemetery lodges in terms of its functions, it is visually much more complex than the simple Second Empire-inspired lodges of the standardized design as it is a distinct example of a mid-nineteenth century romantic Gothic villa. Shortly after its construction—and continuing for much of its history, however, it was plagued with structural problems, most consistently a leaking tower roof. At the 1868 Board of Trustees meeting, President Biggs reported that a keeper's house (Bigg's term for the lodge) had been erected, but the roof leaked badly in many places and the plaster inside the building had been damaged.

### **Decoration Day**

"Decoration Day," the annual commemoration of war dead, which later came to be known as Memorial Day, is generally considered to have begun in Boalsburg, Pennsylvania where a custom began in 1864 of decorating the graves of Civil War combatants with flowers. By 1868, the practice became widespread and on May 5th of that year General John A. Logan, commander of the Union Veterans group, The Grand army of the Republic issued "Order No. 11" designating May 30th as Decoration Day. In Sharpsburg, the first celebration of Decoration Day was on May 30, 1869 when "a special train carried several hundred people from Hagerstown toward Sharpsburg, where they were 'joined by loyal hearts from Sharpsburg, Boonsboro, Keedysville and the surrounding country, swelling the number to over one thousand.' This crowd formed a lengthy procession that marched down the main street of Sharpsburg to the Antietam National Cemetery, where they covered the numerous graves with flowers." This event that honored the memory of Civil War dead—which still takes place at this cemetery today seemed to promote more activity in the cemetery to improve its appearance and provide a reverent and commemorative atmosphere.<sup>15</sup>

### **Initial Landscape Improvements**

By 1870, the keeper's house [lodge] had been completely repaired, with the roof put in good order, the walls replastered and additional spouting added. Many

trees and shrubs had been planted, consisting of about 500 evergreen plants, 450 feet of dwarf box hedges, 2,150 ft. of arborvitae hedges and 620 deciduous trees. A year later, the president suggested that trees be added to the front and outside of the cemetery and a mound constructed for a flagstaff. In 1874, it was reported that Superintendent Biggs had planted some additional trees and shrubs, made some small repairs to the keeper's lodge and erected a stand for use on Decoration Day.

By 1877, the Trustees could not afford to pay the keeper and the maintenance of the cemetery suffered. In an April 18, 1877 report from Oliver Cox, CE QM Dept, to Col. A.F. Rockwell he writes, "Some sections [of the cemetery] are bordered with Box & the American Arbor Vitae, much of which is in bad condition. But few deciduous trees have been planted, while they with the evergreens give evidence of poor cultivation."<sup>16</sup> An 1877 stereo view of the cemetery shows the poor unkempt condition of the cemetery. The view, looking north, shows grass and weeds growing in the dirt driveways with the lodge house in the distance. A cannon barrel lies on the ground in the foreground, with another mounted on blocks nearby. Young evergreens line the driveway (Figure 7).

**Figure 7.** An 1877 image of the cemetery showing the unkempt condition of the cemetery. View looking north of the central path and lodge in the background (Personal Collection of Dr. Susan Winter Trail).

Given their financial situation, the Trustees contacted the War Department about transferring the cemetery to the federal government. The War Department





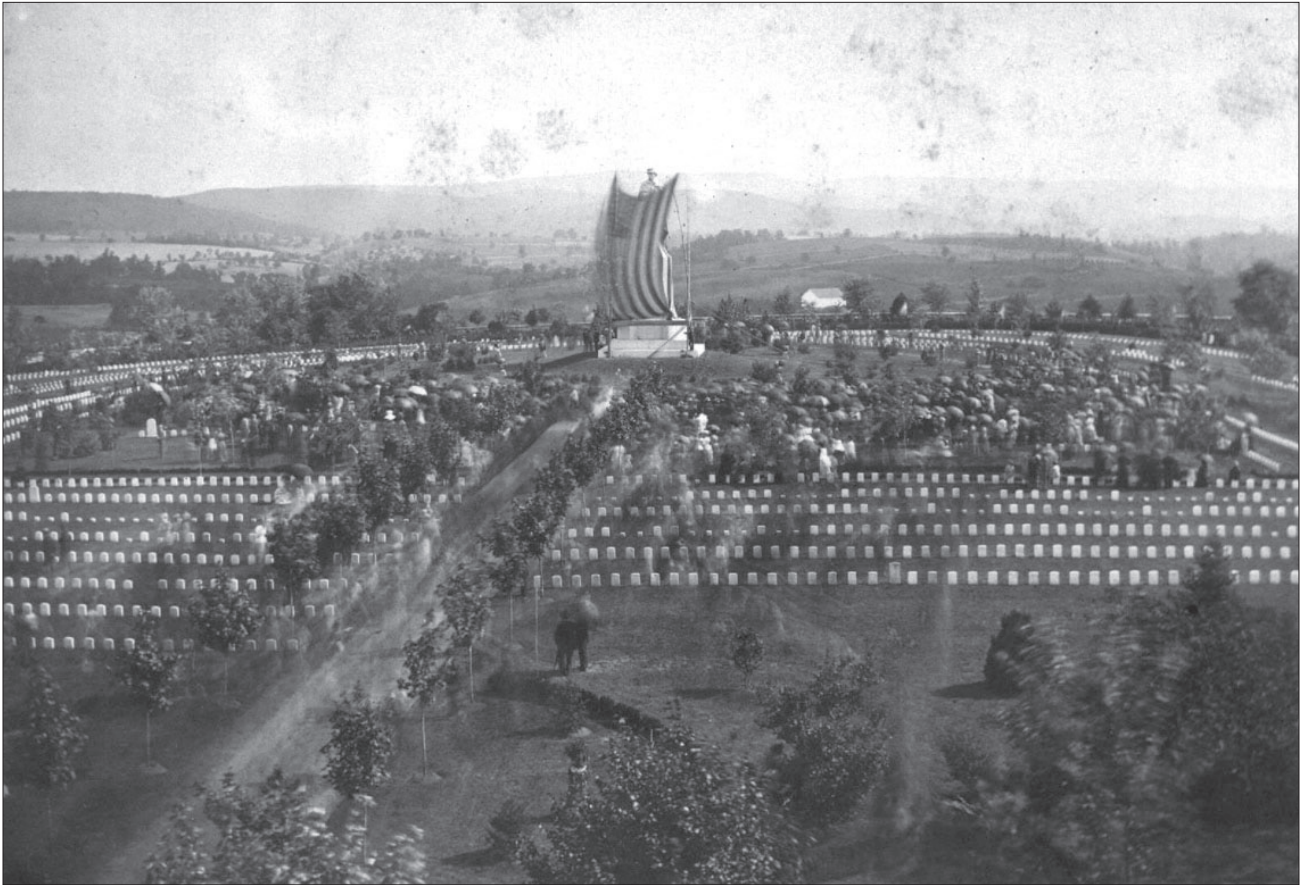
formally took possession of the cemetery on September 25, 1877, under General Order 68 A.G.O., dated July, 1877, but it wasn't until July of 1879 that the federal government received clear title to the property since all of the states that had funded the cemetery had to relinquish their ownership rights.

### **WAR DEPARTMENT ADMINISTRATION, 1877-1933**

During the period from 1877 to 1933, the Antietam National Cemetery was under jurisdiction of the War Department. The period was marked by frequent changes of superintendents, 18 served over the 56-year period. Friction and scandal seemed to follow some of these cemetery keepers, who were required to be Civil War veterans. Eventually the aging population of veterans could no longer supply superintendents and the last Civil War veteran, Joshua Davis was appointed in 1905. Thereafter, veterans who served honorably in the military were appointed. Despite the frequent turnover in personnel, the cemetery transformed under federal ownership into a fully landscaped memorial park with attendant buildings and structures.

### **Dedication of the Soldiers' Monument**

Once title to the national cemetery was finally secured in July 1879, planning continued for the construction of the central monument, which became known as the "Common Soldier" or "Old Simon," as he is known locally. The Board of Trustees had originally approved the statue design in September 1867. However, at that time, controversy over Confederate burials and the lack of funding resulted in the delay of the contract being signed with the fabricator, James G. Batterson. Since the trustees were not able to pay for the monument, Batterson retained possession of it for the remainder of the decade. In 1876, he transported the monument to Philadelphia, where it was prominently displayed at the Centennial Exhibition. By 1879, Batterson received final payment for the monument and it was immediately shipped to Sharpsburg. The monument was disassembled and traveled by boat from Westerly, Rhode Island to Georgetown, and then was transferred to canal boats and brought up the Chesapeake and Ohio Canal to Bridgeport, Maryland where it was unloaded at Grove's landing. There was concern about the 239-ton weight of the statue and its base and the best way to transport it to the cemetery. Batterson reminded Captain Rockwell that it was the Cemetery Association's responsibility to build the foundation for the monument. The foundation was completed in October of 1879 at a cost of \$532.00. The foundation was set on a four-foot high embankment in the center of the cemetery to ensure that the monument would be located on the highest point of land inside



**Figure 8.** Image taken from the lodge of the statue at its dedication in 1880 (Antietam National Battlefield Archives).

the cemetery. The statue was completed in January of 1880, and its dedication was held on September 17, 1880.<sup>17</sup> At the time of the dedication, Thomas J. Sharf wrote in his *History of Western Maryland*:

Since it passed into the hands of the government the cemetery has been greatly improved and beautified. Over the rostrum which was erected for the use of the speakers at the unveiling of the statue vines have been trained, making a very pretty effect, and a number of handsome trees, mainly Norway spruce, maple, and hemlock have been planted, and a hedge of American arbor vitae surrounds the burial sections. The superintendent is also engaged in taking out all poor and common trees and is otherwise rapidly improving the grounds. At the entrance to the cemetery is a thirty-two pound cannon, which was captured by the Southern troops at Harpers Ferry, and recaptured by Gen. Geary at Williamsport and taken to Antietam, where it was abandoned. It was afterwards removed to the cemetery grounds and placed in position by Capt. Donaldson.

With the addition of the monument in 1880, the conceptual design for Antietam National Cemetery was complete. The cemetery had transitioned from a memorial commemorating both sides of the war to a Union landscape, dominated by the large soldiers' monument. Antietam now looked more like other national cemeteries established and maintained by the War Department (Figure 8).

### Initial Improvements to Cemetery by War Department

Between 1878 and 1880, the Quartermaster General's Department graded and resodded the burial plots; repaired the lodge house and added a cistern; constructed a stone tool shed; repointed the perimeter wall; converted the majority of avenues to grass—with exception to the main drive, which was resurfaced with lime cinder; installed regulation headstones and a flag staff, and planted a large number of deciduous trees along the avenues and evergreens among the burial sections. A rostrum was also constructed in 1879 according to a standard plan for national cemeteries designed by General Montgomery Meigs; vines were planted on the rostrum and planting beds were established soon after.

In June 1880, civil engineer James Gall, Jr. offered the following assessment of the changes that had been accomplished in an inspection report: “The improvement in the appearance and condition of the Antietam Cemetery since the Government assumed charge of it is great, and generally remarked by the visitors and neighborhood residents, and each year will add to the beauty and attractiveness of the place.”<sup>18</sup> On May 16, 1881, Gall reported, “I find the place steadily improving in condition and appearance (Figure 9). The sections are now mostly well sodded. Most of the avenues well grassed over, and the lawns between the circular drive and enclosing wall. . .now in excellent shape and condition.”<sup>19</sup> The assistant quartermaster also inspected the cemetery not long after and reported that the cemetery was in good condition and that barbed wire fencing would be placed around the strip of ground between the turnpike and front wall, and the unsightly

**Figure 9.** View looking south along the central path towards the Soldier's monument. Note the trees lining the main path and the shrubs at the base of the monument (New England Press Association, courtesy of Antietam National Battlefield Archives).







**Figure 10.** Image of the 20th New York statue unveiled in 1887 (*Views of Historic Antietam, 1907*, courtesy of Antietam National Battlefield Archives).

boxes protecting the young trees would be removed.<sup>20</sup> The *Sharpsburg Enterprise* also commented on March 17, 1882:

Work has again resumed here, and the presently contemplated improvements will greatly enhance its beauty. The grounds outside of the walls have been graded with rich soil, which will be planted with grass seed. On the border of this little plot is a row of symmetrical deciduous trees, just within the handsome barbed wire fence. At regular intervals through the center of the park—the spaces to alternate with the outer row of trees—will be planted a row of evergreens.

The superintendent [Walter A. Donaldson—replaced Hiram Seiss] has been notified that 700 new trees and shrubs will be forwarded early in the season to be placed in the cemetery. Among the rare trees grown there are a half dozen Swiss stone pines and four cedar of Lebanon, the only ones in the States.<sup>21</sup>

In 1884, the Quartermaster inspection report again reported on the excellent condition stating:

The office records are better and more systematically kept at this than at any other cemetery I have ever inspected. . . The rostrum is in good condition and the vines cultivated for its adornment are tastefully arranged, also the hedges, especially the box hedges lining one of the avenues and the trees and shrubs throughout the cemetery. . . There is no cultivation here of flowering bushes or beds of flowering plants and the cemetery looks all the better for it. . . The appearance of the Cemetery throughout is highly creditable to the Superintendent [W.A. Donaldson]. The inspector could not find a neglected spot anywhere.<sup>22</sup>

Following the unveiling of the monument there was a rise in commemorative activities at the cemetery. In January of 1887, the 20th New York regiment asked permission to place a monument in the cemetery. The Quartermaster General granted permission and selected a site on the east side of the main walkway to the Soldier's Monument in the New York section of the cemetery. On September 17, 1887, the 25th anniversary of the battle, survivors of the 20<sup>th</sup> New York “marched from the railroad station to the cemetery, accompanied by a number of GAR posts from Maryland and surrounding states and several bands, and dedicated the first permanent monument to be constructed on the battlefield (Figure 10).<sup>23</sup>

### **Road to Antietam National Cemetery**

Louis E. McComas, Congressman representing Washington County, was an enthusiastic supporter of the national cemetery and the Antietam Battlefield. In late 1888 and 1890 he introduced two important pieces of legislation: one for the development of a national battlefield site at Antietam Battlefield and the other for improvements to the road from the Shenandoah Valley Railroad station on the west end of Sharpsburg to the national cemetery on the east end. The road work included grading and macadam surfacing of the route, new sidewalks and gutters



**Figure 11.** Image of the small brick privy, constructed in 1889 (Image from a report dated February 3, 1923, is held in the collection of the National Archives Record Group 79, stack area 150, Row 32 compartment 25).

and planting three hundred Norway maple trees for shade along the route. The proposed route was 9,300 feet in length (approx. 1.5 miles) and was macadamized varying in width from 32 feet to 40 feet, with stone gutters and sidewalks of brick and curbs on either side. The portion of the road fronting the cemetery was completed in 1891 and included approximately 5,270 linear feet of stone curbing (individual stone curbing was 4" in width x 16" in length) and 1,172 linear of stone gutters). Three hundred Norway maple trees were planted along the road in 1894.<sup>24</sup>

#### **Improvements to the Cemetery, 1889-1933**

In 1889, a small brick privy with slate roof was constructed on the cemetery grounds (Figure 11). The building was approximately 75 yards northwest of the lodge. Also at this time, it was noted that the circle avenue that was approximately 100 feet from the monument was lined with roses and the interior of the circle containing the monument was laid out in flower beds filled with beautiful flowers.<sup>25</sup> In 1891 the 4th regiment NY Volunteers requested permission from the Quartermaster General to place a monument in the cemetery. Permission was granted on the condition that there would be no expense to the US government and the design of the monument had to be approved by the Quartermaster

General. In 1892 the design was approved and the new monument was assigned a spot in the cemetery in front of the New York section opposite the 20th New York monument. Shortly thereafter Antietam Battlefield Commission received permission to install tablets and monuments along the strip of ground extending across the entire front of the cemetery outside the enclosure. Also, with the exception of a small section at the cemetery's entrance—adjacent to the lodge, the majority of the main drive was converted to grass by 1892.

In October of 1896, D.H. Rhodes, Landscape Gardener, made an inspection of the cemetery for the quartermaster's office. He observed that the cemetery was generally in good condition, but made the following recommendations: first, that the ivy system for covering the inside of the enclosing wall be adopted at this cemetery, the plants can probably be furnished from the Arlington National Cemetery. Second, an allotment of \$50.00 should be authorized to assist in removing 153 trees and to put the grounds in good order. Third, that authority be granted for the removal of the arbor vitae hedge which extends around the inner edge of the drive encircling the whole of the burial sections, the work to be done during the autumn or winter months next year. Rhodes stated that the "hedge is manifestly out of place and mars the good appearance of the grounds." In December, 1896 Major Humphrey, the Depot Quartermaster, Washington, DC approved of those recommendations from Rhodes. (To date, we have not found confirmation that the tree removal portion of the work was actually done).<sup>26</sup>

Along with the updating of the landscape, in 1898 the lodge was enlarged by the expansion of the stone tool house to accommodate a kitchen and dining room. These were attached to the east end of the tool house. In October of 1906, Capt. J.L. Pettus, Depot Quartermaster endorsed a recommendation that \$15.00 be spent to provide a wooden covering in the space between the rear of the lodge and the outbuilding that was used as a kitchen and dining room (Figure 12). The kitchen was twelve feet by twelve feet nine inches and the dining room the same size. A new 100-foot-high flagstaff was also erected. During fiscal year 1901 the slate roofed brick stable (mule barn) was constructed along the cemetery's west wall.<sup>27</sup> A gateway was opened in the wall to the north of the stable, leading out to the enclosed pasture lot owned by the United States immediately to the west of the west cemetery wall. The stable was 29 feet long, 18 feet wide and 12 feet high. The cemetery acquired its first horse in 1901.<sup>28</sup> In 1907, Landscape Gardener Rhodes inspected the site again and recommended that the wooden passageway be enclosed and new privy near the lodge be installed. Soon after, a new privy was constructed.





**Figure 12.** Image of the lodge with addition and connector, date unknown (Image from a report dated February 3, 1923, is also held in the collection of the National Archives Record Group 79, stack area 150, Row 32 compartment 25).

Other improvements included the addition of commemorative and information signs known as tablets, which were installed systematically at all national cemeteries. The War Department intended these to provide a durable replacement for deteriorated painted signboards. The tablets, made by the Army's Rock Island Arsenal, consisted of cast-iron rectangular placards of various sizes set at an angle, approximately two to three feet in height. The tablets were painted black with the lettering highlighted in silver, and were mounted on square white-painted wooden posts. At Antietam National Cemetery, there were sixteen tablets, all of which were installed by 1910, including one Lincoln's Gettysburg Address tablet (55"x33"); one large tablet (2'6" x 3'10") near the main gate stating cemetery use regulations; four tablets (1'10" x 3') containing the text of the "Act to Establish & Protect National Cemeteries Approved February 22, 1867; and 10 small tablets (1'2" x 1'8") scattered throughout the cemetery containing a four-line verse from Theodore O'Hara's poem, "The Bivouac of the Dead."

#### **Construction of Administrative Building (Headquarters No.1)**

Throughout the early 20th century, the lodge required repairs for the leaking roof of the tower. In 1924 a bathroom was added to the building, its first indoor plumbing. By 1927, it seemed that the 1867 lodge was inadequate and the Quartermaster General's office determined that a new house should be built and the original lodge torn down. They selected the new site, directly west of the old lodge. Eventually, however, the plan evolved to into one that preserved the 1867 lodge and converted it into an office and comfort station. The stone tool shed added in 1878 was removed as well as the kitchen and dining room additions and

the covered walkway connecting them to the stone lodge. Following the continued use of standardized plans by the National Cemetery System, the new Dutch Colonial Revival design for the lodge turned to the American past for inspiration rather than contemporary later nineteenth century French architecture.<sup>29</sup> The new bungalow style lodge building was completed by April, 1928. At that time, it was intended to be suited for domestic comforts of the modern middle class American family in the early twentieth century. It included a modern kitchen, more spacious rooms, and a bathroom on the second floor. Following the construction of the new lodge, shrubs were planted between the new walk and the lodge (Figure 13).<sup>30</sup> Around this time, a concrete walkway was poured between the new lodge and the mule barn, new drinking fountain was installed, and the old brick privy in the northwest corner of the cemetery enclosure was demolished. Ending this period of change to the cemetery was the passing of the cemetery's old mule, no longer needed as the cemetery now had a power mower and a truck.

In addition to all the construction activity, the grounds received attention as well. A 1929 report on the trees at the cemetery counted a total of 281 trees, 137 deciduous and 144 evergreens. The original trees, by this date were aging, and some were dying, resulting in recommendations from the superintendent that several be removed. In November of 1931, Superintendent Humphrey King requested that two trees in the cemetery be removed. One was a Norway pine in the northwest portion of the cemetery and another, a small pine was in the back part of the cemetery. Both had been dead for a year or two. In January of 1932, the superintendent reported three dead trees and several others "so far gone from decayed cavities." In addition, new superintendent Clarence L. Nett reported

**Figure 13.** Image of the new administrative building (Quarters #1) with new walkway connecting to mule barn. Note the opening in the west cemetery wall. It was relocated to its present site just behind the stable between 1935 and 1936 (Antietam National Battlefield Archives).



in July of 1932 that the “entire wall around the cemetery is badly in need of repointing.”

At that time, the cemetery with its new dwelling, removed ancillary buildings, aging trees and deteriorated wall became the responsibility of the National Park Service, Department of the Interior. The 72nd Congress in its first session in HR 8502, voted to transfer jurisdiction over certain National Military Parks and National Monuments from the War Department to the Department of the Interior. Specifically, by Executive Order 6166, June 10, 1933 and Order 6226, June 23, 1933, Antietam National Cemetery transferred to the jurisdiction of the National Park Service on August 10, 1933.<sup>31</sup>

#### **NATIONAL PARK SERVICE ADMINISTRATION, 1933-PRESENT:**

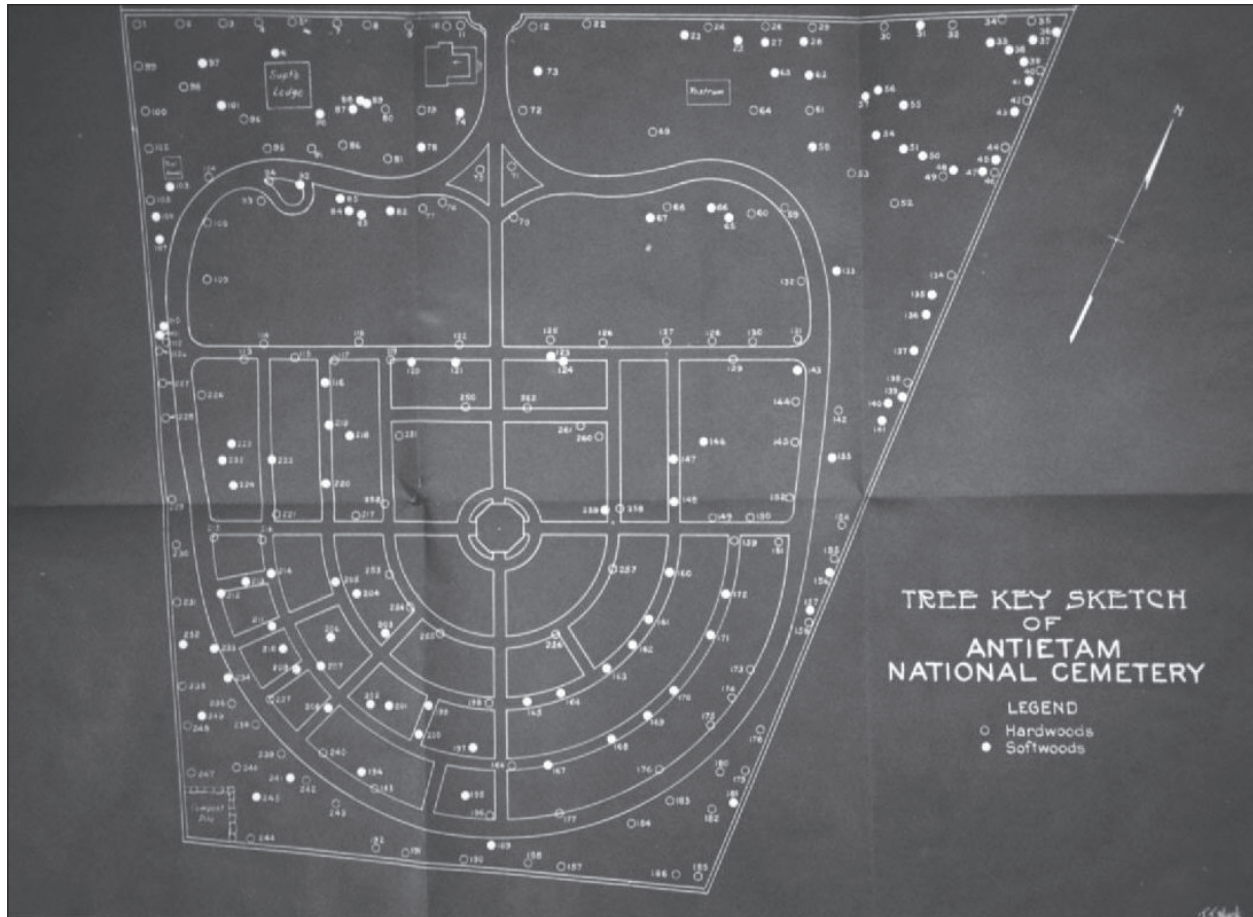
As the War Department undertook extensive work with the cemetery after they acquired it in 1877, the National Park Service likewise in its first years of jurisdiction did major work in the cemetery. The work having the most impact was the reconstruction of the cemetery wall and the 1934 tree inventory with a new plan for future plantings in the cemetery.

##### **1934 Tree Inventory**

One of the first things the National Park Service did upon acquiring the cemetery was to conduct a census of trees in 1934 to assess their condition and establish a numbering system. Part of this effort included a map with the location of trees, indicating which were deciduous and evergreens, and the placement of circular metal tags imprinted with an inventory number affixed to the trunks of the trees. From this inventory, the park service’s branch of forestry came up with a planting plan for the future. The problem they encountered in 1934 was an aging population of trees, most of which were planted about the same time and were nearing the end of their life span. Something had to be done on a cyclical basis, otherwise the cemetery would be denuded of trees within a relatively short time. Further, many of the trees chosen for the initial planting were exotics, shallow rooted and short of life, exacerbating the problem.

The 1934 tree inventory tally was 262, most of them planted by the War Department between 1878 and 1933. Of those, the greatest number was silver maples (*Acer saccharinum*) at a count of 48. Next were Norway spruce (*Picea abies*) with 40, followed by Norway maple (*Acer platanoides*), 39. There were 23 sugar maples (*Acer saccharum*) and 22 hemlocks (*Tsuga canadensis*). Thirty one species of trees were listed (Figure 14).





**Figure 14.** 1934 Inventory of the trees within the national cemetery (Antietam National Battlefield Archives).

#### Headstones and Interments

Among the many changes the cemetery underwent after the National Park Service took control in 1933, was the unification of cemetery headstones. In the late 1870s the War Department removed the temporary wooden head boards and replaced them with uniform marble markers designed for all of the national cemeteries. However, family members or friends of the deceased had placed some headstones privately, 43 to be exact. In 1936, Superintendent John K. Beckenbaugh wrote in his annual report that “all the old irregular private tombstones. . .erected in the early days of the Cemetery and most of which were in a very bad state of preservation have been removed and the standard government headstone erected in their place, giving the Cemetery a decidedly better appearance.”

In addition the landscape was modified as the result of a substantial number of new burials, largely due to the death of veterans from World War I. One Civil War veteran was buried in the Maryland section in 1937. Also in 1937 came the burial of five “colored veterans” of World War I. Superintendent Beckenbaugh set aside a special section for African American veterans, at the far southwest corner, greatly separated from the other burials and disrupting the symmetry of the cemetery’s design. Other work included remodeling of the old lodge, most notably removal of its wraparound

porches. Apparently the leaking tower roof was finally addressed successfully with the installation of a gargyle to drain the water from the roof.<sup>32</sup>

### Improvements to the Cemetery, 1934-1948

In June of 1935, Superintendent Beckenbaugh listed projects that needed to be done in the cemetery in order of priority: 1) Tree surgery and protection; 2) Repair and alteration of lodge house; 3) Repair to entrance gate; 4) Repair, repointing of cemetery wall; 5) Repainting interior and exterior of Superintendent's lodge; 6) Repainting cemetery fence; 7) New concrete floor in tool shed.

Following an emergency allotment of Civil Works Administration (CWA) funds, in 1934, work began on repairing the cemetery front (north) wall and repainting the iron fence. By 1935, the iron fence was repainted, but work on the wall was postponed due to lack of funding (Figure 15).

On Valentine's Day, 1936, a major snow and ice storm damaged trees in the cemetery. The February ice storm resulted in a Region One tree crew trimming and cabling damaged trees in the summer of 1936. The previous summers as well as the summer of 1936 the crew removed trees affected by "maple wilt." In September of that year in the superintendent's report, broken limbs at the tops of trees were still noted, along with caterpillar tents. Beckenbaugh recommended that experts make a thorough study of the tree situation at the cemetery. "During the past two years ten trees have been removed and no provision made for replacement by young trees. With few exceptions the remaining 253 trees are about of the same age. . ." The superintendent also recommended that the brick sidewalk, about 6,000 square feet, in front of the

**Figure 15.** By 1934, CWA funds were used to complete extensive repairs to Antietam National Cemetery, including the reconstruction of the cemetery perimeter wall (Antietam National Battlefield Archives).



cemetery be taken up and relaid in a concrete foundation to eliminate grass and weeds which have to be dug out every two months.

In 1938, the Superintendent submitted for technical review a planting plan for Antietam National Cemetery (Plan #NBS-ANT-2007). He explained:

This plan has been prepared for the purpose of providing young replacements and substitutions for trees that have been removed in the past by natural causes and to provide a continuity of tree growth in the cemetery as more of the existing trees are removed by maturity.

Every effort will be made to maintain old specimen plantation character that is common to all national cemeteries. However, the material suggested varies considerably from the original. In this cemetery there was a preponderance of Norway and silver maple and Norway spruce. It is considered that all these species bring about difficult problems as they mature and hence it is proposed that the maples and shallow rooted trees in general be replaced by deeper rooted and longer lived species indicated on the lists.

The trees that are suggested for removal are in a deformed and decrepit condition, a hazard to the neighboring trees during storms and are ugly specimens in the landscape. . . Upon approval of this planting plan same will be accomplished by our regular maintenance force as funds are available, from materials collected locally so far as possible and from purchased materials when funds are sufficient for such use.<sup>33</sup>

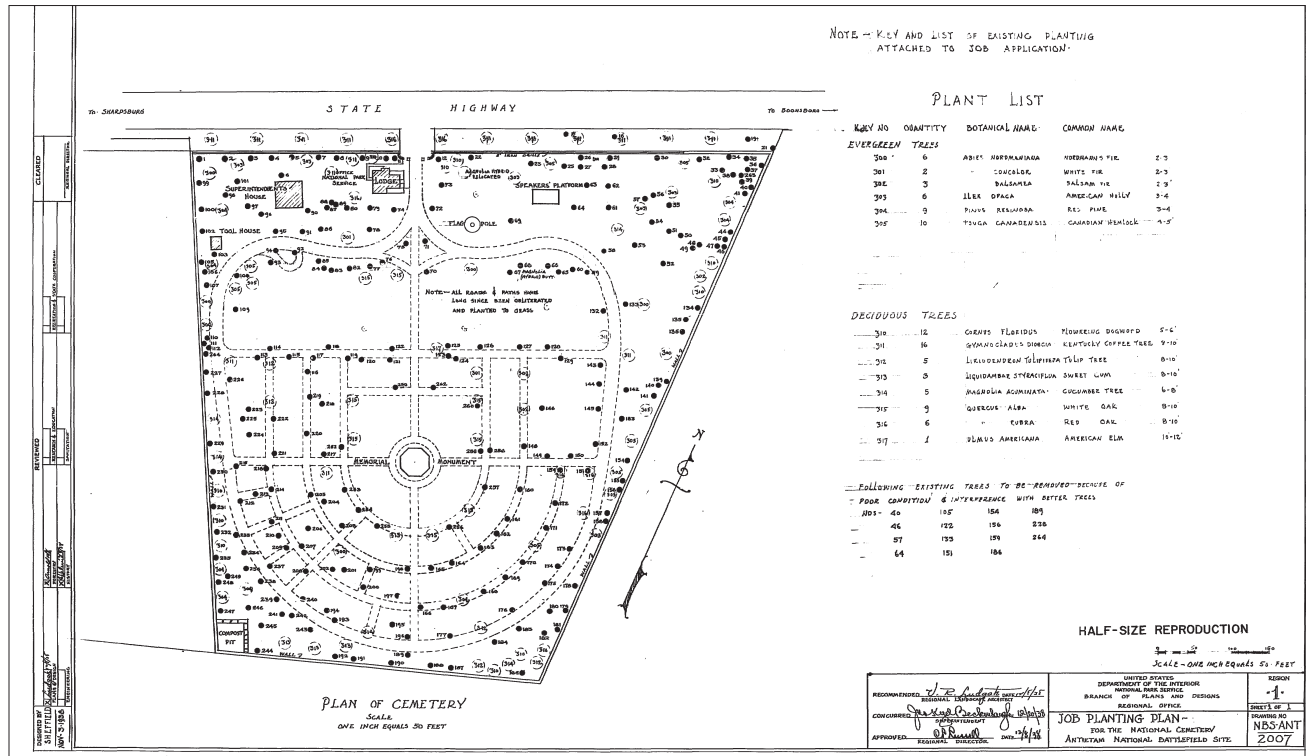
The regional Director responded on December 30, 1938, with approved copies of drawing no. NBS-ANT-2009-1-1 (Plan #NBS-ANT-2007), commenting that the forester noted that a large portion of the existing trees are exotics and recommends that in all future planting programs native material be used insofar as practicable (Figure 16).<sup>34</sup>

By March 2, 1939, Beckenbaugh stated that 19 trees were to be removed from the national cemetery mostly from along the stone enclosure wall, because their roots were damaging the wall. One thousand English ivy vines around the inside of the stone wall were to be removed as well.

Following a March 16, 1940 inspection of Antietam National Cemetery, Director Cammerer instructed National Park Service Assistant Chief of Forestry L.F. Cook to have one of his foresters study the trees at the cemetery and prepare a report on the existing conditions, repairs necessary, and recommend a future planting program. On March 29, 1940, Chief of Forestry L.F. Cook reported that Forester Thompson had been sent to study the problem and concluded:

Despite considerable work accomplished under the PWA contract in 1934, by the ECW itinerant tree preservation crew in 1935 and 1936, and occasional minor pruning by local labor, many trees at Antietam National Cemetery are in poor condition. This is to be expected since a majority of the trees are mature or over mature and many are species that are relatively short-lived—Norway spruce, silver





maple, horse chestnut, and the like. With few exceptions all the trees in the area were planted when the cemetery was established about 65-70 years ago. It is our understanding that the Regional Landscape Architect, Region I, has already prepared a plan to carry out such a program when funds are available.<sup>35</sup>

**Figure 16. 1938 planting plan (ETIC).**

He also pointed out that virtually all of the national cemeteries were planted with relatively short-lived trees and that they were now over mature. He suggested a regular plan of maintenance and replacement. As a result of the Antietam study, Acting Chief of Planning W.G. Carnes wrote to the regional landscape architect on April 4, 1940, and advised him to prepare planting plans similar to the Antietam Drawing NBS-ANT-2009-1-1 (Plan #NBS-ANT-2007) for other national cemeteries, including Poplar Grove, Chattanooga, Fredericksburg, and Gettysburg. He advised that such planting plans should be prepared on the basis of gradual replacement of older trees.<sup>36</sup>

Concurrent with the various correspondences that occurred during this time, a tree evaluation of the cemetery in 1939 indicated that the planting plan (#NBS-ANT-2007) had started to get implemented. It showed that the number of silver maples (*Acer saccharinum*) had dropped from 48 in 1934 to 36 in 1938; Norway spruce (*Picea abies*) decreased from 40 to 38; Norway maples (*Acer platanoides*) decreased from 39 to 36; sugar maples (*Acer saccharum*) from 23 to 14. Hemlocks increased from 22 in 1934 to 27 in 1938 (10 of them Canadian Hemlocks, *Tsuga canadensis*). There were 39 species of trees in 1938, eight more than in 1934. Among new trees introduced were Kentucky coffee trees (*Gymnocladus dioica*), of which eight were recorded in 1938, also more varieties of firs (*Abies*) and pines

(*Pinus*), and oaks (*Quercus*). Thus the number of “problem” trees was gradually being reduced and replacements offered greater variety.<sup>37</sup>

The biggest item of work after the National Park Service took control of the cemetery was the rebuilding of the stone enclosure wall. Although the wall had been repointed in 1880 and worked on again in 1935, it was still reported as in very bad condition. Fortunately, the Maryland State WPA approved \$39,997 for repair of the cemetery wall and to change the grade of the roadway to the utility area just beyond the cemetery’s west wall. Also in this funding was the removal of 19 trees growing along the wall. The opening in the west cemetery wall from the service road was relocated to its present site just behind the brick stable. The old entrance was closed off. The wall was almost completely rebuilt. According to Superintendent Beckenbaugh’s 1936 annual report, “[a] concrete backing or reinforcement has been laid against the base of the wall on the outside extending from the ground surface to a depth of 18 to 24 inches and being 12 inches in thickness.

The work on the wall stretched over a two-year period. As Superintendent Beckenbaugh described in his 1940 annual report, “The wall was practically all torn down and rebuilt, being laid in a strong cement mortar. This work has been so carefully done that the wall has the appearance of the same old wall. The interior face, which is composed of very large stones was replaced as originally set, each stone being numbered as taken out and put back in its original position.”<sup>38</sup>

After the major work (renovation of the old lodge, rebuilding of the wall and removing trees and planning for the cemetery’s planting done in the 1930s and early 1940s), work tapered off to general maintenance of the landscape. In 1947, Superintendent Younger reported that 12 flowering dogwoods, 5 tulips, 4 white oak and 16 Kentucky coffee trees had been added to the cemetery, part of the 1938 tree planting program. “The remainder of the program will be carried out in 1948.”<sup>39</sup>

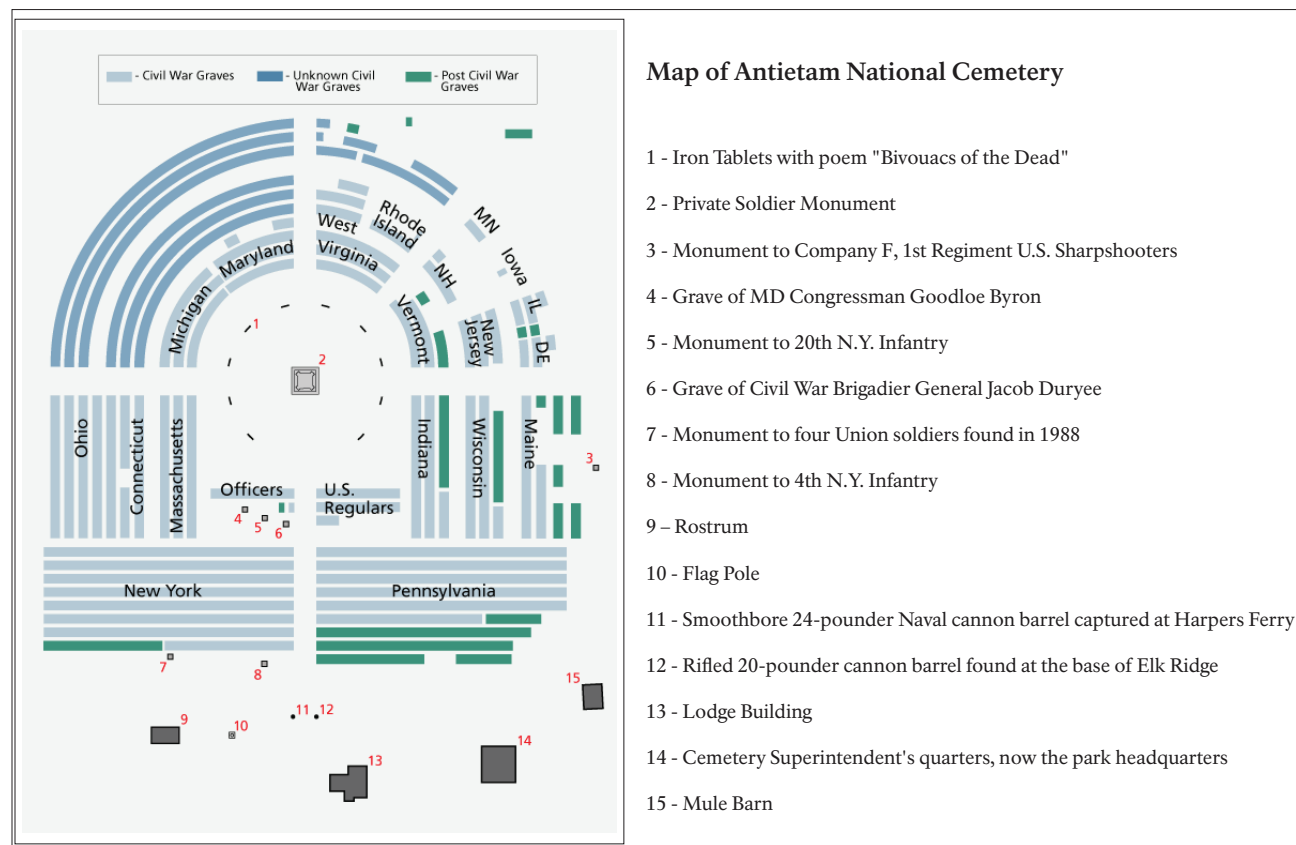
#### **Antietam National Cemetery Closes to Burials and Maintenance Activities, 1953-Present**

Since late 1937, there had been concern among National Park Service leadership about continuing burials at Antietam. With World War I veterans seeking space there, the cemetery would soon run out of room. No action was taken, however, until 1953, and it was initiated by the superintendent at the time, Harry W. Doust. In July of 1952 in his monthly report, Doust recommended that the cemetery be closed to further burials because there were no places for new graves. In August he reported that burials were being made in the last row of graves. Finally, the cemetery was officially closed by memorandum on June 17, 1953. Also in 1953 the

rostrum was repaired. The brick columns were repointed in 1952, but the wooden top was in very deteriorated condition and had to be replaced. Since the early 1940s there had been talk of removing the rostrum, and in 1953 Superintendent Durst recommended replacement, since the structure was in such bad shape and was used only once a year. The structure survived however, and was restored in 1967.<sup>40</sup>

Following the cemetery's closure in 1953, maintenance activities and the replanting and replacement of trees continued. Tree replanting and replacement continued with tree census data recorded from 1983 and 2002 in addition to 1934 and 1938. According to the 1983 tree census there was a total of 268 trees and 36 species including 40 Norway spruce, 33 Eastern hemlocks, 27 sugar maples, 25 flowering dogwoods and 20 Norway maples. Another survey was completed in 2002. It recorded 248 trees and 35 species. Among the most frequently counted were 38 Eastern hemlocks, 36 Norway spruce, 32 sugar maples, 21 flowering dogwoods and 12 Norway maples. Based on the survey, there had been a significant reduction in "problem" varieties, silver maples and Norway maples, although the number of Norway spruce has remained fairly constant. In addition, the balance between evergreen and deciduous trees remained consistent since the historic period. The most recent survey was completed in 2014, as part of this cultural landscape report. The survey recorded

**Figure 17. Map of Antietam National Cemetery showing locations of monuments and burial plots (Antietam National Battlefield Website).**



234 trees within Antietam National Cemetery and 262 within the overall project area (includes maintenance and parking areas along Boonsboro Pike). For more information on the survey, see Appendix A: Tree Inventory.

Despite the closing of the cemetery to further burials in 1953, there have been several interments in the past 50 years. The most recent burial occurred in 2000 for United States Navy Fireman Apprentice Patrick Howard Roy, victim of the USS Cole bombing (Figure 17).

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## UPDATED NATIONAL REGISTER STATUS & STATEMENT OF SIGNIFICANCE

The *Cultural Landscape Inventory for Antietam National Cemetery* (2005) summarized existing National Register documentation and provided recommendations for updating the documentation to address the landscape's significance. However, in recent years the Keeper of the National Register has issued a policy clarification for national cemeteries, which requires further changes to the national register documentation.

### EXISTING NATIONAL REGISTER DOCUMENTATION

Antietam National Cemetery was initially listed in the National Register in 1982 as part of Antietam National Battlefield. The nomination was later updated in 2009. While this listing established the significance of the cemetery as a contributing resource within the larger context of the larger battlefield landscape, it did not address the cemetery's own significance as a primary memorial to the military history of the United States.

The current National Register nomination recognizes the layers of history within the battlefield and organizes it into the following three historic contexts: (1) the pre-battle history and agricultural development of the rural community that made up the battlefield; (2) battle-related history including the effect of the Battle of Antietam on the outcome of the Civil War, the impact of the battle on the surrounding local population; and the issuance and the effect of President Lincoln's Emancipation Proclamation; and (3) post-battle memorialization, monumentation and efforts at preservation. According to the documentation, Antietam National Battlefield is significant under Criterion A in the areas of military history conservation, and politics and government. The current park-wide period of significance is identified as September 16-18, 1862, however, the first page of the nomination establishes a broader period of significance to include the late 19<sup>th</sup> and early 20<sup>th</sup> century period of commemoration; specifically listing monuments established between 1865 (The Antietam National Cemetery) and 1942 (Lee Headquarters Marker). The nomination indicates that the period of commemoration continued into the 1960, but the nomination does not include any monuments dated past 1942. It also does not specify a specific period of significance for the Antietam National Cemetery. The nomination identifies the cemetery as a contributing site with two buildings (lodge and carriage house) three structures (rostrum, U.S. Soldiers Memorial, and cemetery wall and fence) and the numerous headstones from the Civil War and later wars.<sup>41</sup>



Aside from its listing as part of Antietam National Battlefield, Antietam National Cemetery meets the registration requirements of the National Register Multiple Property Documentation Form (MPDF) submitted by the Department of Veterans Affairs and approved by the Keeper of the National Register on October 14, 1994. Since that time, many Civil-War-era national cemeteries administered by the Department of Veterans Affairs have been listed in the National Register according to the requirements of the MPDF. Many of these cemeteries were developed around the same time as Antietam National Cemetery with many of the same standardized features. Because the cemetery is administered by the National Park Service, it has not been included as part of this MPDF.<sup>42</sup>

On September 8, 2011 the Keeper of the National Register issued a clarification of policy regarding National Register Eligibility of National Cemeteries.<sup>43</sup> According to this policy document, the period of significance for a national cemetery, whether under the jurisdiction of the U.S. Department of Veterans Affairs, National Park Service, or the U.S. Department of Defense, is the period of time beginning with the date of the earliest burials and extending to the present. Specific to cemeteries—including Antietam National Cemetery—that have a period of significance ending at the time of its closing to new burials, the policy document states:

While such a date may be meaningful from a historical perspective, it does not take into consideration the ongoing role and exceptional importance of national cemeteries as public places of commemoration and honor even if new burials can no longer be accommodated. After closely examining this issue, the National Register has determined that the “present” is the end date most consistent with the Congressional intent of the federal laws establishing the national cemeteries and with the National Register policies for evaluating properties of continuing exceptional importance.<sup>44</sup>

The policy document further articulates that for National Register purposes, component resources contribute to the cemetery’s significance regardless of their age, function, or administrative role. In addition, some resources may reflect additional historical value important at the local, state, or national levels of significance due to their age or history prior to a cemetery’s designation.<sup>45</sup>

#### **UPDATED STATEMENT OF SIGNIFICANCE**

Based on the *Cultural Landscape Inventory for Antietam National Cemetery* (2005), the *Antietam National Battlefield National Register Nomination* (1982, updated 2009), *Multiple Property Documentation Form (MPDF)*, “Civil War Era National Cemeteries,” and *National Register Eligibility of National Cemeteries Clarification of*

*Policy* (2011), Antietam National Cemetery is significant under National Register Criterion A in the areas of military history and commemoration. In the area of military history, Antietam National Cemetery is significant for its association with the Civil War and as a component of the National Cemetery System. In the area of commemoration, the cemetery is significant for its role in the memorialization efforts carried out by Civil War veterans, citizens, and the federal government. Antietam National Cemetery also derives significance under Criterion C in the areas of landscape architecture and architecture. In the area of landscape architecture, the cemetery is significant as one of the earlier examples of national cemeteries that trace its stylistic origins to Gettysburg National Cemetery and the design principles espoused by landscape designer William Saunders. It also exemplifies the characteristics of a Civil War era national cemetery design, particularly through its buildings, structures, and other features that were developed and implemented by the War Department Administration. In the area of architecture, the cemetery is significant for the Gothic-inspired lodge designed by noted architect Paul Pelz. Antietam National Cemetery also meets Criteria Consideration D (Cemeteries) as a primary memorial to the military history of the United States and Criteria Consideration F (Commemorative Properties) for its role in the memorialization and commemoration efforts carried out by Civil War veterans, citizens, and the federal government. Although the *Cultural Landscape Inventory for Antietam National Cemetery* identifies significance for its associations with prominent individuals in American history—such as Andrew Johnson, General Montgomery Meigs, William McKinley, Theodore Roosevelt, Franklin D. Roosevelt, and John F. Kennedy, this updated statement of significance does not include Criterion B because the cemetery is not a property that best represents the productive life and historic contributions of these individuals.

The overall period of significance for the Antietam National Cemetery is 1865 to the present. Under Criterion A, the period begins with the establishment of the cemetery in 1865 and extends to the present. The period of significance reflects the ongoing role and exceptional importance of national cemeteries as public places of commemoration and honor.<sup>46</sup> Under Criterion C, the period of significance begins with the initial development of the cemetery in 1865, continues through the late nineteenth and early twentieth centuries with the implementation of character-defining standardized landscape features by the War Department, and ends in 1933 with its transfer to the National Park Service. This end date reflects the height of development under the War Department and captures the final major additions to the cemetery landscape, which includes the construction of the administrative building.

**CRITERION A AND CRITERIA CONSIDERATIONS D AND F**

**Military History:**

Antietam National Cemetery derives its primary significance under Criterion A in the area of military history for its association with the Civil War and as a component of the National Cemetery System. This area of significance is presently documented in the MPDF, signed by the Keeper on October 14, 1994:

The Civil War-era national cemeteries were created originally to afford a decent resting place for those who fell in the defense of the Union. These cemeteries began the ongoing effort to honor and memorialize eternally the fighting forces who have and continue to defend our nation. Today, the entire national cemetery system symbolizes, in its gracious landscapes and marble headstones, both the violence of the struggle and healing aftermath. The Civil War era national cemeteries are nationally significant under Criterion A, both for their symbolic and physical representation of that war, and for representing the origins of the National Cemetery System.<sup>47</sup>

Situated on a hilltop on the east end of the Town of Sharpsburg—with commanding views of the rural battlefield landscape, Antietam National Cemetery is associated with the Civil War through its interment of approximately 4,776 Union soldiers who died in the Battles of Antietam, South Mountain, Harpers Ferry, Monocacy, and other smaller engagements. In addition to the Civil War burials, more than 200 non-Civil War dead are also buried in the cemetery.

In addition to its direct association with the Civil War, Antietam National Cemetery derives military significance for its association with the National Cemetery System, and in particular as a component of the system's initial development in the years following the Civil War. Beginning in 1862, the federal government passed new legislation that initiated the development of a systematic program for military burials in response to the overwhelming number of Civil War casualties. These laws, which included General Orders 75 and 33 and the Act of July 17, 1862, led to the creation of fourteen new national cemeteries. However, these cemeteries—which were generally simplistic in design and reflected the efficiency necessary during wartime, were on military-owned land and in private cemeteries, and not on property specifically acquired for national cemeteries as allowed under the 1862 Presidential authority. As a result, Antietam and Gettysburg national cemeteries were established by private associations and were developed with their own distinctive character that followed the recently introduced lawn-park cemetery plan that emerged from the rural cemetery movement. These two cemeteries served as a model for the Quartermaster's initial development of the national cemetery landscapes. By 1877, Antietam National Cemetery was transferred to federal ownership as part of the national cemetery

system and was further developed similarly to other national cemeteries through the addition of a rostrum, planting of trees and shrubs, and installation of benches and commemorative iron tablets.

**Commemoration:**

Antietam National Cemetery is also significant under Criterion A in the area of commemoration for the efforts of Civil War veterans and others to memorialize and commemorate the war. Observances of Memorial Day at the cemetery began as early as 1868, but formal services organized by veterans and neighbors began in the 1880s. Following the dedication of the Soldier's Monument in 1880, the end of the nineteenth century was marked by the construction of monuments by veterans and states to honor soldiers who fought in the battle. In 1887, the 20<sup>th</sup> New York regiment placed a monument in the cemetery. It was followed by the 1892 monument to the 4<sup>th</sup> New York Infantry; and the 1900 monument to Company F, 1<sup>st</sup> Regiment U.S. Sharpshooters. Today, Antietam National Cemetery continues to play an ongoing role as a public place that commemorates and honors those who fought and lost their lives during the Civil War, which provides the basis for ending the overall period of significance for the cemetery at the "present."<sup>48</sup>

**CRITERION C****Landscape Architecture:**

Antietam National Cemetery is significant under Criterion C in the area of landscape architecture as one of the earlier examples of national cemeteries that trace its stylistic origins to Gettysburg National Cemetery and the design principles espoused by landscape designer William Saunders. It also exemplifies the characteristics of a Civil War era national cemetery design, particularly through its buildings, structures, and other features that were developed and implemented by the War Department Administration.

By the early 1850s the lawn-park or landscape-lawn plan cemetery emerged as a less crowded and cluttered alternative to the rural cemeteries. Introduced by Adolph Strauch for Cincinnati's Spring Grove Cemetery, lawn-park cemeteries were simpler in their layouts, more spacious and open, with less vegetation and fewer enclosures. At the time of the Gettysburg National Cemetery commission, William Saunders combined the lawn plan with aspects of the 'Graceful' and "Gardenesque" styles to design a simple, circular burial section with an expansive lawn marked by uniform low-scale grave markers. Around the perimeter of the site, he designed a winding

avenue that made a circuit around the grounds and united the burial area into the larger landscape, consisting of open lawn defined by groves of trees and shrubs. The design was focused inward toward a central monument, with trees screening the perimeter.<sup>49</sup> Impressed with the work at Gettysburg National Cemetery, the Antietam board contracted with William Saunders to design Antietam National Cemetery, but the partnership never came to fruition. However, the eventual plan for the Antietam National Cemetery, prepared by Augustin Biggs and his teenage son, borrowed heavily from the Gettysburg model as it reflected Saunders' innovative adaptation of the rural cemetery and lawn plan cemetery. At the time of its dedication in 1867, the cemetery was simple in design with a semi-circular burial section that was divided by axial paths that converged at a proposed monument in the center of an expansive lawn dotted with a variety of specimen trees and shrubs. Along the perimeter of the cemetery were a stone wall and a main drive that encircled the burial grounds. As part of the design for the cemetery, the burial sections were organized by states and the headstones were intended to be uniform, including the unknown plots. The overall planting plan focused on the combination of deciduous and evergreen shrubs along the perimeter of the property with the burial grounds being largely devoid of vegetation. Surrounding the monument, a formal arrangement of trees lined the paths, which preserved the regularity of the circulation and visually strengthened the formality of the plan. The placement of vegetation also reinforced the vistas and views that were created to highlight the battlefield and surroundings, as well as the proposed central monument. A lodge house was eventually constructed inside of the main gate.

Following the cemetery's acquisition by the War Department in 1877, a series of development and beautification projects resulted in the addition of a rostrum designed according to a prototype by Quartermaster General Montgomery Meigs; a mule barn and a series of outbuildings; marble grave markers with headstones for known burials and blocks for unknown burials; iron tablets citing regulations and four-line verses from the poem "The Bivouac of the Dead;" and a planting program that included flowerbeds, rosebushes, and hundreds of deciduous specimen trees placed along the pathways and evergreen trees within the burial grounds. These improvements reflected standardization intended to create uniformity among units of the National Cemetery System, and to provide a recognizable federal presence. As a result, the national cemeteries had a military feeling in their simplicity, symmetry, and repetition that set apart from their contemporary high-style civilian picturesque rural cemeteries.

During this decade of improvements and standardization, several substantial changes were made to the initial design of the cemetery. By 1892, the roads within the burial grounds were changed from gravel to turf, and by 1896, the arborvitae hedges along the inner edge of the drive encircling the burial sections were removed. These



changes reflected ongoing efforts to reduce maintenance costs. Into the late 1920s, changes included the construction of a new lodge (Headquarters No.1) a new flagstaff, improvements to the utility systems, and installation of commemorative monuments. After the transfer of Antietam National Cemetery to the National Park Service in 1933, the landscape underwent several changes, including the loss of specimen trees and plantings, rebuilding of the stone wall and relocation of the west cemetery entrance; the planting of ornamental shrubbery around the new lodge; and the addition of interpretative signage. Although the cemetery closed to further burials in 1953, several other internments have occurred with the most recent burial taken place in 2000 for United States Navy Fireman Apprentice Patrick Howard Roy, a victim of the USS Cole bombing. Because these changes are not reflective of the design and development of Antietam National Cemetery and national cemetery system, the history of the cemetery after 1933 under National Park Service administration is not significant under National Register Criterion C. However, these changes do contribute to the significance of the cemetery under Criterion A for its ongoing role as a public place of commemoration and honor.<sup>50</sup> Also, while involvement of the Civilian Conservation Corp and Works Progress Administration are often considered a basis for significance under Criteria A and C, their involvement at the cemetery was limited and focused primarily on stabilization and preservation related projects.

**Architecture:**

Antietam National Cemetery is also significant under Criterion C in the area of architecture for the superintendent's lodge designed by Paul J. Pelz, a late nineteenth century Washington architect. According to the *Antietam National Cemetery Lodge: Physical History and Condition Assessment* (2003), the lodge is interesting as one of a group of cemetery lodge buildings constructed in the decades immediately after the Civil War especially as an exception to the standardized lodges built under the direction of the Quartermaster General, Montgomery C. Meigs, which it predates. Although this building was designed by an architect independent of the Quartermaster General's office, it is similar in many respects to the standardized lodge designs developed by Meigs. It is certainly important for its location in the National Cemetery system with all of its post-Civil War and Victorian-era associations.<sup>51</sup> The structure itself is a highly intact example of a mid-nineteenth century romantic Gothic villa.

## UPDATED ANALYSIS AND EVALUATION

The *Cultural Landscape Inventory for Antietam National Cemetery* (2005) and *Antietam National Battlefield National Register Nomination* (1982; updated 2009), evaluated the historic character and integrity of the cemetery by examining the site's defining characteristics. However, in the years since this inventory was completed, a clarification of policy regarding National Register Eligibility of National Cemeteries was issued by the Keeper of the National Register. According to this policy document, features that were previously evaluated as non-contributing are now identified as contributing to the cemetery's significance as a commemorative landscape regardless of its age, function, or administrative role. This updated analysis of the cemetery provides the most current and complete foundation for this cultural landscape report. Refer to the cultural landscape inventory for detailed information on the analysis of landscape characteristics and features based on the comparison of historic and existing conditions.

Although the maintenance and parking areas along Boonsboro Pike are included as part of the project area, they will not be evaluated in this report. Also, since archeological resources are documented in other reports, they too will not be evaluated. Overall, Antietam National Cemetery retains integrity of location, design, setting, materials, workmanship, feeling and association.

## EVALUATION OF INTEGRITY

Integrity is the ability of a property to convey its historic identity or the extent to which a property evokes its appearance during a particular historic period, usually the period of significance. While evaluation of integrity is often a subjective judgment, particularly for a landscape, it must be grounded in an understanding of a property's physical features and how they relate to its significance. The National Register program identifies seven aspects of integrity including location, design, setting, materials, workmanship, feeling, and association. Retention of these qualities is essential for a property to convey its significance, though all seven qualities of integrity need not be present to convey a sense of past time and place. The following evaluation is based on the period of significance for the landscape extending from 1865 through 1933 under Criterion C, within the overall period of significance extending to the present.

**Location**

Location refers to the place where the cultural landscape was constructed or where the historic event occurred. Antietam National Cemetery occupies its historic location and the size of the site has not been modified since the historic period.

*Evaluation:* Antietam National Cemetery retains integrity of location.

**Design**

Antietam National Cemetery retains the original burial plan as laid out in 1866 comprised of semi-circular arrangement of headstones and monuments intersected by axial paths around a central monument. Antietam National Cemetery retains built features that convey the original design and historic development of the cemetery through 1933, including perimeter stone wall and entrance gate (1865-1867), lodge (1868), Meigs-style rostrum (1879), soldiers monument (1880), brick mule barn (1901), Quarters #1, administrative building (1928), and numerous tablets and monuments. The combination of these features maintains the historic character of the site. The historic design of Antietam National Cemetery has been diminished through changes in vegetation, in particular through the loss of deciduous shade trees lining the paths and drives and evergreen trees and shrubs used in the burial grounds.

*Evaluation:* Antietam National Cemetery retains integrity of design.

**Setting**

Today, the cemetery retains its overall setting defined by large swaths of open lawn dotted with headstones, monuments, specimen trees and shrubs; a perimeter wall, and a cluster of buildings near the entrance. Also, similar to the historic period, the surrounding area remains largely rural. Overall, Antietam National Cemetery retains its internal, intimate park-like feel.

*Evaluation:* Antietam National Cemetery retains integrity of setting.

**Materials**

Materials are the physical elements, both natural and constructed, that existed historically within the cultural landscape. The superintendent's lodge, the rostrum, walls, gates, administrative building, headstones, monuments, and tablets are largely composed of their original materials. Despite the loss of some vegetation over the years, the general composition of vegetation, including the lawns, specimen trees, and shrubs, remains very similar to the historic period.

*Evaluation:* Antietam National Cemetery retains integrity of materials.

### **Workmanship**

Workmanship refers to the physical evidence of the crafts in the construction of and use of the landscape. Antietam National Cemetery retains workmanship characteristic of its initial development during the mid-nineteenth century in the stone and woodwork of the gothic inspired lodge, in the masonry of the perimeter wall and rostrum, the metalwork of the entrance gates and fencing, and in the headstones. There is also early to mid-twentieth century workmanship evident in the mule barn, administrative building, and later monuments. The workmanship of the historic period is evident and retains a high degree of integrity at Antietam National Cemetery.

*Evaluation:* Antietam National Cemetery retains integrity of workmanship.

### **Feeling**

Feeling is an expression of the aesthetic or historic sense of a particular period of time in a cultural landscape. Despite changes in vegetation over the years, Antietam National Cemetery retains feeling from the historic period. Because the layout, design and many of the features have largely remained unchanged, and few additions have been made since the period of significance, historic feeling is largely preserved and retains a high degree of integrity.

*Evaluation:* Antietam National Cemetery retains integrity of feeling.

### **Association**

Association refers to the direct link between the important historic event or person and the cultural landscape. Antietam National Cemetery remains associated with the Civil War, containing the graves of approximately 4,776 Union soldiers who died in the Battles of Antietam, South Mountain, Harpers Ferry, Monocacy, and other smaller engagements. The cemetery landscape also retains many of the physical resources that illustrate its historic association with the original 1866 Biggs design and the “lawn plan” ideals promoted in the mid-to late nineteenth centuries, as well as other historic features that were standardized throughout the national cemetery system during the War Department administration. These include a rostrum based on a prototype designed by Quartermaster General Montgomery Meigs, an administrative building, perimeter wall with iron gates, marble headstones, iron tablets, and a variety of specimen trees and shrubs.

*Evaluation:* Antietam National Cemetery retains integrity of association.

**EVALUATION OF LANDSCAPE CHARACTERISTICS SUMMARY**

Landscape characteristics are defined as the tangible and intangible aspects of the landscape, from large-scale patterns and relationships to small-scale features. These characteristics collectively contribute to the site's historic character and aid in conveying historical significance. *According to the Guide to Cultural Landscape Reports*, a combination of characteristics may be observed in a cultural landscape. These include, but are not limited to: spatial organization, land use, cluster arrangement, circulation, vegetation, buildings and structures, views and vistas, and small scale features. This evaluation provides a brief summary of the landscape characteristics at Antietam by contrasting historic conditions (1865-1933) with existing conditions. Individual features are further evaluated as contributing or non-contributing to the historic character of the cemetery, or unevaluated if there is insufficient information. This information is summarized in table 2 that correlates with facility management data, and includes a summary of historic character and identification of condition deficiencies. Refer to the cultural landscape inventory for additional information on the evaluation of individual landscape features.

The Antietam National Cemetery with its component parts (plan, vegetation, buildings, headstones and monuments, and structures) is a well-integrated and intact resource. It retains a high level of visual integrity to its period of significance (1865-1933), although the look of the cemetery transformed during the period. Dominating marker features, however remain and have consistently demarcated the cemetery from the surrounding rural and village landscapes. These important identifiers are the cemetery's plan, clearly visible from its inception; the stone perimeter wall, completed between 1865 and 1867; the lodge completed in 1868; the topography, which was altered when the cemetery was constructed by adding fill to create a nearly level surface on an otherwise rolling landscape; and the vegetation, a blend of evergreens and deciduous trees that helps to make the cemetery distinctive from the surrounding open farmland. In addition to these original features are the cemetery's headstones and monuments, cast iron placards and the speakers' rostrum, all of which date from the late 1870s and 1880s, but which further defined the character of the cemetery as consistent with other Civil War era national cemeteries. In the early 20th century, after the National Park Service acquired title to the cemetery, the vegetation underwent various changes, with exotic species that had dominated the landscape and which were nearing the end of their lifespan were gradually replaced with other species—many of which were placed in locations that were not consistent with the original design intent. In addition the vines of ivy and wisteria that once covered the rostrum and



the interior surface of the cemetery wall were removed. Although these changes impacted the visual appearance of the cemetery, the overall character remains intact and distinct from the surrounding landscape.

## **CULTURAL LANDSCAPES AND NPS FACILITY MANAGEMENT**

Cultural landscape reports, inventories, and preservation maintenance plans continue to serve as the best tools for preserving and enhancing cultural landscapes. However, until recently, implementation of these plans was challenging since there was no systematic means within the park service for translating these reports into the actual work of facilities management. Today, the National Park Service Facility Management Software System (FMSS), developed to improve the effectiveness of facility operations, is a powerful tool for managing park infrastructure—including maintained landscape, as well tracking costs associated with their care. FMSS allows facility managers access to cultural landscape data on historic significance and preservation treatment, so that it can be used to determine operational and funding priorities. Accurate FMSS organization and timely updates enable parks to prioritize projects and create funding requests that accurately reflect asset value and condition. This report provides preliminary recommendations on integrating cultural landscape data into an FMSS asset inventory and broadly correlates treatment guidelines and tasks with FMSS work orders. FMSS hierarchy consists of sites (e.g. Antietam National Cemetery Area and Boonsboro Pike Area), asset types (e.g. maintained landscapes), locations (geographic areas, e.g. National Cemetery historic landscape), and assets (features, e.g. turf).

Antietam National Cemetery’s cultural landscape is tracked through a number of asset or facility types, including buildings, parking, monuments/ memorials, and maintained landscapes.<sup>52</sup> The majority of the assets associated with the cultural landscape at the cemetery are tracked under the maintained landscape asset type. A maintained landscape typically includes exterior park areas that have been developed and improved to support operations or visitor activities. To be classified as a maintained landscape, a landscape must require regular, recurring maintenance and contain built features. Organization of the maintained landscape asset type varies by park and should reflect specific areas for which the park needs to track costs. At present, the Antietam National Cemetery maintained landscape is tracked as a “location,” National Cemetery Historic Landscape Mowable (40968) within the Antietam National Cemetery Area “Site.” (“Mowable” should be removed from name at later date.) Besides the maintained landscape asset type, additional cemetery features are captured under five locations within

the Antietam National Cemetery Area site, which includes the lodge (40956), administrative building (40965), mule barn (40955), rostrum (40957), and private soldier monument (231964); four locations within the Boonsboro Pike Area site, which includes the national cemetery parking (52144), national cemetery maintenance parking (52141), national cemetery handicap parking (52142), and the cemetery access parking (52146). The majority of the monuments and tablets are tracked under the location “tablets, plaques, and monuments.” While many assets associated with these locations have been identified and listed, many have not been entered in the FMSS database. (see table 2).

## ENDNOTES

- 1 Quartermaster General, Regulations for the Government of National Cemeteries (Washington Government Printing office, 1916 and 1931).
- 2 As defined in the National Park Service Cultural Resource Management Guidelines (DO-28, 1998), “thorough” means research in selected published and documentary sources of known or presumed relevance that are readily accessible without extensive travel and promise expeditious extraction of relevant data.
- 3 Therese T. Sammartino, “National Register of Historic Places Multiple Property Documentation Form, Civil War Era National Cemeteries” (Department of Veterans Affairs, 31 August 1994, certified by the Keeper of the Register, 14 October 1994).
- 4 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 36.
- 5 The Law of Maryland Incorporating the Antietam National Cemetery Association, passed March 23, 1865, Chapter 203, Sections 1 and 2, Maryland Law of 1865.
- 6 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 37
- 7 Susan W. Trail, Remembering Antietam: Commemoration and Preservation of a Civil War Battlefield (Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, 2005) 75-76.
- 8 Board of Trustees of Antietam National Cemetery. History of Antietam National Cemetery (Baltimore: J.W. Woods, 1869) 13.
- 9 Letter from Jack Sanderson to Betty Otto, March 28, 1976.
- 10 John Auwaerter. Cultural Landscape Report for Poplar Grove National Cemetery (United States Department of the Interior, National Park Service. 2009) 48-50.
- 11 Susan W. Trail, Remembering Antietam: Commemoration and Preservation of a Civil War Battlefield (Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, 2005) 79.

- 12 Board of Trustees of Antietam National Cemetery. History of Antietam National Cemetery (Baltimore: J.W. Woods, 1869) 20-21.
- 13 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 40; as quoted in Susan W. Trail, Remembering Antietam: Commemoration and Preservation of a Civil War Battlefield (Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, 2005) 83.
- 14 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 41.
- 15 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 46.; as quoted in Susan W. Trail, Remembering Antietam: Commemoration and Preservation of a Civil War Battlefield (Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, 2005) 127.
- 16 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 48; as quoted in Record Group 92, Entry 576, National Archives.
- 17 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 56.
- 18 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 52.
- 19 Inspection report of May 16, 1881, in Record Group 92, Entry 576, Box 130.
- 20 Charles Snell and Sharon A. Brown, Antietam National Battlefield and national Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 38.
- 21 Charles Snell and Sharon A. Brown, Antietam National Battlefield and national Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 38.
- 22 Charles Snell and Sharon A. Brown, Antietam National Battlefield and national Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 38.
- 23 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 56; as quoted in Susan W. Trail, Remembering Antietam: Commemoration and Preservation of a Civil War Battlefield (Dissertation submitted to the Faculty of the Graduate School of the University of Maryland, College Park, 2005) 153-154.
- 24 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 41-45.
- 25 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 50.

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- 26 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 57
- 27 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 57.
- 28 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 58.
- 29 Susan Hall, Historic American Buildings Survey, Antietam National Cemetery, Headquarters No.1, HABS No. MD-936-C (United States Department of the Interior, National Park Service, Historic American Buildings Survey, 2009) 6-7.
- 30 Susan Hall, Historic American Buildings Survey, Antietam National Cemetery, Headquarters No.1, HABS No. MD-936-C (US Department of the Interior, National Park Service, Historic American Buildings Survey, 2009) 9; as quoted in Letter, H.L Ward to the Quartermaster General, Re: Improvements to grounds, Antietam National Cemetery (4 April 1928), File 618.32-Antietam National Cemetery, Box 57, Entry 1891, RG 92, NARA II.
- 31 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 58.
- 32 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 215.
- 33 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 222.
- 34 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 222-223.
- 35 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 223.
- 36 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 224.
- 37 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 69.
- 38 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 219.
- 39 Charles Snell and Sharon A. Brown, Antietam National Battlefield and National Cemetery: An Administrative History (United States Department of the Interior, National Park Service, 1986) 233.
- 40 Paula Reed and Associates, Inc. Cultural Landscape Inventory, Antietam National Cemetery (Prepared for United States Department of the Interior, National Park Service, 2005) 70.
- 41 Paula Reed and Associates, Inc. National Register of Historic Places Nomination for Antietam National Battlefield (Prepared for United States Department of the Interior, National Park Service, 2009) Section 7 and 8.
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- 42   Therese T. Sammartino, “National Register of Historic Places Multiple Property Documentation Form, Civil War Era National Cemeteries” (Department of Veterans Affairs, 31 August 1994, certified by the Keeper of the Register, 14 October 1994).
- 43   From time to time, the Keeper of the National Register needs to issue a response to a policy question that has been raised about application of the criteria and other program requirements. When the Keeper issues such clarifications, they constitute an adjustment to or affirmation of the policy that applies. The Keeper’s policy clarifications will be posted on the web site and may be incorporated into future publications.
- 44   National Register Eligibility of National Cemeteries-A Clarification of Policy, September 8, 2011.
- 45   National Register Eligibility of National Cemeteries-A Clarification of Policy, September 8, 2011.
- 46   Based on the National Register Eligibility of National Cemeteries-A Clarification of Policy, September 8, 2011.
- 47   Therese T. Sammartino, National Register of Historic Places Multiple Property Documentation Form, Civil War Era National Cemeteries (Department of Veterans Affairs, 31 August 1994, certified by the Keeper of the Register, 14 October 1994), Section F:3.
- 48   National Register Eligibility of National Cemeteries-A Clarification of Policy, September 8, 2011.
- 49   John Auwaerter. Cultural Landscape Report for Gettysburg National Cemetery [draft] (United States Department of the Interior, National Park Service.) 68.
- 50   Based on the National Register Eligibility of National Cemeteries-A Clarification of Policy, September 8, 2011.
- 51   Architrave P.C. Architects. Antietam National Cemetery Lodge: Physical History and Condition Assessment, Job #9402.17 (Prepared for U.S. Department of the Interior, National Park Service, Washington, D.C. 2003), 13.
- 52   Antietam National Cemetery is tracked through a limited number of asset types. However, there are currently more than 30 asset types that can be tracked within a location, which include but are not limited to roads, trails, electrical systems, water systems, marina/waterfronts, maintained archeological sites, and/or fortifications.



TABLE 2: CULTURAL LANDSCAPE EVALUATION FOR ANTIETAM NATIONAL CEMETERY

FEATURE NAME	CLULCS ID	FMSS ASSET TYPE	FMSS SITE/LOCATION RECORD	FMSS ASSET RECORD	HISTORIC CHARACTER & EVALUATION	DEFICIENCY (HISTORIC)	ADDITIONAL GUIDANCE
<b>Spatial Organization</b>							
<b>Boonsboro Pike area (US Rte. 34)<sup>1</sup></b>	NA	NA	NA	NA	Space between Boonsboro Pike and outer edge of the northern boundary wall of the cemetery; constructed between 1865 and 1867. Originally delineated by barbed wire fencing; improved in 1881; Road macadamized and sidewalks constructed in 1891. Maple trees planted in 1894; Tablets installed in 1895. Walks repaired in 1977; Cemetery parking area off Boonsboro Pike was constructed in the late 1960s. Good condition. <b>Contributes to Criterion A and C.</b>	No	Not a maintained asset; address in Antietam National Cemetery Location record long description.
<b>Lodge and administration grounds<sup>1</sup></b>	NA	NA	NA	NA	Space along the northern boundary of the property, delineated by the boundary wall and graves, approximately 130 ft. in width, and includes lodge, administrative building, mule barn, and rostrum; constructed between 1865 and 1867. Originally intended to be "a large space...ornamented with trees and shrubs." Good condition. <b>Contributes to Criterion A and C</b>	Yes	Not a maintained asset; address in Antietam National Cemetery Location record long description.
<b>Maintenance area (Utility Area)<sup>1</sup></b>	NA	NA	NA	NA	Space acquired by the government in c. 1890s. Used originally as pasture land for cemetery horse with small utility building; utility and shop building constructed in 1927; roadway to utility building improved in 193; and, additional maintenance buildings constructed in 1940s; maintenance building improvements in 1970s. Good condition. <b>Contributes to Criterion A and C</b>	No	Not a maintained asset; address in Antietam National Cemetery Location record long description.
<b>Cemetery perimeter area<sup>1</sup></b>	NA	NA	NA	NA	Space delineated by the cemetery boundary wall, lodge and administration grounds and graves; constructed between 1865 and 1867. Good condition. <b>Contributes to Criterion A and C</b>	Yes	Not a maintained asset; address in Antietam National Cemetery Location record long description.
<b>Burial grounds<sup>1</sup></b>	NA	NA	NA	NA	Space containing the graves and grass walks; initially graded and constructed beginning in 1865 and completed in 1867; burials began in 1866 and was completed by 1868; regraded in 1878; altered internally through loss of trees and shrubs. Good condition. <b>Contributes to Criterion A and C</b>	Yes	Not a maintained asset; address in Antietam National Cemetery Location record long description.
<b>Land Use</b>							
	NA	NA	NA	NA	No associated features. No burial have taken place since 2003 but the cemetery continues to be a site of commemoration. Graves continue to be decorated on Memorial Day.	NA	
<b>Cluster Arrangement</b>							
	NA	NA	NA	NA	No associated features. The principal cluster is the collection of burials with their parallel, curvilinear rows of uniform white marble markers arranged the central monument. Another cluster is the grouping of buildings on the northwest side of the cemetery, which includes the stone lodge, the 1927 replacement keeper's residence (Quarters No. 1), and the brick stable (mule barn), and the rostrum and flagstaff on the northeast side of the cemetery. Good condition. <b>Contributes to Criterion A and C</b>	NA	

TABLE 2: CULTURAL LANDSCAPE EVALUATION FOR ANTIETAM NATIONAL CEMETERY							DEFICIENCY (HISTORIC)	ADDITIONAL GUIDANCE
FEATURE NAME	CLI/LCS ID	FMSS ASSET TYPE	FMSS SITE/LOCATION RECORD	FMSS ASSET RECORD	HISTORIC CHARACTER & EVALUATION			
Circulation								
Burial ground main drive	NA	Maintained Landscapes (3100)	4095/4/40968	1103255 Turfgrass/Pasture Crop	Laid out and constructed between 1866 and 1868; Originally macadamized and graveled (16 ½ feet in width); Resurfaced in lime cinder in 1884 and converted to grass by 1892. Fair condition. <b>Contributes to Criterion A and C</b>		Yes	
Burial grounds avenues (grass paths)	NA	Maintained Landscapes (3100)	4095/4/40968	1103255 Turfgrass/Pasture Crop	Laid out and constructed between 1866 and 1868; Originally macadamized and graveled; Converted to grass in 1878-1880; portion encircling all grave sections originally lined with arborvitae hedge; roses lines interior circle in 1889 (100ft from monument), removed in XXXX; Fair condition, trees and shrubs in former corridors. <b>Contributes to Criterion A and C</b>		Yes	
Lodge house brick plaza and walk	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Constructed as part of main drive, between 1866 and 1868. Following main drive being converted to grass by 1892, section, now referred to as plaza was paved (presumable with brick); brick was reset between 1937 and 1938; paved after 1938 with asphalt, but resurfaced with brick in 1977; <b>Contributes to Criterion A and C.</b>		No	Should be added as asset within Location 40968
Boonsboro Pike (US Rte. 34) brick sidewalk and stone curbing/edging¹	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Brick sidewalk and stone (slate) curbing constructed between 1888 and 1891.Sidewalk is in good condition, but stone curbing is in poor condition. <b>Contributes to Criterion A and C</b>		Yes	Should be added to Sire 48585, with new Location record that captures lawn, specimen trees, and sidewalk and stone edging; or be added to Location 40968
National cemetery access parking	1010485/NA	Parking Area (1300)	48585/52146	NA	Constructed in the 1940s. <b>Contributes to Criterion A.</b>			
National cemetery parking¹	NA	Parking Area (1300)	48585/52144	NA	Constructed in the 1960s <b>Undetermined.</b>			
National cemetery handicap parking (along Boonsboro Pike)¹	NA	Parking Area (1300)	48585/52142	NA	Undetermined			
National cemetery maintenance area parking area¹	NA	Parking Area (1300)	48585/52141	NA	Roadway improved in 1939; parking area constructed in 1982. Contributes to <b>Contributes to Criterion A.</b>			
Concrete sidewalks adjoining administrative building¹	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Originally constructed in 1928; altered in 1982. <b>Contributes to Criterion A and C.</b>		No	Should be added as asset within Location 40968
Vegetation								
Cemetery lawn	NA	Maintained Landscapes (3100)	4095/4/40968	1103255 Turfgrass/Pasture Crop	Grounds graded beginning in 1865 and completed in 1867; beginning at boundary wall, lawn gradually rises to soldiers monument centrally located within cemetery; regraded in 1877; Fair to poor condition. <b>Contributes to Criterion A and C.</b>		Yes	
Cemetery deciduous and evergreen specimen trees	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Beginning in 1869-1870, 500 evergreen and 620 deciduous trees were planted; additional trees and shrubs planted in 1871 and 1874; deciduous trees planted along drives (avenues) and evergreen planted in burial sections between 1878-1879; in 1882-1883, 700 new trees and shrubs were planted, which included six Swiss stone pines and four cedar of Lebanon; By 1929, there was a total of 281 trees, which included 137 deciduous and 144 evergreens; 1934 tree census completed, which included		Yes	Should be added as asset within Location 40968

TABLE 2: CULTURAL LANDSCAPE EVALUATION FOR ANTIETAM NATIONAL CEMETERY							
FEATURE NAME	CLV/LCS ID	FMSS ASSET TYPE	FMSS SITE/LOCATION RECORD	FMSS ASSET RECORD	HISTORIC CHARACTER & EVALUATION	DEFICIENCY (HISTORIC)	ADDITIONAL GUIDANCE
					262; condition varies by specimen (see tree and shrubbery inventory) Between 1938 and 1948, numerous trees were planted according to a 1938 Planting Plan (NBS-ANT-2009-1-1 or NPS ANT-2007);loss of trees from hurricane damage in 1950 and 2002; 27 trees planted in 1976; 268 trees in 1983; 248 trees in 2002; condition varies by specimen, see tree and shrubbery inventory. <b>Contributes to Criterion A and C.</b>		
Cemetery deciduous and evergreen specimen shrubs	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Beginning in 1869-1870, 150 yards of dwarf box and 2,150ft of arborvitae were planted along the avenues; additional trees and shrubs planted in 1871 and 1874; 700 new trees and shrubs planted in 1882-1883; arborvitae hedge originally lined portion of avenue encircling burial grounds, removed in 1896-1897; roses lined circle avenue 100ft from monument in 1889, removed in XXXX; condition varies by specimen (see tree and shrubbery inventory) <b>Contributes to Criterion A and C.</b>	Yes	Should be added as asset within Location 40968
Boonsboro Pike area lawn <sup>1</sup>	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Constructed between 1865 and 1867. Originally delineated by barbed wire fencing; Improved in 1881; Good condition. <b>Contributes to Criterion A and C.</b>	No	Should be added to Site 48585, with new Location record that captures lawn, specimen trees, and sidewalk and stone edging; or be added to Location 40968
Boonsboro Pike (US Rte. 34) area specimen trees and shrubs <sup>1</sup>	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Norway maple trees planted in 1894; <b>Contributes to Criterion A and C</b>	Yes	Should be added to Site 48585, with new Location record that captures lawn, specimen trees, and sidewalk and stone edging; or be added as asset within Location 40968
Lodge and administration building foundation plantings <sup>1</sup>	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Undetermined	No	Should be added as asset within Location 40968
Buildings and Structures							
Cemetery lodge (keepers lodge)	101483/8051	Buildings (4100)	4095.4/40956	Outside scope of CLR	Built in 1868; 1898 enlarged by expansion of stone tool house to accommodate kitchen and dining room; Wooden covering constructed between lodge and outbuilding in 1906; Bathroom added in 1924; additional restrooms added between 1935-1936; repairs made to lodge between 1944 and 1948; lodge roof is damaged and repaired in 1950; museum removed from lodge in 1964; bathrooms upgraded in 1964; extensive repairs in 1977 and 1978 including concrete porch floor removed and reconstructed in brick and removal of wraparound porch roof; new septic system installed in 1983; slate roof repaired in 1985. <b>Contributes to Criterion A and C.</b>	No	Refer to Historic Structures Report

TABLE 2: CULTURAL LANDSCAPE EVALUATION FOR ANTIETAM NATIONAL CEMETERY							
FEATURE NAME	CL/LCS ID	FMSS ASSET TYPE	FMSS SITE/LOCATION RECORD	FMSS ASSET RECORD	HISTORIC CHARACTER & EVALUATION	DEFICIENCY (HISTORIC)	ADDITIONAL GUIDANCE
Administrative building (Quarters No.1)	101480/NA	Buildings (4100)	40954/40965	Outside scope of CLR	Constructed in 1928; roof damaged and repaired in 1950. <b>Contributes to Criterion A and C.</b>	No	
Brick stable (mule barn)	101481/8052	Buildings (4100)	40954/40955	Outside scope of CLR	Constructed in 1901; repointed in 1982; repaired in 1995; slate roof replaced and structure painted in 2014. <b>Contributes to Criterion A and C.</b>	No	
Rostrum	101484/32	Buildings (4100)	40954/40957	Outside scope of CLR	Built in 1879. Vines and planting bed added in 1879-1880 and removed by 19XX; repointed 1952-1953 and restored in 1967; repointed brick in 1978 and 1982; restored in 2007. Good condition. <b>Contributes to Criterion A and C.</b>	No	
Cemetery boundary stone wall	101482/45036	Maintained Landscapes (3100)	40954/40968	1320445 Wall, Retaining, Masonry/Stone	Limestone wall constructed between 1865 and 1867; Uniform interior height of 5 feet—including 2.5" wide coping, and outside height varying to 10 feet and 15 feet. Four openings in the wall allow surface drainage to pass through; wall repointed in 1880; ivy planted on walls in 1898, removed in 1939; repaired in 1939-1940; west wall opening was relocated in 1939. Good condition.; <b>Contributes to Criterion A and C.</b>	No	
Soldiers monument	101486/45037	Outdoor Sculpture/ Monument (7100)	40954/231964	Outside scope of CLR	Constructed at cemetery in 1880. By 1889, encircled by flowerbeds. <b>Contributes to Criterion A and C.</b>	No	
Iron paling fence and entrance gates	NA/48235	Maintained Landscapes (3100)	40954/40968	1103236 Fence/Gate, Other	Twenty-six foot-wide gateway with ornate wrought iron gates built between 1866 and 1867 at main entrance near lodge with 606 feet of iron paling fence placed atop low stone wall along the northern boundary of cemetery. Repointed in 1934-1935, and 1944. Fair condition, requires painting. <b>Contributes to Criterion A and C.</b>	Yes	
<b>Maintenance shop<sup>1</sup></b>	NA	Buildings (4100)	48585/48586	Outside scope of CLR	Undetermined	No	
<b>Fuel station<sup>1</sup></b>	NA	Buildings (4100)	48585/101837	Outside scope of CLR	Undetermined	No	
<b>Cemetery wooden stairway and earthen berm<sup>1</sup></b>	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	To be determined poor condition. <b>Contributes to Criterion A<sup>2</sup></b>	Yes	Should be relocated as it interferes with the historic views. Should be added as asset within Location 40968
<b>Views and Vistas</b>							
Views from cemetery to surrounding environs (battleground, farmland, Antietam Creek and bridges, Red Hill, and South Mountain)	NA	NA	NA	NA	Views established between 1865 and 1867. Good Condition. <b>Contributes to Criterion A and C.</b>	No	Not a maintained asset; address in Antietam National Cemetery Location record long description; achieved through vegetation management.

TABLE 2: CULTURAL LANDSCAPE EVALUATION FOR ANTIETAM NATIONAL CEMETERY

FEATURE NAME	CLI/LCS ID	FMSS ASSET TYPE	FMSS SITE/LOCATION RECORD	FMSS ASSET RECORD	HISTORIC CHARACTER & EVALUATION	DEFICIENCY (HISTORIC)	ADDITIONAL GUIDANCE
Internal views from within cemetery	NA	NA	NA	NA	Internal views initially constructed between 1865 and 1867. Vistas were created between beginning between 1878 and 1880 with the planting of trees along avenues; improved in 1882-1882. Fair Condition; loss of vegetation has impacted vistas. <b>Contributes to Criterion A and C.</b>	Yes	Not a maintained asset; address in Antietam National Cemetery Location record long description; achieved through vegetation management.
<b>Small-Scale Features</b>							
Headstones	101491/45039	Maintained Landscapes (3100)	Location records needed	Asset record needed	Burials began in 1866 and were completed by 1868. Initially a total of 4,676 remains were interred (currently there are 4,776 Union graves from the Maryland campaign of 1862); marble headstones for both known and unknown soldiers were installed in 1877 and 1879. All private headstones added after 1879 were standardized in 1936; 1 civil war veteran and 5 WWI African American veterans buried in 1937; 1 WWI African American veteran in 1938; By 1952, 5,135 burials; Burial grounds closed in 1953, but burials have continued, the latest being in 2000. Good condition. <b>Contributes to Criterion A and C.</b>	No	Should be added as asset within Location 40968
Commemorative plaques-Bivouac of the Dead Tablets (LCS#45038, LCS #48236-48244)	101498/45038, 48236-48244	Outdoor Sculpture/Monument (7100)	231898	1060851, 1059932, 1059931, 1059930, 1059929, 1060902, 1059935, 1060913, 1060868, 1060874	Installed by 1910; Good condition. <b>Contributes to Criterion A and C.</b>	No	
Monument to 20 <sup>th</sup> NY Infantry <sup>1</sup>	NA/08145	Outdoor Sculpture/Monument (7100)	231942	NA	Constructed in 1887. Good condition. <b>Contributes to Criterion A and C.</b>	No	
Monument to 4 <sup>th</sup> N.Y. Infantry (Irish Brigade Monument) <sup>1</sup>	NA/08135	Outdoor Sculpture/Monument (7100)	231898	1063165	Constructed in 1892. Good condition. <b>Contributes to Criterion A and C.</b>	No	
Monument to Company F, 1 <sup>st</sup> Regiment U.S. Sharpshooters <sup>1</sup>	NA/08180	Outdoor Sculpture/Monument (7100)	231898	1064998	Constructed in 1900. Good condition. <b>Contributes to Criterion A and C.</b>	No	
Grave of MD Congressman Goodlow Byron	101491/45039	Maintained Landscapes (3100)	Location records needed	Asset record needed	Constructed in 1978. Good condition. <b>Contributes to Criterion A</b>	No	Should be added as asset as part of the headstones asset within Location 40968
Grave of Civil War General Jacob Duryee	101491/45039	Maintained Landscapes (3100)	Location records needed	Asset record needed	Constructed in 1918. Good condition. <b>Contributes to Criterion A and C.</b>	No	Should be added as asset as part of the headstones asset within Location 40968



FEATURE NAME	CLILCS ID	FMSS ASSET TYPE	FMSS SITE/LOCATION RECORD	FMSS ASSET RECORD	HISTORIC CHARACTER & EVALUATION	DEFICIENCY (HISTORIC)	ADDITIONAL GUIDANCE
<b>Monument to four union soldiers found in 1988<sup>1</sup></b>	NA	TBD	TBD	TBD	Constructed in 1889. Good condition. <b>Contributes to Criterion A</b>	No	
Flagpole	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Flag staff mound constructed in 1871 and flag staff installed in 1878; reinstalled in 1898, and again in 1928. <b>Contributes to Criterion A and C.</b>	No	Should be added as asset within <i>Location 40968</i>
<b>Misc. utilities structures, i.e. drainage features (brick gutter and field drains)<sup>1</sup></b>	NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	19 Field drains built between 1866 and 1868; brick-lined gutter near lodge constructed between 1892 and 1914; Good condition. <b>Contributes to Criterion A and C</b>	Yes	Many drainage features are blocked with leaf litter and other debris; should be added as asset within <i>Location 3100</i>
32lb. Iron Gun Monument	101488/8056	Maintained Landscapes (3100) or Outdoor Sculpture/ Monument (7100)	Location records needed	Asset record needed	Mounted in 1880. Good condition. <b>Contributes to Criterion A and C</b>	No	Should be added as asset within <i>Location 3100</i> or <i>Location 7100</i> .
12lb. Iron Gun Monument (LCS #8057)	101488/8057	Maintained Landscapes (3100) or Outdoor Sculpture/ Monument (7100)	Location records needed	Asset record needed	Mounted in 1880. Fair condition. <b>Contributes to Criterion A and C</b>	No	Should be added as asset within <i>Location 3100</i> or <i>Location 7100</i> .
Drinking Fountain	101490/NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Installed in 1928. Good condition. <b>Contributes to Criterion A and C</b>	No	Should be added as asset within <i>Location 40968</i>
<b>Memorial Stone Bench<sup>1</sup></b>	NA/8055	Maintained Landscapes (3100)	Location records needed	Asset record needed	Installed in 1937; Good condition. <b>Contributes to Criterion A<sup>2</sup>.</b>	No	Should be added as asset within <i>Location 40968</i>
Benches	101487/NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Installed between XXXX and XXXX. Good condition. <b>Contributes to Criterion A<sup>2</sup></b>	No	Should be added as asset within <i>Location 40968</i>
NPS Entrance Sign	101493/NA	Maintained Landscapes (3100)	Location records needed	Asset record needed	Installed between XXXX and XXXX. Good condition. <b>Contributes to Criterion A<sup>2</sup></b>	No	Should be added as asset within <i>Location 40968</i>
Interpretative Cannons	101492/NA	Interpretative Media (7500)	Location records needed	Asset record needed	Undetermined.	No	Park should determine uniform way of listing interpretative cannons in FMSS; possibly create <i>Location 7500</i>
<b>Gettysburg Address Plaque<sup>1</sup></b>	NA/45034	Outdoor Sculpture/ Monument (7100)	231898	1060846	Installed by 1910; Good condition. <b>Contributes to Criterion A and C.</b>	No	
Tablets along Boonsboro Pike	NA	Outdoor Sculpture/ Monument (7100)	231898	Varies	Tablets installed in 1895; Good condition. <b>Contributes to Criterion A and C</b>	No	
<b>Notes:</b> <sup>1</sup> Features in bold have been added and are not included in the <i>Cultural Landscape Inventory for Antietam National Cemetery, 2005, updated 2011 (CLI Number 600048)</i> . <sup>2</sup> According to <i>National Register Eligibility of National Cemeteries – A Clarification of Policy (9/8/2011)</i> , all component resources contribute to the cemetery's significance regardless of their age, function, or administrative role. While features may not contribute to the cemetery's significance under Criterion C, they do contribute under Criterion A in their association cemetery's exceptional importance as a public place of commemoration and honor.							











TREATMENT





# TREATMENT

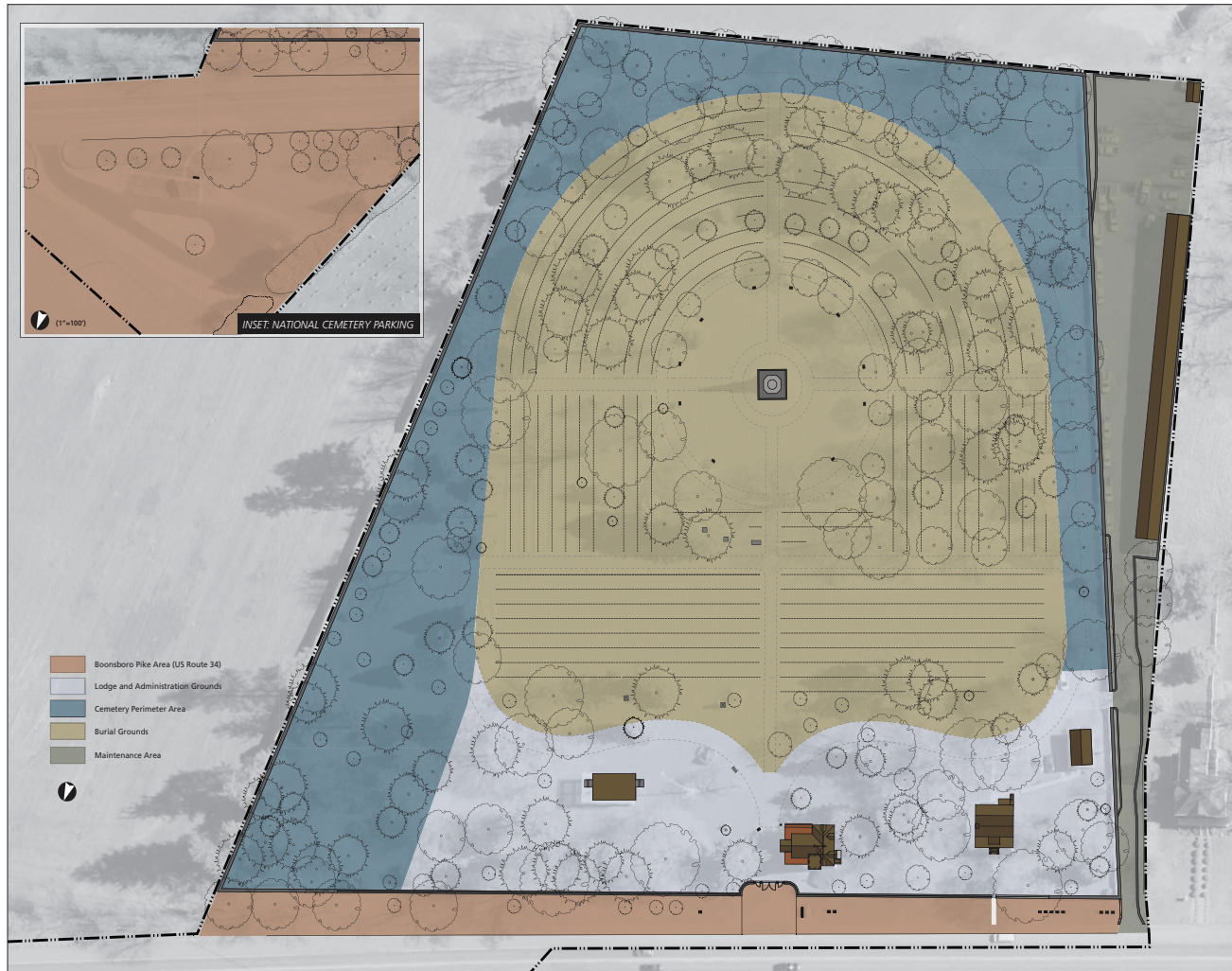
Despite changes with trees and shrubs and the poor condition of the turf, Antietam National Cemetery retains a high level of integrity and continues to serve as a location for solitude, contemplation, and reflection where visitors can go to honor the courageous contributions and sacrifices of many individuals in a peaceful environment. However, regardless of its evocative nature, the site is currently inaccessible to people with mobility impairments. This chapter establishes a plan for the treatment of the historic landscape that will help the park address accessibility, vegetation management, and other issues in order to preserve and enhance the historic character of the cemetery.

As defined by National Park Service cultural landscape methods, the purpose of a landscape treatment plan is to set forth guidelines for preserving and enhancing historic landscape characteristics and features within the context of contemporary park uses.<sup>1</sup> Treatment essentially describes the future appearance of the landscape at the level of planning and preliminary design; it does not generally provide construction-level details necessary for implementation. Treatment also does not address routine and cyclical measures, such as tree pruning and lawn mowing, necessary to maintain the existing character of a landscape.<sup>2</sup>

The chapter begins by presenting a framework that, based on applicable policies, standards, and regulations, establishes an overall treatment philosophy that describes the intended historic character of the landscape. Based on this framework and a summary of general treatment issues, the body of this chapter provides general treatment recommendations for the overall cemetery landscape, followed by specific treatment guidelines and tasks for each management area (Figure 18). The narrative guidelines and tasks are supported by graphics including a series of treatment plans (Drawings 2-6).

## **TREATMENT FRAMEWORK**

The framework for treatment of the Antietam National Cemetery landscape is based in federal legislation that initially began with the War Department's General Orders No.33 of April 3, 1862 that stated:



**Figure 18. Management areas for Antietam National Cemetery (National Capital Region, 2014).**

[Section II] In order to secure, as far as possible, the decent interment of those who have fallen, or may fall, in battle, it is made the duty of commanding generals to lay off lots of ground in some suitable spot near every battle-field, so soon as it may be in their power and to cause the remains of those killed to be interred, with headboards to the graves bearing numbers, and where practicable, the names of the persons buried in them. A register of each burial ground will be preserved, in which will be noted the marks corresponding with headboards.

The Act of July 17, 1862 gave the President the authority, “whenever in his opinion it shall be expedient, to purchase cemetery grounds and cause them to be securely enclosed, to be used as a national cemetery for the soldiers who shall die in the service of the country.” The Congressional Joint Resolution of April 13, 1866 directed the establishment of national cemeteries to “preserve from desecration the graves of the soldiers of the United States,” and to provide them with “suitable burial places in which they may be properly interred; and to have the grounds enclosed, so that the resting-places of the honored dead may be kept sacred forever.” Congress further articulated its intent through “An Act to Establish and Protect National Cemeteries” passed on February 22, 1867 that directed standard

facilities and improvements at all national cemeteries. This was followed on July 1, 1870 by an Act of Congress authorizing the United States to take title to any national cemeteries where the States had given their consent, and on May 18, 1872 by an Act authorizing the Secretary of War to appoint superintendents. Treatment of the Antietam National Cemetery landscape is guided by federal legislation pertaining to the National Park System, the Department of Veterans Affairs National Cemetery Administration, and park planning within Antietam National Battlefield.

### **NATIONAL PARK SERVICE REGULATIONS AND POLICIES**

As a unit of the national park system, treatment is guided by the mission of the National Park Service “...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (Organic Act of 1916). The application of this mission to cultural landscapes is articulated in *The Secretary of the Interior’s Standards for the Treatment of Historic Properties*, which in turn are interpreted within a hierarchy of regulations and policies in National Park Service management. As a cultural resource, management of the Antietam National Cemetery is defined by *36 CFR Part 2: Resource Protection, Public Use and Recreation (Preservation of Natural, Cultural and Archeological Resources)*. The application of these regulations to cultural landscapes is contained within National Park Service Management Policies (2006), and *Director’s Order #28* (Cultural Resources Management). Of relevance to the cemetery landscape, DO-28 provides the following guidance related to the treatment of cemeteries:

- The cemetery is managed in a manner that recognizes its significance and preserves and interprets the cultural landscape as a whole. The character-defining features of the cemetery, such as general organization and layout, plant materials, roads and pathways, fences, and the placement of statuary and grave markers, are documented and incorporated in a maintenance program.
- Maintenance activities do not impair the significant character and individual features of the cultural landscape. Mowing, weed whipping, and use of commercial herbicides immediately next to grave markers are avoided.
- The repair, cleaning, consolidation, and resetting of grave markers is supervised by a historical architect and other professionals, as appropriate.

- New landscape features are compatible with the original design and character of the cemetery and do not negatively impact the significant built or natural features (e.g., new trees are planted so that roots will not later damage or disrupt grave markers and curbing).

DO-28 also states that historic circulation features should be rehabilitated to accommodate health and safety codes (such as the Americans with Disabilities Act and Architectural Barriers Act), but in ways that minimize impacts on historic character.

In addition to its management as a cultural resource, Antietam National Cemetery is also subject to National Park Service regulations and policies specific to its status as a national cemetery. These include 36 CFR Part 12: *National Cemetery Regulations*, which are modeled after the parallel regulations under the National Cemetery Administration, 38 CFR Part 38: *National Cemeteries of the Department of Veterans Affairs*. The National Cemetery Administration is an agency within the Department of Veterans Affairs that administers the National Cemetery System, which is comprised of national cemeteries currently under the jurisdiction of the Department of Veterans Affairs. Although most national cemeteries fall under the jurisdiction of the Department of Veteran Affairs, the fourteen national cemeteries within the National Park System are excluded from the National Cemetery System and are managed separately.

Building upon the guidance outlined in the National Park Service national cemetery regulations and section 8.6.10.1 of *National Park Service Management Policies (2006)*, *National Park Service Director's Order #61: National Cemetery Operations (DO-61)* sets forth additional policy and procedures by which the NPS will preserve and administer the national cemeteries for which the NPS is responsible. DO-61 primarily focuses on the operation and maintenance, eligibility requirements for internment in NPS administered national cemeteries, installing of grave markers and commemorative monuments, and use of flags. Specific to the treatment of the cultural landscape, DO-61 states that the operation and maintenance of national cemeteries will broadly follow NPS policy and guidance for similar classes of cultural resources; and be identified and evaluated through appropriate reports such as historic resource studies, cultural landscape reports, cultural resource inventories, and National Register nominations. It further states that landscapes in national cemeteries be maintained to preserve the landscape characteristics that convey historic character and dignity of the cemetery and meet the high standards that the public expects. These characteristics include but are not limited to monuments, buildings, fences, vegetation, walls, gates, walks, headstones, viewsheds, historic circulation patterns, and general historic cemetery layout.

**DEPARTMENT OF VETERANS AFFAIRS NATIONAL CEMETERY REGULATIONS  
& POLICIES**

Beyond the National Park Service management policies and standards that guide the preservation and treatment of Antietam National Cemetery, the National Cemetery Administration policies and standards have relevance to the National Park Service management of its national cemeteries. In particular, the National Cemetery Administration's *National Shrine Commitment Operational Standards and Measures (Version 4.0, October 2009)* provides guidance and direction for maintaining national cemeteries as the shrines they are intended to be and as defined below:

A national shrine is a place of honor and memory that declares to the visitor or family member who views it that, within its majestic setting, each and every veteran may find a sense of serenity, historic sacrifice and nobility of purpose. Each visitor should depart feeling that the grounds, the gravesites and the environs of the national cemetery are a beautiful and awe-inspiring tribute to those who gave much to preserve our Nation's freedom and way of life.<sup>3</sup>

As detailed in the National Cemetery Administration's *National Shrine Commitment Operational Standards and Measures (Version 4.0, October 2009)*, the vision is evident in the agency's high level of maintenance and care. The Operational Standards and Measures are the most current in a long line of published national cemetery standards going back to the beginning of the twentieth century under War Department administration. These outline requirements ranging from the percentage of lawn that must be weed free, to the percentage of headstones that must not show evidence of debris or objectionable accumulations. Although the National Shrine Commitment only pertains to the National Cemetery Administration, its standards designed to impart honor, memory, majesty, serenity, and beauty were also found historically in the development of all national cemeteries, including Antietam National Cemetery.

Aside from existing National Cemetery Administration standards, the historic *National Cemetery Regulations* are also applicable to the treatment of the Antietam National Cemetery landscape. These regulations, initially published in 1911 and incorporating standards extending back to the founding of the system during the Civil War, provide detailed direction on the treatment of headstones, buildings, and grounds during the period of significance for the Antietam National Cemetery landscape. While these regulations provide an appropriate basis for the treatment of historic landscape features, they do not address contemporary needs for historic preservation and interpretation.



**RELATIONSHIP TO PARK PLANNING**

The *Foundation Document for Antietam National Battlefield* (2013) also provides the framework for treatment of the cemetery landscape. Originally part of the general management planning process, a foundation document serves as a standalone document that provides underlying information for management and planning decisions for the park, which includes purpose, significance, fundamental and important resources and values, and interpretative themes. The document also provides an assessment of planning and data needs, special mandates, and administrative commitments.<sup>4</sup> Among other resources identified for the battlefield, Antietam National Cemetery was identified as a fundamental resource of Antietam National Battlefield. Fundamental resources and values are those features that are essential to achieving the park’s purpose and maintaining its significance. Other fundamental resources that relate to the cemetery include the Commemorative Landscape and Solemnity of the Site. For each fundamental resource, major issues were identified to assist future planning. Specific to the treatment of the cemetery landscape, the following table provides a list of the current conditions and trends and threats and opportunities that have been identified for Antietam National Cemetery and its related fundamental resources.<sup>5</sup>

**TABLE 3: FUNDAMENTAL RESOURCES SPECIFIC TO THE TREATMENT OF THE CEMETERY LANDSCAPE**

<b>ANTIETAM NATIONAL CEMETERY</b>	
<b>Description of Fundamental Resource or Value</b>	Antietam National Cemetery is the final resting place for Union dead from the Civil War and for veterans of other conflicts. This designed landscape is a deliberate creation of the American response to mourning and remembrance in the 19 <sup>th</sup> century.
<b>Current Conditions and trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Cultural landscape inventory is complete.</li> <li>• The cemetery has a high level of integrity.</li> <li>• Turf is in fair to bad condition.</li> <li>• Cemetery features are in fair to good condition.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• High level of volunteer engagement and participation in gravestone cleaning.</li> <li>• Existing standard operating procedures work well for the controlled replacement of stones by family request.</li> <li>• The cemetery requires ongoing maintenance and funding for the proper care of its primary features, including structures, walls, fencing, and monuments.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Impacts of climate change, acid rain, and invasive species (e.g., Hemlock woolly adelgid).</li> <li>• Pests such as groundhogs and other burrowing animals.</li> <li>• Some maintenance practices and treatment of vegetation around headstones.</li> <li>• Weather and lightning pose a threat to the cemetery. Preventative pruning and lightning arresters would mitigate this threat.</li> <li>• As trees become older, they are more likely to fall and/or destroy headstones and monuments.</li> <li>• Hemlock wooly adelgid threatens the health of eastern hemlock trees.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Determine priority plan for vegetation management in the cemetery.</li> <li>• Engage more volunteers in the stewardship of the cemetery.</li> <li>• Institute additional staff training to improve maintenance practices and stewardship of the cemetery.</li> <li>• Opportunity to increase visitor contact at the cemetery's lodge.</li> </ul>

COMMEMORATIVE LANDSCAPE	
<b>Description of Fundamental Resource or Value</b>	<p>Commemorative features have been added to the Antietam National Battlefield landscape by succeeding generations since 1867. The veterans who fought here wanted these parks “to be reconciliatory items, object lessons, patriotic icons, and most of all, memorials to the living and dead that fought in the war” (in the words of Timothy B. Smith in <i>The Golden Age of battlefield Preservation</i>), thereby, making the commemorative features at Antietam central to the park’s purpose.</p>
<b>Current Conditions and trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• The commemorative landscape, monuments, tablets, roads, and observation tower are in good condition.</li> <li>• Some of the tablets placed by the War Department on the battlefield and at Shepherdstown are missing.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Ongoing maintenance of monuments and tablets is necessary.</li> <li>• Vehicles traveling in the park are becoming increasingly large and inadvertent collisions with monuments damage the resources.</li> <li>• Visitation to the park is increasing.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Environmental issues, including acid rain and climate change, impact monument maintenance and result in materials conservation issues.</li> <li>• Theft and vandalism threaten the monuments.</li> <li>• The park continues to receive requests to place additional monuments on the battlefield.</li> <li>• As trees become older they are more likely to fall and/or destroy headstones and monuments.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Reassess monument maintenance schedule for current conditions.</li> <li>• Collect donations and develop a friends group to help maintain the monuments.</li> <li>• Expand the Adopt-a-Monument program.</li> </ul>

SOLEMNITY OF THE SITE	
<b>Description of Fundamental Resource or Value</b>	Solemnity of the Site. Antietam National Battlefield provides an opportunity to experience a solemn, peaceful, and reverent space, where one can reflect upon the sacrifices of the fallen and the implications of the battle.
<b>Current Conditions and trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>The landscape retains a high level of integrity that supports the value of solemnity.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>Increased use of the park for recreational activities and special park uses.</li> <li>Visitation to the park is increasing.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>New visitor uses of the park that would be intrusive or damaging to the feeling of solemnity.</li> <li>Increased visitation.</li> <li>Noise from air traffic.</li> <li>Potential for new development outside the park to impact the viewshed and the feeling of solemnity at the battlefield.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Develop interpretative and educational experiences to better convey the solemnity of the site.</li> <li>Coordinate with state and local entities in planning efforts to preserve the solemnity of the site.</li> </ul>

Other reports and plans that have been developed to address Antietam National Cemetery include the *Antietam National Cemetery Lodge: Physical History and Condition Assessment* (2003), and *Cultural Landscape Inventory for Antietam National Cemetery* (2005, revised 2011).

## LANDSCAPE TREATMENT PHILOSOPHY

An effective landscape treatment philosophy articulates the essential qualities in the landscape that convey its significance and establishes principles intended to perpetuate those qualities. The philosophy is consistent with broad principles derived from the property's significance that help to guide decisions and provides the context for design guidelines and specific treatment recommendations.

### **ANTIETAM NATIONAL CEMETERY TREATMENT PHILOSOPHY**

The overall treatment philosophy for Antietam Cemetery is to enhance its historic character so that it more closely evokes the landscape conditions of a Civil War era national cemetery. At the height of its development, Antietam National Cemetery was a mature landscape that closely resembled the original Biggs design and the “lawn plan” ideals that were promoted in the mid to late-nineteenth centuries, but also included many characteristics and features that were standardized throughout the national cemetery system during the War Department administration. Standard improvements included a rostrum based on a prototype designed by Quartermaster General Montgomery Meigs, an administrative building, perimeter wall with iron gates, granite headstones, iron tablets, and a variety of specimen trees and shrubs.

Today, Antietam National Cemetery remains well-preserved and continues to serve as a location for solitude, contemplation, and reflection where visitors can go to honor the courageous contributions and sacrifices of many individuals in a peaceful environment. It also remains as an outdoor museum that tells the story of how the United States honored the Union dead following the Civil War. The landscape remains simplistic in design enclosed by a stone perimeter wall. Within its confines, the cemetery includes a mid-nineteenth century gothic inspired lodge, a Meigs designed rostrum, a one and a half story Dutch Colonial Revival style administrative building, and over five thousand headstones arranged in a semi-circle around a majestic soldier monument that is centrally located within open lawn with scatterings of specimen trees and shrubs. Yet, despite retaining many historic characteristics and features, the historic character of the cemetery landscape has been diminished through the loss and subsequent changes of deciduous and evergreen trees and shrubs.

The intent of this treatment philosophy is to enhance the character of the original Biggs design and later standardization by the War Department, while acknowledging the contribution of later burials and commemorative additions. More importantly, however, this treatment philosophy will reestablish the tranquility and sacredness of the cemetery landscape, as well as provide the public with the opportunity to experience it. Treatment allows for public use and the rehabilitation, restoration, reconstruction of lost or altered features to enhance historic character. Park furnishings, signage, and other changes necessary for public use will be compatible with the historic character of the landscape.



**PRIMARY TREATMENT**

To implement the treatment philosophy for Antietam National Cemetery, the recommended primary (overall) treatment for the landscape is rehabilitation. Rehabilitation is one of four treatment approaches in the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (the other three being Preservation, Restoration, and Reconstruction).<sup>8</sup> It is defined as, “the act or process of making possible a compatible use of a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.”<sup>9</sup> The Secretary of the Interior identifies the following ten standards under Rehabilitation:

1. *A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.*
2. *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.*
3. *Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.*
4. *Changes to a property that have acquired historic significance in their own right shall be retained and preserved.*
5. *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*
6. *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.*
7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

8. *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*
9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.*
10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

Rehabilitation is the most appropriate primary treatment for Antietam National Cemetery because of the need to provide for contemporary park functions, visitor services, and environmental sustainability. This treatment focuses on managing the landscape for its historic character by preserving significant landscape characteristics and features, replacing in-kind key features that have been lost, and allowing for change to accommodate park visitors. Rehabilitation provides the flexibility for adding such features as interpretative waysides and signage and altering circulation to provide accessibility in a manner that is compatible with the historic character of the landscape. Rehabilitation also provides the flexibility to accommodate specific resource objectives, including avoidance of invasive species, and to address contemporary maintenance considerations, such as altering vegetation to mitigate maintenance and disease concerns. Within rehabilitation as the primary treatment, much of the feature-level treatment will involve preservation and restoration in order to retain and enhance the historic character of the landscape.

#### **Treatment Date**

Definition of a treatment date provides a benchmark for managing historic character in a landscape. A treatment date corresponds to a time during the historic period when the landscape reached the height of its development and when it best illustrates the property's significance and interpretative themes. The recommended treatment for Antietam National Cemetery is to enhance the historic character of the landscape so that it more closely reflects its appearance at the end of the War Department administration in 1933, prior to its transfer to the National Park Service. This date incorporates the initial development of the cemetery beginning in 1865 and continues through the late nineteenth and early

twentieth centuries with the implementation of character-defining standardized landscape features by the War Department. The year 1933 is the most appropriate treatment date for the cemetery landscape for the following reasons:

- Treatment of Antietam National Cemetery to 1933 corresponds with the final years of the recommended period of significance for the landscape under National Register Criterion C. This date recognizes its continued use of the cemetery for burials after 1933, and preserves these later additions as part of the significance of the cemetery under National Register Criterion A. Where post-1933 features or alterations of the landscape conflict with the historic character of the cemetery, they will be recommended for removal; where they are compatible with the historic character, they may be retained for aesthetic or functional values;
- The overall period of significance extends to the present and recognizes the cemetery's ongoing role as public place of commemoration and honor. However, the changes that were made after 1933 are not reflective of the original Biggs plan or historic designed development of national cemeteries, nor are associated with the Civil War and are not significant under Criterion C.
- Alterations to the lodge and grounds and construction of the administrative building in the late 1920s were among the last additions to the landscape during the period of significance. With exception to the work of the emergency work programs in the 1930s—which largely consisted of repairing landscape features and removing hazardous trees, very few additions to the landscape occurred after 1933.
- The cemetery in 1933 still retained features of the original Biggs design along with later standardized national cemetery features added by the War Department. At this time, the cemetery was characterized by the arrangement of gravestones organized in semi-elliptical layout with deciduous trees lining the avenues and evergreens interspersed within the burial grounds, all set within a broad sweeping lawn.
- While the 1933 treatment period emphasizes the character of the landscape at that time, it does not preclude interpretation of earlier or later history. Features lost prior to 1933 can still be interpreted in the landscape through surviving traces and features or their physical sites;

- The national cemetery regulations published by the War Department in 1931—which roughly corresponds with this recommended treatment period—provides a sound basis for treatment of many landscape features.”<sup>10</sup>

## GENERAL TREATMENT ISSUES

The following are general treatment issues that inform the treatment guidelines and tasks in the second part of this chapter. Properly addressing these issues will improve accessibility within the site; expand landscape interpretation; and enhance the historic character of Antietam National Cemetery.

### PRESERVATION OF HISTORIC CHARACTER

Currently, there is a lack of standardization among the National Park Service, the VA National Cemetery Administration, and U.S. Army in the areas of cemetery operations and management. Although efforts were made by the National Park Service to update their regulations for managing the fourteen national cemeteries, with the issuing of *National Park Service Director’s Order #61: National Cemetery Operations*, these cemeteries—including Antietam National Cemetery—are not maintained at the same high level as other national cemeteries administered by the VA National Cemetery Administration. For example, *National Park Service Director’s Order #61: National Cemetery Operations* mentions that a cemetery operation plan is highly suggested, but it is not required by regulations or NPS policy. Whereas the National Cemetery Administration’s *National Shrine Commitment Operational Standards and Measures (Version 4.0, October 2009)* requires a cemetery grounds maintenance plan and specifically provides guidance on grounds maintenance, headstone and marker operations, and interment operations.

Between 2004 and 2014, a series of improvements were made within the cemetery landscape, including the conservation of the headstones and repairs to the mule barn and iron gates. However, the cemetery landscape still does not receive the level of maintenance that it should to meet the recommended quality standards for national cemeteries. While the preservation of the historic character and materials at Antietam National Cemetery are paramount, the cemetery warrants a higher level of maintenance than typically found at other National Park Service sites and efforts should be made to adopt standards that are similar to those of the National Cemetery Administration.

## **PUBLIC ACCESS**

In the past, individuals with disabilities were often not considered in the design of parks, estates, commemorative areas, etc., which today is problematic as many of these landscapes are now considered historically significant, and are open to the general public. According to the 2010 US Census, approximately 56.7 million people living in the United States have some kind of disability. Making these cultural landscapes universally accessible to all individuals is a major management objective. Furthermore, since the 1960s, there have been numerous disability laws and regulations passed to protect the rights of individuals with disabilities, with the most extensive being the Americans with Disabilities Act (1990). This law identified equal access as a civil right and prohibits discrimination on the basis of disability in both privately and publicly owned accommodations. Disability legislation specific to federal agencies include the Architectural Barriers Act of 1968 (ABA) and Section 504 of the Rehabilitation Act (1973). [In 2010, the regulations were revised to amend Title II (state and local governments) and III (public accommodations) regulations.]

According to *Director's Order #42, Accessibility for Visitors with Disabilities in National Park Service Programs and Services*, the goal of the National Park Service is to ensure that all people, including the estimated 56 million citizens with disabilities, have the highest level of accessibility that is reasonable to the programs, facilities, and services in conformance with applicable regulations and standards. Based on current regulations and standards, Antietam National Cemetery's buildings and primary walks and drives are currently inaccessible to people with mobility impairments. In an effort to improve the currently limited visitor access, as well as enhance landscape interpretation, circulation within the landscape and in the buildings should be made universally accessible (see Appendix B: Technical Provisions for Accessible Routes).

Aside from the accessibility issues, the cemetery lacks certain amenities and signage that would enhance visitor experience. Currently, identification and informational signage is limited to two waysides.



## **PEST MANAGEMENT AND INVASIVE SPECIES THROUGHOUT CEMETERY LANDSCAPE**

The proliferation of fungus gnats remains a major issue within the cemetery landscape. Fungus gnats are dark, delicate-looking flies that are similar in appearance to mosquitoes. They are drawn to damp conditions or rotten organic matter where they lay their eggs and soon hatch into larvae. Gnats eat organic mulch, leaf mold, grass clippings, compost, root hairs, and fungi. In general, they are relatively harmless creatures that cause little damage, but their presence swarming in mass is a nuisance and has adversely impacted visitation to the cemetery.

Besides fungus gnats, invasive insect species have adversely impacted the historic character of the cemetery landscape, particularly the emerald ash borer and hemlock woolly adelgid. The hemlock woolly adelgid is an exotic insect pest of eastern and Carolina hemlocks and occurs from southern Maine to northeastern Georgia and as far west as eastern Tennessee. The emerald ash borer is an exotic beetle from Asia that feed primarily on ash trees and kills trees of various sizes and condition. After years of monitoring, the emerald ash borer has been recently found throughout the Washington Metropolitan area. For trees that have been infested with either of these invasive species, it often results in their loss due to disease or decay. However, due to the cemetery being a controlled landscape as opposed to a forested setting, the park has been relatively successful over that last five years in controlling the spread of invasive insects through the use of systemic insecticides. Yet, despite these recent efforts, since 2002, numerous hemlocks and ash trees have been removed due to the emerald ash borer and woolly adelgid.

## **TURF MANAGEMENT AND DEFERRED MAINTENANCE**

The lawn remains an important character-defining feature within the cemetery landscape. However, today the appearance of the lawn does not reflect the high standards of a national cemetery. Bare spots and weeds are found throughout the cemetery landscape and are attributed to pedestrian circulation, root competition from trees, dense shade and/or dryness, and mowing regiments. Along the northeastern edge of the cemetery, there are a greater number of bare spots, which is primarily due to the heavy shade conditions associated with the dense canopy of the maples. There are also a few depressions, but these are mostly related to tree removals or groundhog burrowing (Appendix A).

**VEGETATIVE CHANGE IN BURIAL GROUNDS**

Throughout the historic period, the Antietam National Cemetery landscape consisted of several trees and shrubs. Under the War Department administration, hundreds of deciduous specimen trees were placed along the pathways and evergreen trees were planted within the burial grounds. Following the cemetery's acquisition by the National Park Service in 1933, the landscape underwent several changes, which included the loss of specimen trees and subsequent replacement with different varieties in different locations. This resulted in a departure from the original design intent. Today, the loss of vegetation and the changes in locations of many deciduous and evergreen trees have negatively impacted the historic character of the landscape.

## **GENERAL TREATMENT RECOMMENDATIONS**

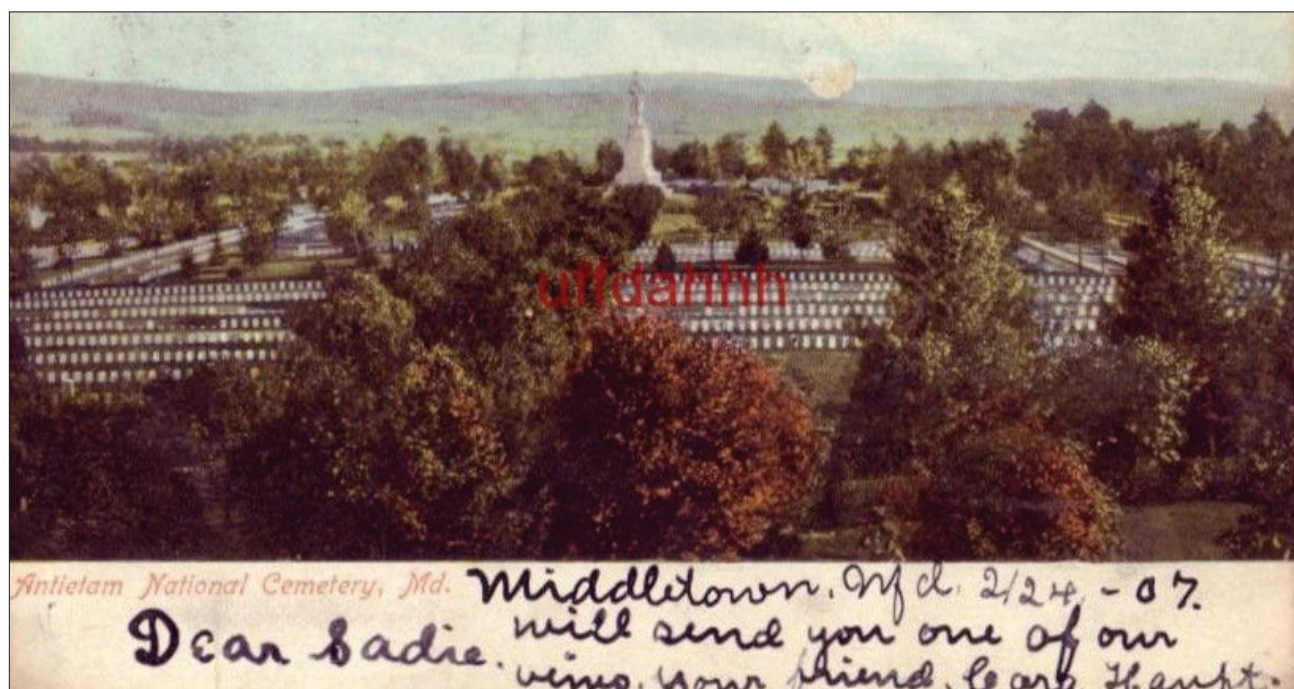
This section provides general treatment recommendations that apply to the overall cemetery landscape, including the maintenance and Boonsboro Pike areas. The intent of this section is to provide direction for future management decisions on issues that are impacting visitor experience and the historic character of the landscape. Specific treatment guidelines and tasks for each management area are found in the following section.

### **RESTORE HISTORIC CHARACTER OF CEMETERY TREES**

During the historic period, the vegetation within the cemetery was comprised of deciduous trees lining the grass walks and evergreen trees scattered amongst the headstones and monuments. However, through the years, the composition and locations of trees have changed and today no longer reflects the original design intent, which was characterized by the placement of deciduous shade trees along the paths and drives and the planting of evergreen trees and shrubs in the burial grounds. In an effort to restore the historic character of the trees throughout the cemetery landscape, a number of trees should be removed and new plantings be reestablished to approximate the general character and species composition at the end of the historic period in 1933. The overall guidelines listed below should be applied to the treatment of all specimen trees within the cemetery landscape. Specific treatment tasks for each management area are discussed in greater detail in the following section, “Treatment Guidelines and Tasks.”

#### **Overall Guidelines**

The recommended treatment for specimen trees within the cemetery landscape is to reestablish the general character of the original Biggs plan and later improvements made by the War Department, which is best represented by the tree inventory that was completed by the National Park Service in 1934. The intent of this treatment is to enhance the overall layout and diverse collection of evergreen and deciduous trees that existed throughout the historic period, which was largely evident at the end of the War Department period. Literal implementation of the the 1934 tree inventory may not be necessary to enhance historic character. Although the inventory map captures the overall design intent, there were certain elements that were diminished and may need to be restored. There are also a number of contemporary issues that may require flexibility in location and species, such as operational considerations, impacts to adjacent resources, environmental impacts, as well as accessibility concerns (Figure 19).



**Figure 19.** Image taken in 1907 of Antietam National Cemetery. Note the tree-lined drives and pathways, interior burial ground evergreen trees, and diverse collection of vegetation along the perimeter of the cemetery landscape (Antietam National Battlefield Archives).

Besides the tree species that were identified in the 1934 inventory, earlier species that disappeared during the War Department period may be appropriate for new plantings. A combination of elms and maples historically lined the avenues and drives with the north-south and east-west axis serving as a sylvan hall, a symbolic feature that was in the form of a cross. It was prevalent in many national cemeteries and served to define the formal approach to the central monument. Within the burial grounds, evergreens made up a substantial proportion of the tree stock, mostly hemlock, white fir, Norway spruce, and white pine. In addition to providing year-round color, evergreens were a traditional funerary symbol of life everlasting. However, many of these deciduous and evergreen trees were removed during the historic periods due to various diseases (refer to figure 14).

While replacement plantings should be made once a tree has been removed, historic specimen trees that have not been replanted since the historic period should be reestablished through the use of the 1934 inventory and a variety of historic photographs, which documents the location, size, and type of trees. In general, trees that were historically within the cemetery should be used unless they have been determined to be invasive, have the potential to impact features, or have pest or disease issues. If alternative species are appropriate, they should be close in appearance to the historic species (see table 5 and 6). Tree species used historically at Antietam National Cemetery that today have either disease or ecological issues include the ash (ash yellowing and Emerald Ash Borer), hemlock (hemlock woolly adelgid) and Norway maples (invasive).

Two of the most important factors to consider when determining the most appropriate trees for the cemetery landscape are the rooting habit and density of the tree canopy. Trees with shallow, lateral roots systems may sap moisture from the lawn, heave grave markers, and make mowing difficult, but are unlikely to affect the underlying graves. Among the shallow-rooted trees found historically at Antietam National Cemetery are Norway maple, Norway spruce, red maple, and silver maples. Trees with deep, penetrating roots (taproot) are less likely to impact grave markers or mowing, but could penetrate graves. Those found historically at Antietam National Cemetery include sugar maple, tulip-tree, and oaks. As noted in the treatment issues, the density of the canopy is also an important consideration in tree selection as it contributes greatly to the condition of turf. Maples have dense canopies that create shade and drought conditions, which impede healthy lawn development. Dense canopies can also accelerate biological growths on the headstones.

Finally, trees within and adjoining the burial grounds, as well as lining the avenues and pathways, should be pruned up at maturity, with lower branches not extending lower than ten feet to allow clear passage, allow for healthy turf, and not obstruct sight lines toward the central monument. It may be appropriate to have certain trees maintained at a lower canopy to provide visual interest or screen incompatible land uses. Since mulch was not maintained around specimen trees during the historic period, the understory should be maintained as turf. Mulch may be used for new plantings to avoid impacts from mowers and to improve growing conditions, but once the trees become well established, the mulch should be replaced with turf.

#### **Tree Preservation**

Overall, the key to maintaining the historic character of specimen trees in the long term is to implement a program of in-kind replacement for all trees that were planted prior to 1933. However, all existing mature trees—even those planted after 1933—should be allowed to mature naturally and be removed only when in a state of decline that threatens public safety or poses the potential for damage to adjoining historic features. Although a large number of trees post-date the historic period, they are compatible with the historic character of the cemetery (refer to Appendix A: Tree and Shrub Inventory and Tables 5 and 6).

#### **Tree Removals**

Trees should be removed if they block circulation patterns and site lines, have been infected by invasive pests, such as the ash trees, or have been planted after 1933 and are not in their original intended locations or adversely impacting historic features. Many trees planted after 1933 were located within former pathways and obstruct views; are fruit bearers that increase maintenance activities; and have dense canopies that impact turf conditions. Yet, many of the



trees planted after 1933, including the tulip tree, are compatible with the historic character of the landscape and therefore may be retained. Once they require replacement, they can either be removed and not replaced, or replaced with the species used historically in that location (if any).

### **Tree Planting**

Realizing that there may be modifications to accommodate existing trees, screen modern development, and diversify the species palette, specimen trees should be planted according to the general design intent that was envisioned by the Biggs plan and implemented by the War Department prior to 1933. Trees should be planted along the drives and pathways to maintain the historic circulation patterns. Planting within the area between the foot of the grave and the markers and within the rows between markers (for smaller trees) is appropriate.

Recommended species include those that existed prior to or during the cemetery's historic period or are alternative species that have an open canopy and a vase-shaped habit, such as hackberry (*Celtis occidentalis*) or American elm hybrid varieties (*Ulmus americana*). Within the burial grounds, evergreen trees should be planted and be limited to areas absent of headstones or monuments. Along the perimeter of the property—outside of the burial grounds, a diverse collection of evergreen and deciduous trees should be planted; small flowering ornamentals are also suitable in this area. Archeological testing may be necessary prior to tree planting to ascertain potential impacts to the graves (refer to tables 5 and 6).

### **IMPROVE CEMETERY LAWN AND MAINTENANCE REQUIREMENTS**

In an effort to impart honor and respect for those who sacrificed their lives in the Civil War, the operation and maintenance of all national cemeteries, including Antietam National Cemetery, should be cared for at a higher level than other cultural resources within the National Park Service. Based on current landscape quality standards adopted by other public sector agencies and the 1931 National Cemetery Regulations developed by the War Department, the cemetery lawn should be uniform in cut, color, and general appearance (no bare spots and be generally weed free); and there be an absence of debris, i.e. leaves, fallen branches, and trash. In particular, turf used should be compatible with the geographic region, mown on a regular basis and be kept one inch above the range of which is professionally recommended for that type and region; and be neatly trimmed around all features, such as buildings, monuments, headstones, trees and walks. Areas of the lawn that are sunken should be regraded to blend with adjacent grade levels. Sunken areas detract from the historic uniformity of the lawn, and present a tripping hazard.

The lawn was not irrigated historically, and therefore would have gone into dormancy during dry summer months; natural seasonal changes in the appearance of the lawn are therefore appropriate from the standpoints of both historic character and natural resource conservation.

#### **Establishing new lawn areas**

As a more sustainable design approach that will complement, support, and enhance the maintenance and treatment of the Antietam National Cemetery landscape, new lawn areas should consist of seed mixes that are low maintenance, slow growing, drought resistant and shade tolerant seed cultivar mixes of creeping red fescue, hard fescue, upland bent, blue grama, red top, and hairgrass. This mix, if maintain properly, has a blueish green look to it. The mix of turf allows for some variation in color and texture as each turf type colonizes microenvironments which it is best suited. The fine fescues will colonize the shade, red top the low wet spots, and the blue grama sandy dry spots. In 1995, a turf grass/soil amendment study was conducted by the National Turfgrass Evaluation Program (NTEP) at Antietam National Cemetery. While it suggested a suitable mix of hard and chewings fescue cultivars, many of those varieties are no longer commercially available. Today, the recommended turf mix at Antietam National Cemetery should consist of a ratio of 20% Hard fescue (*Festuca longifolia*) cultivars, such as Beacon or Bighorn; 30% Creeping Red (*Festuca rubra*) cultivars, such as Spartan II, Chantilly, Navigator II; and 50% Chewings fescue (*Festuca rubra* 'commutate') cultivars, such as Fairmont, Intrigue 2, Longfellow 2 or 3, Treazure II, Wrigley 2, or Zodiac.<sup>11</sup>

Fine fescues are cool-season grasses that grow primarily during the spring and fall months, becoming dormant during the summer heat without the need for irrigation. During periods of prolonged summer drought, fine fescues will become brown. Brownd plants will regreen and growth will resume once the temperatures cool and/or water availability increases. Cool season grasses remain green during the winter months. Seeding is best accomplished on a clean seed bed in the fall at a rate of ~5lbs per 1000 sq. ft. or 220lbs per acre. Spring time seeding is also acceptable but will require regular summer watering as the plants develop deeper root systems.<sup>12</sup>

#### **Maintenance of lawn areas**

To ensure the success of new lawn areas and the retention of healthy existing lawn areas, lawns should be maintained at a height of three inches and be mown every five to seven days, as long as the turf is not underdrought stress. Frequent

mowing trains grass to send out new shoots and stolons resulting in a horizontal growth that results in a thicker stand of turf. Only a third of the plant's height can be removed at one time. Since lawn mowers have contributed to erosion and bare spots at the cemetery, efforts should be made to reduce the use of riding mowers in areas susceptible to these conditions. Possible approaches include rotating mowers with different wheel bases and changing mowing directions. Also, in order to minimize damage to headstones from mowing, bio-degradable lightweight filament in line trimmers (0.06-0.09 inch in diameter) should be used, as well as mowers with protective shields or bumpers (refer to Appendix A).<sup>13</sup>

The recommended turf mix at Antietam National Cemetery will require a different level of turf care than what is commonly practiced in the lawn care industry. The liming of soil or addition of other nutrients besides nitrogen should be avoided. A simple fertilization program of straight 21-0-0 ammonium sulfate or 6-2-4 ammonium sulfate based organic product should be applied to the lawn to promote a healthy stand of turf. (1.5 pounds of nitrogen to 2 pounds of nitrogen per 1,000 square feet per year spread out over 3 or 4 application in the spring and fall). Provide the appropriate pesticide application in late spring and early fall, if necessary. Areas affected by white grubs should be treated with Carbaryl or Trichlorfon. Chlorantraniliprole may be necessary as a preventative measure for areas that have developed a history of grub damage. In an effort to control the proliferation of crabgrass, broadleaf weeds, and nutsedge, the herbicide Tenacity should be applied in May and June. Since many of these fertilizers, pesticides, and herbicides contain salts and acids which can be damaging to marble and limestone markers, it is recommended that all fertilizer, pesticide, and herbicide formulas be checked with an architectural conservator before use and the necessary precautions be taken to protect the headstones.

Do not treat a new lawn until its second year of growth. Finally, in areas with heavy visitation, the turf should be aerated twice a year during the spring and late summer or early fall.

### **Turf Maintenance Calendar**

**March:** Remove accumulated debris. Rake turf.

**April:** . Slit seed, one direction with Redexim Overseeder, Turfco Triwave, or equal. 200 lbs per acre; spot seed with soil and seed bare spots. Cover with Penn Mulch, Seed Aid, or equal; fertilize 21-0-0, 103 lbs per acre; start mowing schedule.

**May:** Core aerate with solid tines. 2" x 2" spacing. ½" tines; slit seed, one direction with Redexim Overseeder, Turfco Triwave, or equal. 200 lbs per acre; fertilize 21-0-0, 103 lbs per acre; continue mowing 1 to 2 times per week. Sharpen blades this month; if needed apply Tenacity 4 oz per acre in mid-May.

**June:** If needed apply Tenacity 4 oz per acre; mow 1 time per week.

**July:** Mow as needed which should produce no visible clippings or remove more than 1/3 of the plant height.

**August:** Mow as needed which should produce no visible clipping or remove more than 1/3 of the plant height.

**September:** Core aerate with solid tines. 2" x 2" spacing, ½" tines; slit seed, one direction with Redexim Overseeder, Turfco Triwave, or equal. 200 lbs per acre; fertilize 21-0-0, 103 lbs per acre; start mowing 1 to 2 times per week; and sharpen blades this month.

**October:** Fertilize 21-0-0, 103 lbs per acre; mow and bag as need to assist with leaf pickup. Mulching is an option as well as long as clumps of debris is avoided; and sharpen blades as necessary.

**November:** Deep tine 4"x4" spacing, 8" to 10" deep, ¾" solid tine; and remove all leaves.

*Source: Michael Stachowicz, Turf Management Specialist, National Mall and Memorial Parks, National Park Service.*

## REDUCE PEST AND INVASIVE INSECT POPULATIONS THROUGHOUT CEMETERY LANDSCAPE

Although the source of the gnat problem has yet to be determined, through consultation with natural resources staff at the NCR Office of Natural Resources and Science (formerly known as the Center for Urban Ecology), numerous ideas were generated to alleviate the gnat issue with the national cemetery. Since the majority of a gnat's life is spent as a larva and pupa in organic matter or in a moist area, the primary recommendation is to reduce the excess moisture and organic debris within the landscape. In particular, all drainage areas, gutters, septic systems, and low areas should be inspected to ensure that those features are working properly and that there is no standing water (refer to figure 20). Trees should be selectively pruned, thinned, and limbed up to reduce shady areas with poor air circulation. Commercially available and naturally occurring biological agents can also control these pests. BTi (*Bacillus thuringiensis v israelensis*), also known as Gnatrol, is a bacteria that kills gnat larvae. However, it is most effective if the specific area(s) where the gnat larvae are actively hatching can be adequately identified. Finally, avoid overwatering and amend soil to improve drainage.

**Figure 20.** Map showing the existing below and above ground drainage and septic systems within Antietam National Cemetery (National Capital Region).





## **IMPROVE ACCESSIBILITY WITHIN THE ANTIETAM NATIONAL CEMETERY LANDSCAPE**

Addressing accessibility at the national cemetery should be among the highest priorities at the park. While the success of an accessibility project within a landscape is achieved when equal access is available to all individuals, it is also crucial that the changes made to provide access are accomplished in a way that both preserves the tangible attributes that make the landscape significant, but more importantly are complementary and compatible with these characteristics and features; integrating accessibility within the cemetery should not appear haphazardly planned.

Any changes to the cemetery, including alterations to accommodate individuals with disabilities, should also be in conformance with the *Secretary of the Interior*

### **Treatment Consideration for Addressing Accessibility**

In the development of treatment options for accessibility with Antietam National Cemetery, the following issues were considered:

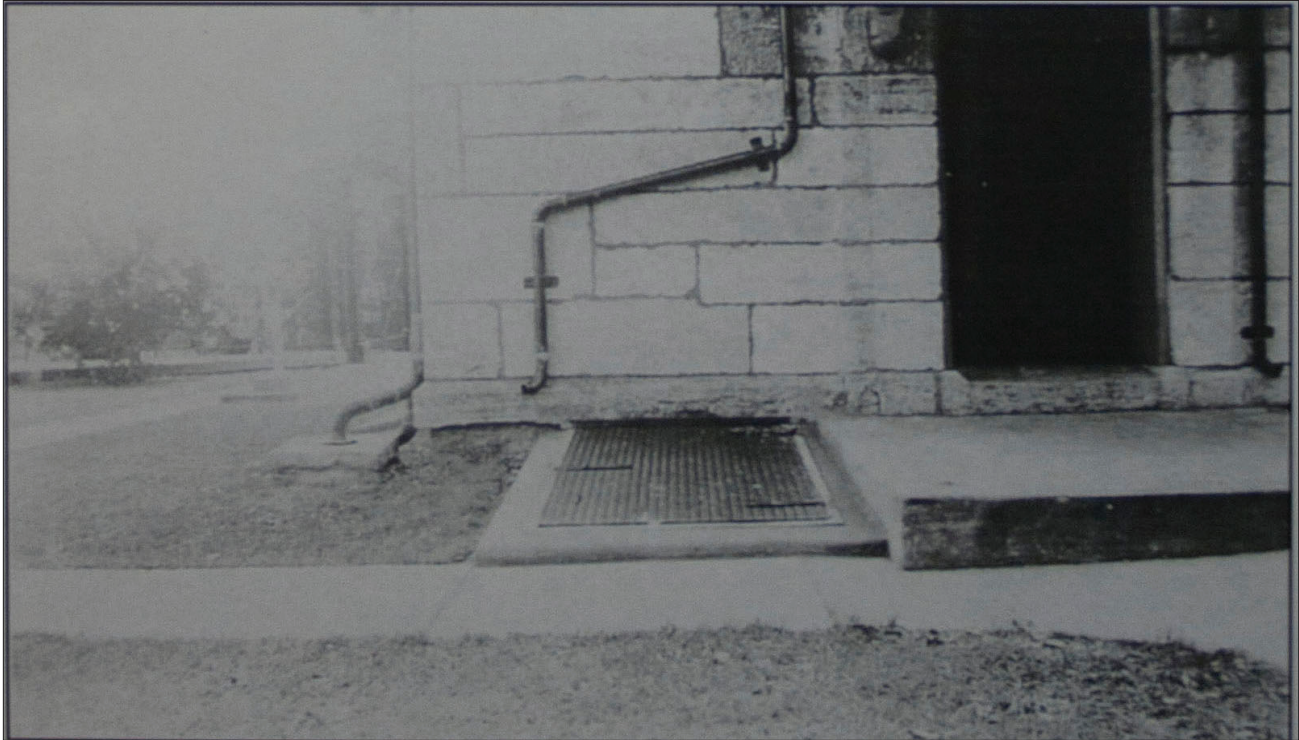
- Can the individual with the disability approach the property? Is there an accessible route? People with disabilities should be able to approach a property without difficulty. The accessible route should be clearly marked and be from one site access point (such as parking lot) to an accessible entrance.
- Can the individual with the disability enter the property? Is there access to the primary function area? Once the person with the disability approaches the landscape or facility, the entrance must also be accessible and be clearly marked without any impediments.
- Can the individual with the disability use the property? Do they have access to the facilities (restrooms)? Once inside the property, people with disabilities must be able to use the primary functions of the property, such as the bathrooms.
- What conveniences or amenities would facilitate inclusion? An individual with a disability must be able to access, enter, and use the property. Beyond that, it is considered conveniences.

*Standards for the Treatment of Historic Properties with Guidelines to Cultural Landscapes*. As described in Preservation Brief #32, if new features are added to address accessibility, historic materials and features should be retained whenever possible. Accessibility modifications should be in scale with the historic property, visually compatible, and, whenever possible, reversible. In general, when historic properties are altered, they should be made as accessible as possible.

However, in some cases, certain modifications may adversely impact the historic fabric of the property. When these situations arise, programmatic access may be the only option for historic properties. Programmatic access for historic properties refers to alternative methods of providing services, information, and experiences when physical access cannot be provided. This may include adding interpretive waysides, audio-visual programs of inaccessible areas, etc.

#### **Accessibility to historic structures**

The majority of buildings and structures at Antietam National Cemetery were not designed to provide universal access for all visitors. At present, it appears most walks and drives, including the entrances into buildings do not meet accessibility specifications. Based on the Director's Order #42, Accessibility for Visitors with Disabilities in National Park Service Programs and Services, structures, grounds, and facilities at the cemetery should be universally accessible to the greatest degree possible. Although future efforts should be undertaken to provide universal access into the administrative building, the current treatment priority is to provide universal access to the cemetery lodge, which currently serves as a visitor comfort station. Presently, there is no universal accessibility route between the lodge and an accessible parking space at the entrance of the cemetery. In an effort to improve access, two accessible parking spaces should be located at the entrance of the cemetery—adjacent to the gates, and be repaved, restriped, and curb ramps be constructed. The park should move the existing bollards to provide ample space for loading and unloading individuals. Based on site evaluations and noted considerations, the most suitable location for universal access into the lodge is through the doorway opening into what was historically the kitchen (Figure 21). Construction of an accessible walk along the north side of the lodge will minimally impact the architectural fabric, views, and cultural landscape. The proposed brick walk will follow a similar path that existed during the historic period and will require no handrails. It should be noted, however, that the interior of the building will require major changes (including changes to the existing restrooms and widening of doorways) to accommodate this new route. For more information, refer to the Antietam National Cemetery Lodge Physical History and Condition Assessment (2003) (Drawing 3).



**Figure 21.** Image taken in 1930s of the walk that historically led to the kitchen. Note the absence of foundation plantings (Antietam National Battlefield Archives).

#### **Accessibility within cemetery grounds**

Early on in the development of the national cemetery, the drives and walks within the cemetery were surfaced in gravel. However, during the period they were altered and converted to grass. While the grass paths and drives visually conform to the historic character of the landscape, the grass surface is not suitable for wheelchairs and creates an unstable walking surface. In an effort to provide individuals with the greatest opportunity to view the majority of the cemetery landscape, the historic main path that led to the central soldier monument and outermost circular path should be reestablished. However, the circular path should be moved inward from its original location approximately twelve feet to provide access to the bivouac of the dead tablets. The path should be approximately eight feet in width and be a permeable sustainable stabilized surface. The park should consider using Flexi-Pave, a highly porous, non-cracking, insulating, flexible paving material as an option for the path. This innovative paving material resembles the look of gravel, but is comprised of consists of waste tires and granite chips bound together by an elastomeric binding agent to form an extremely strong, diverse and sustainable surface (Drawing 2).

## TREATMENT GUIDELINES AND RECOMMENDED TASKS

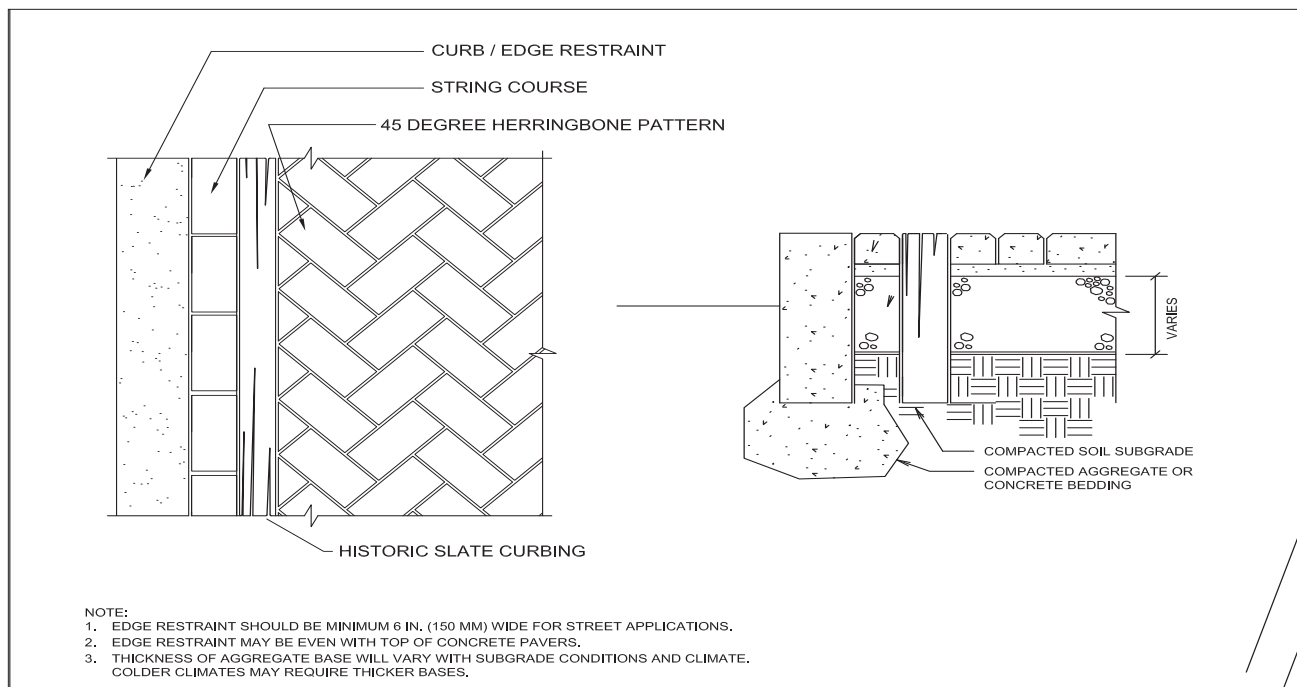
The following guidelines and tasks are organized into five management areas: Boonsboro Pike area, lodge and administration grounds, cemetery perimeter space, burial grounds, and maintenance area. Each management area includes a brief overview of pertinent issues and general treatment guidelines for the space, followed by specific tasks for individual landscape features that comprise each area (refer to figure 18). Each task is followed by a bulleted list of the affected landscape features as inventoried in the previous chapter. Preservation is the default treatment for historic landscape features having no specific tasks identified. Treatment tasks are keyed to a site-wide treatment plan (Drawing 2) and three detail plans (Drawings 3-5). A summary list of tasks with FMSS work orders and cost estimates are at the end of the chapter, as well as a recommended plant list with supplemental information in Tables 4-6.

### BOONSBORO PIKE AREA (U.S. ROUTE 34)

Overall treatment guidelines for this management area along Boonsboro Pike is to retain the historic features along the roadway—notably the War Department plaques, reestablish the formal ceremonial approach, and improve public accessibility to the cemetery.

#### Task 1: Reestablish tree line along Boonsboro Pike (US Route 34)

Specimen shade trees historically lined the Boonsboro Pike (now referred to as State Route 34), which provided a formal approach to the cemetery, as well as shade for visitors. However, over the years the trees were removed and replaced with smaller flowering ornamental trees. While the existing trees may be allowed to mature naturally, in the long-term, the small flowering trees should be replaced with large shade trees to reestablish the historic character along Boonsboro Pike (US Route 34). The Kentucky coffee trees (*Gymnocladus dioica*) should also be removed, having become a maintenance burden due to the litter problems associated with their leaves and seedpods.



**Figure 22.** Detail of proposed protection for stone curbing (National Capital Region).

### **Task 2: Protect Boonsboro Pike (US Route 34) stone curbing/edging**

Over the years, sections of the historic stone curbing along the entire length of the Boonsboro Pike (US Route 34) have been removed, while others have been damaged. Treatment should consist of reestablishing stone curbing in sections that have been replaced with granite and concrete, followed by the encapsulation of the historic curbing in its entirety (figure 22). Protection of the historic stone curbing will require the installation of a new concrete curb adjacent to the historic curbing with a brick soldier course set between the two to serve as a buffer. The soldier course should be eight inches in width—the length of a brick—and be dry-laid in a stacked pattern running perpendicular to the curbing (Drawing 3).

### **Task 3: Improve public access from parking area to cemetery**

The existing parking area along the Boonsboro Pike (US Route 34) currently cannot accommodate visitors due to inadequate parking and pedestrian circulation. To improve visitor safety and access to the cemetery, as well as provide bus parking, the existing parking area should be reconfigured and a new walk be constructed. Constructed in the approximate same location as the existing lot, the parking area will include two new entry and exit points to accommodate the spatial requirements for bus access and parking. It will include thirty-six parking stalls with one designated accessible parking space and six bus parking spaces. The rehabilitation of the parking area will also require the construction of a retaining wall along its northern boundary and include the removal and replanting of several non-historic trees.



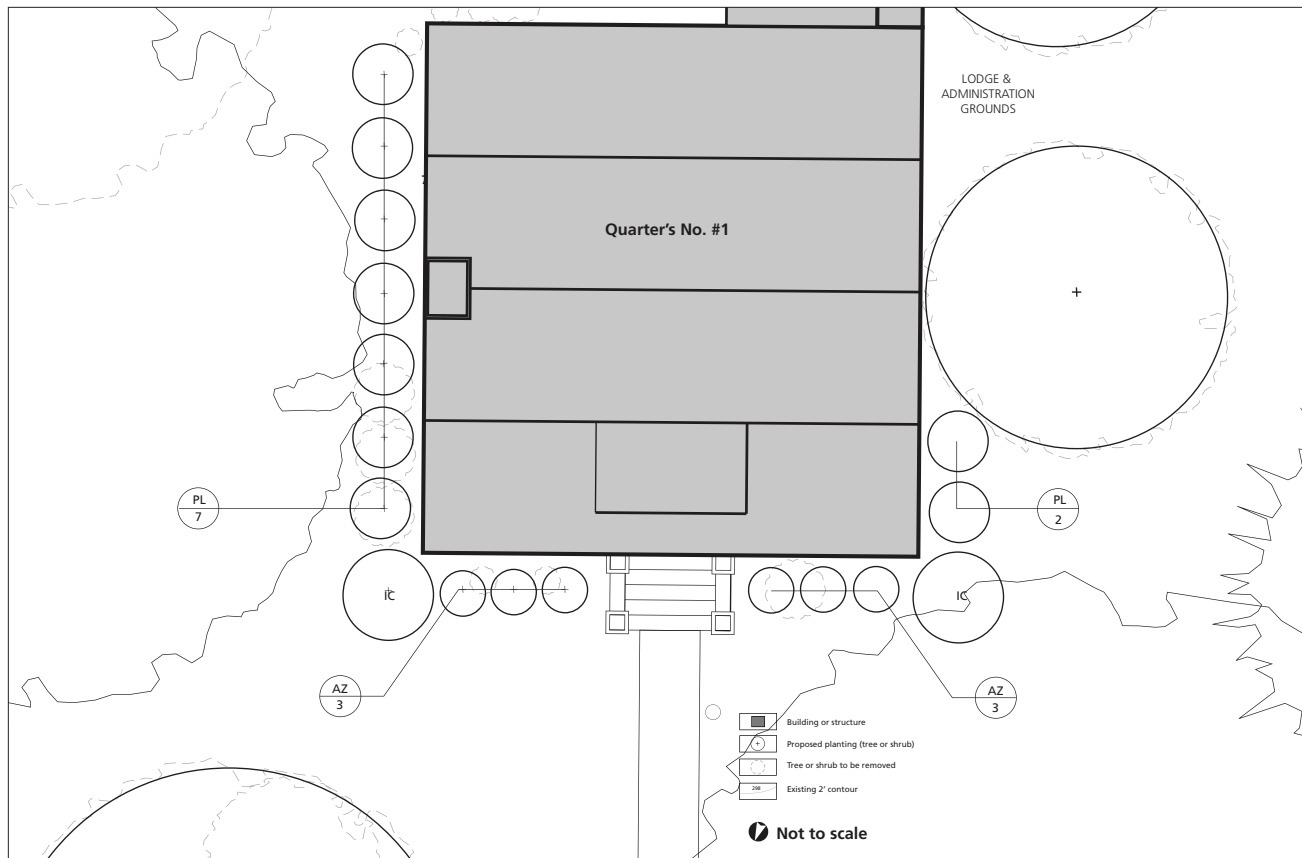
In an effort to improve access from the proposed parking area to the cemetery, the park should work with the Maryland Department of Transportation to construct chokers at the terminus of a new sidewalk that will connect to the parking area along the Boonsboro Pike. Chokers are traffic calming measures that are curb extensions that narrow roadways. Construction of chokers at this location will result in more attentive driving, reduced speeds, and a safer well defined route for visitors to the cemetery. Crosswalk markings between the chokers should also be used to define the pedestrian path of travel across the roadway and alert drivers to the crosswalk location.

### **LODGE AND ADMINISTRATION GROUNDS**

During the historic period, the lodge and administration grounds had two functions: an assembly area and space for the superintendent. It contained a lodge, numerous outbuildings, rostrum and an administrative building, which were all surrounded by a variety of shade trees, fruit trees, and flowering ornamental trees and shrubs. Today, the space is largely dominated by the buildings and structures, but many of these features are inaccessible and a lack of plant material provides an unwelcoming experience to the cemetery. Overall treatment guidelines for the lodge and administration grounds are to enhance the beauty of the landscape, provide additional visitor interpretation, and improve accessibility to the lodge and public restrooms.

#### **Task 4: Rehabilitate grounds surrounding administrative building (Headquarters No.1)**

By the 1930s, the use of shrubs to adorn bases of houses as foundation plantings became fashionable. Additionally, shrubs were placed throughout the landscape as specimen plants to highlight their unique habit, decorative fruit, or distinctive foliage or fall color. Such was the case following the construction of the administrative buildings as foundation and specimen plantings were scattered around the grounds and along the base of the building. Yet, the majority of these plants should be removed as they were not present at the end of the War Department's administration in 1933. However, following the future rehabilitation of the administrative building, the foundation plantings should be replanted to effectively screen the utilities near the building. In an effort to be compatible with the historic character of the cemetery, the planting arrangement should be understated and simple. Recommended plants include Chinese holly (*Ilex cornuta*, 'fineline'), common cherry laurel (*Prunus laurocerasus*, 'Otto Luyken'), and Azalea (*Rhododendron* "Hinodegiri") (Figure 23).



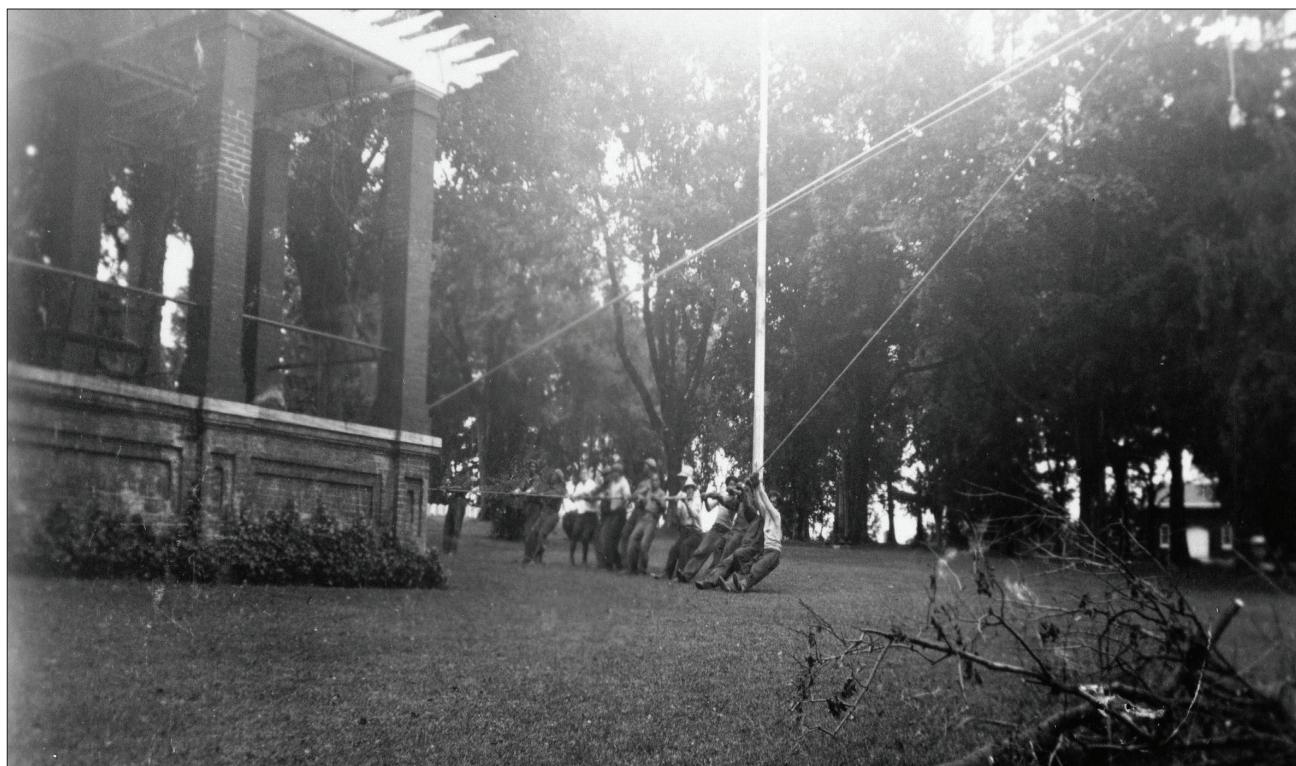
**Figure 23. Recommended plantings for the Administrative building (Headquarters No. 1) (National Capital Region).**

#### **Task 5: Remove lodge foundation plantings**

The existing yews along the foundation of the lodge should be removed as they were not present at the end of the War Department's administration in 1933 and are currently overgrown and in poor condition. Removal of the yews will also improve the lodge's appearance from the Boonsboro Pike (US Route 34).

#### **Task 6: Reestablish vines along rostrum**

Historically, vines were an important visual and historic component within national cemeteries as they were often grown on perimeter walls and rostrums (Figure 24). According to the War Department National Cemetery Regulations (1931, "flowering vines may be grown on the porches of the lodges, on arbors, and on rostrums." However, after the historic period, all vines were removed within the cemetery. In an effort to enhance the historic character of the Antietam National Cemetery landscape, coral honeysuckle (*Lonicera sempervirens*) should be planted along the rostrum. In order to minimize impacts and reduce maintenance difficulties, a detachable trellis system to support the vines should be installed on the rostrum. Once established, the vines should be carefully monitored to prevent damage to the structure. Vines should be pruned two times a year, preferably in the spring and fall. Design details for such a system can be found in Appendix C: Restoring vines on historic buildings.



#### **Task 7: Reestablish orchard and screen incompatible land use**

Surround the access parking area at the northwest edge of the cemetery with apple and pear trees to reestablish the general limits and character of the orchard that existed during the historic period, as shown on the 1892 office of the Quartermaster General US Army map. Although a substantial portion of the orchard was removed by the end of the historic period, a small orchard will reestablish historic character and provide screening of the parking lot. Trees should be planted on an approximate thirty-foot grid, the typical practice during the mid-nineteenth century. The orchard should be approximately 120 feet long (north-south) by 90 feet in width, forming a rectangular area around the parking area. Although the orchard may have historically contained other fruit trees, it is recommended that the reestablished orchard be planted in pear and apple. There are two alternatives for selection of apple and pear varieties; all should be standards, not dwarfs:

Alternative 1 (Historic Varieties): Plant varieties of apple and pear that were used in Southern farm orchards prior to the Civil War. Apple varieties included York Imperial (originally Johnson's Fine Winter), Winesap, and Ben Davis. Other selections included McIntosh, Rome Beauty, and Rhode Island Greening (green apples were grown in the orchard in the early twentieth century). Use multiple varieties, grouped together rather than scattered throughout the orchard. Pear varieties included Bartlett, Seckel, Flemish Beauty, Winter Nelis, Kieffer, and Beurre d'Anjou.

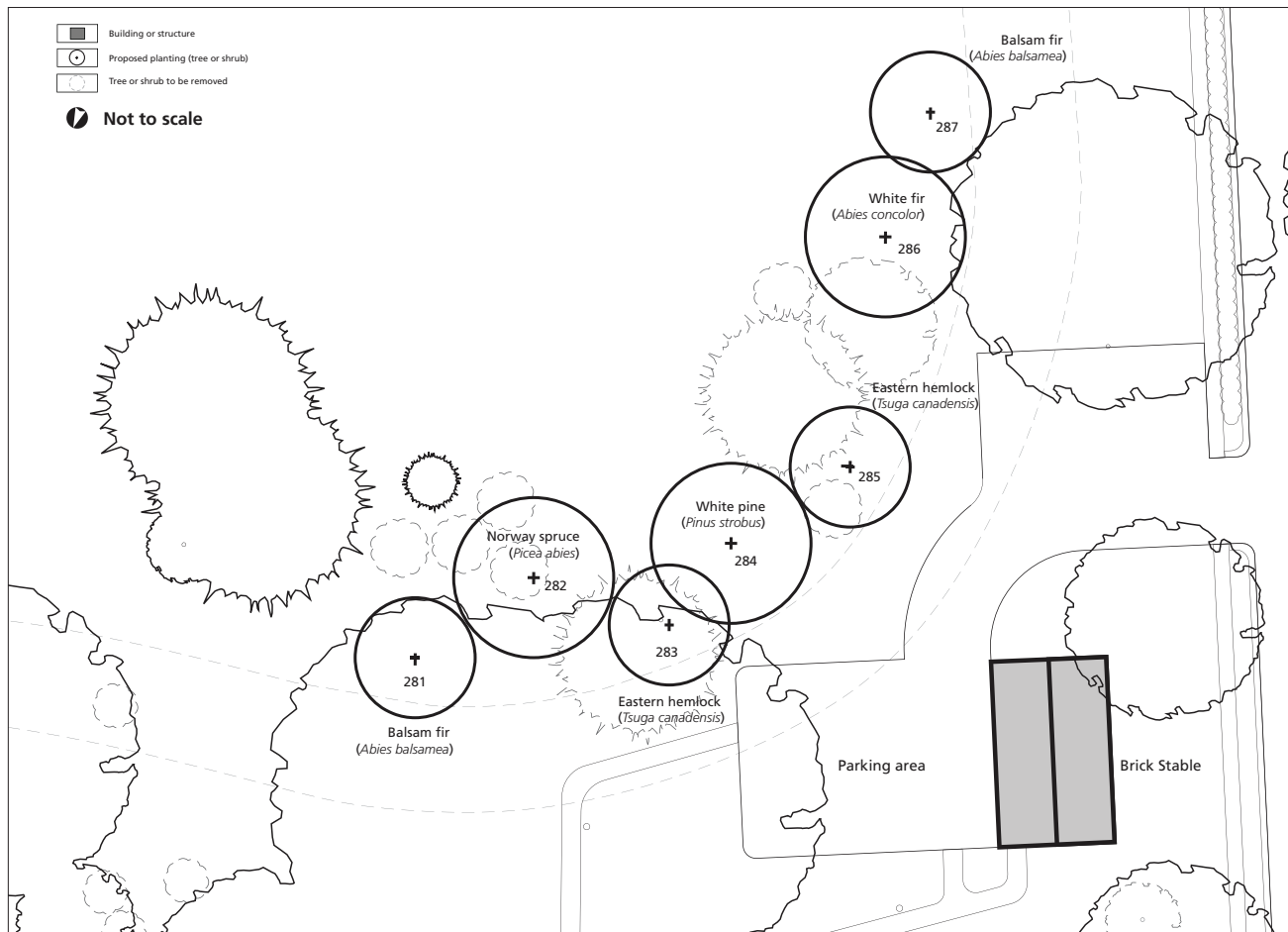
**Figure 24.** A 1936 image of the of the rostrum with vines growing along the base of the structure. These vines were trained to cover the brick columns of the rostrum. (Antietam National Battlefield Archives).

Alternative 2 (Contemporary Varieties): Use contemporary cultivars of apple and pear that are hardy and disease resistant to minimize maintenance.

Apple varieties include Red Delicious (or Fuji), Freedom, or Goldrush. Pear varieties include Potomac, Blake's Pride, Sunrise, and Magness. To maintain the character of an mid-1800s farm orchard, the fruit trees should be maintained in their natural habit with an unpruned scaffold form, and tall trunks that measure four to eight feet before branching.

If reestablishing an orchard proves to be unfeasible due to maintenance concerns, the parking area should be screened with a combination of evergreen vegetation to reduce visibility of parked cars within the cemetery landscape. Recommended plantings include white pine (*Pinus strobus*), Norway spruce (*Picea abies*), eastern hemlock (*Tsuga canadensis*), balsam fir (*Abies balsamea*), and white fir (*Abies concolor*) (Figure 25).

**Figure 25.** If reestablishing an orchard proves to be unfeasible, parking area should be screened with a combination of evergreen vegetation (NCR, 2014).



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**CEMETERY PERIMETER AREA**

The overall treatment guidelines for the cemetery perimeter area is to restore the sacred character of the cemetery landscape by improving the diversity in vegetation surrounding the burial grounds, reestablishing the full range of outward views and vistas from the cemetery, and screening the service related activities within the maintenance area. The perimeter wall should be properly maintained and the trees and shrubs within the perimeter area should be healthy; also since it is largely defined by the vegetation, changes to these features—such as the loss of specimen trees—should be closely monitored to maintain the spatial composition.

**Task 8: Relocate stairway and platform along southern boundary of cemetery**

In the 1960s, networks of interpretative trails were developed to link visitors with sites within the battlefield, which included the national cemetery. At that time, a berm and stairway were constructed along the southern boundary of the cemetery to link with a portion of the trail system. However, the placement of the stairway and berm at the terminus of the north-south axis grass path corridor impacts exterior views from the Soldiers monument. In an effort to improve views, the berm should be regraded to be level with the existing topography and a new stairway system should be relocated approximately 100 feet east from its current location. The new wooden structure should be simple in design and include two stairways along both sides of the perimeter wall and be connected by a twelve-foot landing. Handrails should be installed on the stairways and landing.

**Task 9: Preserve boxwood shrubs along perimeter of cemetery**

The majority of extant boxwoods (*Buxus sempervirens*) within Antietam National Cemetery existed during the War Department period and should be preserved. However, through the years, the boxwoods have become overgrown and now block circulation patterns and internal and external site lines. The existing boxwoods should be retained and preserved through rejuvenative pruning, fertilization and a program of in-kind replacement. Rejuvenative pruning is a method to maintain vigorous and healthy plantings of multi-stemmed shrubs such as boxwoods, through the removal of one third of the old stems to ground level each year over a three year period so that at the end of the third year, a complete renovation has been achieved. Afterwards, the boxwoods should be thinned every other year in the fall. Although there is not a cyclic maintenance schedule for fertilizing boxwoods, if the plant shows symptoms of nitrogen deficiency—yellowing of leaves, it may be time to fertilize. A 10-6-4 urea fertilizer in granular form should be used and be applied in the late fall for optimal results.<sup>15</sup>



**Task 10: Screen maintenance area adjacent to the cemetery**

To reestablish the historic character of the perimeter area and screen the maintenance buildings and parking area, a variety of evergreen trees should be planted along the western boundary of the cemetery. While most trees within the burial grounds should be pruned up at maturity, these evergreen trees should maintain lower limbs to effectively screen the adjacent development (refer to drawing 2 and tables 5 and 6).

**BURIAL GROUNDS**

Overall treatment guidelines for the burial grounds are to preserve and retain historic features within the landscape, restore the historic character of the vegetation, improve public accessibility and interpretation, and reestablish the sacred and well-maintained character of the grounds to impart respect and honor for the courageous contributions and sacrifices of the individuals buried there. Turf, trees, and shrubs should be healthy; monuments and headstones should be properly maintained in good condition; and the grass drives and paths should be free of encroaching vegetation. Where new features are required, they should be designed in a manner that does not detract from the overall character of the landscape.

**Task 11: Conserve headstones within burial grounds**

Over the years, dirt, air pollution, weather conditions, biological organisms, bird droppings, and tree sap have stained and soiled many headstones within the burial grounds. Rather than replacing the headstones as directed by National Cemetery Administration policies, the National Park Service's Director's Order #61, states that the headstones should be repaired rather than replaced. Replacement of historic headstones, whether private or government-furnished, is the least preferred alternative. Through consultation with a professional conservator, efforts should be made to clean the headstones in the gentlest means possible to insure the longevity of the headstone. It should never be the intent to make a grave marker look "new." Even the most careful cleaning techniques can accelerate deterioration of the original material.<sup>16</sup> Prior to cleaning the headstones, the following factors should be considered:

- **Consider long-term effects.** Marble is made up of interlocking grains of carbonate mineral which is bound together in a network that includes varying amounts of pores. When the surfaces are cleaned, some of the grains can be loosened and lost. After many cleanings, the surface can be altered noticeably and result in a sugaring appearance.

- **Don't remove the original surface.** The original surface may be polished and smooth. The inscriptions are generally carved into the headstones. If the original surface is altered—generally roughens, it will soil more easily and frequently. Over time, the inscriptions will become harder to read. Never use wire brushes or mechanical cleaning tools.
- **Minimize the cleaning schedule and test cleaners.** Although the headstones appearance is important in honoring the deceased, limit cleaning to no more than one cleaning per year. Also, always test the cleaner for suitability and results before overall cleaning. Avoid the use of bleach or bleach-like cleaners.<sup>17</sup>

Only use soft brushes and gentle cleaners, such as water or a non-ionic cleaner (neutral pH or 7). Biocidal cleaners are available for use on stones that have biological growth, such as algae, mildew, moss, lichen. Most biocidal additives also help to keep biological from returning to the stone for an extended period of time. For further information and guidance on cleaning government issued headstones, refer to the National Center for Preservation Technology and Training website at <http://ncptt.nps.gov>.

#### **Task 12: Enhance area surrounding central soldier monument**

Concurrent with the proposed accessibility improvements within the burial grounds, efforts should be made to enhance the area around the soldier monument by planting a rose bed along the edge of the outer circular grass path. These improvements will beautify the landscape, recall earlier plantings that existed during the historic period, and improve visitor experience by providing a more welcoming space. To reduce maintenance burdens, ever-blooming shrub roses should be used (figure 26).



**Figure 26.** During the historic period, the area adjacent to the Soldiers monument was adorned with ornamental plantings including roses, planted urns, and boxwoods (Antietam National Battlefield, National Park Service website, Dayton History, Kern Collection, [www.daytonhistory.org](http://www.daytonhistory.org)).

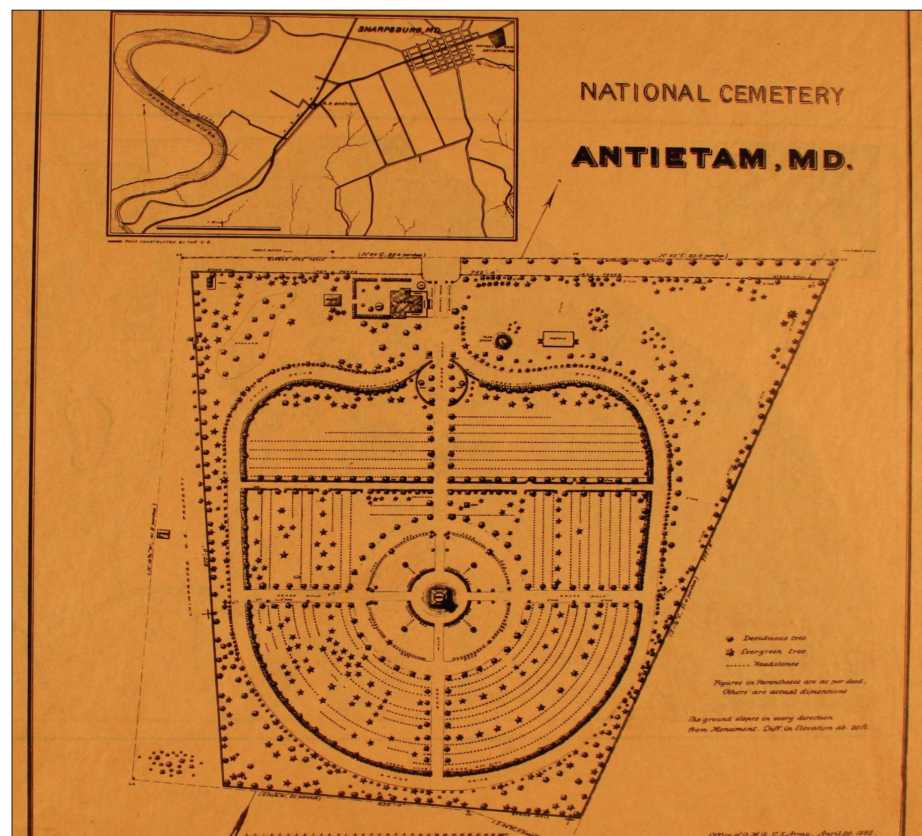
**Task 13: Replant boxwoods in burial grounds**

During the historic period, there was an allee of boxwood shrubs along the axial north-south and east-west grass paths near the private soldier monument. However, by the end of the War Department period (1933), only a few boxwoods were present. In an effort to redefine and strengthen the axial circulation corridors near the monument, as well as improve visitor interpretation, the boxwood plantings should be reestablished as shown on the Office of the Quartermaster General US Army map (1892)(figure 27). Plant two boxwoods on each side of the axial drives, beginning at the outer edge of the second circular grass path, for a total of sixteen boxwoods. Similar to other national cemeteries that had boxwoods, they should be clipped into low mounds and be approximately three to four feet high. Although there is limited documentation on the exact number and placement of the plantings, the new boxwoods are considered a compatible addition that recalls earlier plantings.

**Task 14: Remove yews around bivouac of the dead tablets**

After 1933, the National Park Service planted yews around the bivouac of the dead tablets. However, having been haphazardly implemented and not part of a grouping or larger planting design, today these plantings look out of scale, detract from the historic character, and should be removed.

**Figure 27.** During the historic period, the area adjacent to the Soldiers monument was adorned with ornamental plantings including roses, planted urns, and boxwoods (Antietam National Battlefield, National Park Service website, Dayton History, Kern Collection, [www.daytonhistory.org](http://www.daytonhistory.org)).



## **MAINTENANCE AREA**

The overall treatment guideline for the maintenance area is to preserve the historic features within the space and to minimize the visual impacts that may adversely affect the solemnity and sacredness of the adjoining national cemetery.

### **Task 15: Improve maintenance parking**

The parking within the maintenance facility can no longer accommodate the increased vehicular traffic within the area, which has resulted in overflow parking along the outside perimeter wall at southwest end of the cemetery. To improve the external views from within the cemetery, the overflow parking should be relocated within the stock pile area of the maintenance area.

## **INTEGRATING TREATMENT RECOMMENDATIONS WITH FMSS**

Antietam National Cemetery's cultural landscape is managed through the National Park Service Facility Management Software System (FMSS). This system is structured to track costs associated with asset management, as well as asset condition. FMSS is also fundamental in generating funding requests for capital improvement projects. Integration with FMSS is essential to implementing the landscape treatment recommendations of this report. Physical features, or "assets," of the cultural landscape are tracked in FMSS through a variety of "asset types," including roads, parking areas, trails, maintained landscapes, buildings, waste water systems, electrical systems, and/or fortifications. At present, the Antietam National Cemetery maintained landscape is tracked as a "location," National Cemetery Historic Landscape Mowable (40968) within the Antietam National Cemetery Area "Site." Besides the maintained landscape asset type, additional cemetery features are captured under five locations within the Antietam National Cemetery Area site, which includes the lodge (40956), administrative building (40965), mule barn (40955), rostrum (40957), and private soldier monument (231964); and four locations within the Boonsboro Pike Area site, which includes the national cemetery parking (52144), national cemetery maintenance parking (52141), national cemetery handicap parking (52142), and the cemetery access parking (52146). The majority of the monuments and tablets are tracked under the location "tablets, plaques, and monuments." Table 4 reorganizes the landscape treatment tasks included in this report according to FMSS Asset Type and Location as a first step in translating landscape treatment recommendations into project funding requests. Potential FMSS work types and sub-types, along with materials are provided to facilitate cost estimating. Treatment tasks are also prioritized to assist in treatment implementation.

## TREATMENT TASK IMPLEMENTATION PRIORITIES

Treatment tasks are summarized in the table, “Cultural Landscape Treatment Tasks with FMSS Work Order Information and Cost Estimates,” and have been categorized into short-term and long-term priorities. This prioritization recognizes that opportunities for collaboration, funding availability, interpretive and programmatic goals, project review and compliance, and other factors may impact the ultimate implementation sequence. Short-term priorities are defined as those that address life-safety issues, improve accessibility within the cemetery, or enhance the overall landscape condition. Long-term tasks are defined as those that address character-defining features of the historic landscape that have been lost or substantially altered over time and/or considerably enhance the visitor experience with new interpretive potential.

## ENDNOTES

- 1 Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (Washington, D.C.: National Park Service, 1998), 81.
- 2 Such tasks are addressed in a separate cultural landscape document known in the NPS as a Preservation Maintenance Plan. This plan is not included in the scope of this project.
- 3 National Cemetery Administration, *National Shrine Commitment, “Operational Standards and Measures,”* version 4.0 (October 2004), 4.
- 4 National Park Service, *Foundation Document for Antietam National Battlefield* (Department of the Interior, National Park Service, 2013) 3.
- 5 National Park Service, *Foundation Document for Antietam National Battlefield* (Department of the Interior, National Park Service, 2013) 16-23.
- 8 Primary treatment alternatives considered but not recommended: Preservation is not recommended as the primary treatment for the Antietam National Cemetery landscapes because they would retain their existing appearance that is not consistent with the historic character of the landscape; Restoration is not recommended as the primary treatment for the landscape due to the need to address contemporary park uses and visitor needs; and Reconstruction is not recommended as the primary treatment for the cemetery landscape because the property retains much of its historic fabric.
- 9 The Secretary of the Interior’s *Standards for the Treatment of Historic Properties* (Department of the Interior, 1995).
- 10 War Department, *Office of the Quartermaster General, National Cemetery Regulations* (Washington, DC: Government Printing Office, 1931), 33.



- 11 National Turfgrass Evaluation Program (NTEP), Antietam National Cemetery and the Mumma Cemetery soil amendment/grass study, 1995. (hardcopy available at park); 2015 turf mix recommendations by Michael Stachowicz, Turf Management Specialist, National Mall and Memorial Parks.
- 12 Sasaki, Alternatives to the Great American Lawn, September 2006.
- 13 Best Management Practices for properly trimming around historic features at national cemeteries, include but are not limited to using dwarf grass varieties around headstones; creating a trim apron around historic features; making modifications to equipment by adding protective shields or bumpers; using lightweight filament in line trimmers; and applying plant growth regulators. However, plant growth regulators are often not effective on certain grass species/varieties and trim aprons, if installed properly, can have negative visual impacts (NPS correspondence with Charlie Pepper, Manager, Cultural Landscape Preservation Maintenance and Education, with the Olmsted Center for Landscape Preservation, January 29, 2014).
- 14 Susan Dolan, *Fruitful Legacy: A Historic Context of Orchards in the United States*, with Technical Information for Registering Orchards in the National Register of Historic Places (Department of the Interior, National Park Service, 2009).
- 15 Lynn R. Batdorf, *Boxwood Handbook: A Practical Guide to Knowing and Growing Boxwood* (American Boxwood Society, Messenger Printing Company, St. Louis, Mo) 36-47.
- 16 Terra Firma, *Mourning Glory: Preserving Historic Cemeteries* (Massachusetts Department of Conservation and Recreation's Historic Landscape Preservation Initiative) 13-14.
- 17 National Center for Preservation Technology and Training, *Best Practice Recommendations for Cleaning Government Issued Headstones*, May 23, 2011.



**TABLE 4: CULTURAL LANDSCAPE TREATMENT TASKS WITH FMSS WORK ORDER INFORMATION AND CLASS C COST ESTIMATES**

FMSS ASSET TYPE	FMSS LOCATION/ ASSET	CLR TREATMENT TASKS/FMSS WORK ORDERS	CLR TREATMENT TASKS COMPONENTS/FMSS TASKS	PRIORITY		FMSS WORKS SUBTYPE	UNITS OF MATERIAL	RECURRING MAINTENANCE NEEDED	UNIT OF MEASURE	UNIT COST & SUBTOTAL	
				SHORT	LONG						
General Treatment Recommendations (Overall)											
Maintained Landscape (3100)	Location and asset record needed (future)	Restore historic character of cemetery trees	Remove 103 trees in national cemetery (refer to dwgs 2.1 and 2.2)	X	X	DEM	235.00/ tree (selective clearing and grubbing, 26" to 36" dia. stump removal on site )	No	EA	\$24,205	
			Plant or replace 175 trees in national cemetery (refer to dwgs 2.1 and 2.2)	X	X	FM/CR	2.5"-3" caliper; 350.00/tree (includes labor & mat.).	No	EA	\$61,250	
	40968/1103255	Improve cemetery lawn and maintenance requirements	Establish new lawn areas (12,500 SY)	X	X	FM/DM & FM/PM	3.32/SY;	Yes	SY	\$41,500	
			Maintenance of lawn areas (479,160 SF)	X	X		39/MSF	Yes	SF	\$18,500	
	Location and asset record needed (future)	Reduce pest and invasive insect populations throughout cemetery landscape	Inspect all drainage areas, gutters, septic systems, and low areas								
				Prune, thin, and limb up trees	X		FM/DM & FM/PM	Yes	NA	NA	NA
			Utilize commercially available and naturally occurring biological controls.								
Accessibility to historic structures (Superintendent's Lodge)											
40956 (cemetery lodge), 40968/1103255 (grass paths), and location record needed for lodge plaza and walk	Improve accessibility within the Antietam National Cemetery landscape	1) Locate two accessible parking spaces at entrance of cemetery (repave, restripe, and install curb ramps  2) Move bollards to provide ample space  3) Interior improvements (not included as part of this CLR—consult National Capital Regional office architect).		X	FM/CM	NA	NA	NA	NA	NA	
				X	LMAC	997 64/bollard	No	EA	\$5,985.84		
				X	CI/NC	NA	NA	NA	NA	NA	
			Accessibility within cemetery grounds								
		1) Resurface main path that leads to central monument with permeable pavement, such as flex-pave. (refer to flexi-pave cost estimate)	X			LMAC	5159 SF of Flexi-Pave (color TBD) 139 CY of F&I stone/base 5675 SF of F&I filter fabric and geogrid 28 CY topsoil/seed	No	SF/ CY	\$117,655	
Boonsboro Pike area (US Rte. 34)											
Maintained Landscape (3100)	Location and asset record needed (future)	Task 1: Reestablish tree line along Boonsboro Pike (US Route 34)	Plant or replace 11 trees in national cemetery (refer to general treatment recommendations- Restore historic character of cemetery trees)	X		FM/DM	2.5"-3" caliper; 350.00/tree (includes labor & mat.).	No	SF	\$3,850	

TABLE 4: CULTURAL LANDSCAPE TREATMENT TASKS WITH FMSS WORK ORDER INFORMATION AND CLASS C COST ESTIMATES											
FMSS ASSET TYPE	FMSS LOCATION/ ASSET	CLR TREATMENT TASKS/FMSS WORK ORDERS	CLR TREATMENT TASKS COMPONENTS/FMSS TASKS	PRIORITY		FMSS WORK/ SUBTYPE	UNITS OF MATERIAL	RECURRING MAINTENANCE NEEDED	UNIT OF MEASURE	UNIT COST & SUBTOTAL	
				SHORT	LONG						
Parking Area (1300)	Location and asset record needed (future)	Task 2: Protect Boonsboro Pike (US Route 34) stone curbing/edging	Reestablish stone curbing in sections that have been replace with granite and concrete		X	FM/DM	NA	No	SF	NA	
					X	FM/CM	\$55.25/LF; 1,115 LF of curbing; \$10.75/sq. ft. brick	No	LF	\$73,500.00	
	48585/52144 and 52142	Task 3: Improve public access from parking area to cemetery	Construct new parking area (with bus bays and parking stalls); surface with asphalt		X	CI/NC	21,950sq. ft.	No	SF	\$65,000.00	
			Construct new sidewalk and chokers		X	CI/NC	Consult with MDOT	No	LF/ SF	NA	
Lodge and administration grounds											
Maintained Landscape (3100)	Location and asset record needed (future)	Task 4: Rehabilitate grounds surrounding administrative building (Headquarters No.1	Plant seventeen (17) shrubs around foundation of administrative building	X		FM/DM	\$50.00ea	Yes	EA	\$850.00	
Maintained Landscape (3100)	Location and asset record needed (future)	Task 5: Remove lodge foundation plantings	Remove existing ten yews around foundation of lodge	X		DEM	\$75.00 (includes labor	Yes	EA	\$500.00	
	40957	Task 6: Reestablish vines along rostrum	Install detachable trellis system on rostrum. Plant with coral honeysuckle.		X	CI/NC	NA	Yes	EA	NA	
	Location and asset record needed (future)	Task 7: Reestablish orchard and screen incompatible land use	Plant seven (7) apple trees (standard historic varieties); or	X		FM/DM	2.5"-3" caliper; 350.00/tree (includes labor & mat.).	Yes	EA	\$2,450.00	
			Plant seven (7) evergreen trees	X		FM/DM	175.00/tree	Yes	EA	\$1,225.00	
Cemetery perimeter area											
Maintained Landscape (3100)	Location and asset record needed (future)	Task 8: Relocate stairway and platform along southern boundary of the cemetery	Regrade berm and remove existing wooden stairway	X		DEM	NA	No	NA	NA	
			Construct new wooden stairway and platform.	X		CI	Market Research	Yes	LF	\$3,000.00	
	Location and asset record needed (future)	Task 9: Preserve boxwood shrubs along perimeter of cemetery	Cyclic maintenance of existing boxwood shrubs (includes pruning and fertilizing).	X	X	FM/DM & FM/PM	NA	Yes	NA	NA	

**TABLE 4: CULTURAL LANDSCAPE TREATMENT TASKS WITH FMSS WORK ORDER INFORMATION AND CLASS C COST ESTIMATES**

FMSS ASSET TYPE	FMSS LOCATION/ ASSET	CLR TREATMENT TASKS/FMSS WORK ORDERS	CLR TREATMENT TASKS COMPONENTS/FMSS TASKS	PRIORITY		FMSS WORK/ SUBTYPE	UNITS OF MATERIAL	RECURRING MAINTENANCE NEEDED	UNIT OF MEASURE	UNIT COST & SUBTOTAL
				SHORT	LONG					
Maintained Landscape (3100)	Location and asset record needed (future)	Task 10: Screen maintenance area adjacent to the cemetery	Plant five evergreen trees (refer to general recommendation—Restore historic character of cemetery trees)	X		FM/DM	175.00/tree	Yes	EA	\$875.00
	<b>Burial grounds</b>									
	Location and asset record needed (future)	Task 11: Conserve headstones within burial grounds	Consult National Capital Regional office architectural conservator	X	X	FM/DM	NA	Yes	EA	NA
	Location and asset record needed (future)	Task 12: Enhance area surrounding central soldiers monument	Plant seventy-one (71) ever-blooming shrub roses along the outer edge of the outer circular path.	X		FM/DM	\$50.00/ea	Yes	EA	\$3550.00
	Location and asset record needed (future)	Task 13: Replant boxwoods in burial grounds	Plant sixteen (16) boxwoods ( <i>Buxus sempervirens</i> "Vardar Valley") on each side of the axial drives	X		FM/DM	15"-18", B&B;: 9.00 labor, 26.00 boxwood; total 35.00	Yes	EA	\$560.00
Maintenance area (utility area)	Location and asset record needed (future)	Task 14: Remove yews around bivouac of the dead tablets	Remove ten (10) yews	X		DEM	75.00 (includes labor)	No	EA	\$750.00
	<b>Maintenance area (utility area)</b>									
Parking Area (1300)	52141	Task 15: Improve maintenance parking	Construct overflow parking within the stock pile area of maintenance area.		X	NC	NA	NA	NA	NA
<b>Notes:</b> 1. Bold items in the table below indicate recommended additions or changes to the existing Antietam National Cemetery FMSS hierarchy. 2. See treatment task narratives in treatment chapter for work descriptions. 3. FMSS Work Types and Sub-types: Facility Maintenance (FM), Corrective Maintenance (CM), Component Renewal (CR), Demolition (DEM), Deferred Maintenance (DM), Facility Operations (FO), Grounds Care (GC), Capital Improvements (CI), and New Construction (NC).										





TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY							
2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
					Short-term	Long-term	
Existing Trees							
1	Flowering Dogwood	<i>Cornus florida</i>	Remove	Lodge & Admin Grounds		X	Canopy tree historically existed in approximate location
2	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Lodge & Admin Grounds		X	Thin and limb high upon maturity
3	Flowering Dogwood	<i>Cornus florida</i>	Remove	Lodge & Admin Grounds		X	Canopy tree historically existed in approximate location
4	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Lodge & Admin Grounds		X	Thin and limb high upon maturity
5	Flowering Dogwood	<i>Cornus florida</i>	Remove	Lodge & Admin Grounds	X		Canopy tree historically existed in approximate location
6	Flowering Dogwood	<i>Cornus florida</i>	Remove	Lodge & Admin Grounds	X	X	Thin and limb high upon maturity
7	Norway Spruce	<i>Picea abies</i>	Replace with weeping european beech	Lodge & Admin Grounds		X	Alternative to weeping willow; provides symbolism
8	Flowering Dogwood	<i>Cornus florida</i>	Remove	Lodge & Admin Grounds	X		
9	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Lodge & Admin Grounds		X	
10	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Lodge & Admin Grounds		X	Chinese hemlock is resistant to woolly adelgid
11	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Lodge & Admin Grounds		X	Chinese hemlock is resistant to woolly adelgid
12	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Lodge & Admin Grounds		X	Possible alternative deodar cedar
13	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Lodge & Admin Grounds		X	
14	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Lodge & Admin Grounds		X	
15	Arborvitae	<i>Thuja occidentalis</i>	In-kind replacement	Lodge & Admin Grounds		X	
16	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Lodge & Admin Grounds		X	
17	Balsam Fir	<i>Abies balsamea</i>	In-kind replacement	Lodge & Admin Grounds		X	
18	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Lodge & Admin Grounds		X	
19	Silver Maple	<i>Acer saccharinum</i>	Replace with sugar maple	Cemetery Perimeter area		X	Thin and limb high upon maturity
20	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
21	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative balsam fir
22	Redbud	<i>Cercis Canadensis</i>	Replace with sugar maple	Cemetery Perimeter area		X	Thin and limb high upon maturity
23	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar
24	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar
25	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
26	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
27	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar or white spruce
28	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
29	Red Pine	<i>Pinus resinosa</i>	Replace with white pine	Cemetery Perimeter area		X	Red pine has not performed favorably at site
30	American Holly	<i>Ilex opaca</i>	Replace with white pine	Cemetery Perimeter area		X	
31	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Lodge & Admin Grounds		X	
32	White Oak	<i>Quercus alba</i>	In-kind replacement	Lodge & Admin Grounds		X	Introduced after historic period; possible alternative tulip poplar
33	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Lodge & Admin Grounds		X	
34	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Lodge & Admin Grounds		X	
35	Blue Spruce	<i>Picea pungens</i>	Replace with Norway spruce	Lodge & Admin Grounds		X	Possible alternative deodar cedar or white fir
36	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Lodge & Admin Grounds		X	Possible alternative deodar cedar
37	White Fir	<i>Abies concolor</i>	In-kind replacement	Lodge & Admin Grounds		X	
38	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Lodge & Admin Grounds		X	Possible alternative deodar cedar
39	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Lodge & Admin Grounds		X	Repair turf at the time of replanting
40	European Larch	<i>Larix decidua</i>	In-kind replacement	Lodge & Admin Grounds		X	Repair turf at the time of replanting
41	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Lodge & Admin Grounds		X	Repair turf at the time of replanting
42	Japanese Maple	<i>Acer palmatum</i>	Remove	Lodge & Admin Grounds		X	Reduce plantings to promote success of other trees in area
43	Horsechestnut	<i>Aesculus hippocastanum</i>	In-kind replacement	Lodge & Admin Grounds		X	Use cultivar that does not produce pods
44	Balsam Fir	<i>Abies balsamea</i>	Remove	Lodge & Admin Grounds		X	Reduce plantings to promote success of other trees in area
45	Norway Spruce	<i>Picea abies</i>	Remove	Lodge & Admin Grounds		X	Realign to more accurate position of historic planting
46	Cherry spp.	<i>Prunus spp.</i>	Remove	Lodge & Admin Grounds	X		Reduce plantings to promote success of other trees in area
47	Sour Cherry	<i>Prunus cerasus</i>	Remove	Lodge & Admin Grounds		X	Repair turf at the time of removal
48	Flowering Crabapple	<i>Malus spp.</i>	Remove	Lodge & Admin Grounds		X	



TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY							
2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
49	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Lodge & Admin Grounds		X	
50	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Lodge & Admin Grounds		X	Chinese hemlock is resistant to woolly adelgid
51	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Lodge & Admin Grounds		X	Possible alternative deodar cedar
52	Sugar Maple	<i>Acer saccharum</i>	Remove	Burial Grounds	X		
53	Balsam Fir	<i>Abies balsamea</i>	Remove	Lodge & Admin Grounds	X		Planted in historic drive
54	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Burial Grounds		X	Repair turf at the time of removal
55	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Lodge & Admin Grounds		X	
56	Sugar Maple	<i>Acer saccharum</i>	Remove	Lodge & Admin Grounds		X	Planted in historic drive
57	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Lodge & Admin Grounds		X	Chinese hemlock is resistant to woolly adelgid
58	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar
59	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar
60	Red Oak	<i>Quercus rubra</i>	In-kind replacement	Cemetery Perimeter area		X	
61	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar
62	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
63	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
64	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	Possible alternative deodar cedar
65	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
66	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
67	Flowering Dogwood	<i>Cornus florida</i>	Replace with horsechestnut	Cemetery Perimeter area	X		Canopy tree historically existed in approximate location
68	Flowering Dogwood	<i>Cornus florida</i>	Remove	Cemetery Perimeter area	X		
69	Blue Spruce	<i>Picea pungens</i>	In-kind replacement	Cemetery Perimeter area		X	
70	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
71	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Burial Grounds		X	
72	Horsechestnut	<i>Aesculus hippocastanum</i>	In-kind replacement	Burial Grounds		X	Use cultivar that does not produce pods
73	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	
74	Flowering Dogwood	<i>Cornus florida</i>	Removal	Burial Grounds		X	
75	Flowering Dogwood	<i>Cornus florida</i>	Removal	Burial Grounds		X	
76	Flowering Dogwood	<i>Cornus florida</i>	Removal	Burial Grounds		X	
77	Flowering Dogwood	<i>Cornus florida</i>	Removal	Lodge & Admin Grounds	X		
78	Red Maple	<i>Acer rubrum</i>	In-kind replacement	Burial Grounds		X	
79	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	In-kind replacement	Lodge & Admin Grounds		X	Use cultivar that does not produce pods
80	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Lodge & Admin Grounds		X	Thin and limb high upon maturity
81	Flowering Crabapple	<i>Malus spp.</i>	Removal	Burial Grounds		X	
82	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
83	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
84	European Larch	<i>Larix decidua</i>	In-kind replacement	Burial Grounds		X	
85	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
86	Eastern Hemlock	<i>Tsuga canadensis</i>	Removal	Burial Grounds	X		
87	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds	X		
88	Eastern Hemlock	<i>Tsuga canadensis</i>	Removal	Burial Grounds	X		
89	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Lodge & Admin Grounds		X	Thin and limb high upon maturity
90	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
91	Red Pine	<i>Pinus resinosa</i>	Replace with white pine	Cemetery Perimeter area		X	Red pine has not performed favorably at site
92	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	Thin and limb high upon maturity
93	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	Thin and limb high upon maturity
94	Douglas Fir	<i>Pseudotsuga menziesii</i>	Replace with honeylocust	Burial Grounds		X	Repair turf at the time of removal
95	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
96	Norway Maple	<i>Acer platanoides</i>	Replace with larch	Burial Grounds		X	
97	Norway Maple	<i>Acer platanoides</i>	Removal	Burial Grounds	X		
98	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Burial Grounds		X	
99	American Basswood	<i>Tilia americana</i>	Replace with white pine	Burial Grounds		X	
100	Red Oak	<i>Quercus Rubra</i>	Replace with Nordmann Fir	Burial Grounds		X	





TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY							
2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
101	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Burial Grounds		X	
102	White Fir	<i>Abies concolor</i>	In-kind replacement	Burial Grounds		X	
103	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
104	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
105	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
106	Norway Spruce	<i>Picea abies</i>	Removal	Cemetery Perimeter area		X	Planted in historic drive
107	Norway Spruce	<i>Picea abies</i>	Removal	Cemetery Perimeter area		X	Planted in historic drive
108	Balsam Fir	<i>Abies balsamea</i>	Removal	Cemetery Perimeter area		X	Planted in historic drive
109	Norway Spruce	<i>Picea abies</i>	Removal	Cemetery Perimeter area		X	Planted in historic drive
110	Red Oak	<i>Quercus rubra</i>	In-kind replacement	Cemetery Perimeter area		X	
111	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Replace with tulip poplar	Cemetery Perimeter area		X	
112	White Fir	<i>Abies concolor</i>	In-kind replacement	Cemetery Perimeter area		X	
113	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Burial Grounds		X	
114	Arborvitae	<i>Thuja occidentalis</i>	In-kind replacement	Cemetery Perimeter area		X	
115	Red Oak	<i>Quercus rubra</i>	In-kind replacement	Cemetery Perimeter area		X	
116	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
117	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
118	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
119	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Cemetery Perimeter area		X	
120	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
121	Redbud	<i>Cercis Canadensis</i>	In-kind replacement	Cemetery Perimeter area		X	
122	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
123	Red Maple	<i>Acer Rubrum</i>	In-kind replacement	Cemetery Perimeter area		X	
124	Redbud	<i>Cercis Canadensis</i>	Removal	Cemetery Perimeter area		X	
125	Eastern Hemlock	<i>Tsuga canadensis</i>	Removal	Cemetery Perimeter area		X	
126	Tulip Poplar	<i>Liriodendron tulipifera</i>	Replace with elm hybrid	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
127	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Removal	Burial Grounds		X	
128	Norway Maple	<i>Acer platanoides</i>	Removal	Burial Grounds		X	
129	Silver Maple	<i>Acer saccharinum</i>	Replace with white pine	Burial Grounds		X	
130	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
131	Norway Maple	<i>Acer platanoides</i>	Removal	Burial Grounds	X		
132	Silver Maple	<i>Acer saccharinum</i>	Removal	Burial Grounds		X	
133	Sugar Maple	<i>Acer saccharum</i>	Replace with larch	Burial Grounds	X		
134	Red Oak	<i>Quercus Rubra</i>	Removal	Burial Grounds		X	
135	American Beech	<i>Fagus grandifolia</i>	Replace with white fir	Burial Grounds		X	
136	American Elm	<i>Ulmus americana</i>	Removal	Burial Grounds	X		Evergreen tree historically existed in approximate location
137	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds	X		
138	Sugar Maple	<i>Acer Saccharum</i>	Replace with balsam fir	Burial Grounds		X	
139	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
140	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Burial Grounds		X	
141	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
142	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
143	Spruce	<i>Picea spp.</i>	In-kind replacement	Burial Grounds		X	
144	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Removal	Cemetery Perimeter area		X	
145	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Removal	Cemetery Perimeter area		X	
146	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	
147	American Elm	<i>Ulmus americana</i>	Removal	Burial Grounds		X	
148	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	
149	Norway Spruce	<i>Picea abies</i>	Removal	Burial Grounds		X	
150	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	
151	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds	X		
152	Red Oak	<i>Quercus rubra</i>	Removal	Burial Grounds	X		



TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY

2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
153	White Pine	<i>Pinus strobus</i>	In-kind replacement	Burial Grounds	X		
154	Tulip Poplar	<i>Liriodendron tulipifera</i>	Removal	Burial Grounds		X	
155	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
156	Arborvitae	<i>Thuja occidentalis</i>	In-kind replacement	Cemetery Perimeter area		X	
157	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
158	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
159	White Pine	<i>Pinus strobus</i>	In-kind replacement	Burial Grounds		X	
160	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
161	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
162	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
163	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds	X		
164	Tulip Poplar	<i>Liriodendron tulipifera</i>	Removal	Burial Grounds	X		
165	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds	X		
166	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds	X		
167	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
168	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Burial Grounds		X	
169	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
170	Nordmann Fir	<i>Abies nordmanniana</i>	Removal	Burial Grounds		X	Repair turf; Plant open canopy deciduous tree along drive
171	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
172	Red Maple	<i>Acer rubrum</i>	Replace with white fir	Cemetery Perimeter area		X	
173	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Cemetery Perimeter area		X	
174	Bald Cypress	<i>Taxodium distichum</i>	In-kind replacement	Cemetery Perimeter area		X	
175	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
176	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Burial Grounds		X	
177	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	
178	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	Evergreen tree historically existed in approximate location
179	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
180	Spruce	<i>Picea spp.</i>	In-kind replacement	Burial Grounds		X	
181	Norway Spruce	<i>Picea abies</i>	Removal	Burial Grounds		X	
182	Pine spp.	<i>Pinus spp.</i>	Removal	Burial Grounds		X	
183	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
184	Red Maple	<i>Acer Rubrum</i>	Removal	Burial Grounds		X	
185	Sugar Maple	<i>Acer saccharum</i>	Replace with balsam fir	Burial Grounds		X	
186	Eastern Hemlock	<i>Tsuga canadensis</i>	Replace with horsechestnut	Burial Grounds		X	Canopy tree historically existed in approximate location
187	Red Maple	<i>Acer rubrum</i>	In-kind replacement	Cemetery Perimeter area		X	
188	White Fir	<i>Abies concolor</i>	In-kind replacement	Cemetery Perimeter area		X	
189	Tulip Poplar	<i>Liriodendron tulipifera</i>	In-kind replacement	Cemetery Perimeter area		X	
190	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Burial Grounds		X	
191	White Pine	<i>Pinus strobus</i>	In-kind replacement	Burial Grounds		X	
192	Red Pine	<i>Pinus resinosa</i>	Replace with white pine	Burial Grounds		X	Red pine has not performed favorably at site
193	White Pine	<i>Pinus strobus</i>	In-kind replacement	Burial Grounds		X	
194	Norway Maple	<i>Acer platanoides</i>	Removal	Burial Grounds		X	
195	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
196	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
197	Norway Spruce	<i>Picea abies</i>	In-kind replacement	Burial Grounds		X	Possible alternative deodar cedar
198	White Pine	<i>Pinus strobus</i>	In-kind replacement	Burial Grounds		X	
199	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	Repair turf at the time of removal
200	Balsam Fir	<i>Abies balsamea</i>	In-kind replacement	Burial Grounds		X	
201	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Burial Grounds		X	Chinese hemlock is resistant to woolly adelgid
202	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Burial Grounds		X	
203	Bald Cypress	<i>Taxodium distichum</i>	In-kind replacement	Cemetery Perimeter area		X	
204	Sweetgum	<i>Liquidambar styraciflua</i>	Replace with tulip poplar	Cemetery Perimeter area		X	Sweetgum is a fruitbearer that increases maintenance



**TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY**

2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
205	Tulip Poplar	<i>Liriodendron tulipifera</i>	In-kind replacement	Cemetery Perimeter area		X	
206	Eastern Hemlock	<i>Tsuga canadensis</i>	Removal	Burial Grounds		X	Repair turf at the time of removal
207	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Burial Grounds		X	
208	American Beech	<i>Fagus grandifolia</i>	Removal	Burial Grounds		X	
209	Norway Maple	<i>Acer platanoides</i>	Removal	Burial Grounds		X	
210	Red Maple	<i>Acer rubrum</i>	In-kind replacement	Burial Grounds		X	
211	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Removal	Burial Grounds		X	Coffee tree is a fruitbearer that increases maintenance
212	Nordmann Fir	<i>Abies nordmanniana</i>	In-kind replacement	Burial Grounds		X	
213	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	
214	Sugar Maple	<i>Acer saccharum</i>	Removal	Burial Grounds		X	
215	White Pine	<i>Pinus strobus</i>	Removal	Burial Grounds		X	
216	Tulip Poplar	<i>Liriodendron tulipifera</i>	In-kind replacement	Burial Grounds		X	
217	White Pine	<i>Pinus strobus</i>	Removal	Burial Grounds		X	
218	Horsechestnut	<i>Aesculus hippocastanum</i>	Removal	Cemetery Perimeter area	X		
219	Tulip Poplar	<i>Liriodendron tulipifera</i>	In-kind replacement	Cemetery Perimeter area		X	
220	Red Oak	<i>Quercus rubra</i>	In-kind replacement	Cemetery Perimeter area		X	
221	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
222	Flowering Dogwood	<i>Cornus florida</i>	In-kind replacement	Cemetery Perimeter area		X	
223	Norway Maple	<i>Acer platanoides</i>	Replace with sugar maple	Cemetery Perimeter area		X	
224	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
225	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
226	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
227	Red Maple	<i>Acer rubrum</i>	In-kind replacement	Cemetery Perimeter area		X	
228	Red Pine	<i>Pinus resinosa</i>	Removal	Cemetery Perimeter area		X	Red pine has not performed favorably at site
229	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
230	Pin Oak	<i>Quercus palustris</i>	In-kind replacement	Cemetery Perimeter area		X	
231	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Cemetery Perimeter area		X	Chinese hemlock is resistant to woolly adelgid
232	Red Pine	<i>Pinus resinosa</i>	Replace with white pine	Cemetery Perimeter area		X	
233	Sugar Maple	<i>Acer saccharum</i>	In-kind replacement	Cemetery Perimeter area		X	
234	American Beech	<i>Fagus grandifolia</i>	In-kind replacement	Cemetery Perimeter area		X	
235	Redbud	<i>Cercis Canadensis</i>	Removal	Boonsboro Pike area	X		
236	Flowering Dogwood	<i>Cornus florida</i>	Replace with American linden	Boonsboro Pike area	X		
237	Flowering Dogwood	<i>Cornus florida</i>	Removal	Boonsboro Pike area	X		
238	Red Maple	<i>Acer rubrum</i>	Replace with American linden	Boonsboro Pike area	X		
239	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Removal	Boonsboro Pike area		X	
240	Sugar Maple	<i>Acer saccharum</i>	Removal	Boonsboro Pike area	X		
241	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Removal	Boonsboro Pike area		X	
242	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Replace with American linden	Boonsboro Pike area		X	
243	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Replace with American linden	Boonsboro Pike area		X	
244	Red Maple	<i>Acer rubrum</i>	Replace with redbud or dogwood	Maintenance area		X	Replace with understory tree to avoid conflict with overhead utility
245	Red Maple	<i>Acer rubrum</i>	Replace with redbud or dogwood	Maintenance area		X	Replace with understory tree to avoid conflict with overhead utility
246	Sugar Maple	<i>Acer saccharum</i>	Replace with redbud or dogwood	Maintenance area		X	Replace with understory tree to avoid conflict with overhead utility
247	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Boonsboro Pike area		X	Chinese hemlock is resistant to woolly adelgid
248	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Boonsboro Pike area		X	Chinese hemlock is resistant to woolly adelgid
249	Eastern Hemlock	<i>Tsuga canadensis</i>	In-kind or Replace w/ Chinese hemlock	Boonsboro Pike area		X	Chinese hemlock is resistant to woolly adelgid
250	Red Oak	<i>Quercus Rubra</i>	In-kind replacement	Boonsboro Pike area		X	
251	Flowering Dogwood	<i>Cornus florida</i>	Removal	Boonsboro Pike area		X	
252	Red Oak	<i>Quercus Rubra</i>	Removal	Boonsboro Pike area		X	
253	Redbud	<i>Cercis Canadensis</i>	Removal	Boonsboro Pike area		X	
254	Redbud	<i>Cercis Canadensis</i>	In-kind replacement	Boonsboro Pike area		X	
255	Red Oak	<i>Quercus Rubra</i>	In-kind replacement	Boonsboro Pike area		X	
256	Flowering Dogwood	<i>Cornus florida</i>	Removal	Boonsboro Pike area		X	





TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY							
2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
257	Flowering Dogwood	<i>Cornus florida</i>	Removal	Boonsboro Pike area	X		
258	Red Oak	<i>Quercus Rubra</i>	In-kind replacement	Boonsboro Pike area		X	
259	Flowering Dogwood	<i>Cornus florida</i>	Removal	Boonsboro Pike area	X		
260	Redbud	<i>Cercis Canadensis</i>	In-kind replacement	Boonsboro Pike area		X	
261	Redbud	<i>Cercis Canadensis</i>	Removal	Boonsboro Pike area		X	
262	Flowering Dogwood	<i>Cornus florida</i>	Removal	Boonsboro Pike area		X	
Existing Shrubs							
BS	American Boxwood	<i>Buxus sempervirens</i>	Selectively prune	Multiple areas	X	X	
BSS	English Boxwood	<i>Buxus sempervirens 'suffruticosa'</i>	Selectively prune	Cemetery Perimeter area	X	X	
LS	Privet sp.	<i>Ligustrum sp.</i>	Removal	Lodge & Admin Grounds	X		
HS	Rose of Sharon	<i>Hibiscus syriacus</i>	Removal	Lodge & Admin Grounds	X		
RS	Rhododendron	<i>Rhododendron "Nova zembla"</i>	Removal	Lodge & Admin Grounds	X		
AZ	Azalea	<i>Azalea "Hinodegiri"</i>	Removal	Lodge & Admin Grounds	X		
VS	Viburnum sp.	<i>Viburnum sp.</i>	Removal	Lodge & Admin Grounds	X		
FS	Forsythia	<i>Forsythia</i>	Selectively prune	Multiple areas	X	X	
SS	Spirea sp.	<i>Spirea sp.</i>	Removal	Lodge & Admin Grounds	X		
TC	American Yew	<i>Taxus canadensis</i>	Removal	Multiple areas	X		
KL	Mountain Laurel	<i>Kalmia Latifolia</i>	Removal	Lodge & Admin Grounds	X		
IG	Inkberry	<i>Ilex glabra</i>	Removal	Lodge & Admin Grounds	X		
Proposed Trees							
263	Sugar Maple	<i>Acer saccharum</i>	Add	Lodge & Admin Grounds		X	Reestablish canopy tree; Thin and limb high upon maturity;
264	Sugar Maple	<i>Acer saccharum</i>	Add	Lodge & Admin Grounds		X	Reestablish canopy tree; Thin and limb high upon maturity;
265	Sugar Maple	<i>Acer saccharum</i>	Add	Lodge & Admin Grounds	X		Reestablish canopy tree; Thin and limb high upon maturity;
266	Sugar Maple	<i>Acer saccharum</i>	Add	Lodge & Admin Grounds		X	Reestablish canopy tree; Thin and limb high upon maturity;
267	Norway Spruce	<i>Picea abies</i>	Add	Lodge & Admin Grounds		X	Possible alternative deodar cedar
268	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	Add	Lodge & Admin Grounds	X		Reestablish canopy tree; plant podless honeylocust
269	White Oak	<i>Quercus alba</i>	Add	Lodge & Admin Grounds	X		Reestablish canopy tree that historically existed in location
270	Red Oak	<i>Quercus rubra</i>	Add	Lodge & Admin Grounds	X		Reestablish canopy tree that historically existed in location
271	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as "Armstrong" or "Bowhall"
272	Sugar Maple	<i>Acer saccharum</i>	Add	Lodge & Admin Grounds		X	Reestablish canopy tree; Thin and limb high upon maturity;
273	Red Oak	<i>Quercus rubra</i>	Add	Cemetery Perimeter area	X		
274	Horsechestnut	<i>Aesculus hippocastanum</i>	Add	Cemetery Perimeter area	X		Use cultivar that does not produce pods
275	Tulip Poplar	<i>Liriodendron tulipifera</i>	Add	Lodge & Admin Grounds		X	
276	White Pine	<i>Pinus strobus</i>	Add	Burial Grounds	X		
277	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as "Armstrong" or "Bowhall"
278	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as "Armstrong" or "Bowhall"
279	European Larch	<i>Larix decidua</i>	Add	Burial Grounds	X		
280	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Lodge & Admin Grounds	X		See Appendix XX: Recommended Plant List
281	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	Add	Lodge & Admin Grounds	X		Reestablish canopy tree; plant podless honeylocust
282	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Burial Grounds	X		Refer to Figure 2.8 for alternative to orchard
283	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Burial Grounds	X		Refer to Figure 2.8 for alternative to orchard
284	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Burial Grounds	X		Refer to Figure 2.8 for alternative to orchard
285	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Burial Grounds	X		Refer to Figure 2.8 for alternative to orchard
286	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Burial Grounds	X		Refer to Figure 2.8 for alternative to orchard
287	Malus or Pyrus sp.	<i>Malus or Pyrus sp.</i>	Add	Burial Grounds	X		Refer to Figure 2.8 for alternative to orchard
288	White Fir	<i>Abies concolor</i>	Add	Cemetery Perimeter area	X		Screen maintenance area
289	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	Add	Burial Grounds	X		
290	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
291	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
292	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids



TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY							
2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
293	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
294	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
295	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
296	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
297	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
298	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
299	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
300	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
301	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
302	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
303	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
304	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
305	Norway Spruce	<i>Picea abies</i>	Add	Burial Grounds		X	Possible alternative deodar cedar
306	Balsam Fir	<i>Abies balsamea</i>	Add	Burial Grounds		X	
307	Norway Spruce	<i>Picea abies</i>	Add	Burial Grounds		X	Possible alternative deodar cedar
308	White Oak	<i>Quercus alba</i>	Add	Burial Grounds		X	
309	Tulip Poplar	<i>Liriodendron tulipifera</i>	Add	Burial Grounds		X	
310	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
311	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
312	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
313	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
314	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
315	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
316	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
317	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
318	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
319	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
320	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
321	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
322	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
323	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
324	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
325	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
326	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
327	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
328	Tulip Poplar	<i>Liriodendron tulipifera</i>	Add	Burial Grounds		X	
329	Eastern Hemlock	<i>Tsuga canadensis</i>	Add	Cemetery Perimeter area		X	Possible alternative Chinese hemlock
330	Blue Spruce	<i>Picea pungens</i>	Add	Cemetery Perimeter area		X	
331	White Fir	<i>Abies concolor</i>	Add	Cemetery Perimeter area		X	
332	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
333	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
334	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
335	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
336	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
337	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
338	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
339	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
340	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
341	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
342	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
343	Red Maple	<i>Acer rubrum</i>	Add	Burial Grounds	X		Use cultivars such as “Armstrong” or “Bowhall”
344	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids



TABLE 5: PROPOSED PLANT LIST FOR ANTIETAM NATIONAL CEMETERY							
2014 Plant ID	Common Name	Botanical Name	Recommended Treatment	Management Area	Priority		Notes
345	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
346	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
347	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
348	Eastern Hemlock	<i>Tsuga canadensis</i>	Add	Cemetery Perimeter area		X	Possible alternative Chinese hemlock
349	Arborvitae	<i>Thuja occidentalis</i>	Add	Burial Grounds		X	
350	White Oak	<i>Quercus alba</i>	Add	Burial Grounds	X		Reestablish canopy tree that historically existed in location
351	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	Add	Burial Grounds	X		Reestablish canopy tree; plant podless honeylocust
352	European Larch	<i>Larix decidua</i>	Add	Burial Grounds	X		
353	White Fir	<i>Abies concolor</i>	Add	Burial Grounds	X		
354	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
355	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
356	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
357	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
358	White Pine	<i>Pinus strobus</i>	Add	Burial Grounds		X	
359	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	Add	Burial Grounds		X	
360	Blue Spruce	<i>Picea pungens</i>	Add	Cemetery Perimeter area		X	
361	Balsam Fir	<i>Abies balsamea</i>	Add	Cemetery Perimeter area	X		
362	Tulip Poplar	<i>Liriodendron tulipifera</i>	Add	Burial Grounds	X		
363	Norway Spruce	<i>Picea abies</i>	Add	Burial Grounds		X	Possible alternative deodar cedar
364	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
365	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
366	European Beech	<i>Fagus sylvatica 'Pendula'</i>	Add	Cemetery Perimeter area	X		
367	White Oak	<i>Quercus alba</i>	Add	Burial Grounds		X	Reestablish canopy tree that historically existed in location
368	Pin Oak	<i>Quercus palustris</i>	Add	Burial Grounds		X	Reestablish canopy tree that historically existed in location
369	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
370	American Elm	<i>Ulmus americana</i>	Add	Burial Grounds		X	Maintain diversity; use mix from Appendix XX: Elm Hybrids
371	Pin Oak	<i>Quercus palustris</i>	Add	Burial Grounds		X	
372	American Beech	<i>Fagus grandifolia</i>	Add	Burial Grounds		X	
373	Common horsechestnut	<i>Aesculus hippocastanum</i>	Add	Cemetery Perimeter area	X		
374	European Larch	<i>Larix decidua</i>	Add	Cemetery Perimeter area	X		
375	Tulip Poplar	<i>Liriodendron tulipifera</i>	Add	Burial Grounds	X		
376	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area	X		
377	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area	X		
378	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area	X		
379	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area		X	
380	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area		X	
381	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area		X	
382	American Linden	<i>Tilia americana</i>	Add	Boonsboro Pike area		X	
383	Flowering dogwood	<i>Cornus florida</i>	Add	Boonsboro Pike area		X	
384	Flowering dogwood	<i>Cornus florida</i>	Add	Boonsboro Pike area		X	
Proposed Shrubs							
NA	Shrub rose	<i>rosa sp.</i>	Add	Burial Grounds	X		A suitable cultivar is “knockout rose”
NA	American boxwood	<i>Buxus sempervirens</i>	Add	Burial Grounds	X		Use cultivars such as “Vardar Valley” and clip into mounds.
AZ	Azalea	<i>Rhododendron "Hinodegiri"</i>	Add	Lodge & Admin Grounds	X		
CH	Chinese Holly	<i>Ilex cornuta, 'fineline'</i>	Add	Lodge & Admin Grounds	X		
NA	Common cherrylaurel	<i>Prunus laurocerasus, Otto Luyken'</i>	Add	Lodge & Admin Grounds	X		
Sources: Gary L. Hightshoe, Native Trees, Shrubs, and Vines for urban and Rural America: A Planting Design Manual for Environmental Designers (1987) National Park Service, 1934 “Tree Key Sketch of Antietam National Cemetery” John Auwaerter, Cultural Landscape Report for Poplar Grove National Cemetery (2009) Michael A. Dirr, <i>Manual of Woody Landscape Plants</i> (1975) Denise Wiles Adams, <i>Restoring American Gardens: An Encyclopedia of Heirloom Ornamental Plants 1640-1940</i> (2004)							





**TABLE 6: SUPPLEMENTARY PLANT LIST INFORMATION FOR ANTIETAM NATIONAL CEMETERY**

RECOMMENDED PLANT SPECIES	COMMON NAME	HISTORIC PLANT SPECIES USED AT CEMETERY	NOTES
<b>Trees</b>			
<i>Abies balsamea</i>	Balsam fir	Same	Evergreen. Up to 75' tall, stiff in habit, symmetrically pyramidal or narrow-conical when young before losing its pyramidal habit with age. Related species <i>Abies nordmanniana</i> , <i>Abies concolor</i> .
<i>Abies concolor</i>	White fir	Same	Evergreen. Up to 50' tall, slow growing, conical and branched to the base, and stiff in habit. Needles are bluish or grayish green with pale bluish bands beneath; new growth a light green or bluish green.
<i>Abies nordmanniana</i>	Nordmann fir	Same	Evergreen. Up to 60' tall; black green needles directed upward and densely cover branches.
<i>Acer rubrum</i>	Red maple	Same	Deciduous. Up to 100' tall, fast growing. Heavy surface rooting; should not be planted near headstones. Use cultivar with fuller crown and fewer tendencies toward branch dieback than species, such as "Autumn Flame" in perimeter and administrative areas; use "Armstrong" or "Bowhall" along central path to statue.
<i>Acer saccharum</i>	Sugar maple	Same. Use as substitute for Norway maple and Silver maple	Deciduous. Up to 100' tall, moderate growth rate. Use cultivar with better heat tolerance than species, such as "Green Mountain," "Legacy," or "Commemoration." Because of the existing turf issues at the cemetery, use selectively to avoid added turf damage.
<i>Aesculus hippocastanum</i>	Common horsechestnut	Same. Use different cultivar.	Deciduous. Up to 75' tall. Upright-oval to rounded in outline; "Baumanni," cultivar is a suitable replacement that has no fruits and has a double white flower.
<i>Cedrus deodora</i>	Deodar cedar	Use as a substitute for Norway spruce, if desired (Norway spruce has been identified as an invasive "threat" in the region).	Evergreen. Up to 70' tall; medium growth rate; Broadly pyramidal when young with graceful, airy, pendulous evergreen branches; related to the Cedar of Lebanon, a symbolic tree used historically in cemeteries
<i>Celtis occidentalis</i>	Hackberry	Not applicable.	Deciduous. Possible replacement for American elm; member of the elm family with similar vase-shape habit.
<i>Cercis Canadensis</i>	Eastern Redbud	Not applicable, Supplement flowering dogwoods and understory flowering tree.	Deciduous. Up to 30' tall; moderate growth rate. Suitable in perimeter or administrative areas of cemetery, but not within burial grounds.
<i>Cornus florida</i>	Flowering dogwood	Same	Deciduous. Up to 30' tall; slow growth rate; small, low-branched tree with horizontally spreading lines, layering effect, usually a flat-topped crown
<i>Fagus grandifolia</i>	American beech	Same	Deciduous. Up to 70' tall; slow growth rate; sturdy, imposing tree often with a short trunk and wide-spreading crown; leaf color is dark green in summer and golden bronze in the fall.
<i>Fagus sylvatica 'Pendula'</i>	European weeping beech	Use as a substitute for weeping willow, a weak tree that was used in cemeteries—including Antietam National Cemetery—during the 19 <sup>th</sup> and 20 <sup>th</sup> centuries for its symbolic meaning.	Deciduous. Up to 60' tall, wider at maturity; slow to medium growth; Beautiful weeping form, sometimes the branches are horizontal for a distance and then turn down forming a tent-like mass. Weeping trees have symbolic meaning in cemeteries as the weeping form resembles mourning, bending with affliction. The habit of growth has a melancholy appearance.
<i>Gleditsia triacanthos</i>	Thornless Common Honeylocust	Not applicable. Planted after historic period, but is compatible within historic cemetery landscape.	Deciduous. Up to 70' tall, fast growing open-spreading canopy; light-shaded and consequently grass will grow well beneath tree; medium-fine textured leaves are bright green in summer and yellow in fall. Use podless cultivar, such as 'shademaster' or 'majestic.'
<i>Larix decidua</i>	European or Common Larch	Same	Deciduous. Up to 75' tall by 25' to 30' in width; medium to fast growing; open canopy; pyramidal, with horizontal branches and drooping branchlets;
<i>Liriodendron tulipifera</i>	Tulip-tree (yellow poplar)	Same.	Deciduous. Up to 100' tall, fast growing. Minimal surface roots.
<i>Malus sp.</i>	Apple varieties	Same	Deciduous. Between 15' and 25' tall,

			common fruit tree that produces white to pink or carmine to red to rose. Apple varieties that may be appropriate include York Imperial (originally Johnson's Fine Winter), Winesap, and Ben Davis. Other selections included McIntosh, Rome Beauty, and Rhode Island Greening (green apples were grown in the orchard in the early twentieth century). Contemporary cultivars of apple that are hardy and disease resistant include Red Delicious (or Fugi), Freedom, or Goldrush. Use multiple varieties, grouped together rather than scattered throughout the orchard. For maintenance purposes, a sterile variety may also be considered.
<i>Picea abies</i>	Norway spruce	Same; due to invasive "threat", deodar cedar or other evergreen with similar characteristics may be used as a substitute for Norway spruce, if desired.	Evergreen. Up to 200' tall; some surface rooting and heavy canopy. Many cultivars; use one with a graceful, drooping habit for burial grounds; use narrow cultivar for specimens to either side of entrance gates. Norway spruce has been identified as an invasive "threat" in the region. However, since there is a buffer (wall) around the perimeter of the property, it may be used on the property.
<i>Picea glauca</i>	White spruce	Same; due to invasive "threat", deodar cedar or other evergreen with similar characteristics may be used as a substitute for white spruce, if desired.	Evergreen. Up to 70' tall, some surface rooting and heavy canopy; a broad, dense pyramidal tree in youth, becoming tall, fairly narrow, dense spire, compact and regular, with horizontal to ascending branches; needles are glaucous green, variable dull blue-green to off-green. White spruce has been identified as an invasive "threat" in the region. However, since there is a buffer (wall) around the perimeter of the property, it may be used on the property.
<i>Pinus strobus</i>	White pine	Same.	Evergreen. Up to 80' tall and fast growing; wide-spread horizontal branching with delicate, soft, light bluish-green foliage; easily recognized because it is the only commonly grown five-needled pine. Provide ample space for this tree to grow and strive.
<i>Pyrus sp.</i>	Pear	Not known; most likely callery pear, <i>Pyrus communis</i>	Deciduous. Up to 50' tall, common fruit tree with white flowers. No longer existing in cemetery; historically planted in lodge grounds. Pear varieties that may be appropriate include Bartlett, Seckel, Flemish Beauty, Winter Nelis, Kieffer, and Beurre d'Anjou. Contemporary cultivars of pear that are hardy and disease resistant include Potomac, Blake's Pride, Sunrise, and Magness. Avoid contemporary ornamental cultivars, such as Bradford pear. For maintenance purposes, a sterile variety may be warranted.
<i>Quercus alba</i>	White oak	Not applicable. Supplement red oaks; provides diversity	Deciduous. Up to 80' tall, slow growing and moderately dense canopy; pyramidal when young, upright-rounded to broad-rounded with wide-spreading branches at maturity.
<i>Quercus palustris</i>	Pin oak	Not applicable. Suitable alternative to the American Linden that is proposed for the Boonsboro Pike area.	Deciduous. Up to 100' tall; fast growing; not prone to surface roots and has a moderate canopy density; strongly pyramidal in habit.
<i>Quercus rubra</i>	Red oak	Same	Deciduous Up to 100' tall, moderately dense canopy, relatively fast growing. Rounded in youth, in old age often round-topped and symmetrical.
<i>Taxodium distichum</i>	Baldcypress	Same	Deciduous. Up to 70' tall, sheds their needle-like leaves in the fall; fall colors are tan, cinnamon, and fiery orange; bark is brown or gray with a stringy texture; young trees have pyramidal (pyramid-shaped) crowns, but these even off to a columnar shape in adulthood; the feature that bald cypresses are really known for, though, is their "knees."
<i>Thuja occidentalis</i>	Eastern Arborvitae	Same	Evergreen. 40-50' tall, dense, pyramidal; Branches are erect and spreading with thin, scaly bark.
<i>Tilia americana</i>	American linden, basswood	Probably same. Established during historic period along	Deciduous. Up to 100' tall; select variety that is resistant to suckering; prune

		Boonsboro Pike following loss of Norway maples planted in the 1890s.	canopy high to allow adequate sunlight for understory turf.
<i>Tsuga chinensis</i>	Chinese hemlock	Use as a substitute for the Eastern hemlock ( <i>Tsuga canadensis</i> )	Evergreen. Up to 100' tall. Resistant to the hemlock woolly adelgid; shares some aesthetic similarities to eastern hemlock including attractive, dark green foliage and a prominent weeping leader. These traits along with its tolerance to shade make it a suitable substitute for eastern hemlock in the cemetery landscape.
<i>Ulmus sp.</i>	American elm	<i>Ulmus Americana.</i>	Deciduous. Up to 100' tall; was noted as a problem historically due to surface roots; most specimens removed during historic period. Plant only cultivar resistant to Dutch elm and elm yellowing disease (refer to appendix XX: elm substitutes). If no viable cultivar available, plant hackberry, which has a similar vase-shaped habit (in the elm family).
<b>Shrubs and Vines</b>			
<i>Buxus sempervirens</i> , 'Vardar Valley' or similar	Common boxwood, American boxwood	Probably common boxwood; (historic plants remain on site)	Evergreen. Most common shrub in cemetery during historic period. To be managed as shrubs clipped into mounds, approximately 3-4' high, 4-5' in diameter upon maturity. "Vardar Valley" is a dense, mound-forming variety with mid-to-dark green leaves.
<i>Buxus sempervirens</i> , 'suffruticosa'	English boxwood	Same	Evergreen. Few currently exist in the national cemetery and likely one of the oldest plants on the property. Dense, compact, slow-growing shrub; leaves quite fragrant and considered least susceptible to box leaf miner; if left alone it reminds of clouds fused together; leaves obovate-rounded, 1/3" to 3/4" long.
<i>Forsythia spp.</i>	Forsythia	Same; likely planted in the 1930s.	Deciduous. 8 to 10' tall by 10' to 12' wide; erect habit, with most canes growing upright. Some are weeping, creating a wild, unkempt look. The form varies depending on the variety; age of existing shrubs is uncertain, but were presumably planted in the 1930s.
<i>Rosa spp.</i>	Shrub rose	Not known.	Use low (2-3'), mounding rose, with extended bloom period; recommended for use in the outer edge of the proposed circular path around the central monument. A suitable cultivar is "knockout rose."
<b>Sources:</b> Gary L. Hightshoe, <i>Native Trees, Shrubs, and Vines for urban and Rural America: A Planting Design Manual for Environmental Designers</i> (1987) National Park Service, 1934 "Tree Key Sketch of Antietam National Cemetery" John Auwaerter, <i>Cultural Landscape Report for Poplar Grove National Cemetery</i> (2009) Michael A. Dirr, <i>Manual of Woody Landscape Plants</i> (1975) Denise Wiles Adams, <i>Restoring American Gardens: An Encyclopedia of Heirloom Ornamental Plants 1640-1940</i> (2004)			





## Cultural Landscape Report

## Antietam National Cemetery

Antietam National Battlefield  
Sharpsburg, Maryland

## 2014 Treatment-Site Wide



**National Park Service**  
National Capital Region  
Cultural Landscapes Program  
www.nps.gov

## SOURCES

1. National Capital Region, *Cultural Landscape Inventory for Antietam National Cemetery* (2005).
2. Antietam National Battlefield and NCR GIS Data
3. Aerial Images, 1936, 1937, 1943, 1952, 1988, 2000, 2004, 2005, 2007-2009; Orthophotography, 2011.
4. Proposed Planting Plan, 1938.
5. Proposed Planting Plan, 1973.
6. Existing Conditions Plan, 1957.
7. Existing Conditions Plan, 1978.
8. Tree Surveys, 1934, 1983, and 2002-2004.
9. Site visits in June and July 2014.

## DRAWN BY

Michael Comisso, AutoCAD 3D Map 2013 and Illustrator CS4, 2013.

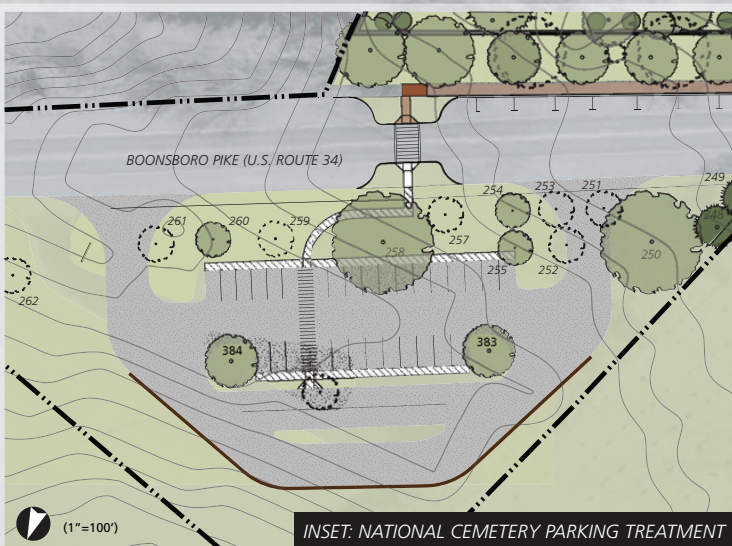
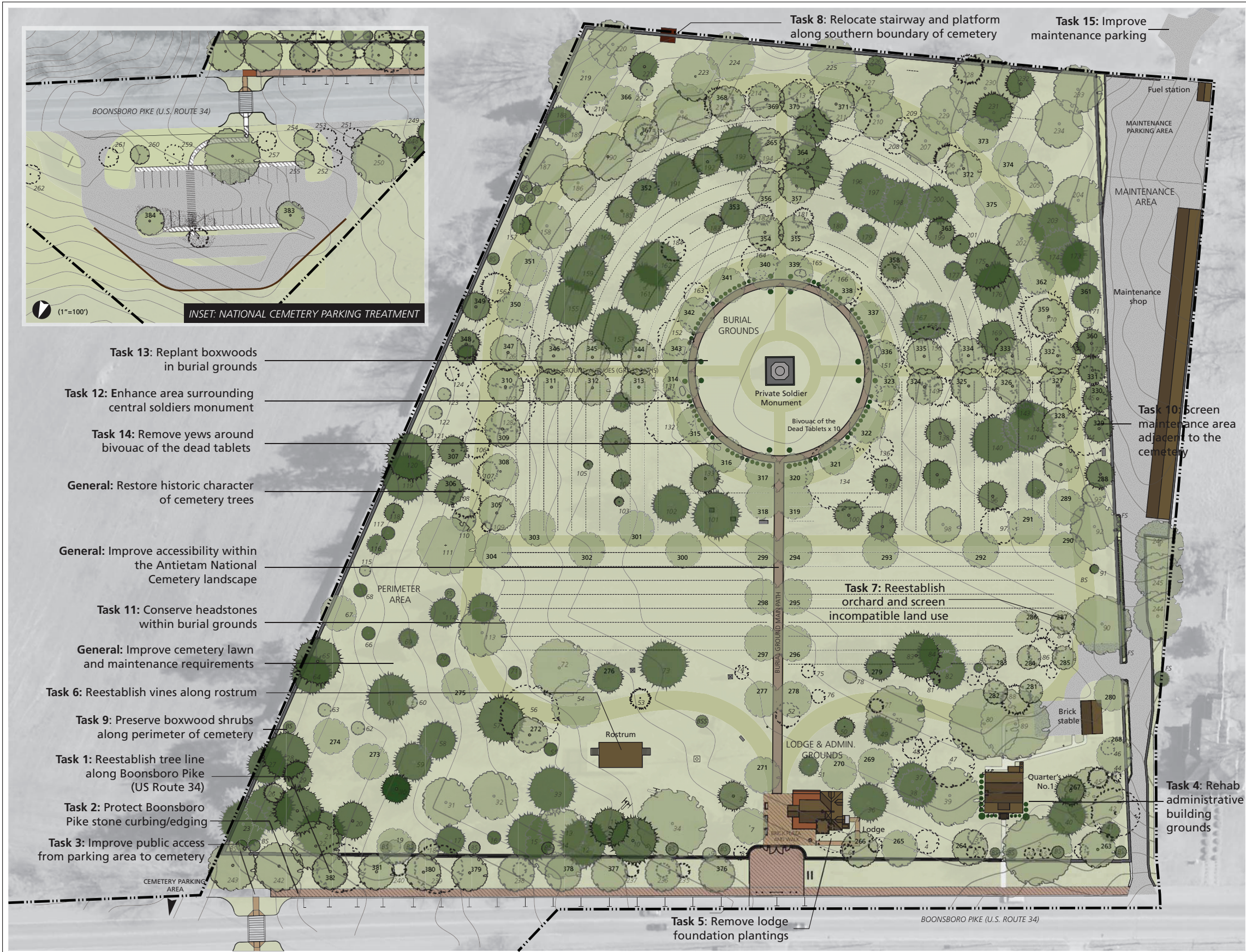
## LEGEND

	Building or structure
	Perimeter wall
	Asphalt driveway or parking lot
	Concrete walk
	Proposed main walk
	Brick walk
	Deciduous specimen tree
	Deciduous/evergreen tree or shrub
	Mown turf
	Project boundary
	Vegetation removed
	2' contour

## NOTES

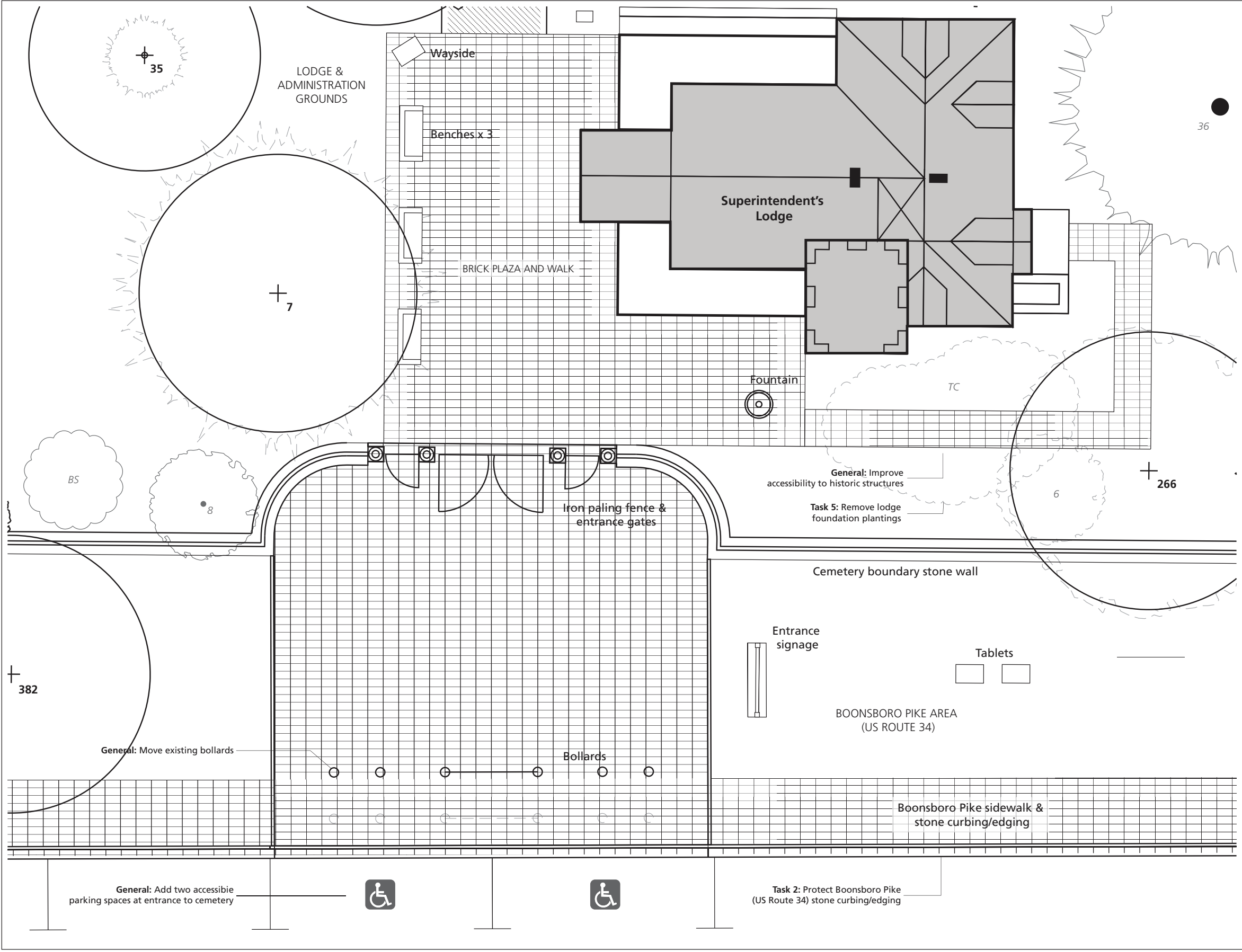
1. Plan shows conditions in 2014.
2. All features shown in approximate scale and location.
3. Plan represents locations of headstones, but does not accurately depict the actual number of headstones within each section; dashed line is a graphic representation.
4. Proposed placement of vegetation is approximate. Site conditions may require minor adjustments in planting locations.
5. Detailed information on the recommended plant species can be found in Table 4-6.

0' 25' 50' 100' (1"=80')  
**Drawing 2**









## Cultural Landscape Report

### Antietam National Cemetery

Antietam National Battlefield  
Sharpsburg, Maryland

### 2014 Treatment-Lodge Grounds



**National Park Service**  
National Capital Region  
Cultural Landscapes Program  
[www.nps.gov](http://www.nps.gov)

#### SOURCES

1. National Capital Region, *Cultural Landscape Inventory for Antietam National Cemetery* (2005).
2. Antietam National Battlefield and NCR GIS Data
3. Aerial Images, 1936, 1937, 1943, 1952, 1988, 2000, 2004, 2005, 2007-2009; Orthophotography, 2011.
4. Proposed Planting Plan, 1938.
5. Proposed Planting Plan, 1973.
6. Existing Conditions Plan, 1957.
7. Existing Conditions Plan, 1978.
8. Tree Surveys, 1934, 1983, and 2002-2004.
9. Site visits in June and July 2014.

#### DRAWN BY

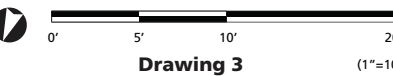
Michael Commisso, AutoCAD 3D Map 2013 and Illustrator CS4, 2013.

#### LEGEND

- Building or structure
- Proposed planting (tree or shrub)
- Existing vegetation to retain
- Remove planting (tree or shrub)
- Proposed 2' contour
- Existing 2' contour

#### NOTES

1. Plan shows conditions in 2014.
2. All features shown in approximate scale and location.
3. Plan represents locations of headstones, but does not accurately depict the actual number of headstones within each section; dashed line is a graphic representation.
4. Recommended Plant List can be found in *Appendix XX*.







Cultural Landscape Report

Antietam National Cemetery

Antietam National Battlefield  
Sharpsburg, Maryland

2014 Treatment-Site Wide  
Vegetation (Short-term)



**National Park Service**  
National Capital Region  
Cultural Landscapes Program  
www.nps.gov

SOURCES

1. National Capital Region, *Cultural Landscape Inventory for Antietam National Cemetery* (2005).
2. Antietam National Battlefield and NCR GIS Data
3. Aerial Images, 1936,1937,1943,1952,1988, 2000, 2004, 2005,2007-2009; Orthophotography, 2011.
4. Proposed Planting Plan, 1938.
5. Proposed Planting Plan, 1973.
6. Existing Conditions Plan, 1957.
7. Existing Conditions Plan, 1978.
8. Tree Surveys, 1934, 1983, and 2002-2004.
9. Site visits in June and July 2014.

DRAWN BY

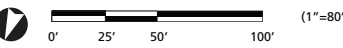
Michael Commisso, AutoCAD 3D Map 2013 and Illustrator CS4, 2013.

LEGEND

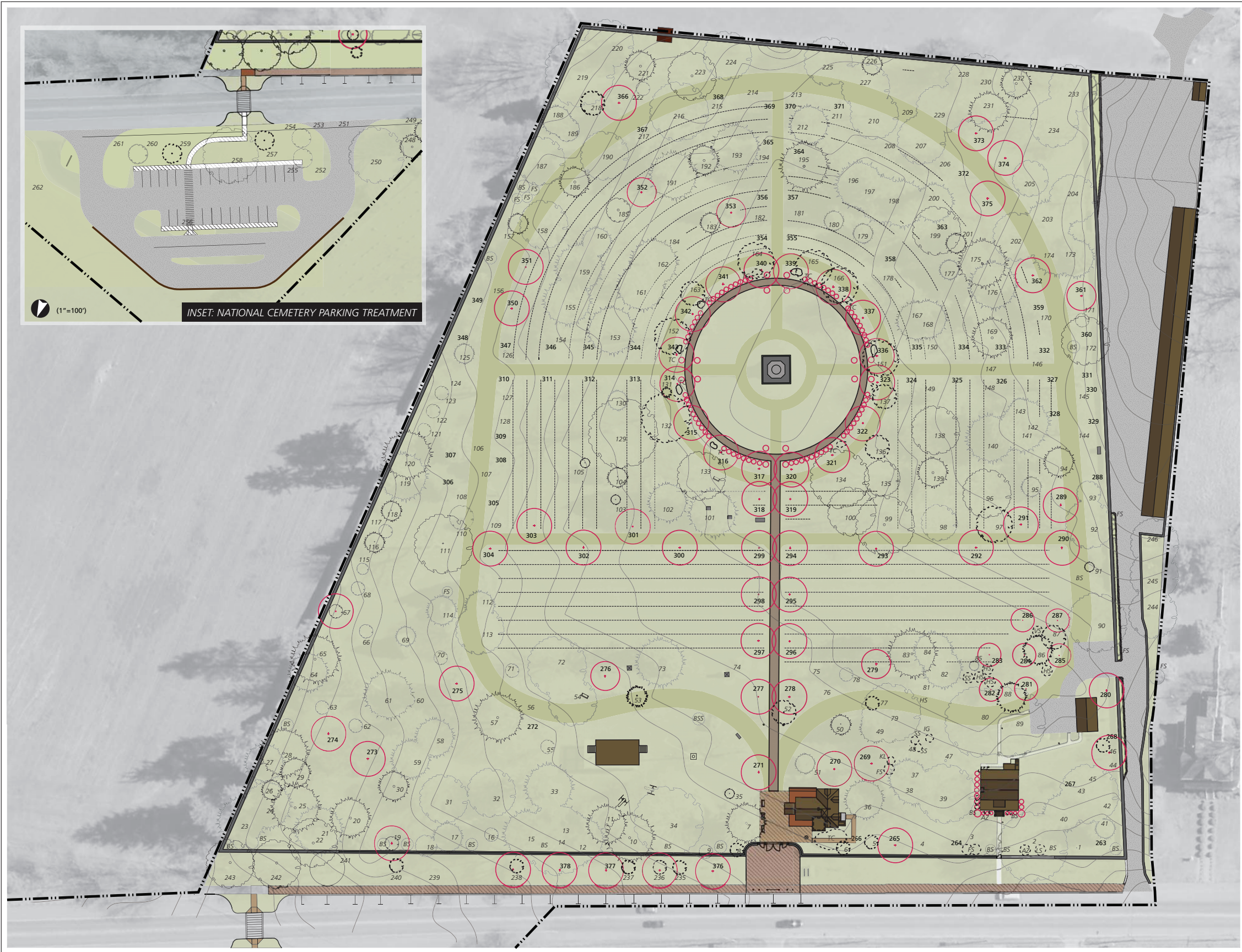
- Building or structure
- Perimeter wall
- Asphalt driveway or parking lot
- Concrete walk
- Proposed main walk
- Brick walk
- Mown turf
- Project boundary
- Existing vegetation to retain
- Add or replace vegetation (Short-term)
- Vegetation to remove (Short-term)

NOTES

1. Plan shows conditions in 2014.
2. All features shown in approximate scale and location.
3. Plan represents locations of headstones, but does not accurately depict the actual number of headstones within each section; dashed line is a graphic representation.
4. Proposed placement of vegetation is approximate. Site conditions may require minor adjustments in planting locations.
5. Detailed information on the recommended plant species can be found in *Tables 4-6*.



Drawing 4







Cultural Landscape Report

Antietam National Cemetery

Antietam National Battlefield  
Sharpsburg, Maryland

2014 Treatment-Site Wide  
Vegetation (Long-term)



National Park Service  
National Capital Region  
Cultural Landscapes Program  
www.nps.gov

SOURCES

1. National Capital Region, *Cultural Landscape Inventory for Antietam National Cemetery* (2005).
2. Antietam National Battlefield and NCR GIS Data
3. Aerial Images, 1936,1937,1943,1952,1988, 2000, 2004, 2005,2007-2009; Orthophotography, 2011.
4. Proposed Planting Plan, 1938.
5. Proposed Planting Plan, 1973.
6. Existing Conditions Plan, 1957.
7. Existing Conditions Plan, 1978.
8. Tree Surveys, 1934, 1983, and 2002-2004.
9. Site visits in June and July 2014.

DRAWN BY

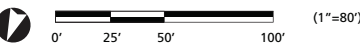
Michael Commisso, AutoCAD 3D Map 2013 and Illustrator CS4, 2013.

LEGEND

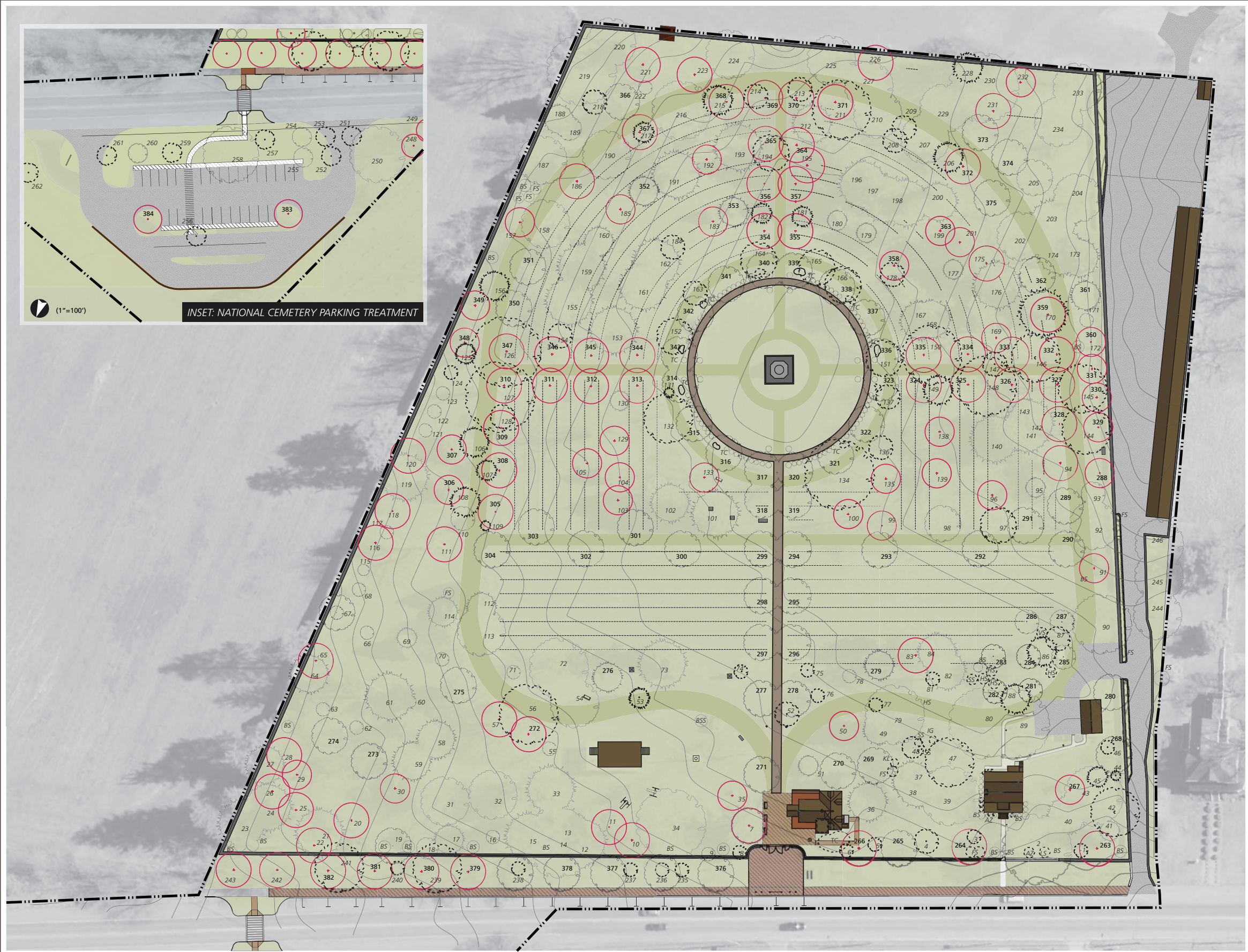
- Building or structure
- Perimeter wall
- Asphalt driveway or parking lot
- Concrete walk
- Proposed main walk
- Brick walk
- Mown turf
- Project boundary
- Existing vegetation to retain
- Add or replace vegetation (Long-term)
- Vegetation to remove (Long-term)

NOTES

1. Plan shows conditions in 2014.
2. All features shown in approximate scale and location.
3. Plan represents locations of headstones, but does not accurately depict the actual number of headstones within each section; dashed line is a graphic representation.
4. Proposed placement of vegetation is approximate. Site conditions may require minor adjustments in planting locations.
5. Detailed information on the recommended plant species can be found in *Table 4-6*.



Drawing 5









## REFERENCES



## BIBLIOGRAPHY

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**United States War Department. Office of the Quartermaster General** *Regulations for the Government of National Cemeteries*. Washington, D. C.: Government Printing Office. 1931.

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National Archives and Records Administration, Washington, DC. Record Group 92 Records of the Office of the Quartermaster General. Entry 89, General Correspondence, 1890-1914; Entry 576, General Correspondence and Reports relating to National and Post Cemeteries, 1865-1890; Entry 707, Records of Cemeterial Commissions, 1893-1916, Antietam Battlefield Commission, Letters and reports to Secretary, 1894-98.



## APPENDICES



## APPENDIX A TREE AND SHRUB INVENTORY





## APPENDIX A: TREE AND SHRUB INVENTORY

The tree and shrub inventory at Antietam National Cemetery was an important component in the compilation of this document. It expands upon previous inventories that were completed in the past (1934, 1957, 1973, 1978, 1983, and 2002-2003 inventories; however, they focused solely on trees). The intent of this inventory is to form a baseline of detailed information about the trees and shrubs that will assist the park in managing and caring for these important and character-defining features within the national cemetery landscape; it will also provide invaluable documentation that may be integrated within the National Park Service Facility Management Software System. This inventory also forms the foundation for the completion of a comprehensive Preservation Maintenance Plan for the cemetery. A comprehensive plan would provide park staff with information on the condition, care, and preservation of each individual plant in the cemetery. This tree and shrub inventory was not limited to the cemetery landscape, but also included the maintenance facility adjacent to the cemetery and the parking area along Boonsboro Pike.

### **TREE INVENTORY METHODOLOGY AND FIELD PROCESS**

With its improved functionality with ArcGIS, the collection of tree data involved importing spatial data, aerial imagery, and plans into a georeferenced AutoCAD drawing. Once existing data was consolidated and brought into AutoCAD, a base map was developed that consisted of, among other features, a tree and shrub layer that included center points and canopies for all tree specimens (Note: A georeferenced AutoCAD drawing enables layers to be easily exported as shapefiles). Once the base map was complete, numerous field investigations were carried out to verify the accuracy of the information and data. In addition to the drawing, an excel document was created to maintain relevant data that was collected for each tree and shrub. The tree and shrub inventory is provided in table XX. The list references each plant by plant ID (if known), code, botanical name (genus and species), common name, origin, and drawing symbol category. Additional information is provided for trees, which includes the diameter breast height (for the years, 1934, 2002, and 2014); approximate age; if cabling and tags

are present; and condition. Trees are assessed by the canopy and trunk conditions and are given a corresponding code as shown below:

**Canopy**

- A Good: full crown, vigorous growth, no immediate care required
- B Fair: minor problems, minimal deadwood with a diameter of less than 3 inches, minor pruning recommended
- C Poor: major problems, deadwood of over 3 inches and not more than six branches, major pruning recommended, monitor for hazard, possible removal
- D Failing: major dieback in crown, near dead or standing dead, hazard to be removed
- E Dead: Stump or depression (tree identified if possible)

**Trunk**

- 1 No visible damage
- 2 Damage including wounds, mushrooms, cracks, or minor decay issues

Canopies were rated in alphabetical order from A to E. An A-rating indicates trees in good condition with a full crown, vigorous growth and no maintenance required. B signifies canopies with minor problems, such as minimal deadwood up to three inches in diameter. Routine maintenance pruning will aid tree health and appearance. The C-rating is applied when major deadwood is present on up to six branches with diameters of more than three inches. Pruning should be done for the health and longevity of the tree and for potential hazard control. A rating of D signifies major dieback in the crown indicating that the tree is in serious decline and an arborist should review for potential removal or significant repair. A D-rating is also used for standing dead trees. The E-rating is used for stumps or depressions where a tree has been removed, with stumps identified where possible.

Tree trunks were given a rating of 1 or 2. Trunks in good condition with no visible problems or very minor ones that will be outgrown were rated 1. Trunks with any damage including cracks, wounds, fungus, and visible decay were rated as 2.

The ratings will serve as a guide for the park, helping them to quickly determine the needs of individual trees within the cemetery landscape and possible methods of care, maintenance, removal and replacement where needed. The mapping will

allow maintenance crews and/or arborists to pinpoint problem areas with minimal in-field investigation involved. The existing conditions plan also serves as a thorough capture of the landscape details in 2014 as a record of pre-landscape preservation intervention. <sup>1</sup>

An important component of the tree inventory was to develop a uniform method of determining which trees date to the period of significance for the landscape. Following a methodology established by Heritage Landscapes, determining approximate age involved using the current diameters at breast height (DBH) of trees and sizing them back based on the number of years elapsed and the growth rate of specific tree types—which varies depending upon the tree genus, species, and growing conditions. For Antietam National Cemetery, the tree dating process is based on a comparison of the known diameters at breast height (DBH) of existing trees today with the recorded DBH from the 1934 and 2002 tree surveys. This estimation was also verified by comparing the DBH of the existing trees with estimated DBH of trees in historic photographs and plans, specifically the 1934 tree inventory.

## **TREE INVENTORY FINDINGS**

The tree inventory was completed over a period of several weeks during June and July 2014. For the purposes of this report, the major findings of the Antietam National Cemetery Tree and Shrub Inventory are limited to the cemetery landscape. In summary the tree inventory included:

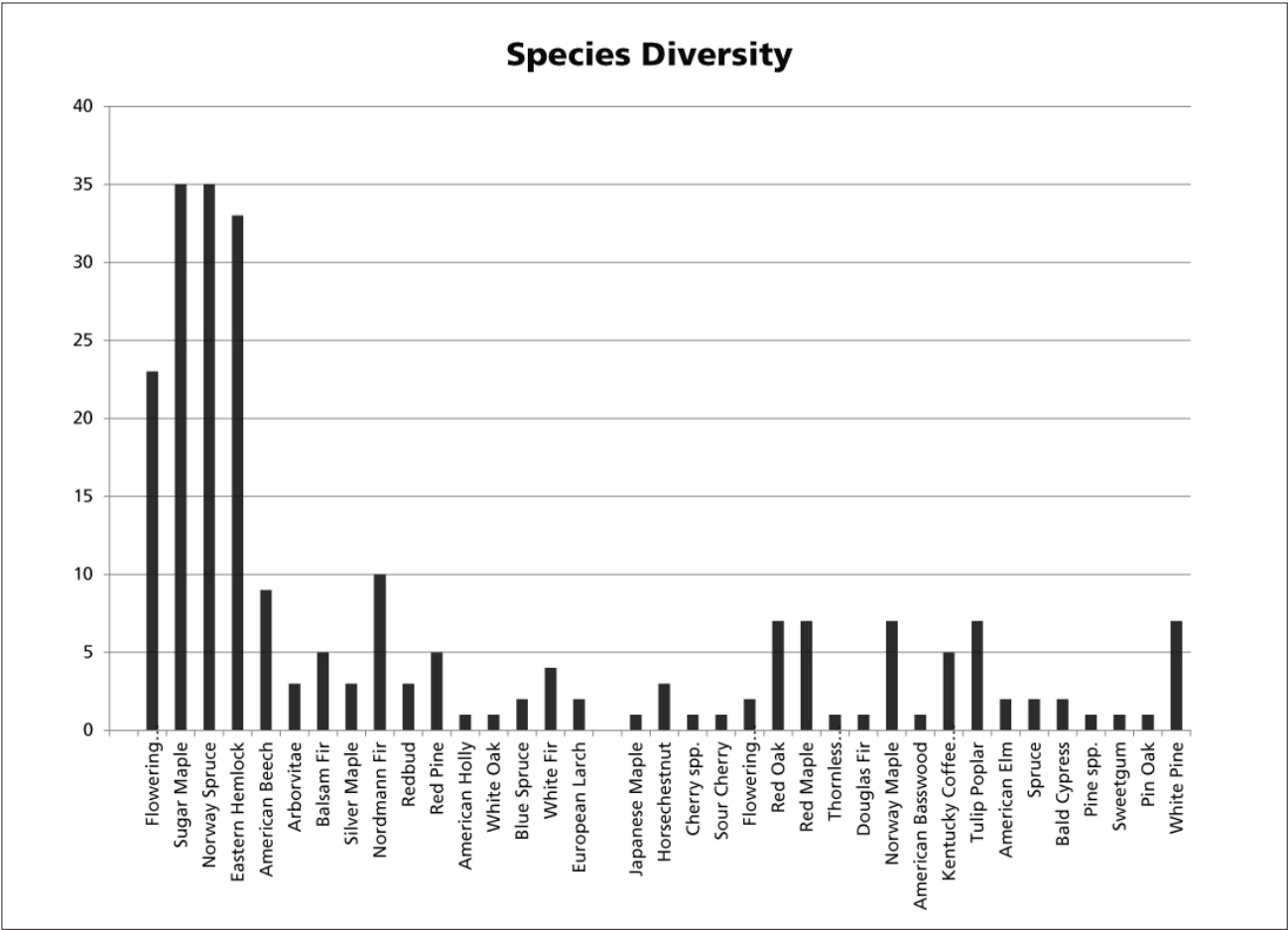
- 234 trees were inventoried within Antietam National Cemetery landscape; 262 trees in project area;
- Sugar maple (*Acer saccharum*) and Norway spruce (*Picea abies*) comprise the majority of the deciduous and evergreen trees within the cemetery landscape;
- The size distribution indicates a high percentage of medium to large, or mature trees
- 54 trees were identified as existing during or before the end of the historic period (1933)

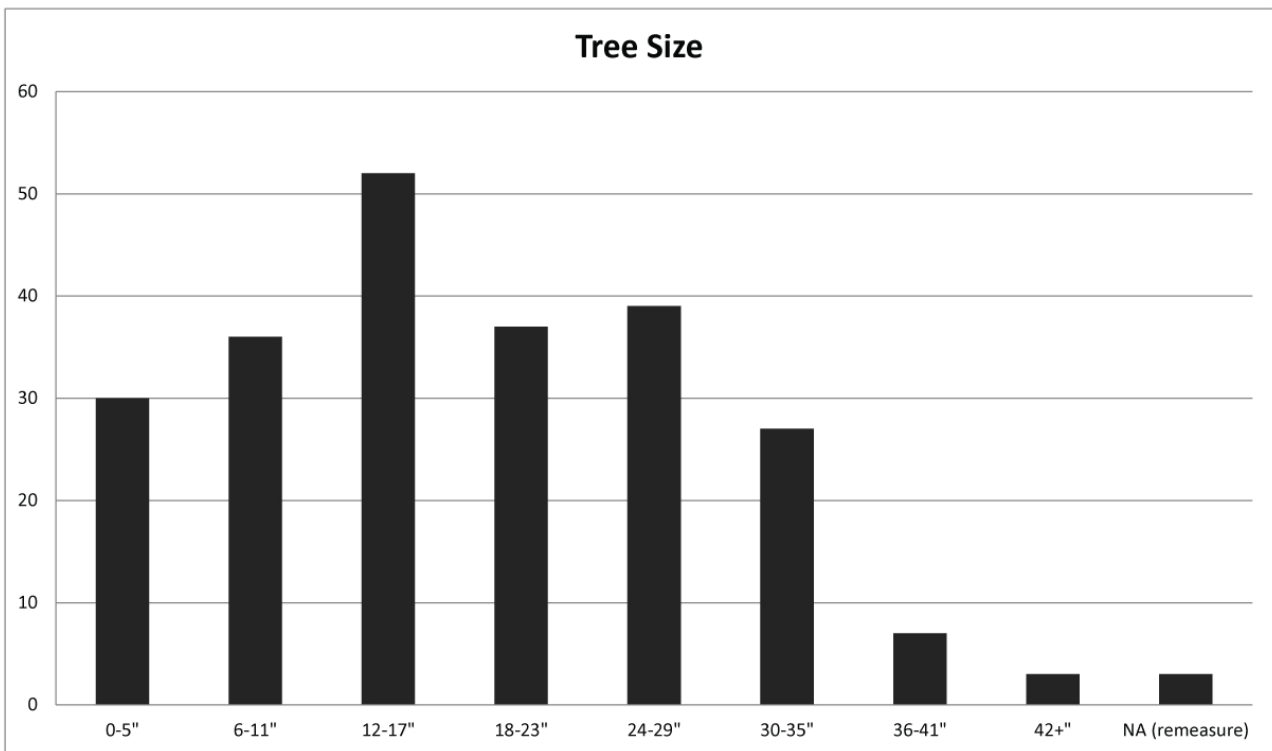
**SPECIES DIVERSITY**

Thirty-six individual species of trees were identified with the Antietam National Cemetery landscape. As shown in the below species diversity chart, four species represent over 54% of the inventoried population. The species contributing most significantly to the tree population is flowering dogwood (*Cornus florida*), sugar maple (*Acer saccharum*), Norway spruce (*Picea abies*), and eastern hemlock (*Tsuga canadensis*). A table illustrating the relationship of all inventoried trees is provided in Appendix XX: Tree and Shrub Inventory for Antietam National Cemetery.

**TREE SIZE DISTRIBUTION**

The below chart appears to indicate that the tree population within the cemetery landscape has a broad distribution of young to mature trees. Based on the tree inventory, approximately thirty trees have a DBH of less than 5”; thirty-six trees have a DBH between 6” and 11”; fifty-two trees have a DBH between 12” and 17”; thirty-seven trees have a DBH between 18” and 23”; thirty-nine trees have a DBH between 24” and 29”; twenty-seven trees have a DBH between 30” and 35”; seven trees have a DBH between 36” and 41”; and three trees have a DBH of over 42”.





This balanced distribution of size classes, or ages is an important consideration in the management of the cemetery landscape. The uneven aged distribution of trees is more desirable. The planting of new trees on a sustained basis helps preserve the tree canopy as older, larger trees are removed.

### **TREE AGE OBSERVATION**

Of the trees inventoried within Antietam National Cemetery, it was determined that fifty-four existed during or before the end of the period of significance (1933). As described earlier, the approximate age of the individual trees was determined by examining and comparing growth rates at Antietam National Cemetery and other historic properties within the region, as well as through analysis of historic images and plans. Besides the trees that existed during the historic period, approximately thirty-four trees were planted between 1938 and 1957; twenty trees were planted between 1957 and 1973; forty-two trees were planted between 1973 and 1983; forty-five trees were planted between 1983 and 2002; and thirty-nine trees were planted between 2002 and 2014.





**INVENTORY RECOMMENDATIONS**

The tree inventory was compiled within an excel document. In order to obtain the maximum value from this information it should be updated on a regular and systematic basis. As previously mentioned, in addition to the excel document, a georeferenced AutoCAD file was created that can be easily imported into a GIS based shapefile. The tree inventory also includes an updated tree numbering system that should be used to implement a new tree tagging system. It is recommended as a baseline to utilize a different tagging system then the aluminum tags that are currently used at the cemetery. Tree tags are available in many materials and forms.

A key component to the usefulness and validity of the tree inventory is to perform routine updates to the tree inventory document. The entire inventory should be updated within a five year period, or sooner. New plantings should be added and tree removals should be noted to the inventory when they take place.

**ENDNOTES**

1 Patricia M. O'Donnell, Peter Viteretto, et.al. Cultural Landscape Report for Camp Hill, Harpers Ferry National Historical Park (Prepared by Heritage Landscapes for National Park Service, National Capital Region, Project No: HAFE 041186, June 2009) III.3-III.5.

APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY															
2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category		Size  (DBH)		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
						1934		2002							
Trees															
1	a	NA	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	3.3	5.2	1983-2002	A	1	N	N	Native	
2	1	4	Sugar Maple	Acer saccharum	Deciduous Tree	13	31.6	34.4	PRE-1933	A	1	N	Y	Native	
3	2	310	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	9.5	10.3	1957-1973	A	1	N	N	Native	Not identified on 1957 existing conditions map
4	d	NA	Sugar Maple	Acer saccharum	Deciduous Tree	NA	6.2	13.7	1983-2002	A	1	N	N	Native	
5	C1	NA	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	NA	4	2002-2014	A	1	N	N	Native	
6	7	310	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	8.2	8.4	1957-1973	C	1	N	N	Native	Requires pruning
7	11	NA	Norway Spruce	Picea abies	Evergreen Tree	NA	20.2	24.5	1938-1957	A	1	N	N	Exotic	
8	C2	NA	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	NA	3	2002-2014	A	1	N	N	Native	
9	15	22	Flowering Dogwood	Cornus florida	Deciduous Tree	7	12.8	13.3	PRE-1933	A	1	N	Y	Native	
10	18	23	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	10	25.4	26	PRE-1933	A	1	N	Y	Native	
11	19	305	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	NA	21	22.7	1938-1957	A	1	N	N	Native	
12	20	25	Norway Spruce	Picea abies	Evergreen Tree	18	24.7	24.7	PRE-1933	A	1	N	Y	Exotic	
13	21	27	Norway Spruce	Picea abies	Evergreen Tree	18	23.5	23.7	PRE-1933	A	1	N	Y	Exotic	
14	22	26	American Beech	Fagus grandifolia	Deciduous Tree	18	39.4	42.5	PRE-1933	A	1	N	Y	Native	
15	23	28	Arborvitae	Thuja occidentalis	Evergreen Tree	10	36.3	36.8	PRE-1933	C	2	N	N	Native	Leaning; possible hazard; symbolic species
16	25	310	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	11.8	13.1	1938-1957	A	1	N	N	Native	
17	26	NA	Balsam Fir	Abies balsamea	Evergreen Tree	NA	9.1	2.7	2002-2014	A	1	N	N	Native	Removed in 2008; replaced in-kind
18	27	NA	Flowering Dogwood	Cornus florida	Deciduous Tree	NA	14.5	15.1	1938-1957	A	1	N	N	Native	
19	28	32	Silver Maple	Acer saccharinum	Deciduous Tree	20	38.2	5.2	2002-2014	A	1	N	N	Native	Removed in 2003; replaced in-kind
20	29	305	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	NA	18.7	20	1938-1957	B	1	N	N	Native	Requires Pruning
21	31	33	Nordmann Fir	Abies nordmanniana	Evergreen Tree	NA	25.9	26.5	1938-1957	A	1	N	N	Exotic	
22	32	NA	Redbud	Cercis Canadensis	Deciduous Tree	NA	NA	5	2002-2014	A	1	N	N	Native	Replaced pre-1933 silver maple
23	33	36	Norway Spruce	Picea abies	Evergreen Tree	12	25.5	26.9	PRE-1933	A	1	N	Y	Exotic	Identified as white spruce on 1934 survey
24	34	37	Norway Spruce	Picea abies	Evergreen Tree	18	27.5	28.8	PRE-1933	A	1	Y	Y	Exotic	Cable, Lighning Rod
25	35	38	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	12	31.3	31.5	PRE-1933	A	1	N	Y	Native	
26	36	NA	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	NA	7.1	11.8	1983-2002	A	1	N	N	Native	Replaced Norway Spruce (#39 on 1934)
27	37	41	Norway Spruce	Picea abies	Evergreen Tree	13	21.2	28	PRE-1933	A	1	N	N	Exotic	Identified as white spruce on 1934 survey
28	38	43	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	14	28.2	29.2	PRE-1933	C	1	N	Y	Native	Requires Pruning
29	39	NA	Red Pine	Pinus resinosa	Evergreen Tree	NA	15.1	15.6	1938-1957	C	1	N	N	Native	Requires Pruning
30	51	303	American Holly	Ilex opaca	Evergreen Tree	NA	14.1	16.4	1938-1957	A	1	N	N	Native	symbolic species
31	52	NA	American Beech	Fagus grandifolia	Deciduous Tree	NA	19.1	28.6	1973-1983	A	1	N	N	Native	
32	dd	NA	White Oak	Quercus alba	Deciduous Tree	NA	10.2	20.8	1983-2002	A	1	N	N	Native	symbolic species
33	58	63	Norway Spruce	Picea abies	Evergreen Tree	30	38.9	39.5	PRE-1933	A	1	Y	N	Exotic	Lightning Rod
34	C3	NA	American Beech	Fagus grandifolia	Deciduous Tree	NA	NA	38.7	1938-1957	A	1	N	N	Native	
35	13	NA	Blue Spruce	Picea pungens	Evergreen Tree	NA	34.3	2.6	2002-2014	A	1	N	N	Native	Replaced Norway Spruce (#73 on 1934 inventory)
36	74	302	Norway Spruce	Picea abies	Evergreen Tree	NA	19.4	25.8	1957-1973	B	1	N	N	Exotic	Limb up
37	82	88	White Fir	Abies concolor	Evergreen Tree	7	23.6	25.9	PRE-1933	A	1	N	N	Native	Identified as nordmann fir on 1983 survey
38	83	87	Norway Spruce	Picea abies	Evergreen Tree	19	23.7	24.4	PRE-1933	A	1	N	N	Exotic	



APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY															
2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category		Size (DBH)		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
						1934	2002	2014							
39	84	NA	American Beech	<i>Fagus grandifolia</i>	Deciduous Tree	NA	28.8	34.6	1957-1973	A	1	N	N	Native	
40	96	97	European Larch	<i>Larix decidua</i>	Deciduous Tree	16	20.3	21.2	PRE-1933	A	1	N	Y	Exotic	
41	97	300	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	NA	15	17	1938-1957	A	2	N	Y	Exotic	
42	98	402	Japanese Maple	<i>Acer palmatum</i>	Deciduous Tree	NA	12.6	24	1957-1973	B	1	N	N	Exotic	Requires pruning; 2014 dbh combined multi-trunk
43	99	98	Horsechestnut	<i>Aesculus hippocastanum</i>	Deciduous Tree	15	25.2	26.6	PRE-1933	A	1	N	Y	Exotic	
44	C4	NA	Balsam Fir	<i>Abies balsamea</i>	Evergreen Tree	NA	NA	1.6	2002-2014	A	1	N	N	Native	
45	100	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	16.2	4.2	2002-2014	A	1	N	N	Native	Red Pine (#101 on 1934 inventory) removed 2008
46	b	NA	Cherry spp.	<i>Prunus spp.</i>	Deciduous Tree	NA	11.3	13.8	1983-2002	A	2	N	N	Native	Trunk has cavity rot
47	85	411	Sour Cherry	<i>Prunus cerasus</i>	Deciduous Tree	NA	14.5	15.3	1957-1973	A	1	N	N	Exotic	
48	81	409	Flowering Crabapple	<i>Malus spp.</i>	Deciduous Tree	NA	15.2	15.7	1957-1973	A	1	N	N	Native	
49	76	408	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	NA	14.3	16	1957-1973	A	1	N	N	Exotic	
50	73	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	11	31	6.7	2002-2014	A	1	N	N	Native	Replaced hemlock (#78 in 1934) destroyed in 2003
51	C5	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	NA	9.5	2002-2014	A	1	N	N	Exotic	
52	e	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	6.4	12	1983-2002	A	1	N	N	Native	
53	63	NA	Balsam Fir	<i>Abies balsamea</i>	Evergreen Tree	NA	13.4	19.4	1983-2002	A	1	N	N	Native	
54	61	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	13.4	17.5	1973-1983	A	1	N	N	Native	
55	57	310	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	9.8	10.2	1957-1973	A	1	N	N	Native	
56	ee	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	27.5	34	1938-1957	B	1	N	N	Native	Damaged, TS Isabel 2003
57	55	58	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	17	34	36.1	PRE-1933	A	1	Y	N	Native	Lightning Rod
58	48	54	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	18	23	24	PRE-1933	A	1	N	N	Exotic	
59	49	55	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	18	21.5	22.3	PRE-1933	A	1	N	N	Exotic	
60	47	NA	Red Oak	<i>Quercus rubra</i>	Deciduous Tree	NA	28.3	2.7	2002-2014	A	1	N	N	Native	Removed Norway spruce (#51) and replaced w/ oak
61	45	50	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	24	32	32.5	PRE-1933	C	1	Y	N	Exotic	
62	NA	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	1.8	1973-1983	A	1	N	N	Native	
63	41	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	8.9	10.3	1973-1983	A	1	N	N	Native	
64	42	45	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	18	30	7	2002-2014	A	1	N	N	Exotic	Shown as white spruce in 1934; replaced with spruce
65	43	47	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	12	46.6	47.3	PRE-1933	A	1	Y	Y	Native	Lightning Rod
66	gg	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	1.4	5.1	1983-2002	A	1	N	N	Native	
67	C7	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	2.8	2002-2014	A	1	N	N	Native	
68	187	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	10.5	6.8	2002-2014	A	1	N	N	Native	Replaced in-kind since 2003
69	hh	NA	Blue Spruce	<i>Picea pungens</i>	Evergreen Tree	NA	7.2	15.8	1983-2002	A	1	N	N	Native	
70	46	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	2	1.7	5	2002-2014	A	1	N	N	Native	Dogwood (#49 in 1934); replaced in-kind in 2002
71	ii	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	2.9	5.8	1983-2002	A	1	N	N	Native	
72	60	60	Horsechestnut	<i>Aesculus hippocastanum</i>	Deciduous Tree	14	28	29	PRE-1933	A	1	N	N	Exotic	
73	64	67	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	24	30.9	33	PRE-1933	C	2	N	N	Exotic	
74	jj	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	2.3	5.9	1983-2002	A	1	N	N	Native	
75	72	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	2.6	5.2	1983-2002	A	1	N	N	Native	
76	71	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	7.6	9	1983-2002	A	1	N	N	Native	
77	77	410	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	6.8	1957-1973	A	1	N	N	Native	
78	C8	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	NA	2.8	2002-2014	A	1	N	N	Native	





APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY															
2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category		Size		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
							(DBH)								
						1934	2002	2014							
79	80	NA	Thornless Honeylocust	<i>Gleditsia triacanthos inermis</i>	Deciduous Tree	NA	24.1	27.3	1938-1957	A	1	N	N	Native	
80	86	91	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	15	31.9	35.5	PRE-1933	A	1	N	Y	Native	
81	89	406	Flowering Crabapple	<i>Malus spp.</i>	Deciduous Tree	NA	10	NA	1973-1983	A	1	N	N	Native	
82	90	85	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	20	22.4	23.2	PRE-1933	B	1	N	Y	Exotic	
83	87	83	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	20	27.7	28.6	PRE-1933	A	1	N	Y	Native	
84	88	84	European Larch	<i>Larix decidua</i>	Deciduous Tree	19	22.2	22.2	PRE-1933	A	1	N	Y	Exotic	
85	f	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	2	4	2002-2014	A	1	N	N	Native	
86	103	305	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	14.5	17	1938-1957	B	1	N	Y	Native	
87	C9	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	NA	7.3	2002-2014	A	1	N	N	Native	
88	93	305	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	12	14	1938-1957	B	1	N	Y	Native	
89	94	95	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	22	33.1	35	PRE-1933	A	1	Y	N	Native	Lightning rod, cabling
90	106	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	23.2	26.8	1938-1957	A	1	N	N	Native	Not on 1934 inventory, but may date to period
91	109	NA	Red Pine	<i>Pinus resinosa</i>	Evergreen Tree	NA	5.6	7.7	1973-1983	A	1	N	N	Native	
92	111	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	17.4	20.2	1938-1957	B	1	N	N	Native	Minor deadwood
93	i	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	4.6	10.7	1983-2002	A	1	N	N	Native	
94	112	NA	Douglas Fir	<i>Pseudotsuga menziesii</i>	Evergreen Tree	NA	11.3	16.4	1973-1983	A	1	N	Y	Native	
95	k	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	6.5	15.2	1983-2002	A	1	N	N	Exotic	
96	l	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	19.6	23.1	1973-1983	A	1	N	N	Exotic, Invasive	Date uncertain
97	195	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	14.5	17.2	1973-1983	D	2	N	Y	Exotic, Invasive	
98	197	NA	American Beech	<i>Fagus grandifolia</i>	Deciduous Tree	NA	15.5	22.3	1973-1983	A	1	N	N	Native	
99	198	426	American Basswood	<i>Tilia americana</i>	Deciduous Tree	NA	24.5	28.7	1957-1973	A	1	N	Y	Native	
100	199	NA	Red Oak	<i>Quercus Rubra</i>	Deciduous Tree	NA	16	26	1973-1983	A	1	N	N	Native	Remeasure; DBH in 2002 may be incorrect
101	202	124	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	17	28	31.2	PRE-1933	A	1	Y	Y	Exotic	Identified in 1934 as white spruce; lightning rod
102	203	301	White Fir	<i>Abies concolor</i>	Evergreen Tree	NA	16	20.2	1938-1957	A	1	N	Y	Native	
103	ss	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	3.3	12	1983-2002	A	1	N	N	Native	
104	tt	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	4.2	10	1983-2002	A	1	N	N	Native	
105	205	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	22	37	2.7	2002-2014	A	1	N	Y	Native	Removed #146 in 2003, Replaced in-kind
106	175	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	9.3	10.5	1973-1983	A	1	N	N	Exotic	
107	177	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	7.9	13.4	1973-1983	A	1	N	N	Exotic	
108	179	NA	Balsam Fir	<i>Abies balsamea</i>	Evergreen Tree	NA	12.4	16.2	1973-1983	A	1	N	N	Native	May not be correctly identified
109	rr	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	5.6	14.4	1983-2002	A	1	N	N	Native	
110	qq	NA	Red Oak	<i>Quercus rubra</i>	Deciduous Tree	NA	2.6	NA	2002-2014	A	1	N	N	Native	
111	184	311	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	30.5	34	1938-1957	B	1	N	N	Native	Severe Damage, TS Isabel '03
112	189	NA	White Fir	<i>Abies concolor</i>	Evergreen Tree	NA	13.5	19.4	1973-1983	A	1	N	N	Native	Identified as Douglas Fir in 1983
113	190	132	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	23	15.2	21.6	1938-1957	A	1	N	N	Native	Norway Maple in 1934
114	nn	NA	Arborvitae	<i>Thuja occidentalis</i>	Evergreen Tree	NA	16.2	20	1973-1983	A	1	N	N	Native	Not accurate; resurvey
115	mm	NA	Red Oak	<i>Quercus rubra</i>	Deciduous Tree	NA	2.8	14.8	1983-2002	A	1	N	N	Native	Symbolic species
116	ll	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	4.9	6.5	1983-2002	A	1	N	N	Native	
117	kk	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	4	9.5	1983-2002	A	1	N	N	Native	
118	oo	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	1.5	10	1983-2002	A	1	N	N	Native	



# APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY

2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category	1934	Size (DBH) 2002	2014	Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
119	180	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	23	27.3	29.2	PRE-1933	A	1	N	N	Native	
120	176	141	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	12	28.6	30.5	PRE-1933	B	1	N	N	Native	
121	C10	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	1.8	2002-2014	A	1	N	N	Native	
122	C12	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	NA	3.7	2002-2014	A	1	N	N	Native	
123	C11	NA	Red Maple	<i>Acer Rubrum</i>	Deciduous Tree	NA	NA	2.6	2002-2014	A	1	N	N	Native	
124	C13	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	3.2	2002-2014	A	1	N	N	Native	
125	170	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	20	25.4	5.3	2002-2014	A	1	N	N	Native	Destroyed/Removed '03 storm, Replaced #156
126	169	312	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	32.6	36.8	1957-1973	A	1	N	N	Native	
127	171	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	30.3	35.3	1938-1957	A	1	N	N	Native	Replaced #152 Elm
128	pp	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	7.1	13.2	1983-2002	A	1	N	N	Exotic, Invasive	
129	220	436	Silver Maple	<i>Acer saccharinum</i>	Deciduous Tree	NA	32.5	37.4	1957-1973	A	1	N	Y	Native	TAG #436
130	uu	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	4.6	12.1	1983-2002	A	1	N	N	Native	
131	222	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	32	3.7	11.6	1983-2002	A	1	N	N	Exotic, Invasive	Replaced in-kind #258
132	221	430	Silver Maple	<i>Acer saccharinum</i>	Deciduous Tree	NA	19.1	23.4	1957-1973	A	1	N	N	Native	Check for tag
133	207	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	19.9	24.4	1973-1983	A	1	N	N	Native	
134	210	316	Red Oak	<i>Quercus Rubra</i>	Deciduous Tree	NA	34	35.9	1938-1957	A	1	N	Y	Native	TAG #316
135	m	NA	American Beech	<i>Fagus grandifolia</i>	Deciduous Tree	NA	9.1	14	1983-2002	A	1	N	N	Native	
136	n	NA	American Elm	<i>Ulmus americana</i>	Deciduous Tree	NA	7.5	18.3	1983-2002	B	1	N	N	Native	PRUNING REQUIRED
137	o	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	6.2	15.2	1983-2002	A	1	N	N	Native	
138	217	NA	Sugar Maple	<i>Acer Saccharum</i>	Deciduous Tree	NA	23.2	29.2	1973-1983	A	2	N	N	Native	
139	212	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	13.9	17.5	1973-1983	A	1	N	Y	Native	
140	216	NA	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	NA	28.5	30.5	1938-1957	A	1	N	N	Exotic	
141	215	223	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	22	30.6	32.4	PRE-1933	A	1	Y	Y	Exotic	Lightning Cable
142	214	225	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	17	23.6	25.1	PRE-1933	A	1	N	Y	Exotic	
143	j	NA	Spruce	<i>Picea spp.</i>	Evergreen Tree	NA	4.5	11.8	1983-2002	A	1	N	N	Exotic	
144	114	311	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	22.6	26	1938-1957	A	1	N	Y	Native	
145	115	311	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	25.8	29	1938-1957	A	1	N	Y	Native	
146	y	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	16.1	20.5	1983-2002	A	1	N	N	Native	
147	s	NA	American Elm	<i>Ulmus americana</i>	Deciduous Tree	NA	5.4	15.4	1983-2002	A	1	N	N	Native	
148	267	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	32	29.5	3	2002-2014	A	1	N	N	Native	#221 Silver Maple replaced w/ Sugar since '04
149	268	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	20	6.3	13.9	1983-2002	A	1	N	N	Exotic	Replaced #220 in-kind
150	263	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	25.8	3	2002-2014	A	1	N	N	Native	Replaced Kentucky Coffee Tree 2003-2004
151	264	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	14.1	17.6	1973-1983	A	1	N	N	Native	
152	223	NA	Red Oak	<i>Quercus rubra</i>	Deciduous Tree	NA	13.3	22.2	1973-1983	A	1	N	N	Native	symbolic species
153	224	160	White Pine	<i>Pinus strobus</i>	Evergreen Tree	28	35.5	37.6	PRE-1933	A	1	Y	Y	Native	
154	xx	NA	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	6.8	15.8	1983-2002	A	1	N	N	Native	Woodpecker marks
155	225	172	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	22	33.9	34.8	PRE-1933	A	1	N	Y	Exotic	
156	168	157	Arborvitae	<i>Thuja occidentalis</i>	Evergreen Tree	7	16.9	20.3	PRE-1933	C	2	N	N	Native	split
157	166	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	9	12.7	1973-1983	B	1	N	Y	Native	Damaged, TS Isabel 2003
158	165	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	12.7	18	1973-1983	A	1	N	N	Native	



APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY															
2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category		Size  (DBH)		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
						1934		2002							
159	226	171	White Pine	<i>Pinus strobus</i>	Evergreen Tree	22	31	33	PRE-1933	A	1	Y	N	Native	Lightning Cable
160	229	305	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	15.9	18.2	1938-1957	A	1	N	Y	Native	
161	227	161	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	20	27.4	28.8	PRE-1933	A	1	N	Y	Exotic	
162	yy	162	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	20	30.3	32.1	PRE-1933	A	1	N	N	Exotic	Should be identified as #228, historically #162
163	230	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	22.6	2.9	2002-2014	A	1	N	N	Native	Norway Maple replaced w/ Sugar since 2004
164	C14	NA	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	NA	12	2002-2014	A	1	N	N	Native	Remeasure
165	242	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	14	22.6	1973-1983	A	1	N	N	Native	
166	248	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	15.1	25.3	1973-1983	A	1	N	N	Native	Damaged, TS Isabel 2003
167	258	204	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	15	23	23	PRE-1933	B	1	N	N	Exotic	
168	259	205	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree		21.5	24	1938-1957	A	2	N	N	Exotic	Replaced #205 white fir
169	260	214	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	9	21.4	22.2	PRE-1933	B	1	N	Y	Native	
170	118	212	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	16	29.7	32.2	PRE-1933	A	1	N	Y	Exotic	Tags #11 and #212
171	117	310	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	10.5	11.3	1938-1957	A	1	N	N	Native	
172	116	488	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	21	30	1957-1973	C	1	N	N	Native	
174	119	413	Bald Cypress	<i>Taxodium distichum</i>	Deciduous Tree	NA	29	30.3	PRE-1933	A	1	Y	Y	Native	Not identified in 1934; symbolic species
175	256	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	25	25.7	PRE-1933	B	1	N	Y	Native	
176	257	211	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	21	33.1	34.6	PRE-1933	A	1	N	N	Native	Identified as white fir on 1934 survey
177	t	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	5.6	12.8	1983-2002	A	1	N	N	Exotic	
178	253	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	22	3.1	2002-2014	A	1	N	N	Native	Maple Replaces Eastern Hemlock #203
179	r	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	6.1	12.2	1983-2002	A	1	N	N	Exotic	
180	q	NA	Spruce	<i>Picea spp.</i>	Evergreen Tree	NA	4.9	11.1	1983-2002	A	1	N	N	Exotic	
181	p	NA	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	NA	0	15	1983-2002	A	1	N	N	Exotic	
182	C15	NA	Pine spp.	<i>Pinus spp.</i>	Evergreen Tree	NA	NA	7	2002-2014	A	1	Y	Y	Native	Remeasure
183	zz	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	2.7	10	1983-2002	A	1	N	N	Native	Guess on DBH, re-measure
184	231	NA	Red Maple	<i>Acer Rubrum</i>	Deciduous Tree	NA	25.5	2	2002-2014	A	1	N	N	Native	Maple replaces Eastern Hemlock #163
185	232	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	25	3.1	2002-2014	A	1	N	N	Native	Maple replaces Balsam Fir #170
186	164	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	11.3	13	1973-1983	B	1	N	Y	Native	
187	163	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	13.3	17.3	1973-1983	A	1	N	N	Native	
188	162	NA	White Fir	<i>Abies concolor</i>	Evergreen Tree	NA	11.8	16.6	1973-1983	A	1	N	Y	Native	
189	vv	NA	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	8.5	13.5	1983-2002	A	1	N	N	Native	
190	157	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	14.5	3	2002-2014	A	1	N	N	Native	Norway Maple replaced w/ Sugar since 2004
191	233	168	White Pine	<i>Pinus strobus</i>	Evergreen Tree	23	31.5	32.5	PRE-1933	A	1	N	Y	Native	
192	234	304	Red Pine	<i>Pinus resinosa</i>	Evergreen Tree	NA	13.9	14.7	1938-1957	A	1	N	N	Native	
193	237	167	White Pine	<i>Pinus strobus</i>	Evergreen Tree	20	27.3	29.2	PRE-1933	A	1	Y	Y	Native	Tag #167, Lightning Cable
194	238	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	23	38.6	9.2	2002-2014	A	1	N	N	Exotic, Invasive	#166 destroyed in 2008, Replaced in-kind
195	240	197	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	15	24.1	25.6	PRE-1933	A	1	N	Y	Native	Tag #197
196	244	200	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	20	27.9	28.3	PRE-1933	A	1	N	Y	Exotic	Tag #200
197	246	201	Norway Spruce	<i>Picea abies</i>	Evergreen Tree	17	24.6	27.2	PRE-1933	B	1	N	Y	Exotic	Tag #201
198	249	202	White Pine	<i>Pinus strobus</i>	Evergreen Tree	22	30.5	32.1	PRE-1933	A	1	Y	Y	Native	Lightning Cable
199	252	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	16.7	23.1	1973-1983	A	1	N	N	Native	





APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY															
2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category		Size (DBH)		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
						1934	2002	2014							
200	250	208	Balsam Fir	<i>Abies balsamea</i>	Evergreen Tree	18	21.7	22.9	1938-1957	A	1	N	Y	Native	Presumable replaced #208 White fir
201	u	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	7.3	9.9	1983-2002	B	1	N	Y	Native	Tag #60
202	125	NA	American Beech	<i>Fagus grandifolia</i>	Deciduous Tree	NA	21.2	24.9	1957-1973	A	1	N	N	Native	
203	121	234	Bald Cypress	<i>Taxodium distichum</i>	Deciduous Tree	20	26.8	28.1	PRE-1933	A	1	N	Y	Native	symbolic species
204	aa	NA	Sweetgum	<i>Liquidambar styraciflua</i>	Deciduous Tree	NA	14.6	22.3	1983-2002	A	1	N	N	Native	
205	z	NA	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	9.7	17.3	1983-2002	A	1	N	N	Native	
206	135	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	11.2	15.2	1973-1983	B	1	N	Y	Native	
207	136	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	15.9	22.8	1973-1983	A	1	N	N	Native	
208	v	NA	American Beech	<i>Fagus grandifolia</i>	Deciduous Tree	NA	7.4	12.3	1983-2002	A	1	N	N	Native	
209	w	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	6.1	11.5	1983-2002	A	1	N	N	Exotic, Invasive	
210	139	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	14.6	18.5	1973-1983	A	1	N	N	Native	
211	142	311	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	25.3	30	1938-1957	B	1	N	Y	Native	
212	239	NA	Nordmann Fir	<i>Abies nordmanniana</i>	Evergreen Tree	NA	22.6	24.4	1938-1957	A	1	N	Y	Exotic	Replaced #195 White fir; make be same tree
213	145	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	6.4	14	1983-2002	A	1	N	N	Native	
214	146	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	14.5	3.5	2002-2014	A	1	N	N	Native	Green Ash replaced w/ Sugar Maple since 2004
215	147	NA	White Pine	<i>Pinus strobus</i>	Evergreen Tree	NA	9.2	16	1973-1983	A	1	N	Y	Native	
216	151	312	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	27.4	32.5	1957-1973	A	1	N	N	Native	
217	152	NA	White Pine	<i>Pinus strobus</i>	Evergreen Tree	NA	11	16.1	1973-1983	B	1	N	N	Native	
218	159	NA	Horsechestnut	<i>Aesculus hippocastanum</i>	Deciduous Tree	15	4	7.9	2002-2014	E	2	N	N	Exotic	Dead, Remove
219	160	312	Tulip Poplar	<i>Liriodendron tulipifera</i>	Deciduous Tree	NA	48.5	53.2	1938-1957	A	2	N	Y	Native	Hollow cavity
220	ww	NA	Red Oak	<i>Quercus rubra</i>	Deciduous Tree	NA	18	25.9	1973-1983	B	1	N	N	Native	Minor deadwood; symbolic species
221	154	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	12.6	17	1973-1983	A	1	N	Y	Native	
222	156	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	6.1	6.1	2002-2014	C	2	N	N	Native	
223	150	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	18.3	21.8	1973-1983	C	2	N	Y	Exotic, Invasive	
224	148	NA	Sugar Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	20.4	7.7	2002-2014	A	1	N	N	Native	Norway Maple removed since '04, replaced w/ Suga
225	143	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	15.2	20.7	1973-1983	A	1	N	N	Native	
226	140	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	8.9	11.9	1973-1983	A	1	N	Y	Native	
227	141	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	14.6	20.2	1973-1983	A	1	N	N	Native	
228	133	NA	Red Pine	<i>Pinus resinosa</i>	Evergreen Tree	NA	13	13	1973-1983	B	1	N	Y	Native	Identified as hemlock on 1983 survey; tag #304
229	137	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	10.3	14.4	1973-1983	A	1	N	N	Native	
230	132	316	Pin Oak	<i>Quercus palustris</i>	Deciduous Tree	NA	29.4	35.5	1938-1957	B	1	N	Y	Native	Damaged, TS Isabel 2003
231	134	241	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	10	18.2	19.6	PRE-1933	B	1	N	Y	Native	Possibly a replacement
232	131	304	Red Pine	<i>Pinus resinosa</i>	Evergreen Tree	NA	15.9	16.4	1957-1973	B	1	N	Y	Native	Tag #304
233	130	485	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	15.8	22.5	1957-1973	A	1	N	N	Native	Woodpecker marks
234	129	487	American Beech	<i>Fagus grandifolia</i>	Deciduous Tree	NA	15.1	20.5	1957-1973	A	1	N	N	Native	
235	C16	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	3.5	2002-2014	A	1	N	N	Native	
236	C17	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	3	2002-2014	A	1	N	N	Native	
237	C18	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	5.4	2002-2014	A	1	N	N	Native	
238	C19	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	NA	3.3	2002-2014	A	1	N	N	Native	
239	C20	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	NA	24.8	1938-1957	A	1	N	N	Native	



APPENDIX A: TREE AND SHRUB INVENTORY FOR ANTIETAM NATIONAL CEMETERY															
2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category	1934	Size (DBH)		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
							2002	2014							
240	C21	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	NA	3.6	2002-2014	A	1	N	N	Native	
241	C22	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	NA	25.9	1938-1957	A	1	N	N	Native	
242	C23	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	NA	22.4	1938-1957	A	1	N	N	Native	
243	C24	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	NA	24	1938-1957	A	1	N	N	Native	
244	C25	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	NA	20.6	1983-2002	A	1	N	N	Native	
245	C26	NA	Red Maple	<i>Acer rubrum</i>	Deciduous Tree	NA	NA	21.5	1983-2002	A	1	N	N	Native	
246	C27	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	NA	23.1	1983-2002	A	1	N	N	Native	
247	C28	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	NA	14.1	1983-2002	A	1	N	N	Native	
248	C29	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	NA	14.1	1983-2002	A	1	N	N	Native	
249	C30	NA	Eastern Hemlock	<i>Tsuga canadensis</i>	Evergreen Tree	NA	NA	14.3	1983-2002	A	1	N	N	Native	
250	C31	NA	Red Oak	<i>Quercus Rubra</i>	Deciduous Tree	NA	NA	35.3	1957-1973	A	1	N	N	Native	
251	C32	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	7.5	2002-2014	A	1	N	N	Native	
252	C33	NA	Red Oak	<i>Quercus Rubra</i>	Deciduous Tree	NA	NA	9.5	2002-2014	A	1	N	N	Native	
253	C34	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	8.1	2002-2014	A	1	N	N	Native	
254	C35	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	9.6	2002-2014	E	2	N	N	Native	
255	C36	NA	Red Oak	<i>Quercus Rubra</i>	Deciduous Tree	NA	NA	12	2002-2014	A	1	N	N	Native	
256	C37	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	5.5	2002-2014	A	1	N	N	Native	
257	C38	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	NA	2002-2014	A	1	N	N	Native	
258	C39	NA	Red Oak	<i>Quercus Rubra</i>	Deciduous Tree	NA	NA	39.3	1957-1973	A	1	N	N	Native	
259	C40	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	4.3	2002-2014	A	1	N	N	Native	
260	C41	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	9.2	2002-2014	A	1	N	N	Native	
261	C42	NA	Redbud	<i>Cercis Canadensis</i>	Deciduous Tree	NA	NA	8.8	2002-2014	A	1	N	N	Native	
262	C43	NA	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	NA	4.8	2002-2014	A	1	N	N	Native	
NA	40	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	16.2	NA	NA	NA	NA	NA	NA	Exotic, Invasive	Removed since 2003
NA	44	447	Green Ash	<i>Fraxinus pennsylvanica</i>	Deciduous Tree	NA	28.2	NA	NA	NA	NA	NA	NA	Native	Removed 2014
NA	54	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	16.7	NA	NA	NA	NA	NA	NA	Native	Removed 2003
NA	68	NA	Green Ash	<i>Fraxinus pennsylvanica</i>	Deciduous Tree	NA	12.9	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	65	314	Green Ash	<i>Fraxinus pennsylvanica</i>	Deciduous Tree	NA	17.9	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	75	314	Green Ash	<i>Fraxinus pennsylvanica</i>	Deciduous Tree	NA	7.2	NA	NA	NA	NA	NA	NA	Native	Removed 2014
NA	79	410	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	6.2	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	92	NA	Norway Maple	<i>Acer platanoides</i>	Deciduous Tree	NA	5.5	NA	NA	NA	NA	NA	NA	Exotic, Invasive	Removed since 2004
NA	105	310	Flowering Dogwood	<i>Cornus florida</i>	Deciduous Tree	NA	6.9	NA	NA	NA	NA	NA	NA	Native	Removed since 2004
NA	113	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	26	NA	NA	NA	NA	N	N	Native	Removed since 2004
NA	138	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	20.7	NA	NA	NA	NA	NA	NA	Native	Removed since 2004
NA	149	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	26	NA	NA	NA	NA	NA	NA	Native	Removed since 2004
NA	167	NA	Silver Maple	<i>Acer Saccharinum</i>	Deciduous Tree	32	48.5	NA	NA	NA	NA	NA	NA	Native	Severe Damage, TS Isabel '03 Replaced #158
NA	174	NA	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	32	NA	NA	NA	NA	NA	NA	Native	Damaged, TS Isabel 2003; removed since 2003
NA	178	144	Horsechestnut	<i>Aesculus hippocastanum</i>	Deciduous Tree	17	25.5	NA	NA	NA	NA	NA	NA	Exotic	Removed since 2003
NA	183	311	Kentucky Coffee Tree	<i>Gymnocladus dioicus</i>	Deciduous Tree	NA	18.1	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	c	NA	Sugar Maple	<i>Acer saccharum</i>	Deciduous Tree	NA	6	NA	NA	NA	NA	NA	NA	NA	Removed since 2003





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2014 Plant ID	1983-2013 Plant ID	1934-1978 Plant ID	Common Name	Botanical Name	Plant Category		Size		Approx. Year Planted	Canopy	Trunk	Cabling	Tag Present	Origin	Notes
						1934	(DBH)	2002							
NA	cc	NA	Sugar Maple	Acer saccharum	Deciduous Tree	NA	8.4	NA	NA	NA	NA	NA	NA	NA	Removed since 2004
NA	ff	NA	Sugar Maple	Acer saccharum	Deciduous Tree	NA	8.4	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	g	NA	Green Ash	Fraxinus pennsylvanica	Deciduous Tree	NA	13.4	NA	NA	NA	NA	NA	NA	Native	Removed in 2014
NA	x	NA	Maple	Acer spp	Deciduous Tree	NA	20.2	NA	NA	NA	NA	NA	NA	NA	Removed since 2004
NA	16	301	White Fir	Abies concolor	Evergreen Tree	NA	14.4	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	old65	65	Norway Spruce	Picea abies	Evergreen Tree	NA	31.3	NA	NA	NA	NA	NA	NA	Exotic	Removed in 2003; Old 65 may actually have been 66
NA	78	82	Norway Spruce	Picea abies	Evergreen Tree	20	26.8	NA	NA	NA	NA	NA	NA	Exotic	Destroyed/Removed, '08 Storm
NA	107	NA	Red Pine	Pinus resinosa	Evergreen Tree	NA	18	NA	NA	NA	NA	NA	NA	Native	Removed since 2003
NA	172	305	Eastern Hemlock	Tsuga canadensis	Evergreen Tree	NA	23.3	NA	NA	NA	NA	NA	NA	Native	Destroyed/Removed '08 storm
Shrubs															
BS	NA	NA	American Boxwood	Buxus sempervirens	Evergreen Shrub	NA	NA	NA	PRE-1933					Native	
BSS	NA	NA	English Boxwood	Buxus sempervirens 'suffruticosa'	Evergreen Shrub	NA	NA	NA	PRE-1933					Native	
LS	NA	NA	Privet sp.	Ligustrum sp.	Evergreen Shrub	NA	NA	NA	1933-1957					Exotic	
HS	NA	NA	Rose of Sharon	Hibiscus syriacus	Deciduous Shrub	NA	NA	NA	1933-1957					Exotic, Invasive	
AZ	NA	NA	Azalea	Azalea "Hinodegiri"	Evergreen Shrub	NA	NA	NA	1973-1983					Exotic	
VS	NA	NA	Viburnum sp.	Viburnum sp.	Evergreen Shrub	NA	NA	NA	1973-1983					Native	
FS	NA	NA	Forsythia	Forsythia	Deciduous Shrub	NA	NA	NA	1933-1957					Native	
SS	NA	NA	Spirea sp.	Spirea sp.	Deciduous Shrub	NA	NA	NA	1933-1957					Native	
TC	NA	NA	American Yew	Taxus canadensis	Evergreen Shrub	NA	NA	NA	1933-1957					Native	
KL	NA	NA	Mountain Laurel	Kalmia Latifolia	Evergreen Shrub	NA	NA	NA	1933-1957					Native	
IG	NA	NA	Inkberry	Ilex glabra	Evergreen Shrub	NA	NA	NA	1933-1957					Native	





Cultural Landscape Report

Antietam National Cemetery

Antietam National Battlefield  
Sharpsburg, Maryland

2014 Vegetation-Condition



National Park Service  
National Capital Region  
Cultural Landscapes Program  
www.nps.gov

SOURCES

- 1. National Capital Region, *Cultural Landscape Inventory for Antietam National Cemetery* (2005).
- 2. Antietam National Battlefield and NCR GIS Data
- 3. Aerial Images, 1936 & 1937, 1943, 1952, 1988, 2000, 2004, 2005, 2007-2009; Orthophotography, 2011.
- 4. Proposed Planting Plan, 1938 (Dwg. No. NPS-ANT-2007).
- 5. Proposed Planting Plan, 1973.
- 6. Existing Conditions Plan, 1957 (Dwg. No. 3009).
- 7. Existing Conditions Plan, 1978 (Dwg. No. NCP-132-789).
- 8. Tree Surveys, 1934, 1983, and 2002-2004.
- 9. Site visits in June and July 2014.

DRAWN BY

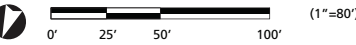
Michael Comisso, AutoCAD 3D Map 2013 and Illustrator CS4, 2013.

LEGEND

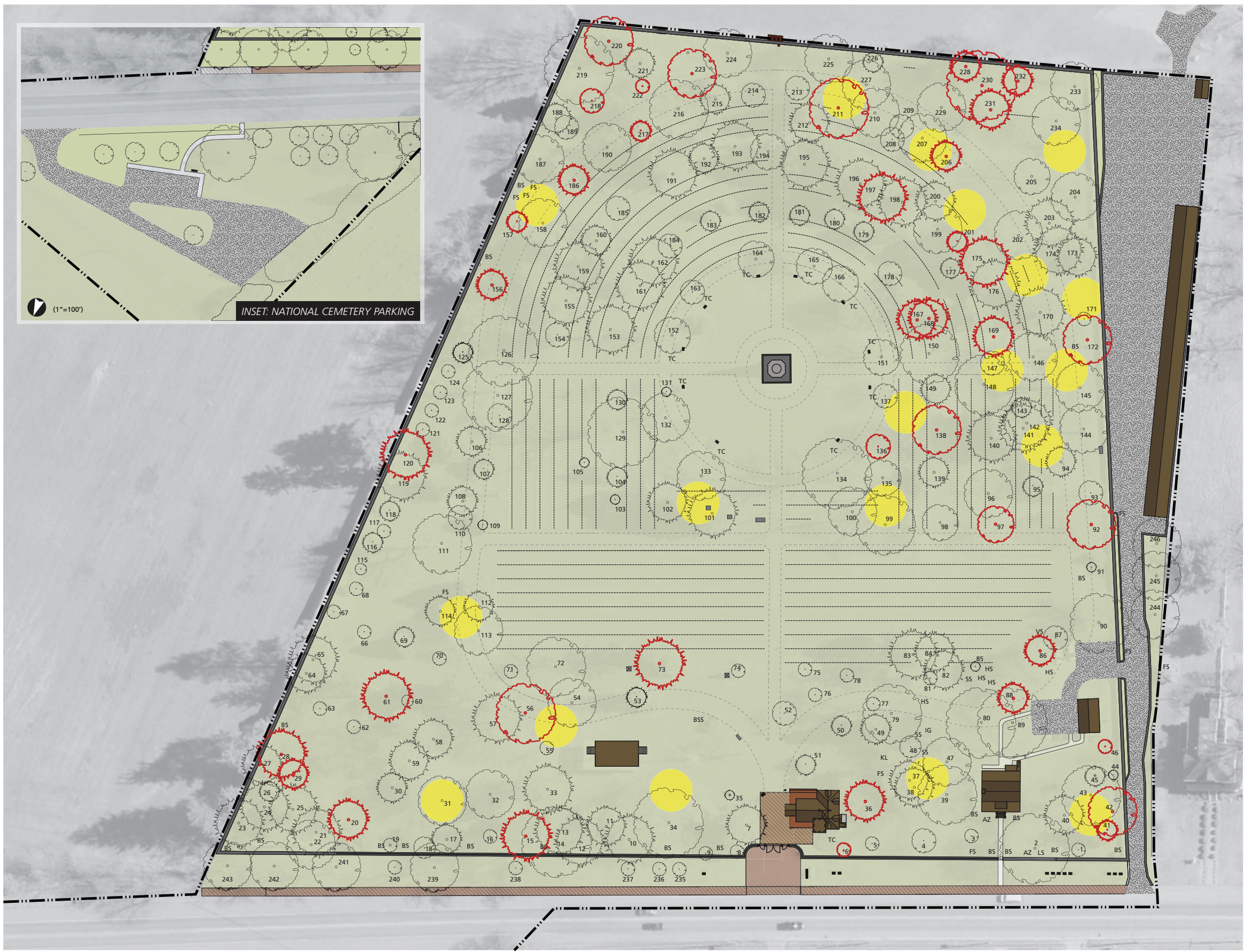
- Building or structure
- Perimeter wall
- Concrete walk
- Brick walk
- Deciduous specimen tree
- Deciduous/evergreen tree or shrub
- Mown turf
- Project boundary
- Trees requiring corrective action
- Turf problems

NOTES

- 1. Plan shows conditions in 2014.
- 2. All features shown in approximate scale and location.
- 3. Plan represents locations of headstones, but does not accurately depict the actual number of headstones within each section; dashed line is a graphic representation.
- 4. Plant information such as level of identification, origin, size, condition, and approximate age is detailed in *Appendix XX-Tree and Shrub Inventory for Antietam National Cemetery*.



Appendix A





## APPENDIX B ADA/ABA REQUIREMENTS FOR CULTURAL LANDSCAPES





General	
<ul style="list-style-type: none"> <li>The accessible entrance may be different to the one used by the general public (though it cannot be locked and ADAAG requires directional signage to the accessible entrance).</li> <li>A ramp steeper than is ordinarily permitted may be used in space limitations (a gradient of 16.6 percent (1: 6))</li> <li>Only one accessible restroom is required and it may be unisex.</li> <li>Accessible routes are only required at the elevation of the entrance.</li> <li>Interpretative materials should be located where they can be seen by seated persons.</li> <li>Parking areas should be related directly to the building which they serve. "Handicapped" parking stalls should be no more than (100') from building entries (Landscape architect's Portable Handbook, 2001) .</li> </ul>	
Accessible Route Minimum Specifications	
<ul style="list-style-type: none"> <li>Allow only one accessible route from one site access point (such as a parking lot) to an accessible entrance. (206.2.1.) Note: Access from site arrival points may include vehicular ways.</li> <li>Width=36 inches</li> <li>Passing zone = 60 inches wide occurring at 200-foot intervals</li> <li>Wheelchair 180-degree turning zone = 60 inches x 60 inches</li> <li>Gradient = 5 percent (1:20)</li> <li>A gradient greater than 5 percent shall be called a ramp</li> <li>Cross pitches (cross slopes) = 2 percent (1:50) or less</li> <li>Abrupt level changes are no greater than 0.5 inch in height</li> <li>0.25-inch level change is permitted without a beveled edge</li> <li>0.5-inch level change must have a beveled edge</li> <li>Surfaces must be of stable, firm, slip resistant material</li> </ul>	
Accessible Parking	
<ul style="list-style-type: none"> <li>Space =96 inches wide</li> <li>Access aisle</li> <li>Spaces and aisles have a 2 percent (1:50) maximum gradient in any direction</li> <li>Passenger loading zone (access aisle) =60 inches wide x 20 feet long, adjacent and parallel to the vehicle pull-up space</li> </ul>	
Parking Space Requirements	
Total number of parking spaces provided in parking facility	Minimum number of required accessible parking spaces
1 to 25	1
26 to 50	2
51 to 75	3
76 to 100	4
101 to 150	5
151 to 200	6
201 to 300	7
301 to 400	8
401 to 500	9
501 to 1000	2 percent of total
1001 and over	20, plus 1 for each 100, or fraction thereof, over 1000
Curb Ramps	
<ul style="list-style-type: none"> <li>Must be located wherever an accessible route crosses a curb</li> <li>5 percent (1:20) gradient between 8 percent (1:12) and 10 percent (1:10) is permitted for a rise of 6 inches</li> <li>Must have flared sides if they are located where pedestrians must walk across the ramp or are not protected by handrails or guardrails</li> <li>Maximum gradient of curb ramps flared sides = 10 percent</li> <li>Must have returned curbs where pedestrians do not walk across the ramp</li> <li>Built-up curb ramps must be located where they do not project out into vehicular traffic lanes</li> <li>Must have a detectable warning of raised, truncated domes or contrasting color that extends the full width and depth of the curb ramp</li> <li>Must be located where they will not be obstructed by parked vehicles</li> <li>Diagonal curb ramps (corner ramps) must have at least a 48-inch width clear space at the bottom of the ramp</li> <li>Where a sidewalk landing beyond a curb ramp is less than 48 inches deep, the curb ramp gradient must not exceed 8 percent (1: 12)</li> </ul>	
Ramps	
<ul style="list-style-type: none"> <li>Must be at least 36 inches wide</li> <li>Gradient greater than 5 percent (1: 20) and a maximum of 8 percent (1: 12)</li> <li>Maximum rise on any run = 30 inches in height</li> <li>In space limitations, a ramp gradient no greater than 16.6 percent (1: 6) may be used for a horizontal run of 2 feet</li> <li>A ramp gradient between 8 percent (1: 12) and 10 percent (1: 10) may be used for a maximum vertical rise of 6 inches</li> <li>An 8 percent (1: 12) gradient and a rise greater than 6 inches, or a horizontal run greater than 72 inches, must have handrails on both sides of the ramp</li> <li>Surface must be stable, firm, and nonslip</li> <li>Ramps and landings with drop-offs on either side must have curbs at least 2 inches high</li> <li>Must be well draining to prevent the accumulation of rainwater</li> <li>Cross pitch (cross slope) must be no greater than 2 percent (1: 50) gradient</li> </ul>	

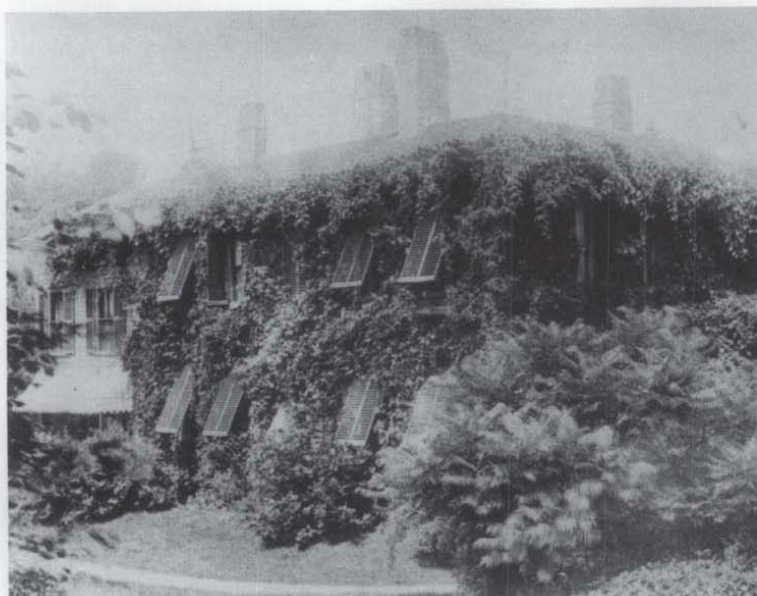
Landings
<ul style="list-style-type: none"> <li>▪ Must be located at every 30-inch vertical rise in a ramp</li> <li>▪ Dimensions of landing = 36 inches wide x 60 inches deep at the top and bottom of a ramp run</li> <li>▪ Dimensions of landing = 60 inches wide x 60 inches deep at a ramp dogleg</li> <li>▪ Drop-offs must have curbs with a minimum height of 2 inches</li> <li>▪ Height of door thresholds = 0.5-inch high or less, with a beveled 50 percent (1: 2) edge</li> <li>▪ Width of clear landing on latch side of door = 24 inches wide</li> </ul>
Handrails
<ul style="list-style-type: none"> <li>▪ Not required on curb ramps</li> <li>▪ Required on either side of 8 percent (1:12) gradient ramps with a 6-inch rise or greater, or a 72-inch horizontal run, and on either side of stairs</li> <li>▪ Must be continuous on the inner side of a dogleg ramp or dogleg stairs</li> <li>▪ Must continue at least 12 inches beyond the top and bottom of a ramp and be parallel to the ground plane</li> <li>▪ Must continue at least 12 inches beyond the top riser of stairs parallel to the ground plane, and continue to slope for a distance of one tread width from the bottom stair riser and become parallel to the ground plane for an additional distance of 12 inches</li> <li>▪ Distance from mounting wall = 1.5 inches wide</li> <li>▪ Gripping surface must be uninterrupted</li> <li>▪ Diameter or width of gripping surface of handrail or grab bar must be 1.25 - 1.5 inches, or the shape must provide an equivalent gripping surface UFAS 4.26.2.</li> <li>▪ Top of gripping surface = 34 - 38 inches in height above the ramp or stair tread surface</li> <li>▪ Terminal ends of handrails must be rounded off or returned smoothly to the ground, wall or post</li> </ul>
Stairs
<ul style="list-style-type: none"> <li>• Must have uniform tread widths and riser heights</li> <li>• Width of treads must be no less than 11 inches high</li> <li>• Open risers are not permitted</li> <li>• Nosings must project no more than 1.5 inches</li> <li>▪ Nosing undersides must be angled at no greater than 60 degrees from the horizontal</li> <li>• Handrails must be located on either side of stairs</li> <li>• Inside handrail at stair dogleg must be continuous</li> <li>• Handrails must extend 12 inches beyond the top riser, and at least one tread width and an additional 12 inches beyond the bottom riser</li> <li>• Handrails at the top of stairs must be parallel to the ground plane, and at the bottom of stairs, handrails must continue to slope for a distance of one tread from the bottom riser and for an additional 12 inches be parallel to the ground plane</li> <li>• Handrail gripping surface must be uninterrupted and be located 34 - 38 inches above the stair treads</li> <li>• Terminal ends of handrails must be rounded or returned smoothly to the ground, wall, or post</li> <li>• Stairs must be well draining to prevent the accumulation of rainwater</li> </ul>

## APPENDIX C

### RESTORING VINE COVERAGE ON HISTORIC BUILDINGS







**FAIRSTED**  
**Frederick Law Olmsted**  
**National Historic Site**  
**Brookline, Massachusetts**

In 1883, Frederick Law Olmsted Sr., noted landscape architect and planner, established his home and office in Brookline, Massachusetts. Olmsted's improvements to the two-acre site transformed the farm into a picturesque suburban estate, which he called Fairsted. Olmsted employed elements from the picturesque and pastoral styles, including an abundance of climbing vegetation on stone walls, trees, and buildings.

To help unify the architecture and the landscape Olmsted planted two twining vines, *Wisteria sinensis* (Chinese Wisteria) and *Actinidia arguta* (Bower Actinidia), which would cover the house. The vines masked the angularities of the building, and thus accomplished Olmsted's intent of obscuring the distinction between the natural and the manmade. The vines climbed profusely on the south side of the house, twining around waterspouts, window boxes, and shutters. Olmsted installed strapping to provide vine support, that ran vertically and horizontally along the facade.

The vines that covered Fairsted are an important visual and historic feature, reflecting Olmsted's interpretation of the ideal garden suburb and his landscape design principles. Unfortunately, the vines eventually contributed to the dete-

rioration of the clapboard house, necessitating that some alternative method be found to protect the building facade from future damage and while still supporting the historic plant material.

**Problem**

Vines can damage historic clapboard or masonry buildings in a number of ways. Roots growing near buildings retain moisture and can put pressure on foundations, displacing materials and providing entry points for water, insects, and rodents. The primary damage caused by all vines is due to moisture. The shade created by extensive vegetation cover prevents the sun from drying the covered wall, and also reduces the drying effect from air circulation. Moisture from condensation, rain water, and plant transpiration is thus slow to evaporate and creates an environment conducive to paint failure, wood rot, and deterioration of soft masonry. The continuous presence of moisture on masonry buildings can weaken mortar and cause structural deterioration. When water trapped in cracks and openings freezes, the ice expands—pressure that can further damage the masonry.

In addition, vines cause other forms of damage depending on their individual

**PRESERVATION**

**Tech Notes**



U.S. Department of the Interior  
 National Park Service  
 Cultural Resources

Preservation Assistance Division

**SITE**

**NUMBER 1**

**Restoring Vine Coverage to  
 Historic Buildings**

**Karen E. Day**  
 Preservation Assistance Division  
 National Park Service

*Where vegetation is essential to the integrity of a historic property, historically significant plant materials and other landscape features should be preserved and maintained while taking steps to protect and maintain historic buildings.*



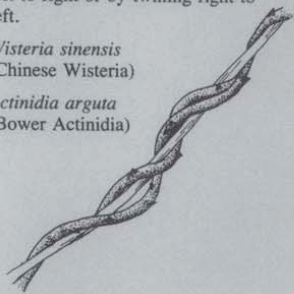
## Vine Types

### Twining

Vines may climb by twining from left to right or by twining right to left.

*Wisteria sinensis*  
(Chinese Wisteria)

*Actinidia arguta*  
(Bower Actinidia)

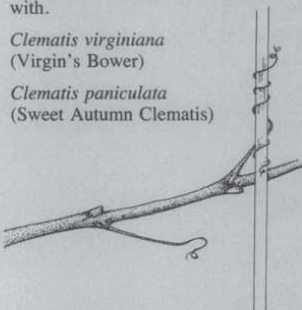


### Tendrill

The tendrils wrap themselves around anything that they come in contact with.

*Clematis virginiana*  
(Virgin's Bower)

*Clematis paniculata*  
(Sweet Autumn Clematis)

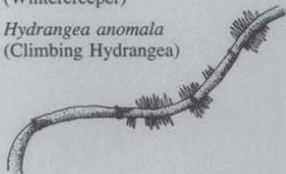


### Aerial

Small roots firmly attach the vine to either wood or masonry.

*Euonymus fortunei*  
(Wintercreeper)

*Hydrangea anomala*  
(Climbing Hydrangea)

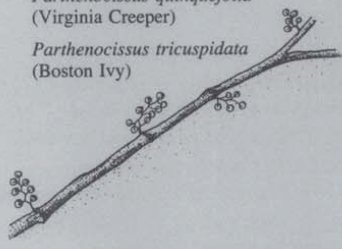


### Creeper

This vine clings by sending out small tendrils with adhesive discs that attach themselves to surfaces.

*Parthenocissus quinquefolia*  
(Virginia Creeper)

*Parthenocissus tricuspidata*  
(Boston Ivy)



growth habits. *Twining* vines climb by sending out shoots that wrap around objects and grow in both length and width. As the vine grows thicker, it can constrict these objects, causing features such as louver shutters to snap under the increasing pressure. Furthermore, the spreading shoots penetrate openings and crevices. In time, the growing vine can loosen and separate building materials.

Like twining vines, *tendrill* vines wrap around objects for support. Because they are actually extended leaves, tendrils do not grow in width, only in length. Both twining and tendrill vines, however, can break weather seals on wooden facades, separating wood shingles and siding, as well as fascia and soffit boards on porches. Other vine types include *Aerial* vines which grow small roots along the length of the stem. These rootlets cling to the wall and can force their way into crevices. The fineness and density of the rootlets makes

removal difficult. *Creeping* vines have tiny adhesive pads that cling to the building surface. Commonly found on masonry brick buildings, creeping vines do not generally cause extensive damage to structures while growing, although they may abrade softer mortar. However, they attach themselves so thoroughly to the building surface that paint, mortar, and brick are likely to be damaged when the vines are removed.

In 1980, The National Park Service began structural restoration of the house at Fairsted. To facilitate this work, the historic vines were removed from the facade and cut back to the ground. Since the vines were both historic plant material and an important feature of the property, complete removal was avoided. The vines were kept at ground level, but pruned frequently to prevent reattachment to the house. This situation resulted in weakened plant growth and an appearance quite different from



Figure 1. Historic plant materials can be retained while restoration of the historic structure is underway. The *Wisteria* and *Actinidia* vines that were historically used by Olmsted, were cut back during the restoration of Fairsted in 1988. Photo by Charles Pepper, courtesy of the Olmsted National Historic Site.



Olmsted's intention (see figure 1). Furthermore, long-term frequent pruning risked a higher incidence of pest-related problems to the plants and restricted their natural climbing habit. It was therefore important to the public site that a new trellis system be devised that would protect both the historic vegetation and the historic structure, while re-establishing the appearance of a "vine clad mansion."

### Historic Fairsted Trellises

Development of a new trellis system began with research into the materials, techniques and hardware used in New England between 1880 and 1930, as well as specific investigation into the various techniques used at Fairsted during those years. Historically, the east elevation of the house had two trellis structures supporting *Wisteria sinensis* (Chinese Wisteria). Photographs from as early as 1884 show a wooden trellis system at the entry porch and a spiraled steel strapping system along the house facade (see figure 2). Remnants of these

systems, such as eyebolts and hooks, were found intact at several locations on the structure. The kitchen wall had an interesting trellis consisting of posts with protruding pegs located between windows. Holes in the post indicated that pegs could be added or removed depending on the growth of the plant.

### Solution

After investigating the various types of historic trellis systems at Fairsted, four criteria for the new trellis systems were established to address particular preservation issues. An ideal system would:

1. provide an appropriate historic appearance;
2. suit the specific vine growth characteristics;
3. minimize the impact of the anchorage and support structure of the trellis to the historic building facade; and,
4. provide direct access to the building for preservation and maintenance purposes.

In order to meet both the above criteria and also to test alternative solutions, four different trellis systems were designed and installed for use in a two-year test phase (see figure 3). The first system used spiraled steel strapping; the second, aircraft cable; and the third modular pipe. The fourth system combined strapping and piping.

### Installation and Monitoring

The experimental trellis systems were constructed and installed on the south and west elevations (where the historic plant material is located) in 1989, and have been monitored for the past two years (see figure 6). Plant growth and development, ease of removal, appearance, and effect on the historic structure are being observed and documented regularly. Some recommendations for modification have already been made.

The steel strapping system (system 1), although painted, has shown a great amount of rust. The use of galvanized steel, painted with a zinc oxide primer and a finish coat would have discour-



Figure 2. View of the west elevation at Fairsted which shows a steel strapping trellis system built as early as 1884. Photo courtesy of Olmsted National Historic Site.



Figure 3. The four experimental systems developed at the Olmsted National Historic Site, and some advantages and drawbacks to each.

<h3>System 1—Spiraled Steel Strapping</h3>		
<p><b>Fabrication</b></p> <p>Materials: <math>\frac{1}{4}</math>" x <math>\frac{1}{2}</math>" spiraled steel strapping, hooks, snap hooks, eyebolts, and F &amp; M rings. The steel strapping trellis is modeled after the historic design (c. 1885) developed by Olmsted. Spiraled metal strapping were attached to the house by a series of hooks and metal eyebolts. The eyebolts for this system, as well as the attachment devices for the other trellis systems, are held at least 6' away from the house to allow for air circulation between the plant material, trellis system and building facade. The strapping was fed through intermediate F &amp; M rings located at regular intervals vertically and horizontally along the side of the house.</p>	<p><b>Maintenance</b></p> <p>The ends of the spiraled strapping are fitted with snap hooks so that the trellis system can be removed for maintenance purposes, thus creating a flexible trellis system.</p>	<p><b>Evaluation</b></p> <p>The spiraled steel strapping is an appropriate support for the growth habit of twining vines. The metal strapping is also effective in recreating the historic appearance of the trellis, and is also the least visible of the systems. The steel, although treated with paint, has already shown a great amount of rust, so an alternative material should be considered.</p>
<h3>System 2—Aircraft Cable</h3>		
<p><b>Fabrication</b></p> <p>Materials: <math>\frac{3}{8}</math>" aircraft cable, eyebolts, and hooks. <math>\frac{3}{8}</math>" aircraft cable was substituted for the spiraled strapping in the first system. A system of eyebolts and hooks was used to secure the aircraft cable to the house.</p>	<p><b>Maintenance</b></p> <p>The cable system is similar to the spiral strapping system in that it is flexible. The aircraft cable is attached to the eyebolts with snap hooks that allow the wire and vine to be removed from the building facade without damaging the trellis system, the building, or the historic vegetation.</p>	<p><b>Evaluation</b></p> <p>The texture and twist of the cable support and guide to the twining vines. Like the spiral strapping, the vines grow around the cable, so the structure is not visible. The weight of a mature vine growing on the cable will make removal and replacement difficult for one person on a ladder. A temporary pulley system might be used to aid in hoisting the vines back into place.</p>
<h3>System 3—Modular Pipe</h3>		
<p><b>Fabrication</b></p> <p>Materials: galvanized metal pipe, fittings, eyebolts, and swivel sockets. This modular pipe system is composed of galvanized metal pipe and a series of pipe fittings. This system was hinged at the base to allow the rigid trellis structure to be tilted away from the house. The support pipes were anchored in the ground by inserting them in galvanized metal sleeves that were placed 4' below the ground surface and 6" away from the house. The top portion of the trellis structure was secured to the house by a bolt and clamp combination.</p>	<p><b>Maintenance</b></p> <p>More than one person is required to remove this system. The rigid system folds out away from the house on the swivel sockets near the base of the house (see figure 4).</p>	<p><b>Evaluation</b></p> <p>Although the rigid system allows the vegetation to remain stable, the pipe structure may also have problems with the weight of fully mature vines. The tilting frame may prove to be difficult to lift back into position. The twining vines do not provide enough coverage to conceal the structure completely.</p>
<h3>System 4—Combination</h3>		
<p><b>Fabrication</b></p> <p>Materials: spiraled steel strapping, galvanized metal pipe, fittings, eyebolts, and swivel sockets. This solution is a combination of spiraled strapping, galvanized metal pipe and fittings. Eyebolts will separate the strapping from the supporting pipe structure. Swivel sockets near the base of the pipe structure allow the trellis to be tilted away from the house. This combination system provides a historic trellis appearance with the addition of rigid support. The vines are physically separated from the house, thus reducing potential damage to the facade.</p>	<p><b>Maintenance</b></p> <p>The spiraled strapping can be unhooked from the pipe system for limited maintenance or the entire structure can be removed for more extensive repair.</p>	<p><b>Evaluation</b></p> <p>The weight of a mature vine must also be considered in this solution. This pipe and strapping combination is not historically accurate in appearance. The twining vines cover the strapping, but the pipe structure behind is exposed.</p>





Figure 4. The pipe and strapping system, constructed with swivel sockets, allows the rigid support system to fold down away from the house. The strapping can also be removed from the pipe support for limited maintenance. Photo by Karen Day.

aged rapid rusting. The flexible aircraft cable (system 2), with the added weight of a mature vine will make removal and replacement difficult for one person. A temporary pulley system is recommended to aid in hoisting the vines back into place. The third design is a rigid modular pipe system (system 3). Although the rigidity of the system is advantageous to the stability of the vegetation, the weight of the vines may also be prohibitive for easy removal and replacement. The combination strapping and pipe system (system 4) does not recreate a historically accurate appearance. The system was designed in order to remove the vines on the strapping without removing the pipe supporting system. The vines growing on the strapping do not provide sufficient coverage to hide the pipe system behind. Furthermore, additional maintenance is required to keep the vines from growing on the pipe. After the multi-year test period is complete, one of the four systems will be selected, modified as needed, and installed to the east, south and west facades of the house (see figure 7).

## Conclusion

The trellis system solution will restore a feature that contributes to the unique character and appearance of the historic suburban estate, and thus reinforces the interpretation of the Olmsted National Historic Site. The systems discussed here were developed individually to meet the unique requirements of the property. This trellis development process, which considered the building appearance and historic character of the site in addition to the growth habits of the plant, historical trellis materials, and maintenance needs, can be applied to other sites with different needs and considerations. However, climbing vegetation should not be added to historic buildings if it did not occur historically since careful management and maintenance is required. The vines that covered Fairsted were an integral part of the historic character of the site. When vegetation is essential to the integrity of a historic property, historically significant plant materials and other landscape features should be preserved and maintained while taking steps to protect and maintain historic buildings.

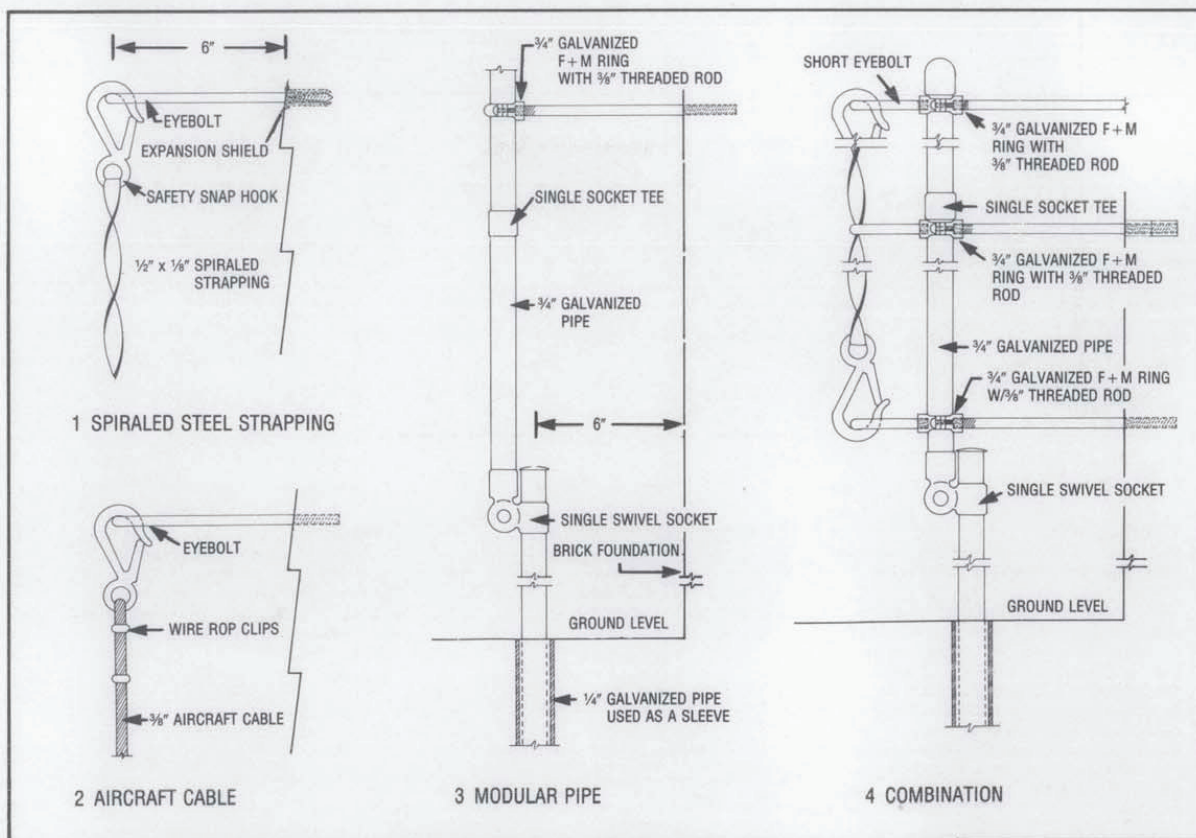


Figure 5. Details of the four experimental trellis systems. Drawings by Sharon Runner, National Park Service.



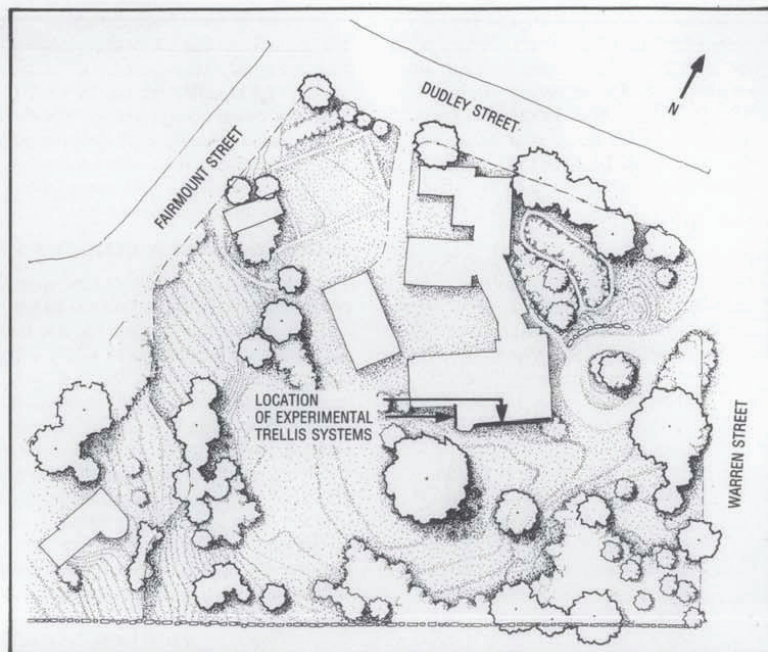


Figure 6. Site plan of Fairsted; the experimental trellis systems were installed on the south and west elevations. Drawing by Karen Day.



Figure 7. View of south facade, the experimental trellis systems have been in place for two growing seasons. Photo by Karen Day.

## PROJECT DATA

### Site:

Frederick Law Olmsted National  
Historic Site  
99 Warren Street  
Brookline, MA

### Owner:

National Park Service  
U.S. Department of the Interior  
Washington, DC

### Project Dates:

Spring 1989-Fall 1991

### Project Supervisor:

Charles Pepper  
Supervisory Horticulturist

### Project costs:

Materials: \$5,000

### Materials:

#### System #1

spiraled steel strapping  
hooks  
snap hooks  
eyebolts  
F & M rings

#### System #2

air craft cable  $\frac{3}{8}$ "  
eyebolts  
hooks

#### System #3

galvanized metal pipe  
pipe fittings  
galvanized metal sleeves  
bolt and clamp combo

#### System #4:

spiraled steel strapping  
galvanized metal pipe  
fittings  
eyebolts  
swivel sockets

This PRESERVATION TECH NOTE was prepared by the National Park Service. Charles E. Fisher, Preservation Assistance Division, National Park Service, serves as Technical Editor of the series. Thanks go to Charles Pepper, Supervisory Horticulturist, Frederick Law Olmsted National Historic Site, for providing information on the project and reviewing the draft. Special thanks go to Lauren Meier, Ward Jandl, Michael Auer, and Tom Jester, of the Preservation Assistance Division, National Park Service, for their review and comments on the draft. Cover Photo: Historic view of south facade of "Fairsted". Courtesy of the Frederick Law Olmsted National Historic Site.

Preservation TECH NOTES are designed to provide practical information on innovative techniques and practices for successfully maintaining and preserving cultural resources. All techniques and practices described herein conform to established National Park

Service policies, procedures and standards. This Tech Note was prepared pursuant to the National Preservation Act Amendment of 1980, which direct the Secretary of the Interior to develop and make available to government agencies and individuals information concerning professional methods and techniques for the preservation of historic properties.

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Antietam National Battlefield  
Sharpsburg, Maryland