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# CULTURAL LANDSCAPE REPORT FOR SARATOGA BATTLEFIELD

SARATOGA NATIONAL HISTORICAL PARK





# CULTURAL LANDSCAPE REPORT FOR SARATOGA BATTLEFIELD

SARATOGA NATIONAL HISTORICAL PARK

STILLWATER, NEW YORK

*VOLUME II:*

TREATMENT

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Olmsted Center for Landscape Preservation  
National Park Service, Boston, Massachusetts, 2011

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The Olmsted Center for Landscape Preservation promotes the stewardship of significant landscapes through research, planning, and sustainable preservation maintenance. The Center accomplishes its mission in collaboration with a network of partners including national parks, universities, government agencies, and private nonprofit organizations. Techniques and principles of preservation practice are made available through training and publications.

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Cover Photo: View across the Hudson River from Bemis Heights, Saratoga National Historical Park (OCLP, 2010).

Title Page: Saratoga National Historical Park (OCLP, 2010).



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## FOREWORD

Visitors to Saratoga National Historical Park experience a bucolic landscape framed by the bluffs of the Hudson River and lush lands changing seasonally with agricultural cycles. The battlefield has been researched and studied by military historians, archeologists, landscape architects, biologists, forest ecologists, and others from our professional and scientific community. This landscape evolved from October 7, 1777 to today, and our understanding of the importance of the battles here has also evolved, tempered by scientific and archival evidence and societal changes.

The following second volume of the *Cultural Landscape Report for Saratoga Battlefield* presents landscape treatment recommendations grounded in the park's General Management Plan. These recommendations have been refined through facilitated discussions with a multi-disciplinary team of knowledgeable park staff who have served as stewards of both the Saratoga story and the treasured landscape. This approach has embraced both natural and cultural resource values to present specific recommendations for accurately and sustainably treating the battlefield landscape. These recommendations will further help facilitate landscape rehabilitation and interpretive wayside exhibit rehabilitation and will also provide the basis for the formulation of a long term environmentally sensitive and sustainable stewardship plan. The report compliments and embraces other site specific plans and report including the 2009 "Battles of Saratoga Preservation and Viewshed Protection Plan" and the 2004 "General Management Plan." This treatment plan will set the stage for the park to blend its rich landscape history with current information delivery systems to ensure that authenticity is a key aspect of the visitor experience

I applaud the work of the Northeast Region's Olmsted Center for Landscape Preservation, the park's management team and regional resource advisors. Their collaborative effort in bringing this project to completion will ultimately help guide the park into the 21<sup>st</sup> century in a way that will permit future generations to appreciate the role of sacrifice in our nation's origins and also to better understand the ways in which the events that took place here in 1777 changed world history.

Joe Finan

Park Superintendent

Saratoga National Historical Park



## ACKNOWLEDGMENTS

It has been our privilege to collaborate with Saratoga National Historical Park staff in moving longstanding plans for battlefield landscape rehabilitation closer to implementation. This team effort has paired the landscape architectural expertise of the Olmsted Center for Landscape Preservation with knowledgeable and committed park staff persons who have devoted themselves to the mastery of historical facts and the stewardship of a treasured landscape. Historical Landscape Architect Michael Commisso, has distilled the contributions of many in his preparation of this second volume to the Cultural *Landscape Report for Saratoga Battlefield*. He was assisted in his work by Daisy Chinburg, Student Conservation Associate and guided by Eliot Foulds, Senior Project Manager, and Robert Page, Olmsted Center Director.

We would like to express our thanks to Superintendent Joe Finan for appreciating the value of this joint undertaking and for soliciting the assistance of the Olmsted Center. We also call the reader's attention to the quiet leadership of Resources Program Manager Chris Martin, who served as our point-of-contact during the course of this project. Mr. Martin's thoughtful guidance, participation in discussions, and careful reviews of draft materials ensured a balanced approach in the treatment of Saratoga's natural and cultural resources. We especially enjoyed the contagious enthusiasm with which Chief of Interpretation Gina Johnson participated in this effort, ever advocating for measures to improve visitor understanding of a complex and nuanced site. Additional park staff, including Biological Technician Linda White, Curator Chris Valosin, and Interpretive Park Rangers Eric Schnitzer, Joe Craig and Bill Valosin completed a team of dedicated individuals working together to bring into focus the details of an ambitious vision for the battlefield that is articulated in the park's General Management Plan.

Visitors to the Saratoga battlefield come to admire the unspoiled rolling hills of the Hudson River valley, to glide along the smooth surface of the park's tour road, to view exhibits in the park's visitor center, and perhaps imagine themselves among the people and events of 1777. In their reverie, visitors could not possibly fathom the effort and dedication of park staff that has made their visit possible. The involvement of park staff in this project was not compulsory, but cheerfully undertaken on their part out of love for the place and in a spirit of service to the American people. It has been a rewarding experience to stand with these dedicated men and women above the Hudson and remember the past, and imagine a lively meaningful future for this storied landscape.





# INTRODUCTION

The Saratoga Battlefield, the largest of four component landscapes that comprise Saratoga National Historical Park, preserves the sites of two decisive Revolutionary War battles fought between British and American forces in the autumn of 1777. It is widely accepted that the American victory at Saratoga changed the momentum of the war, after which crucial support from the French was provided. The site has long been recognized as hallowed ground. Commemorative efforts by private citizens commenced shortly after the battles, culminating in the battlefield's designation as a state reservation in the 1927, and ultimately, as a national park in 1938. The battlefield today features the broad patterns of the agricultural landscape that were present in 1777, with a patchwork of field and forest layered on the rolling topography. The park provides visitors with the canvas to envision the dramatic events of September and October 1777 and preserves the spectacular views, flora, and fauna of the rural landscape that is increasingly under development pressure on a regional scale.

## **PURPOSE, SCOPE AND METHODS**

Saratoga Battlefield provides a unique opportunity for visitors to interpret a crucial time and place in American history. The largely untouched pastoral context sets the scene for understanding the evolution and significance of the Battles of Saratoga and the Northern Campaign of 1777. Yet, Saratoga National Historical Park is faced with many challenges related to effectively interpreting the battlefield landscape, altering circulation to provide accessibility, and balancing natural and cultural values. The intent of this treatment plan is to provide direction for the long-term management of the battlefield landscape.

This report defines a framework for treatment of the battlefield landscape, provides general treatment recommendations, and describes specific guidelines and tasks to enhance historic character in keeping with applicable National Park Service legislation, policies, guidelines, and planning. The report serves as the second volume of the Cultural Landscape Report for Saratoga Battlefield, building upon the site history, existing conditions, and analysis and evaluation completed in 2002 for the first volume.<sup>1</sup> Specific direction on the treatment of the battlefield landscape is built largely upon the actions outlined in the park's *General Management Plan* (2004). However, the draft *National Register of Historic Places Nomination for Saratoga National Historical Park* (2010) and *Long-Range Interpretive Plan* (2007) are other planning documents that inform future treatment of the battlefield.

This report has been developed according to the *Guide to Cultural Landscape Reports: Content, Process, and Techniques* (National Park Service, 1998). The treatment guidelines and tasks are consistent with the guidelines established by the National Park Service *Director's Order 28: Cultural Resource Management* (1999), *NPS-28: Cultural Resource Management Guideline* (1997), 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 available historical resources including both primary and secondary sources.<sup>2</sup>

The following report is organized into three chapters. The first chapter establishes a framework for treatment based on the park's enabling legislation, policies, guidelines, and current planning efforts. This chapter articulates the appropriate treatment philosophy and describes the intended character of the landscape, establishes a primary treatment, and sets a treatment date. The second chapter, general treatment recommendations, uses the treatment philosophy established in chapter one to discuss broad issues that affect the historic character of the landscape site-wide. The third chapter, treatment guidelines and tasks, outlines the specific efforts necessary to retain and enhance the historic character of the landscape and to improve landscape interpretation and understanding. The guidelines and tasks are organized using the management zones established in the General Management Plan. These include the Main Battle Action and Encampment Subzone, Supporting Battle Action Subzone, and Park Support Zone. The chapter concludes with a summary table of treatment tasks.

## **DESCRIPTION OF THE STUDY AREA**

Saratoga Battlefield is a 3,290-acre property located on the upper Hudson River in Saratoga County, thirty miles north of Albany, in the town of Stillwater. It is an irregularly shaped parcel, bounded approximately on the north by Lohnes Road, on the east by Route 4 and the Hudson River, on the south by an east-west boundary line south of Route 32/423 and on the west by Route 32 and Durham Road (Figure 0.1).

The Saratoga Battlefield landscape is characterized by a variety of rolling topography and steep escarpments and ravines. Vegetation is currently maintained as a combination of field and forest in a bucolic setting. Expansive eastward views to the Hudson River and beyond to the hills of Washington County and the Green Mountains of Vermont are possible from several locations on the battlefield, notably from the visitor center, and Tour Stops 3, 9, and 10. Built features are

scarce on the battlefield. The Neilson House at Tour Stop 2 is the only structure related to the time of the 1777 battles, but many historic road traces cross the landscape. The most dominant built feature is the mid-20<sup>th</sup> century park tour road, a nine-mile one-way loop road connecting points of interest throughout the battlefield (Figure 0.2).

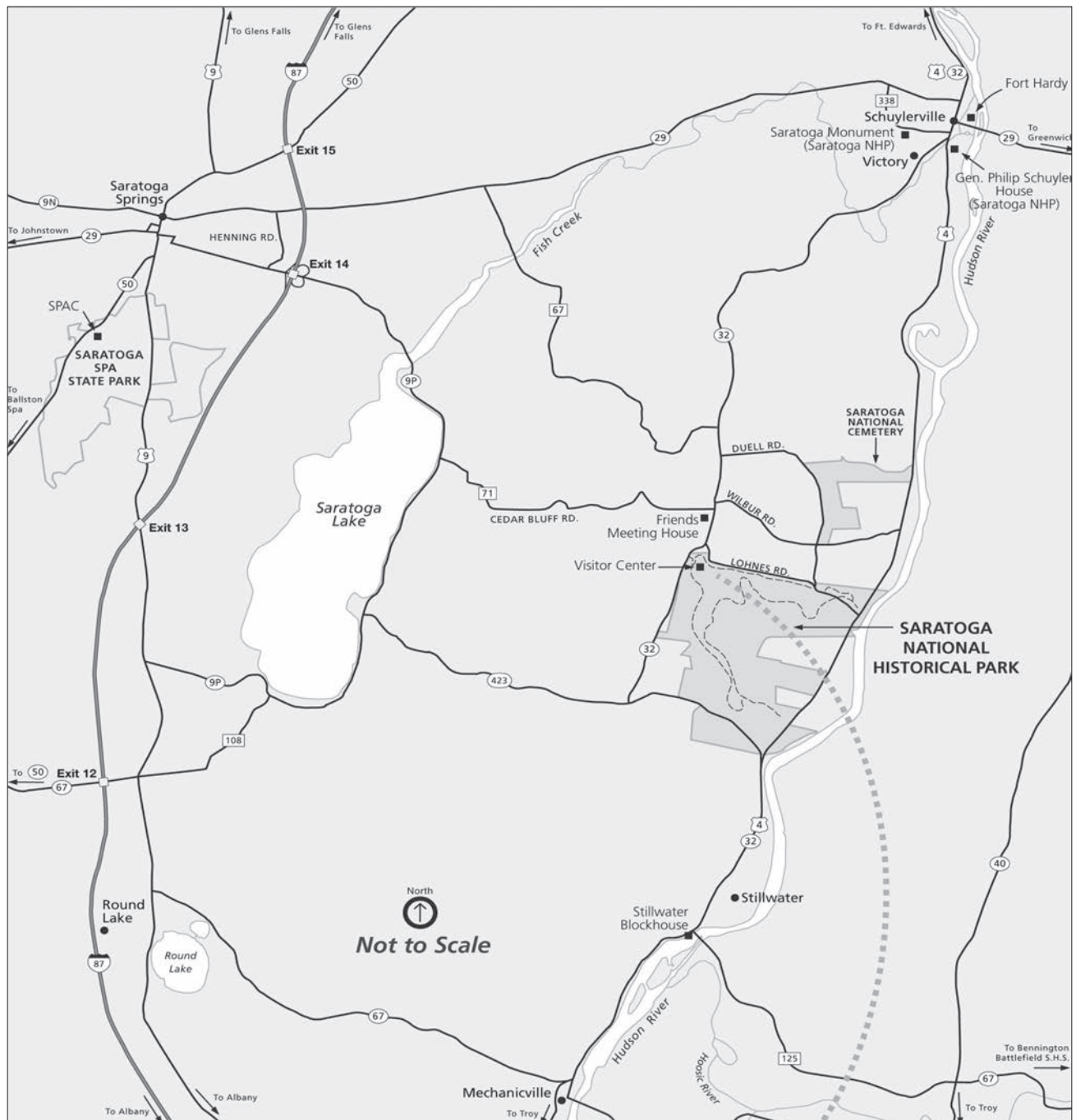


Figure 0.1. Location map for Saratoga National Historical Park, highlighted center-right in the image. The park is located on the Upper Hudson River in Saratoga County, in the town of Stillwater, New York. Saratoga battlefield is included within the park boundaries (Saratoga National Historical Park, General Management Plan, 2004).

## **HISTORICAL OVERVIEW**

The history of the Saratoga Battlefield is extracted from the *Cultural Landscape Report for Saratoga Battlefield, Saratoga National Historical Park, Volume 1: Site History, Existing Conditions, and Analysis* (2002), the *Cultural Landscape Inventory for the Saratoga Battlefield* (2011), and the *National Register of Historic Places Nomination for Saratoga National Historical Park* (2011).

### **PRE-CONTACT AND EARLY EUROPEAN SETTLEMENT**

Saratoga Battlefield preserves the site of the Revolutionary War battles of Saratoga that occurred on the western bank of the Hudson River during the autumn of 1777. Well before these decisive battles, the current park landscape occupied part of a disputed boundary between spheres of Iroquois and Algonquian influence.

The place name “Saratoga” itself being aboriginal, has had numerous definitions over time, all drawing on the existence of the Hudson River as the fundamental theme. This river valley, that later served a strategic role in the battles of 1777, first functioned as a corridor for the exploration of the region as early as 1609. Seventeenth-century accounts of explorations in the region describe a landscape that the American Indians managed through burning to facilitate hunting.

European settlement of the region progressed northward up the Hudson River from New York City to Albany. In 1683, a group of wealthy speculators purchased nearly 170,000 acres of Mohawk land on both sides of the Hudson and later registered their purchase with the English crown. This vast area, known as the Saratoga Patent, was twenty-two miles long and twelve miles wide and was initially divided into large linear plots held by the original patentees. However, over sixty years passed until the property was further subdivided to support a system of tenant agriculture.

By the mid-1700s, the region and its river had become a corridor of conflict between the English and the French. Many locals found themselves in the crossfire during the skirmishes of French and Indian Wars that raged in the area, losing family members, property, and livestock. Yet, despite the dangers, settlers continued to improve their land by building houses and barns, clearing trees for crop cultivation, and planting orchards and gardens.

### **BATTLEFIELD AT THE TIME OF THE BATTLES OF SARATOGA**

In 1777, the area where the Battles of Saratoga were fought was characterized as a patchwork of cleared agricultural fields, forest, ravines, and streams. The alluvial floodplains adjacent to the Hudson River offered the best farmland and were thus the first settled and improved. Inland settlement of the escarpment

and highlands above the river began after the 1750s. At the time of the battles, about thirty-five percent of the area within the district was cleared agricultural land and the remainder was wooded. Some of the larger tracts were subdivided into smaller properties for individual families occupied in the cultivation of corn, flax, and wheat. Early families who settled in the battlefield lands included the Neilsons, Barbers, Taylors, and Freemans. Typical farmhouses of the region were modest in size and design, one or one-and-one-half stories in height, resembling the buildings found in western New England and the areas of New York settled by the Dutch. The majority of the farmhouses and related outbuildings were of wood frame or log construction. A small road network connected the various farmsteads and led to the Hudson River. The north-south Road to Albany, now incorporating portions of River Road and U.S. Highway 4, at that time closely

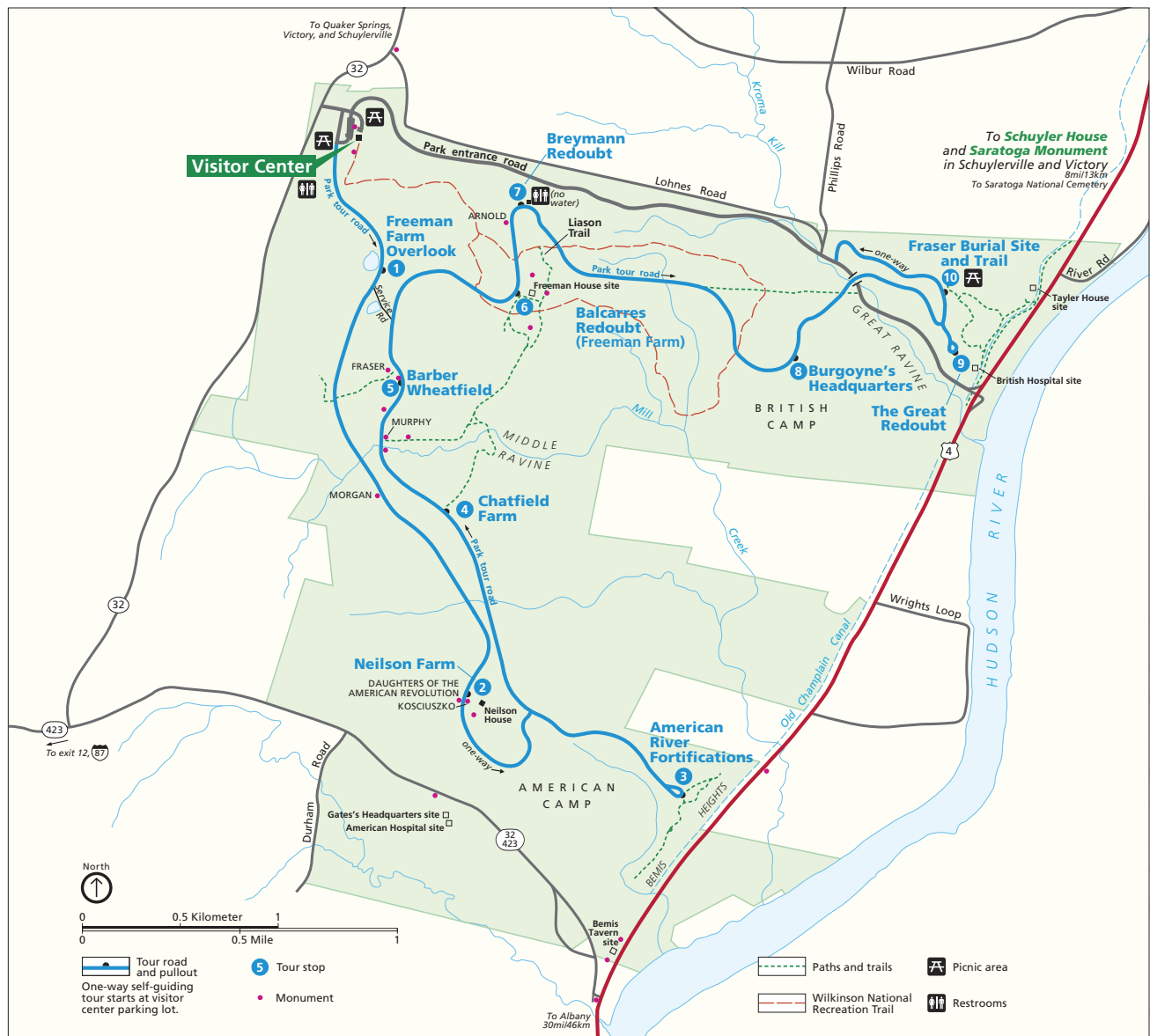


Figure 0.2. Map of the Saratoga Battlefield Unit, a 2,800-acre area containing the location of the two battles of Saratoga that were fought during the autumn of 1777 (Saratoga National Historical Park, 2011).

paralleled the Hudson River and provided access southward to Albany and points north. Other local roads included Quaker Springs Road and a road leading to Saratoga Lake.

The particular features of the Saratoga Battlefield landscape, most of which remain evident, played a decisive role in the outcome of the battles that occurred there in 1777. Heavily laden with baggage and matériel necessary to conduct a long campaign in hostile country, the British Army under Lieutenant-General John Burgoyne had to rely on water routes to accomplish its ultimate goal of capturing Albany. The chosen avenue of approach from the starting point of the campaign in Canada was along lakes Champlain and George, then to the Hudson River. After reaching the Hudson at Fort Edward, Burgoyne's army marched along the Road to Albany and moved its flotilla of boats in the Hudson. The American forces under Major General Horatio Gates also utilized the Hudson River and the north-south Road to Albany in approaching the battlefield from the south.

Being aware that the British choices of routes was limited by the necessity of maintaining contact with the river, the American forces had the advantage of selecting the key ground through which the British must pass to reach Albany. Gates chose the area occupied by a small settlement around the Bemis Tavern in Stillwater to construct his defensive lines. In that area, the Road to Albany traversed a flat, alluvial plain between the Hudson and a steep bluff known as Bemis Heights. Placing artillery batteries and fortifications along the eastern side of the road as well as upon the bluffs overlooking the road to the west, Gates' engineer Thaddeus Kosciuszko created a defile, or narrow passage, with clear fields of fire and observation. The Americans also destroyed bridges over several streams along the Road to Albany that slowed the British advance and provided time to establish and improve their defensive position. In the uplands, the American lines stretched west from Bemis Heights to John Neilson's farm and then veered southwesterly. Earthen fortifications and breastworks were erected along the line, and troops were positioned behind them to guard against attack at the center and left flank of the American defenses.

The topography and patterns of fields and forest of the battlefield figured prominently in the prosecution of the battles. Both armies used the existing network of farm roads for troop movements. The First Battle of Saratoga took place within and around the woodland clearing for John Freeman's farm. A deep branch of the Middle Ravine surrounded the farm to the south and north. The western side of the clearing consisted of higher ground featuring two hills. Fences crisscrossed Freeman's property, and the entire clearing was surrounded by a dense woodland. The dense forest between the farm clearings provided cover and concealment and created obstacles for each army. As British Brigadier-General James Hamilton's forces advanced up the hill toward the farm, gunfire began



and they were forced to take cover in this thick wood. The American forces used the wooded area on the western side of the farm for their own cover and took defensive positions behind the ravine on the southern end of the farm. As fighting raged across Freeman's farm, both armies used the existing woods for cover and the roads to approach and retreat from the battle.

The British constructed similar defenses to the north along their established lines. There, the British were anchored by three substantial fortifications known as the Great, Balcarres, and Breymann Redoubts arrayed in an arc from the river to the upland farms of the Barber, Freeman, and McBride families. Both sides constructed additional fortifications during the defensive interval between the two battles. Although the British did not clear-cut the forest, they did thin out the trees to provide cover for themselves and to obstruct the advance of the American soldiers. After the first Battle, Burgoyne's army was divided into five camps separated by a series of natural features including three hills, the Middle and Great Ravines, and areas of cleared plateaus and wooded bluffs. To maneuver his troops, Burgoyne had a series of bridges constructed over the smaller branches of the Middle and Great Ravines that cut through the area. The British also constructed a short road on the plateau between two farms that ran parallel to the river, a bridge of boats across the river, and a tête-de-pont (a bridgehead fortification) on the other side of the river. The Americans also built a bridge of logs across the river behind their lines at Bemis Heights (Drawing 0.1).

### **POST-REVOLUTION, AGRICULTURAL ECONOMY, AND COMMEMORATIVE PERIOD**

After the Battles of Saratoga, most of the land comprising the battlefield reverted to its pre-war agricultural use. This post-battle period became a time of increased productivity and rapid growth. One reason for the growth in agriculture was Albany's three-fold population increase between 1790 and 1810. This local population explosion gave farmers a ready market at which they could charge high prices for their goods, making farming in Saratoga County a profitable endeavor at the turn of the century.

Throughout New York State, the pace of land clearance increased dramatically. Tenant farmers began to clear their land, reaping the financial reward by increasing their acreage and selling the removed timber. By the mid-1800s, the once heavily forested landscape of the Saratoga area was substantially cleared of vegetation. Marginal lands like ravines and creek beds retained their vegetation only because they were not suitable for farming. Hedge rows, fences, and stone walls were a more common sight than the majestic virgin timber of previous centuries.

This process continued into the early nineteenth century when agricultural and economic development along the Hudson led to infrastructure improvements such as road construction and the development of the Champlain Canal. The canal was completed through the battlefield in 1821 and required the re-routing of several streams. The availability of local canal transportation at the foot of the battlefield's escarpment became a great convenience to commerce, contributing to the growth of small hamlets such as Bemis Heights and Wilbur's Basin that already had fledging economies based on mills and other small businesses. Sand mining activities on a portion of the battlefield lands began in 1917 and lasted until the late 1920s. The extractive process included the removal of the top five to six inches of soil and may have compromised some portions of the remaining man-made features associated with the battles.

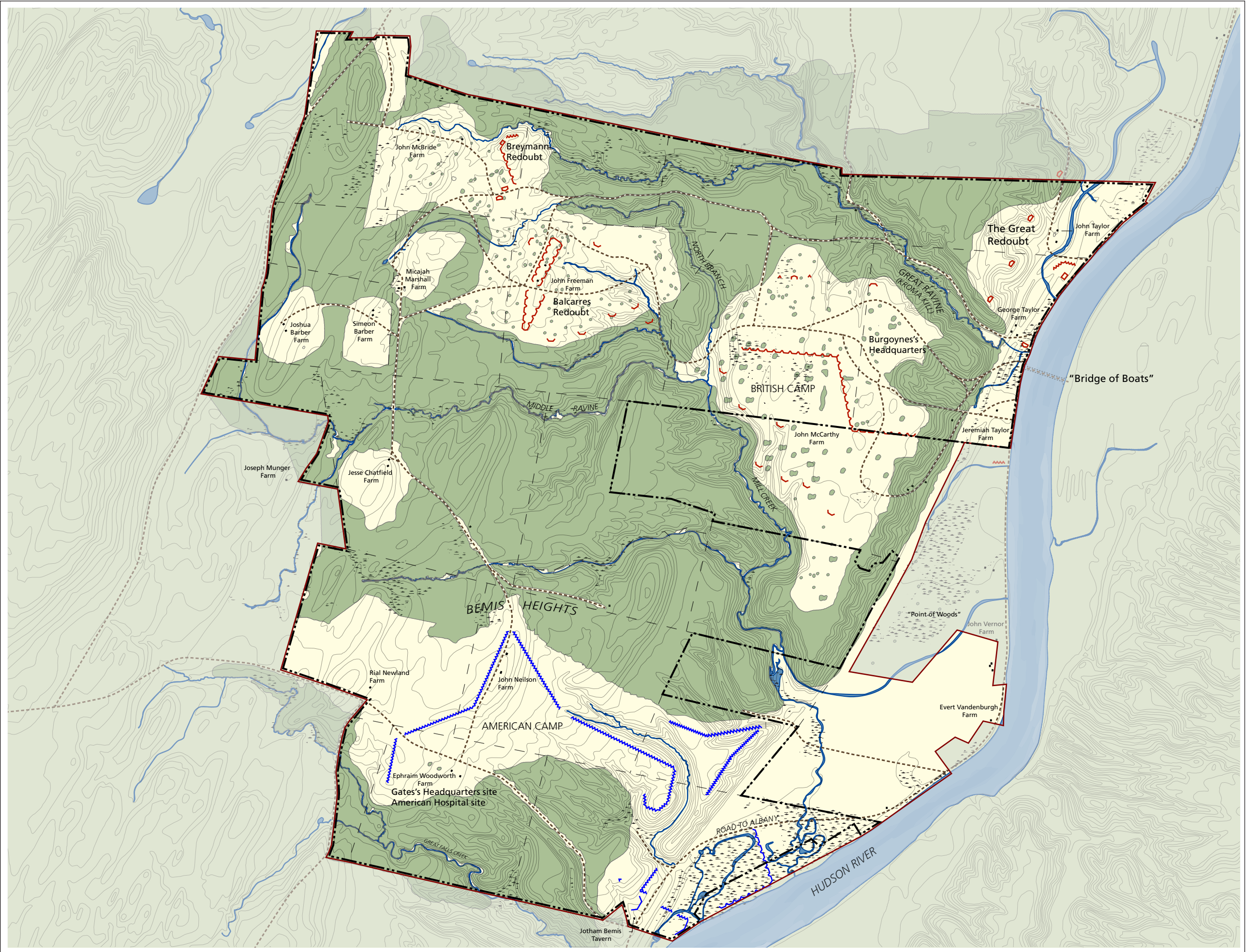
As the American Centennial approached, the historic battlefield increasingly became the site of patriotic pilgrimage. Such visits began shortly after the battle, with local veterans leading the curious to the various attractions. By the 1850s however, many visitors were lamenting the loss of earthworks and other physical reminders of the battles. This evolution of the local landscape coincided with the patriotic and memorial efforts of local citizens who formed the Saratoga Monument Association in 1859. Their commemorative initiative was soon eclipsed by the sectional politics of the American Civil War, but following the end of that war gained renewed vigor in time to lay the cornerstone for the Saratoga Monument on the one-hundredth anniversary of the battle in 1877.

The Centennial celebrations of 1877 acknowledged the role of many local places in the historic battle, including the battles of September 19 and October 7 at the Freeman farm and Bemis Heights. The occasion of the anniversary celebration was marked on the battlefield site with pageantry attracting over 30,000 people, but following the anniversary there was greater interest in permanently recognizing the importance of this place through placement of various markers and tablets.

#### **STATE MANAGEMENT PERIOD**

What began as an initiative to place commemorative markers and tablets in the landscape eventually became an ambition to protect the whole battlefield and make it available for the inspiration of future generations. Local individuals, notably Ellen Hardin Walworth and George Slingerland, who advocated tirelessly for the preservation of the battlefield, carried this ambition forward. In 1926, the state of New York amended their conservation laws to provide for the acquisition of battlefields and historic sites, making possible the dedication of a state battlefield park during the sesquicentennial year.





# Cultural Landscape Report for Saratoga Battlefield

## Saratoga National Historical Park

Stillwater, New York

### 1777 Period Plan



**National Park Service**  
**Olmsted Center for Landscape Preservation**  
[www.nps.gov/oclp](http://www.nps.gov/oclp)

#### SOURCES

1. Olmsted Center for Landscape Preservation, *Cultural Landscape Report: Saratoga Battlefield, Volume I*, 2002.
2. Snell's updated historical base Map. 1951. SARA park files. NHP-SAR 2011 A.
3. Wilkinson Manuscript Map with three overlays, 1777. Library of Congress.
4. Emily Russell GIS "Land Cover and Roads Map," for September 19th and October 7, 1777. Orthophotography 2008.

#### DRAWN BY

Michael Comisso, AutoCAD 2010 and Illustrator CS 3, 2010-2011

#### LEGEND

- Building or structure
- Unpaved road or path
- Deciduous specimen tree, wooded area
- Managed meadow or field
- Wetland (scrub or grasses)
- Hydrology (river, creek, stream, or pond)
- NPS legislative boundary
- NPS fee boundary
- Bridge
- Property boundary/ Patent lines
- British fortifications
- American fortifications
- 10' contour

#### NOTES

1. Plan shows conditions in 1777.
2. All features shown in approximate scale and location.



Drawing 0.1



At the time of the battlefield's dedication as a state-managed property in 1927, the landscape was almost indistinguishable from any other farmland in the area. Less than ten percent of the original forest cover present at the time of the battles remained. The state's holding of 644 acres was dotted with farmhouses, barns and outbuildings and bisected by State Route 32, otherwise known as Quaker Springs Road. Other than the occasional historical markers dating to the 1880s, there was little to attract visitors. In an effort to remedy this, the State of New York planted grass to create a more open and park-like setting and demolished numerous post-Revolutionary War-period features. To increase public use of the parkland, the State constructed new roads, installed conjectural period elements, and provided visitor facilities such as picnic tables. The placement of these elements was driven by the limits of the state's property holdings at the time and was centered at the former Neilson and Freeman farms.

#### **NPS ESTABLISHMENT PERIOD AND HISTORY OF PARK PLANNING**

After the battlefield was declared a National Historical Park in 1938, the National Park Service (NPS) acquired additional lands, took steps to recreate the general pattern of fields and woods that were present at the time of the battles, and undertook planning to improve visitor amenities and interpretation.

By the late 1930s, the NPS completed several important planning efforts that guided the direction of the park. Park historians and archeologists completed extensive archeological investigations and a historic base map in preparation for the 1941 Master Plan. President Roosevelt remained interested in the progress of the park during this period and weighed in on important decisions such as the selection of the site for the park's administration/museum building. This structure, completed much later in 1962, is currently known as the park visitor center. Other studies followed the completion of the Master Plan and the Master Plan update of 1951, including Road and Trail System Plans and several iterations of General Development Plans.

A key planning effort that occupied nearly thirty years was the design of the park tour road. Beginning in 1938, at the beginning of National Park Service involvement at Saratoga, park planners generated alternatives for how to best interpret the landscape on a driving tour of the park. Their ideas evolved substantially over the decades, culminating in the one-way tour road featuring ten interpretive stops completed in 1967.

At the time of its enabling legislation in the late 1930s, the park's vegetative cover consisted largely of open agricultural fields, a condition that was viewed as convenient for park interpretation because the topography and battlefield features could be seen at a glance. After coming under National Park Service stewardship, these lands were removed from agricultural production and maintaining the open

character required extensive maintenance. With entry of the United States into World War II in 1941 and the austere national park budgets that followed, mowing was largely deferred for a period of fifteen years. As a result, a young forest of saplings grew up over the formerly open agricultural fields.

In 1949, park historian Charles Snell prepared a report on the ground cover at the park in which he recommended locations that historical research indicated should be reforested. Believing that the open fields created a false impression for visitors, and wanting to present a more authentic view of the battlefield, Snell revised the historical 1941 base map to include large areas of forest that would provide a clearer understanding of how the battlefield looked in 1777. The National Park Service prepared a revised master plan including Snell's historical base map in 1951. In 1987 and 1989, the NPS funded new studies to revisit Snell's effort and to reconcile the map with new field studies.

By 1993, the need for a summary document to synthesize the multi-faceted landscape information related to the battlefields at Saratoga was widely accepted. This need coincided with a new appreciation of what has become known as "cultural landscapes" within the National Park Service. As part of the new initiative directed at cultural landscapes, a project to complete a cultural landscape report (CLR) for Saratoga was begun and produced in draft by 1995. Unfortunately, this effort remained largely focused on the vegetation, to the exclusion of other landscape history and features.

In 2000, anticipating the commencement of a new general management plan effort to replace the outdated 1969 Master Plan, a second cultural landscape report was funded. The completed Volume I of the cultural landscape report (2002) compiled and synthesized current landscape research to inform and support general management plan decision-making.

After a thorough internal and public review process, the park published its new General Management Plan in 2004, setting a new direction for the park's future. Among its many directives, the General Management Plan outlined interpretive themes for the four park units, established strategies for incorporating new resources into the integrated park experience, and determined boundaries for management zoning. Important for making choices regarding the cultural landscape, the General Management Plan established an October 1777 treatment date for the Saratoga Battlefield.

More recently, the park has made considerable improvements within the battlefield to address invasive vegetation, visitor accessibility, and landscape interpretation. These improvements include successive clearing of invasive plants through prescribed burns, mowing, and the application of herbicides, repairs to the park tour road and trail systems, removal of buildings and structures that post-date the battles, and improving access to the Champlain Canal. Other more

noticeable changes include the replacement of existing wooden posts with plastic posts that mark historic fortification lines, and restoration of cannon carriages, and conservation of historic monuments. The park has also continued to explore new sources of historical information, both archeological and documentary, and has funded studies to better understand the natural systems of the battlefield landscape. These reports include *Developing a Conservation Strategy for Grassland Birds at Saratoga National Historical Park* (2005), *Study Design for Assessing the Effects of Knapweed Control on Grasslands Birds at Saratoga National Historical Park* (2007), and *Vegetation Classification and Mapping at Saratoga National Historical Park* (2008) (Drawing 0.2).

## **SIGNIFICANCE SUMMARY**

The significance summary has been extracted from the recently completed *Cultural Landscape Inventory for the Saratoga Battlefield* (2011), and the *National Register of Historic Places Nomination for Saratoga National Historical Park* (2011).

As part of Saratoga National Historical Park, Saratoga Battlefield derives significance under National Register Criterion A in the areas of military history, conservation, and transportation; Criterion C in the area of architecture; Criterion D for archeology; and Criterion Consideration F as a commemorative property. There are five periods of significance identified for the battlefield property: 1777 for the Battles of Saratoga; 1821-1917 for the operation of the Champlain Canal; 1883-1936 for the commemoration of the battles and monumentation of the battlefield; 1923-1966 for the conservation of the battlefield by the state and federal governments; ca.1775-1962 for the construction of the John Neilson House and the Saratoga Battlefield Visitor Center. (A sixth period of significance, 1760-1818 for archeology, has also been identified in the previous National Register documentation, but detailed discussion of archeological resources is not addressed in this report.) The following narrative provides a summary of the battlefield's significance and is excerpted from the National Register of Historic Places Nomination for Saratoga National Historical Park Historic District (2010).

## **CRITERION A AND CRITERIA CONSIDERATION F**

### **Military History (1777):**

Saratoga Battlefield is nationally significant under Criterion A within the area of military history as the site of the Battles of Saratoga in 1777. The battles together comprise a definitive turning point of the American Revolutionary War and have been generally acknowledged by historians as one of the most decisive battles in military history. After a string of victories in 1776, the British adopted a strategy

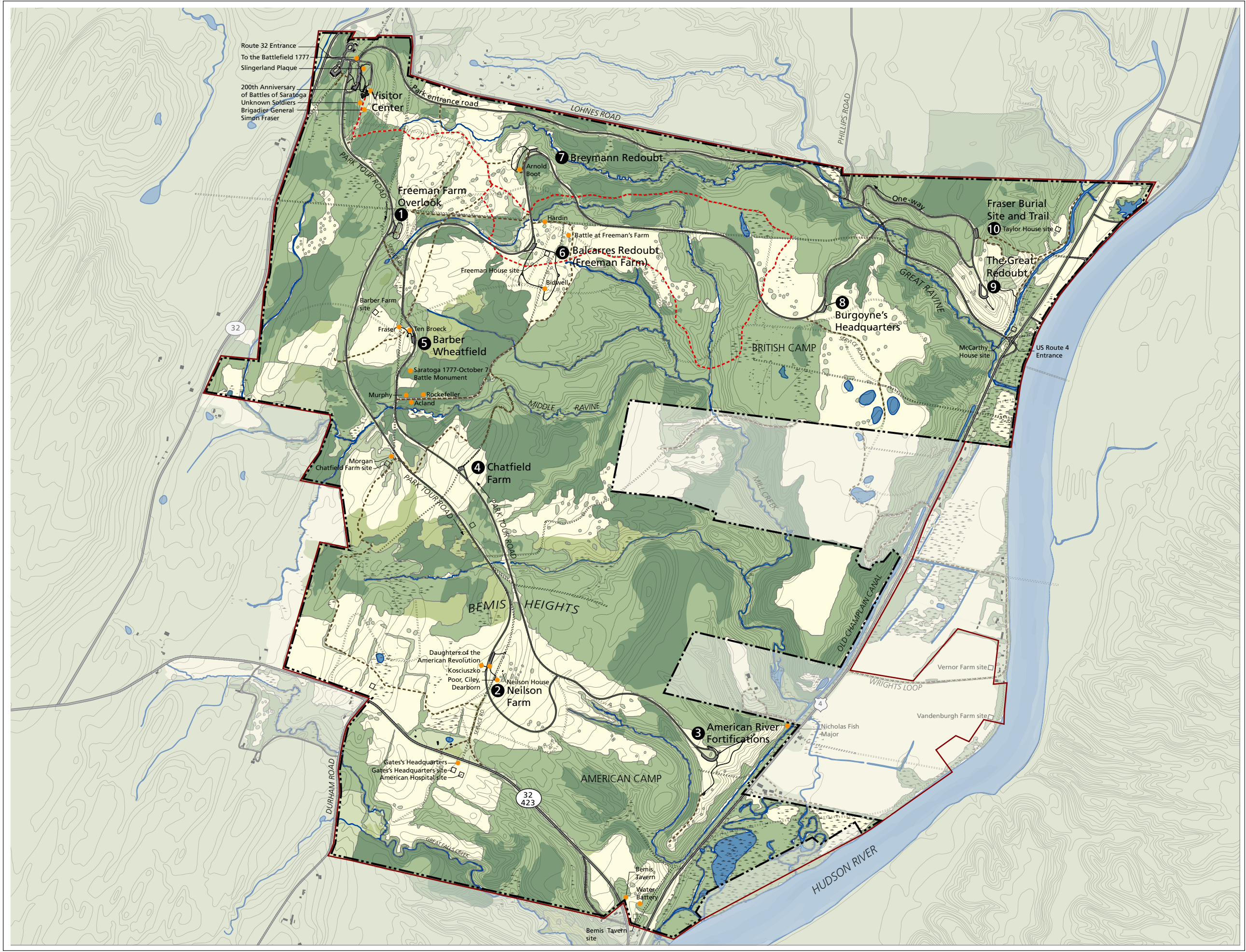


intending to divide the Colonies along a physical boundary - cutting off the supply lines of General Washington. The plan called for two British armies to meet at Albany. General John Burgoyne marched south from St Johns and Lieutenant-Colonel Barry St. Leger moved east through the Mohawk Valley. British troops under Burgoyne met with initial success that included the capture of Fort Ticonderoga and a victory over American forces at the Battle of Hubbardton in Vermont. However, progress slowed considerably due to problems caused by supplying and moving the cumbersome army through difficult terrain. After reaching the Hudson River in August, Burgoyne was forced to stay at Fort Edward for more than a month to collect supplies. It was during this time that the British were dealt a series of defeats, including the loss of nearly 1,000 troops at the Battle of Bennington and news that the western prong of the invasion under Lieutenant Colonel Barry St. Leger had stalled at Fort Stanwix. Burgoyne was also informed that General William Howe had taken the main body of his army to capture Philadelphia, leaving Sir Henry Clinton with only a small force in New York City and unable to provide the promised support up the Hudson from the south. Despite these circumstances, Burgoyne pressed on toward Albany<sup>3</sup>

The British delays and defeats allowed American forces under General Horatio Gates to reorganize and establish a strong defensive position south of Saratoga on Bemis Heights and the River Road to Albany. Constructed under the direction of engineer Thaddeus Kosciuszko, the defensive works included the emplacement of batteries and fortifications on the river bluffs and floodplain below that dictated the tactics of both armies and the course of the ensuing battles. Confined to travelling along the river valley in order to float his ponderous baggage southward, Burgoyne was forced to decide whether to force his way through Kosciuszko's well-chosen position or attempt a flanking movement. On September 19, 1777, Burgoyne sent a portion of his army west up the river escarpment to probe the American left flank. The British columns collided with forces advanced from left wing of the Gates' army near the abandoned farm of Loyalist John Freeman. Following a long afternoon of heavy fighting, the Americans eventually withdrew to their pre-established lines where they remained to block Burgoyne's further progress toward Albany.

In the aftermath of the First Battle of Saratoga, Burgoyne remained hopeful that Clinton would provide assistance from the south and chose to remain and to fortify his position. During this time, the Americans also chose to strengthen their defenses in a line extending from Neilson's Farm to the river. On October 7, British and American forces became engaged in a second battle at Barber's wheat field. The British, however, were routed and driven back to their fortifications. At dusk of that evening, one position held by German troops was overwhelmed by attacking Americans, forcing Burgoyne to withdraw to his inner works near the river. The following day he decided to withdraw northward toward Saratoga where he established a fortified encampment on the high ground above the river.





# Cultural Landscape Report for Saratoga Battlefield

## Saratoga National Historical Park

Stillwater, New York

### 2010 Existing Conditions



**National Park Service**  
**Olmsted Center for Landscape Preservation**  
[www.nps.gov/oclp](http://www.nps.gov/oclp)

#### SOURCES

1. Olmsted Center for Landscape Preservation, *Cultural Landscape Report: Saratoga Battlefield, Volume I*, 2002.
2. Orthophotography 2008.
3. SARA GIS Data
4. Site visits, February and September 2010.

#### DRAWN BY

Michael Comisso, AutoCAD 2010 and Illustrator CS 3, 2009

#### LEGEND

- Building or structure
- Paved road or path
- Unpaved road or path
- Wilkinson National Recreation Trail
- Historic road trace
- Deciduous specimen tree, wooded area
- Evergreen specimen tree, wooded area
- Deciduous/evergreen shrub, shrubland
- Managed meadow or field
- Mown turf
- Wetland (scrub or grasses)
- Hydrology (river, creek, stream, or pond)
- NPS legislative boundary
- NPS fee boundary
- Monument or Marker
- Tour stop
- 10' contour

#### NOTES

1. Plan shows conditions in 2010.
2. All features shown in approximate scale and location.





Gates followed with his army and surrounded the British. With no other option Burgoyne capitulated on October 17, 1777, surrendering his entire force to Gates.<sup>4</sup>

The American victory at Saratoga proved that the Continental Army had developed into a formidable fighting force capable of defeating a British Army in general battle. It revived the flagging hopes of the supporters of the Revolution and provided the convincing proof France needed in making its decision the following year to enter the war on the side of the United States. French military and provisioning assistance helped to tip the balance in favor of the Americans, leading to final victory at Yorktown, Virginia, in 1781.<sup>5</sup>

#### **Conservation (1923-1966) and Commemoration (1883-1936):**

The Saratoga Battlefield also derives national significance under Criterion A for conservation of the battlefield and meets Criteria Consideration F for monumentation of the battlefield. While the construction of the Saratoga Monument started in 1877, the first steps to commemorate the Saratoga Battlefield began in the early 1880s and was led by Ellen Hardin Walworth. Walworth was a notable author, preservationist, and women's rights advocate and counted among her many achievements the distinction of being one of the three founders of the Daughters of the American Revolution. Her work to commemorate the battlefield began with extensive research of battle events and surveys of the battleground, which at the time was still privately held farmland. She successfully secured the donation of small-scale markers that were inscribed with interpretative text and placed on the battlefield in the beginning in 1883.<sup>6</sup>

In the 1890s, the War Department established the first four national military parks in the country, and petitions were made in the early 1900s to give other battlefields a similar designation. Interest in this effort intensified during the period of increased nationalism and prosperity that followed World War I. At Saratoga, as the sesquicentennial of the Battles of Saratoga approached, a number of groups banded together in support of acquiring and preserving the last visible traces of the battles. Led by Rochester businessman Charles Ogden, the Saratoga Battlefield Association, Inc. was formed and later acquired four key parcels of battlefield land totaling 656 acres in 1923.<sup>7</sup>

By the mid-1920s, the Saratoga Battlefield preservation efforts were championed by local politician George Slingerland. He was instrumental in gaining state battlefield park status in time for the sesquicentennial of the battles in 1927. During the subsequent period of management by the State of New York (1927–1937), Slingerland worked tirelessly to improve the battlefield, constructing a number of conjectural buildings and memorials at the Neilson farm, which served as the primary interpretive area during the period, and guiding land-use management. The last memorial constructed during this period was the

Kosciuszko Monument in 1936. The ultimate objective, however, was to acquire as much of the battlefield land as possible and he was successful in gaining appropriations from the state to add nearly 800 additional acres. Slingerland's unexpected death in 1932 created a void in leadership that forestalled significant improvement of the battlefield during the remainder of the state management period.<sup>8</sup>

After ten years as a state reservation, the Saratoga Battlefield was made part of the national park system in 1938 when Saratoga National Historical Park was authorized by the United States Congress five years after other military parks were transferred from the War Department to the Department of the Interior. The park was formally established in 1948. Under National Park Service stewardship, the focus of management shifted away from commemorative activities toward an increased emphasis on education and interpretation. Studies conducted by park historians established the park's interpretive context, and planning efforts focused on the restoration of the battlefield landscape to more accurately reflect its 1777 appearance. The park's first master plan was developed in 1941 and called for changes to improve the visitor understanding of the battlefield through the construction of a new administration/museum building, the site of which was personally selected by President Franklin D. Roosevelt during a visit to the park in 1940, and a battlefield tour road. The implementation of the plan, however, was hampered by lack of funding due to the onset of World War II and the underfunding of the national park system during the first half of the 1950s. The funding for the improvements was ultimately secured under the National Park Service's Mission 66 Program, a nationwide effort to upgrade facilities at national parks. The investment at the park resulted in the construction of the current Modern-style visitor center in 1962 and Saratoga Battlefield tour road, begun in 1958 and completed in 1966. These improvements marked the culmination of more than two decades of planning and remain the primary facilities through which visitors experience the battlefield to the present day.<sup>9</sup>

#### **Transportation (1821-1917):**

The Saratoga Battlefield is also significant at the state level under Criterion A in the area of transportation for its association with the Champlain Canal. The canal, listed in the National Register in 1976 as a district under criteria A, C, and D, was constructed in the early nineteenth century as part of New York's extensive system of artificial waterways. It provided an efficient means for transporting raw materials, goods, and people from Canada, Vermont, northern New York, and western Massachusetts to markets in New York City. Canal construction reached the Schuyler property in 1820. The entire length of the Saratoga Falls to Stillwater Falls segment, which includes the section through the eastern portion

of the battlefield, was completed in 1821. Currently, this section consists of visible remains of the canal prism and stone bridge abutments (National Register 2010, Section 8:4-5).

## **CRITERION C**

### **Architecture (ca. 1775-1962):**

The Saratoga Battlefield derives local significance under Criterion C in the area of architecture for the John Neilson House and the park's visitor center. The John Neilson House is a simple vernacular Colonial-period, saltbox-type farmhouse that is a rare surviving example of the type of dwellings that were present on Saratoga Battlefield during at the time of the battles. It was constructed as a small, two-room house with a side gable, saltbox roof and a random fieldstone foundation. The house was enlarged and moved during the nineteenth and twentieth centuries, but later restored and relocated to its original location in the late 1950s. The Saratoga Visitor Center, completed in 1962, is a representative example of post-World War II Modern architecture as adopted by the National Park Service for the approximately 100 visitor centers constructed under the Mission 66 program. The prominent site of the building on Fraser Hill was selected by President Franklin D. Roosevelt during a visit to the park in 1940 because it provided sweeping views of the battlefield landscape. The building features hexagonal units and covered terraces, which were inspired by the architecture of the Fort Snelling in Minnesota; the use of both locally available natural construction materials and modern elements such as large glass-and-steel curtain walls; and low-horizontal profile. The combination of those elements produced a building that sits lightly on the landscape, blending with its environment and unobtrusive to the historic battlefield that it serves.<sup>10</sup>

## **CRITERION D**

### **Archeology:**

The Saratoga Battlefield is significant under Criterion D as a property that has yielded, or may be likely to yield, information important in prehistory or history. The battlefield has significant archeological resources representative of pre-contact and post-contact period contexts. The identification of a range of major battlefield features (e.g., fortification lines, cannon emplacements) has served to corroborate the accuracy of military maps drafted during the Battles of Saratoga (e.g., Wilkinson, Putnam), as well as providing clues to the specific locations of less substantial features (e.g., troop encampments along the British lines) otherwise unavailable through documentary sources. The archeological survey

work also has been important in identifying subsurface disturbances throughout the park that preclude the survival of Revolutionary War-era features and highlighting those areas where such deposits may still survive.<sup>11</sup>

## **UPDATED ANALYSIS AND EVALUATION**

The *Cultural Landscape Report for Saratoga Battlefield, Volume I: Site History, Existing Conditions, and Analysis* (2002) evaluated the historic character of the battlefield landscape by examining the site's defining characteristics. In the ten years since the first volume was completed, site conditions have changed and the park has approved new National Register documentation describing the significance of the property. This section provides an updated analysis and evaluation of the site's integrity and landscape characteristics, which serves as the foundation for this treatment plan (Drawing 0.3).

### **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 of Historic Places 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. According to the *National Register Bulletin #40, Guidelines for Identifying, Evaluating, and Registering America's Historic Battlefields*, the most important aspects of integrity for battlefields are location, setting, feeling, and association.

The battlefield retains integrity associated with several areas of significance, as identified by the National Register documentation, including military history (1777), conservation (1923-1966), commemoration (1883 and 1936), architecture (ca. 1775-1962), transportation (1821-1917), and archeology (1760-1818). Archeological resources and those relating to the Champlain Canal are documented in other reports and will not be evaluated in this report. Overall, the battlefield retains integrity of location, design, setting, feeling, and association. In the area of conservation and commemoration, the battlefield has integrity of location, design, setting, materials, workmanship, feeling, and association. In the area of architecture, the visitor center and Neilson house retains integrity of location, design, setting, materials, workmanship, feeling and association.<sup>12</sup>



**Location:**

The Saratoga Battlefield is the actual location where the decisive fighting of 1777 occurred, and the landscape continues to provide visitors with a clear picture of how the battles unfolded. The site remains in a quiet undeveloped setting. The intact topography, historic eighteenth-century road traces, and field and forest patterns communicate how and why the landscape served as an advantage and/or obstacle during the battles.

**Design:**

The topography, historic road traces, and field and forest patterns contribute to the design integrity of the battlefield since they communicate how and why landscape characteristics were used tactically. Many of the designed elements associated with the battles, including fortified lines, outbuildings, and earthworks no longer remain, but the broad patterns of the landscape and key relationships between natural features are intact and convey the historic condition. The design integrity of the commemorative features is intact but diminished due to deterioration and loss of key design components and because many features have been moved. Several battlefield markers that date to the late nineteenth century were moved after the park tour road was built in 1967. The Saratoga Battlefield Memorial once contained the Monument to the Unknown American Dead obelisk as the centerpiece of a larger design that included a pavilion, a grove of trees, granite benches, paved walkways, and ornamental plantings. Only the obelisk, the benches, walkways, and overgrown plantings remain. Yet, despite these deficiencies, the good condition of the stone battlefield markers themselves conveys design intent, resulting in the retention of integrity of design. Likewise, the John Neilson House and park visitor center retain integrity of design. The Neilson House was expanded after the battles but National Park Service restoration projects have returned it to its 1777 design. The park visitor center also received an addition in 1975 but its defining elements, such as its large windows, natural building materials, large stone viewing terrace, and hexagonal-shaped massing remain.

**Setting:**

Despite substantial changes to the vegetation patterns of the Battlefield, the setting retains a high level of integrity to 1777 since the topography remains intact and its visual relationship to the Hudson River survives. The rural context outside the park boundary contributes to the historic setting by continuing the presentation of an agricultural landscape. The setting has changed slightly since the commemorative period through the addition of more forest cover. However, the topography, views, and relatively low density of development convey integrity of setting for the commemorative period. The setting of the park's architectural

features remains intact. The John Neilson House is located on a rise with views of the rolling terrain and field and forest vegetation that resemble conditions of the agricultural landscape present in 1777. Modern introductions have been added to the landscape, including the tour road, parking lot and Visitor Center, but the broad patterns remain to convey integrity of setting. The setting of the Visitor Center retains a high degree of integrity. Conditions at the Visitor Center site today closely resemble those of 1962, with the open westward views from the top of Fraser Hill, the surrounding forests, and pastoral setting.

**Materials:**

Few historic materials remain from the time of the battles. The John Neilson House retains original fabric, but earthworks, vegetation, and structures from the period are no longer extant, precluding the battlefield from retaining integrity of materials for 1777. Although some loss of historic materials at the DAR Memorial has occurred, many of the original commemorative features remain, including stone monuments, markers, and granite benches. The presence of the original features in good condition conveys integrity of materials. Both historic structures at the battlefield retain integrity of materials. The John Neilson House retains some historic materials that date to the 1775 construction of the house. Despite routine maintenance, a 1975 addition, and building updates, the Visitor Center contains much of its original materials, dating to 1962.

**Workmanship:**

Little workmanship dating to 1777 is evident on the battlefield due to the near absence of historic built features, and active cultivation of the land. The battlefield landscape does not retain integrity of workmanship to the 1777 battlefield period. Conversely, the good condition of the many stone commemorative features helps convey integrity of workmanship through visible evidence of their historic craftsmanship. The park's limited inventory of historic buildings also retain integrity of workmanship. Although much of the historic fabric of the John Neilson House has been replaced in-kind, replacement fabric reflect the style and craftsmanship of the originals. The Visitor Center contains a large quantity of historic material and evidence of the methods employed during the construction process survives.

**Feeling:**

The feeling of the current site as a Revolutionary War battleground is diminished by the loss of historic vegetation, structures, spatial patterns, and military features. However, the site remains in a quiet undeveloped setting with the centrally important topographical features intact allowing visitors to understand the physical layout of the battles. Further, the continued presence of historic

views to and from the important strategic locations, such as Bemis Heights and the Great Redoubt, allows visitors the opportunity to visualize the spatial and topographic relationships that were important to the battlefield tactics pursued by the American and British armies. As such, the battlefield retains integrity of feeling for 1777. Although some commemorative monuments have been moved or had their design altered over time, the intended opportunity for contemplation in a quiet, rural setting remains and therefore, the site retains integrity of feeling for the commemorative period. In the area of architecture, the John Neilson House retains integrity of feeling as an eighteenth century farmhouse. The Visitor Center retains integrity of feeling as it continues to reflect Mission 66-era post-World War II modern architectural characteristics such as the hexagonal units, covered terraces, natural construction materials, and modern elements such as large glass- and steel curtain walls.

**Association:**

The battlefield is the actual location where the decisive fighting of 1777 occurred, and owing to the fact that the site is preserved as part of the Saratoga National Historical Park, the landscape maintains a high level of integrity for its association with the two battles. The commemorative features on the battlefield communicate the important commemorative efforts that occurred in the nineteenth and twentieth-centuries to memorialize important events in history and have integrity of association. The John Neilson House retains integrity of association as an eighteenth-century farm house, and the park Visitor Center retains integrity of association to the Mission 66-era post-World War II modern architecture that was adopted by the National Park Service.

**EVALUATION OF LANDSCAPE CHARACTERISTICS**

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: topography, natural systems and features, vegetation, circulation, views and vistas, buildings and structures, small scale features, and archeological sites. Like the aspects of integrity, certain landscape characteristics help convey the battlefield's significance better than others. Characteristics that define relationships that played a role in the strategic outcomes, like topography and hydrology, vegetation, and views are arguably more important in conveying historic character and historical significance than characteristics that represent site details and stand-alone features, like small-scale features and buildings and

structures. Each landscape characteristic is evaluated below by comparing existing conditions to historic conditions to determine if the characteristic contributes to the significance of the property (see Drawing 0.3).

### **Topography**

#### *Historic Conditions:*

The topography of the battlefield and its relationship to the Hudson River is a primary landscape characteristic that influenced the strategy and outcome of the historic battles. The conflict between British and American forces occurred at this place by design, rather than by accident. The Hudson River valley served as Burgoyne's avenue of approach to move his troops from Canada to Albany. He hoped to use the Hudson as colonial thoroughfare to divide and subdue the rebellious colonies. Gates's American advisors possessed superior knowledge of the terrain that the British hoped to pass through. The American forces were able to use the natural escarpment as key terrain, a superb defensive position that they would have to be forced from if the British hoped to reach their objective. Locations such as Bemis Heights and the British defenses to the north, played key roles in the battles of October 1777 because of the advantages gained from occupying high ground. The rolling terrain at the Barber, Neilson, and Freeman farms among others played a role in the battles by defining where the adversaries placed fortifications and planned avenues of attack.

#### *Post-historic and Existing Conditions:*

The park is still characterized by the steep escarpments and rolling fields that resembles conditions in 1777. Tour Stops 1, 3, 9, and 10 along the tour road highlight the park's more dramatic topographic features, and their subsequent expansive viewsheds, while the remainder of the park visible from the tour road illustrates the agricultural landscape utilized by the strategic planners of the battles. Significant topographic and hydrological characteristics and relationships survive intact at the Saratoga Battlefield.

### **Vegetation**

#### *Historic Conditions:*

Vegetation and topography together define the spatial characteristics of the Saratoga Battlefield. Farmers settled the land decades prior to the summer and autumn of 1777 and hewed out clearings in the forest to support subsistence agriculture. Many of these clearings were littered with tree stumps. However, at the time of the park's creation in 1938, nearly all forest vegetation had been removed. During the first years under National Park Service stewardship, the open quality of the landscape was appreciated as an aid to visitor understanding of

battle events, because the topography could be seen and understood at a glance. Due to austerity measures put in place during World War II, many open fields grew into a young forest. Rather than remove the new tree growth, since 1950 the park has planned and worked to reestablish the former pattern of field and forest thought to be present during the time of the battles.

*Post-historic and Existing Conditions:*

Except for the species composition of the forest and the size of the individual specimens, the park has come close to achieving the objective of restoring the historic field and forest patterns. Differences remain between existing vegetation and maps of what is known of the vegetation at the time of the second battle, but these differences do not adversely impact a visitor's understanding of the general character of the landscape in 1777. The park is currently home to a diverse collection of vegetation including a mixture of deciduous and coniferous trees, shrubs, grasses, and forbs.

**Views and Vistas**

*Historic Conditions:*

The strategic views from the top of the river valley escarpment, the location of numerous American and British fortifications, were critically important to the historic battles. The American fortifications at Bemis Heights provided views northward, up the River Road and the Hudson River, providing the best vantage point from which to observe the southward advance of the British Army. It was these views, along with the high ground, that formed an impenetrable boundary to the opposing side and gave the Americans a strategic advantage on the southern end of the battlefield. The British defenses on the escarpment north of Bemis Heights also provided an unimpeded view of the floodplain, the British hospital, and any possible advancing American troops from the south.

*Post-historic and Existing Conditions:*

Since the historic period, the views to and from the elevated areas within the battlefield have remained relatively unchanged. The highest points are located at Fraser Hill, the Freeman Farm Overlook, the American River fortifications, and the Great Redoubt. The Neilson Farm and Bemis Heights location offer panoramic views of the battlefield and the surrounding area. Despite recent modernization, the area has retained its rural character, and the unobstructed views allow visitors to understand the areas of key terrain on the battlefield and how these landscape features contributed to the location and outcome of the battles. These views are essential to understanding the events of 1777. The 2009 Battles of Saratoga Preservation and Viewshed Protection Plan brought renewed

public participation into the plan to maintain the character and setting of the area around the park.

### **Circulation**

#### *Historic Conditions:*

Local roads played a significant role in the strategy and outcome of the battles of Saratoga, serving as military avenues of approach and retreat through the agrarian landscape. National Park Service planning during the 1940s and 1950s did incorporate some of these routes into the planning of the modern tour road. Constructed between 1958 and 1966, the park tour road connected the visitor center on Fraser Hill to ten interpretive stops throughout the battlefield. It is a nine-mile, one-way loop road built as part of the National Park Service's systematic Mission-66 program to update facilities and programs in time for the fiftieth anniversary of the founding of the National Park Service.

#### *Post-historic and Existing Conditions:*

Many traces of historic roads and routes remain—often running along or coinciding with boundary lines, but some are so overgrown with vegetation that they require careful observation to locate. Nevertheless, where these historic routes can be positively identified, historic road traces may serve as fixed and known points that are useful in identifying the location of historic events and military positions. Portions of the historic road traces were integrated into the park tour road, and have been incorporated into the park's pedestrian trail networks, including the Wilkinson Trail. The character of the tour road today is largely unchanged from its construction date, exclusive of a widening project undertaken to accommodate a bicycle lane completed in 2000.

### **Buildings and Structures**

#### *Historic Conditions:*

The only surviving building from the time of the historic battles is the John Neilson house, located on a rise in the southern portion of the battlefield. It was constructed as a small, two-room house with a side gable, saltbox roof and a random fieldstone foundation. The house was enlarged by a two-story addition, which was demolished before the State of New York acquired the property in the mid-1920s. By that time the building had been moved a short distance from its original location and reoriented. The National Park Service relocated the Neilson House to its original location and orientation after an archaeological investigation conducted in the 1950s. The agency also subsequently conducted an extensive restoration of the house in an effort to return it to its 1777 appearance.

Remnants of the Champlain Canal survive within the park boundary, and are listed on the National Register of Historic Places. No canal lock structures were ever constructed within the park boundary but many canal features including resources associated with Wilbur's Basin, once an important canal way station and rest area, were located along the escarpment in the southeastern region of the park.

The Saratoga Battlefield visitor center was built in 1962 as part of the National Park Service nationwide Mission-66 program. The visitor center location on Fraser Hill was selected by Franklin D. Roosevelt during a visit to the park in 1940 owing to the site's sweeping views of the battlefield landscape. The design and construction of the visitor center was delayed for many years until funding was secured through the Mission 66 program in the late 1950s. The character-defining features of the building are its modular hexagonal units and covered terraces, the use of both locally available natural construction materials and modern elements such as large glass-and-steel curtain walls; and low-horizontal profile.

*Post-historic and Existing Conditions:*

The John Neilson house remains as the sole surviving eighteenth century structure on the battlefield. The one-and-one-half-story building is rectangular in plan with a full-width porch and a rear lean-to addition. The small historic dwelling sits on a contemporary poured concrete foundation concealed behind a rubble stone facing. The building has a steeply pitched side-gable roof with a large overhang supported by five simple wood columns. The area underneath the overhang forms a small porch. The structural system is of wood framing with nogged brick. The park maintains the building and it is in good condition. Other buildings documented by 1777 British surveys have long since been removed from the battlefield. Nineteenth and early twentieth century farm buildings were also removed by the National Park Service, as were the conjectural reconstructions installed during the New York State management period. Although few resources associated with the canal remain, the canal's earthen cross-section, including the tow path, is easily identified in some locations. Some remains of the Wilbur's Basin development can be seen when entering the park through its eastern entrance. The park visitor center is largely unchanged from its historic condition, with the exception of a small addition that dates to 1972.

Several small buildings and structures were added to the landscape after the historic period to improve park administration, visitor services, and interpretation. The park's administrative and maintenance areas are located north and south of the park's secondary entrance off State Highway 32, respectively. The administrative area was developed in the early 1960s as part of the Mission 66-funded investment in the park. It is accessed via a loop drive that extends north of the secondary entrance road. Three buildings—the Ranger Station, Park Administrative Office, and the Collection Storage Facility—are located around



the loop. The Ranger Station and Park Administrative Office buildings were constructed in 1962 and may be characterized as simple Ranch-style buildings with low-pitched, side-gable roofs and concrete foundations.

The maintenance area to the south of the secondary entrance road was developed in the early 1960s as part of the Mission 66 efforts and contains sheds, garages, and offices that provide for maintenance operations and equipment and material storage. Buildings include the Maintenance Shop Building, Garage/Maintenance Building, Sand Shed, Equipment/Tool Storage Building, Pole Barn Building, Carpenters Shop, and the Lumber Storage Building. The Maintenance Shop Building and the Garage/Maintenance Building are both one story in height and topped by flat roofs with metal overhangs, and both have multiple, large vehicle door openings. The Equipment/Tool Storage Building and the Pole Barn Building are both three open bays wide with slightly pitched asphalt-shingle roofs. The Equipment/Tool Storage Building is a low one story in height and is constructed of wood. The Pole Barn Building is a tall, one-story corrugated metal building. The Sand Shed is wood construction, one bay wide, with an asphalt-shingle shed roof. The Carpenters Shop and Lumber Storage Building are located south of the main cluster of maintenance facilities. Both are one story, wood frame buildings, with metal roofs and corrugated metal siding.

The House at 1032 State Highway 32 is the only private residential property that remains within the legislated boundaries of Saratoga NHP. It is located along the north side of State Highway 32, north of the Gates Headquarters site, and consists of a two-story house constructed in 1979. It has a front-gable roof, a one-story wing, a covered front porch, and an attached two-car garage. There is a lifetime lease arrangement with the owner.

### **Small scale Features**

#### *Historic Conditions:*

Prior to the battles, farmers created small scale features to meet their domestic and agricultural needs. These features included well covers, fences, stone walls, and animal pens. Many small scale features were destroyed to build fortifications or for use as firewood by the armies during the battles. Farmers recorded damage to their property after the battles, documenting the destruction of outbuildings, fences, and crops. Many features were rebuilt during the long agricultural period that continued through the early 1900s. Beginning in the 1870s, citizen groups began placing monuments on the battlefield to commemorate the battles of Saratoga. The collection of battlefield monumentation at the battlefield bears an important relationship with the larger Saratoga Monument in Schuylerville, which represented the combined efforts of the Saratoga Monument Association. The placement of the small markers within the battlefield differentiated that landscape



from the surrounding countryside, creating an image and identity for this place in the popular imagination. These efforts began the process leading to the battlefield coming into public ownership and management. The battlefield monuments were placed conveniently along the shoulders of pre-existing roadways. When this network of roadways was abandoned after the introduction of the new park tour road in the 1960s, some of the roadside monuments were moved to serve the new road system.

*Post-historic and Existing Conditions:*

Almost no above ground small scale features from the time of the battles remain. The historic stone battlefield monuments are still located throughout the park to commemorate notable people and events associated with the battles. Small scale features that post-date the period of significance include wayside exhibits at the tour stops, directional signage, and the “match stick” fortification lines introduced by the National Park Service. The match sticks are white posts with blue or red tops placed in lines throughout the landscape to represent the pattern of fortifications constructed during the battles. Twenty-nine reproduction cannon on wood carriages are located at the tour stops.

**Archeological Sites**

The battlefield is known to contain pre and post-contact archeological remains. Despite the disturbance caused by generations of cultivation of the property after the battles, archeological studies have documented the locations many battle features and activities. Many features remain from the post-battle agricultural period. Evidence has also been found of Champlain Canal activities, notably in the location of Wilbur’s Basin. The battlefield is rich with archeological resources that have the potential to yield new information about the continuum of human history at the site.

**ENDNOTES**

- 1 Lisa Oudemool, Christopher Stevens, H. Eliot Foulds, *Cultural Landscape Report for Saratoga Battlefield: Volume I: Site History, Existing Conditions, and Analysis* (Boston: Olmsted Center for Landscape Preservation, 2002). This report includes the Site History, Existing Conditions, and Analysis and Evaluation. The Analysis and Evaluation was updated for this report to reflect the recently completed National Register nomination for the park and changed conditions since 2002.
- 2 As defined in the National Park Service *Cultural Resource Management Guideline* (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 the promise expeditious extraction of relevant data; interviewing all knowledgeable persons who are readily available, non-destructive investigation, and presenting findings in no greater detail than required by the task directive. *National Park Service, Cultural Resource Management Guideline*, NPS-28, web edition, 11 June 1998, [http://www.cr.nps.gov/history/online\\_books/nps28/28contents.htm](http://www.cr.nps.gov/history/online_books/nps28/28contents.htm), 17-19.
- 3 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 1.
- 4 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 2
- 5 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 1
- 6 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 4
- 7 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8:4
- 8 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 4
- 9 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 5
- 10 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 6-7.
- 11 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) Section 8: 8.
- 12 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2011) 15-16.

**TABLE 0.1: CULTURAL LANDSCAPE EVALUATION SUMMARY FOR SARATOGA BATTLEFIELD**

CHARACTERISTIC/FEATURE	LCS/ASMIS ID	EVALUATION	COMMENT
<b>Topography and Hydrology</b>			
Escarpments and Rolling Fields		Contributing	The escarpments, ravines, and rolling terrain are key elements of the cultural landscape
<b>Vegetation</b>			
Field and Forest Pattern		Contributing	Field and forest vegetation was largely re-established after 1950
Composition of Field and Forest		Non-Contributing	The species composition has fundamentally changed since the 18 <sup>th</sup> century
<b>Views and Vistas</b>			
Eastward Views to the Hudson River and Washington County Rural Landscape		Contributing	The viewshed is intact yet vulnerable to outside development
Westward Views to High Ground Outside the Park Boundary		Contributing	The viewshed is intact yet vulnerable to outside development
<b>Circulation</b>			
Historic Road Traces		Contributing	Many traces of historic roads and routes remain. Portions of historic road traces have been incorporated into the Wilkinson Trail and other pedestrian trails.
Saratoga Battlefield Tour Road		Contributing	The park tour road is significant for its association with Mission 66
Visitor Center Entrance Path		Contributing	The path is significant as an associated feature of the Mission 66 visitor center
Visitor Center Parking Lot		Contributing	The path is significant as an associated feature of the Mission 66 visitor center
Walkway, Monument of the Unknown American Dead		Contributing	
<b>Buildings and Structures</b>			
John Neilson House	LCS 001289	Contributing	The Neilson House is the only surviving 18 <sup>th</sup> century structure on the battlefield
Old Champlain Canal	LCS 023056	Contributing	
<ul style="list-style-type: none"> <li>Canal Prism</li> <li>Stone Bridge Abutments</li> </ul>	LCS 040759		
Saratoga NHP Visitor Center		Contributing	The visitor center is significant for its association with Mission 66
Breymann Redoubt Tour Stop Restroom		Non-Contributing	
Collection Storage Facility		Non-Contributing	
Carpenters Shop		Non-Contributing	
Lumber Storage Building		Non-Contributing	
Equipment/Tool Storage Building		Non-Contributing	
Garage/Maintenance Building		Non-Contributing	
Maintenance Shop		Non-Contributing	
Neilson Farm Tour Stop Restroom		Non-Contributing	
Park Administrative Office		Non-Contributing	
Pole Barn Building		Non-Contributing	
Ranger Station		Non-Contributing	
Sand Shed		Non-Contributing	
House, 1032 State Highway 32		Non-Contributing	

Small Scale Features			
Arnold Monument • Iron Fence	LCS 022312	Contributing	Contributes to the commemoration period, 1883-1936
Bemis Tavern Monument	LCS 022314	Contributing	Contributes to the commemoration period, 1883-1936
Bidwell Monument	LCS 022309	Contributing	Contributes to the commemoration period, 1883-1936
DAR Directional Marker, Leggett Place Marker		Contributing	Contributes to the commemoration period, 1883-1936
Fraser Monument	LCS 022308	Contributing	Contributes to the commemoration period, 1883-1936
Freeman Farm Monument	LCS 022310	Contributing	Contributes to the commemoration period, 1883-1936
Gates Headquarters Monument	LCS 040015	Contributing	Contributes to the commemoration period, 1883-1936
Great Ravine Monument	LCS 022290	Contributing	Contributes to the commemoration period, 1883-1936
Hardin Monument	LCS 022311	Contributing	Contributes to the commemoration period, 1883-1936
Kosciuszko Monument	LCS 022301	Contributing	Contributes to the commemoration period, 1883-1936
Monument to the Unknown American Dead • Walkway • Granite Benches (3)	LCS 022302 040755	Contributing	Contributes to the commemoration period, 1883-1936
Morgan Monument	LCS 022300	Contributing	Contributes to the commemoration period, 1883-1936
Murphy Monument	LCS 022305	Contributing	Contributes to the commemoration period, 1883-1936
New Hampshire Men Monument	LCS 022303	Contributing	Contributes to the commemoration period, 1873-1936
Rockefeller Monument	LCS 022304	Contributing	Contributes to the commemoration period, 1883-1936
Second Battle of Saratoga Monument	LCS 022306	Contributing	Contributes to the commemoration period, 1883-1936
Slingerland Tablet	LCS 022298	Contributing	Contributes to the commemoration period, 1883-1936
Ten Broeck Monument	LCS 022307	Contributing	Contributes to the commemoration period, 1883-1936
Water Battery Monument	LCS 022313	Contributing	Contributes to the commemoration period, 1883-1936
Fraser Memorial	LCS 022308	Non-Contributing	Post-dates the commemoration period
Sons of the American Revolution Monument	LCS 022299	Non-Contributing	Post-dates the commemoration period
Unknown Soldiers Monument	LCS 040763	Non-Contributing	Post-dates the commemoration period
Battlefield Tour Road Waysides		Non-Contributing	Post-dates the commemoration period
Park Signage		Non-Contributing	Post-dates the commemoration period
“Matchstick” Fortification lines		Non-Contributing	Post-dates the commemoration period
Cannon		Undetermined	
Archeological Sites			
American Fortification, River Overlook Site	ASMIS SARA0001-2	Contributing	
American Headquarters and Field Hospital Site	SARA 000-4, SARA0008-1	Contributing	
American Lines Site	ASMIS SARA 0001-1	Contributing	
Balcarres Redoubt Site	ASMIS SARA0001-6	Contributing	
Breymann Redoubt Site	AMIS SARA 00015	Contributing	
British Fortifications Site	ASMIS SARA 0001-4	Contributing	

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Neilson Farm Site	ASMIS SARA0000-8	Contributing	
Old Champlain Canal Site	ASMIS SARA00006- 00006.007	Contributing	
Taylor Farm Site	ASMIS SARA0002-1	Contributing	



# FRAMEWORK FOR TREATMENT

As defined by the National Park Service, 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>

This chapter describes the legislation, policies, guidelines, and park planning that inform treatment of the Saratoga Battlefield landscape. Based on the General Management Plan (2004)—the park’s principle planning document, this chapter articulates a treatment philosophy that calls for rehabilitating the battlefield landscape to improve visitor’s understanding of the events that led to the 1777 British surrender.

## **ENABLING LEGISLATION, MISSION, AND POLICIES**

The framework for treatment of the battlefield landscape is guided broadly by legislation that established Saratoga National Historical Park (P.L. 576 and 734).<sup>3</sup> Based on the enabling legislation, the park’s purpose is articulated in the General Management Plan (2004) as follows:

Saratoga National Historical preserves and protects sites associated with the battle, siege, and surrender of British forces at Saratoga—decisive events in the winning of American independence. The park staff interprets these and other sites, events, and people associated with the 1777 military campaign in the Champlain-Hudson and Mohawk valleys (the Burgoyne Campaign).

As a unit of the national park system, treatment of the Saratoga Battlefield 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 manner and by such means as will leave them unimpaired for the enjoyment of future generations” (Organic Act of 1916).<sup>4</sup> 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 is interpreted within a hierarchy of regulations and policies in National Park Service management. As a cultural resource, management of the Saratoga Battlefield landscape is defined by 36 CFR Part 2: *Resource Protection, Public Use and Recreation (Preservation of Natural, Cultural, and Archeological*

*Resources*). The applications of these regulations to cultural landscapes are contained within National Park Service Management Policies (2006), Director's Order #28: (Cultural Resource Management), and *National Park Service Resource Management Guidelines* (NPS-28).

Of relevance to the battlefield landscape, NPS-28 provides guidance on management of biotic systems, which it defines as plant and animal communities associated with human settlement and use. It directs management of specimen vegetation such as trees, hedges, and orchards to ensure health and vigor and, if appropriate, provide for propagation of the next generation, especially for rare or commercially unavailable plants. For vegetation systems such as woods and agricultural lands, NPS-28 calls for managing overall vegetation patterns to allow for natural dynamics and crop rotation. Exotic plant species, which are often part of cultural landscapes, should be monitored and controlled to avoid spreading and disrupting adjacent natural plant communities. In addition to biotic systems, NPS-28 states that historic circulation features be rehabilitated to accommodate health and safety codes (such as the American with Disabilities Act), but in ways that minimize impacts on historic character; earthworks should be maintained with a healthy, vigorous vegetation cover to minimize erosion and loss of integrity; and monuments, memorials, and landscape remnants—often significant as part of a cultural landscape, be evaluated separately as they may be significant in their own right.

## **RELATIONSHIP TO EXISTING PLANNING DOCUMENTS**

The *General Management Plan for Saratoga National Historical Park* (2004) is the primary planning document for directing treatment of the battlefield landscape. The General Management Plan defines the park's purpose and management direction over the long term of twenty years into the future.<sup>5</sup> Working within the National Park Service's mission to preserve and protect cultural resources, the Plan recognizes the need for supplemental cultural resource research and planning projects. It calls for engaging in the appropriate historical and archeological studies to inform and shape a cultural landscape treatment plan.

The General Management Plan did not specify a treatment approach for the entire battlefield, but recommended that the landscape character at select locations be evocative of landscape conditions of October 1777, views important to the interpretation of the battles be reestablished, character-defining landscape features of the battlefield be identified and rehabilitated, and that interpretation emphasize the Burgoyne Campaign within the broader context of the Revolutionary War. Specifically, the Plan identified the following objectives for the treatment of the Saratoga Battlefield landscape which includes reestablishing field and forest patterns; rehabilitating historic road traces; expanding trail



systems; and restoring views and sightlines at the visitor center, Breymann and Balcarres redoubts, and Bemis Heights; installing landscape exhibitry; re-sequencing interpretative stops to better follow the progression of battle action; identifying the locations of battle era structures; improving access to the Gates' Headquarters, American Hospital, Taylor House site and Hudson River, improving special event parking; rehabilitating the Route 32 entrance; removing invasive exotic plant species; protecting grassland habitat; and preserving the rural landscape character.<sup>6</sup>

*The Saratoga National Historical Park Long Range Interpretive Plan (2007)* defines the overall vision and long-term (up to ten years) interpretive goals of the park. This interpretive planning document examines issues and influences affecting interpretation and education, and addresses programming, accessibility, wayfinding, and interpretive and visitor services. Specific to the battlefield landscape, the plan proposes improvements to the area's roadside directional signage, accessibility upgrades at the visitor center, and the development of new wayside exhibits for the tour road.

Treatment of the battlefield landscape is also guided by the recently completed *National Register of Historic Places Documentation Form for Saratoga National Historical Park (2010)*.<sup>7</sup> This document identifies the various historical themes, trends, events, and people from which Saratoga National Historical Park derives its historical significance and provides a full accounting of contributing and non-contributing resources within the legislated park boundaries.<sup>8</sup> Coming to different conclusions than were presented in the *Cultural Landscape Report for Saratoga Battlefield, Volume I: Site History, Existing Conditions, and Analysis (2002)*, the Saratoga Battlefield Tour Road and Visitor Center were evaluated as contributing resources. [For a list of contributing and non-contributing resources at the battlefield, see Table 1: Cultural Landscape Evaluation Summary, located at the end of the *Introduction* chapter of this cultural landscape report.]

## **PRIMARY TREATMENT**

As previously discussed, the General Management Plan (2004) does not prescribe a specific treatment approach for the Saratoga Battlefield landscape. However, based on the level of integrity of the landscape, the available historic documentation, and current management direction, the preferred primary treatment alternative for the battlefield is rehabilitation. Rehabilitation is one of four treatments standards identified by *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (the other three being Preservation, Restoration, and Reconstruction). The intent of this recommended primary

treatment for the landscape as defined by the Secretary of the Interior is to "... [make] 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 treatment for the battlefield landscape because of the need to provide for contemporary park functions, visitor services, and environmental sustainability. This treatment focuses on preserving significant landscape characteristics and features, replacing in-kind key features that have been lost, and allowing for change to accommodate the needs of park visitors. Specific to the battlefield, rehabilitation provides the basis for adding interpretative waysides and signage, as well as landscape exhibitry, such as ghost structures or battlefield markers. Rehabilitation also provides flexibility to address contemporary site issues including screening modern development and altering circulation to provide accessibility in a manner that is compatible with the historic character of the landscape. 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 an objective reference point for managing historic landscape character. A consistent treatment date may appropriately correspond to a time during the historic period when the landscape reached the height of its development, or a time when the condition and arrangement of landscape characteristics and features offer the most support for the park's interpretative themes. The primary treatment date for the Saratoga Battlefield landscape is October 1777, the time of the second battle of Saratoga. This date is consistent with the park's purpose and management direction outlined in the General Management Plan. Secondary to the 1777 battles, additional areas of significance include conservation (1923-1966), commemoration (1883-1936), transportation (1821-1917), architecture (ca. 1775-1962), and archeology (1760-1818). Features dating to these periods, such as the Champlain Canal and monuments, should be interpreted and preserved.

## **TREATMENT PHILOSOPHY**

To guide the rehabilitation of the landscape, the overall treatment philosophy for the Saratoga Battlefield is to enhance its historic character so that it more closely evokes the landscape conditions at the time of the second battle in October 1777.

At this time, the rural agricultural landscape, a mosaic of wooded and open lands scattered with settlements and a network of roads and fences, was covered with military features that included felled trees and hastily constructed earthworks.

As it is impractical to restore the shattered 1777 landscape, the Saratoga battlefield should be managed so that the rural character and views remain preserved and the features and broad landscape patterns that evoke early settlement and the battles of Saratoga remain present to help visitors understand the physical development of the area, as well as the strategic role of the landscape in the outcome of the battles. The Saratoga battlefield landscape will continue to accommodate public visitation as rehabilitation, restoration, reconstruction of lost or altered features will be undertaken where practical to do so in an effort to enhance historic character and to aid in public understanding of the park's primary interpretive themes. Park furnishings and other changes necessary for public use will be inconspicuous and compatible with the historic rural character of the landscape.

The battlefield landscape retains many features and traces from its post-Revolutionary War history that have acquired significance in their own right. These features, which include monuments, markers and sections of the Champlain Canal, should be retained as evidence of the efforts to commemorate the military events at Saratoga, as well as the property's physical evolution and importance to commerce and transportation.

## 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 National Park Service as a Preservation Maintenance Plan. This plan is not included in the scope of this project.
- 3 The Saratoga Battlefield was authorized by the United States Congress in 1938 to become part of the National Park Service. It was not until 1948 that it was officially designated as the Saratoga National Historical Park. U.S. Congress. House. *Saratoga National Historical Park Act of June 1, 1938* (52 Stat. 608; 16 U.S.C. secs. 159-159b), approved June 22, 1948 (62 Stat. 570; 16 U.S.C. sec.159c).
- 4 Within the hierarchy of National Park Service policies, standards, and guidelines, management of the landscape as a cultural resource 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), Director's Order #28 (Cultural Resources Management), and National Park Service Cultural Resource Management Guideline (NPS-28).
- 5 National Park Service, General Management Plan for Saratoga National Historical Park (2004), 2-4.(hereafter, "GMP")
- 6 Saratoga NHP GMP, 2004, 44-49.
- 7 Although Saratoga National Historical Park was added as a district to the National Register of Historic Places on October 15, 1966, National Register documentation has never been formally approved. The National Park Service has attempted to identify contributing and non-contributing resources within the park through other means, including consultation with the New York State Historic Preservation Officer on the park's List of Classified Structures (LCS), Cultural Landscape Inventory reports, and Section 106 compliance documentation, however, no comprehensive accounting of historic resources has been compiled.
- 8 Stephen Olausen, Kristen Heitert, and Carey Jones, *National Register of Historic Places Documentation Form for Saratoga National Historical Park Historic District* (The Public Archaeology Laboratory, Inc., 2010) 15-16.
- 9 *The Secretary of the Interior's Standards for the Treatment of Historic Properties* (Department of the Interior, 1995).







Cultural Landscape Report  
for Saratoga Battlefield

Saratoga National  
Historical Park

Stillwater, New York

Treatment Plan-Site Wide



National Park Service  
Olmsted Center for Landscape Preservation  
[www.nps.gov/oclp](http://www.nps.gov/oclp)

SOURCES

1. CLR existing conditions and analysis and evaluation plans
2. SARA GIS Data and Orthophotography 2008.
3. Site visits, February and September 2010.

DRAWN BY

Michael Commisso, AutoCAD 2010 and Illustrator CS 3,  
2011

LEGEND

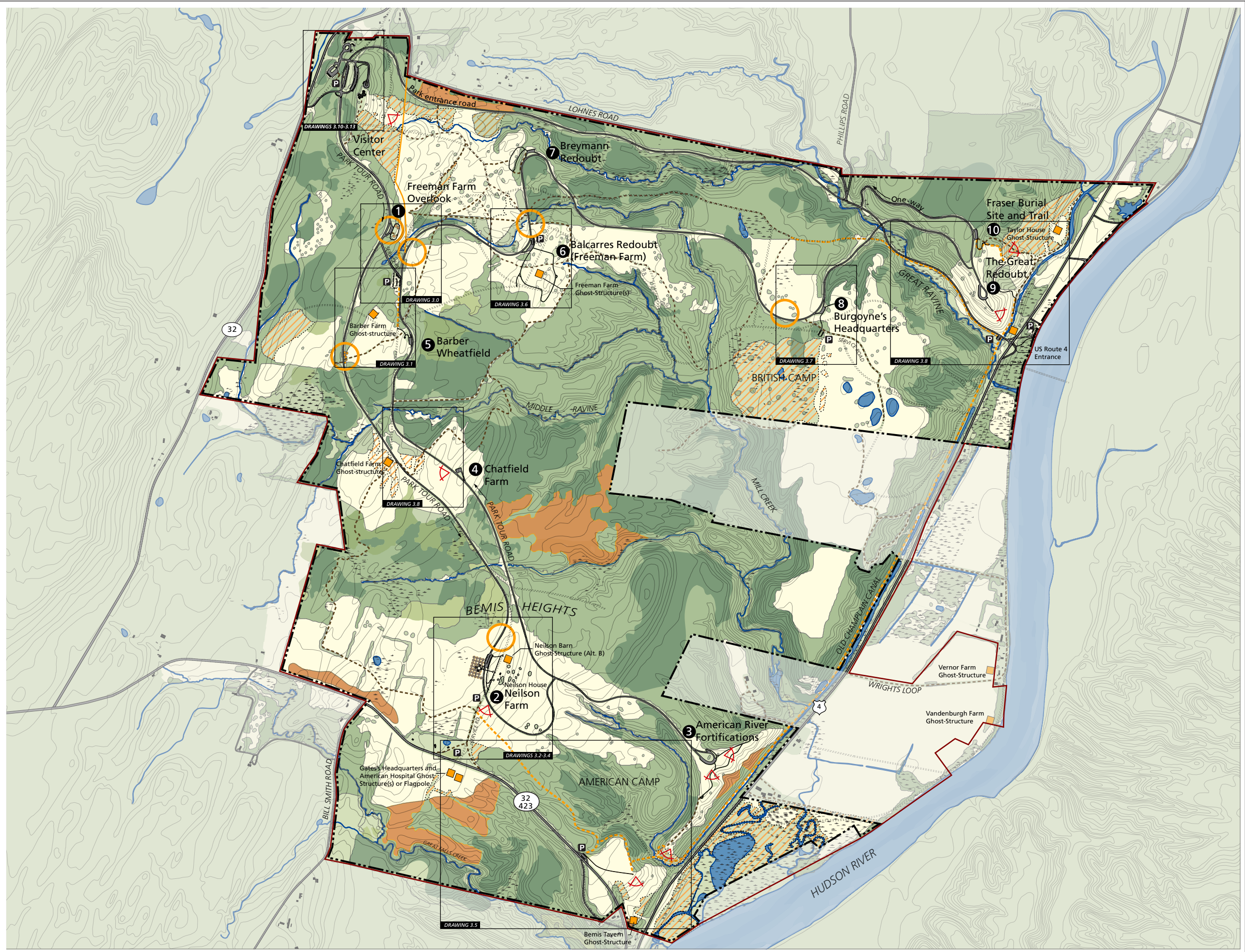
- Feature to add
- Feature to remove
- Proposed parking (paved & stabilized turf)
- Proposed locations for fencing
- Views and vistas
- Building or structure
- Paved road or path
- Unpaved road or path
- 1777 Historic road trace
- Deciduous specimen tree, wooded area
- Evergreen specimen tree, wooded area
- Deciduous/evergreen shrub, shrubland
- Managed meadow or field
- Mown turf
- Wetland (scrub or grasses)
- Hydrology (river, creek, stream, or pond)
- NPS legislative boundary
- NPS fee boundary
- Tour stop
- 10' contour

NOTES

1. Plan shows conditions in 2010.
2. All features shown in approximate scale and location.



Drawing 2.0





# GENERAL TREATMENT RECOMMENDATIONS

This chapter provides general treatment recommendations that apply to the overall battlefield landscape. The intent of this chapter is to provide direction for future management decisions on issues that are impacting the historic character of the landscape. Specific treatment guidelines and tasks for each management zone within the battlefield (Main Battle Action and Encampment, Supporting Battle Action, and Park Support Zones) are found in the following chapter.

## **EXPAND LANDSCAPE INTERPRETATION**

The vacant uninhabited battlefield landscape of the present day —absent of small farmsteads and military features—currently provides visitors with misleading depiction of the 1777 landscape. Interpretation of lost Revolutionary War-era buildings and landscape features can be greatly improved through the installation of landscape exhibitry. At key locations within the battlefield—preferably in locations that provide interpretative programming such as at the park Visitor Center and the Neilson Farm (Tour Stop 2), interpretive exhibits recalling military activity may be appropriately installed, including felled trees, fire pits and dug camp kitchens, trenches, bake ovens, entanglements, and hastily constructed earthworks. In addition, period split-rail worm fencing might be strategically located at key areas throughout the park to delineate historic property boundaries. Possible properties that can be delineated by the worm fencing include the former locations of the Marshall, Barber, Neilson, Freeman, Chatfield, Bemis, and Taylor farmsteads (Figures 2.1-2.2) (Drawing 2.0: Overall Treatment Plan).

Open space-frame “ghost-structures” are in widespread use nationwide supporting effective interpretation at historic sites where it is impractical to reconstruct missing historic buildings. Abstractly outlining the approximate location, scale and geometries of the former buildings, ghost-structures may be appropriately installed at key areas within the Saratoga battlefield to mitigate the false impression among visitors that the battlefield landscape of 1777 was uninhabited by people. The design of a consistently deployed ghost-structure interpretive marker for Saratoga battlefield should draw upon the well documented geometry and proportions of regional 18<sup>th</sup> century vernacular architecture. These three-dimensional interpretive markers should be constructed of durable, low maintenance materials such as “COR-TEN” (ASTM A242) structural steel, a product that does not require painting. Where appropriate, the ghost-structures may also be equipped with roofing materials to provide



Figure 2.1. Examples of earthwork exhibitry used at Petersburg National Battlefield. Possible locations of similar earthworks exhibits at Saratoga battlefield include the Visitor Center and Neilson Farm, at Tour Stop 2 (Petersburg Battlefield, 2010).

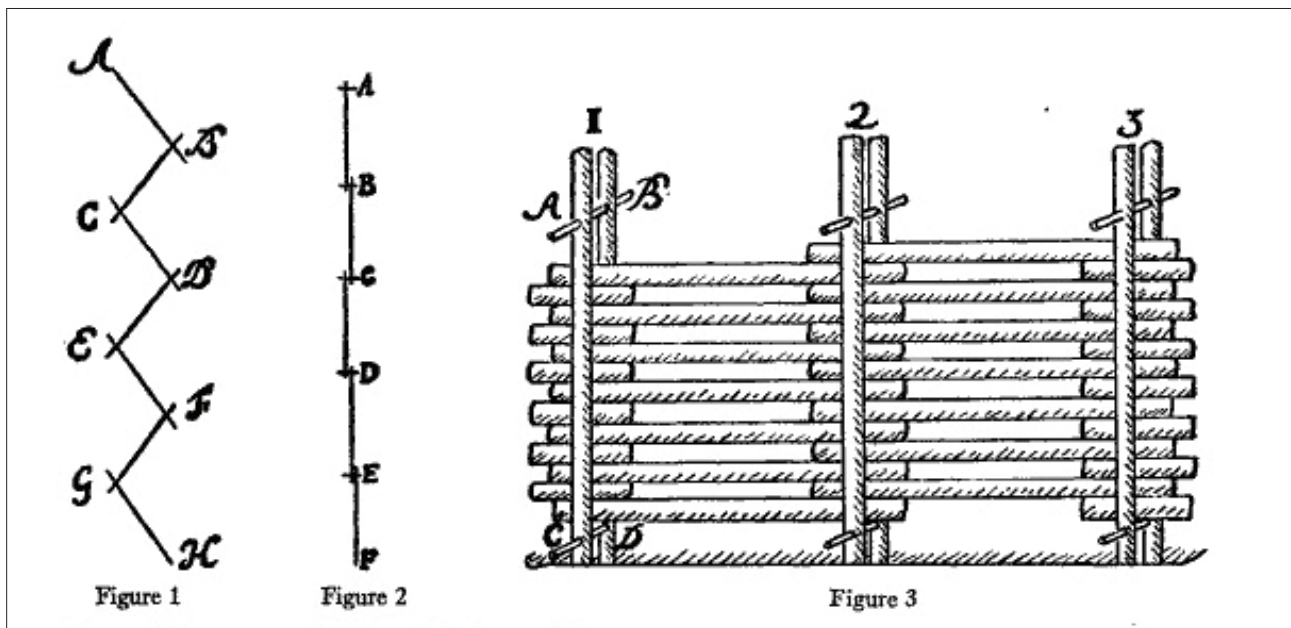


Figure 2.2. Image of typical log fencing constructed along the Hudson River, prior to 1777. Fence types as described by Peter Kalm's travels up the Hudson, 1749 (Cornell CORE Historical Literature of Agriculture).



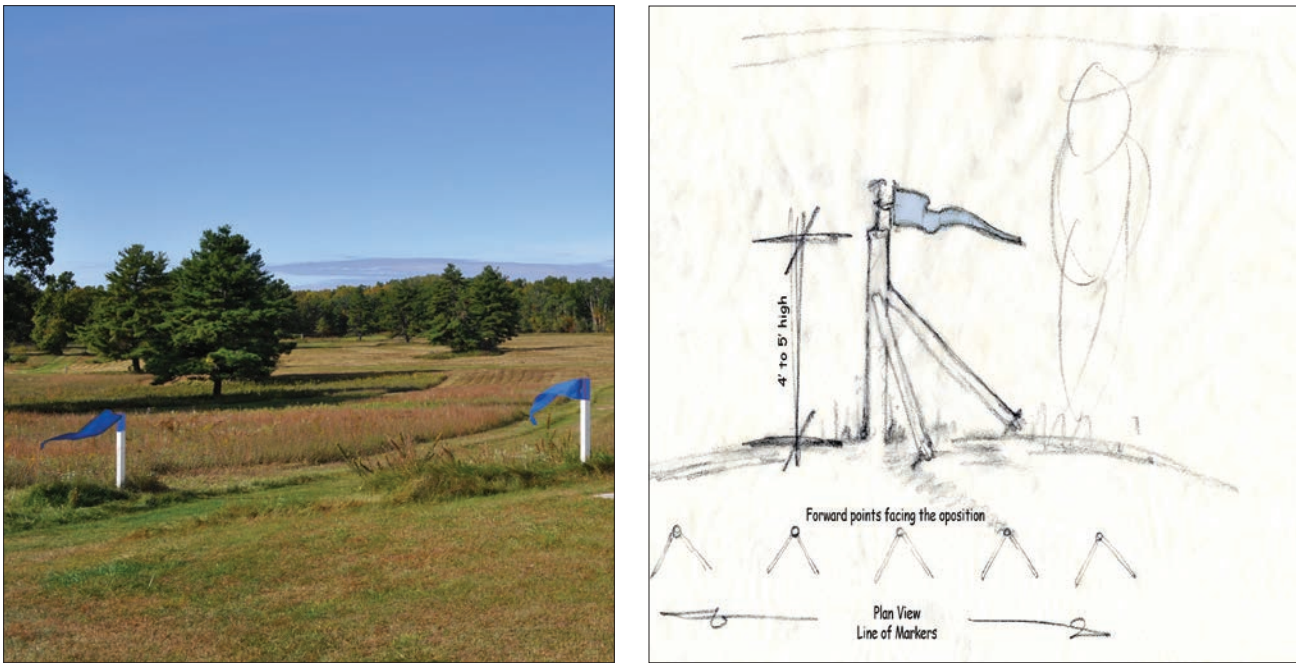
shade and shelter visitors from rainfall. Suitable areas for the installation of these structures include the Micajah Marshall farm site, Joshua and Simeon Barber farm sites, Jesse Chatfield farm site, John Neilson farm site, John Taylor House site, Jotham Bemis Tavern site, John Freeman farm site, Gates Headquarters, and the American Hospital site (Figure 2.3) (Drawing 2.0: Overall Treatment Plan).

Additionally, the recycled plastic fence posts that the park currently uses to mark the locations and lengths of the British and American fortification lines should be improved. Currently, the four to five foot recycled plastic posts are white and topped with a blue (American) or red (British) caps. They are spaced approximately thirty feet apart. As a short-term treatment to provide more effective interpretation, the existing fence posts may be fitted with nylon streamers/ribbons. The new streamers/ribbons will be approximately 4 feet in length and 4 inches wide and be either blue or red—depending on their location. They will include a small metal grommet for easy attachment to the swivel hook and lag bolt assembly that will be installed on the existing posts. The gentlest breeze will animate the streamers, which will be visually effective in highlight the posts within the landscape. In the long-term, the plastic posts should be replaced with a more aesthetically compatible marker (Figure 2.4).



**Figure 2.3.** Interpretative ghost structures located at Williamette Mission State Park. This photograph depicts the desired effect of ghost structures recommended for the Saratoga Battlefield, indicating former locations of habitation and settlement. The ghost structures proposed for Saratoga Battlefield will be inspired by 18th century vernacular architecture and may include roofs and seating (OCLP, 2010).





**Figure 2.4. Proposed fencepost improvements.** Photo-simulation (at left) of existing fenceposts retro-fitted with nylon streamers. The streamers will highlight the location of the American and British lines within the landscape; (right) Sketch of recommended long-term treatment. The existing plastic posts should be replaced with more durable treated lumber and aesthetically compatible markers (Olmsted Center for Landscape Preservation, 2010).

The existing interpretive wayside exhibits, designed and installed in the 1970s for the celebration of the American Bicentennial, are outdated, featuring faded illustrations, inoperable audio units, and outdated interpretative messages at each tour stop along the park road. Public understanding of the landscape could be greatly enhanced by improving the content and appearance of the existing wayside exhibits, as well as planning a series of new wayside exhibits and themes for sites not previously interpreted, such as Gates' Headquarters-American Hospital area and Champlain Canal. Locator maps, within the context of the historic battles, should be included as part of the wayside exhibits to improve the public's understanding of the battles' sequence of events (see figure 2.8).

Landscape interpretation at Saratoga Battlefield can also be improved through the use of smart phone technology. Using application software—also referred to as applications or “apps”—to reveal more about national parks are rapidly becoming the norm for tourists wanting to see beyond the landmarks themselves. The use of these “apps” at the Saratoga Battlefield are endless and should be utilized to supplement various tours by adding full motion video, slideshows, still images, audio, and links to existing URLs. The potential to develop virtual reality applications for sites at the battlefield is also a possibility.

## **IMPROVE CIRCULATION AND ACCESSIBILITY**

Construction of the Northway (Interstate-87) resulted in unexpected changes to the traffic patterns at the Saratoga Battlefield. Because of regional traffic patterns following the construction of the highway, the primary gateway of the park from the riverfront Route 4 entrance shifted to the Route 32 entrance “rear entrance,” bisecting the park’s headquarters and maintenance facility. As a result, a visitor’s sense of arrival to the park has been severely comprised. Aside from the issues associated with changes in traffic patterns, options to tour the battlefield are limited due to the current configuration of the park tour road. At present, once on the tour road, visitors are forced to travel it in its entirety. Additional issues along the tour road include inadequate parking facilities and tour stops that are inaccessible to those with mobility issues.

Current issues with pedestrian circulation include user conflicts on trails; soil compaction and erosion along the equestrian and Wilkinson trails; and limited access to the Taylor house site, Hudson River, and Champlain Canal, as well as features in the southern portion of the battlefield—Gates’s Headquarters, American Hospital and Bemis tavern.

Interpretation of the landscape can be greatly improved by enhancing and expanding the existing circulation systems and reintroducing useful segments of historic roads and paths to contemporary use, while providing the highest level of accessibility for people with disabilities.

### **VEHICULAR CIRCULATION**

Visitor experience at the Route 32 entrance will be enhanced through the development of a recommended new entry spur, modest realignments to improve traffic flow, and limited construction of additional parking areas.

Parking areas should be expanded and improved to enhance visitor experience and comply with Director’s Order #42, *Accessibility for Visitors with Disabilities in National Park Service Programs and Services*. Existing parking areas should be repaved, restriped, and curb ramps be reconstructed. The majority of built-up curb ramps fail to meet current ADA Accessibility Guidelines. New parking areas should be located on relatively level areas and be adequately screened to minimize visual impacts to the rural and historic setting. Depending on the frequency and use, the parking areas should be surfaced with bituminous concrete or stabilized turf. Stabilization techniques for constructing turf parking areas include engineered aggregate-topsoil, fiber-reinforced turf systems, and cellular paving systems that are discussed in greater detail below. Selection of a stabilization system should take into careful consideration existing site conditions, durability, maintenance, and the anticipated frequency and use of the proposed overflow

parking area. For all systems, select a non-invasive turf-type tall fescue seed mixture that is designed to withstand compaction and is wear-resistant. Twice annually, preferably in the late spring and early fall, core aerate the soil. Overseed annually with the specified seed mix.

#### **Aggregate-Topsoil Mixture**

A structurally sound aggregate-topsoil mixture that resists rutting and displacement may be installed in areas where there is a need for overflow parking during times of peak visitation. The installation of engineered aggregate-topsoil to create a vegetated overflow parking area typically consists of a coarse-textured base layer of engineered aggregate topsoil (EAT) followed by finer-textured aggregate-topsoil surface course layer. The base-layer EAT typically consists of a mixture of 70% crushed stone aggregate (ASTM No. 57) and 30% topsoil, whereas the surface course layer is typically comprised of 50% topsoil and 50% crushed stone aggregate. The intent of the crushed stone mixed with topsoil is to provide greater stability by means of intimate stone on stone contact, while the soil serves as the growing media for turf. Soil amendments are commonly used to help optimize the growth of turf over this type of engineered surface. Products in common usage include “Axis,” a porous diatome product up to ¼ inch in size, which mechanically improves air exchange capacity of the modified soil. Incorporate the amendment into the soil between 10-20% by volume, to a depth of 10-12”, and overseed.

#### **Fiber Reinforced Turf System**

In this system, polypropylene fibers are embedded into topsoil and laid down to a depth of 4 to 6 inches. The soil is then seeded with grass. Once the grass germinates and grows, the resultant root system interlocks with the fibers to provide strength and integrity to support traffic. Brands on the market include Fiber Soil Turfgrids ([www.fibersoils.com](http://www.fibersoils.com)) and StaLok Fiber (<http://www.stabilizersolutions.com/product/view/21-stalokr-fiber-3>) (Figure 2.5).

#### **Cellular Paving System**

For added strength and durability, a cellular paving system, such as geosynthetic cellular confinement system, porous cellular block panel, and porous synthetic ring and grid system, may be appropriate as a base stabilizer for certain parking areas, or apron areas of a engineered aggregate-topsoil parking area where traffic is concentrated (Figure 2.6). A perforated geosynthetic cellular confinement system, or geocell, is produced from polyethylene and stabilized with carbon black to protect against ultraviolet degradation. Once in place, the geocell is backfilled with engineered aggregate-topsoil, aggregate-topsoil, and seeded for





Figure 2.5. Example of fiber-reinforced turf system as a viable alternative for constructing turf parking areas at Saratoga battlefield (Stabilizer Solutions, [stabilizersolutions.com](http://stabilizersolutions.com)).



Figure 2.6. Three examples of cellular paving systems that can be used for the stabilized turf overflow parking areas: (top) a geosynthetic cellular confinement system; (middle) porous cellular block panel; and (bottom) porous synthetic ring and grid system. For more information, refer to Appendix A: Stabilization Techniques (Presto Products Company and Invisible Structures).

turf establishment. Brands on the market include Geoweb by Presto Products Company (<http://www.prestogeo.com/>) and VersiWeb (<http://www.elmich.com.au/versiweb/about.php>)

Porous cellular block panels or geoblocks are approximately 1.5 feet by 3 feet in area with a depth of two inches. They are molded into 3 inch by 3-inch cells with a 2-inch through hole in the bottom. The blocks are screwed together and placed over a six inch base course of EAT. The geoblock system itself is backfilled with 2-inches of aggregate-topsoil followed by an application of seed and fertilizer. Geoblock System by Presto Products Company is the recommended brand (<http://www.prestogeo.com/>).

The porous synthetic ring and grid system is a structure which provides high load bearing strength while protecting vegetation root systems from oxygen robbing soil compaction. The system is flexible and includes two inch in diameter rings that interlock with adjacent rings to build a continuous surface. Similar to geoblock construction, the ring and grid system is placed over six inches of base-layer EAT and covered with surface layer EAT for turf establishment. Grasspave<sup>2</sup> produced by Invisible Structures is the recommended brand ([www.invisiblestructures.com/grasspave2.html](http://www.invisiblestructures.com/grasspave2.html)). (Appendix A: Stabilization Techniques for Turf Parking).

## **PEDESTRIAN CIRCULATION**

In an effort to enhance interpretation and improve access, the battlefield's pedestrian, hiking (the Wilkinson Trail), and equestrian trails should be expanded and improved. In an effort to minimize user conflicts on trails, trail use and etiquette signage should be installed at all trailheads.

To reduce erosion, trails may need to be rerouted or resurfaced to accommodate the variety of recreational uses. New pedestrian trails should meet the standards for outdoor recreational accessibility that address slope, width, and surface (see Appendix B). Pedestrian trails should be surfaced with a stabilized aggregate surface or soil solidifier (hydrophobic polyurethane system). A stabilized pathway mix consists of decomposed granite or crushed stone blended with non-toxic, non-staining water activated powder binder. This powder, consisting of Psyllium and Mucilliod, binds and locks the crushed stone screenings to provide a durable, permeable, natural aggregate surface. Brands of this powder on the market include "Stabilizer" as manufactured by Stabilizer Solutions, Inc. A soil solidifier is a binding system that can be applied over the gravel surfaces. Brands on the market include Klingstone 400 ([www.klingstone.com](http://www.klingstone.com)). Handicap accessible trails may be surfaced with asphalt or concrete. Possible routes are described in the Guidelines and Tasks chapter of this report (Appendix B).



Treatment of the pedestrian circulation systems may also appropriately consider include reestablishing portions of the historic 1777 road traces that were removed during the construction of the park tour road. The rehabilitation of these roads to serve as part of the existing trail network will provide visitors with a better understanding of the importance of these historic routes to the battles, serving as military avenues of approach and retreat, as well an opportunity to provide access to battlefield memorial features that were scattered along their length during the 19<sup>th</sup> century.

## **PRESERVE RURAL CHARACTER**

Saratoga County has experienced one of the fastest growth rates in New York State, resulting in the loss of over 100,000 acres of farmland and open space in the last forty years. Despite these landscape changes, the battlefield's rural setting—dominated by the undulating topography, sweeping views, wooded and pastoral open spaces, rural road systems, and scatterings of farmsteads and single family residences—remains preserved to help visitors understand the physical development of the region, as well as the strategic role of the landscape in the unfolding of the historic Saratoga battles. However, threats to the rural character of the landscape are foreseeable as sprawl within the Hudson River Valley increases and agricultural activities diminish.

To maintain the rural character within the battlefield, the park should continue its agricultural lease program and screen adjoining non-historic development and incompatible land uses. While addressing the rural setting outside the park boundary is challenging, the park must continue to work with federal, state, and local government entities, nonprofits, and private property owners to conserve natural resources, protect open space and historic resources, and preserve the historic viewsheds. In recent years, the park has joined with municipalities and non-profit organizations along the Upper Hudson River to form the “The Historic Saratoga-Washington on the Hudson Partnership.” Established through an act of New York State legislation in 2006, the Partnership’s mission is to preserve, enhance and develop the historic, agricultural, scenic, natural and recreational resources and the significant waterways within the Partnership region.

Efforts by the park to preserve the cultural landscape beyond the battlefield have initially begun with the development the *Saratoga Battlefields Landscape Conservation Fund, Feasibility and Concept Study* (2009) and the *Battles of Saratoga Preservation and Viewshed Protection Plan* (2007). These plans identified the most important areas for protection (based on the analysis of the scenic, historic, and other attributes of the landscape) and provided tools for the preservation of these lands, which included easement and fee acquisition strategies. Based on these reports, the most important areas to preserve in order



Figure 2.7. (top and middle) Views to across the Hudson River from Bemis Heights Tour Stop 3; (bottom) Similar views from the Great Redoubt Tour Stop 9. The most important areas to preserve in order to maintain historic viewsheds from the battlefield are bordering properties and lands east of the park, specifically along the floodplain and across from the Hudson River in Washington. Fiber reinforced turf system is a viable alternative for constructing turf parking areas at Saratoga battlefield (Stabilizer Soutions, [stabilizersolutions.com](http://stabilizersolutions.com)).

to maintain historic viewsheds from the battlefield are bordering properties and lands east of the park, specifically along the floodplain and across from the Hudson River in Washington County (Figures 2.7).<sup>1</sup> To date (2013), over 5,000 acres of the 15,000 acres of priority viewshed properties have been protected.

## **RESTORE FIELD AND FOREST PATTERNS**

The field and forest patterns within the battlefield landscape have changed significantly since the historic battles in 1777. In the early years of National Park Service ownership, the woodlands were largely absent within the landscape. At that time, it was believed that the open character offered visitors a better understanding of the battles since the topography could be seen and understood at a glance. However, park policy has shifted over the years to encompass a more literal interpretation of the vegetative cover in 1777. This management practice continues today.

To date, battlefield landscape management has been based primarily on a circa-1950 historic base map. However, recent research has identified inaccuracies in the map highlighting the need for additional reforestation and clearing to approximate the 1777 field-forest configuration.

The field and forest patterns of Saratoga Battlefield are integral to the cultural landscape and play a prominent role in the interpretation and development of the park. Where practical, and interpretively useful to do so, efforts should be made to accurately depict the field and forest patterns in 1777. However, treatment of these features should also be sympathetic to the park's natural resources and contemporary issues, specifically the conservation of grassland birds and the screening of incompatible land uses adjacent to the battlefield (Drawing 2.0: Overall Treatment Plan)<sup>2</sup>

## **MANAGE INVASIVE VEGETATION**

Invasive exotic plant species remains a major issue within the Saratoga Battlefield as they diminish historic viewsheds and threaten grassland and woodland habitats. Based on the *Saratoga National Historical Park Invasive Plant Assessment (2004)*, seventeen invasive plant species were identified within the park. The greatest threat to the battlefield landscape, particularly in open fields, includes knapweed (*Centaurea sp.*)—mostly brown knapweed (*Centaurea jacea*), purple loosestrife (*Lythrum salicaria*), reed canary grass (*Phalaris arundinacea*), Canada thistle, (*Cirsium arevense*), bull thistle (*Cirsium vulgare*), morrow's honeysuckle (*Lonicera morrowii*), broom grass (*Bromus inermis*), and Japanese knotweed (*Polygonum cuspidatum*). Forested areas are invaded by common buckthorn

### Park & Facility Identification Signs



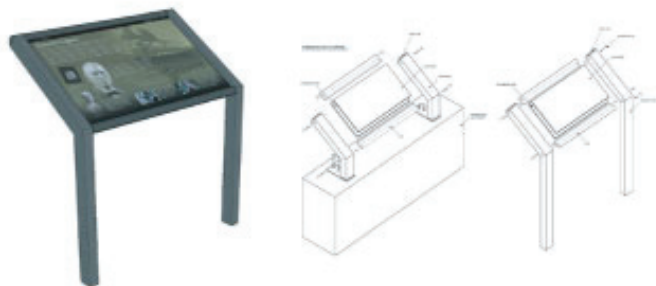
The park and facility identification signs welcome visitors as they arrive to the park and reflect the importance and quality of the park and the agency. It is similar to the Saratoga Monument entrance sign and is compatible with the Route 4 entrance sign.

### Visitor Information System Signs



Visitor Information Signs (VIS) signs are designed to provide attractive and consistent way to present a broad range of messages. The modular system allows posting of regulations, safety warnings, information, interpretation, pedestrian guidance, etc. Sign panels can be manufactured from a variety of methods including porcelain enamel, high pressure laminate, fiberglass embedment, and overlaminated digital prints. At the battlefield, the park should use these signs at trailheads and tour stops.

### Wayside Exhibits



The wayside exhibits shown to the left are the designated wayside bases for the National Park Service. Bases are available in a variety of formats including reverse angle assemblies, low profile reverse angle assemblies, sled bases, and reverse angle deck mount assemblies. Panels are fabricated from porcelain enamel, high pressure laminate, embedded fiberglass, and overlaminated digital prints. Deck mount assemblies should be considered at tour stops that currently contain low wall mounted waysides.

Figure 2.8. At Saratoga National Historical Park, the above uniguide signs should be used at all units. The park should contact Harpers Ferry Center (HFC) for detailed information on the development of a comprehensive signage system. HFC assists parks with the planning, design, development, and production of media products (Olmsted Center for Landscape Preservation, 2010).



(*Rhamnus cathartica*), Japanese honeysuckle (*Lonicera tartarica*), multiflora rose (*Rosa multiflora*), Japanese barberry (*Berberis thunbergii*), garlic mustard (*Alliaria petiolata*) and black locust (*Robinia pseudoacacia*).<sup>3</sup>

In an effort to reestablish and retain historic views and maintain grassland habitats, the spread of invasive plant material throughout the Saratoga Battlefield should be controlled with a combination of techniques including grazing, prescribed burns, reseeding with native species, herbicides, and selective mowing or manual removal. [For specific information on integrated management techniques to control invasive plant material, refer to the *Saratoga National Historical Park Fire Management Plan* and numerous reports including *Developing a Conservation Strategy for Grassland Birds at Saratoga National Historical Park* (2005), *Study Design for Assessing the Effects of Knapweed Control on Grassland Birds at Saratoga National Historical Park* (2007), and *Vegetation Classification and Mapping at Saratoga National Historical Park* (2008)]. (Drawing 2.0: Overall Treatment Plan)

## **ENHANCE PARK SIGNAGE**

At the Saratoga Battlefield, the inventory of existing National Park Service signage is currently inadequate. In particular, there is a lack of pathfinding signs on the majority of the trails; wayside exhibits span decades of stylistic variations that confuse visitors; and tour road signs—in most places—are poorly placed and inconspicuous. In order to improve and enhance signage, Saratoga National Historical Park should develop a comprehensive (universal) signage system that will be used for all units of the park.

According to *Director's Order #52C: Park Signs*, the development of a standardized signage system, which includes park and facility identification signage, visitor information signs, wayside exhibits, and pathfinder signs, should offer clear, concise and consistent communications to park visitors while not intruding on natural and historic settings; maximize the public's convenience and safety; strengthen the NPS public identity and perception as one organization; and be appropriate in appearance, size, and material to a wide range of park environments.

Based on the applicable policies and National Park Service standards, signs throughout Saratoga National Historical Park, including the battlefield unit, should relate to each other—both in design and content. In particular, all signs should include a black banner and the National Park Service iconic Arrowhead logo. On another level, park signs should relate to and harmonize with the particular environment in which they are placed. In an effort to be consistent with the recently installed signage at the Saratoga Monument and the park entry signage on Route 4, new park and facility identification signage should incorporate

a stone veneer quarried from local sources. Visitor information signage at the park should consist of a modular system allowing for posting of regulations, interpretation, and other wayfinding information. Standard National Park Service wayside bases should replace the current wayside exhibits at the battlefield. Replacement of the waysides and other signage will reduce maintenance, provide cohesion, and strengthen interpretation within the park, specifically the battlefield (Figure 2.8).

For detailed information on the development of a comprehensive signage system, the park should contact Harpers Ferry Center (HFC). Harpers Ferry Center assists parks with the planning, design, development, and production of media products.

## ENDNOTES

- 1 Saratoga P.L.A.N with Dodson Associates, Ltd, *Battles of Saratoga Preservation and Viewshed Protection Plan* (Saratoga P.L.A.N, 2007, revised 2009).
- 2 Carol L. Trocki and Peter W.C. Paton, *Developing a Conservation Strategy for Grassland Birds at Saratoga National Historical Park [Natural Resources Report NPS/NER/NRR-2005/004]* (U.S. Department of the Interior, National Park Service) pgs.13-29.
- 3 Gregory J., Aissa L. Feldmann, Timothy, G. Howard, John J. Schmid, Frederick C. Sechler, Elizabeth Eastman, Ery Largay, and Lesley A. Sneddon, *Vegetation Classification and Mapping for Saratoga National Historical Park* (U.S. Department of the Interior, National Park Service: 2008).



# TREATMENT GUIDELINES AND TASKS

This chapter provides treatment guidelines and tasks specific to management zones identified in the park's General Management Plan. The two management zones for the park are the Historic and Park Support Zones. Specific to the battlefield, the Historic Zone is divided into two subzones: the Main Battle Action and Encampment Subzone and the Supporting Battle Action Subzone (Figure 3.1).<sup>1</sup> Within each management zone, each section begins with general treatment guidelines and an overview of pertinent treatment issues, and then describes individual treatment tasks listed by code using the management zones abbreviation (MB, SB and PS). Preservation is the default treatment for historic landscape features having no specific tasks identified. Treatment tasks are keyed to fourteen treatment plans (Drawings 3.0-3.13). A convenient table summarizing the proposed tasks is included at the conclusion of the report.

## **MAIN BATTLE ACTION AND ENCAMPMENT SUBZONE**

Based on the park's General Management Plan (2004), the following treatment guidelines for the Main Battle Action and Encampment Subzone are intended to enhance landscape character at select locations to evoke landscape conditions of October 1777 and to reestablish views that were important to the battles. Interpretation should emphasize the Northern Campaign of 1777 within the broader context of the Revolutionary War with a secondary emphasis on commemoration and other aspects of the park's history.

Landscape treatment tasks, presented in relationship to nearby Tour Stops on the park tour road, are focused on rehabilitating the Freeman Farm overlook (Tour Stop 1), Neilson Farm landscape (Tour Stop 2), and Fraser Burial Site (Tour Stop 10); improving wayfinding between Tour Stops 1 and 2; enhancing Burgoyne Headquarters (Tour Stop 8); and restoring the vista clearing to Bemis Tavern. Other tasks include constructing special events parking at Balcarres Redoubt; expanding landscape interpretation at the Great Redoubt (Tour Stop 9); and improving access to Gates's Headquarters, American Hospital Site, Bemis Heights, Champlain Canal, and Hudson River, as well as between tour stops 5 and 6.

### **MB TASK 1: REHABILITATE FREEMAN FARM OVERLOOK (TOUR STOP 1)**

The uninviting appearance of the Freeman Farm Overlook (Tour Stop 1) currently diminishes a visitor's first experience of the battlefield upon entering

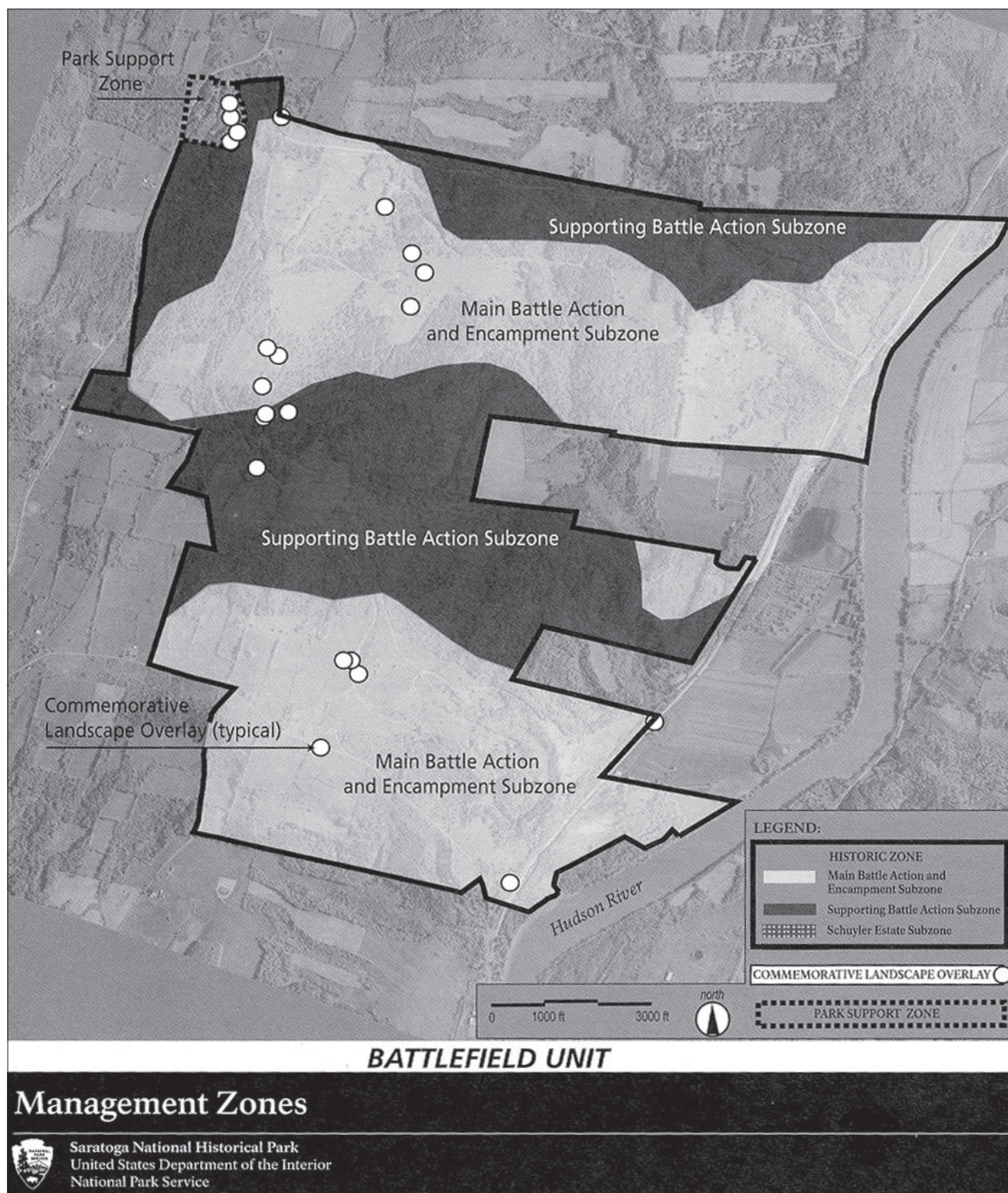


Figure 3.1. Map of management zones within Saratoga National Historical Park. Saratoga National Historical Park is divided into two management zones: the Historic Zone and the Park Support Zone, with a Commemorative Landscape Overlay. The Historic Zone is specific to the battlefield and is subdivided into two subzones: The Main Battle Action and Encampment Subzone and the Supporting Battle Action Subzone (Saratoga National Historical Park, General Management Plan, 2004).



the tour road. The tour stop can be greatly enhanced by improving signage and interpretative media, removing invasive exotic vegetation, and opening views to the battlefield landscape (Figure 3.2).

***Improve Signage and Interpretative Media:***

Although the tour stop is appropriately marked, the signage is inconspicuous and not located in close proximity to the stop. To improve signage and landscape interpretation, the park should develop a standardized design for identity signage that complies with National Park Service standards (see general treatment recommendations in Chapter 2). The location of the sign should be placed within the island between the parking area and tour road (Figure 3.3). Currently, the stop is identified and interpreted as an overlook for the Freeman Farm, the scene of major fighting on September 19, 1777. However, the site description is misleading, as is the text in the park brochure and the wayside exhibit. Visitors are actually viewing the Marshall Farm fields (formerly known as the Coulter Farm), the site

**Figure 3.2.** MB Task 1: Rehabilitate Freeman Farm Overlook (Tour Stop 1). View of the Freeman Farm Overlook. Note the uninviting appearance, lack of signage, and invasive exotic vegetation in the background (OCLP, 2010).



**Figure 3.3.** MB Task 1: Rehabilitate Freeman Farm Overlook. Photo-simulation showing the Freeman Farm Overlook, enhanced by improved signage and interpretative media, removal of invasive exotic vegetation, and expanded views to the battlefield landscape (OCLP, 2010).



of secondary action during both battles. Views of the Freeman Farm are currently obstructed by a stand of trees.<sup>2</sup> Landscape interpretation at the tour stop can be improved by renaming the tour stop and reinterpret the area. Themes related to the landscape that warrant interpretation may include introducing the battles and methodology of the battlefield landscape (i.e. painted fence posts [matchsticks] and color coding), as well as the families and settlement patterns (Drawing 3.0). [For further information, see the Saratoga National Historical Park, Long-Range Interpretative Plan, National Park Service, 2007.]

***Remove Invasive and Successional Vegetation:***

Removal of the black locust successional forested area between the parking area and wayside exhibit—encircled by an asphalt path—is necessary to establish panoramic views of the battlefield upon entering the battlefield tour road. The black locust successional forested area is dominated by black locust (*Robinia pseudoacacia*), common buckthorn (*Rhamnus cathartica*), Tatarian honeysuckle (*Lonicera tatarica*), and garlic mustard (*Alliaria petiolata*).<sup>3</sup> Once the invasive and successional vegetation has been removed, plant the area with little bluestem (*Schizachyrium scoparium*) mixed with other warm season native grasses. Little bluestem is a native bunchgrass that provides excellent wildlife habitat and requires minimal maintenance. Finally, a few specimen trees, such as sugar maples, should be planted within the area to enhance the tour stop and frame views. Period appropriate worm fencing should be established to increase interest and eliminate the creation of additional social trails. To be consistent with grassland habitat conservation efforts at the park, mowing should be done in the early spring (March-April) and late fall (October) (Drawing 3.0).

**MB TASK 2: IMPROVE WAYFINDING BETWEEN TOUR STOPS 1 AND 2**

Due to the open character between Tour Stop 1 and 2, a mown path, and the placement of cannons, visitors often mistake the area between Tour Stops 1 and 2 as the Barber Wheatfield (Stop 5) (Figure 3.4). To minimize confusion, the cannons should be relocated in closer proximity to Tour Stop 5 and the mown path should be reduced in length. Finally, specimen trees, such as white ash, red maple, or American elm hybrids, should be planted within the open area to loosely screen views of the cannons and path (refer to Appendix C: Elm Varieties). Period appropriate worm fencing should also be established. Besides serving as a visual barrier, fencing will enhance landscape interpretation by providing visitors with a better understanding of the historic field delineations (Figure 3.5) (Drawing 3.1).



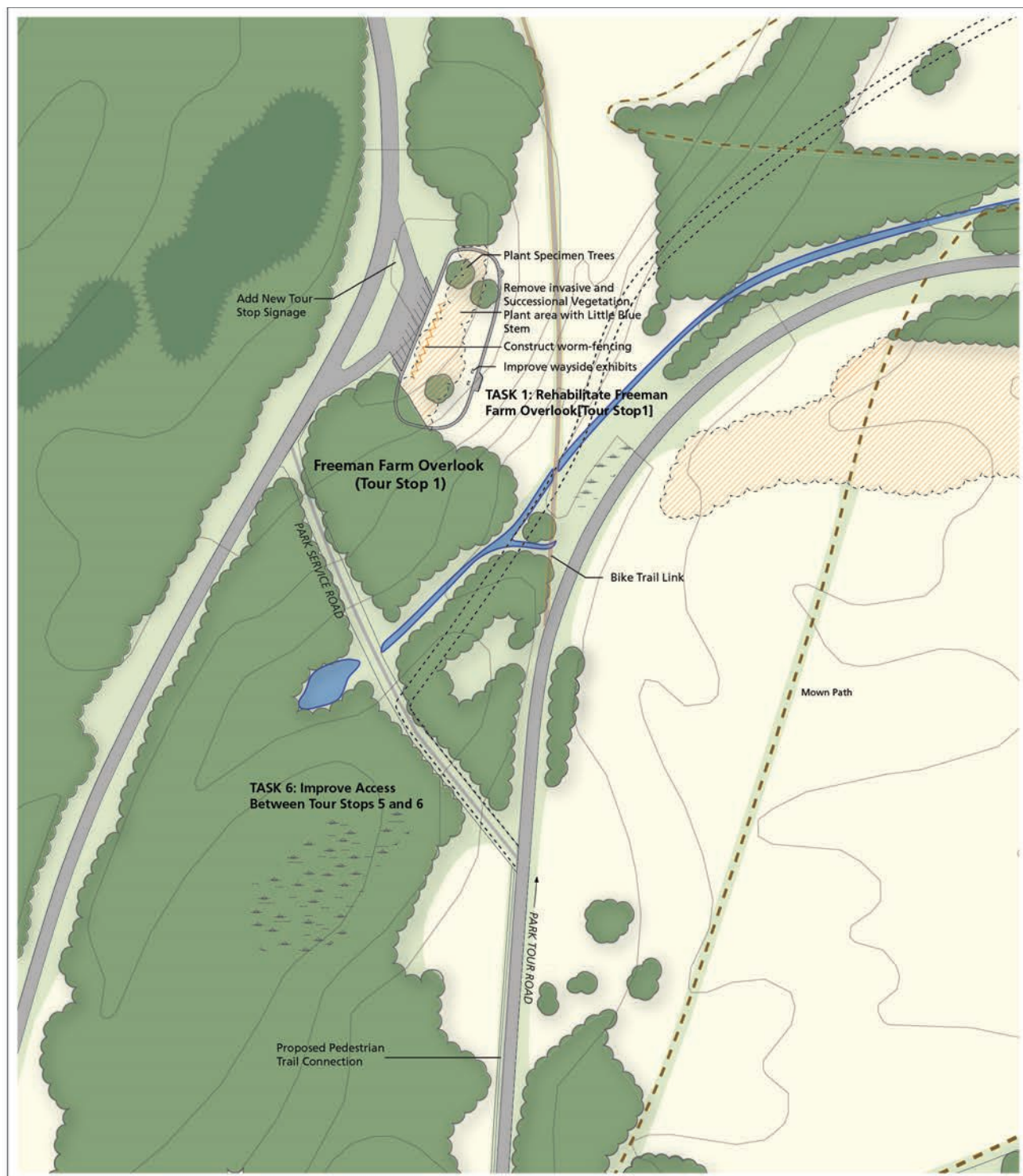


Figure 3.4. MB Task 2: Improve Wayfinding Between Tour Stops 1 and 2. View of the area between Tour Stops 1 and 2. Due to the open character of the area, a mown path, and the placement of cannons, visitors often mistake this area as the Barber Wheatfield (Stop 5) (OCLP, 2010).



Figure 3.5. MB Task 2: Improve Wayfinding Between Tour Stops 1 and 2. Photo-simulation shows the use of worm fencing and specimen trees (such as white ash, red maple, or American elm hybrids) to minimize confusion (OCLP, 2010).





# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

## Rehabilitate Freeman Farm Overlook (Tour Stop 1)



National Park Service  
Olmsted Center for Landscape Preservation  
[www.nps.gov/olcp](http://www.nps.gov/olcp)



### SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

### DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

### NOTES

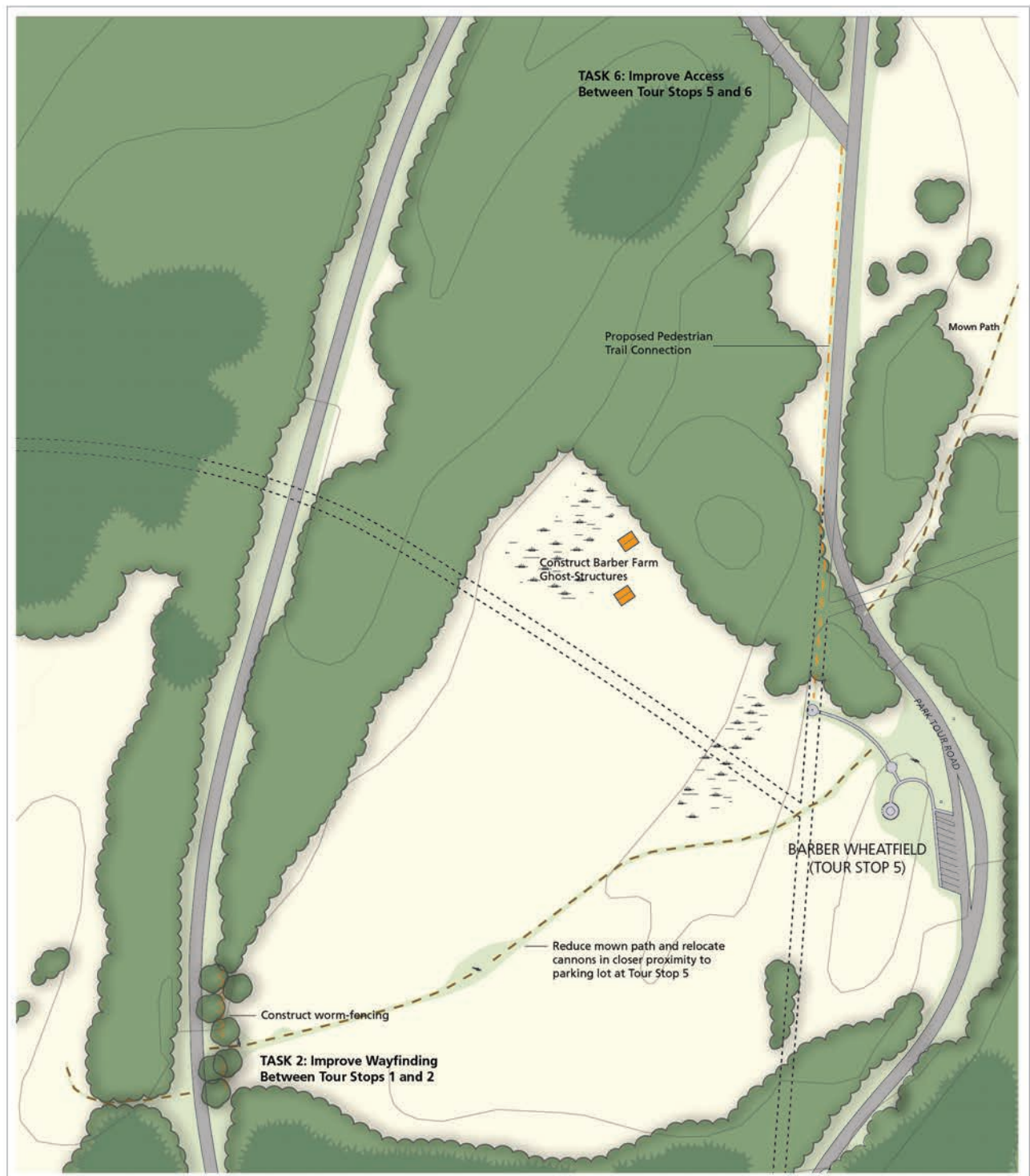
1. All features shown in approximate scale and location.
2. Will be rendered in final.

### LEGEND

	Feature to add		Deciduous/evergreen shrub, shrubland
	Feature to remove		Managed meadow or field
	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=200'

Drawing 3.0





# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York



National Park Service  
Olmsted Center for Landscape Preservation  
[www.nps.gov/oclp](http://www.nps.gov/oclp)



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

## NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

	Feature to add		Deciduous/evergreen shrub, shrubland
	Feature to remove		Managed meadow or field
	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=200'

Drawing 3.1

**MB TASK 3: REHABILITATE NEILSON FARM (TOUR STOP 2)**

One of the most important tour stops within the battlefield, the Neilson Farm (Tour Stop 2) currently cannot adequately support existing interpretative programs and functions. Furthermore, the infrastructure of Tour Stop 2 is inaccessible to individuals with disabilities (Figures 3.6-3.7). Recommended landscape treatment at this location will enhance contemporary park functions and visitor services, specifically the development of a new visitor contact station and restroom facility, and design and install upgrades in support of improved vehicular and pedestrian circulation (i.e. equestrian trailheads, bus pull-offs, and special event parking, ADA access). Landscape interpretation should also be expanded here to incorporate representative interpretive exhibits such as hastily constructed earthworks and an open-frame “ghost-structure” marking the location of a former barn. Additionally, the Daughters of the American Revolution Memorial (DAR) at this location also require accessibility improvements, rehabilitated plantings, and interpretative improvements to enhance interpretation of this key site (Figures 3.8-3.9). Two alternatives are presented below for improving visitor facilities at the Neilson Farm (Tour Stop 2). Both alternatives expand upon the recommendations that have been previously identified in the *General Management Planning Support Package* (Figure 3.10). Treatment of the DAR memorial landscape is identified in a separate narrative recommendation and drawing.

**Visitor Facilities Improvements (Preferred Alternative A)**

Alternative A consists of overflow/special event parking, expanded bus parking, pedestrian circulation improvements, landscape interpretation enhancements, and a new visitor contact station. The design of the visitor contact station will be compatible with the existing Neilson house and include a classroom space and restroom facility.

In an effort to improve bus parking, pedestrian circulation, access, and safety, a bus pull-off and adjoining sidewalk should be constructed opposite the existing parking area. The sidewalk will connect to an improved crosswalk location that provides access to the Neilson House. To better accommodate interpretative programs, living history demonstrations, and other activities and events held at Tour Stop 2, a new visitor contact station should be constructed within the embankment west of the Neilson house. The small two story structure—drawing upon the scale and geometries of regional 18<sup>th</sup> century barn architecture—will include a restroom on the first floor (at grade with the parking area) and an open plan classroom space on the second floor (at grade with the Neilson house). The facility will be accessible via a new ADA pedestrian route that will connect the facility with an improved interpretative signage area for the Neilson house and Bemis Heights, as well as Gates’ headquarters and the American Hospital (Figures 3.11-3.12). Beyond the interpretative signage area, the path will continue as a





Figure 3.6. MB Task 3: Rehabilitate Neilson Farm. View of the Neilson Farm (Tour Stop 2), looking south. The existing parking area cannot accommodate buses (OCLP, 2010).



Figure 3.7. MB Task 3: Rehabilitate Neilson Farm. View of the Neilson Farm (Tour Stop 2), looking south. Note the Neilson farm in the background. The Neilson Farm (Tour Stop 2) currently cannot support interpretative programs and functions, and is not accessible for individuals with disabilities (OCLP, 2010).

stabilized turf walking surface across the tour road and following the route of the existing maintenance/service road to an overflow/special event parking area and trailheads for the equestrian and Bemis Heights trail systems. At the terminus of the current maintenance road, a new parking area will be constructed for trail users. Landscape interpretation will be enhanced by adding interpretative exhibits, such as a cross-section of a typical earthwork fortification, located along the embankment north of the proposed visitor contact station (Drawing 3.2).

#### ***Visitor Facilities Improvements (Alternative B)***

Alternative B consists of overflow/special event parking, enhanced bus accommodations, pedestrian circulation improvements, landscape interpretation enhancements, and a separate visitor contact station and restroom facility.

Similar to the previous alternative, the bus pull-off and sidewalk should be constructed opposite the existing parking area. Stabilized parking should be constructed along the maintenance/service road and the ADA pedestrian path should follow the same route to connect to the new interpretative area and trailheads. A variation from the first alternative includes the replacement of the existing small composting toilet with a larger one-story restroom facility in the approximate same location. The new restroom building should be compatible with the architecture of the nearby historic Neilson house. To effectively screen undesirable views, a berm should be constructed north of the restroom building. The berm should emulate the natural undulations of the adjacent landscape. Landscape interpretation will be greatly enhanced by adding interpretative features, such as reconstructing a hastily constructed earthwork fortification along the embankment west of the Neilson house. To accommodate the various interpretative programs at the tour stop, a ghost-structure interpretive exhibit, drawing upon the scale, roofline and massing of an 18<sup>th</sup> century English barn, would be constructed north of the Neilson house—in the approximate location of the former blockhouse that was constructed during the State Park period (Drawing 3.3).

#### ***Rehabilitate Daughters of the American Revolution Memorial Landscape***

Following its construction in the 1930s, the landscape immediately surrounding the Daughters of the American Revolution Memorial has changed significantly. Several original features, including a memorial pavilion, memorial grove of trees, and perimeter hedge have all been removed. While some original plantings remain, they are overgrown, browsed by deer into unnatural shapes, and generally in poor condition. While the semi-circular asphalt walkway surrounding the monument is in good condition, the memorial landscape is currently inaccessible to visitors with mobility impairments due to a series of steps and the steep grade between the monument and park tour road (see figures 3.8-3.9).



Effective treatment of the Daughters of the American Revolution (D.A.R.) Memorial landscape should retain the Monument to the Unknown American Dead (LCS ID 022302), circular paved walkway and accompanying granite benches as these features are significant to the commemorative period within the battlefield.<sup>4</sup> To improve accessibility and the appearance of the memorial landscape, the following tasks should be carried out: construction of an accessible ramp, replacement of deteriorated slate steps with durable granite steps, resurfacing walk, rehabilitation of shrub plantings around granite seats, reestablishment of an American elm grove, and installation of wayside exhibit (Drawing 3.4).

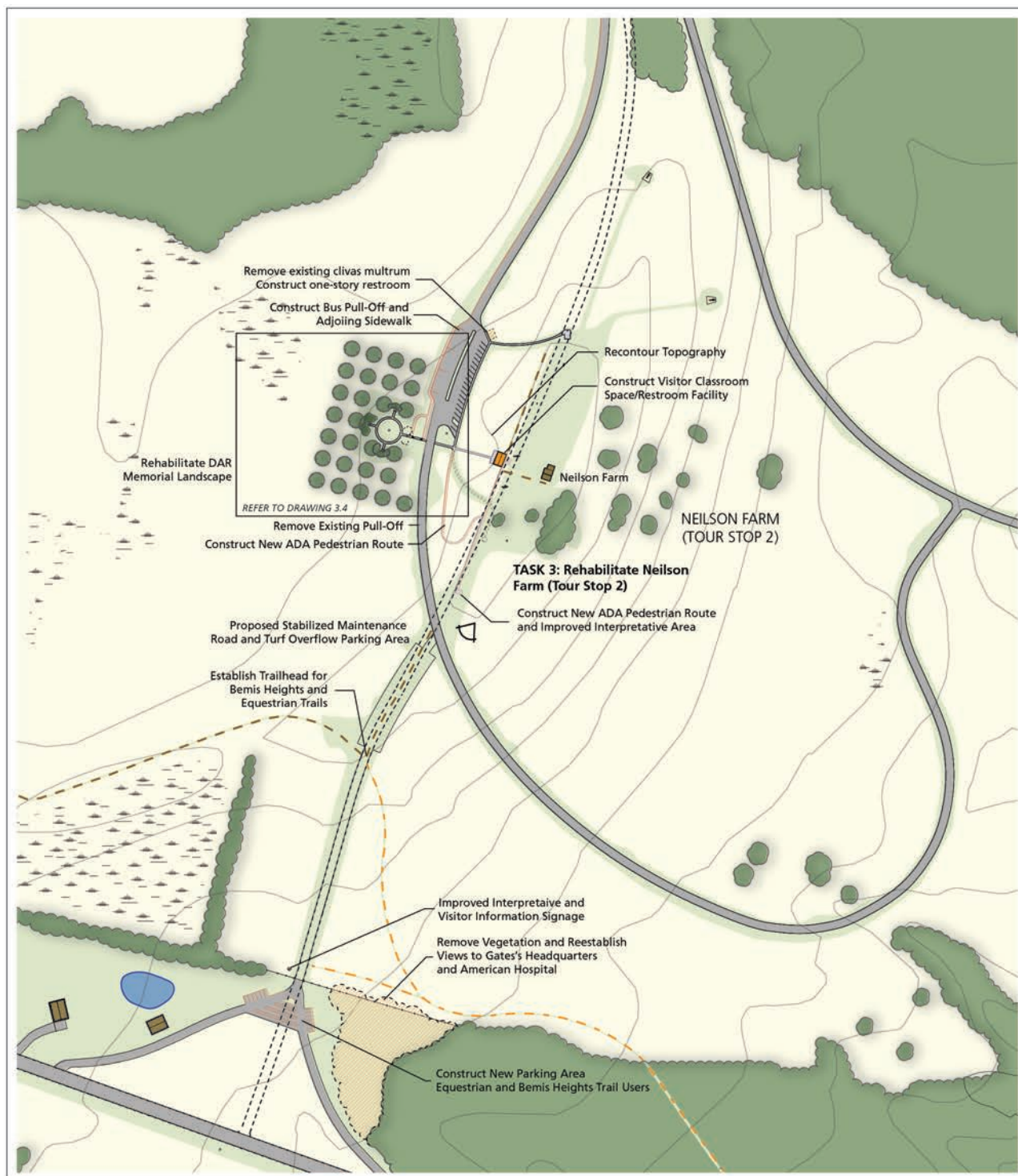
Construction of a code-compliant accessible ramp leading from the parking lot to the memorial will require two curb cuts on each side of the park tour road. In order to reduce visual impacts and eliminate the need for hand railings, a gently sloped 1:20 ramp should be constructed to the north of the existing stairway. The slope will gradually descend to the base of the walkway landing and be designed to lay flat on the existing topography with minimal grading. The ramp should be surfaced in bituminous concrete, finished with a rolled chip seal intending to resemble the appearance of a simple gravel walkway (Drawing 3.4).

The existing slate steps were added c. 1960 when the area was re-graded to accommodate the park tour road. Due to the nature of the materials, the existing slate steps are difficult to maintain and should be replaced with granite stair treads (Drawing 3.4).

Where the replacement of the current hard-surface pathways with historic gravel surfaces is impractical due to accessibility and maintenance issues, the existing bituminous concrete walkway, including the proposed accessibility ramp, should be topped with chip-seal coating to duplicate the appearance of a simple gravel walkway. (Drawing 3.4).

The original shrub plantings within the memorial landscape were planted in 1935. Today, many of these plantings survive, but are overgrown, browsed by deer, or otherwise in poor condition. Other trees and shrubs in the area of the memorial appear to be self-sown. Effective landscape treatment of these plantings will involve rehabilitating the existing plantings within the memorial landscape through deep rejuvenative pruning and protection of the vulnerable plantings with netting during the winter months (Drawing 3.4).

The original Daughters of the American Revolution memorial landscape once included an evergreen perimeter hedge, which delineated a symbolic “American Cemetery” of unknown Revolutionary War soldiers. This symbolic layout was accompanied by a nearby planting of a memorial grove, comprised of twenty-seven American elm trees, each of the trees dedicated to a different general of the Revolutionary War. By the 1970s, both the memorial elm trees and perimeter



# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

Rehabilitate Neilson Farm,  
Tour Stop 2 (Alt. A)



National Park Service  
Olmsted Center for Landscape Preservation  
www.nps.gov/olcp



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

## NOTES

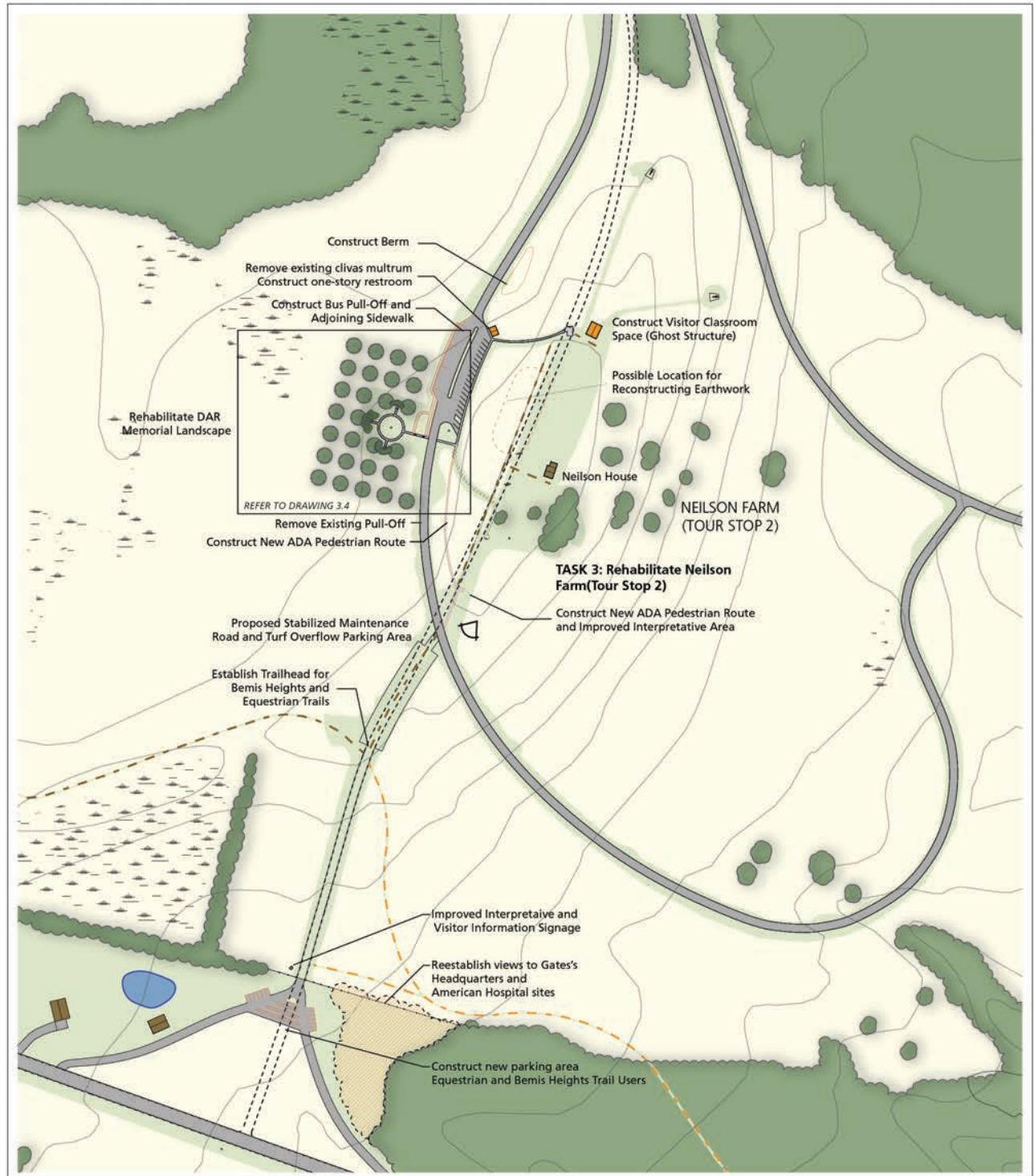
1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

- |  |                                      |  |                                      |
|--|--------------------------------------|--|--------------------------------------|
|  | Feature to add                       |  | Deciduous/evergreen shrub, shrubland |
|  | Feature to remove                    |  | Managed meadow or field              |
|  | Building or structure                |  | Mown turf                            |
|  | Paved road or path                   |  | Wetland                              |
|  | Unpaved road or path                 |  | Hydrology (river, stream, or pond)   |
|  | Feature to remove                    |  | NPS legislative boundary             |
|  | 1777 road trace                      |  | NPS fee boundary                     |
|  | Deciduous specimen tree, wooded area |  | 10' Contour                          |
|  | Evergreen specimen tree, wooded area |  | 1"=200'                              |

**Drawing 3.2**





# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

Rehabilitate Neilson Farm,  
Tour Stop 2 (Alt. B)



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

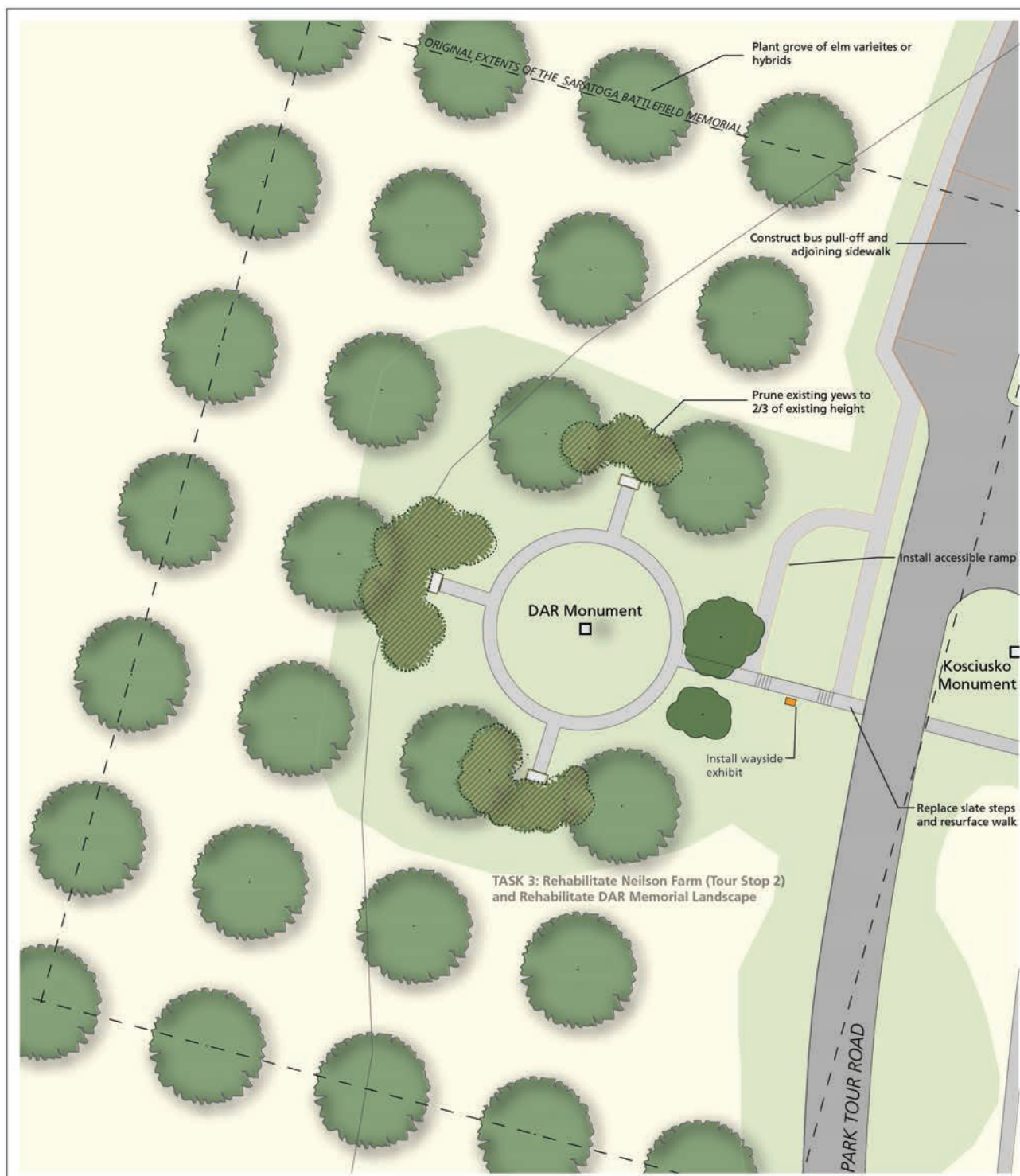
## NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

	Feature to add		Deciduous/evergreen shrub, shrubland
	Feature to remove		Managed meadow or field
	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=200'

Drawing 3.3



# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

## DAR Memorial Treatment



National Park Service  
Olmsted Center for Landscape Preservation  
[www.nps.gov/olcp](http://www.nps.gov/olcp)



### SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

### DRAWN BY

Michael Comisso,  
AutoCAD 2009 and  
Illustrator CS3, 2009

### NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

### LEGEND

	Feature to add		Deciduous/evergreen shrub, shrubland
	Feature to remove		Managed meadow or field
	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=40'

Drawing 3.4





Figure 3.8. MB Task 3: Rehabilitate Neilson Farm. (left) View to the Daughters of the American Revolution Memorial (DAR), looking west. This key visitor area requires accessibility improvements; (right) View from the DAR memorial landscape, looking east. A series of steps and the steep grade between the monument and park tour road denies accessibility to the DAR Memorial by visitors with mobility issues. (OCLP, 2010).



Figure 3.9. MB Task 3: Rehabilitate Neilson Farm. View of the DAR Memorial. Note that while some of the original plantings remain within the DAR memorial landscape, many are overgrown, browsed by deer, and in poor condition (OCLP, 2010).





Figure 3.10. MB Task 3: Rehabilitate Neilson Farm. Recommendations for Tour Stop 2 as identified in the *General Management Planning Support Package* (Saratoga National Historical Park, *General Management Plan Support Package*, 2003).





Figure 3.11. MB Task 3: Rehabilitate Neilson Farm. View looking north of the Neilson house (Tour Stop 2). The tour stop currently cannot support interpretative programs and is challenging to access by individuals with limited mobility (OCLP, 2010).



Figure 3.12. MB Task 3: Rehabilitate Neilson Farm. Photo-simulation of the Neilson Farm Landscape (Tour Stop 2) schematically indicating proposed visitor facilities improvements (Alternative A). Note the proposed visitor contact station. The design of the visitor contact station is intended to be compatible with the existing Neilson house and consistent with the scale and geometries of regional barns at the time of the battle. The new building would accommodate classroom space and a restroom facility (OCLP, 2011).

hedge were removed. The American elm trees presumably died by the Dutch Elm disease, and the perimeter hedge was removed when the area was bisected by the Park Tour Road. While it is not feasible to replant the hedge due to deer browsing, it is possible to reestablish the former spatial identity and design coherence of the memorial landscape by implementing thoughtful a new design that overlays the missing grove of trees over the memorial landscape. The new tree planting should be planted in a grid to rest within the area originally delineated by the evergreen hedge (Appendix C: Elm varieties or hybrids)(Drawing 3.4).

A new wayside should be installed to explain the significance and history of the Saratoga Battlefield Memorial and the role of the Daughters of the American Revolution during the Commemoration Period. The surface containing photographs and text should be approximately 2x3 feet wide and be tilted at an angle for easy reading (Drawing 3.4).

#### **MB TASK 4: IMPROVE ACCESS TO GATE'S HEADQUARTERS', AMERICAN HOSPITAL SITE, AND BEMIS HEIGHTS**

Through archeological investigation, the park has located the former sites of General Gates' Headquarters, American Hospital site, and the Bemis Tavern. However, these sites are currently inaccessible to visitors to the battlefield. Based on the *General Management Plan (2004)*, these sites should be interpreted and also be made visually or physically accessible to visitors (Figures 3.13-3.14).



Figure 3.13. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. (left) View looking south to the existing interpretative media at the Neilson Farm (Tour Stop 2). Treatment will expand landscape interpretation to highlight the importance of Gates's Headquarters and American Hospital Site; (right) The existing parking area at the terminus of the existing park maintenance drive on Route 32. Treatment will improve parking at this location (OCLP, 2010).



The following treatment recommendation incorporates elements of the three alternatives that were identified in the *General Management Planning Support Package* for improving vehicular and pedestrian access to Gates' Headquarters, American Hospital site, and Bemis Heights (Figures 3.15-3.20).

Access to all pedestrian trails proposed in the four alternatives should meet the standards for outdoor recreational accessibility that address slope, width, and surface (see Appendix B: Accessible Trails). Pedestrian trails should be surfaced with a stabilized aggregate surface or soil solidifier (hydrophobic polyurethane system). Handicap accessible paths may be surfaced with asphalt or concrete.

Visual access to Gates' Headquarters and American Hospital site should be provided at the Neilson farm (Tour Stop 2). The existing pedestrian path at the Neilson farm should be extended to include a new interpretative overlook. The path will be ADA compliant and be surfaced with asphalt. Flagpoles with customized flags or ghost structures should be constructed to mark to the former locations of Gates' Headquarters and American Hospital sites. Parking will be provided at the current Neilson farm (Tour Stop 2). A proposed new Bemis Heights trail will follow the route of an existing maintenance/service road to Route 32. Improvements to the existing maintenance road should include the installation of a new parking area for equestrian and Bemis Heights trail users.

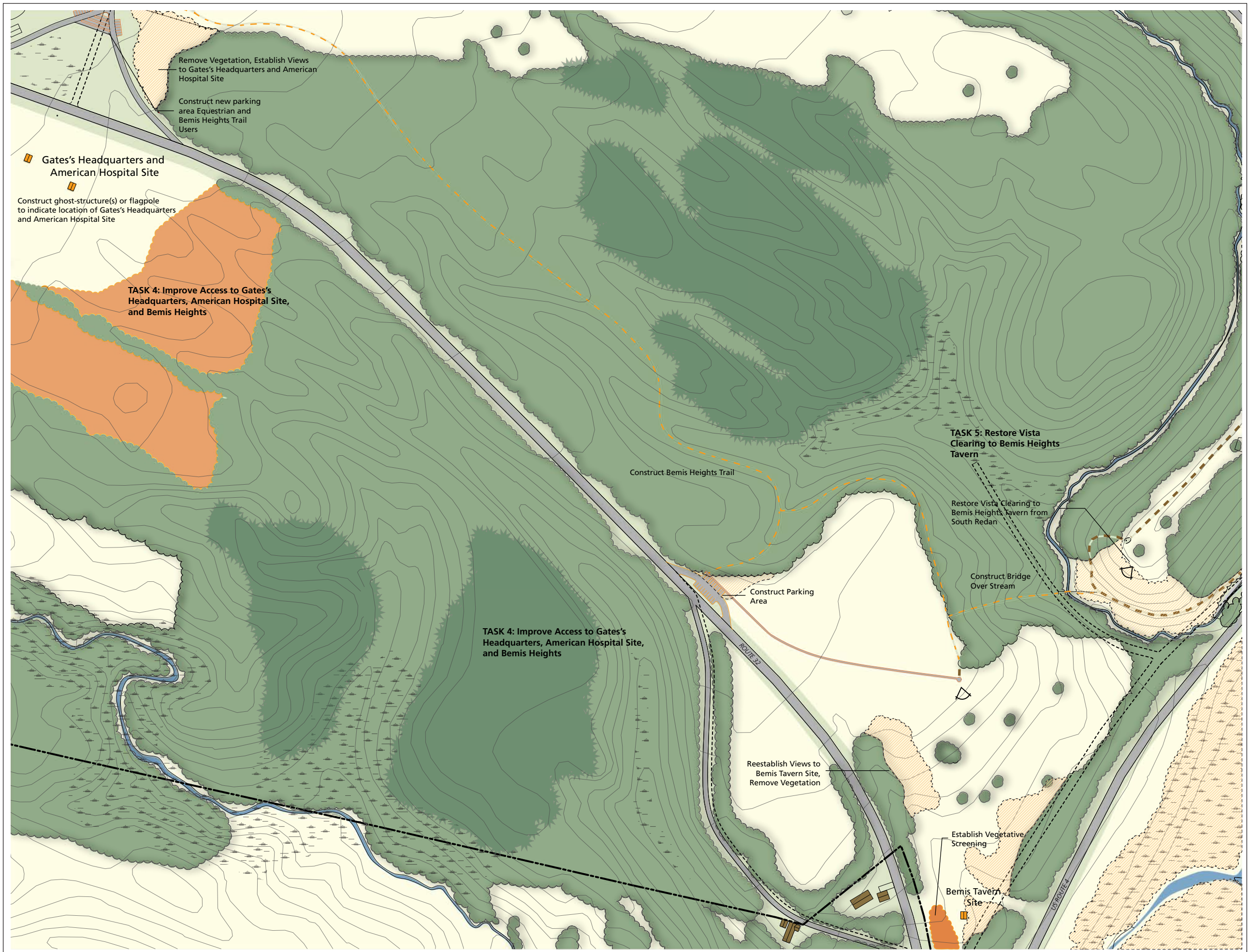


Figure 3.14. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. View of the existing park maintenance/service road at the Neilson Farm (Tour Stop 2). Stabilized parking should be constructed along the maintenance/service road, as well as the trailheads for the equestrian and Bemis Heights trails (OCLP, 2010).

The maintenance/service road will be resurfaced with a stabilized turf, aggregate-topsoil surface (Drawing 3.5).

Vehicular access to Bemis Heights should also be provided on the north side of Route 32 approximately .3 miles north of the Route 32/Route 4 intersection. Access will include a paved parking area that will accommodate approximately 10 parking spaces. An accessible path will be constructed that connects the parking area to the interpretative overlook and additional trails (trail along the Champlain Canal and .Tour Stop 3). The overlook will be positioned at the crest of the hill looking over the American fortification sites, the tavern site, and the Hudson River. Selective clearing will be required to open the views to the tavern site. Vegetative may need to be added to screen existing homes (Drawing 3.5).





# Cultural Landscape Report for Saratoga Battlefield

## Saratoga National Historical Park

Stillwater, New York

### Gates' Headquarters, American Hospital, and Bemis Heights



National Park Service

Olmsted Center for Landscape Preservation

[www.nps.gov/oclp](http://www.nps.gov/oclp)

#### SOURCES

1. Olmsted Center for Landscape Preservation, *Cultural Landscape Report: Saratoga Battlefield, Volume I*, 2002.
2. Orthophotography 2008.
3. SARA GIS Data
4. Site visits, February and September 2010.

#### DRAWN BY

Michael Commisso, AutoCAD 2010 and Illustrator CS 3, 2011

#### LEGEND

- Feature to add
- Feature to remove
- Proposed parking (paved & stabilized turf)
- Proposed locations for fencing
- Views and vistas
- Building or structure
- Paved road or path
- Unpaved road or path
- 1777 Historic road trace
- Deciduous specimen tree, wooded area
- Evergreen specimen tree, wooded area
- Deciduous/evergreen shrub, shrubland
- Managed meadow or field
- Mown turf
- Wetland (scrub or grasses)
- Hydrology (river, creek, stream, or pond)
- NPS legislative boundary
- NPS fee boundary
- Tour stop
- 10' contour

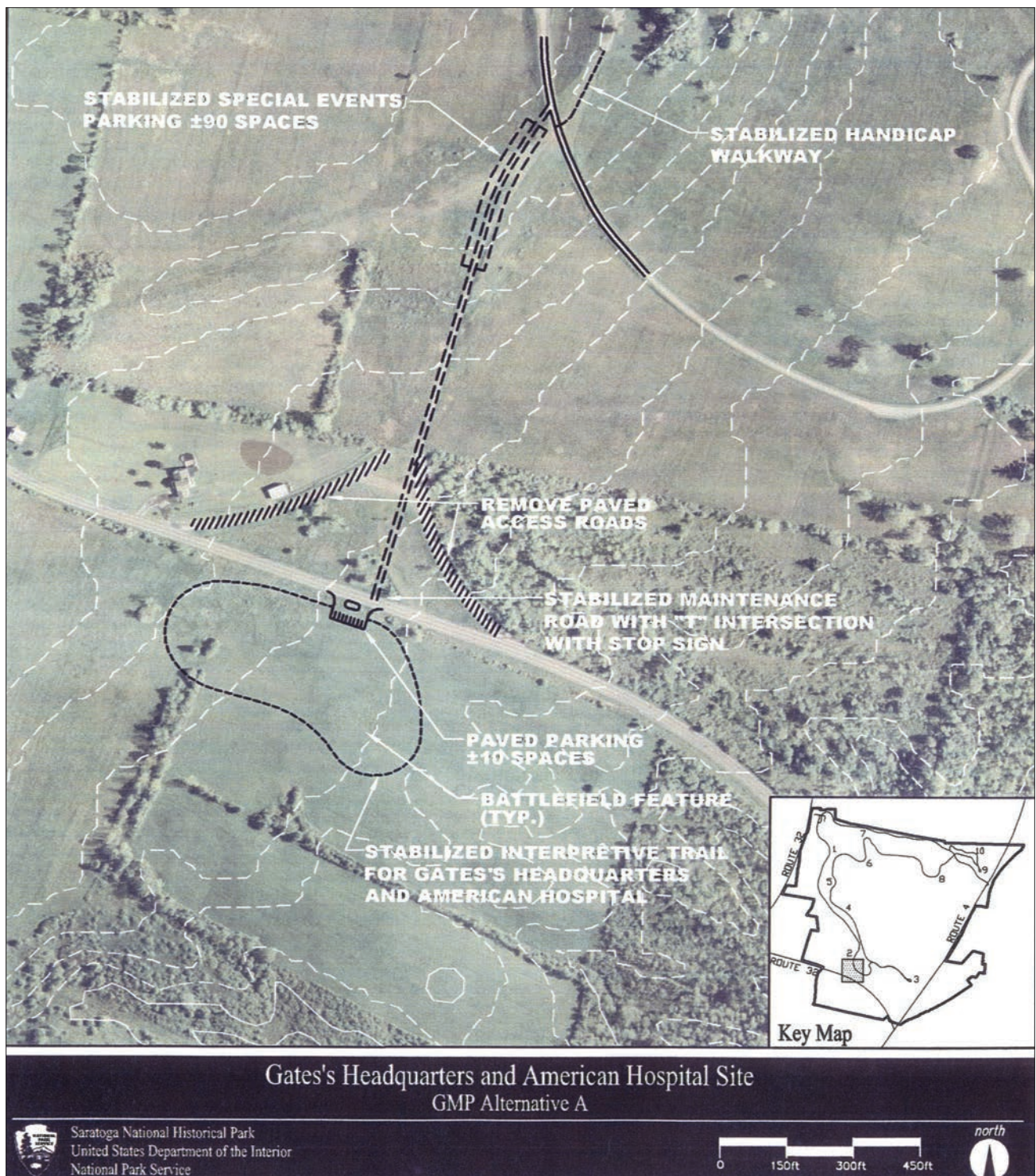
#### NOTES

1. Plan shows conditions in 2010.
2. All features shown in approximate scale and location.

1" = 300'

Drawing 3.5





**Figure 3.15. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. Recommendations for Gates's Headquarters and American Hospital Site, GMP Alt. A as shown in the General Management Planning Support Package (Saratoga National Historical Park, General Management Plan Support Package, 2003) (Saratoga National Historical Park, General Management Plan Support Package, 2003).**



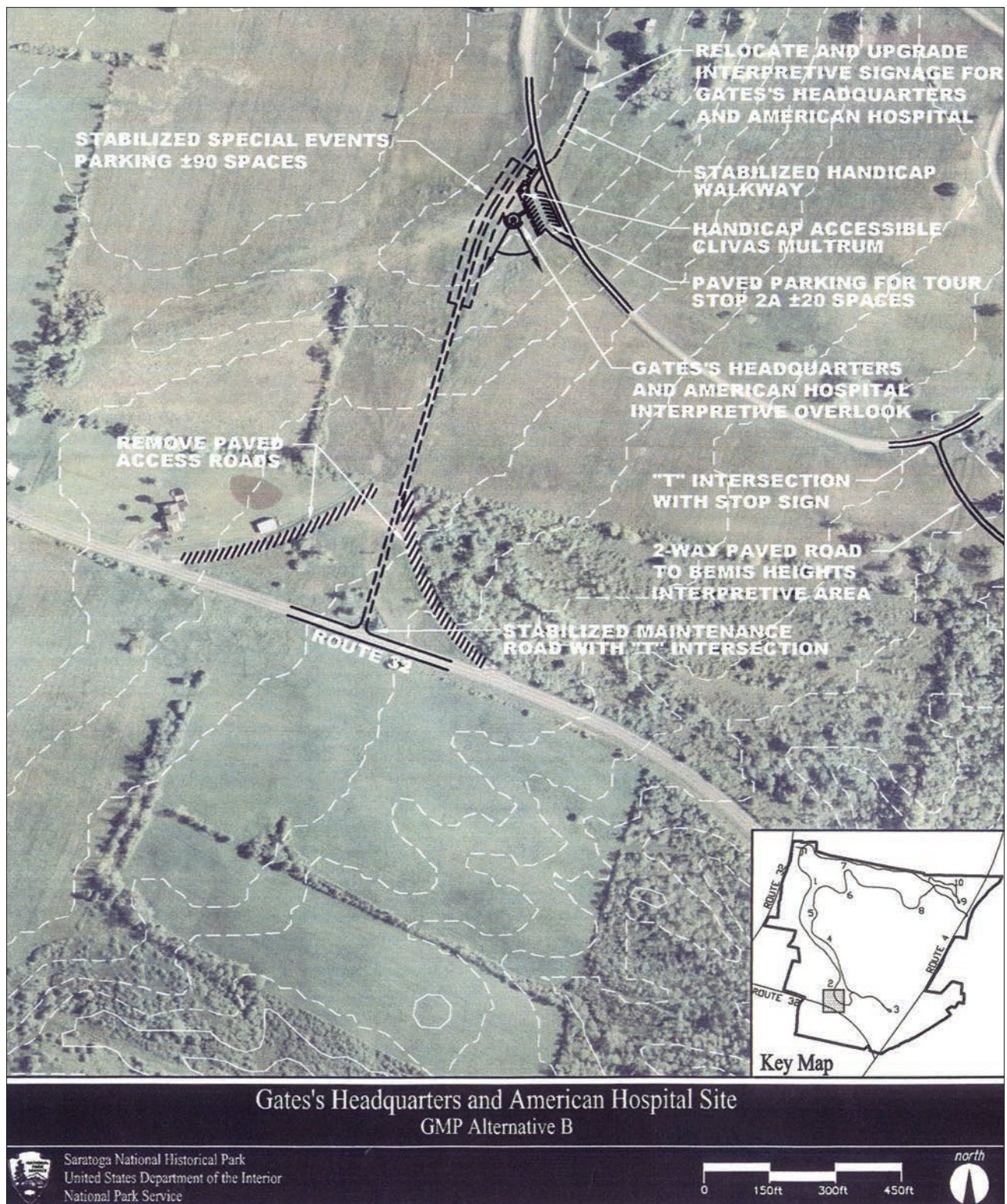


Figure 3.16. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. Recommendations for Gates's Headquarters and American Hospital Site, GMP Alt. B as shown in the General Management Planning Support Package (Saratoga National Historical Park, General Management Plan Support Package, 2003) (Saratoga National Historical Park, General Management Plan Support Package, 2003).



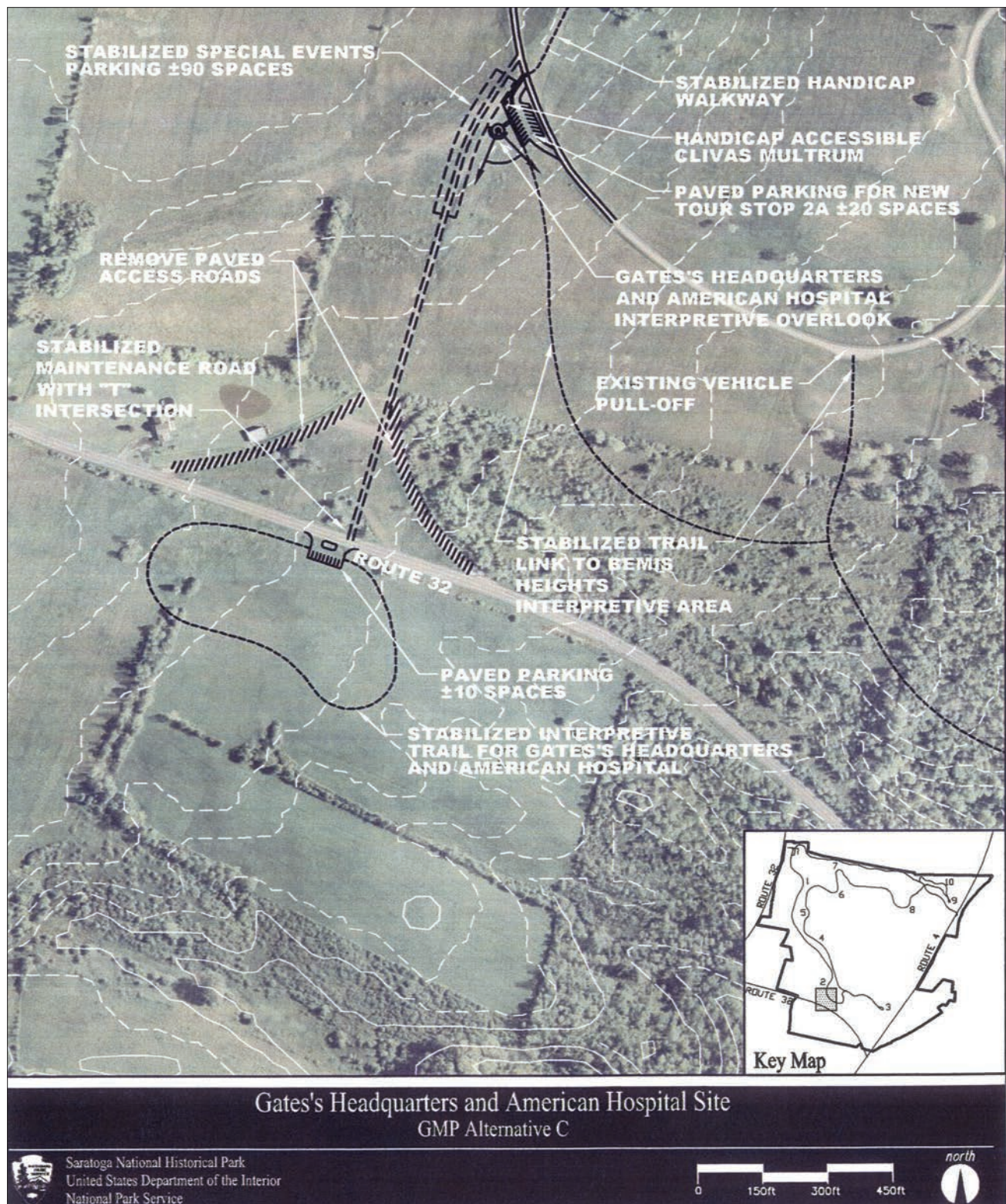
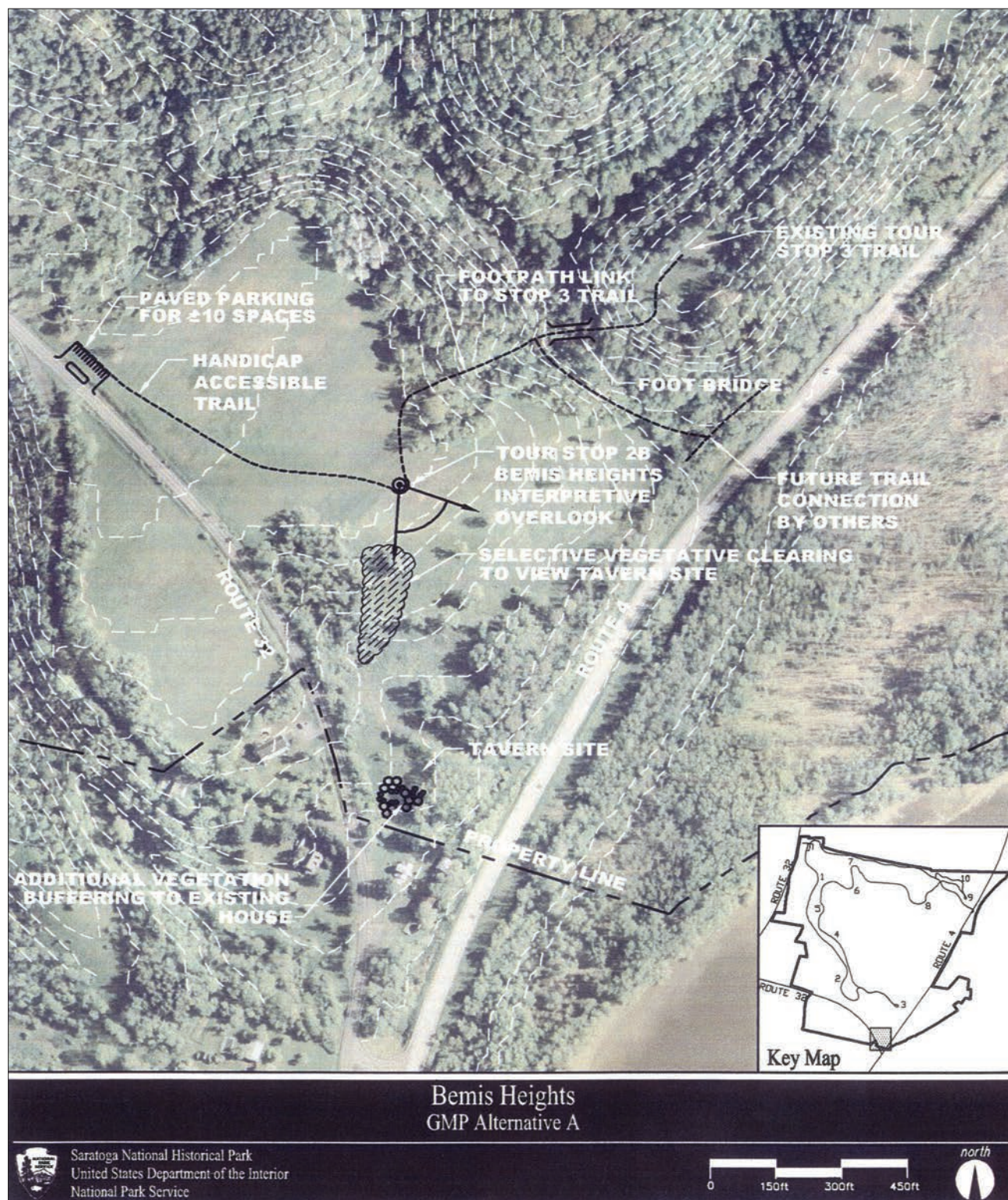


Figure 3.17. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. Recommendations for Gates's Headquarters and American Hospital Site, GMP Alt. C as shown in the *General Management Planning Support Package* (Saratoga National Historical Park, *General Management Plan Support Package*, 2003) (Saratoga National Historical Park, *General Management Plan Support Package*, 2003).





**Figure 3.18. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. Recommendations for Bemis Heights, GMP Alt. A as shown in the General Management Planning Support Package (Saratoga National Historical Park, General Management Plan Support Package, 2003).**



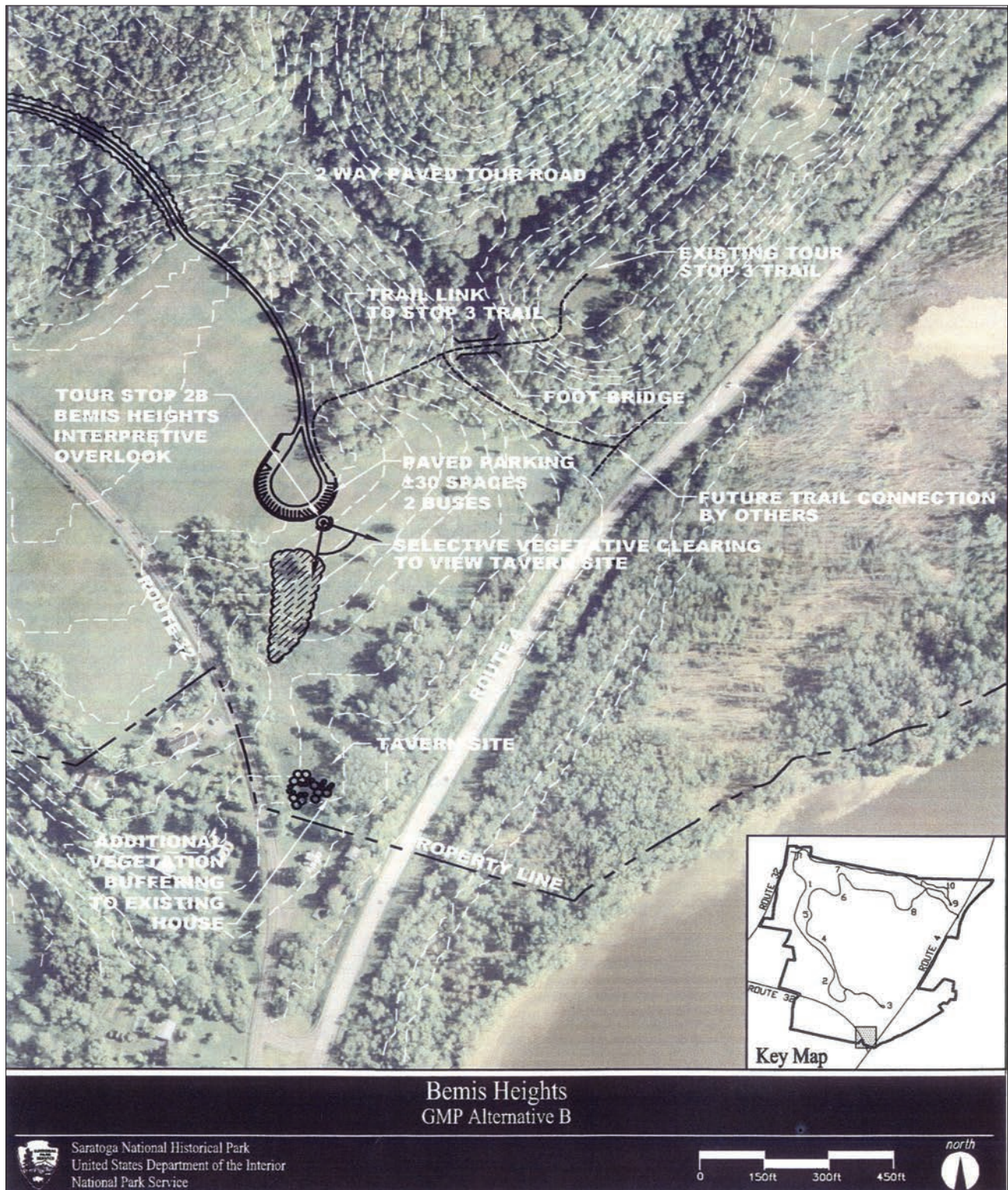


Figure 3.19. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. Recommendations for Bemis Heights, GMP Alt. B as shown in the *General Management Planning Support Package* (Saratoga National Historical Park, *General Management Plan Support Package*, 2003).



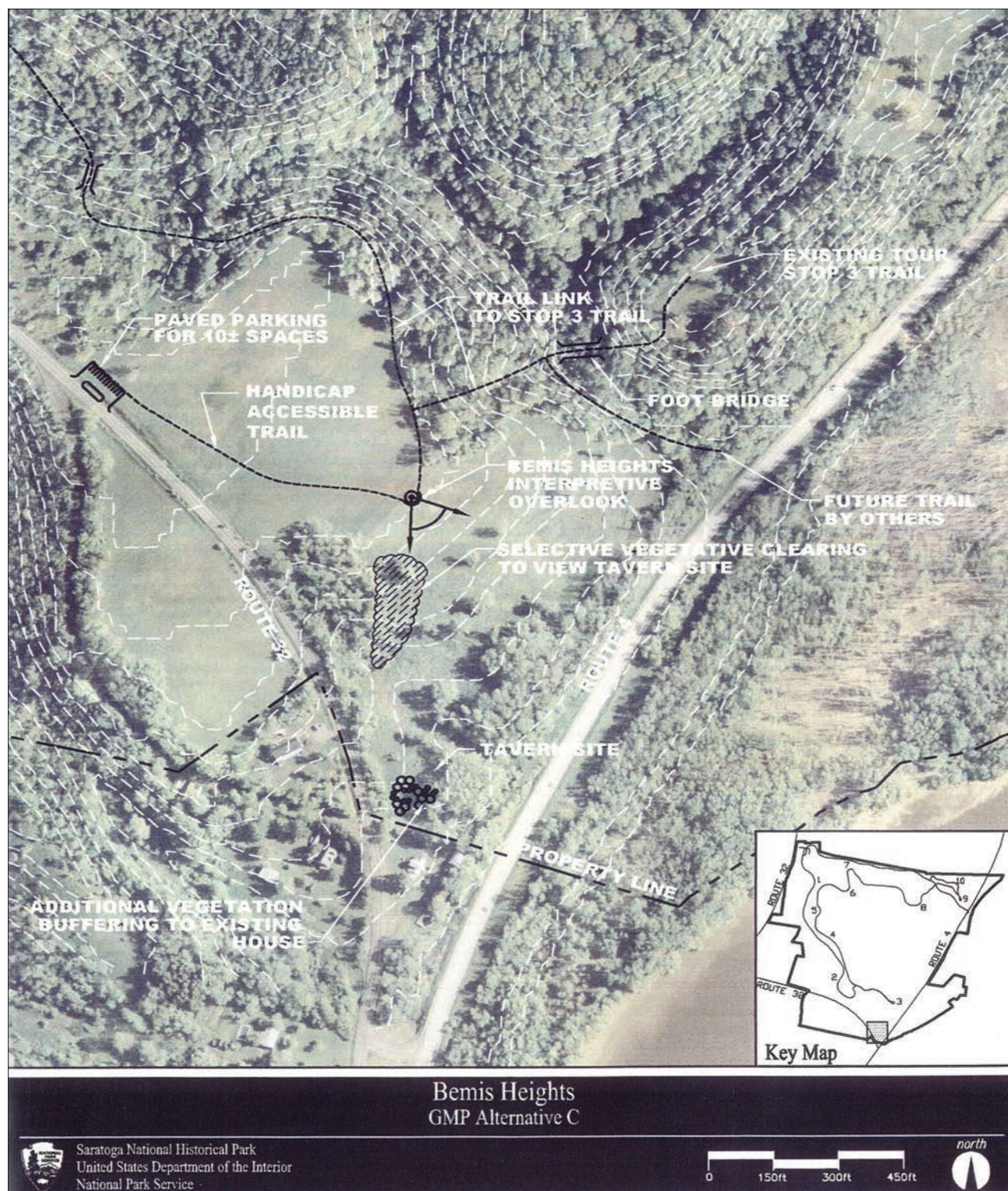


Figure 3.20. MB Task 4: Improve Access to Gate's Headquarters, American Hospital Site, and Bemis Heights. Recommendations for Bemis Heights, GMP Alt. C as shown in the General Management Planning Support Package (Saratoga National Historical Park, General Management Plan Support Package, 2003).



**MB TASK 5: RESTORE VISTA CLEARING TO BEMIS TAVERN**

Bemis Heights served as key terrain during the battles of Saratoga as it provided commanding views of the river valley and Road to Albany. Today, however, these views are blocked by vegetation (Figures 3.21-3.22). Since the views and vistas were one of the most strategic factors in Gates' selection of Bemis Heights, it is appropriate that these historic views be restored and maintained to preserve the quality of the visitor's experience and to aid in effective interpretation. While it may not be feasible to reestablish the full breadth of the panoramic views from Tour Stop 3 (American River Fortifications), the viewshed to the floodplain and Hudson River should be retained and a vista clearing from the south redan should be reestablished. A vista clearing at this location will enhance current interpretation of the site—specifically, the south redan wayside exhibit will allow for views to the former location of the Bemis Tavern, and also provide a more accurate depiction of the field and forest patterns during the battles (see Drawing 3.5).

**MB TASK 6: IMPROVE ACCESS BETWEEN TOUR STOPS 5 AND 6**

In an effort to accommodate the interpretative programs at the battlefield and improve vehicular circulation, a new tour road link should be constructed between tour stops five and six (Figure 3.23). The proposed treatment expands



**Figure 3.21. MB Task 5: Restore Vista Clearing to Bemis Tavern.** View of south redan wayside exhibit. The viewshed to the floodplain and Hudson River should be retained and a vista clearing from the south redan should be reestablished. A vista clearing at this location will enhance current interpretation of the site (OCLP, 2010).



**Figure 3.22.** MB Task 5: Restore Vista Clearing to Bemis Tavern. View of Bemis Heights, facing east. Note vegetation in the background which obscures views of and beyond the Hudson River. Historically, these views provided commanding views of the river valley and Road to Albany (OCLP, 2010).



**Figure 3.23.** MB Task 6: Develop Bicycle/Pedestrian Path Link. In an effort to improve vehicular circulation, a new bike path link should be constructed following an abandoned 19th century road trace from below Tour Stop 1 to intersect with the park entrance road. (Google Earth, 2013. Annotated by OCLP, 2013).



upon recommendations outlined in the *General Management Planning Support Package* (Figure 3.25).

#### **Develop Bicycle Path Link**

The introduction of a bicycle path heading north from Tour Stop 5 will improve circulation between Tour Stops 5 and 6, and an extension of the same bike path link will continue north along the 1877 road trace, past Freeman Farm Overlook (Tour Stop 1) to meet the Park entrance road. This bike path link will allow bicyclists a safer access route from Tour Stops 1, 5, and 6 to the Visitor Center (see drawing 3.0).<sup>5</sup>

#### **MB TASK 7: CONSTRUCT SPECIAL EVENTS PARKING AT BALCARRES REDOUBT (TOUR STOP 6)**

The parking area at the Balcarres Redoubt currently cannot accommodate the interpretative programs and special events seasonally held at this tour stop. To improve access and interpretation, a stabilized turf overflow parking area should be constructed that extends beyond the existing parking lot. The proposed overflow parking area will include a stabilized turf pedestrian path combined with



Figure 3.24. MB Task 7: Construct Special Events Parking at Balcarres Redoubt (Tour Stop 6). View of the parking area at the Balcarres Redoubt (Tour Stop 6). This area cannot accommodate the interpretative programs and special events held in the vicinity of the tour stop. To improve access and interpretation, a stabilized turf overflow parking area should be constructed that extends beyond the existing parking lot (OCLP, 2010).





# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York



National Park Service  
Olmsted Center for Landscape Preservation  
www.nps.gov/olcp



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

## NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

- |  |                                      |  |                                      |
|--|--------------------------------------|--|--------------------------------------|
|  | Feature to add                       |  | Deciduous/evergreen shrub, shrubland |
|  | Feature to remove                    |  | Managed meadow or field              |
|  | Building or structure                |  | Mown turf                            |
|  | Paved road or path                   |  | Wetland                              |
|  | Unpaved road or path                 |  | Hydrology (river, stream, or pond)   |
|  | Feature to remove                    |  | NPS legislative boundary             |
|  | 1777 road trace                      |  | NPS fee boundary                     |
|  | Deciduous specimen tree, wooded area |  | 10' Contour                          |
|  | Evergreen specimen tree, wooded area |  | 1"=200'                              |

Drawing 3.6

existing parking to accommodate approximately 65 to 70 vehicles during peak periods of visitation (Figure 3.24) (Drawing 3.6).

#### **MB TASK 8: IMPROVE BURGOYNE'S HEADQUARTERS (TOUR STOP 8)**

Based on the *General Management Plan* and recommendations outlined in the *Saratoga National Historical Park General Management Planning Support Package*, a stabilized turf, overflow parking area should be constructed to accommodate special events (Figure 3.25).

To improve vehicular access, the existing maintenance road, located just prior to the tour stop 8 parking lot, should be stabilized for vehicle access to an enhanced special events parking area. The maintenance road should be surfaced with a crushed stone aggregate, while the parking area should be stabilized turf. The parking area will accommodate approximately 20 parking spaces and will be connected to the tour stop via a stabilized turf pedestrian trail. The proposed overflow parking area will be screened behind existing vegetation to minimize visual impacts (Drawing 3.7).<sup>6</sup>

#### **MB TASK 9: EXPAND LANDSCAPE INTERPRETATION AT THE GREAT REDOUBT (TOUR STOP 9)**

Landscape interpretation at the Great Redoubt (Tour Stop 9) should be expanded to address the British retreat and the strategic importance of the floodplain during the battles at Saratoga. An additional secondary interpretative theme that should be explored includes the significance of the Champlain Canal in the economic development of the area during the 19<sup>th</sup> century. While the Fraser burial site is currently located near Tour Stop 10, recent research has hypothesized an alternative location in closer proximity to Tour Stop 9. Further research should be conducted prior to changing the interpretative message at these locations (Drawing 3.8).

#### **MB TASK10: REHABILITATE FRASER BURIAL SITE (TOUR STOP 10)**

The Fraser Burial Site and Trail, a one-mile loop trail that passes the traditional site of General Simon Fraser's grave, the British hospital, artillery park, baggage area, and Taylor House, requires improvements in landscape interpretation and accessibility. Recommended treatment of the Fraser Burial Site (Tour Stop 10) builds upon the prior recommendations identified in the *General Management Planning Support Package* (Figures 3.26-3.27). Departing from the recommendations in the General Management Plan Support Package, the proposed treatment eliminates the need additional Tour Stops.



# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York



National Park Service  
Olmsted Center for Landscape Preservation  
www.nps.gov/oclp



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

## NOTES

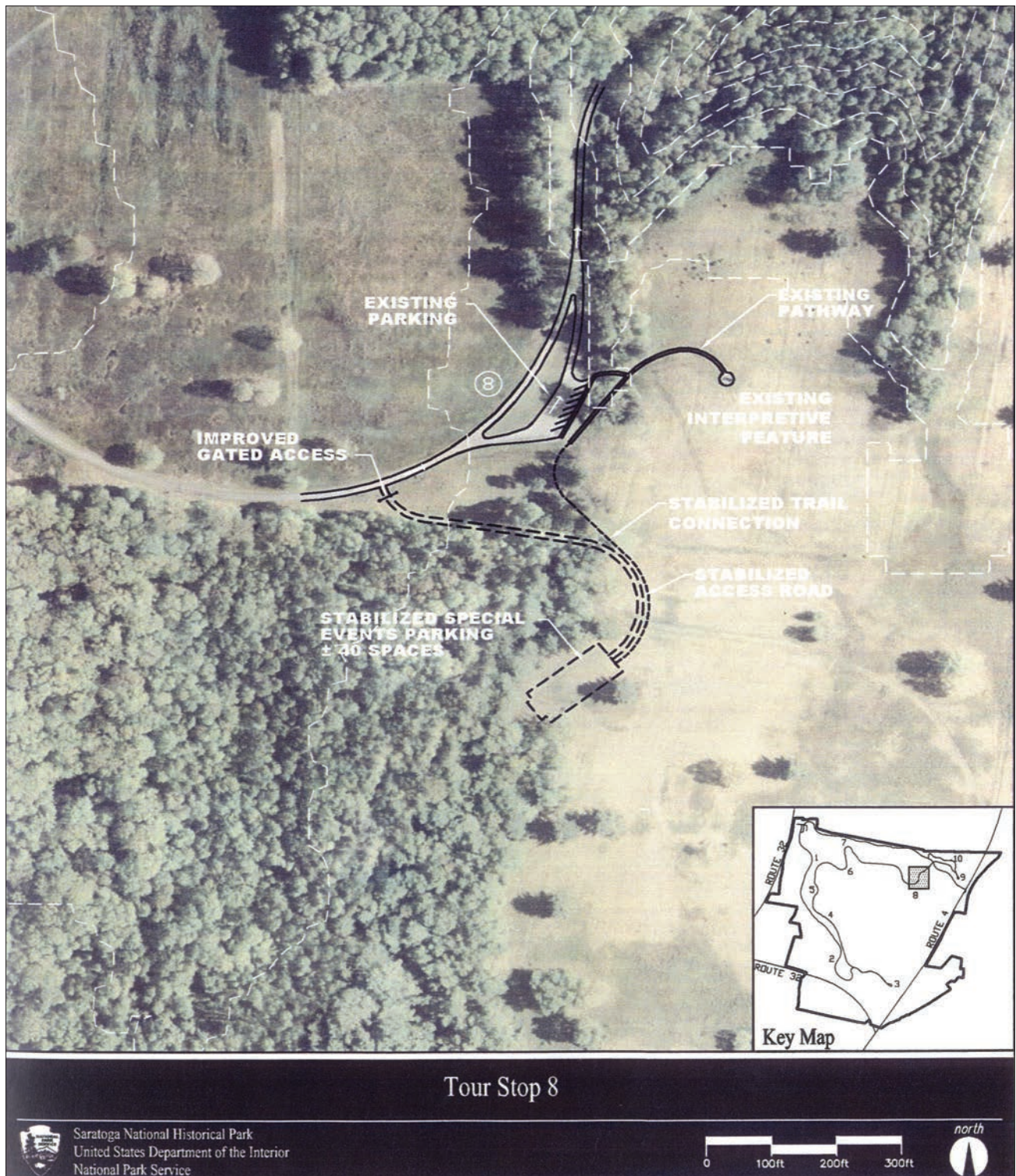
1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

- |  |                                      |  |                                      |
|--|--------------------------------------|--|--------------------------------------|
|  | Feature to add                       |  | Deciduous/evergreen shrub, shrubland |
|  | Feature to remove                    |  | Managed meadow or field              |
|  | Building or structure                |  | Mown turf                            |
|  | Paved road or path                   |  | Wetland                              |
|  | Unpaved road or path                 |  | Hydrology (river, stream, or pond)   |
|  | Feature to remove                    |  | NPS legislative boundary             |
|  | 1777 road trace                      |  | NPS fee boundary                     |
|  | Deciduous specimen tree, wooded area |  | 10' Contour                          |
|  | Evergreen specimen tree, wooded area |  | 1"=200'                              |

Drawing 3.7





**Figure 3.25. MB Task 8: Improve Burgoyne's Headquarters (Tour Stop 8).** Recommendations for Tour Stop 8 as shown in the *General Management Planning Support Package* (Saratoga National Historical Park, *General Management Plan Support Package*, 2003).



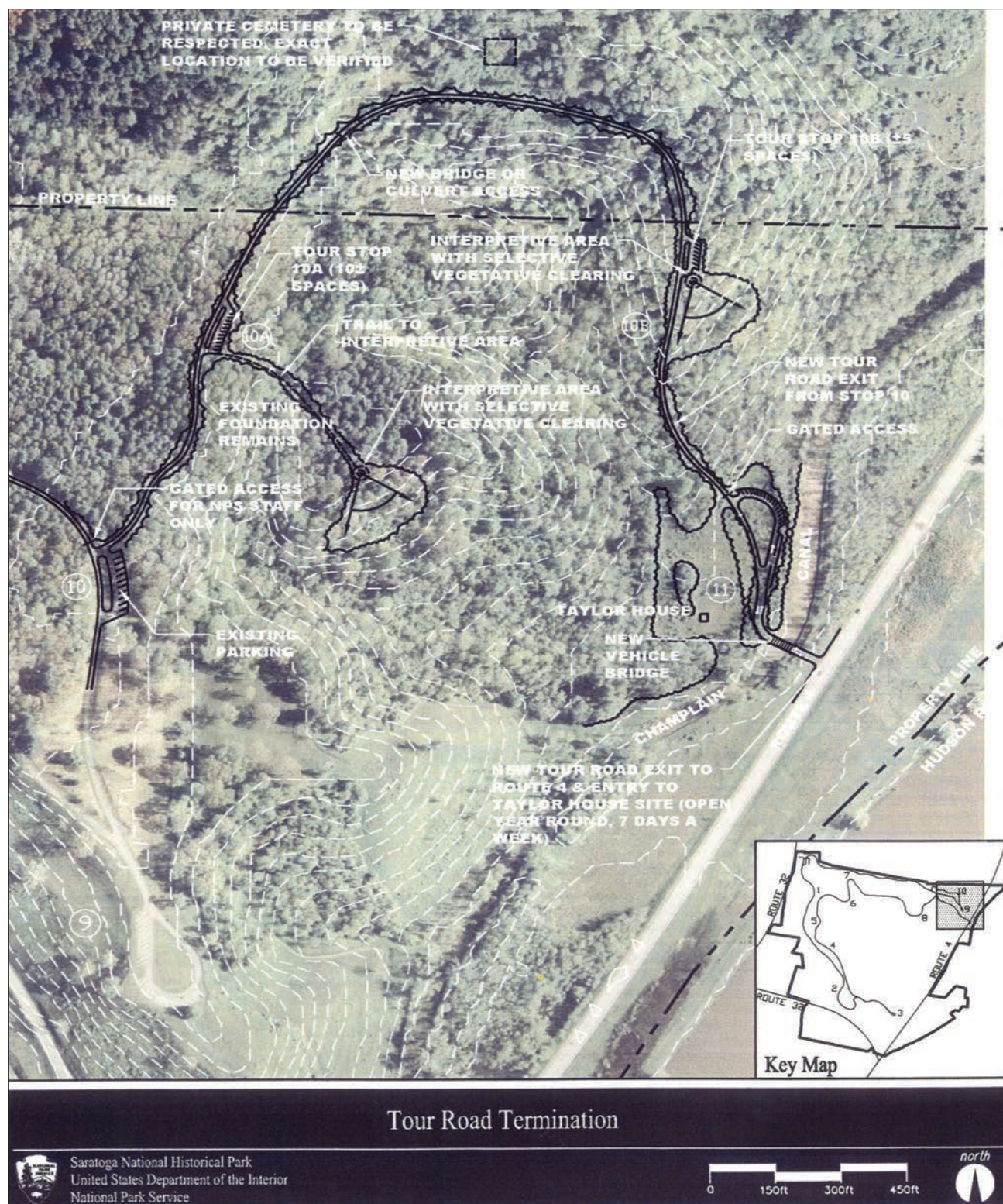


Figure 3.26. MB Task 10: Rehabilitate Fraser Burial Site (Tour Stop 10). Recommendations for Tour Road Termination as identified in the General Management Planning Support Package (Saratoga National Historical Park, General Management Plan Support Package, 2003).



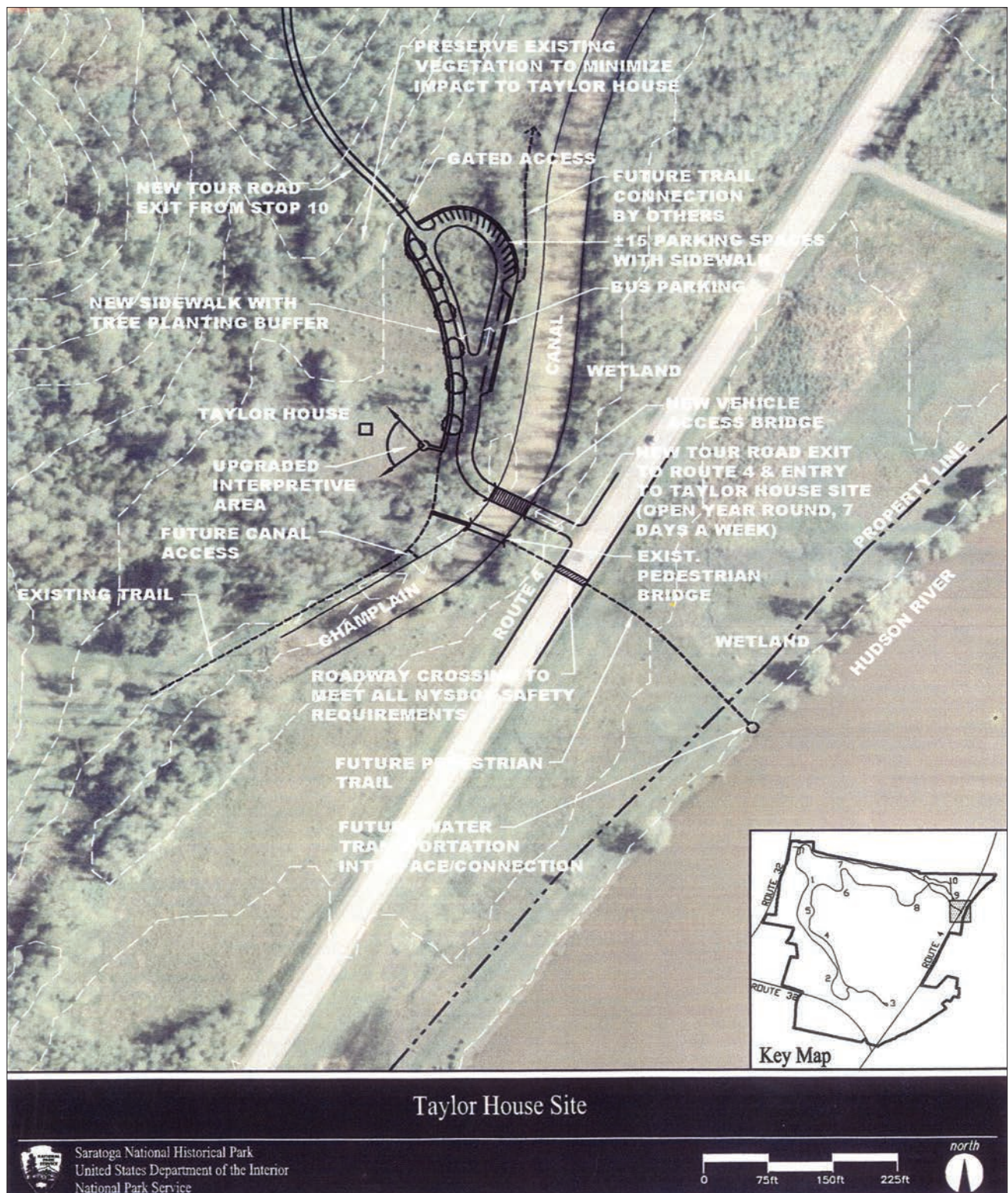


Figure 3.27. MB Task 10: Rehabilitate Fraser Burial Site (Tour Stop 10). Recommendations for Taylor House Site as identified in the General Management Planning Support Package (Saratoga National Historical Park, General Management Plan Support Package, 2003).



It has been hypothesized that General Fraser's grave is actually in closer proximity to Tour Stop 9. Interpretation will be greatly enhanced by updating exhibit panels to reflect these uncertainties, as well as renaming the Tour Stop. The one-mile loop trail currently is not universally accessible due to its surface and elevation changes (Figure 3.28). To mitigate these circumstances, an accessible trail leading from the parking lot to the wayside exhibit and cannon positions should be improved. Development of a universally accessible trail at this location will allow the greatest opportunity to visually access the majority of these sites. Under standards for accessibility, the trail must have a slope of less than 1:12 and be stable, firm, and slip resistant (see Appendix B: Accessible Circulation Specification). The trail should be surfaced with bituminous concrete finished with a chip-seal top coat to resemble the appearance of a simple gravel trail. To improve visual access to the Taylor House site, the vista clearing should be restored at the terminus of the accessible trail (Figure 3.29) (see drawing 3.8).

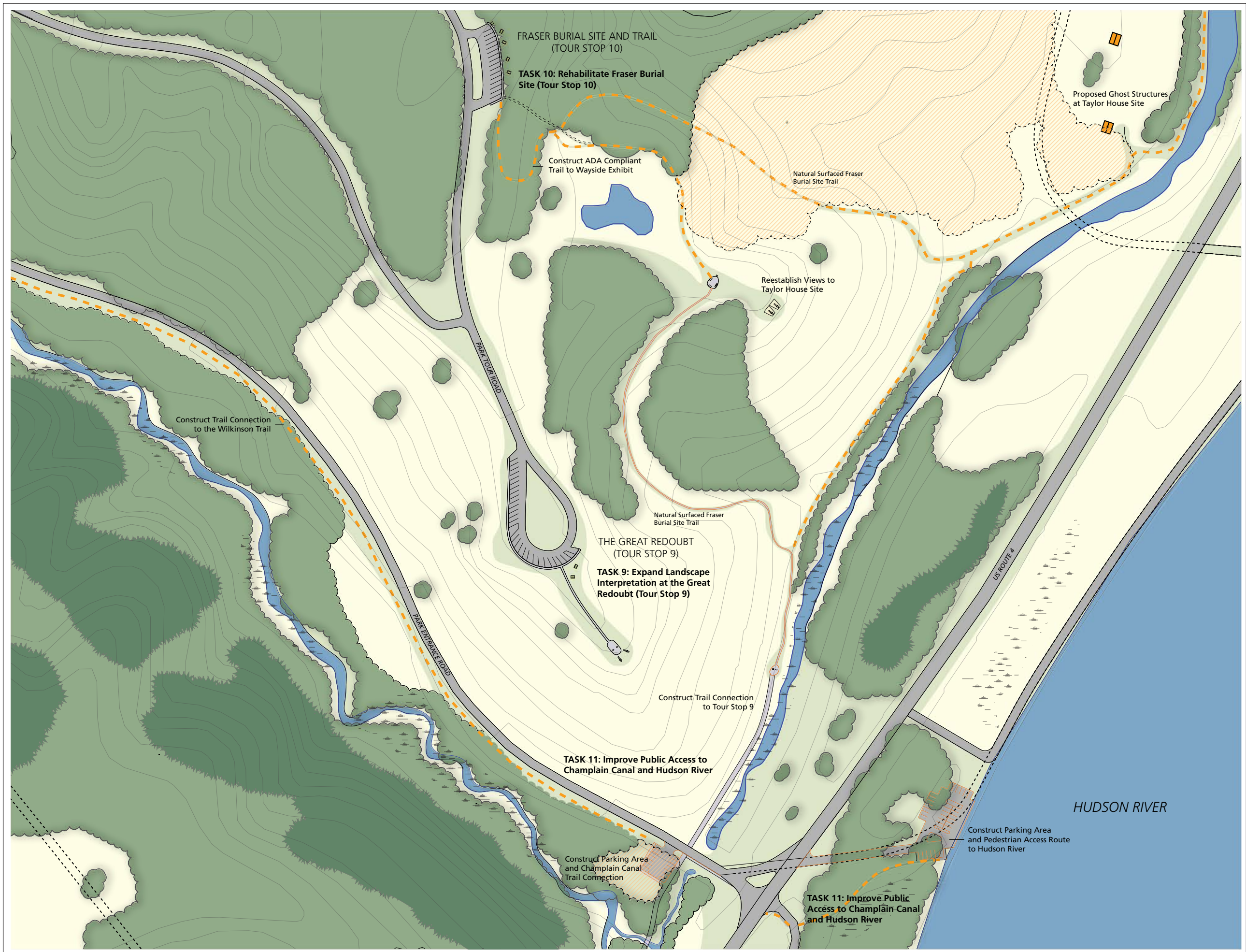
#### **MB TASK 11: IMPROVE PUBLIC ACCESS TO CHAMPLAIN CANAL AND HUDSON RIVER**

The Hudson River and Champlain Canal are currently inaccessible to battlefield visitors. Recommended treatment will improve water access to the battlefield via the Hudson River and enhance recreational opportunities for water-based users and encourage non-motorized and alternative modes of park touring. Besides expanding interpretation at the battlefield, the development of the Champlain Canal towpath will support efforts to develop a comprehensive trail system along the New York State Canal System.

##### ***Construct Parking Area and Champlain Canal Trail Connection***

Given that Saratoga County, New York Open Space Institute, and the National Park Service currently owns the majority of the Old Canal right-of way within the legislated boundary of the battlefield unit, a trail connection should be constructed along the Champlain Canal towpath. Beginning at proposed parking areas constructed at Bemis Heights and at the entrance at Route 4, the trail segment will be constructed within the canal right-of way—preferably along the historic towpath—to connect with other battlefield trails, completing the loop trail system within the battlefield. The trail should be appropriately marked with signage to reduce use conflicts and be approximately ten feet wide and be surfaced with a stabilized aggregate, preferably stone dust. While it is beyond the scope of this project, completing this section of trail will require detailed agreements with adjacent landowners. Issues that need to be addressed include maintenance of the canal drainage system and resolution of liability concerns.<sup>7</sup>

Completion of this work will expand upon the recent trail work that was completed near the intersection of Route 4 and Wilber Road, as well as support



# Cultural Landscape Report for Saratoga Battlefield

## Saratoga National Historical Park

Stillwater, New York

### Tour Stops 9 and 10, Hudson River



National Park Service

Olmsted Center for Landscape Preservation

[www.nps.gov/oclp](http://www.nps.gov/oclp)

#### SOURCES

1. Olmsted Center for Landscape Preservation, *Cultural Landscape Report: Saratoga Battlefield, Volume I*, 2002.
2. Orthophotography 2008.
3. SARA GIS Data
4. Site visits, February and September 2010.

#### DRAWN BY

Michael Commisso, AutoCAD 2010 and Illustrator CS 3, 2009

#### LEGEND

- Feature to add
- Feature to remove
- Proposed parking (paved & stabilized turf)
- Proposed locations for fencing
- Views and vistas
- Building or structure
- Paved road or path
- Unpaved road or path
- 1777 Historic road trace
- Deciduous specimen tree, wooded area
- Evergreen specimen tree, wooded area
- Deciduous/evergreen shrub, shrubland
- Managed meadow or field
- Mown turf
- Wetland (scrub or grasses)
- Hydrology (river, creek, stream, or pond)
- NPS legislative boundary
- NPS fee boundary
- Tour stop
- 10' contour

#### NOTES

1. Plan shows conditions in 2010.
2. All features shown in approximate scale and location.

1" = 300'

Drawing 3.8





Figure 3.28. MB Task 10: Rehabilitate Fraser Burial Site (Tour Stop 10). View looking east of the Fraser Burial Site trail from the parking lot. The one-mile loop trail is not universally accessible due to its surface and elevation changes. To mitigate these circumstances, an accessible trail leading from the parking lot to the wayside exhibit and cannons should be improved (OCLP, 2010).



Figure 3.29. MB Task 10: Rehabilitate Fraser Burial Site (Tour Stop 10). View of the Taylor House site, identified by four posts in the background. Visual access to the Taylor House site from a distance on the hillside location of the Fraser Burial Site and Trail (Tour Stop 10) may be improved by restoring a vista clearing at the terminus of the accessible trail (OCLP, 2010).



long-term efforts by numerous federal, state, and local government entities and nonprofits to develop a comprehensive trail system along Champlain Canal (Figure 3.30) ( see drawing 3.8).

#### **Develop Vehicular and Pedestrian Access Route to Hudson River**

Across from the Route 4 entrance into the battlefield, a public access drive to the Hudson River shoreline should be constructed. At the terminus of the drive, a small parking area and dock should be constructed to enable boaters the opportunity to visit the park (Figure 3.31). An accessible trail from the parking area should be constructed to provide pedestrian access to the battlefield entrance, as well as proposed Champlain Canal towpath trail. Due to flood potential within the area, the parking area and pedestrian trail should be surfaced with a stabilized aggregate. Along the path, wayside exhibits should be installed highlighting the importance of the Hudson River to the battles at Saratoga (see drawing 3.8).

### **SUPPORTING BATTLE ACTION SUBZONE**

Treatment guidelines for the park's Supporting Battle Action Subzone focus on retaining rural character and providing limited landscape interpretation. Effective treatment should strike a balance between the cultural and natural resources within this area. In particular, field and forest patterns should reflect conditions in 1777, unless there is a management or environmental reason for not doing so, such as blocking incompatible land uses or altering grassland habitat. Landscape interpretation within the Support Battle Action Subzone should be minimal and limited to the Chatfield Farm Overlook (Stop 4).

A specific task within the Support Battle Action Subzone includes improving landscape interpretation at the Chatfield Farm Overlook (Tour Stop 4).

#### **SB TASK 12: IMPROVE LANDSCAPE INTERPRETATION AT THE CHATFIELD FARM OVERLOOK (TOUR STOP 4)**

During the battles at Saratoga, Americans first observed the British advance on the Barber Farm from the Chatfield Farm site. Currently, the site is obscured by a thick growth of woods. Landscape interpretation at the Chatfield Farm Overlook (Stop 4) can be greatly enhanced by reestablishing the view to the Chatfield Farm site, which may be marked by interpretative landscape exhibit, such as a ghost structure interpretive exhibit (see Expand Landscape Interpretation, General Treatment Recommendations)(Drawing 3.9).

Current research indicates that the Chatfield Farm identification and location, as well as interpretation of the events in the area are misleading (Figure 3.32).



Figure 3.30. MB Task 11: Improve Public Access to Champlain Canal and Hudson River. Recently completed trail work at the Intersection of Route 4 and Wilber Road improves public access to Champlain Canal and Hudson River (OCLP, 2010).



Figure 3.31. MB Task 11: Improve Public Access to Champlain Canal and Hudson River. View across from the Route 4 entrance into the battlefield. Public access from the approximate location shown in this image to the Hudson River is limited. A public access drive to the Hudson River should be constructed near this location, with a parking area, boat ramp, and accessible trail should be constructed at the end of the drive to enable boaters the opportunity to visit the park. (OCLP, 2010).



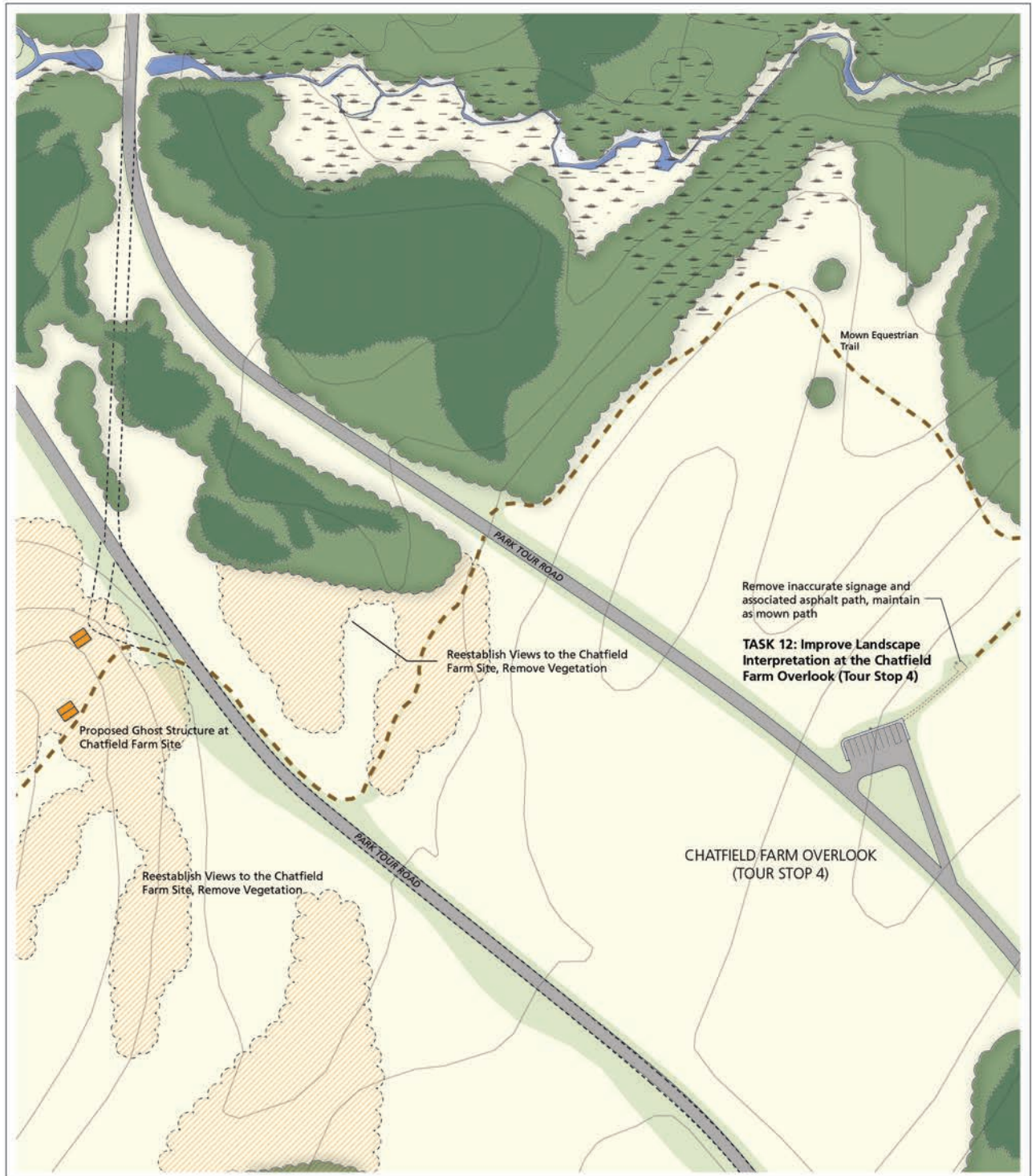


**Figure 3.32.** SB Task 12: Improve Landscape Interpretation at the Chatfield Farm Overlook (Tour Stop 4). View of the Chatfield farm with wayside exhibit in the background. Current research indicates that the Chatfield farm identification and location, as well as interpretation of the events in the area are misleading (OCLP, 2010).



**Figure 3.33.** SB Task 12: Improve Landscape Interpretation at the Chatfield Farm Overlook (Tour Stop 4). Photo-simulation depicting the removal of inaccurate signage and associated asphalt path. Following removal of the asphalt, the path should be maintained as mown turf (OCLP, 2010).





# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York



National Park Service  
Olmsted Center for Landscape Preservation  
[www.nps.gov/olcp](http://www.nps.gov/olcp)



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

## NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| Feature to add                       | Deciduous/evergreen shrub, shrubland |
| Feature to remove                    | Managed meadow or field              |
| Building or structure                | Mown turf                            |
| Paved road or path                   | Wetland                              |
| Unpaved road or path                 | Hydrology (river, stream, or pond)   |
| Feature to remove                    | NPS legislative boundary             |
| 1777 road trace                      | NPS fee boundary                     |
| Deciduous specimen tree, wooded area | 10' Contour                          |
| Evergreen specimen tree, wooded area | 1"=200'                              |

**Drawing 3.9**

As part of the efforts to improve interpretation of the Chatfield Farm Overlook (Stop 4), the inaccurate signage and associated bituminous concrete path should be removed (Figure 3.33). Following removal of the asphalt, this route should be maintained as a stabilized turf pathway. (See Drawing 3.9).

## **PARK SUPPORT ZONE**

Based on the *General Management Plan (2004)*, the overall treatment guidelines for the Saratoga Battlefield Park Support Zone is to ensure that the visitor service and park support facilities are maintained in good condition, orientation to the entire park is adequately provided, and the park's entry and exit points are safe and appropriate to a unit of the national park system. Present difficulties include the entrance of visitors through the park service area, inefficient fee collection process, and inadequate parking facilities and directional and information signage. These circumstances all diminish the visitor experience upon entering the battlefield from Route 32. Having gained entrance into the park Visitor Center, visitors discover that views of the battlefield from this location are limited, and orientation to interpretative features within the landscape is insufficient.

Treatment tasks presented below include rehabilitating the Route 32 entrance, improving landscape interpretation, and enhancing the vista clearing from the Visitor Center.

### **PS TASK 13: REHABILITATE ROUTE 32 ENTRANCE**

An unplanned consequence of the construction of the Northway (Interstate-87) was a fundamental change in regional traffic patterns, effectively shifting the prior formal entrance to the battlefield on Route 4, to the service entrance on Route 32. The existing visitor entrance off Route 32, leads visitors immediately through the park service area, failing to meet expectations for arrival at a nationally significant site that preserves one of the most decisive battles in our nation's history (Figures 3.34-3.37). Four treatment alternatives for the rehabilitation of the Route 32 entrance are provided below. These proposed alternatives expand upon treatment recommendations that were explored in the park's *General Management Planning Support Package* (Figures 3.38-3.40).<sup>8</sup>

#### ***Alternative A (preferred long-term alternative)***

Alternative A includes the development of a new entrance spur off of Route 32, removal of the current entry road entrance, signage upgrades, screening of the park headquarters and maintenance buildings, and improvements to the fee collection, traffic flow and the capacity of the parking lot. In addition, a small





Figure 3.34. PS Task 13: Rehabilitate Route 32 Entrance. View of the existing maintenance buildings sited near the Route 32 Entrance (OCLP, 2010).



Figure 3.35. PS Task 13: Rehabilitate Route 32 Entrance. View of existing upper parking lot at the Visitor Center, looking north (OCLP, 2010).





Figure 3.36. PS Task 13: Rehabilitate Route 32 Entrance. View looking north of existing lower parking area. Preferred treatment alternative will enlarge the lower parking area to accommodate approximately 23 cars and 7 buses (OCLP, 2010).



Figure 3.37. PS Task 13: Rehabilitate Route 32 Entrance. View looking south of the existing park tour road entrance. Proposed treatment of this area will include constructing additional parking areas (OCLP, 2010).

National Park Service contact station is recommended for construction at the base of the access walk to the park Visitor Center.

The Route 32 park entry should be relocated as shown in this alternative to enhance safe vehicular circulation and access. In an effort to improve safety (based on vehicular site distances), the new entrance spur should be located along an existing road trace, approximately 800 feet south of the existing entrance on Route 32. Enhancements to the new entrance will include a stone entry wall—similar to the stone entry wall at the Saratoga Monument signage, and landscaping. The existing entrance signage will be removed and access to the service and administrative area from the park road will be gated. Understory plantings will be established to screen the maintenance, ranger station, and park headquarters facilities.

To improve access and vehicular circulation, the existing park road should be realigned—west of the lower parking lot—to eliminate through traffic from entering the parking areas (both upper and lower lots). As part of the realignment, the new road will accommodate two way traffic and two entry/exit access points will be constructed into the lower parking area. The lower parking area will be paved and striped to accommodate approximately 25 cars and 7 buses. In compliance with current ADA guidelines, sidewalks, crosswalks, and new pathways connecting to the upper lot will be constructed to improve pedestrian access and safety. Paths should be paved in asphalt or concrete. Handicap accessibility and vehicular circulation will also be improved with the construction of a bus turnaround at the terminus of Roosevelt Road, just behind the visitor center. A small National Park Service contact station will be constructed at the base of the access walk to the visitor center. Besides providing park information, the contact station will include emergency service, restrooms and janitorial storage. Finally, an automated fee collection gate or fee collection station should be constructed at the beginning of the tour road near the main gate to serve as the method for fee collection (Drawing 3.10).

#### ***Alternative B (long-term)***

Alternative B consists of upgrades to signage at the entrance to Route 32, screening of the park headquarters and maintenance buildings, improvements to traffic flow, fee collection, and increases in the capacity of the parking lot.

Similar to Alternative A, the existing park road should be realigned—west of the lower parking lot—to eliminate thru traffic from entering the parking areas (both upper and lower lots). As part of the realignment, the new road will accommodate two way traffic and two entry/exit access points will be constructed into the lower parking area. The lower parking area will be paved and striped to accommodate approximately 25 cars and 7 buses. In compliance with current ADA guidelines, sidewalks, crosswalks, and new pathways connecting to the



upper lot will be constructed to improve pedestrian access and safety. Paths should be paved in asphalt or concrete. Signage at the Route 32 entrance and throughout the parking areas should be upgraded to enhance visitor arrival and improve traffic and pedestrian circulation (refer to “Improve Signage” in General Recommendations). The access drives to the maintenance, ranger station and headquarters facilities should also be narrowed and understory plantings should be established to screen these facilities. Finally, an automated fee collection gate or fee collection station should be constructed at the beginning of the tour road near the main gate to serve as the method for fee collection (Drawing 3.11)

***Alternative C (short-term)***

Alternative C consists of upgrades to signage at the entrance to Route 32, screening of the park headquarters and maintenance buildings, improvements to traffic flow, fee collection, and increases in the capacity of the parking lot.

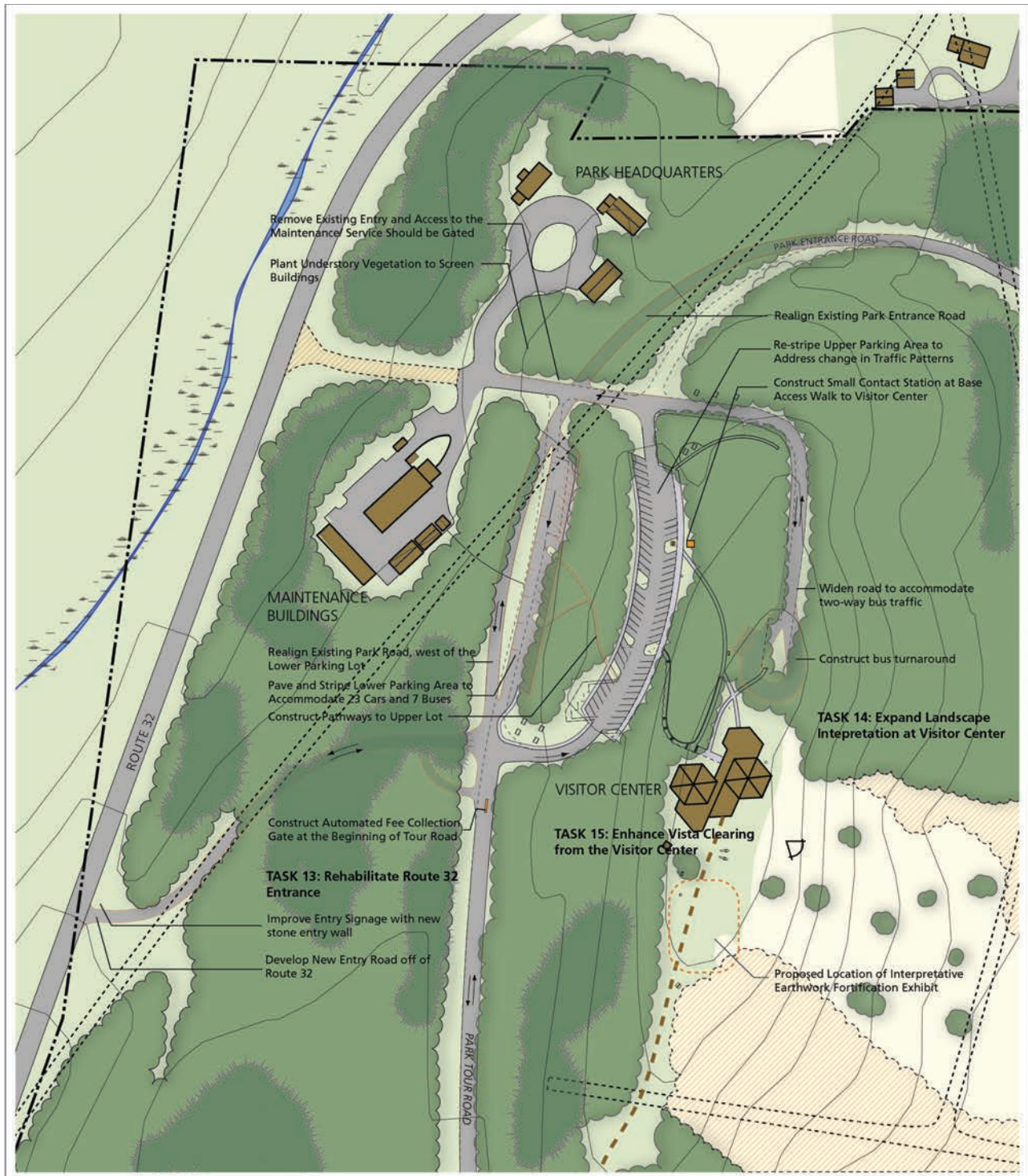
Signage at the Route 32 Entrance and throughout the parking areas should be upgraded to enhance visitor arrival and improve traffic and pedestrian circulation (refer to “Improve Signage” in General Recommendations). The access drives to the maintenance, ranger station and headquarters facilities should also be narrowed and understory plantings should be established to screen these facilities. In an effort to increase parking capacity, the lower parking lot should be paved and striped to accommodate approximately 25 cars and 7 buses. In compliance with current ADA guidelines, sidewalks, crosswalks, and new pathways connecting to the upper lot will be constructed to improve pedestrian access and safety. Paths should be paved in asphalt or concrete. Finally, an automated fee collection gate should be constructed at the beginning of the tour road near the main gate to serve as the method for fee collection (Drawing 3.12).

***Alternative D (short-term)***

Alternative D consists of upgrades to signage at the entrance to Route 32, screening of the park headquarters and maintenance buildings, improvements to traffic flow, and increases in the capacity of the parking lot. A new fee collection station at the entrance of the upper parking area should be constructed to collect entry fees, control access, and distribute general information. Additionally, a small National Park Service contact station would be constructed at the base of the access walk to the visitor center.

Signage at the existing Route 32 entrance and throughout the parking areas should be upgraded to enhance visitor arrival and improve traffic and pedestrian circulation (refer to “Improve Signage” in General Recommendations). The access drives to the maintenance, ranger station and headquarters facilities should also be narrowed and understory plantings should be established to screen these facilities from the park tour road. Fee collection and traffic flow will be improved





## Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York



### SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

### DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

### NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

### LEGEND

	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=200'
	Deciduous/evergreen shrub, shrubland		
	Managed meadow or field		

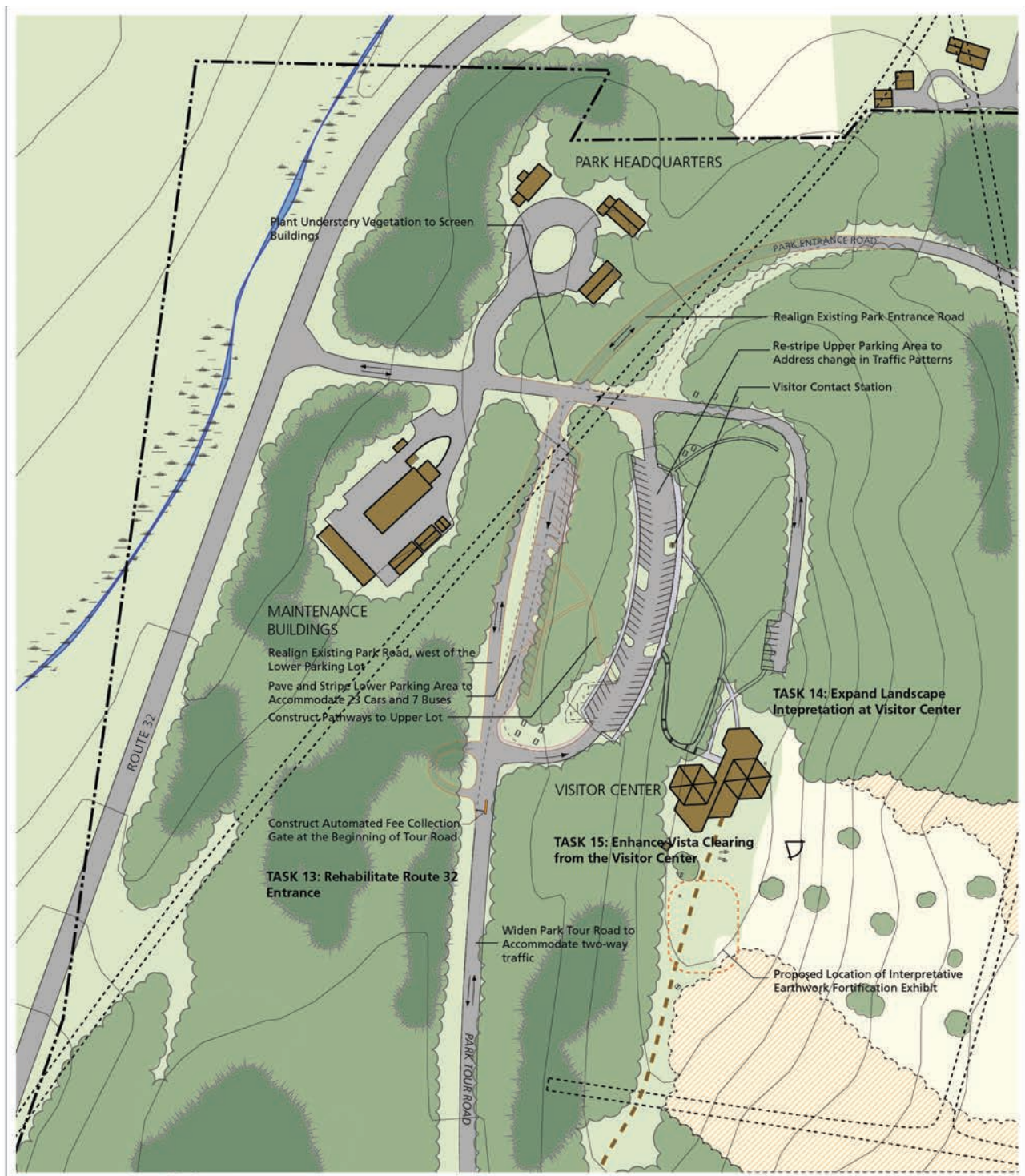
Drawing 3.10



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# Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

Rehabilitate Route 32 Entrance  
and Visitor Center (Preferred Alt. B)



National Park Service  
Olmsted Center for Landscape Preservation  
[www.nps.gov/olcp](http://www.nps.gov/olcp)



## SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

## DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

## NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

## LEGEND

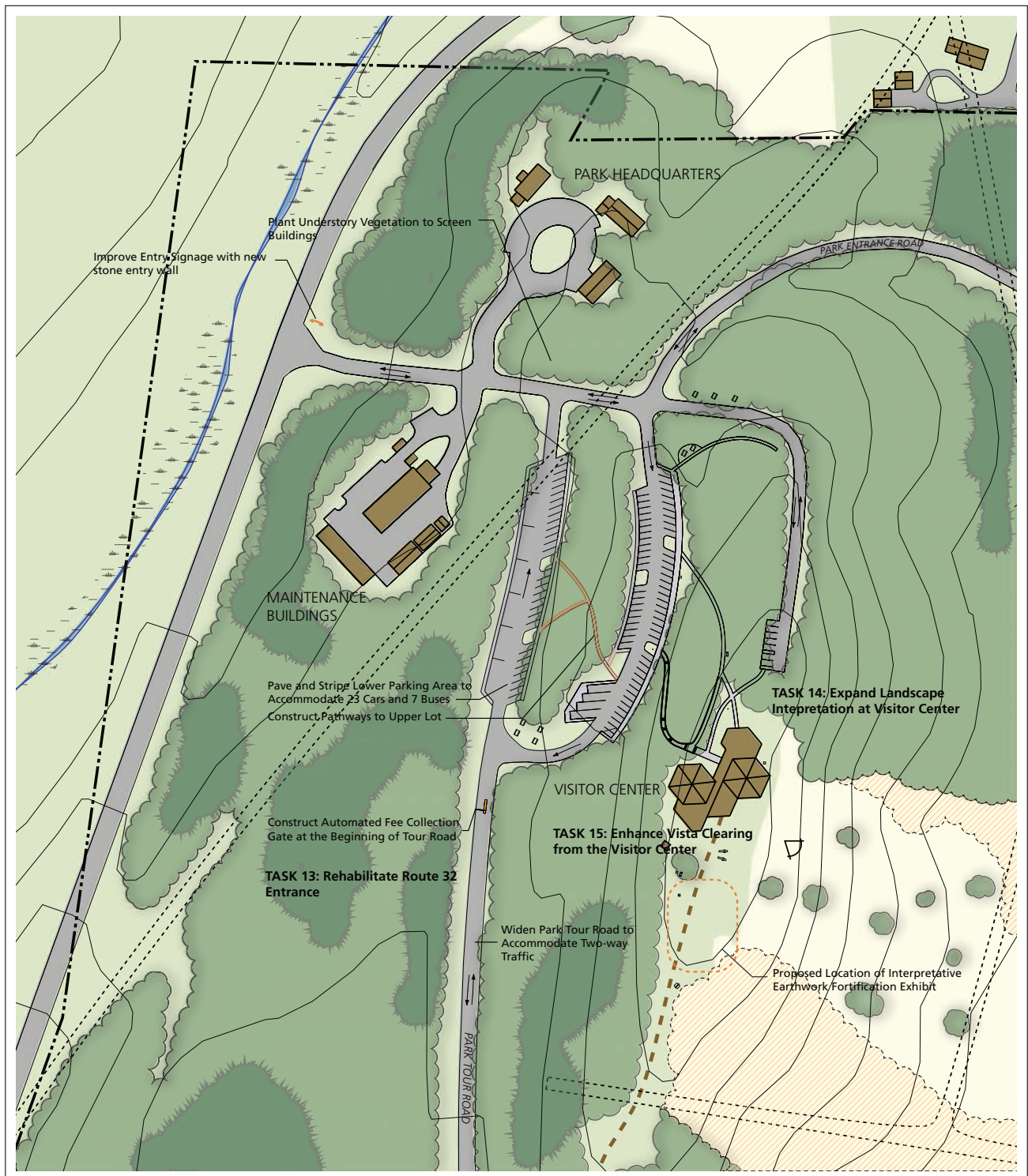
	Feature to add		Deciduous/evergreen shrub, shrubland
	Feature to remove		Managed meadow or field
	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=200' Drawing 3.11





Figure 3.39. PS Task 13: Rehabilitate Route 32 Entrance. Recommendations for Route 32, GMP Alt. B as identified in the *General Management Planning Support Package* (Saratoga National Historical Park, *General Management Plan Support Package*, 2003).





## Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

Rehabilitate Route 32 Entrance  
and Visitor Center (Preferred Alt.C)



National Park Service  
Olmsted Center for Landscape Preservation  
www.nps.gov/olcp



### SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

### DRAWN BY

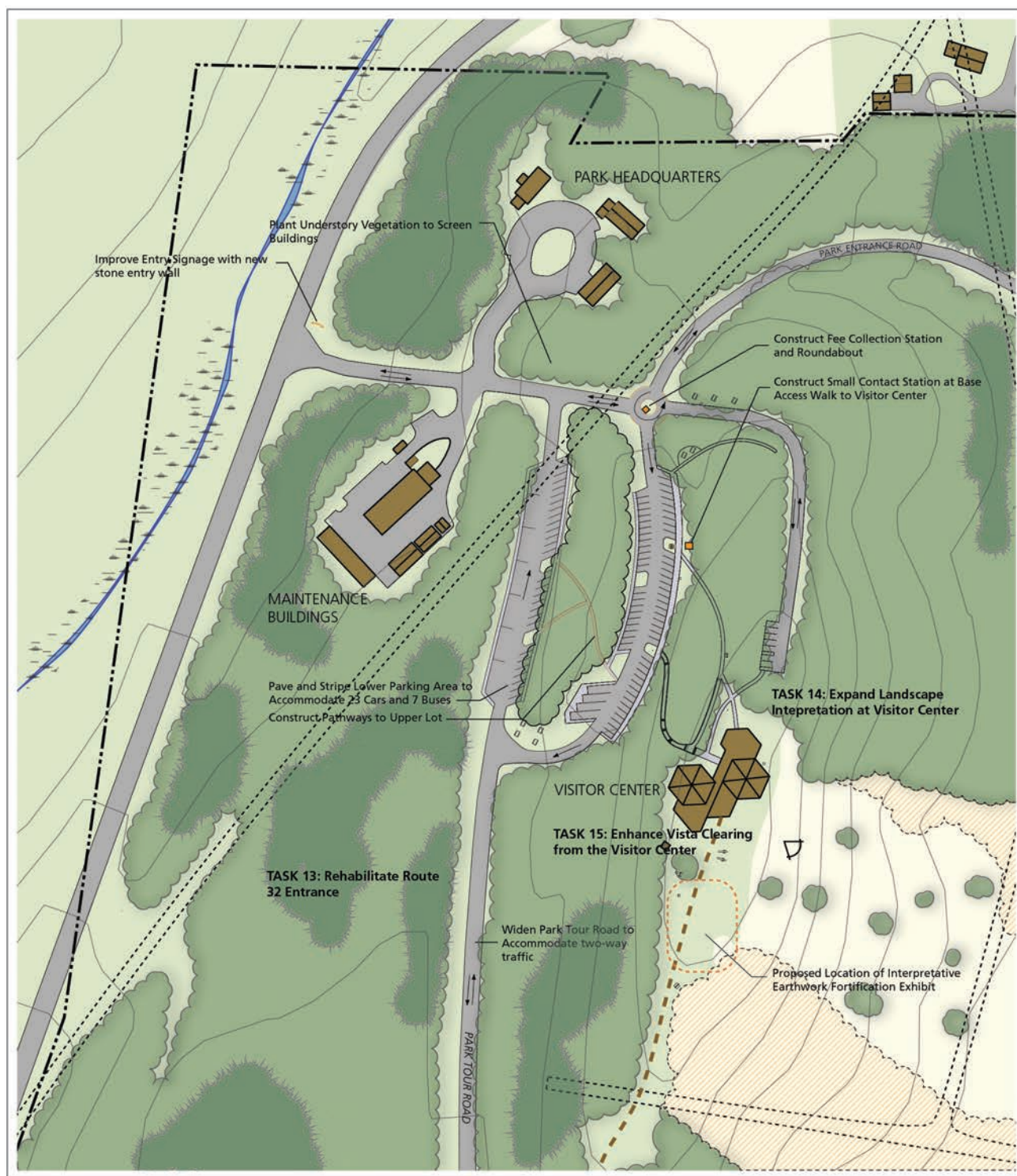
Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

### NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

### LEGEND

	Feature to add		Deciduous/evergreen shrub, shrubland
	Feature to remove		Managed meadow or field
	Building or structure		Mown turf
	Paved road or path		Wetland
	Unpaved road or path		Hydrology (river, stream, or pond)
	Feature to remove		NPS legislative boundary
	1777 road trace		NPS fee boundary
	Deciduous specimen tree, wooded area		10' Contour
	Evergreen specimen tree, wooded area		1"=200' Drawing 3.12



## Cultural Landscape Report for Saratoga Battlefield

Saratoga National  
Historical Park  
Stillwater, New York

Rehabilitate Route 32 Entrance  
and Visitor Center (Preferred Alt.D)



National Park Service  
Olmsted Center for Landscape Preservation  
www.nps.gov/olcp



### SOURCES

1. CLR period plans and existing conditions plan
2. Site visits, February and September 2010

### DRAWN BY

Michael Comisso,  
AutoCAD 2000 and  
Illustrator CS3, 2009

### NOTES

1. All features shown in approximate scale and location.
2. Will be rendered in final.

### LEGEND

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| Feature to add                       | Deciduous/evergreen shrub, shrubland |
| Feature to remove                    | Managed meadow or field              |
| Building or structure                | Mown turf                            |
| Paved road or path                   | Wetland                              |
| Unpaved road or path                 | Hydrology (river, stream, or pond)   |
| Feature to remove                    | NPS legislative boundary             |
| 1777 road trace                      | NPS fee boundary                     |
| Deciduous specimen tree, wooded area | 10' Contour                          |
| Evergreen specimen tree, wooded area | 1"=200' Drawing 3.13                 |





Figure 3.40. PS Task 13: Rehabilitate Route 32 Entrance. Recommendations for Route 32, GMP Alt. D as identified in the *General Management Planning Support Package* (Saratoga National Historical Park, *General Management Plan Support Package*, 2003).



through construction of a new fee collection station and roundabout at the entrance to the upper parking lot. Located within the roundabout, the station will serve to collect fees, control access, and provide directional information. A small National Park Service contact station will be constructed at the base of the access walk to the visitor center. The ranger station will provide general park information and include emergency service, restrooms and janitorial storage. The lower parking lot should be paved and striped to accommodate approximately 25 cars and 7 buses. In compliance with current ADA guidelines, sidewalks, crosswalks, and new pathways connecting to the upper lot will be designed to improve pedestrian access and safety. Pathways in this highly used area should be hard surfaced (Drawing 3.13).

#### **PS TASK 14: EXPAND LANDSCAPE INTERPRETATION AT VISITOR CENTER**

An interpretive earthwork fortification exhibit—similar to what was present at this location during the Bicentennial celebration of the 1970s—should be constructed at the Visitor Center to help visitors understand the system of fortifications that are now so difficult to perceive. This exhibit will also provide the opportunity for visitors to learn and understand the “matchstick” interpretive device for marking the American and British fortified lines (see Drawings 3.10-3.13).

#### **PS TASK 15: ENHANCE VISTA CLEARING FROM THE VISITOR CENTER**

Views from the park Visitor Center at Fraser Hill were instrumental in the siting of the Mission 66 building. During a visit in 1940, President Roosevelt chose



Figure 3.41. PS Task 15: Enhance Vista Clearing from the Visitor Center. Views from the park Visitor Center at Fraser Hill were instrumental in the siting of the Mission 66 building (OCLP, 2010).



Figure 3.42. PS Task 15: Enhance View of Battlefield from the Visitor Center. The view of the battlefield available from the Visitor Center are largely blocked by the growth of woody vegetation (OCLP, 2010).



Figure 3.43. PS Task 15: Enhance View of Battlefield from the Visitor Center. Photo-simulation. Panoramic views of the battlefield as intended in early park master plans may be established through careful removal of vegetation and establishment of meadow turf (OCLP, 2010).



Fraser Hill as a suitable location for a new administration/museum building. The president felt the high ground of Fraser Hill would become a central vantage point to observe the park and become oriented with the historic events. To be consistent with the park's early planning documents, the vista clearing beyond the Visitor Center should be widened to provide panoramic views of the battlefield (Figures 3.41-3.43) (see drawings 3.10-3.13).

## ENDNOTES

- 1      Saratoga National Historical Park is divided into two management zones for Saratoga National Historical Park: the Historic Zone and Park Support Zone, with a Commemorative Landscape Overlay. The park is largely composed of the Historic Zone, which has been divided into three subzones: the Main Battle Action and the Encampment Subzone, the Supporting Battle Action Subzone, and the Schuyler Estate Subzone.
- 2      *Saratoga National Historical Park, Long-Range Interpretative Plan* (U.S. Department of the Interior: National Park Service, 2007) p. 45.
- 3      Edinger, Gregory J., Aissa L. Feldmann, Timothy, G. Howard, John J. Schmid, Frederick C. Sechler, Elizabeth Eastman, Ery Largay, and Lesley A. Sneddon. 2008. *Vegetation Classification and Mapping of Vegetation at Saratoga National Historical Park. Technical Report NPS/NER/NRTN-2008/XXX* (National Park Service, Northeast Region, Philadelphia, PA) p 66.
- 4      Stephen Olausen, Kristen Heitert, and Cary Jones, *National Register of Historic Places Nomination for Saratoga National Historical Park [Draft]* (U.S. Department of the Interior: National Park Service, 2010), Sec 7, Pg. 10.
- 5      The LA Group, P.C. Landscape Architecture and Engineering, P.C., *Saratoga National Historical Park General Management Planning Support Package [Contract 1443-C565010002]* (United States Department of the Interior, National Park Service, 2003) p.4.
- 6      The LA Group, P.C. Landscape Architecture and Engineering, P.C., *Saratoga National Historical Park General Management Planning Support Package [Contract 1443-C565010002]* (United States Department of the Interior, National Park Service, 2003) p.4.
- 7      Jeffrey S. Olsen, Champlain Canal Trail Concept Plan (Canalway Trail Partnership Project, New York Parks and Conservation Association, 2002) pgs. 17-40.
- 8      The third alternative within the *General Management Planning Support Package*, GMP Alternative D, was not selected as a recommended treatment option by the Olmsted Center because it contained traffic flow inadequacies. The LA Group, P.C. Landscape Architecture and Engineering, P.C., *Saratoga National Historical Park General Management Planning Support Package [Contract 1443-C565010002]* (United States Department of the Interior, National Park Service, 2003) p.1.

**TABLE 3.0: SUMMARY OF LANDSCAPE TREATMENT TASKS FOR THE BATTLEFIELD LANDSCAPE**

<b>Task ID</b>	<b>Task Name</b>	<b>Priority (1=High, 2=Med., 3=Low)</b>
<b>Main Battle Action and Encampment Subzone</b>		
MB Task 1	Rehabilitate Freeman Farm Overlook [Tour Stop 1] (Improve Signage and Interpretative Media, Remove Invasive and Successional Vegetation)	2
MB Task 2	Improve Wayfinding Between Tour Stops 1 and 2	2
MB Task 3	Rehabilitate Neilson Farm [Tour Stop 2] (Alt. A, Alt. B, and Rehabilitate DAR Memorial Landscape)	1
MB Task 4	Improve Access to Gates's Headquarters, American Hospital Site, and Bemis Heights	3
MB Task 5	Improve/Restore Vista Clearing to Bemis Tavern	1
MB Task 6	Improve Access Between Tour Stop 5 and 6	3
MB Task 7	Construct Special Events Parking at Balcarres Redoubt (Tour Stop 6)	3
MB Task 8	Improve Burgoyne Headquarters (Tour Stop 8)	3
MB Task 9	Expand Landscape Interpretation at the Great Redoubt (Tour Stop 9)	2
MB Task 10	Rehabilitate Fraser Burial Site (Tour Stop 10)	2
MB Task 11	Improve Public Access to Champlain Canal and Hudson River (Construct Parking Area and Champlain Canal Trail Connection and Develop Vehicular and Pedestrian Access to Hudson River)	2
<b>Support Battle Action Subzone</b>		
SB Task 12	Improve Landscape Interpretation at the Chatfield Farm Overlook (Tour Stop 4)	2
<b>Park Support Zone</b>		
PS Task 13	Rehabilitate Route 32 Entrance (Alt. A, Alt. B, Alt. C, and Alt. D)	1
PS Task 14	Expand Landscape Interpretation at Visitor Center	1
PS Task 15	Enhance Vista Clearing From the Visitor Center	1





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# APPENDIX A: STABILIZATION TECHNIQUES FOR TURF PARKING

## FIBER REINFORCED TURF SYSTEM



Stabilizer Solutions, Inc.  
205 S. 28<sup>th</sup> St.  
Phoenix, AZ 85034  
800-336-2468 (Fax) 602-225-5902  
Website: stabilizersolutions.com  
E-Mail: info@stabilizersolutions.com

### SECTION 1

#### STALOK FIBER FOR TURF PARKING / EVENT STAGING AND FIRE LANES

##### PART 1 - GENERAL

##### 1.1 SUMMARY

- A. This Section includes material and labor requirements for construction with StaLok Fiber for the following items:
  - 1. Stabilized Sand Base with StaLok Fiber for Turf Parking, Fire lane, Event Staging areas etc.
- B. Related Sections:
  - 1. Section 02100 – Site Preparation
  - 2. Section 02200 – Earthwork
  - 3. Section 02230 – Granular Materials

##### 1.2 SUBMITTALS

- A. Shop Drawings: Show details of installation, including plans and sections.

##### 1.3 PROJECT/SITE CONDITIONS

- A. Field Measurements: Each bidder is required to visit the site of the Work to verify the existing conditions. No adjustments will be made to the Contract Sum for variations in the existing conditions.
  - 1. Where surfacing is indicated to fit with other construction, verify dimensions of other construction by field measurements before proceeding with the work.
- B. Environmental Limitations: Do not install StaLok Fiber during rainy or windy conditions.

##### 1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installer to provide evidence to indicate successful experience in installing StaLok Fiber.
- B. Mock-ups: Install 4 ft. wide x 10 ft. long mock-up of sand mix stabilized with StaLok Fiber at location as directed by owner's representative.
- C. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be

in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

- D. Special Warranty: Submit a written warranty executed by the installer agreeing to repair or replace components of stabilized surfacing that fail in materials or workmanship within the specified warranty period. Failures include, but are not limited to, the following:
  - 1. Premature wear and tear, provide the material is maintained in accordance with manufacturer's written maintenance instructions.
  - 2. Failure of system to meet performance requirements.
- E. Warranty Period: Contractor shall provide warranty for performance of product. Contractor shall warranty installation of product for the time of one year from completion.
- F. Contractor shall provide, for a period of sixty days, unconditional maintenance and repairs as required.

## PART 2 - PRODUCTS

### 2.1 MANUFACTURERS

- A. StaLok Fiber is provided by the following manufacturer:
  - 1. Stabilizer Solutions, Inc. 33 South 28<sup>th</sup> St., Phoenix, AZ 85034; phone (602) 225-5900, (800) 336-2468; fax (602) 225-5902; website [stabilizersolutions.com](http://stabilizersolutions.com); email [info@stabilizersolutions.com](mailto:info@stabilizersolutions.com)

### 2.2 MATERIALS

- A. StaLok Fiber G-400
  - 1. Acceptable local supplier list to be provided by Stabilizer Solutions, Inc.
- B. Soil Mix
  - 1. Sand must meet the particle size and physical performance criteria as shown in Section C below. Recommended tests include: grain size analysis, percentage of sand, silt and clay constituents, saturated hydraulic conductivity and porosity (including total, air-filled, and capillary pore space), and bulk density. Calculate values for fineness modulus and uniformity coefficient. An approved construction materials testing laboratory should test representative samples from the material source. In addition, samples should be tested for pH. Recommendations should include the need for organic amendments to meet performance criteria. Sand tested should be available in sufficient quantities for project.
  - 2. Quality control testing should be performed for every 500-tons of soil delivered to site. Cost is contractor's responsibility. Soils not meeting requirements must be removed and replaced at contractor's expense.



### 3.2 ROOTZONE MEDIUM

- A. Install a 10-inch (25.4-cm) minimum of approved rootzone medium with loader or dozer. Avoid leaving ruts in the gravel base.
- B. Rootzone medium should be water-settled and fine graded.
- C. Rootzone medium should be consolidated with roller to dry density, between 87-lbs and 100-lbs per cubic foot. Maintain moisture content between 8% and 10% during install.
- D. Spread soil amendments and fertilizer before spreading fibers.

### 3.3 FIBER INSTALLATION

- A. Place bags of fibers approximately 15-ft by 15-ft grid.
- B. Spread fibers by hand or with a modified straw blower at a rate of approximately 1-lb per 10-sqft for turf paving. (See section 1.2)
- C. Mix fiber into rootzone to specified depth (generally 4-inches (12.7-cm) for turf paving using approved rototiller, a reverse tiller is highly recommended. (See section 2.2 MATERIALS). When using Rotodairon or Blecavator, 3 passes in different directions are generally sufficient. Other tillers may require up to 5 passes. Do not exceed 5 passes.
- D. Check rate of fibers per square foot during application by placing 1-square yard sheets of plastic at random locations over the area. After spreading, remove sheets and weigh retained fibers to make sure proper weight is achieved. Continuous monitoring should be done to verify spreading rate matches design rate.
- E. Strong winds may require wetting area of soil and fibers to reduce fiber displacement.

### 3.4 WATERING / CONSOLIDATION

- A. Thoroughly soak surface after tilling. Soil should be moistened to minimum depth of 9-inches (23cm) and kept moist.
- B. Consolidate with vibratory roller to dry density between 87 and 100-lbs per cubic foot. For high or low areas, or irregularities hand-rake to final grade and re-roll.
- C. Surface is ready for planting with seed, stolons, or sod. If using sod, match soil type with soil medium.

### 3.5 MAINTENANCE

- A. Maintain same as normally for un-stabilized grass areas.

- A. If sand mix with StaLok Fiber is removed and discarded, replace with excess material (see 2.3).
- B. Repair grass area same as normally for un-stabilized grass areas.

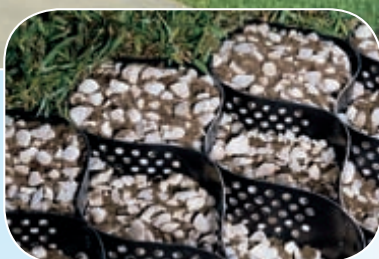
END OF SECTION 1

## CELLULAR PAVING SYSTEMS: GEOSYNTHETIC CELLULAR CONFINEMENT



# GEOWEB® *porous pavement system*

## APPLICATION OVERVIEW



### THE PERMEABLE GEOWEB® SOLUTION

As communities grow and experience increases in surface runoff from newly constructed buildings and hard parking surfaces, the capacity of existing stormwater runoff systems are often pushed beyond their limits. This problem has led to environmental regulations that require the use of stormwater retention and porous pavement systems.

The Geoweb® system is a polyethylene, three-dimensional, cellular structure that provides structural stability and permeability through confinement of porous infill materials. The Geoweb system provides maximum load support for a variety of loading requirements through aggregate infill or an aggregate-stabilized turf, and is a cost-effective alternative to hard-surface paving.

### AESTHETICS/PERMEABILITY

The Geoweb® system offers options for creating attractive and permeable pavement systems for pedestrian and vehicular traffic requirements:

- grass pavements with an engineered topsoil/aggregate infill
- porous pavements with aggregate infill

*providing sustainable solutions for permeable surfaces*





# GEOWEB®

POROUS PAVEMENT SYSTEM



## EASY INSTALLATION

Geoweb® sections collapse into lightweight, compact bundles for easier shipping and handling. During installation, sections remain flexible and easy to handle. Infill placement may be performed immediately following expansion and connection of the sections.



## PRESTO GEOSYSTEMS

P.O. Box 2399  
670 North Perkins Street  
Appleton, Wisconsin 54912-2399, USA

P: 920-738-1707

TF: 800-548-3424

F: 920-738-1222

E: [info@prestogeo.com](mailto:info@prestogeo.com)

[www.prestogeo.com](http://www.prestogeo.com)



## DISTRIBUTED BY:

## Geoweb® porous pavement system

### TURF PROTECTION

#### AESTHETIC ALTERNATIVE TO HARD PAVEMENTS

From fire emergency access lanes to utility roads, trails, walkways and other occasional-use areas, the Geoweb® grass pavement system is designed to handle the most demanding turf protection and load support requirements, while allowing for vigorous growth of turf grass. Grass-covered pavements constructed with the Geoweb system and native granular soil are an attractive functional and cost-effective alternative to hard-surface pavements.

### PERMEABLE AGGREGATE

#### NATURAL STORMWATER STORAGE AND DRAINAGE

The Geoweb® system and an aggregate infill with 35-45% void space creates a pavement that functions as a natural on-site detention/retention basin. The Geoweb system's 98% open-surface area helps to decrease stormwater runoff and promote natural groundwater replacement by allowing stormwater to slowly permeate into the existing ground.

#### The perforated Geoweb system's 16% open cell-wall area has added benefits:

- facilitates lateral cell-to-cell drainage beneath traffic areas, resulting in better performance in saturated soils.
- reduces the negative effects of cell ponding when the system is a low permeable base.

## Features/Benefits of the Geoweb® System

- The system's 98% open-surface area addresses environmental concerns; the system maximizes stormwater replenishment and minimizes erosion.
- Perforations allow the passage of water and nutrients from cell to cell, improving lateral drainage.
- The perforated system provides root lock-up with vegetated systems and provides greater cell wall infill lockup with coarse materials.
- Perforations reduce the negative effects of cell ponding.
- Contributes to LEED® green building credits for stormwater management, reduced heat island effect.

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## CELLULAR PAVING SYSTEMS-POROUS CELLULAR BLOCK PANELS



*creating  
sustainable  
environments®*

# GEOBLOCK®

*porous pavement system*

PRODUCT CATALOG

*our commitment:  
providing the highest quality  
products/solutions*

*the natural way to manage stormwater*





## *low-impact way to help manage stormwater*

Environmental regulations that control and limit stormwater runoff, reduce impervious surface, and increase green space have resulted in the growth of permeable pavements for traffic areas. Presto's GEOBLOCK® system offers numerous environmental advantages over hard surface pavements that result in cost savings and aesthetic benefits to property owners. Designed to handle the most demanding load

support and turf protection requirements, the system supports a wide variety of loadings while allowing natural groundwater replenishment and reducing the need for detention or retention ponds. From pedestrian trails and walkways to emergency access lanes, to overflow parking, the GEOBLOCK® system provides high environmental benefit with low environmental impact.

## *environmental and economical benefits*



### **EARN U.S. GREEN BUILDING LEED® CREDITS**

The GEOBLOCK® system offers architects and designers achievable LEED® credits in the following categories:

- Reduced Site Disturbance
- Stormwater Management
- Reduced Heat Island Effect
- Recycled Content

#### **HIGH PERMEABILITY**

- Increases groundwater recharge and decreases surface runoff associated with stormwater discharge from paved areas.
- Minimizes use of valuable land space and costs associated with requirements for on-site stormwater ponds.

#### **IMPROVES STORMWATER QUALITY**

- Increases natural water infiltration and reduces non-point source pollution.

#### **RECYCLED CONTENT**

- Manufactured from up to 97% recycled polyethylene.

#### **PROVIDES A COOLER SURFACE**

- Reduces the heat island effect related to traditional hard pavements.

#### **IMPROVES AESTHETICS**

- Protects a sustainable vegetated surface or other attractive infill material.



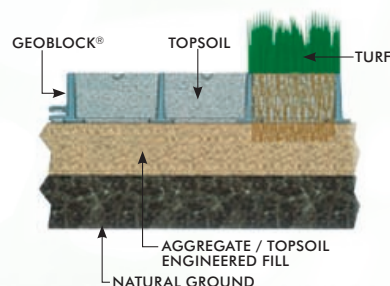
## GEOBLOCK® system components

The GEOBLOCK® Porous Pavement System is comprised of the following components:

- GEOBLOCK® units
- Selected infill (topsoil/vegetation)
- Engineered base materials (if required)

The GEOBLOCK® system's unit strength and load distribution qualities allow a significant reduction in base requirements when compared to other porous pavement systems. Depending upon the subbase and loading, GEOBLOCK® units may be placed directly on the subgrade without additional base materials. For heavier loads or soft subbases, both the GEOBLOCK® units and engineered base work together to support the loading. The GEOBLOCK® system protects the topsoil from compaction and vegetative root zone from damaged by encapsulating them within the system's structure.

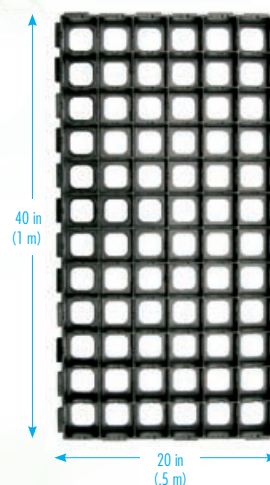
GEOBLOCK® SYSTEM  
CROSS SECTION:



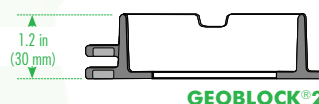
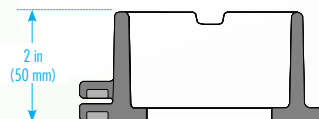
## material specification

ITEM	GEOBLOCK® 5150	GEOBLOCK® 2
Material	Up to 97% Recycled Polyethylene	
Color	Dark shades of gray to black	
Chemical Resistance	Superior	
Carbon Black for Ultraviolet Light Stabilization	1.5% - 2.0%	
Dimensions (width x length)	0.50 m x 1.00 m (20 in x 40 in)	
Nominal Unit Depth	50 mm (2 in)	30 mm (1.2 in)
Coverage Area	.50 m <sup>2</sup> (5.38 ft <sup>2</sup> )	
Cells per Unit	72	128
Cell Size	79 mm x 81 mm (3.1 in x 3.2 in)	57 mm x 57 mm (2.25 in x 2.25 in)
Top Open Area per Unit	87%	88%
Bottom Open Area per Unit	41%	56%
Interlocking Offset Shear Transfer Tabs	12 tabs per meter (40 in)	
Nominal Weight per Unit	4 kg (9 lb)	2.1 kg (4.7 lb)
Runoff Coefficient at 63.5 mm/hr (2.5 in) Rainfall	.15	
Units per Pallet	50	92

FULL SIZE GEOBLOCK® UNIT:



GEOBLOCK® CELL AND  
INTERLOCKING OFFSET TAB:





## usage guideline

Description	LOAD DESCRIPTION				DEPTH OF ENGINEERED BASE			
	Maximum Tire Pressure	Single Axle Loading	Tandem Axle Loading	Gross Vehicle Loading	GEOBLOCK®5150 (2 in depth)		GEOBLOCK®2 (1.2 in depth)	
					CBR 2-4	CBR >4	CBR 2-4	CBR >4
Heavy Fire Truck Access & H-20 Loading (infrequent passes)	Typical 110 psi (758 kPa)	32 kip (145 kN)	48 kip (220 kN)	80,000 lb (36.3 tonne)	6 in (150 mm)	4 in (100 mm)	Consult Manufacturer	Consult Manufacturer
Light Fire Truck Access & H-15 loading (infrequent passes)	Typical 85 psi (586 kPa)	24 kip (110 kN)		60,000 lb (27.2 tonne)	4 in (100 mm)	2 in (50 mm)	Consult Manufacturer	Consult Manufacturer
Utility & Delivery Truck Access & H-10 loading (occasional passes)	Typical 60 psi (414 kPa)	16 kip (75 kN)		40,000 lb (18.1 tonne)	2 in (50 mm)	2 in (50 mm)	Consult Manufacturer	Consult Manufacturer
Car & Pick-up Truck Access (occasional passes)	Typical 45 psi (310 kPa)	4 kip (18 kN)		8,000 lb (3.6 tonne)	None	None	4-8 in (100-200 mm)	2-4 in (50-100 mm)
Trail Use <sup>(1)</sup> (loading for pedestrian, wheelchair, bicycle, motorcycle and ATV traffic)	Low	Low		Low	None	None	0-2 in (0-50 mm)	None

(1) If trail is non-vegetated, refer to the GEOBLOCK® design and construction document for more details.

NOTE: CBR refers to California Bearing Ratio. As the CBR increases, the depth of the engineered base recommendation decreases.

#### RECOMMENDED TOPSOIL:

Suitable topsoil should be a good quality, drainable soil and not be compacted within the GEOBLOCK® unit. The topsoil should be pulverized prior to filling the GEOBLOCK® cells and contain sufficient organic

content to support vegetative growth. Topsoil such as sandy loam is recommended. Clay and clay loam material are not recommended.

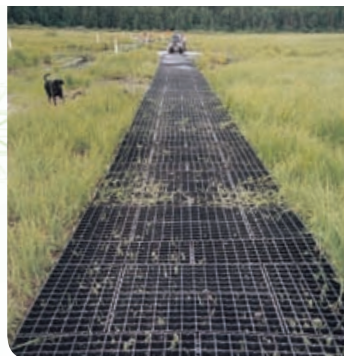
#### RECOMMENDED ENGINEERED BASE:

A recommended 'engineered base' is a homogenous mixture consisting of 1) a clear-stone/crushed rock having an AASHTO # 5 or similar designation blended with 2) pulverized topsoil and 3) a void component generally containing air and/or water. This homogenous mixture will promote vegetative growth and provide required structural support.

The aggregate portion shall have a particle range from 9.5 to 25 mm (0.375 to 1.0 in) with a  $D_{50}$  of 13 mm (0.5 in). The percentage void-space of the aggregate portion when compacted shall be at least 30%. The pulverized topsoil portion shall equal 25% +/- of the total volume and be added and blended to produce a homogenous mixture prior to placement. Once placed, the mixture shall be compacted to 95% Standard Proctor Density.

## GEOBLOCK® features/advantages

- Quality product manufactured to ISO 9001:2008 standards.
- Available in two types to most economically handle light to heavy load requirements.
- Large rigid surface area and strong interlocking connections maximizes load transfer and distribution of wheel loads to 80,000 lbs. and higher.
- Requires far less depth of base than rolled pavement systems, reducing overall installation costs.
- Effectively handles vehicle turning stresses and torsional loads.
- Deeper cells protect topsoil and vegetative root zone from damage caused by repeated loadings.
- Manufactured from up to 97% recycled plastic; offers credits with USGBC LEED® program.



## typical applications

### GEOBLOCK®5150 SYSTEM

#### HEAVY-DUTY

**Access Roads:** Maintenance, Utility, Fire and Emergency Vehicles

#### MEDIUM-DUTY

**Parking Areas:** Parks, Churches, Commercial Buildings, Sports Facilities, Residential

**Trails:** Pedestrian Greenways, Barrier-Free Access, Bicycles, Motorcycles and ATVs

### GEOBLOCK®2 SYSTEM

#### MEDIUM-DUTY

**Parking Areas:** Parks, Churches, Commercial Buildings, Sports Facilities

**Access Lanes:** Passenger and Light-weight Utility Vehicles

#### LIGHT-DUTY

**Trails:** Pedestrian Greenways, Barrier-Free Access, Bicycles, Motorcycles and ATVs

**Golf Courses:** Edging, Pathways and Tee Areas

**Residential:** Driveways, Parking Areas, Campers and Boats

**General:** Event areas, Pedestrian Malls and Educational Campuses



In order to measure performance and evaluate the GEOBLOCK® system's capabilities, fire departments have performed rigorous tests on worst-case scenarios with exceptional results. Typical application areas include apartments, office and sports complexes, commercial/industrial buildings, shopping centers, and educational institutes.







## easy installation

The GEOBLOCK® system is designed for easy installation, requiring less site preparation, less subgrade improvement, less excavation and less structural base than other porous pavement systems.

The GEOBLOCK® units are easily installed around obstructions and contours, and can be cut with ordinary hand or power tools. Irrigation systems can be easily integrated in the system. The units' large, easy-to-handle

size minimizes the quantity of blocks required on a given job, reducing labor and installation costs.

The GEOBLOCK® system is an ideal paving solution in traffic areas where sustainable vegetation or permeable infill is desired.

To find out which GEOBLOCK® system is most suitable for your application, contact Presto Geosystems or their authorized distributor or representative.

### PRESTO GEOSYSTEMS® COMMITMENT — To provide the highest quality products and solutions.

Presto GEOSYSTEMS® is committed to helping you apply the best solution to your porous pavement requirements. Rely on the leaders in the industry when you need a solution that is

right for your application. Contact Presto GEOSYSTEMS® or their network of knowledgeable distributors/representatives for assistance with your permeable pavement needs.



**PRESTO GEOSYSTEMS®**

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AP-4944 R2

## **CELLULAR PAVING SYSTEMS-POROUS RING AND GRID SYSTEM**

### **TECHNICAL SPECIFICATION - Grasspave2 with 92% Void Space and Hydrogrow Mixture CSI Master Format 32 12 43 Flexible Porous Pavement (Section 02795 Porous Pavement)**

#### **PART 1 - GENERAL**

##### **1.01 General Provisions**

- A. The Conditions of the Contract and all Sections of Division 1 are hereby made a part of this Section.

##### **1.02 Description of Work**

###### **A. Work Included:**

1. Provide and install sandy gravel road base as per Geotechnical Engineer's recommendations and/or as shown on drawings, to provide adequate support for project design loads. See 2.02 Materials.
2. Provide Grasspave2 Paving System products including Grasspave2 units, Hydrogrow soil polymer, and installation per the manufacturer's instructions furnished under this section.
3. Provide and install clean sharp sand to fill the Grasspave2 units, when needed.
4. Provide and install grass by using sod or hydroseeding.

###### **B. Related Work:**

1. Subgrade preparation under Section 31 20 00 Earth Moving (02200 – Earthwork).
2. Utilities and subsurface drainage - Section 33 40 00 Storm Drainage Utilities (02700 – Subsurface Drainage and Structures), as needed.
3. Irrigation installation - Section 32 80 00 Irrigation (02810 Irrigation), when needed.

##### **1.03 Quality Assurance**

- A. Follow Section 01 33 23 Shop Drawings, Product Data, and Samples (01340 Shop Drawings, Product Data, and Samples) requirements.
- B. Installation: Performed only by skilled workpeople with satisfactory record of performance on landscaping or paving projects of comparable size and quality.

##### **1.04 Submittals**

- A. Submit manufacturer's product data and installation instructions.
- B. Submit a 10" x 10" section of Grasspave2 material for review. Reviewed and accepted samples will be returned to the contractor.
- C. Submit material certificates for base course and sand fill materials.

##### **1.05 Delivery, Storage, and Handling**

- A. Protect Grasspave2 units from damage during delivery and store under tarp to protect from sunlight, when time from delivery to installation exceeds one week. Keep Hydrogrow in a dark and dry location.

##### **1.06 Project Conditions**

- A. Review installation procedures and coordinate Grasspave2 work with other work affected. Generally, Grasspave2 is installed at the same time as project grass installation, nearly the last site construction activity.
- B. All hard surface paving adjacent to Grasspave2 areas, including concrete walks and asphalt paving must be completed prior to installation of Grasspave2.
- C. Gradients for grass porous paving surfaces can vary from flat to 20%, depending upon vehicle types to use the surface. Please note that fire lanes, or other emergency vehicles, will generally require a gradient that is less than 6%. If there are any questions regarding existing gradients on this project, please contact the Project Designer, or Invisible Structures, Inc.
- D. Cold weather:
  1. Do not use frozen materials or materials mixed or coated with ice or frost. Be careful in handling rolls of Grasspave2 in temperatures below 50 degrees F, as product connectors

become stiff and can separate, and the individual units will retain the roll curl until warmed to room temperature (aided by placement in sun for 15 to 20 minutes). If cold weather is anticipated, Grasspave2 can be shipped in flat sheets that measure 1-meter (40") square.

2. Do not build on frozen work or wet, saturated or muddy subgrade.

- E. Protect partially completed paving against damage from other construction traffic when work is in progress, and until grass root system has matured (about 3 to 4 weeks). Any barricades constructed must still be accessible by emergency and fire equipment during and after installation.
- F. Protect adjacent work from damage during Grasspave2 installation.

## **PART 2 - PRODUCTS**

### **2.01 Availability**

- A. Manufacturer: (Grasspave2, Hydrogrow) Invisible Structures, Inc., 1600 Jackson Street., Suite 310, Golden, Colorado 80401. Call from USA and Canada 800-233-1510 toll free, International 303-233-8383, Fax 303-233-8282.
- B. Local Sales Representative: (Contact Manufacturer)

### **2.02 Materials**

- A. Base Course: Sandy gravel material from local sources commonly used for road base construction, passing the following sieve analysis.

<u>Sieve</u>	<u>%Passing</u>
1"	100
3/4"	90-100
3/8"	70-80
#4	55-70
#10	45-55
#40	25-35
#200	3-8

1. Sources of the material can include either "pit run" or "crusher run." Crusher run material will generally require sharp sand to be added to mixture (33% by volume) to ensure long-term porosity. If there is difficulty in finding local sources to meet this sieve analysis, and alternative mixture can be created by mixing 2/3 crushed drainage rock (0.75" dia) with 1/3 course, well-draining sand (AASHTO M6 or ASTM C-33).
2. Selected materials should be nearly neutral in pH (range from 6.5 to 7.2) to provide adequate root zone development for turf.
3. Alternative materials such as crushed shell, limerock, and/or crushed lava may be considered for base course use, provided they are mixed with sharp sand (33%), and brought to proper compaction.  
(Crushed shell and limerock alone can set up like concrete without sand added.)

- B. Hydrogrow Mix: A proprietary soil amendment manufactured by Invisible Structures, Inc., provided with Grasspave2.

- C. Grasspave2 Grass Paving Units:

1. Lightweight injection-molded plastic units 0.5x0.5x0.025m (20"x20"x1" high, 2.7 ft<sup>2</sup> each) with hollow rings rising from a strong open grid allowing maximum grass root penetration and growth.
2. Unit weight = 510 g (18 oz.), volume = 8% solid.
3. The plastic shall be 100% pre-consumer recycled HDPE plastic resin, with minimum 3% carbon black concentrate added for UV protection.
4. Loading capability is equal to 402 kg/cm<sup>2</sup> (5721 psi, 823,824 psf, 7.4 million psy, 39,273 kPa, 3707 tons/sq.yd.) when filled with sand, over an appropriate depth of base.
5. Grasspave2 is shipped in pre-assembled rolls that vary from 10 square meters (108 sf) to 50 square meters (1345 sf).
6. Male/Female Fastener Tensile Strength (from a Pull Test) is equal to 80,208 N/m (450 lbsf/in.)
7. Standard color is black.

*Any products failing to meet these standards will be rejected.*



- D. Sand: To fill the 25 mm (one inch) high rings and spaces between the rings when seeding or using 13 mm (half inch) thick sod (soil thickness):  
(Choose one of the following paragraphs to suit project requirements.)
1. Coarse, well-draining sand (washed concrete sand- AASHTO M6 or ASTM C-33).
  2. United States Golf Association (USGA) greens (section) sand mix – “The Root Zone Mixture.”
- E. Grass: Use species resistant to wear by traffic generally a Blue/Rye/Fescue mix used for athletic fields in northern climates, and Zoysia, Fescue, or Bermuda types in southern climates. (Check with local sod and seed suppliers for preferred mixtures.) (Dedicated fire lanes can use same grass species used on surrounding turf.) (Parking applications require greatest wear-resistant species possible, generally available only by seed or sprigging.)  
(Choose one of the following paragraphs to suit project requirements.)
1. Sod: Use 13 mm (0.5") thick (soil thickness) rolled sod from a reputable local grower. Species should be wear resistant, free from disease, and in excellent condition. Sod shall be grown in sand or sandy loam soils only. Sod grown in soils of clay, silt, or high organic materials such as peat, will not be accepted.
  2. Seed: Use seed materials, of the preferred species for local environmental and projected traffic conditions, from certified sources. Seed shall be provided in containers clearly labeled to show seed name, lot number, net weight, % weed seed content, and guaranteed % of purity and germination. Pure Live Seed types and amount shall be as shown on plans.
- F. Mulch: (Needed only for seeding.) Shall be of wood or paper cellulose types of commercial mulch materials often used in conjunction with hydroseeding operations. Mulches of straw, pine needles, etc. will not be acceptable because of their low moisture holding capacity.
- G. Fertilizer: A commercial "starter" fertilizer, with Guaranteed Analysis of 17-23-6, or as recommended by local grass supplier, for rapid germination and root development.
- H. Grasspave2 Sign: A sign to identify the presence of Grasspave2 paving, stating that special maintenance is required, with the Manufacturer's phone number, and made of durable materials for outdoor exposure shall be provided and installed.
- I. Fire lane Signage & Delineation: Fire lanes must be identified regarding their entrance and physical location with the placement of signs, gates, curbs, bollards, etc. Specific signage wording and other details must be coordinated with and approved by local fire authorities.

## PART 3 - EXECUTION

### 3.01 Inspection

*(It is recommended that Fire Department inspectors be scheduled to inspect installation of Grasspave2 during preparation of the subbase, installation of the base course, and installation of Grasspave2 units. Most small projects can accommodate these inspections all on the same day. Verify with Fire Department if certificates of inspection are required.)*

- A. Examine subgrade and base course installed conditions. Do not start Grasspave2 installation until unsatisfactory conditions are corrected. Check for improperly compacted trenches, debris, and improper gradients.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance. If existing conditions are found unsatisfactory, contact Project Manager for resolution.

### 3.02 Preparation

*(Ensure that subbase materials are structurally adequate to receive designed base course, wearing course, and designed loads. Generally, excavation into undisturbed normal strength soils will require no additional modification. Fill soils and otherwise structurally weak soils may require modifications, such as geotextiles, geogrids, and/or compaction (not to exceed 90%). Ensure that grading and soil porosity of the subbase will provide adequate subsurface drainage.)*

- A. Place base course material over prepared subbase to grades shown on plans, in lifts not to exceed 150 mm (6"), compacting each lift separately to 95% Modified Proctor. Leave minimum 25 mm (1") to 35 mm (1.5") for Grasspave2 unit and sand/sod fill to Final Grade.

- B. Spread all Hydrogrow mix provided (spreader rate = 4.53 kg per 100 m<sup>2</sup> (10 lbs per 1076 ft<sup>2</sup>) evenly over the surface of the base course with a hand-held, or wheeled, rotary spreader. The Hydrogrow mix should be placed immediately before installing the Grasspave2 units to assure that the polymer does not become wet and expanded when installing the units.

### **3.03 Installation of Grasspave2 Units**

- A. Install the Grasspave2 units by placing units with rings facing up, and using pegs and holes provided to maintain proper spacing and interlock the units. Units can be easily shaped with pruning shears or knife. Units placed on curves and slopes shall be anchored to the base course, using 16d Common nails with fender washer, as required to secure units in place. Tops of rings shall be between 6 mm to 13 mm (0.25" to 0.5") below the surface of adjacent hard-surface pavements.
- B. Install sand in rings as they are laid in sections by "back-dumping" directly from a dump truck, or from buckets mounted on tractors, which then exit the site by driving over rings already filled with sand. The sand is then spread laterally from the pile using flat bottomed shovels and/or wide "asphalt rakes" to fill the rings. A stiff bristled broom should be used for final "finishing" of the sand. The sand must be "compacted" by using water from hose, irrigation heads, or rainfall, with the finish grade no less than the top of rings and no more than 6 mm (0.25") above top of rings.

### **3.04 Installation of Grass**

(Choose one paragraph below to meet grass installation method desired.)

- A. (Preferred method) Hydroseeding/hydro-mulching - A combination of water, seed and fertilizer are homogeneously mixed in a purpose-built, truck-mounted tank. The seed mixture is sprayed onto the site at rates shown on plans and per hydroseeding manufacturer's recommendations. Coverage must be uniform and complete. Following germination of the seed, areas lacking germination larger than 20 cm x 20 cm (8" x 8") must be reseeded immediately. Seeded areas must be fertilized and kept moist during development of the turf plants.
- B. Install thin sod directly over sand filled rings, filled no higher than the top of the rings. Sod strips should be placed with very tight joints. Sodded areas must be fertilized and kept moist during root establishment (minimum of 3 weeks). Sodded areas must be protected from any traffic, other than emergency vehicles, for a period of 3 to 4 weeks, or until the root system has penetrated and established well below the Grasspave2 units.
- C. Install grass seed at rates per grass type. A light "dusting" of commercial topsoil mix, not to exceed 1/2" (25 mm) can be placed above the rings and seed mix to aid germination rates. Seeded areas must be fertilized and kept moist during development of the turf plants.

### **3.05 Protection**

(Choose one paragraph below to match grass installation method.)

- A. Seeded areas must be protected from any traffic, other than emergency vehicles, for a period of 4 to 8 weeks, or until the grass is mature to handle traffic.
- B. Sodded areas must be protected from any traffic, other than emergency vehicles, for a period of 3 to 4 weeks, or until the root system has penetrated below the Grasspave2 units.

### **3.06 Cleaning**

- A. Remove and replace segments of Grasspave2 units where three or more adjacent rings are broken or damaged, reinstalling as specified, so no evidence of replacement is apparent.
- B. Perform cleaning during the installation of work and upon completion of the work. Remove all excess materials, debris, and equipment from site. Repair any damage to adjacent materials and surfaces resulting from installation of this work.

END OF SECTION

If you have any questions regarding this specification, please call Invisible Structures, Inc. 1-800-233-1510, overseas call 303-233-8383. *Version 09/2010*

## APPENDIX B: TECHNICAL PROVISIONS FOR ACCESSIBLE TRAILS

**Excerpts from the National Center on Accessibility, “What is an Accessible Trail?”** *Access Today*, Special Volume, Issue 8 (Fall 2002), online at: <http://www.ncaonline.org/monographs/8accessible-trails.shtml>] These guidelines are presently being proposed in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) as “Accessibility Guidelines for Outdoor Developed Areas,” published in the Federal Register, 20 June 2007 (36 CFR Part 1195), online at <http://www.access-board.gov/outdoor/nprm/> .

An accessible trail is a trail that is accessible to and usable by people with disabilities. Accessible trails are identified as meeting minimum guidelines established by the U. S. Access Board. The Access Board is the Federal agency responsible for creating guidelines and standards for accessible environments. After an Advanced Notice of Proposed Rulemaking that drew input across the spectrum of outdoor facilities a Regulatory Negotiations Committee was created by the Access Board to come to consensus on technical provisions for accessibility in outdoor areas. Currently, The Access Board is preparing a Notice of Proposed Rule based on the Regulatory Negotiation Committee’s report. The proposed rule, once published, will be available for public comment, issued as a final rule and then adopted by the Department of Justice. During the process of the guidelines being issued and adopted, facilities need to use the “best available information.” For outdoor environments, the current best available information is the Outdoor Developed Areas Final Report. The remainder of this technical assistance paper will draw from the Regulatory Negotiation Committee’s Final Report: Recommendations for Accessibility Guidelines-Outdoor Developed Areas (September 1999).

### ACCESSIBLE ROUTES, OUTDOOR ACCESS ROUTES, AND TRAILS

Accessible routes, outdoor access routes, and trails are all paths that have varying requirements based on their purpose, what they connect to and the environment they fall within. [Note: Access Route is the primarily access to the site/building as defined by the Americans with Disabilities Act Accessibility Guidelines (ADAAG); Outdoor Access Route is a second-tier route; and Trail is a third-tier route.] The following table identifies the technical provisions as they apply to each of the different route types.



TABLE XX: ACCESSIBLE CIRCULATION SPECIFICATIONS

	Access Route (ADAAG)	Outdoor Access Route	Trail
Surface	Stable, firm, Slip resistant	Firm and Stable	Firm and Stable <i>Exception*</i>
Max Running Slope	1: 12	1: 20 (for any distance) 1: 12 (for max 50 ft) 1: 10 (for max 30 ft)	1: 20 (for any distance) 1: 12 (for max 200 ft) 1: 10 (for max 30 ft) 1: 8 (for max 10 ft) <i>Exception- 1: 7 (for 5 ft max for open drainage structures)</i> <i>Exception*</i>
Max Cross Slope	1: 50	1: 33 <i>Exception- 1: 20 (for drainage purposes)</i>	1: 20 <i>Exception- 1: 10 (at the bottom of an open drain where clear tread width is a min of 42 inches)</i>
Min Clear Tread Width	36 inches 32 inches (for no more than 24 inches)	36 inches <i>Exception- 32 inches when * applies</i>	36 inches for any distance <i>Exception- 32 inches when * applies.</i>
Edge Protection	Where provided, min of 2 inches.	Where provided, min of 3 inches.	Where provided, 3 inches min.
Tread Obstacles	(Changes in Level) 1/4 inch (no beveled edge) 1/4 - 1/2 inch must have a beveled edge with a max slope of 1: 2. Over 1/2 inch= ramp.	1 inch high max <i>Exception- 2 inches high max (where beveled with a slope no greater than 1: 2 and where * applies.)</i>	2 inches high max <i>Exception- 3 inches max (where running and cross slopes are 1: 20 or less)</i> <i>Exception*</i>
Passing Space	Every 200 feet where clear tread width is less than 60 inches, a minimum 60 X 60 inch space, or a t-shaped intersection of two walks or corridors with arms and stem extending min of 48 inches.	Every 200 feet where clear tread width is less than 60 inches, a minimum 60 X 60 inch space, or a t-shaped intersection of two walking surfaces with arms and stem extending min of 48 inches. <i>Exception- every 300 feet where * applies.</i>	Every 1000 feet where clear tread width is less than 60 inches, a 60 X 60 inch min passing space or a t-shaped intersection of two walking surfaces with arms and stem extending min of 48 inches. <i>Exception*</i>
Resting Intervals	(Landings) 60 inch min length, min width as wide as the ramp run leading to it, if change in direction occurs, must have 60 X 60 inch space.	60 inches min length, width at least as wide as the widest portion of the trail segment leading to the resting interval and a max slope of 1: 33 <i>Exception- a max slope of 1: 20 is allowed for drainage purposes.</i>	60 inches min length, width at least as wide as the widest portion of the trail segment leading to the resting interval and a maximum slope of 1: 20. <i>Exception*</i>
* (16.1.1 Conditions for Departure) The provision may not apply if it cannot be provided because compliance would cause substantial harm to cultural, historic, religious or significant natural features or characteristics; substantially alter the nature of the setting or purpose of the facility; require construction methods or materials that are prohibited by Federal, state or local regulations or statutes; or would not be feasible due to terrain or the prevailing construction practices.			

### **Technical Provisions**

The Outdoor Developed Areas Final Report addresses ten provisions of trail accessibility:

#### *Surface*

An accessible trail includes a route from accessible parking to the trailhead. Once on the trailhead, the first issue addressed is surface. The trail surface must be firm and stable. Firmness refers to the penetration of the surface that occurs when force is applied, for example when stepped on. Stability on the other hand, refers to the displacement of the surface when a turning motion is applied to the surface such as the twisting of a foot. In other words, firmness is a vertical measure of penetration and stability involves how much surface material shifts when rotated pressure is applied. Examples of firm and stable surfaces include concrete and asphalt. Soil stabilizers are sometimes used to make otherwise inaccessible surfaces more firm and/ or stable.

#### *Clear Tread Width*

The next provision involves clear tread width, or the unobstructed width of the trail. The clear tread width of an accessible trail must be a minimum of 36 inches. This allows a wide enough area for a person using a wheelchair or scooter to comfortably stay on the firm and stable trail surface.

#### *Openings*

The third guideline addresses openings in trail surfaces, such as spaces between the boards of a boardwalk. These spaces may not allow the passage of a sphere one-half inch in diameter. In addition, the long dimension must run perpendicular or diagonal to the main direction of travel preventing casters from wheelchairs, or tips of canes from being caught in the spaces.

#### *Protruding Objects*

The fourth requirement addresses the needs of people who are visually impaired. Protruding objects are required to allow a minimum of 80 inches clear headroom space above the trail. In other words, any protruding objects, including vegetation, must be above a minimum of eighty inches from the ground. This space prevents people who are blind from bumping their heads on tree branches or other objects hanging above the trail. Simple maintenance of trails is often the solution to preventing accessibility issues resulting from protruding objects.

#### *Tread Obstacles*

The fifth aspect of the guidelines addresses tread obstacles. Examples of tread obstacles include tree roots, rocks, brush, downed trees or branches projecting from the trail. Tread obstacles cannot exceed a maximum height of two inches.

An exception occurs if running and cross slopes are 1: 20 or less, then the obstacle may be three inches in height.

#### *Passing Space*

The sixth technical provision, passing space, allows people who use wheelchairs to pass other hikers easily. Passing spaces need to be a minimum of 60 X 60 inches and occur at 1,000 foot intervals when the clear tread width of the trail is less than 60 inches. An alternative is a T-shaped space providing the arms and stem extend at least 48 inches beyond the intersection. The T-shape still needs to occur every 1,000 feet, whenever possible, the 60 X 60 space should be utilized to offer a more convenient way for people to pass one another.

#### *Slope*

The seventh provision addresses two slopes that are crucial elements to people with mobility impairments— running slope and cross slope. With the exception for drainage, the cross slope of an accessible trail should be less than 1: 20. In addition, running slopes must comply with one or more of four provisions with no more than 30 percent of the total trail length exceeding 1: 12.

The four provisions are as follows:

Running slope cannot exceed 1: 20 for any distance.

If resting intervals are provided every 200 feet, the running slope may be a maximum of 1: 12.

If resting intervals are provided every 30 feet, the running slope may be a maximum of 1: 10.

If resting intervals are provided every 10 feet, the running slope may be a maximum of 1: 8.

#### *Resting Intervals*

Provision eight addresses resting intervals. Resting intervals must be 60 inches minimum in length, and have a width as wide as the widest portion of the trail segment leading to the resting interval. The slope may not exceed 1: 20 in any direction.

#### *Edge Protection*

The ninth guideline regarding edge protection states edge protection is not necessarily required, however where it is provided, it must have a minimum height of 3 inches.



### *Signage*

Signage is the final aspect addressed in the Final Report. Accessible trails should include signage with information on the total distance of the accessible segment and the location of the first point of departure from the technical provisions. Although no specific symbol has been chosen to represent an accessible trail one of the four examples displayed here may be utilized.

### **Conditions for Departure**

Due to the dynamic nature of the outdoor environment, the Outdoor Developed Areas Final Report identifies four conditions for departure or circumstances that allow deviation from the technical provisions. These conditions apply to each of the designated areas in the report. The application of one or more of the conditions is not an overall exemption of the entire trail. When the condition for departure no longer exists, the technical provisions re-apply. The exemption only applies to the respective technical provision, all other aspects should comply. For example, if an endangered plant species only allows 30 inches of clear tread width, the surface should still be firm and stable in addition to compliance with the remaining provisions other than clear tread width. After passing the plant the clear tread width should return to at least 36 inches. The conditions for departure are:

#### *Condition 1*

Where compliance would cause substantial harm to cultural, historic, religious, or significant natural features or characteristics.

Examples of cultural features include such areas as archaeological sites, burial grounds or Indian tribal protected sites. Historic features include properties such as those listed or eligible for the National Register of Historic Places. Examples of religious features include Indian sacred sites and other properties designated or held sacred by an organized religious belief or church. Natural features include properties such as those protected by Federal or State laws and areas with threatened or endangered species.

#### *Condition 2*

Where compliance would substantially alter the nature of the setting or the purpose of the facility, or portion of the facility.

This condition addresses concerns relating to people who choose to recreate in an outdoor setting for a higher degree of challenge and risk. If the designed purpose of the trail were a cross-country training trail, accessibility would interfere with the intended experience.

*Condition 3*

Where compliance would require construction methods or materials that are prohibited by Federal, State or local regulations or statutes.

For example, mechanized equipment may be restricted in State designated wilderness areas, or the introduction of imported materials may be prohibited in order to maintain the natural ecosystem. Although State and local statutes are taken into consideration, new regulations may not be initiated to prevent compliance.

*Condition 4*

Where compliance would not be feasible due to terrain or the prevailing construction practices.

If typically a team of volunteers with hand tools does alterations, there is not an expectation of bringing a bulldozer in to establish a new trail. In addition, this condition applies to soils susceptible to erosion, interfering with the natural drainage, and other issues related to the natural terrain.

## APPENDIX C: DED RESISTANT AMERICAN ELM VARIETIES AND HYBRIDS

The following is a list of American elm varieties and hybrids that exhibit resistance to Dutch elm disease.

### AMERICAN ELM VARIETIES EXHIBITING RESISTANCE TO DED

Primary recommendations for replacing American Elms in cultural landscapes.

*Valley Forge* Vase-shaped US National Arboretum introduction. Shows excellent disease resistance. Not clear whether this tree is truly an American elm.

*New Harmony* Vase-shaped US National Arboretum introduction. Good form but less resistant than Valley Forge

*Princeton* Vase-shaped. Documented resistance to elm leaf beetle.

*Independence* Upright, vase-shaped; vigorous Elm Research Institute (New Hampshire) introduction with research carried out U. of Wisconsin; one of the ‘American Liberty’ elms clonally derived from resistant surviving elms.

*Brandon* More pyramidal than traditional vase-shaped American elm trees. Canadian introduction; may be same cultivar as ‘Patmore’ Delaware USDA introduction; susceptible to elm yellows

### ELM HYBRIDS EXHIBITING RESISTANCE TO DED

Alternative recommendation for replacing American Elms in cultural landscapes if varieties above are not available or fail after planting.

*Accolade* Vase-shaped; deep glossy green leaves Morton Arboretum (Illinois) introduction; U. japonica x U. wilsoniana; resistant to elm leaf beetle and leaf miner

*Cathedral* Broad vase-shaped; medium to light green foliage. University of Wisconsin introduction; U. pumila x U. japonica from Hokkaido University botanical garden; somewhat less resistant to DED than “Sapporo Autumn Gold”; highly tolerant of Verticillium wilt; resistant to elm leaf miner.

*Frontier* Pyramidal; red-purple autumn color U. carpinifolia x U. parvifolia; moderately resistant to elm leaf beetle; probable resistance to elm yellows



*Homestead*      Pyramidal; fast growing Netherlands introduction; U. pumila x other hybrids

*New Horizon*      Upright; dark green large leaves; gray bark University of Wisconsin introduction; U. japonica x U. pumila; resistance to elm leaf miner; high tolerance to Verticillium wilt.

*Patriot*      USDA introduction; ‘Urban’ x U. wilsonianna; highly tolerant to elm leaf beetle

*Pioneer*      Globe-shaped; very vigorous; fast growing U. glabra x U. carpinifolia

*Regal*      Columnar; large, dark green, glossy leaves University of Wisconsin introduction; U. hollandica and U. pumila x U. carpinifolia.

*Sapporo Autumn Gold*      Upright, somewhat vase-shaped; immature tree has vigorous side shoots which need to be pruned University of Wisconsin introduction; U. pumila x U. japonica from Hokkaido University botanical garden; tolerance to Verticillium wilt.

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