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# Existing Conditions

## Introduction

This chapter describes through narrative text, contemporary photographs, labeled base mapping, and analytical diagrams, the current conditions and extant landscape features associated with the Vicksburg National Military Park landscape. The first section—Environmental and Cultural Context and Setting—describes the battlefield within a regional and local context, including hydrological, geographical, and geological features, as well as the demographics and other traits that characterize the park’s contemporary setting and surrounding community. The second section—Site Description—describes the primary organizing elements and features that characterize the Vicksburg National Military Park landscape, including former park lands quitclaimed to the City of Vicksburg and Warren County in the 1960s. The third section—Landscape Description by Characteristic—depicts the individual extant landscape features and resources that together compose the Vicksburg National Military Park battlefield landscape. (See Fig. 7 and Fig. 8 for site location and context and study area boundary maps.)

The purpose of documenting the park’s existing landscape is threefold. The primary goal is to understand the range and breadth of landscape features, and to identify, describe, and locate them on a map to serve as a baseline of information for the rest of the document. The second goal is to generate an inventory of park features that can be utilized to develop several cultural landscape analyses, including the OCOKA military terrain

analysis.<sup>126</sup> The final goal is to provide a record of the landscape that may prove useful to future research efforts and management decisions made at Vicksburg National Military Park.

Due to the size, complexity, and heavily monumented character of Vicksburg National Military Park, the National Park Service (NPS) requested that this Cultural Landscape Report (CLR) focus on documenting the park’s primary landscape resources, which are defined as the most valuable and important resources relating to the natural environment and the site’s significant cultural history. Thus, the CLR documentation describes these primary landscape features individually, while secondary features are depicted in groups or as part of systems to a lesser degree of detail. The existing conditions documentation is organized in accordance with the guidance offered in the NPS guidelines for preparing Cultural Landscape Reports. Resource descriptions are organized into the following categories of landscape characteristics:

- **Natural systems and features** are the environmental resources and qualities that have influenced the development and physical form of a landscape. These include the underlying landform and topography, soils, water resources, as well as attendant native plant communities.
- **Responses to natural resources** describe cultural responses to natural features, such as the siting and clustering of buildings and

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126. OCOKA is an acronym that stands for: Observation and fields of fire; Cover and concealment; Obstacles; Key terrain; and Avenues of approach.

structures, the use of native materials, and other connections between the built and natural environment.

- **Topography and topographic modifications** include any alterations to the elevations of the land surface for accessing potable water, grading roads, siting buildings, draining stormwater, or other purposes.
- **Patterns of spatial organization** reflect the three-dimensional organization of physical forms and visual associations in a landscape, including the articulation of ground, vertical, and overhead planes that define and create spaces.
- **Land uses and activities** illustrate the principal activities in a landscape that form, shape, and organize it as a result of human interaction.
- **Circulation patterns and features** are the spaces, features, and applied material finishes that constitute the systems of movement in a landscape.
- **Cultural vegetation** includes the deciduous and evergreen trees, shrubs, vines, ground covers, and herbaceous plants that have been introduced in a landscape by cultural activities.
- **Views** are generally defined as being an expansive and panoramic prospect, whether naturally occurring or designed; while **vistas** are deliberate and are often meant to orient the gaze to a linear feature or particular focal point.
- **Buildings** are elements constructed primarily for sheltering any form of human activity in a landscape.
- **Structures** are elements constructed for functional purposes other than sheltering human activities.

- **Small-scale features** provide detail and diversity for both functional needs and aesthetic concerns in a landscape.
- **Archeological resources** are the traces or deposited artifacts in a landscape, evidenced by the presence of either surface or subsurface features.<sup>127</sup>

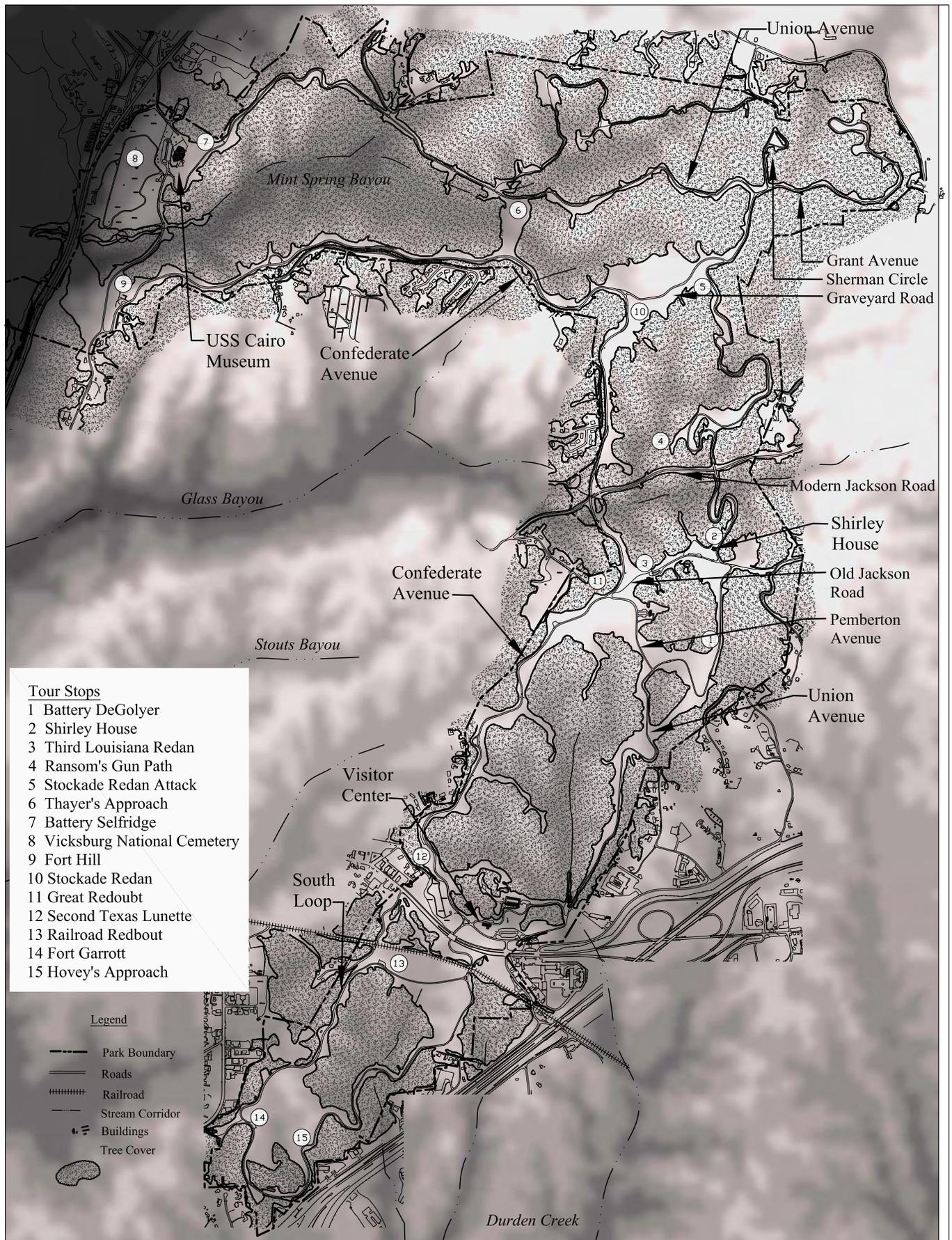
Graphic documentation, in the form of maps and photographs, is found at the end of this chapter. Representative photographs illustrate many of the features described in the text. Primary features are identified on existing conditions maps (Fig. 51 and Fig. 52). The location and orientation of view of the photographs used to illustrate this chapter are indicated on photographic station-point maps found at the end of this chapter.

The physical condition of the primary features described herein has been assessed in conformance with the rating standards established by the National Park Service (NPS) in *The Cultural Landscapes Inventory Professional Procedures Guide*. Features are described as being in good, fair, poor, or unknown condition. Features categorized as fair, poor, or unknown will be accompanied by a brief annotation to explain the rating.

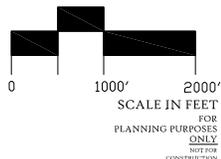
Overview maps of existing conditions are provided as Fig. 55 through Fig. 58.

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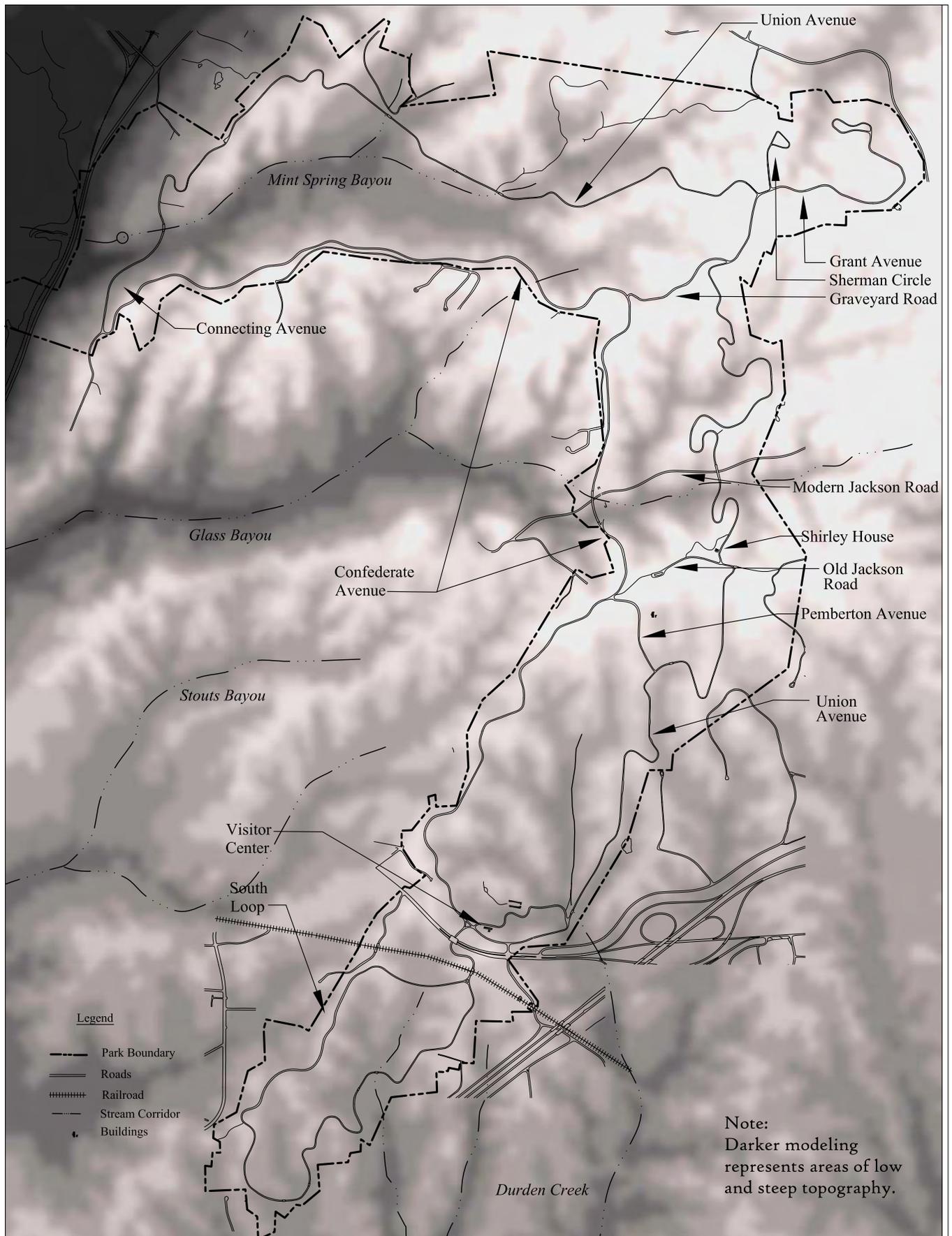
127. Derived from Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports; Contents, Processes, and Techniques* (Washington, D.C.: Department of the Interior, 1998), 53; and Linda Flint McClelland, J. Timothy Keller, Genevieve Keller, and Robert Z. Melnick, *National Register Bulletin 30: Guidelines for Evaluating and Documenting Rural Historic Landscapes* (Washington, D.C.: Department of the Interior, 1990), 53.



Source: Autocad Base Map, USGS Topographic Data



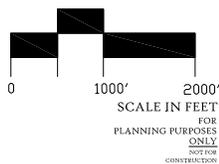




Source: Autocad Base Map, USGS Topographic Data

Cultural Landscape Report  
Vicksburg National Military Park

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Existing Conditions  
Land Forms  
Figure 56

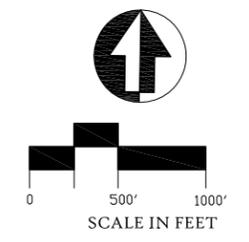




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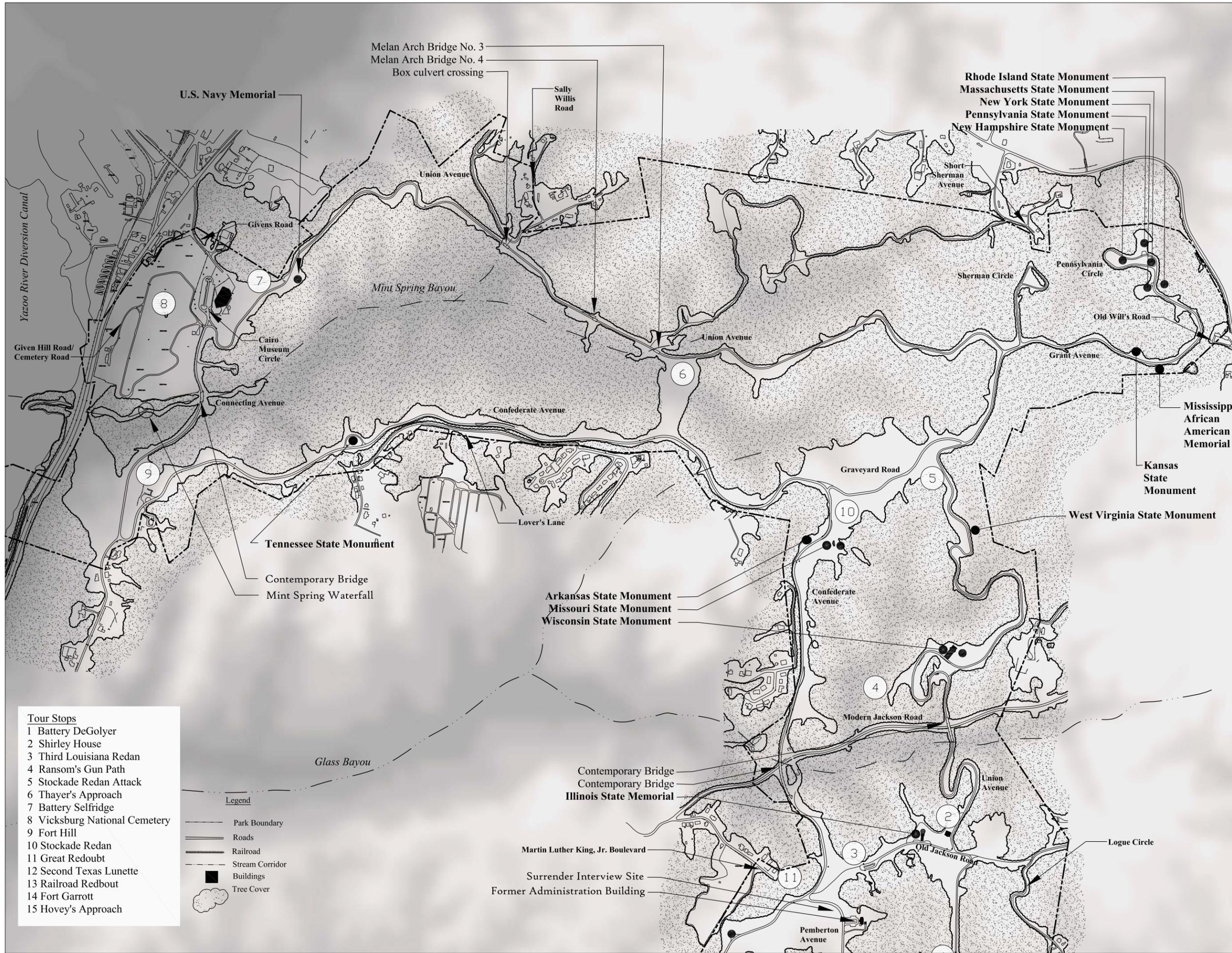
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Existing Conditions  
 North

Figure 57



- Tour Stops**
- 1 Battery DeGolyer
  - 2 Shirley House
  - 3 Third Louisiana Redan
  - 4 Ransom's Gun Path
  - 5 Stockade Redan Attack
  - 6 Thayer's Approach
  - 7 Battery Selfridge
  - 8 Vicksburg National Cemetery
  - 9 Fort Hill
  - 10 Stockade Redan
  - 11 Great Redoubt
  - 12 Second Texas Lunette
  - 13 Railroad Redoubt
  - 14 Fort Garrott
  - 15 Hovey's Approach

- Legend**
- Park Boundary
  - Roads
  - Railroad
  - - - Stream Corridor
  - Buildings
  - ☁ Tree Cover

**U.S. Navy Memorial**

**Melan Arch Bridge No. 3**  
**Melan Arch Bridge No. 4**  
**Box culvert crossing**

**Sally Willis Road**

**Union Avenue**

**Givens Road**

**Mint Spring Bayou**

**Confederate Avenue**

**Graveyard Road**

**Confederate Avenue**

**Modern Jackson Road**

**Old Jackson Road**

**Union Avenue**

**Logue Circle**

**Pemberton Avenue**

**Martin Luther King, Jr. Boulevard**

**Surrender Interview Site**  
**Former Administration Building**

**Arkansas State Monument**  
**Missouri State Monument**  
**Wisconsin State Monument**

**Illinois State Memorial**

**Contemporary Bridge**  
**Contemporary Bridge**

**Contemporary Bridge**  
**Mint Spring Waterfall**

**Tennessee State Monument**

**Given Hill Road/Cemetery Road**

**Connecting Avenue**

**Cairo Museum Circle**

**Grant Avenue**

**Old Will's Road**

**Mississippi African American Memorial**

**Kansas State Monument**

**West Virginia State Monument**

**Mississippi African American Memorial**

**Rhode Island State Monument**  
**Massachusetts State Monument**  
**New York State Monument**  
**Pennsylvania State Monument**  
**New Hampshire State Monument**

**Short Sherman Avenue**

**Sherman Circle**

**Pennsylvania Circle**

**Yazoo River Diversion Canal**

**Given Hill Road/Cemetery Road**

**Lover's Lane**

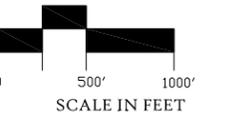
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- Tour Stops**
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- Legend**
- Park Boundary
  - Roads
  - Railroad
  - Stream Corridor
  - Buildings
  - Tree Cover

Existing Conditions  
 South

Figure 58

## Environmental and Cultural Context and Setting

Vicksburg National Military Park is located along the west central edge of the state of Mississippi on an escarpment of bluffs that rises more than 300 feet above the Mississippi River and overlooks the city of Vicksburg as well as the plains and bayous of eastern Louisiana. The escarpment is part of a geological formation associated with the Lower Mississippi Valley known as the Loess Bluffs, which extends from the confluence of the Ohio and Mississippi Rivers in northwest Kentucky to Baton Rouge, Louisiana.<sup>128</sup> It also falls within the Loess Hill Physiographic Province, an area characterized by steep hills and bluffs rising abruptly from the river alluvial plain. These hills and bluffs are between ten and twenty-five miles wide; the Vicksburg region contains the thickest deposits of loess soil in the Tennessee-Mississippi-Louisiana area.<sup>129</sup>

While the river is edged to the west by swampy bayous and floodplain, its eastern bank is characterized by the deep soil profile and dramatic topographic relief of the Loess Bluffs physiographic province. The loess soils that form these bluffs are as thick as 200 feet in places, and largely responsible for the region's unusual topography, deeply channeled ravines, and intermittent and limited springs. The loess originated as pulverized rock deposited in the Mississippi floodplain by retreating glaciers during the late Pleistocene epoch. During the advance of the glaciers during the Pleistocene era, specifically the Iowan glacier, the ice floes pulverized the bedrock over which it passed, as well as the boulders it carried in transit. This created an abundance of fine materials that traveled in meltwater. This "rock flour" was carried

southward by the Mississippi and its tributaries. As the ice floes receded, the exposed floodplain deposits were picked up by the prevalent winds and blown onto the eastern riverbank of the Mississippi and the uplands. As the bluffs built up, they slowed the wind's velocity; thus the thickest deposits are found directly along the shores.<sup>130</sup> The deposits occur in a belt reaching five to fifteen miles inland from the bluff line. At Vicksburg, the loess soil extends from ten to fifteen miles away from the river.<sup>131</sup> The Loess Bluffs are thickest on their western edges, averaging 100 feet and reaching 200 feet in some places, and becoming gradually thinner to the east (Fig. 59). While a relatively unusual soil type, loess soils are also found in the mid-continent United States, China, Argentina, and eastern Europe.<sup>132</sup>

Due to the high impermeability and erodibility of loess soils, streams and gullies are incised deeply and sharply between linear ridges. This dramatic landform and topography played a key role in the military tactics of both armies engaged in the 1863 siege of Vicksburg.

The Vicksburg area has a mean average precipitation rate of 60 inches. While Vicksburg's winters are mild, with an average temperature of 35 degrees, summers are typically extremely hot and humid, with an average temperature in August of 92 degrees, and the potential for sudden and severe thunderstorms. In summertime, most visitors view the park from along the tour road, inside air-conditioned vehicles. The subtropical latitude and proximity to maritime tropical air originating in the Gulf of Mexico influence the climatic patterns of the area. Tropical storms occur most frequently from July to September. During the winter months, cold masses of air may be accompanied by prolonged heavy rains.

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128. Warren E. Grabau, *Ninety-Eight Days; A Geographer's View of the Vicksburg Campaign* (Knoxville, Tennessee: The University of Tennessee Press, 2000), 14.

129. Mactec, *Vicksburg National Military Park Environmental Assessment for Landscape Rehabilitation*, Draft (Atlanta: National Park Service, 2009), 3–7; from USDA, 1964; Walker, 2008.

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130. William Clifford Morse, Ph.D., "The Geologic History of the Vicksburg National Military Park Area" *Mississippi State Geological Survey Bulletin* 28 (1935): 14.

131. Grabau, 21.

132. Randall J. Schaetzl and Sharon Anderson, *Soils: Genesis and Geomorphology* (Cambridge, New York: Cambridge University Press, 1994), 198.



**FIGURE 59.** View across the Loess Bluffs toward the former Mississippi River bed, from Fort Hill, looking west.



**FIGURE 60.** Views of the Yazoo River Diversion Canal, from Fort Hill, looking northwest.



**FIGURE 61.** View of development encroaching on the park boundary, on the northwest portion of Confederate Avenue, west of Thayer's Approach, looking south.

The park falls within the Mississippi River watershed. Vicksburg originally evolved as a port city to take advantage of shipping and commerce along the Mississippi River. By 1863, Vicksburg had become one of the last Confederate strongholds along the river and thus the focus of Confederate defense and Union advance. The Mississippi River is therefore an integral part of the story of Vicksburg National Military Park, even though it does not fall within park boundaries. The river has, however, meandered since the Civil War and no longer edges the city or the bluffs to its north where the Confederates anchored the end of their defensive line. Today, the Yazoo River Diversion Canal occupies a portion of the former river channel (Fig. 60). In 1876, the Mississippi River formed a new channel west of the city during a flood. A diversion canal was created soon thereafter from the Yazoo River along the former bed of the Mississippi River to reestablish Vicksburg as a port, and the abandoned bend was renamed Lake Centennial. The canal edges the park for approximately one-half mile. The park's northern stream corridors empty into the canal, which in turn drains into the Mississippi River approximately one mile north of Louisiana Circle. Views to the canal allow interpretation of the historic relationship between the military events of the Civil War and the river.

Three forest types dominate the region. These include oak-hickory woodland, oak-gum-cypress woodland, and elm-ash-cottonwood woodland. Oak-hickory forests characterize the loessal uplands. Oak-gum-cypress woodlands are typically found on the alluvial plain of the river and many streams, while elm-ash-cottonwood woodlands are found in association with other hydric and moist-mesic soils.

Until relatively recently, Warren County was mainly agricultural.<sup>133</sup> While the economic base of the county has shifted into other areas including industry, there remain many acres managed for agricultural production. The growing season

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133. William A. Cole and R.C. Carter, "Soil Survey; Warren County, Mississippi" (Washington, D.C.: U.S. Government Printing Office, 1964), 1.

generally lasts between 240 and 260 days.<sup>134</sup> Cotton and has been an important crop within the region; however, many areas of the county are not well suited to cultivated crops due to steep slopes or the risk of flooding.<sup>135</sup> These areas are typically wooded or used as timber plantations.

Vicksburg is the seat of Warren County, Mississippi. It lies 40 miles due west of the capital of Jackson, and 234 miles northwest of New Orleans, Louisiana. U.S. Highways 80 and 61, and Interstate 20 service the region, and pass within close proximity to the park. In 2000, the federal census tallied the city's population at 26,400, with a density of 310 people per square kilometer, an increase of 26 percent over 1990 census figures. Warren County remains relatively rural, with an estimated population of approximately 49,000 residents, and a density of 1363 people per square kilometer. Approximately 23 percent of the population lives below the poverty line.<sup>137</sup> Numerous industries are based in Vicksburg, including mills and cement plants; in 2006, manufacturing was identified as the city's largest economic sector.<sup>138</sup>

Vicksburg National Military Park lies approximately one mile to the east and north of the city's urban area. The landscape between the city and the park is characterized by commercial, industrial, and institutional developments, as well as residential subdivisions and urban neighborhoods. Since the 1950s, the City of Vicksburg has been slowly expanding toward and beyond the park. As a result, the park is experiencing development pressure along much of its boundary. This pressure is currently greatest

along its eastern boundary where a large elementary school, numerous commercial ventures, and a new regional hospital have recently been built along the U.S. Highway 61 corridor. Commercial development along U.S. Highway 80 and the Interstate 20 frontage road occurs within close proximity to the park's boundaries and has impacted the park's viewsheds and water resources, and heightened incidences of vandalism (Fig. 61). This development is visible from the park's entrance area and the South Loop.

## Site Description

Vicksburg National Military Park is one of 380 park units administered by the NPS as part of the National Park System. The park preserves the majority of the landscape associated with the 1863 siege and defense of Vicksburg. Confederate and Union military commanders and engineers integrated the high bluffs, rugged ravines and narrow ridges, and road and rail line corridors into their strategies for the siege and battle. The park's landscape features are essential to interpretation of the siege and range of military operations and tactics conducted by Confederate and Union forces. During the siege, both armies cleared trees to clear the line of fire associated with their weapons. Today, the views are all but blocked by dense woodland that has grown up since the twentieth century. Many of the existing trees grew up in areas revegetated by the Civilian Conservation Corps (CCC) to protect the erodible soils from washing away.<sup>139</sup>

Vicksburg National Military Park is comprised of six noncontiguous units: the main battlefield unit, South Fort, Louisiana Circle, Navy Circle, Pemberton's Headquarters, and Grant's Canal. Abutting the park is Vicksburg National Cemetery, which includes 17,000 interments, the largest number of Civil War Union soldier burials of any national cemetery in the United States. Together, the park and the cemetery extend over approximately 1,800 acres. Both are administered by the National Park Service.

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134. Delcourt and Delcourt, 1975, as cited by Stephen A. Walker, *The Vascular Flora of Vicksburg National Military Park; Vicksburg, Mississippi* (Arlington, Virginia: The Nature Conservancy, 1997), 28.

135. Cole and Carter, "Soil Survey," 1.

136. U.S. Census Bureau, 2000 census data.

137. Ibid.

138. "Overview of Warren County, Mississippi," Indiana Business Research Center, [http://www.stats.indiana.edu/uspr/a/usprofiles/28/us\\_over\\_sub\\_pr28149.html](http://www.stats.indiana.edu/uspr/a/usprofiles/28/us_over_sub_pr28149.html) (accessed September 4, 2007).

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139. Mactec, EA, 3-5.

The main battlefield unit of Vicksburg National Military Park forms a crescent shape that cradles the city to its north and east. It protects and interprets the sites of the Confederate defensive line of fortifications established to maintain control over the Mississippi River corridor, and the Union batteries, earthworks, and approach routes established to attack the Confederate position. A few privately-held parcels occur within the park's legislative boundary. Some are twentieth-century residential properties, while the Anshe Chesed Cemetery, located along Confederate Avenue and Clay Street to the west of the visitor center, is a Hebrew burial ground established circa 1864 prior to the park.

The park also includes three small parcels overlooking the river to the south of the city—Louisiana Circle, South Fort, and Navy Circle—that protect evidence of batteries located by Confederate forces to protect the river and Warrenton Road avenues of approach, and Union forces to fire on these Confederate positions. Pemberton's Headquarters is the most recent addition to the park. It protects the dwelling that housed the Confederate commander during the siege. The dwelling is located in downtown Vicksburg. The Grant's Canal parcel is located across the river in Madison Parish, Louisiana, and protects and interprets the site of failed attempts by Brig. Gen. Thomas Williams and General Ulysses S. Grant in 1862 and 1863 to reach Vicksburg by establishing a canal across the base of DeSoto Point from the west side of the river to develop a channel for navigation that would allow gunboats to bypass Confederate batteries stationed along the riverfront. Neither the cemetery, nor the Pemberton's Headquarters and Grant's Canal parcels are documented as part of this CLR.

Parcels formerly included in the park were quitclaimed to the City of Vicksburg and Warren County in the 1960s. To the south of the park is a system of roads and associated monuments and earthworks remnants currently managed by the City of Vicksburg. These lands were exchanged with the city in 1963 for land along the northern boundary of the main battlefield unit. The NPS

continues to maintain the monuments located on these city-owned parcels, while the city is responsible for the upkeep of the road corridors. In 1964, twenty-four acres along Sherman Avenue and Short Sherman Avenue, were quitclaimed to Warren County. While most of the monuments were moved into the remaining park land, a few were left on privately-owned residential properties at the request of the owners. In 2008, three more were moved onto park land.

Vicksburg National Military Park is listed in the National Register of Historic Places for its association with the important events of the campaign, siege, and battles for Vicksburg conducted between March 29 and July 4, 1863. In 1899, Vicksburg National Military Park was created by the federal government as one of five national military parks established in the 1890s to commemorate decisive battles of the Civil War. During the late nineteenth and early twentieth centuries, veterans and various state and federal commissions placed tablets and monuments to mark the important sites of engagement, and the locations of regiment and battery contributions to the siege. These features, which provide a direct connection between those involved in the engagement and the visitor, and support access to and commemoration of the battlefield landscape, are also protected within the park.

Today, Vicksburg National Military Park features more than 1,340 historic monuments and markers, twenty miles of original and reconstructed trenches and earthworks, approaches and parallels, eight historic bridges, an antebellum home, a sixteen-mile tour road, 149 emplaced cannon, and a restored Union gunboat.<sup>140</sup> The primary organizing element of the park is the tour road, which winds its way through the complex topographical terrain, tracing both the Union and Confederate siege and defense lines and providing access to important fortifications and engagement

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140. Information conveyed by Vicksburg National Military Park personnel to the CLR team. The figures are not consistent with the information included in the park National Register nomination.

sites. Approximately 550 acres of the park landscape are maintained in mown grass cover to facilitate access to and an understanding of the monuments and military terrain. The remainder of the park is characterized by the woodland cover, described earlier, which developed after a revegetation effort conducted by the CCC in the 1930s to protect against erosion of the loess soils. Woodland cover often obscures important visual connections between the opposing Civil War-era siegelines.

Topographic change and relief within the park is dramatic. Due to the erodibility of the loess soils, most of the ridges are edged by steeply sloped ravines, sometimes reaching 45 degree angles. Elevations range from a height of 400 feet above mean sea level (AMSL) in the vicinity of the Illinois State Memorial to a low point of approximately 75 feet AMSL in association with Mint Spring Bayou near the park's western boundary. The park's high point occurs as part of a ridgeline that extends northeast/southwest across the center of the park between the Great Redoubt and the Old Jackson Road corridor near the Shirley House. One of the most dramatic topographic features of the park is Fort Hill, a steeply-sloped knoll that overlooks the Mississippi River at an elevation of 340 feet AMSL. This landform played a key role in the defense of Vicksburg and the river due to its commanding position.

Three perennial stream corridors traverse the park. These include Mint Spring Bayou in the northern section of the park, Glass Bayou extending across the center of the park, and branches of Durden Creek in the southern portion of the park. Other wetlands and water resources include slope or seep palustrine forested wetlands associated with seepage-saturated soils and gullies, and classified as "non-tidal, seasonally-flooded/saturated, inland fresh, circumneutral, on mineral soil. . . These wetlands are recharged from rainwater that percolates from higher elevations and contributes to seepage, subsurface, and sheet flows."<sup>141</sup> Many of the park's wetlands exhibit

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141. Katya Kovalenko and Eric Dibble, Ph.D., "Wetland Inventory; Vicksburg National Military

evidence of soil disturbance and are infested with invasive plant species.

## Existing Conditions

### Documentation by Landscape Feature

#### Natural Systems and Features

The primary natural systems and features of the Vicksburg National Military Park are its limestone geology, Loess Bluffs soils, bayous, streams, waterfalls, wetlands, and native woodland.

#### Limestone Geology and Travertine

**Formations.** The park is generally underlain by fossiliferous limestone, a byproduct of sedimentation that occurred during the late-Mesozoic period when the Gulf reached much farther north and covered a large portion of the southern United States, including current-day Vicksburg. The calcareous shells of marine invertebrates, ground into fragments, form the basis of limestone and shell marl. Mint Spring Bayou is one of the few areas of the park where bedrock is exposed; here, the substrate contains a large number of fossils from the Byram era. The fossil bed associated with the Mint Spring formation is considered a significant paleontological resource.<sup>142</sup> Formations of flowstone and dripstone, also known as travertine, have been found within the exposed cave passage along a tributary of Glass Bayou.<sup>143</sup> The condition of this geologic formation is generally good.

Within the lower river terraces, layers of red, sandy clay and gravel are deposited above the limestone and shale bedrock geology. These are visible along the base of the line of bluffs, at approximately river level. The fine loess particles,

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Park" (Mississippi State, MS: Department of Wildlife and Fisheries, Mississippi State University, December 2007), 11.

142. Mactec, EA, 3–8; from Cliff and Buysse.

143. Robert J. Cooper et al., "Natural Resource Summary for Vicksburg National Military Park (VICK)" (Athens, Georgia: University of Georgia, Warnell School of Forest Resources, November 2004), 9.

as described above, were deposited above these layers of sediments after the retreat of Pleistocene glaciation.

**Loess Soils.** Vicksburg National Military Park is primarily underlain by the Memphis-Natchez-Adler soil association, which is found over approximately 60 percent of Warren County lands. The well-drained soils of this association are typically found in hilly loessal uplands and local silty alluvia. Loess soils are very fertile and are one of the richest soil types in the world.<sup>144</sup> Memphis and Natchez soils comprise about 70 percent of the association.

Memphis soils are well-drained and loess-based. This soil type occurs on nearly level to very steep slopes in the uplands of Warren County. In areas that have not been eroded, natural fertility is moderate, organic content is low, and reaction is strongly acid. Memphis soils are well suited to most of the commonly grown crops in the county. The movement of water through the soil is very slow, but enough moisture is generally available to support the needs of most plants. When cultivated, the soil is subject to erosion; cultivation is not recommended on steeper slopes due to the erosion hazard.<sup>145</sup>

Natchez soils are also well-drained and loess-based, occurring on strongly sloping to steep slopes of upland areas within Warren County. Natchez soils have moderate fertility and a low organic matter content. The reaction is strongly to moderately acid. These soils are typically found in areas that are too steep for cultivation, and are best suited to perennial vegetation.<sup>146</sup>

Adler soils are moderately drained and formed in the alluvium washed from loessal uplands found in stream valleys on nearly level sites. Natural fertility is moderate, the organic matter content is low, and

the reaction is mildly alkaline. They are well-suited to a range of crops and pasture plants.<sup>147</sup>

The unique properties of the soils of the Loess Bluffs have played an integral role in shaping the park's terrain. Loess is composed of tiny plate-like particles locked together by calcium carbonate. The plates give the soil an unusual crystalline structure. The resulting soil is soft, easy to work, and will stand in a vertical bank indefinitely, requiring little in the way of bracing, despite the fact that the soil is very loosely consolidated and has the consistency of flour.<sup>148</sup> These properties were exploited by both armies at Vicksburg in their fortification construction and mining operations, as well as by civilians, who dug cave dwellings into the Loess Bluffs for protection against artillery fire. In an undisturbed state, this structure has a very high porosity. Despite its porosity, the soil is highly impermeable. Water does not percolate through loess soil, but will quickly erode the particles when it runs across an exposed surface (Fig. 62). Due to this high erodibility, the Loess Bluffs are characterized by a steep and deeply dissected topography that affords a diversity of habitats for plants and animals.<sup>149</sup>



**FIGURE 62.** Example of erosion of the local loess soils, south of the walkway leading to the Stockade Redan Attack tour stop.

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144. William Clifford Morse, Ph.D., "The Geologic History of the Vicksburg National Military Park Area" *Mississippi State Geological Survey Bulletin* 28 (1935): 15.

145. Cole and Carter, "Soil Survey," 10–11.

146. Cole and Carter, "Soil Survey," 13.

147. Cole and Carter, "Soil Survey," 4.

148. Christopher R. Gabel, *Staff Ride Handbook for the Vicksburg Campaign; December 1862–July 1863*, 49, <[www.cgsc.army.mil/carl/resources/csi/gabel15/gabel15.asp](http://www.cgsc.army.mil/carl/resources/csi/gabel15/gabel15.asp)>.

149. Samuel Faulkner, Ph.D., "Mississippi's Geology" (Cleveland, Mississippi: Delta State University, 2003), <[www.marshdoc.com/physiography/physiography2/physiography2.html](http://www.marshdoc.com/physiography/physiography2/physiography2.html)>.

Over millennia, runoff water carved out deep ravines in all directions. The slopes dropping into the ravines are quite steep in many places.<sup>150</sup> The current condition of the park bluffs ranges from fair to good.

### **Mint Spring Bayou, Glass Bayou, Durden**

**Creek.** The park is crossed by three stream corridors—Mint Spring Bayou, Glass Bayou, and Durden Creek—as well as various minor perennial and intermittent streams. All eventually empty into the Mississippi River; Mint Spring and Glass Bayou feed into the Yazoo River Diversion Canal, while Durden Creek flows into Hatcher’s Run, which drains directly into the Mississippi River. The park’s drainages are fed by springs, which maintain a constant flow even though the speed and depth of the water vary during the year.<sup>151</sup> Both Mint Spring and Glass Bayous have worn steeply-sloped ravines into the Loess Bluffs.<sup>152</sup>

Mint Spring and Glass Bayous were described in a 1935 geological survey, including their relationship to the surrounding terrain, as follows:

For their length and for the volume of their waters, [Mint Spring and Glass Bayous] both have cut enormous valleys of great depth and steep walls. Along the ridge constituting the southern or left valley wall of the more northern of these two valleys, Mint Spring, the Confederates took up their position and entrenched in the loess, the most ideal of mantle rock for rapidity in excavation and for stability of vertical walls. From the head of Mint Spring valley, they extended their line southward along the ridge constituting the west or right wall of one of the tributary valleys of Glass Bayou. From Fort Hill on the Mississippi bluff, their line extended east and thence south unbroken topographically to the crossing of the main valley of Glass Bayou near the old Jackson Road. On the side of the valley opposite these various positions of the Confederates, the Federals took up their position and likewise entrenched in the loess.

150. Grabau, 21–22.

151. “Vicksburg National Military Park Springs and Seeps,” <[www.nps.gov/vick/naturescience/springs.htm](http://www.nps.gov/vick/naturescience/springs.htm)>, accessed May 17, 2007.

152. Cooper et al., 13.

Between these parallel lines was no level way of approach other than the narrow transverse ridge forming the divide between the headwaters of Mint Spring Bayou and Glass Bayou. This transverse ridge is a part of the Graveyard Road and was actually used as the Ewing approach.<sup>153</sup>

Mint Spring Bayou is the only stream within the park that falls entirely within park boundaries. It is located within the northern section of the main battlefield unit, and flows generally west from the vicinity of Thayer’s Approach toward the western boundary of the park, passing beneath Connecting Avenue and to the south of Vicksburg National Cemetery before emptying into the Yazoo River Diversion Canal. Mint Spring Bayou is classified as a perennial stream along its lower section, while over its upper reaches it is considered an intermittent stream. The volume of flow decreases during the summer months, with the stream channel diminishing from a maximum width of fifteen feet after heavy rains to twelve feet, and a depth ranging from 1.1 feet to 0.7 feet. NPS has monitored Mint Spring Bayou for temperature, dissolved oxygen, pH, and conductivity since 1995. No unusual environmental contamination has been detected relative to the variables being measured.<sup>154</sup> The condition of the stream corridor ranges from fair to good. Recently, increased sedimentation resulting from the run-off of nearby urban development, especially along Highway 61 east of the park, has resulted in higher water

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153. “Geologic Control of the Armies” *Mississippi State Geological Survey Bulletin 28*, <[www.cr.nps.gov/history/online\\_books/geology/publications/bul/mgs-bul-28/sec3.htm](http://www.cr.nps.gov/history/online_books/geology/publications/bul/mgs-bul-28/sec3.htm)>.

154. Mactec, EA, 3–9 ; Eric Dibble of Mississippi State University has been collecting information about the condition of the park’s streams and natural habitats for more than a decade: “An ongoing study by the associate university professor is providing the National Park Service with comprehensive, science-based information about existing stream conditions and the presence of bank-side flora and fauna. It is believed to be the first ecological evaluation of the streams since the park was established in 1899,” from “MSU Study Reveals Wild Side of Famous Park,” <[www.msstate.edu/web/media/detail.php?id=3367](http://www.msstate.edu/web/media/detail.php?id=3367)>, accessed September 4, 2007.

temperatures in Mint Spring Bayou (Fig. 63).<sup>155</sup> Currently, “restoration of Mint Spring Bayou [is] recommended to aid in re-introduction of native fish species, currently deficient due to invasion of a fathead minnow population, and depletion of streamside vegetation.”<sup>156</sup>

Glass Bayou is a shallow perennial stream that is faster moving, shallower, and narrower than Mint Spring Bayou. The main branch flows through the central portion of the main battlefield unit just south of modern Jackson Road, while a small segment of its northern branch flows beneath Confederate Avenue northwest of Stockade Redan. Glass Bayou flows through an exposed cave passage for a short length. NPS has monitored Glass Bayou for temperature, dissolved oxygen, pH, and conductivity since 1995. The condition of the stream corridor is generally good. Recently, increased sedimentation resulting from the run-off of nearby urban development, especially along Highway 61 east of the park, has resulted in higher water temperatures in Glass Bayou.<sup>157</sup>

Branches of Durden Creek, also known as Big Bayou, extend through the center of the main battlefield unit beginning west of the Minnesota State Monument and flowing south toward the Memorial Arch. A second branch flows for approximately 500 feet through the park’s South Loop between the bottomlands south of Railroad Redoubt and north of Hovey’s Approach. The stream corridor averages three feet in width. A portion is culverted where it passes beneath the South Loop of the tour road.<sup>158</sup> Clearing associated with Railroad Redoubt “entailed removal of several acres of trees planted in the mid-1900s, and opened the landscape to more grassland and herbaceous plants.”<sup>159</sup> Durden Creek is located



**FIGURE 63.** Looking west and down at Mint Spring Bayou from the Connecting Avenue bridge between Vicksburg National Cemetery and Fort Hill; recent studies have been tracking sedimentation in the streams of the park.

within the cleared area. The section running south of Railroad Redoubt is “considered a vital wetland area, was maintained as a buffering area of the restoration process.”<sup>160</sup> The condition of the stream corridor is fair given the degree of disturbance that has occurred to soil within the area.

**Mint Spring Bayou Waterfall.** Two waterfalls are associated with Mint Spring Bayou. The waterfalls are formed from rock outcroppings. One of these, located near the park’s western boundary south of the Vicksburg National Cemetery, has a vertical drop of nearly twenty-five feet and has been designated a Mississippi State Natural Feature. The condition of the waterfalls is generally good.

**Springs and Seeps.** As the surface exit points for water moving underground, springs and seeps are influenced by geology. Within the rolling and hilly topography of the Loess Bluffs, these water features originate from groundwater percolating through the soil and emerge from the ground on the lower slopes, where they develop into small streams or pooled water. Because water does not percolate through loess soil in the same way as

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155. Cooper et al., 16.

156. “Vicksburg National Military Park; Rivers and Streams,” <[www.nps.gov/vick/naturescience/rivers.htm](http://www.nps.gov/vick/naturescience/rivers.htm)>, accessed May 17, 2007.

157. Cooper et al., 16.

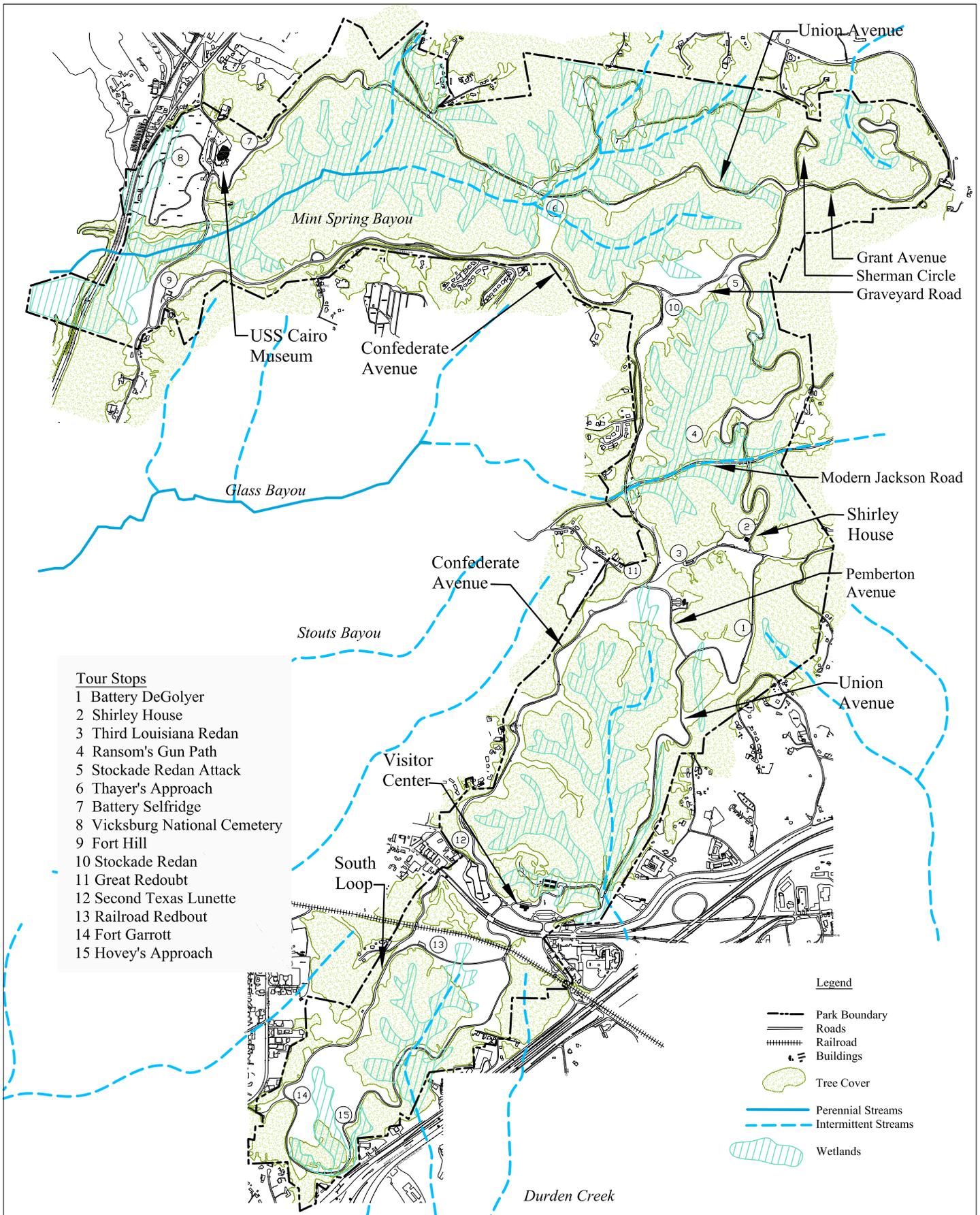
158. Mactec, EA, 3–9.

159. “Vicksburg National Military Park; Rivers and Streams,” <[www.nps.gov/vick/](http://www.nps.gov/vick/)

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naturescience/rivers.htm>, accessed March 25, 2009.

160. Ibid.



**Tour Stops**

- 1 Battery DeGolyer
- 2 Shirley House
- 3 Third Louisiana Redan
- 4 Ransom's Gun Path
- 5 Stockade Redan Attack
- 6 Thayer's Approach
- 7 Battery Selfridge
- 8 Vicksburg National Cemetery
- 9 Fort Hill
- 10 Stockade Redan
- 11 Great Redoubt
- 12 Second Texas Lunette
- 13 Railroad Redoubt
- 14 Fort Garrott
- 15 Hovey's Approach

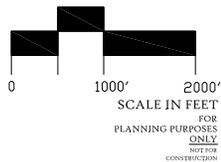
**Legend**

- Park Boundary
- Roads
- Railroad
- Buildings
- Tree Cover
- Perennial Streams
- Intermittent Streams
- Wetlands

Source: Autocad Base Map, USGS Topographic Data  
 December 2007 Wetland Delineation, Kovalenko and Dibble.

Cultural Landscape Report  
 Vicksburg National Military Park

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**Wetlands**  
 Figure 64



other soils, and rainwater is not retained in its mass, there are very few springs in the Loess Bluffs. While springs and seeps are assumed to feed Mint Spring Bayou, as suggested by its name, their locations are not currently known by park staff. Others have been witnessed by park staff, but their locations have not been well documented. The park may include many more slope seepage type wetlands than previously thought.<sup>161</sup> Many of the park's seeps go dry during the summer months, and the streams associated with these seeps are ephemeral and flow only during the winter and early spring months.<sup>162</sup> The condition of park springs and seeps as known is generally good.

**Other Wetlands.** A wetland delineation of the park was conducted by Mississippi State University in December 2007 (Fig. 64).<sup>163</sup> Park wetlands were identified as either riverine, unconsolidated bottom or streambed, or palustrine forested wetlands. They are most commonly associated with slopes with seepage-saturated soils, gullies, ephemeral creek beds, and streams such as Mint Spring Bayou, Glass Bayou, and Durden Creek,<sup>164</sup> and take the form of wet meadows, vernal pools, and riparian areas, particularly in the South Loop area where there are low-lying depressions and poorly-drained soils. The area around the Railroad Redoubt is thought to have significant areas of wetlands that merit further study and investigation. Vernal or ephemeral pools also occur within the park and provide shallow-water habitat for many faunal species, which in turn feed many predators such as bats and raccoons. These areas only exist during the wettest time of the year, and are typically not

present during the hot Mississippi summer.<sup>165</sup> Within the park, portions of many wetland communities are dominated by Chinese privet (*Ligustrum sinense*).<sup>166</sup> The condition of park wetlands generally ranges from fair to good, although some disturbed environments infested by privet may be classified as in poor condition.

Functionally, forested wetlands in the park are defined as seepage or slope wetlands, which are recharged from rainwater that percolates from higher elevations and contributes to seepage, subsurface, and sheet flows. According to disturbance-level criteria, seepage and riverine wetlands in the park were judged pristine to moderately disturbed (primarily by upstream modifications and invasive plants), and modified wetlands (such as the Railroad Redoubt cleared area) were judged severely disturbed.<sup>167</sup>

Forested wetlands of the park may play an important role in control of erosion and siltation. Dense growth of Chinese privet may compromise this role and habitat wetland functions. Most areas overgrown with privet have very sparse herb and other shrub cover and lack of extensive root systems, thus potentially allowing soil erosion to occur beneath the stands, and precluding associated soil moisture retention. Areas dominated by native giant cane (*Arundinaria gigantea*), however, had a more extensive root system in the upper part of the soil and may be a desirable component of wetland habitats in terms of soil erosion control and water retention. Water retention by seepage wetlands is essential for streamflow maintenance and integrity of the overall watershed. Saturated soils were observed in the park up to two months after the last significant precipitation was recorded. It is also possible that seepage wetlands prevent the soil from extreme desiccation, which may lead to changes in soil structure; therefore this type of wetland is important for maintaining soil integrity

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161. National Park Service, Review comments provided to CLR team relating to 75% draft, Part 1, August 2007.

162. Grabau, 21.

163. K. Kovalenko and E. Dibble, "Vicksburg National Military Park Wetland Delineation: Final Report" (Starkville: Mississippi State University, Department of Wildlife and Fisheries, 2007).

164. Mactec, EA, 3–10; from Kovalenko and Dibble, 2007.

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165. "Wetlands, Marshes and Swamps," <[www.nps.gov/vick/naturescience/wetlands.htm](http://www.nps.gov/vick/naturescience/wetlands.htm)>, accessed March 25, 2009.

166. Mactec, EA, 3–10.

167. Mactec, EA, 3–10; from Kovalenko and Dibble, 2007.



**FIGURE 65.** Mown grass areas of the park edged by woodland, at the Surrender Interview Site Monument, looking southeast along Pemberton Avenue.

and reducing erosion.<sup>168</sup> Springs and seeps within the park provide important habitat for many amphibians and reptiles, including spotted dusky salamanders (*Desmognathus conanti*) and box turtles (*Terrapene carolina*), which forage in the shallow waters and often rehydrate themselves in these areas before traveling through drier, upland territory.<sup>169</sup>

**Native Woodlands.** The landscape of Vicksburg National Military Park is characterized by a mix of forested and open, grassy areas (Fig. 65). Currently, approximately 70 percent, or 1,250 acres, of the park is wooded, while 550 acres are maintained in grass and other low-growing ground covers through mowing and burning. The steep ravines are generally covered by dense woody vegetation, while many of the ridgelines occupied by earthworks and the tour road are maintained in cool-season grasses. The wooded areas have mainly developed since CCC revegetation efforts in the 1930s to prevent soil erosion. These woodlands exhibit a high degree of diversity, generally attributed to the forest's relatively young age. More than sixty species of trees and shrubs have been identified within the park as part of past inventories. Yet, at seventy-five

years of age, the stands that exist today are some of the oldest second-growth woodland in Mississippi.

The park falls within the loess hill ecosystem, which borders the eastern edge of the lower Mississippi River Valley from Cairo, Illinois, to Baton Rouge, Louisiana. Vicksburg National Military Park is the largest publicly-held parcel of wooded loess soils in the United States,<sup>170</sup> and the Loess Bluffs support “the only major southward extension of mixed mesophytic forest through Mississippi into Louisiana.”<sup>171</sup> In a 1964 *Vascular Flora of Vicksburg National Park*, E.L. Braun describes the area as a mixed mesophytic forest dominated by beech (*Fagus grandifolia*) and cucumber tree (*Magnolia acuminata*). In 1996–1997, Stephen A. Walker of the Nature Conservancy prepared an inventory of park plant species (see Appendix C). During the inventory, only two small stands of beech were observed, and no cucumber trees were in evidence.

Walker describes the park's woodland as a mixed, mesophytic forest with a predominance of southern red oak (*Quercus falcata*) and white oak (*Q. alba*). Other common overstory trees include southern sugar maple (*Acer barbatum*), basswood (*Tilia americana*), black oak (*Q. velutina*), and northern red oak (*Q. rubra*), elm (*Ulmus spp.*), walnut (*Juglans nigra*), and hickories (*Carya spp.*). Understory and shrub species include ironwood (*Carpinus caroliniana*), dogwood (*Cornus florida*), redbud (*Cercis canadensis*), pawpaw (*Asimina triloba*), sassafras (*Sassafras albidum*), American hydrangea (*Hydrangea americana*), and oak-leaved hydrangea (*Hydrangea quercifolia*).<sup>172</sup>

Naturally occurring, but less frequently observed, are shortleaf and loblolly pine (*Pinus echinata*, *P. taeda*), American holly (*Ilex opaca*), hawthorn (*Crataegus spp.*), and vines. Christmas fern (*Polystichum acrostichoides*), rattlesnake fern

168. Mactec, EA, 3-10; from Kovalenko and Dibble, 2007.

169. “Springs and Seeps,” <<http://www.nps.gov/vick/naturescience/springs.htm>>, accessed May 17, 2007.

170. Personal communication, Kurt Foote, National Park Service, to Liz Sargent, JMA, March 2007.

171. Walker, 28.

172. Virginia DuBow, personal communication, May 30, 2008.



**FIGURE 66.** One of the park's many reforested areas, just after Union Avenue's western bend toward the Illinois Monument, looking northwest. The Shirley House is barely visible behind the trees; during the siege, this exposed escarpment was the site of many *shebangs*, or lean-to shelters, in which Union soldiers encamped.

(*Botrychium virginianum*), green trillium (*Trillium viride*) and bedstraw (*Galium aparine*) are in evidence in the herbaceous understory (Fig. 66).<sup>173</sup>

Mesic and hydric communities occupy the stream valleys. These are characterized by species such as oak (*Quercus spp.*), cottonwood (*Populus deltoides*), sweetgum (*Liquidambar styraciflua*), sycamore (*Platanus occidentalis*), and yellow poplar (*Liriodendron tulipifera*). The understory consists chiefly of roughleaf dogwood (*Cornus asperifolia*), American holly, low shrubs, and vines.

Notable forest stands include a mature area of bottomland vegetation along Mint Spring Bayou, likely older than the CCC revegetation efforts, and another located along the Yazoo Diversion Canal margin. Other plant communities inventoried within the park include cherrybark-water oak association, sweetgum-pecan tree-water oak association, tulip tree-oak association, black willow association, black locust association, sycamore mix, and smooth sumac shrubland.

Giant cane is another plant of interest within the park. A member of the grass family, giant cane is a native perennial bamboo found in wet woods and swamps or along river banks. It grows in dense

173. *Ibid.*, 33.



**FIGURE 67.** Giant cane (*Arundinaria gigantea*) growing in a low-lying area, looking south from the vicinity of the Wisconsin Monument. Dense stands of cane were present in the landscape during the siege and presented obstacles to movement and also material for the construction of sap rollers.

stands and was present during the siege of Vicksburg. Some stands grew as high as fifteen feet and created impenetrable thickets that posed a challenge to troop movements, particularly when entangled by vines.<sup>174</sup> The cane was also used to make sap rollers by the Union soldiers in their mining efforts to approach the Confederate earthworks (Fig. 67).

Invasive species are prevalent in many areas of the park. Although the woodlands are generally in fair to good condition, colonization of park woodlands and fields by non-natives threatens their ecological health (see Cultural Vegetation section for more information).

**Plant Species of Special Concern.** The 1996–1997 inventory prepared by the Nature Conservancy did not identify any federal or state rare, threatened, or endangered species within the park.<sup>175</sup> Two state-listed plant species of special concern have been identified as occurring or possibly occurring within the park. The prairie nymph (*Herbertia lahue ssp. caerulea*) is associated with a habitat of open, disturbed areas, and is found throughout the park in open grassland areas. The climbing bittersweet (*Celastrus*

174. Grabau, 22.

175. Walker, 32.

*scandens*) was identified during a 2005 survey to verify occurrence for the Biotics 4 Database. This species was later observed within the park on two occasions in April 2008. The habitat for this species includes forests, edges of forests, fields, thickets, and swamps or damp forests.

**Wildlife Habitat.** Various wildlife species inhabit the excellent habitat, including food, water, and shelter, offered by the park's mixed hardwood, mesophytic forests and grasslands. The maturation of the mesophytic forest since the 1930s has supported the return of many species of native fauna, including ungulates, small mammals, birds, reptiles, amphibians, and invertebrates. Trees that have regrown in the park since the 1930s, for example, are today home to many mammal species.<sup>176</sup> Loess bluff hardwood forest has become increasingly fragmented by development and other land uses over the years.<sup>177</sup> The park encompasses one of the few extant tracts of loess bluffs hardwood forest on public land in the United States. The loess soils at the western edge of this ecosystem support unique hardwood forests within the Mississippi River floodplain and the more well-drained upland pine forests of the east gulf coastal plain. Forest species are reliant upon woodland resources to survive and successfully reproduce, and will use every available ecological niche until the carrying capacity of a particular habitat is reached. Forested habitats with structural and compositional heterogeneity provide for microhabitats and food sources that support species diversity. While the park's grasslands support the habitat requirements of additional species, those areas of the park that are monocultures of Bermuda grass (*Cynodon dactylon*) tend to be less biologically productive, and do not support a wide range of species.

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176. For more information, see recent park wildlife inventories, including E. D. Keiser, "Survey of the Amphibians and Reptiles of Vicksburg National Military Park: Final Report" (Gulf Coast Network Inventory & Monitoring, National Park Service, 2002); and J. M. Linehan and M.T. Mengak, "Inventory of the Mammalian Species at Vicksburg National Military Park: Final Report" (Gulf Coast Network Inventory & Monitoring, National Park Service, 2006).

177. Mactec, EA, 3–14.



**FIGURE 68.** Wild turkeys were observed in the park during the January 2007 CLR field investigations along the shoulder of Confederate Avenue in the northwest region of the park. Vicksburg National Military Park has become significant habitat for wildlife, particularly migratory birds.

**Birds.** The park is located along the central flyway of the United States, a major habitat corridor for migrating and breeding bird species that focuses along the Mississippi River. The park's varied habitats—hardwood forest, riparian areas, grasslands, and edge communities—make it an important stopping place along the route (Fig. 68). To date, 180 species of birds have been sighted within the park, including several of conservation or high conservation priority, such as the white-eyed vireo, worm-eating warbler, hooded warbler, orchard oriole, Swainson's warbler, and Kentucky warbler.<sup>178</sup> The uplands of the park is also the only known concentration point in Mississippi for migrating raptors during the fall. The raptors utilize the park's topography, which constitutes the second highest point of elevation between Memphis and New Orleans, as an important point of reference during migration. Bird enthusiasts travel to Fort Hill to observe broad-winged hawks, sharp-shinned hawks, peregrine falcons, bald eagles, and other raptors during their southward migration.

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178. "Birds," <[www.nps.gov/vick/naturescience/birds.htm](http://www.nps.gov/vick/naturescience/birds.htm)>, accessed March 25, 2009.

The National Audubon Society has designated Vicksburg National Military Park an Important Bird Area (IBA). Important Bird Areas are sites that provide essential habitat for one or more species of birds, and may include breeding, wintering, or migratory stopover sites. Typically, sites are discrete areas that stand out from the surrounding landscape. To qualify as an IBA, a site must support species that are threatened, endangered, or vulnerable due to limited distribution or a concentration in one general habitat or biome, or known to congregate in high densities there. Initiated by a global coalition of more than 100 partner organizations called Bird Life International, the designation is recognized worldwide. The National Audubon Society administers the IBA program in the United States.

The Audubon Society cites non-native plant species and clearing as threats to the Vicksburg IBA designation. Bruce Reid with Audubon Mississippi, along with representatives of the USGS Patuxent Wildlife Research Center, have been monitoring the migratory habits of songbirds within the park since 2003 and hope to continue to collect this data annually. Further surveys are needed during the breeding season to better understand the habitat usage and nesting density of bird species within the park. Breeding bird studies and monitoring activities are proposed for the park, but until these studies have been conducted, a definitive statement of bird habitat usage cannot be made at this time.<sup>179</sup>

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179. "Site Profile," <[iba.audubon.org/iba/viewSiteProfile.do?siteId=1777&navSite=state](http://iba.audubon.org/iba/viewSiteProfile.do?siteId=1777&navSite=state)>, accessed May 21, 2007. Working with the U.S. Geological Survey in 2003 and 2004, Audubon monitored migrating and breeding songbirds in the Loess Hills habitat of the Vicksburg National Military Park. Data were collected over 33 days using the Breeding Bird Survey technique over a 10-mile route (*Audubon Conservation News*, Summer 2003), <[www.freelists.org/archives/chapter-communicator/09-003/msg00000.html](http://www.freelists.org/archives/chapter-communicator/09-003/msg00000.html)>, accessed September 4, 2007. See also S. G. Somershoe, D. J. Twedt, and B. Reid, "Density and Abundance of Spring Migrant and Breeding Birds at Vicksburg National Military Park" (Laurel, Maryland: USGS Patuxent Wildlife Research Center, 2004).

**Wildlife Species of Special Concern.** There are no known federally-listed wildlife species that reside within the park, although one federally endangered bird species—the interior least tern (*Sternaantillarum athalassos*)—may visit the park on a transitory basis. The bald eagle, formerly federally-listed as threatened and recently delisted and now monitored, has been observed near Fort Hill. The Yazoo River Diversion Canal and its adjoining Louisiana bayous provide an abundant source of favored prey for the bald eagle.<sup>180</sup>

There are two reptiles listed by the state of Mississippi as species of special concern that reside in the park. These are the Mississippi map turtle (*Graptemys pseudogeographica*) and the alligator snapping turtle (*Macrochelys temminckii*). There is also one mammal listed by the state as a species of special concern known to inhabit Warren County—the oldfield mouse (*Peromyscus polionotus*). A 2006 mammal inventory conducted at the park did not indicate the presence of the oldfield mouse.

According to MNHP records, the southern red belly dace (*Phoxinus erythrogaster*) is a state fish species of concern found within a two-mile radius of the park. This fish species, however, is not listed on the park's inventory.<sup>181</sup>

**Other Species.** Encroaching development has introduced feral populations of cats and dogs to the park. Some may threaten native species and constitute a hazard to visitors.<sup>182</sup>

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180. Mactec, EA, 3–14; from NPS, 2004.

181. Mactec, EA, 3–15.

182. Cooper et al., 16.

## Responses to Natural Resources

The Loess Bluffs landform influenced early cultural settlement patterns of the region, the Civil War era siege, as well as park development and subsequent management by focusing construction, road building, establishment of defensive structure, and agricultural activities on the narrow ridgelines. Today, the primary cultural responses to natural resources in evidence within the park include remnants of the Confederate defensive fortifications established along ridgelines to command views of avenues of attack (Fig. 69), the siting of the antebellum Shirley House on a ridgeline in close proximity to a spring that provided a ready source of potable water, the tour road system and engineered infrastructure, such as culverts and bridges, paved ditches, drop inlets, curbs and gutters, and terraced slopes placed to follow elevated topography, to manage drainage, and to cross the deeply dissected terrain in the fewest possible locations. In addition, the park visitor center is sited on an elevated plateau adjacent to Clay Street, which is built on fill to afford a level road and development corridor. Existing woodland and some graded areas of the park exhibit the 1930s response to severe erosion caused by careless cultivation practices. These efforts stabilized roads and monuments and contributed additional engineering solutions to stormwater management.

Many of the park's cleared slopes have been planted with Bermuda grass to hold the soil and prevent erosion while maintaining an open character for interpretation and viewing of Civil War-era and commemorative features (Fig. 70).



**FIGURE 69.** A view of cannon sited to mark Civil War gun emplacements associated with earthworks. This view is from the vicinity of the Texas State Monument, looking east along the Railroad Redoubt, one of the major fortifications interpreted at the park.



**FIGURE 70.** The highly erodible, steep slopes within the park are stabilized with vegetation. This view is of a slope east of Confederate Avenue, near the Missouri State Monument, looking east.



**FIGURE 71.** Remnant earthworks are in evidence throughout the park, and they are highly legible when covered with mown turfgrass. These earthworks lie southeast of the Louisiana State Monument and are part of the Great Redoubt complex. This view is from Pemberton Avenue, looking northwest.

## Topography and Topographic Modifications

The topography of Vicksburg is varied and marked by dramatic slopes, deeply incised ravines, and narrow ridges. The variations in topography are evident along the tour road as it curves around hills, dips into ravines, and climbs ridges. Earthen fortification remnants punctuate the existing high points and depict the system of Civil War-era Confederate defenses and the Union siege lines placed along proximate ridgelines and other high ground affording views of the Confederate earthworks (Fig. 71). Many of these views today are obscured by woodland vegetation. The lowlands are characterized by drainage corridors such as Mint Spring Bayou. As noted earlier, elevational differences across the park range from a low point of 75 feet AMSL to a high point of approximately 397 feet AMSL at the site of the Louisiana State Monument.

A 1935 geological survey describes the role of topographic features in structuring the opposing forces:

From Jackson Road the valley of Stouts Bayou drains south by southwestward almost to the Mississippi at the southern edge of the city. The left or east wall of this valley forms a ridge extending unbroken likewise almost to the very bluff of the Mississippi. Along this ridge the Confederates entrenched, thus encircling the city from bluff almost to bluff with a topographically unbroken trench, save for the crossing of Glass Bayou at Jackson Road.

For nearly half of the distance from the Jackson Road ridge southwestward toward the Mississippi bluff, a number of successively lower and lower tributaries of Big Bayou (Durden Creek) head upward toward the ridge, bearing the Confederate trenches, in such a manner as to form along their headwater stretches a succession of headwater valleys, the whole being a linear composite valley parallel with the ridge on which the Confederates were entrenched. On the side of this valley opposite the Confederates, the Federal forces took up their position and entrenched in a parallel line of trenches. Between the two opposing trenches was only one ridge approach, namely,

the Baldwin Ferry Road through the Hebrew Cemetery near the Alabama and Vicksburg Railroad.

For approximately two-thirds of the length of the line of defense trenches, therefore, the Federal line was on the side of a deep valley opposite to, and parallel with, the Confederate line. Throughout this entire distance only three transverse ridges, the Graveyard Road ridge, the Jackson Road ridge, and the Baldwin Ferry Road ridge, connected the two opposing lines of trenches. Consequently, it was necessary that the Confederate trenches be heavily fortified at these three places, for at most other places, even though the steepness of the slope did offer protection at some, it was necessary for either attacking army to descend a steep valley wall and ascend the opposite steep valley wall in the face of a brave entrenched foe. Needless to say, the Federals' attempt to capture these special fortifications led to the hardest and bloodiest fighting along and near these three ridge approaches.

For the remaining third of the encircling line the outward flowing tributaries head upward toward the ridge of the Confederate trenches at right angles to it, thus forming short spur ridges between them. Save for a short distance south of Kentucky Avenue, the Federal trenches were, consequently, not dug in a parallel position. Rather they were dug as a series of zigzag trenches along the crest of some of these spur ridges and as a series of short crescent-shaped trenches across others.<sup>183</sup>

Topographic modifications in evidence within the park are related to military events, road construction, erosion control, construction of park amenities for visitors and administrative features, and interpretation. The topographic modifications relating to military events include the surviving evidence of Confederate and Union earthworks constructed to defend and attack the City of Vicksburg during the Civil War. Road construction, including the park tour road and Clay Street, has often entailed grading, shaping,

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183. "Geologic Control of the Armies," *Mississippi State Geological Survey Bulletin* 28, <[www.cr.nps.gov/history/online\\_books/geology/publications/bul/msgs-bul-28/sec3.htm](http://www.cr.nps.gov/history/online_books/geology/publications/bul/msgs-bul-28/sec3.htm)>.

and the placement of fill to engineer the necessary horizontal and vertical profiles. These efforts are in evidence along the park's road corridors. Erosion control efforts have ranged from extensive regrading and reshaping of the land to stabilize slopes to repair of failed slopes, localized repair with soil and crushed stone, and placement new stormwater management control. Construction of the park's visitor center, USS *Cairo* exhibit and museum, and other buildings and structures has involved regrading to establish level areas of structures and associated roads, walks, and parking areas. Topographic modifications associated with interpretation include reconstruction during the 1960s of one of the Union zigzag trenches as an interpretive aid (Fig. 72), and the construction of representative earthworks in the vicinity of the visitor center as an interpretive aid.

Today, the park continues to experience problems with sinkholes, cave-ins, and erosion (Fig. 73). A borrow pit behind the maintenance area is sometimes utilized to obtain material for repair of erosion problems (Fig. 74).

### Patterns of Spatial Organization

The spatial organization of Vicksburg National Military Park is informed by its landform, land cover, and park features such as buildings, monuments, roads, and fences. The most important factors influencing the volumes of space and character of places within the park are woodland and grass cover.

The layout of the main battlefield unit is a crescent that wraps around the northern and eastern margin of the city, tracing the Confederate fortifications that defended the city from all sides and the Union forces that edged them landward. The fortifications originally extended north and south to the Mississippi River and the original park boundaries encompassed the entire system. However, the southern third of the system is no longer included within park boundaries, changing spatial patterns of the park and the potential for understanding the defensive system as a whole.



**FIGURE 72.** View looking southeast from the foot of Fort Garrott of a zigzag trench reconstructed during the 1960s to interpret Hovey's Approach.



**FIGURE 73.** Erosion around the footings of historic Melan Arch Bridge No. 2 along Union Avenue north of Pemberton Avenue, looking southwest.



**FIGURE 74.** A borrow pit behind the maintenance complex, north of the visitor center, from which fill is used to repair erosion, an ongoing maintenance concern at the park.

During the fall of 1862 through the spring of 1863, the Confederate forces established a nearly continuous line of fortifications, rifle pits, and obstacles around the city, following ridgelines and high points, and fortifying road corridors and other potential avenues of attack. In front of the defensive line in many places were deep ravines “through which Union troops would have to pass to reach the Confederates. The Union siege lines paralleled the Confederate defense line at an average distance of about 500 yards at the beginning of the battle, but this distance was gradually reduced as the siege wore on. The Union siege line consisted of artillery protected by earthworks and rifle pits manned by infantry.”<sup>184</sup>

The park protects and preserves the location of the Confederate linear system of earthworks, as well as the parallel system constructed by the Union army to support its attack and siege of the Confederates. The layout of these systems is reinforced by the placement of Union and Confederate Avenues that follow the defensive lines as part of early park development.

Landform played an important role in the spatial organization of the earthworks, and continues to influence the park’s spatial organization today. The primary organizing elements are the ridgelines and the two stream valleys. These include Glass and Mint Spring Bayous, which flow in a westerly direction and are more or less parallel to one another.

During the early twentieth century, two park roads were established to afford access to the earthwork systems and the monuments that were sited to mark key events and locations of the siege of Vicksburg. These two parallel systems are reinforced by park vegetation management practices that maintain the landscape associated with the earthworks, monuments, and road corridors in mown grass cover. In addition to the road margins, the park also maintains notable



**FIGURE 75.** The Railroad Redoubt is one of the recently cleared areas of the park that is now maintained in mown turfgrass. This view is from a position southeast of the Texas State Monument, looking southeast.



**FIGURE 76.** A cannon sitting into woodland, an example of how current vegetation is not consistent with historic conditions. There are many such examples within the park; this particular cannon is on Union Avenue, just south of Pemberton Avenue. This view is looking northwest.



**FIGURE 77.** Privet forms a screen planting along the park boundary to the northeast of Grant Avenue.

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184. Nancy Aiken Miller, “Vicksburg National Military Park National Register Nomination” (Vicksburg, Mississippi: National Park Service, September 1976), 7-1.

cleared areas in mown grass, including Railroad Redoubt (Fig. 75), Ewing's Approach, the visitor center, Stockade Redan, old Jackson Road, and the Great Redoubt areas, as well as the area in between Fort Garrott and Hovey's Approach in the south end of the park.

Otherwise, much of the undulating landscape of ravines and ridgeline side slopes is currently vegetated with woodland. Aerial photographs of the park dating from the late twentieth century indicate the extent of woodland cover associated with the park. The degree of woodland cover has increased dramatically since park establishment, as evidenced by many of the emplaced cannon pointing into woodlands (Fig. 76).

Many of the park's boundaries are edged by contemporary development that is not consistent with the historic character of the site. Evergreen shrubs such as privet are used to screen views of features outside the park (Fig. 77). Woodland cover along park boundaries also serves as a defined edge to the open space areas of the park. The primary exception is the open view toward the Yazoo River Diversion Canal afforded from Connecting Avenue, the USS *Cairo* Museum, and Fort Hill. The elevated topography in the northwestern corner of the park overlooks the river and allows for long views toward and along the river. A ten-foot wide corridor of the park boundary is maintained clear of woody vegetation to reduce the fuel load and associated fire hazard as a fire break at the wildland/urban interface. The boundary clearing effort is an on-going process.

The city-owned roads that extend south from the park toward the river, and were once included within the park, are linear parkways that are partially protected from commercial and high density residential development. These road corridors have a linear and internally-contained spatial quality, and parkway-like character composed of trees, shrub plantings, and mown grass, punctuated by monuments and tablets. Views are afforded from these road corridors to surrounding contemporary residential, commercial, and institutional development that are inconsistent with their original historic character.

## Land Uses and Activities

The primary land use of Vicksburg National Military Park is commemoration. Other land uses include education/museum/interpretive, visitor services, recreation, administration, maintenance, and military staff rides for training purposes.

**Commemoration.** Commemoration is the primary land use of the park as directed by its enabling legislation. Commemoration takes the form of monuments, statues, busts, relief panels, tablets and markers that honor commanders as well as common soldiers, and identify places on the battlefield where troops were positioned and where significant action took place.

**Education/Museum/Interpretive Land Use.** Opportunities for education and interpretation include exhibits and park rangers available to convey information at the visitor center and the USS *Cairo* Museum, the interpretive information afforded along the park tour road and in association with the numerous tablets, monuments, and markers located throughout the park that help to convey the stories of the 1863 siege and engagements (Fig. 78). The park conducts a Living History program each summer in which rangers and volunteers offer interpretive talks and demonstrations to the public. These include artillery and rifle firings and reenactments of drills performed by Civil War soldiers held at the reconstructed earthworks at the visitor center.

**Visitor Services Land Use.** Visitor services provided by the park include ranger contact, comfort stations, water fountains, a gift shop, interpretive films, museum facilities, and picnic areas. Most of these are available in the visitor center and the USS *Cairo* Museum.

**Recreational Land Use.** Recreational land uses associated with the park include walking and biking along the park tour road, and hiking along the park's wooded trail.

**Administration Land Use.** NPS administrative offices are located in the visitor center. Office space is also associated with the archival storage facility located behind the USS *Cairo* Museum, and the museum itself. The Old Administration Building is used for meetings.

**Maintenance Land Use.** The majority of the park's maintenance facilities are located in the maintenance complex northeast of the visitor center (Fig. 79). There are also storage and repair facilities located behind the USS *Cairo* Museum.

**Military Training Land Use.** The U.S. Armed Forces frequently conducts staff rides for the training of military officers at Vicksburg National Military Park.

### Circulation Patterns and Features

Park roads generally follow level topography wherever possible. In some locations, switchbacks are used to navigate steep grades. Numerous bridges and culverts carry park roads across ravines and wet areas.

The predominant circulation feature associated with Vicksburg National Military Park is the circa 1903–1905 tour road, which was initially designed for horses and carriages, but was later adapted for the automobile. Originally surfaced with hard-packed earth, and later gravel, the tour road is currently paved variously with concrete or asphalt. Extending for some sixteen miles, the tour road allows visitors to experience both the Union and Confederate siege lines. The tour road is comprised primarily of Union and Confederate Avenues. Three additional roads extend between them that are also part of the park tour route: Connecting Avenue, Pemberton Avenue, and Graveyard Road. A portion of the historic Jackson Road has also been incorporated into the park tour route. In the northeastern corner of the park, two spur roads lead from Union Avenue to the sites of Gen. Ulysses S. Grant's Headquarters and Gen. William T. Sherman's XV Army Corps Headquarters. South of the visitor center, the tour road is a single continuous route known as the South Loop. The tour road functions as a guide



**FIGURE 78.** The park's educational and interpretive land use is well-represented outside the visitor center, looking north from the parking area, where there is a display of the artillery used during the siege. The replica earthworks used for Living History demonstrations can be seen in the background.



**FIGURE 79.** Maintenance land uses are focused within the maintenance complex, north of the visitor center.

and narrator, carrying visitors along the two opposing lines and providing access to many of the monuments. There are fifteen designated interpretive stops along the route that highlight the pivotal events of the siege. The tour road also provides access to Vicksburg National Cemetery and the Shirley House, appropriated during the siege as a Union regimental headquarters.

The park's tour road was originally designed as a two-way system that most visitors approached from the City of Vicksburg and thus began with the Confederate line, moving clockwise around the park. Currently, visitors are directed first to Union Avenue and move counterclockwise through the park. The current tour route was completed in 1980 after construction of Mission 66 Road in 1979, built to reroute local through traffic. The new route also responded to the 1968–1970 construction of the visitor center and U.S. Highway 80. Most visitors now approach the park from the east due to its proximity to Interstate 20.

The primary entrance to the park occurs from Clay Street (U.S. Highway 80), west of Interchange 4 of Interstate 20, near its intersection with Old Mississippi Highway 27. The park entrance leads to the parking lot associated with the visitor center as well as a manned entrance booth where visitors pay a fee before beginning their journey along the tour road. Just past the entrance booth, the tour road passes beneath the Memorial Arch onto Union Avenue.

The first stop along the tour road interprets the Union Battery De Golyer, from which attacks on the Confederate Great Redoubt and Third Louisiana Redan were staged. The second stop occurs near the Shirley House, where a sloped embankment sheltered Union regiments poised to attack the Great Redoubt and Third Louisiana Redan. The third stop along the tour route is the site of several Union mining operations directed at reaching Confederate earthworks undetected. Tour stops four, five, and six interpret various Union efforts to attack Confederate positions, including Ransom's Gun Path, Stockade Redan approaches, and Thayer's Approach along Union Avenue. Tour stop seven interprets Battery Selfridge, the site of a powerful Union artillery

position directed at Fort Hill and Confederate positions to its east. Tour stop eight occurs within Vicksburg National Cemetery to the southwest of Battery Selfridge.

Union Avenue terminates in a three-way intersection affording access to the parking area of the USS *Cairo* Museum, the Vicksburg National Cemetery, and Connecting Avenue, a short segment of road along the park's western edge that leads to Confederate Avenue beginning at Fort Hill, that follows the Confederate defensive line of earthworks. A secondary entrance into the park also occurs along Connecting Avenue at the northern terminus of Fort Hill Drive. A manned booth for fee collection is located at this entrance. Two small circles extend from Confederate Avenue to provide access to the Tennessee State Memorial, located northeast of Fort Hill, and the Pemberton Statue south of the Mississippi State Monument. Similar circle roads around monuments that were part of the early park design were eliminated between 1940 and 1978.

Tour stop nine is located atop Fort Hill, a key position held by the Confederates during the siege. This stop overlooks the Yazoo River Diversion Canal and the former alignment of the Mississippi River. Tour stops ten, eleven, and twelve are located at the primary fortification features, including Stockade Redan, Great Redoubt, and the Second Texas Lunette. To the northwest of the visitor center, current-day Confederate Avenue reaches its southern terminus. A connecting road leads beneath a concrete overpass that carries Clay Street west toward the City of Vicksburg, and across a nearby rail line via bridge to the park's South Loop. The tour road continues as a one-way road corridor that includes three additional tour stops. These tour stops interpret the Confederate fortifications known as Railroad Redoubt and Fort Garrott, as well as Hovey's Approach and the Union efforts to overcome Fort Garrott.

Twelve city streets pass through portions of the park, including Lovers Lane, Fort Hill Street, Washington Street, Tilghman Circle, Martin Luther King Drive, modern Jackson Road, Clay Street, Haley's Point Road, Culkin Road/Logue

Circle, Melborn Place, Rodehauger Drive, and Honeysuckle Lane.

Lovers Lane is located along the southern margin of the northern section of the main battlefield unit, and runs parallel to Confederate Avenue. A section of the road is located within the park boundary between the Tennessee State Monument and west of Thayer's Approach. Efforts have been made to screen views of the road using vegetation.

West of Fort Hill, the park boundary jogs west to the margin of the Yazoo River Diversion Canal, extending across both Fort Hill Street and Washington Street. Tilghman Circle is located west of Great Redoubt. It is a dead-end residential-scale street that leads east from Martin Luther King Drive, a portion of which also falls within park boundaries. Also abutting the park to the west with a section falling within park boundaries is Melborn Place, a residential dead-end street that extends from Clay Street, across the rail line, and west of the Railroad Redoubt.

Modern Jackson Road extends through the center of the park below the grade of the park tour road; no access to this road is afforded from the park. Heavy vegetation associated with the ravine and the road help to screen the corridor from the park. However, travelers frequently litter along the road corridor, and the noise of vehicular traffic can be heard in the park. Clay Street (U.S. Highway 80) similarly passes through the center of the park, and crosses into the park boundary.

To the east of the park are Haley's Point Road and Culkin Road/Logue Circle, portions of which fall within park boundaries. These residential streets fall within the park to the east of the Shirley House and southeast of Battery De Golyer. Also located along the eastern margin of the park's South Loop is Rodehauger Drive and Honeysuckle Lane, portions of which extend into the park boundary.

A portion of Sherman Avenue administered by Warren County also falls within park boundaries in the northern section of the park.

Changes in park boundaries have affected the tour road. In 1963, approximately 154 acres of the park

between Fort Garrott and South Fort south of the current South Loop were quitclaimed to the City of Vicksburg in exchange for land along the northern boundary. The historic road corridor—known as South Confederate Avenue—winds along the southern extension of remnant Confederate earthworks. As part of the quitclaim agreement, the road continues to be managed by the City of Vicksburg as a monument-lined parkway. Additional roads—Indiana Avenue, Wisconsin Avenue, Halls Ferry Road, Iowa Avenue, and Frontage Road—lead off of South Confederate Avenue where monuments, markers, and tablets can be viewed. The City of Vicksburg maintains these roads, while the NPS maintains the monuments.

There is little in the way of pedestrian circulation within the park. The primary pedestrian features are walks associated with the visitor center, the Shirley House, and USS *Cairo* Museum, and stairs and walks providing connections between parking areas or pull-offs and key monuments and vistas. Pedestrians also use the park tour road for walking. A primitive hiking trail that extends through the woodland portion of the park is denoted by white-topped entrance posts, mile markers, and trail blazes painted on trees.

Each of the park's primary circulation features is described in the order in which they are encountered by visitors in more detail below.

**Clay Street (U.S. Highway 80) and the Park Entrance.** Clay Street is state- and city-maintained forty- to fifty-foot-wide, four-lane, asphalt-paved road with a median and a grass shoulder that extends through the park landscape. Clay Street is a busy arterial corridor that conveys motorists between Interstate 20 and downtown Vicksburg. The road corridor, built on fill, is both physically and visually intrusive to the park's setting (Fig. 80).

Visitors enter the park at the intersection of Clay Street and Old Mississippi Highway 27, where there is a traffic light. Earthworks and emplaced cannon flank the entrance corridor. Visitors can choose to park in a large asphalt paved parking lot near the visitor center entrance, or continue to the



**FIGURE 80.** Clay Street is a heavily utilized municipal road that bisects the park, and services its main entrance. Commercial development on this road is visually intrusive to the historic character of the park. An overpass conveys Clay Street over an internal park tour road. This view is from south of the visitor center parking lot, looking southeast.



**FIGURE 81.** Union Avenue is the one-way asphalt-paved half of the park tour road that runs up its eastern and northern sides, following the Union siege lines and interpretive tour stops. This view is where it makes a hairpin turn to the east just past the Minnesota State Monument, looking east.



**FIGURE 82.** Pemberton Avenue connects Union and Confederate Avenues and provides access to the Surrender Interview Site Monument and the Old Administration Building. This view is looking north.

manned booth where they can access the park tour road.

**Union Avenue.** Union Avenue is a sixteen- to twenty-foot-wide, one-lane, one-way, asphalt-paved road that is periodically edged by parking pull-offs associated with tour stops and monuments. A white stripe defines a walking lane along portions of the road margin (Fig. 81). Portions of Union Avenue are edged by concrete curbs on one or both sides, while some steeply-sloped sections are edged by asphalt-paved drainage ditches. Relatively level sections are edged by grass shoulders. The condition of Union Avenue varies along its length, but is generally in good condition. Condition issues observed include cracked and spalling pavement, grass growing into the road prism, and vegetative growth associated with pull-offs and parking areas. The majority of the area between Union Avenue and the park boundary is densely wooded. Existing vegetation helps to screen views of contemporary development outside of the park.

**Pemberton Avenue.** Pemberton Avenue is a quarter-mile long, twenty- to thirty-foot-wide, two-way, two-lane, concrete-paved park road, with numerous asphalt patches, located near the middle of the main battlefield unit of the park. Pemberton Avenue leads between Union and Confederate Avenues, and provides access to the Surrender Interview Site Monument, as well as to the Old Administration Building. Its southern section is edged by grass shoulders, while the south side of the northern section is edged with a concrete gutter. The landscape to either side of Pemberton Avenue is maintained in mown grass and views from the road area afforded of rolling terrain and nearby earthen fortifications and associated monuments, such as the Great Redoubt and the Louisiana State Monument. The road is generally in fair condition with cracked asphalt along the shoulders and at various expansion joints (Fig. 82).

**Old Jackson Road.** Old Jackson Road is a historic corridor that extends through the center of the park's main battlefield unit south of the Shirley House. The center segment of the road has

been appropriated for park circulation as a spur offshoot of the tour road. The spur ends in a parking area and turn-around located near the Third Louisiana Redan. Traces of the historic road continue beyond the spur to the southeast and northwest. The central section is asphalt-paved and twenty to thirty feet wide. It is two way, and has two lanes. An additional line of approximately ten head-in parking spaces edges the road adjacent to the Illinois State Memorial. The corridor is edged by a grass shoulder except at the parking and turn-around areas where it is edged with concrete curbing. The paved segment is in good condition.

To the northwest, the Old Jackson Road trace leads to and intersects Pemberton Avenue and Confederate Avenue. To the southeast, the trace continues to the park boundary. The trace is maintained as a ten-foot-wide, gravel, two-track. Portions are edged by berms or higher grades of several feet. This trace is closed to vehicular traffic but is open to pedestrian use (Fig. 83).

**Graveyard Road.** Graveyard Road is a quarter-mile-long, fifteen- to twenty-foot wide, two-lane, two-way, asphalt road in the northern third of the main battlefield unit that extends between Union and Confederate Avenues. The historic road corridor is edged by grass shoulders, and is in good condition. Tour stops five and ten are located at either end of the road and interpret Stockade Redan and Union attack of the fortification. Monuments, position markers, and tablets line the road corridor (Fig. 84).

**Grant Avenue.** Grant Avenue is located in the northeast corner of the park. It extends east from Union Avenue, and provides access to Sherman and Grant Circles. The road is two-way, approximately twenty feet wide, and paved with asphalt. It has a grass shoulder. State monuments located along this road include Kansas, Rhode Island, and New York. Also located along the road corridor is the Mississippi African American Memorial. A small concrete parking area with concrete wheel stops is associated with the monument (Fig. 85). Grant Avenue is in good condition.



**FIGURE 83.** A spur of the tour road follows the historic Jackson Road trace and provides access to the Shirley House, Illinois State Memorial, and the Third Louisiana Redan. A continuation of the historic road trace (in the foreground) is a two-track gravel road that is not open to public vehicular access. This view is from the Third Louisiana Redan looking east.



**FIGURE 84.** Graveyard Road connects Union and Confederate Avenues in the northern part of the park's core area at the tour stops associated with Stockade Redan Attack and Stockade Redan. This view is from in between those two sites, looking west.



**FIGURE 85.** Grant Circle marks the site of Maj. Gen. Ulysses S. Grant's headquarters. This view is from the southern half of the circle, looking east.

**Sherman Circle.** Sherman Circle arises from Grant Avenue near its intersection with Union Avenue. The road leads north and ends in a one-way circle. The initial two-way section is approximately twenty feet wide, asphalt-paved, and edged with concrete curbing, while the one-way circle is approximately ten-feet-wide, asphalt-paved, and edged by curbing to the outside and a grass shoulder to the inside. The road is generally in good condition. The character of this area is unique within the park and derived from a grove of pine trees with high canopies (Fig. 86). Sherman Circle was formerly connected to the north with Sherman Avenue, a road corridor that was quitclaimed to Warren County in 1964.

**Grant Circle.** This one-way loop terminates Grant Avenue. The circle marks the site of Major General Ulysses S. Grant's headquarters during the siege. State monuments have been placed along the circle road by New Hampshire, Pennsylvania, and Massachusetts.

**Connecting Avenue.** This mile-long, two-lane road is approximately sixteen feet wide, asphalt-paved and edged by grass shoulders. It is in good condition. Connecting Avenue runs south and slightly west from between the intersection of Union Avenue and the USS *Cairo* Museum parking area to Confederate Avenue, which begins just southwest of Fort Hill. Connecting Avenue parallels and overlooks the Yazoo River Diversion Canal.

**Confederate Avenue.** Confederate Avenue generally runs along the western boundary of the park. The one-way road is twenty feet wide, has a single lane, and is primarily paved with concrete, although sections have been repaved or patched with asphalt. Concrete curbs, swales, and gutters edge the road corridor in places. A white stripe along the left side of the road designates a walking lane for pedestrians. As the concrete shows cracking and wear in many places, the road is considered to be in fair condition (Fig. 87).

**Kansas City Southern Railway Line.** Formerly known as the Southern Railroad of Mississippi, the Vicksburg and Jackson Railway,



**FIGURE 86.** Sherman Circle has a very different vegetative character than other areas of the park. This view is from the western side of the one-way loop terminus, looking northeast.



**FIGURE 87.** Confederate Avenue follows the Confederate fortification siege lines along the southern and western halves of the park. It is twenty feet wide and paved mostly in concrete, in many places in only fair condition. This view is looking south, south of the bridge that crosses modern Jackson Road.



**FIGURE 88.** The Kansas City Southern Railroad extends through the park at the top of the South Loop. This view is from a position standing east of the Texas State Monument, looking east.

and the Vicksburg and Clinton railway, the Kansas City Southern Railroad extends through the park to the north of the South Loop (Fig. 88). During the siege, Confederate forces established Railroad Redoubt to guard the rail line as a potential Union avenue of approach. The area around the redoubt and rail line was cleared of woodland in 2005 to enhance interpretation of these key physical relationships.

**South Loop.** The South Loop begins to the south of the visitor center. The road leading to the South Loop passes beneath a concrete overpass that conveys Clay Street past the park. It then passes over a bridge that spans the Kansas City Southern Railway line (Fig. 89) before splitting into the one-way loop that accesses the last three tour stops within the park. The one-way, single lane South Loop is approximately fifteen feet wide and paved with asphalt. A white stripe running along the left-hand side of the road designates a section as a pedestrian walking lane. The road is in fair condition due to cracking and patched sections of asphalt.

### *Other Circulation Features*

**South Confederate Avenue.** South Confederate Avenue (Fig. 90) is the primary road connecting the southern end of the park with the former Union and Confederate battery sites overlooking the Mississippi River south of the city. It extends between the vicinity of Fort Garrott to North Frontage Road, approximately one mile from the riverfront. South Confederate Avenue is maintained by the City of Vicksburg. It is a two-way, two-lane, twenty-four-foot-wide, asphalt-paved public road, edged variously by concrete curbing, gutters, and swales. South Confederate Avenue is a former park road that was quitclaimed to the City of Vicksburg in exchange for land now included within the northern portion of the park. As part of the transfer, the city is expected to maintain the road as a parkway. The park continues to maintain the various monuments, tablets, and other markers sited within the road corridor. Five state monuments—North Carolina, Florida, Maryland, South Carolina, and Virginia—are located along South Confederate Avenue. Privately-owned residential, institutional,

commercial, and industrial parcels edge the road. Curb cuts, signs, utility features, ornamental plantings, traffic signals, and features such as mail boxes line the road right-of-way.

**Related city roads.** A series of roads lead off of South Confederate Avenue that feature Civil War commemorative monumentation. From north to south, these include Indiana Avenue, Wisconsin Avenue, and Halls Ferry Road, Iowa Avenue, and North Frontage Road. North Frontage Road extends to Washington Street near the Louisiana Circle unit of the park. South Fort and Navy Circle are sited along this road to the south.



**FIGURE 89.** The South Loop is continuous one-way road that affords access to the tour stops south of the Visitor Center and Clay Street (Railroad Redoubt, Fort Garrott and Hovey's Approach). This view is west of the Texas State Monument, looking southwest.



**FIGURE 90.** South Confederate Avenue is not within the park boundaries but accesses monuments and sites which were once a part of the park before they were quitclaimed to the city in 1963. This view is looking southwest from halfway between Halls Ferry Road and Iowa Avenue.

## Pedestrian Circulation Features

**Tour Road Walking Route.** The margins of the park's vehicular tour roads have been adapted to accommodate pedestrian use. Many local residents use the tour road to walk, jog, and bicycle through the park. There is a guide to the park called "On Foot: The Runner's & Walker's Guide to Vicksburg National Military Park," which describes five loops ranging from approximately 2-3/4 to 10 miles long that visitors can follow to personalize their recreational experience.<sup>185</sup>

**Monument Access Walks.** Some monuments feature stairs and walks intended to facilitate visitor access. These include the Illinois State Memorial and the Wisconsin State Monument and a remnant brick walk alongside the road near the Mississippi State Monument.

Pedestrian paths and walks, while infrequent, also connect some parking areas and key siege and commemorative features. These include a concrete sidewalk and steps at Fort Hill, tour stop 5, at the Shirley House, a brick walk along the old Jackson Road parking area, a stair and path that lead to the Wooden Mortar monument below the parking area at the Third Louisiana Redan, a flight of concrete steps leading to the tunnel near Thayer's Approach, and exposed aggregate walks connecting the parking area and the visitor center.

**Hiking Trail.** The Al Scheller Boy Scout trail is a twelve-mile primitive hiking trail route, marked by white-topped posts and tree blazes, that provides a sense of the challenging terrain faced by soldiers during the siege. It was designed as a compass and orienteering course.

## Cultural Vegetation

In addition to the native woodland vegetation communities described above, the park includes limited examples of culturally-derived or maintained vegetation that serves a variety of

purposes. Ornamental plantings, including shrubs and flowering and shade trees, are associated with the park entrance, visitor center, and Old Administration Building. Native trees and shrubs as well as the invasive Chinese privet serve as a visual screen along the park's boundaries. Loblolly pine plantations are used to screen park boundaries in some locations. Road margins, major fortifications and other visible earthworks, monuments, and sites of high visitor use are generally maintained in open vegetative cover, particularly cool-season grasses. The most important species used in these areas is the non-native Bermuda grass (*Cynodon dactylon*), which is generally thought to provide a high level of protection against soil erosion. Some sloped areas have been planted in native warm-season grasses and are maintained through prescribed burning (Fig. 91), while crown vetch (*Coronilla varia*) is also in evidence on some open slopes within the park.

**Invasive Plants.** Vicksburg National Military Park saw massive disturbance during the Civil War, as terrain was cleared for the fields-of-fire associated with military artillery, and woody material was collected for use in fashioning obstructions, shelter, protective saps, and fuel for cooking and heat. The landscape of the siege has also been disturbed for hundreds of years through agricultural cultivation and foraging livestock. After the Civil War, various non-native plant species were introduced from Europe and Asia that are adapted to competition within disturbed environments. Some of these have become well-established, and troublesome residents of the park.

Today, as in most national park units, Vicksburg National Military Park is waging a battle to protect native vegetation communities from invasion by non-native species. The flora of Vicksburg contains more than eighty-three invasive plant species. Five of these are of particular concern within the park: kudzu (*Pueraria lobata*), Johnson grass (*Sorghum halepense*), Chinaberry (*Melia azedarach*), Chinese privet, and English ivy (*Hedera helix*). All are very difficult to control. Chinese privet occurs throughout the park, both adjacent to park boundaries and within the

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185. "On Foot," <[www.nps.gov/vick/planyourvisit/upload/Walking%20Map.pdf](http://www.nps.gov/vick/planyourvisit/upload/Walking%20Map.pdf)>, accessed September 4, 2007.

interior. Chinaberry and mimosa (*Albizia julibrissin*) trees occur all along the park boundaries. Chinese parasol tree (*Firmiana simplex*) occurs predominantly in the South Loop buffer areas, while Johnson grass dominates at Fort Hill.<sup>186</sup> Other invasive species of concern within the park, which are also problematic for park management include paper mulberry (*Broussonetia papyrifera*), Japanese honeysuckle (*Lonicera japonica*), Heavenly bamboo, (*Nandina domestica*), and trifoliate orange (*Poncirus trifoliata*).

Vicksburg National Military Park’s natural resource program focuses on managing invasive species, and on improving the park’s ecological integrity, using an existing invasive plant management plan (Fig. 92).<sup>187</sup> In addition to monitoring activities, the park conducts active control programs. The kudzu population, for example, is being aggressively treated by the park at twelve locations totaling approximately forty acres (Fig. 93). Kudzu is a perennial, trailing, or climbing vine of the legume family. During the growing season, this prolific plant can grow at a rate of a foot per day, easily covering and shading out trees and understory vegetation. It is considered one of Mississippi’s “Top Ten Worst Weeds.”<sup>188</sup> The kudzu population is being managed by a long-term program of repeatedly treating the leaves and stems of the plants with approved herbicides in an attempt to eradicate the plant from the area.<sup>189</sup> At least two treatments per year over a five to ten year period is anticipated by the park’s Natural Resources staff. Prescribed fire is another tool that is being used within the park to control kudzu as well as Johnson grass on Fort Hill. The park currently manages six burn units, including four acres at Logue’s Meadow, ten acres along Graveyard Road, ten acres at Thayer’s Approach, four acres at Fort Hill, eleven acres at Railroad Redoubt, and nineteen acres at Fort Garrott/Hovey’s Approach (Fig. 94).



**FIGURE 91.** View of native warm-season grass on the lower slopes of Fort Hill, from Connecting Avenue looking east.



**FIGURE 92.** Looking northwest down into one of the park’s kudzu management areas, off the South Loop, north of Fort Garrott. The NPS is waging a constant battle to protect native vegetation from invasive species.

## Views and Vistas

Views within the park focus primarily on the military terrain associated with many of the Civil War fortifications and the striking monuments that mark key locations of siege events, as visible from the park tour road system. There are also maintained visual connections between monuments and fortifications, and to monuments from road corridors. For example, from Pemberton Avenue there is a direct visual connection to the Great Redoubt and Louisiana State Monument. The areas maintained in mown grass often are used to afford views to these features; given the rugged and diverse landform of

186. Mactec, EA, 3–12.

187. “Nonnative Species,” <<http://www.nps.gov/vick/naturescience/nonnativespecies.htm>>.

188. “Mississippi’s 10 Worst Invasive Weeds,” <[msucares.com/pubs/misc/m1194.pdf](http://msucares.com/pubs/misc/m1194.pdf)>.

189. Mactec, EA, 3–12.

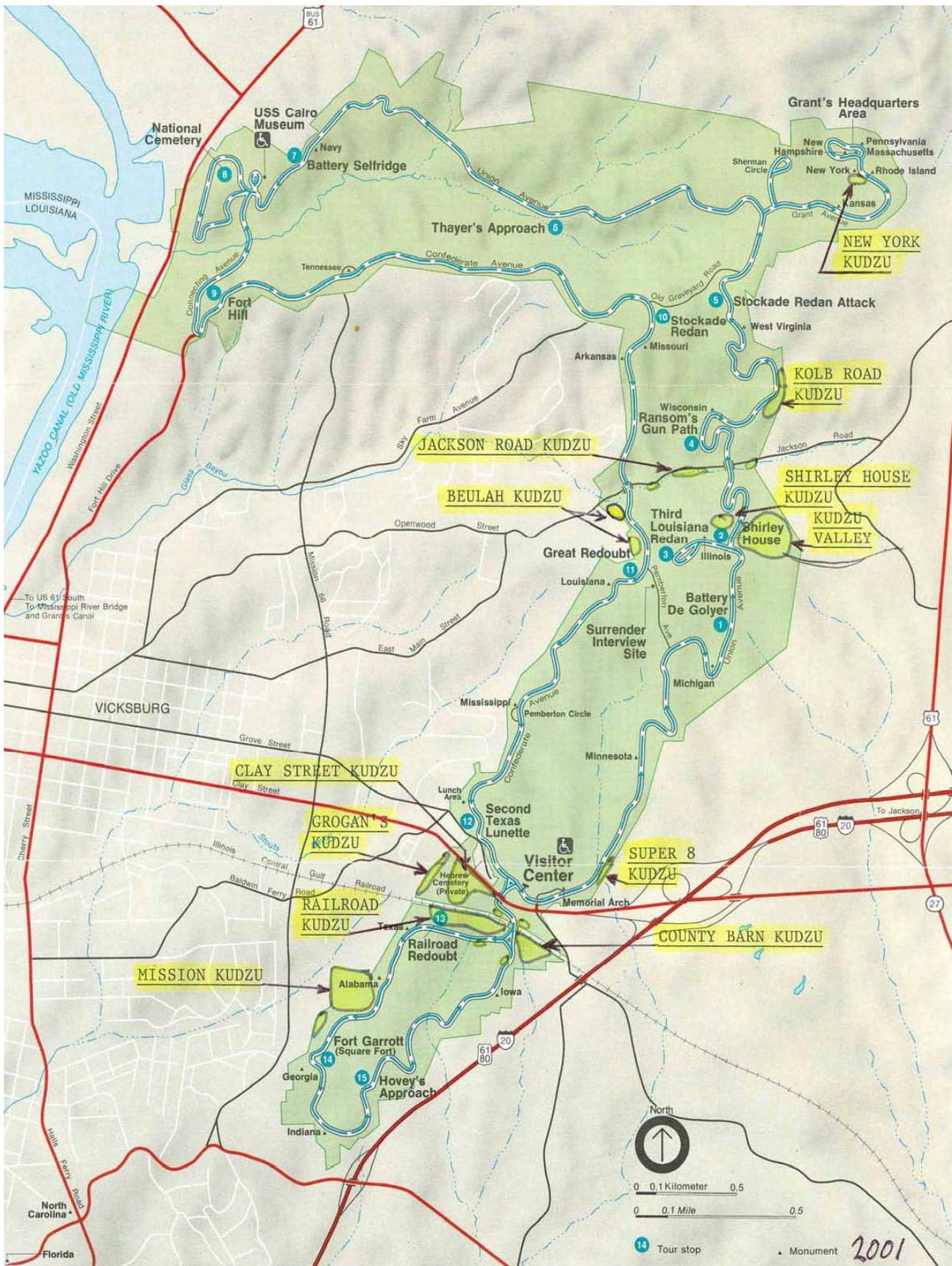
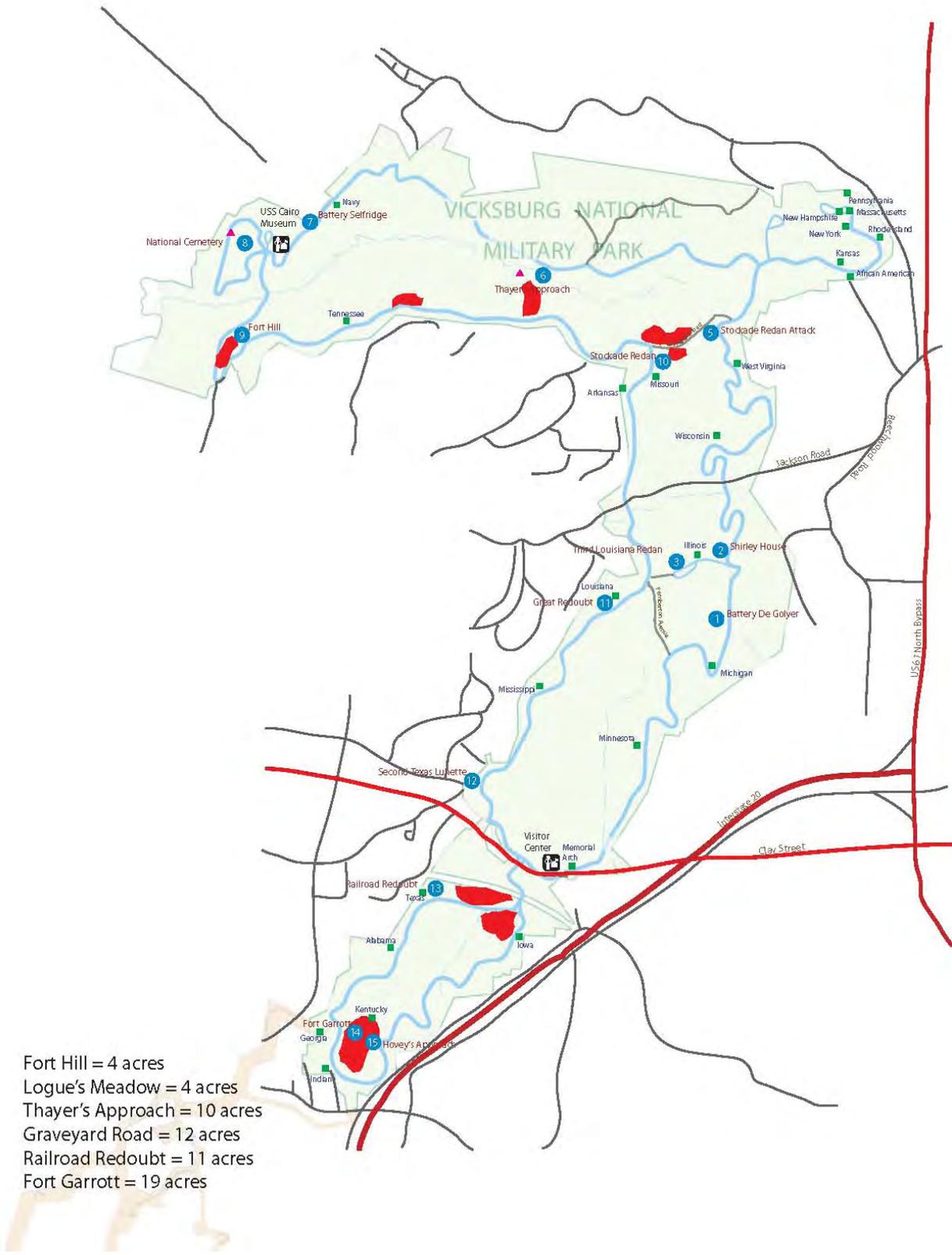


FIGURE 93. Map showing locations of present-day kudzu management within the park.



**FIGURE 94.** Map showing locations of present-day burn units within the park.

the Loess Bluffs, these views are often dramatic and express the challenges faced by the Union army in attacking fortified positions atop the ridges. Tree cover and woodland vegetation limits the extent of many of these views. In many locations, woodland cover currently blocks views associated with placed artillery pieces and visual connections that formerly existed between opposing fortification systems.

Some of the park's most expansive views occur along the northwestern edge of the park where views toward the Yazoo River Diversion Canal, the former Mississippi River channel, and the alluvial plain are afforded. The dramatic topography in this area includes Fort Hill (Fig. 95).

Views to non-historic features such as the contemporary Jackson Road corridor are screened through use of a separated grade crossing and woodland vegetation. Screen plantings help mitigate views of industrial, commercial, and residential development along the park's margins.

Over the past ten years, the park has conducted several woodland clearing projects to enhance historic viewsheds. In 1998, the park cleared thirteen acres along the South Loop and five acres of trees near the Louisiana Monument. In 2003, the park cleared trails that had become overgrown since the 1980s near and including Old Jackson Road. The most recent clearing project involved removal of ten acres of trees to improve the visual connection between Railroad Redoubt and the rail line it defended. Clearing was generally conducted in front of the redoubt. Other projects have involved clearing around Fort Garrott and Hovey's Approach, and an area south of Kentucky Avenue that includes the zigzag trenches of the Union approach.

**City-Owned Parcels.** Views of commercial development, such as along Halls Ferry Road, are increasingly prominent along the parkway-like city-owned road corridors.



**FIGURE 95.** From Fort Hill looking southwest, west and northwest, there are commanding, long-distance views over the Yazoo River Diversion Canal. This view is looking northwest.

## Buildings

There are eleven buildings located within the park. These include the antebellum Shirley House, the maintenance buildings and garages, Old Administration Building, visitor center, USS *Cairo* Museum, *Cairo* restoration shop, and operations storage facility. The park recently acquired two contemporary buildings along Rodenbaugh Drive behind the Iowa Monument that are not addressed in this report.

**Shirley House.** LCS 001362. The Shirley House was built by Nicholas Gray as “Wexford Lodge” between 1830 and 1839. Judge James Shirley purchased the property in 1851, and renovated the dwelling, which stood during and survived the siege; it was used by the Union army as a smallpox hospital in 1864.<sup>190</sup> The Shirley House is a one-and-one-half story wood-frame residence that faces south along the Old Jackson Road (Fig. 96 and Fig. 97). The 60-by-40-foot side-gabled structure has a wood-shingle gable roof, two asymmetrically-placed brick chimneys, and a brick foundation. The brick basement is accessible from grade along the rear (north) and side (east) elevations. To the east, the land falls away toward Union Avenue, and beyond where shebangs—excavated earthen caves—were used by soldiers to

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190. National Park Service, “Shirley House; Historic Structures Report” (Atlanta, Georgia: Southeast Region, Cultural Resources, 2004), 39–40.

avoid artillery fire. The exterior walls are white-painted clapboard. The first floor windows are twelve-over-twelve double-hung units with green-painted wood shutters. The building has undergone several renovations and alterations since the Civil War. Prior to the completion of the Old Administration Building in 1936, the Shirley House was used as the park headquarters. The interior is currently in poor condition and the building is not currently open to the public.

**Old Administration Building.** The Old Administration Building, completed in 1936, was designed to accommodate park offices. It was converted into the park Superintendent's Residence in 1944, and served this role until 1978 (Fig. 98). Located along Pemberton Avenue, the one story masonry building is designed in the Georgian Revival style based on "Monteigne," an antebellum house in Natchez, Mississippi. The Old Administration Building has a five-bay main block, and single-bay recessed blocks set symmetrically about the main facade. The walls are painted stucco. A pediment with dentils steps forward to meet the slate-covered hipped roof, covered with slate. Two interior chimneys flank a widow's walk atop the roof. The main entrance is set within a pedimented cross-gable-roof porch supported by paired columns set on a concrete porch. The windows are six-over-six double-hung units, and wood shutters flank the windows. Above the door and windows are semi-circular details. The building is visible from the Great Redoubt and Louisiana State Monument.

**Maintenance complex.** The maintenance complex includes a primary maintenance building comprised of offices and shops set around a central open space, and three garages. It is located northeast of the visitor center along a spur road leading west from Union Avenue near the start of the tour route (Fig. 99). The office and shop buildings complex was constructed in 1936. It is a single composition of one-story buildings, connected into two rows. The entrance into the



**FIGURE 96.** Shirley House, view of the front and east side from Union Avenue.



**FIGURE 97.** Shirley House, view of the back of the house from Union Avenue.



**FIGURE 98.** Old Administration building.



**FIGURE 99.** Maintenance shops constructed in the 1930s.



**FIGURE 100.** Contemporary maintenance facility.



**FIGURE 101.** Visitor center, front view from the main approach walk.

central open space is flanked by a pair of identical brick pavilion-like structures, that are connected to structures that extend west in a perpendicular fashion to the pavilions. The southern line of structures extends farther west than the northern line. The pavilions, one an office and the other a tool shed, are constructed of brick and feature hipped roofs clad with standing seam metal. The other structures, also constructed of brick with gabled roofs clad with standing seam metal, are for storage, truck garages, a blacksmith shop, and a workshop. Three additional buildings were added to the site in 1964. Two are corrugated metal and the third is brick (Fig. 100).

**Visitor Center.** The visitor center was constructed in 1968-70 based on Mission 66-era planned improvements at the park. One of the original tour loops, Indiana Circle, was removed and the knoll on which it was located leveled to accommodate the new building. The visitor center faces southeast toward the visitor parking lot, with Clay Street beyond. It is a two-story brick and cast-concrete structure set on a sloping site. Only the upper floor is visible from the main public approach afforded from the adjacent parking lot (Fig. 101 and Fig. 102). The building originally had a flat roof, but a sloped sheet metal roof was added in 1997. The upper floor houses exhibits, restrooms, a bookstore, auditorium, and visitor information desk, while the lower level houses park offices. A small addition to house an elevator was built to the north of the building in 1995.

**USS Cairo Museum.** The USS *Cairo* Museum is located in the northwestern corner of the park along Union Avenue with views toward the Yazoo River Diversion Canal (Fig. 103). Completed in 1980, the two-story museum is built into a hillside. The exposed, above-grade section has windowless, battered, brick clad exterior walls. The main entrance occurs through a round arch that leads to recessed glass doors. The roof of the museum is a raised terrace offering views of the *Cairo*, which is protected beneath a tensile tent-like structure nearby.



**FIGURE 102.** Visitor center, view of the rear side.



**FIGURE 103.** USS *Cairo* and museum.



**FIGURE 104.** View from a parking area and interpretive plaza looking north toward Fort Hill. The earthwork was one of the major earthworks associated with the Confederate line established to defend Vicksburg. It was later used by Union soldiers occupying Vicksburg after the siege.

A group of three additional buildings is located to the north of the parking lot for the USS *Cairo* exhibit and museum. The group consists of a contemporary garage, the Operation Storage Facility, the *Cairo* Restoration Shop, a curatorial management facility constructed in 1998, and the archive building, a climate-controlled curatorial management facility.

## Structures

The types of structures associated with the park include earthworks, monuments, bridges, culverts, a shelter, and a tunnel. Documentation of the park's monuments is divided between the Structures section and the Small-scale Features section later in this chapter. For ease of reference, all state monuments are documented under Structures. Other monuments of great size are also described under Structures, while smaller monuments and statues are discussed under Small-scale Features.

Almost all of the states that maintained troops at Vicksburg have installed a memorial to their soldiers at the park. The only exception is Vermont, which is authorized to erect a memorial within the park.

## Earthworks

From northwest to southeast, the surviving earthworks within the park include:

**Battery Selfridge.** Artillery are placed along Union Avenue near the U.S. Navy Memorial in association with low earthen parapet walls to mark the site of this key battery along the Union line.

**Fort Hill.** LCS 001360. Fort Hill is a four-sided earthen fortification, with parapet walls between twelve and fifteen feet in height, sited atop a high bluff overlooking the Yazoo River Diversion Canal (Fig. 104). First established by the Confederates as part of their defense line, Fort Hill was later modified by the Union army during their occupation of Vicksburg after the siege. It was rehabilitated using CCC labor between 1934 and 1937 (Fig. 34 and Fig. 35). The earthwork is currently maintained under mown grass cover. A

parking area, stairs, and an asphalt-paved walk afford access to the fort. Chain-link fencing edges the margin of the parking area and stairs where the slope falls away steeply below to ensure the safety of visitors. Fort Hill was assessed in good condition by the List of Classified Structures (LCS) in 2006.

**Stockade Redan.** (Not listed on the LCS.) Stockade Redan was designed and sited to defend against Union attack along the Graveyard Road. Stockade Redan was edged to the west by the Twenty-Seventh Louisiana Lunette and to the south by Green's Redan. It was constructed as a V-shaped fortification with a prominent ditch. The fortification was open to the rear, and included a traverse to aid in retreat or retrenching if the parapet was breached. The redan was named for the stockade wall of wooden poles with sharpened tops set in front of the earthen parapet and ditch as an obstacle. Today, the earthwork stands near the intersection of Graveyard Road and Confederate Avenue. The surviving earthen structure is maintained under mown grass cover, and interpreted through placed artillery, tablets, and monuments.

**Third Louisiana Redan.** (Not listed on the LCS.) This Confederate earthwork overlooked the Jackson Road atop high ground north of the road. It is accessible from the parking area located southwest of the Illinois State Memorial and the old Jackson Road trace that extends from the parking area. Numerous cast iron tablets recall the sapping and mining effort that resulted in a blast that formed a crater in the work on June 25, 1863.

**Great Redoubt** (LCS 007288). Sited to guard Jackson Road, the Great Redoubt was the largest and most formidable Confederate earthwork in the line, and occupied some of the park's highest ground. Rehabilitated between 1933 and 1936 using CCC labor, the grass-covered earthwork is rectangular in shape, with a twelve-foot-high parapet wall and a portion of a ditch in front. Confederate Avenue currently extends through a portion of the ditch; the Louisiana State Monument is located adjacent to the earthwork. A small parking area is located to the southwest of

the earthwork. The earthwork was assessed in good condition in 2006.

**Battery De Golyer.** Located along Union Avenue to the north of the Michigan State Memorial, Battery De Golyer is the site of a large Union battery during the siege. It is located at stop one along the park tour route, and a parking area is located to the south of the battery. A line of cannon interprets the battery position, which eventually included twenty-guns, the largest concentration of cannon along the Union line. It was used to assail the Great Redoubt and the Third Louisiana Redan. Earthen parapets frame pairs of emplaced cannon. The parapets are maintained under mown grass cover. These earthworks were likely rebuilt during the early park development period. Cast-iron tablets placed by the park commission are associated with the battery.

**Second Texas Lunette.** This earthwork originally guarded Baldwin Ferry Road. It is located near the Anshe Chesed cemetery along Confederate Avenue just north of Clay Street.

**Railroad Redoubt** (LCS 007286). Associated with the Confederate defensive line, the Railroad Redoubt was built to protect against attack along the adjacent rail line approach to the city. The fortification is roughly rectangular in shape, includes traverses along its apex, and has a fishhook extension at one end. It is maintained under mown grass cover (Fig. 105). A small parking area is located to the west of the redoubt for access, and stairs lead from the parking area uphill toward the Civil War feature and the nearby Texas State Monument. Railroad Redoubt was rehabilitated between 1933 and 1936 using CCC labor.

**Fort Garrott** (LCS 007292). Also known as Square Fort, Fort Garrott was part of the Confederate line that defended against attack to the southwest of the rail line. Fort Garrott is comprised of a square parapet fronted by a ditch system. A section of the parapet is missing where a drawbridge was located during the siege. The parapet currently ranges in height from twelve to

fifteen feet. The earthwork was rehabilitated using CCC labor circa 1933–1936. It was assessed in good condition by the LCS in 2006.

**Confederate rifle pits and other artillery positions.** There are numerous earthen structures located throughout the park that represent protected Confederate artillery positions along the defensive line established prior to the siege. These were placed periodically along the brows of the ridgeline between the major fortifications sited to protect avenues of approach. It is assumed that many of these structures were rehabilitated or reconstructed as part of early park development. Many are associated with emplaced cannon, iron tablets, and monuments. The park has 149 artillery pieces sited in historically-authentic locations throughout the park. Many of the cannon point into woodland that obscures the intended field of fire.

**Union batteries.** There are numerous earthen structures located throughout the park that represent Union battery positions established during the siege. It is assumed that many of these structures were rehabilitated or reconstructed as part of early park development. Many are associated with emplaced cannon, iron tablets, and monuments. As noted above, emplaced cannon are placed in historically authentic locations throughout the park; in many cases they point into dense woodland that has grown up during the twentieth century and now obscures the historic relationship between the artillery piece and its potential target.

**Demonstration Earthworks at the Visitor Center.** Representative earthworks flank the park's entrance drive, the visitor parking area, and the primary walk leading to the visitor center. These earthworks were part of the site design of the visitor center. Adjacent to the visitor center to its east is a demonstration area that includes a display of various artillery pieces, and exhibits features such as abatis that are associated with the Civil War earthworks at Vicksburg. The area is also used for artillery demonstrations (Fig. 106).



**FIGURE 105.** View looking west of the major Confederate earthwork known as Railroad Redoubt.



**FIGURE 106.** Replica earthworks and associated features near the visitor center are the site of Living History and artillery demonstrations in the summer.



**FIGURE 107.** The Missouri State Memorial is one of the monuments that have been affected by the change in orientation of the tour road. Approached by Confederate Avenue as it curves gently to the west south of Graveyard Road, the monument is at first viewed from behind. This view is looking back toward the east.